

MEETING TITLE: Task Force Meeting

DATE: October 25, 4-6:30 pm

LOCATION: OAME
 4134 N. Vancouver Avenue in Portland

Note: Please turn off all cell phones, handheld devices, and pagers during the meeting as they can disrupt the audio and recording equipment. Thank you.

TIME	AGENDA ITEM	ACTION
4:00 – 4:15	Welcome & Announcements Project Update	
4:15 – 4:20	September 27 Meeting Summary	Approval
4:20 – 4:35	Public Comment	Receive public comment
4:35 – 4:50	Freight Working Group Report	Discussion
4:50 – 5:10	Traffic Performance of Arterial Bridge Options	Discussion
5:10 – 6:10	Preliminary Alternative Package Evaluation Results	Discussion
6:10 – 6:25	Overview of Cost Estimate Validation Process (CEVP)	Discussion
6:25 – 6:30	Wrap Up and Next Steps	
	<p>Next Meetings: November 29, 4-8 p.m. WSDOT, Southwest Region Office, 11018 NE 51st Circle, Vancouver, WA</p> <p>December 13, 4-6:30 p.m. Portland State University</p>	

TriMet Route to the Task Force meeting from Portland:

From Downtown Portland (SW Salmon Street and 6th Avenue) take **TriMet Bus #40** (Mocks Crest to St. Johns) northbound to N Williams and Skidmore. OAME is 1 block west of this bus stop. For route information contact TriMet at 503-238-RIDE or www.trimet.org.

C-TRAN Route to the Task Force meeting from Vancouver:

From Downtown Vancouver (7th Street Transit Center) take **C-Tran Bus #105** (I-5 Express) southbound to Downtown Portland (SW Salmon Street and 6th Avenue). Transfer from Downtown Portland (SW Salmon Street and 6th Avenue) to **TriMet Bus #40** (Mocks Crest to St. Johns) northbound to N Williams and Skidmore. OAME is 1 block west of this bus stop. For route information contact C-TRAN at 360-695-0123 or www.c-tran.com and TriMet at 503-238-RIDE or www.trimet.org.

Meeting: Columbia River Crossing Task Force
Date: September 27, 2006
Location: WSDOT SW Region Headquarters,
 11018 NE 51st Circle, Vancouver, Washington

Members Present:

Last Name	First Name	Organization	Alternate Attending
Adams	Sam	City of Portland	
Ambruster	Grant	Portland Business Alliance	
Becker	Charles	City of Gresham	
Burkholder	Rex	Metro	
Byrd	Bob	Identity Clark County	
Cruz Walsh	Serena	Multnomah County	
Dengerink	Hal	Wash. State University- Vancouver	
Frei	Dave	Amada Neighborhood Association	
Fuglister	Jill	Coalition for a Livable Future	
Grossnickle	Jerry	Columbia River Towboat Association	
Halverson	Brad	Overlook Neighborhood Association	
Hansen	Fred	TriMet	Alan Lehto
Hewitt	Henry	Stoel Rives, LLP	
Holmes	Eric	City of Battle Ground	Denis Osborn
Isbell	Monica	Starboard Alliance Company, LLC	
Lynch	Ed	Vancouver National Historic Reserve Trust	Elson Strahan
Malin	Dick	Central Park Neighborhood Assn.	
Morris	Betty Sue	C-TRAN	Scott Patterson
Paulson	Larry	Port of Vancouver	Katy Brooks
Phillips	Bart	Columbia River Economic Development Council	
Pollard	Royce	City of Vancouver	
Schlueter	Jonathan	Westside Economic Alliance	
Stuart	Steve	Clark County	
Valenta	Walter	Bridgeton Neighborhood Association	
Walstra	Scot	Greater Vancouver Chamber of Commerce	
Zelenka	Tom	Schnitzer Group	

Project Staff Present:

Jay Lyman
 Heather Gundersen
 Dave Parisi
 Danielle Cogan
 Linda Mullen
 Rex Wong
 Ron Anderson
 Frank Green
 Gregg Snyder
 Kris Strickler
 Lynette Shaw
 Peter Ovington
 Barbara Hart
 Doug Ficco
 Jeff Heilman
 Mike Baker
 Ed Pickering
 Bob Hart
 Lynn Rust
 Audri Streif
 Claire Valdez

Members Absent:

Becker	Charles	City of Gresham
Brown	Rich	Bank of America
Caine	Lora	Friends of Clark County
Eki	Elliott	Oregon/Idaho AAA
Hinsley	Brett	Columbia Pacific Building Trades
Lookingbill	Dean	Regional Transportation Council
Pursley	Larry	Washington Trucking Association
Ray	Janet	Washington AAA
Russel	Bob	Oregon Trucking Association
Schmidt	Karen	Washington Freight Mobility Strategic Investment Board
Sundvall-Williams	Jeri	Environmental Justice Action Group
Wyatt	Bill	Port of Portland

1. Welcome & Announcements

- **Eric Holmes:** Resigned as city manager for City of Battle Ground.

--My last day with the City of Battle Ground will be Oct. 13. Denis Osborn, who is here, will fill in for me. He has filled in on the Task Force for me and is familiar with the CRC project and the process. He will transition seamlessly. Denis will take my place at the table later tonight, and I have enjoyed being involved in the project and look forward seeing something be built

<p>NOTE: <i>Task Force questions and comments are in italics</i> <i>(Staff responses are in parentheses)</i></p>

2. Acknowledge letter to Co-Chairs from Task Force business representatives

Scot Walstra briefly explained purpose of the letter to Co-Chairs :

--This is a culmination of some work that the representatives for business, freight, transportation and general economics in the region have put together. It is a summary to acknowledge the bridge has economic implications and opportunities well beyond the bridge influence area and is critically important to the economy of our region. We wanted to make sure that those of us who represent business, freight mobility, transportation, and the general economy are going to push for a bridge that really does add capacity, improves access, and that acknowledges the economic importance of this bridge to the region. We appreciate the opportunity to enter this into the record. This is a once in a lifetime opportunity, and the importance of this bridge to the western region is critical. That is really what this is about.

--At what point might this group expect a response to this letter?

(The co-chairs have asked project staff to draft a letter and we will have that ready in a couple of weeks to send around to the Task Force.)

--Part of the discussion we want to have is whether the current criteria will satisfy the needs that were raised here or if there are special ones we need to pull out and address

3. City of Portland moratorium on development on Hayden Island

--Hal: We did not have enough notice to put this in the agenda, We did not receive this early enough to notify the public of this item. Our ordinary rules indicate that this information is supposed to be made public ahead of time, we will have to address that before we can take action, perhaps make a motion to suspend the rules for this case.

Commissioner Adams introduced his proposal for Task Force consideration:

--The information being passed around summarizes the findings from David Evans and Associates and the internal review of aspects of the earlier version. We did pass a resolution noting this and we noted that we would be considering taking an actual position on the findings. DEA found that I-5 in the vicinity

of Hayden Island operates at full capacity for at least 7 hours a day, there is only one way on and off the island via I-5. During congested periods emergency vehicles experience delays and ramps exceed capacity. There is an increase in crashes, 75 percent are rear-end crashes, which indicates that the freeway is at capacity. Transit does not serve the island well. There is only a bus line that gets stuck in traffic. All residential capacity has been built, but there is still significant retail square footage that can be built in commercial zones. If there is evidence that there is a lack of transportation capacity and a lack of plans to deal with the transportation capacity, then a development moratorium may be imposed.

- **Action:** Approved - Suspension of the rules pertaining to taking action on a subject that was not presented to the public prior to the meeting.

--Bi-state coordinating committee and JPACT discussed this moratorium and decided to support it

--Does anyone have information about commercial development along the I-205 area?

Adams: Yes, that area was designed to support much more mixed use, and not necessarily IKEA. We have studied the effect of 8,000 to 13,000 additional trips to the area. They have fewer customers that stay longer, and they do not have the same impact as other big box stores. Outside experts show that the area can handle the traffic.

-- On Hayden Island, most of the new alignments being developed there are exactly through and over the big box areas. On the I-205 side those alignments are already defined.

- **Action:** Approved resolution presented by Commissioner Adams

4. Public Comment

- **Jim Howell:** Representing Association of Oregon Rail and Transit Advocates (AORTA). Submitted remarks in writing. The alleged need to retrofit the bridge has not been established. If the big one hits, the bridge over the Columbia River will not be our concern. The railroad bridge will be. The highway traffic has an alternate route to use in the chance of an earthquake, the rail system does not. The string of barges snaking through the river would be more likely to damage to the bridge than an earthquake. The top priority of the Columbia River Crossing should be a replacement of the swing span with a lift span on the BNSF railroad bridge. It would allow more barge totes to avoid bridge lifts. Traffic would be minimal because fewer bridge lifts would be required to allow barge traffic. If this can be kept to a minimum, then no other changes to the current bridge system is needed. If a lower speed limit is implemented to accommodate less sight distance, that would solve congestion problems. This brings into question the earlier decision of eliminating any bridge that has a lift span. We should consider the trade off of a low profile bridge with occasional lifts versus a high profile bridge expanding over the railroad field in downtown Vancouver. Building a low profile supplemental bridge with a lift span with retrofits to the railroad bridge would be far less expensive, not become an eye sore, would hold up during a major earthquake, and would enhance navigational ability.
- **Sharen Nasset:** I went to the Coast Guard hearing. I spoke with the bridge inspector and he indicated that he was really surprised that we are so obsessed with seismic of the bridge. It is not required by the federal government, would only be triggered if something was actually done to the bridge, including taking the on and off ramps off at Jantzen beach. He had never heard of an obsession and that the seismic mostly had to do with a bridge that is in A-1 status, meets all federal requirements. He had never seen pilings that were made so large. The drawings for

the new seismic upgrades were not to scale or were not done by experts because they were so enormous in scale to things he had seen before. The concern is that those would make the channels small. The pilings underneath are wooden. That is standard throughout the world and is commonly used in the Netherlands today. They do not decay because they do not hit air. These pilings that were driven into the ground are from old growth and are huge and are not 2 or 3 inches. These pilings are what is common, any bridge built before 1950, and most bridges now throughout the US use these pilings. The seismic issues, and the pile-on issues are both red herrings. And as many people have suggested...when are seismic upgrades called for? What triggers it needs to be answered. There is nothing wrong with those bridges. You will regret taking them down. I am glad DEA has finally recognized that Hayden Island has 7 hours of congestion.

5. Meeting Summary Approval

- **Action:** Approved - Draft summary of August 16, 2006 meeting summary

6. Design Concepts – Part Two

Transit presentation - Gregg Snyder

Highway presentation - Ron Anderson

Break to view maps on display in the back of the room

(There are not two different efforts at work with highway and transit. The engineers for both pieces work together everyday and on the maps in the back we have integrated the transit alignments into the highway alignment maps. I would like to reiterate that these are models that are being tested. We do not have the data to show how well they work. The input is needed to help decide whether or not these designs will answer the questions that need to be answered.)

Discussion

--We are going to begin collecting data about how these alternatives work. It is critical that we get your questions and input.

--On our transit models, we talked about measuring the impacts of these transit alternatives. We are looking at ending the transit alignment at SR-500, when we ought to be looking at the location north where one of the largest park n' rides we have is at 134th.

(During the next phase of work we will be looking at different transit alignments than what you have seen in the back in the room. Right now we are using the representative alignments to gather information about the modes.)

--You have already decided to go beyond to Clark College to Kiggins. Also, how many of those riders are coming out of 134? Instead of using a hypothetical park n' ride location, why not consider using one that already exists? It seems like it would give you a lot better data.

(We are making sure that those that use Salmon Creek park and ride would have a transfer to Kiggins, and as we move into the next phase we will be able to more appropriately determine where the right terminus should go. That decision will be made based on potential ridership and cost. Ultimately the right terminus is a function of ridership and the cost to fund it. We will be looking at those two factors in determining the right point to end the alignment.)

--How can you judge that if you are not going to assess it? How will you know how the more northern spots will perform?

(For the light rail alternative that stops at Kiggins, the modeling assumptions include transit service that will provide access to Clark College station and Kiggins Bowl from other areas. While it is not a perfect test, it will give us a sense of the potential level of transit ridership in those areas.)

--If that information is important, why not test it?

(At this point it is a matter of timing. We have a schedule to test a set of alternatives. We can certainly capture that idea as we move forward.)

--My understanding of where we are is setting up ways to choose the transit mode. Once that decision is made, then we can work through the alignments, stations, and bus stop decision in the next phases.

--Data is skewed against Bus Rapid Transit because it starts higher and does not transfer. It skews it not to study it more like Hal said. The comparison is unfair. In the I-5 strategy an alignment is not going to go to 134th, but down SR-500 to do the light rail loop. That is not portrayed in any of these models.

(We are not ignoring the recommendations. It is a question of timing at which we answer those questions.)

(We have a group made up of our six sponsoring agencies, and we reached the conclusion that these are fair ways to compare the transit modes. The data is not skewed. They comply with federal agency standards of ways to compare the modes.)

--How do you create the alignments? The alignments will affect how they perform. It can change cost, rider-ship, land acquisition, efficiency, right of way acquisition. It seems backwards to choose the mode, then the alignment. Why are we doing it this way? We need to choose the alignments based on our criteria first.

(We have done a lot of work to decide which alignments to test the modes on. We did look at many options. We settled on alignments that would work well for all the transit modes we are looking at.)

--What criteria did you use to decide those?

(Availability of right of way, cost, park and ride use, potential speed issues, transit market service. In Vancouver we have the benefit of the city's downtown plan that identifies a preferred alignment for high capacity transit.)

-- Are we using numbers outside the Bridge Influence Area (BIA) for commute times?

(We are looking at total time for trips through the BIA.)

--In each direction there would be three auxiliary and three through, which adds up to 12 lanes. Is that true?

(For design layout purposes we have looked at maximum amount of lanes, but we have not made any decisions on their performance or lane balance. That decision will be made in the DEIS process.)

--The agreement we came to was to look at 10 lanes, and now it has morphed. If that has changed we need to notify the public

--Alternative 4 is dead upon arrival, because Federal Transit Administration (FTA) is not going to approve light rail on a bridge that is not safe.

(We were trying to show some representative alignments for upstream, downstream, and supplemental. There is not one treated more favorably than another.)

--Are we evaluating the option of leaving a single bridge for ped/bike?

(Later tonight we are having a discussion on the use for existing bridges, including potential uses, and yes, the use for bike/ped is one of those uses.)

--What is the sequence for the rest of the year?

(This is the second of two meetings where we have been introducing the design concepts that were developed over the summer. The next two meeting in October and November will be starting to report the results of analysis that was developed. The last part of setting the stage for the upcoming discussion of analysis results will be the presentation this evening of the performance measures that were developed for each of the evaluation criteria adopted earlier this year. The next two meetings will be for presenting data for making decisions about a river crossing and transit mode to be carried into the DEIS. In November we will be presenting all the information we have available for making transit mode choices that will be studied in the DEIS. We will also be presenting the draft staff recommendation for those two key decisions and we will have a chance to have conversations about that. In January we will go public with that information and in February you will hear the public comments and have a chance to weigh in on whether we are going in the right direction.)

--When is freight modeling happening? When are we going to hear about how trucks will move in and about those designs?

(The freight working group is meeting regularly and is currently working on a memo that responds to the freight components that were developed. Hopefully we will have that soon. The metro modeling part that we are doing now includes trucks, and we will have that information this fall.)

--I was glad to hear discussion about the design alternatives and the variety of criteria being used. What is unclear is how you weighed those or measured them. Whether it is transit or roadway, we need to understand the weighing and criteria and why you have bundled thing up the way you have. There are a variety of good reasons why you did this, but it is not transparent.

(There are two parts to that. The first part is that this group adopted a set of criteria for the whole project. Those criteria are driving decisions down to the detail level, but when you get down to a decision about interchange ramps, for example, there are other things to consider as well. There are many ideas that we may have initially considered, but they may not have made it beyond the first doodle because they were not physically buildable. There are two levels of analysis. Most of what you are seeing today is the result of a lot of background work about what is feasible. While at the same time designers are thinking about the things that this group has said are important to them.)

(As we narrow the alternatives to go into DEIS, we are not going to ask this group to pick an interchange design, but we are looking for a decision on a river crossing and transit. Those two decisions will allow the EIS to evaluate options for the other pieces. The interchanges and such can be developed after the two main decisions have been made.)

--At what point do we discuss the performance measures? We didn't adopt these measures as I recall. Is that correct?

(There is time later to talk about these criteria and about how these were adopted. There was a technical analysis about how we measure these criteria. It has gone through a technical review and INTERCEP review. It is a report on how we think we can measure your criteria. We are not asking this group to approve that, but it is rather a report to you about how we think we can best measure the criteria you have developed.)

--If we have additions or changes to the evaluations, can we submit those?

(Yes, we certainly welcome your input on the measures, and we will try to incorporate those into our process.)

(We do have some constraints on this project. We are trying to stay in the BIA as far improvements we will make. As we talk about extending the line north, there is no justification to study anything like that. There is no existing line up there to connect to. We have to be careful about what we are trying to measure. As far as the measurements between light rail and BRT, they do compare apples to apples. There is only one option that has a boost compared to others and that is the express bus option because we have added an HOV lane north that would have benefits outside the BIA and will perform outside the BIA. I just want to remind everybody that we are trying to keep our cost inside the BIA.)

--If the supplemental bridge were to be kept, who would have ownership?

(Ownership is going to be a big question if we keep the bridges, and it will be centered around the functions of the bridges. If it carries transit, we will likely talk to our transit agencies, if it is for bike/ped use, then we will probably look to our local agency.)

--I think that ownership is something this group needs to think about. Also you show 60 foot ramps going through the Reserve and downtown Vancouver. But I want it on record that that is totally unacceptable.

--When you have an encroachment point on infrastructure of significance, what criteria is used to determine what is too high and what is not high enough? How do we arrive at a decision to what is ok or not?

(It would be measured through the environmental process; through air quality, noise, and the public process.)

--So in the illustration it is not a design criteria creating a pinch point?

(No, we were just trying to point out that there are options of going out versus going up.)

--How does that pinch point look with five lanes instead of six?

(We will carry out that analysis. We are being challenged by the City of Vancouver to provide a variety of options, and analysis will be done later to show those options.)

--The Historic Reserve looks forward to working with the Task Force to eliminate the option of having anything but ground level improvements. We have talked about a ramping system and have decided that would be detrimental to the Reserve. So we will be working with project staff to get a design that will be at ground level.

7. Report on Existing Interstate Bridge

Section 4(f) presentation – Heather Gundersen

Discussion

--Why is the “prudent” analysis separate from our criteria that we outlined? The values we’ve identified should define whether something is prudent. How can we proceed without the data?

(A lot of the factors do align with the criteria, it is laid out differently now for the sake of producing the 4(f) document. There are a lot of areas where we need more information such as cost)

(It is setting the structure for evaluation of the criteria. Tonight is not about conclusions, but rather a progress report about how things are unfolding. You are right that a lot of the pieces that will allow us to write the end of the story are forthcoming).

--Is it true that the DEIS will provide us with a lot of the information we need? The 4(f) process says you have to have your information in place after the DEIS. Won't we be able to get a lot of the 4(f) information we need from the DEIS?

(Yes, but right now we are making some key decisions. By next March we want to narrow the range of alternatives down to 3 or 4 and that group of alternatives may not include reusing the existing structures. As we take the 12 alternatives and screen those down and take a specific set in the DEIS, we need to make sure we have thought about this 4(f) process. We don't want get too far into the project before we have information needed for the 4(f) documentation.

--Why don't we do carry at least one supplemental bridge option into the DEIS so that we can get that information during the DEIS process?

(That is a strong possibility. All we are trying to do here is say that we are moving toward a decision that may or not affect 4(f). If that occurs we want to be prepared that any recommendation this group makes is supportable under federal law. A lot of it is going to come down to the strength of the information at that time. If at the end of this analysis in November, December, January or February we find that the sense of this group is that the information is very strong and supports a decision, we want to make sure that decision is supported under federal law. If the information does not support a conclusion then it will be that the information will come out at a later time.)

--Do we have to wait six months to get the data if we choose a replacement bridge?

(If we get a clear decision from the data presented in this phase then we can draw a conclusion now. If the information does not lead to a clear decision now then we want to make sure that our bases are covered as we go into the DEIS)

--Who reads the 4(f) documentation and makes the final decision to determine if we have complied with the process.

(Federal Transit Administration (FTA) and Federal Highway Administration (FHWA))

--If we went through this extensive documentation process, is there a significant chance that there is another administration that will not agree with this project?

(We are meeting with FTA and FHWA to make sure we meet all the documentation criteria and are providing all the information we will need in the end. They are helping us frame our argument.)

--The question is not whether the project is feasible or prudent, it is whether leaving the bridges is not feasible or prudent, which is an entirely different question.

(The law says that the resources are to be protected unless there are no feasible or prudent alternative. The way that is tested as we have set it up is by looking at the alternatives to leaving them in place.)

(You have to prove the negative. To be able to drop an avoidance alternative you have to show the negative, that it isn't prudent).

--4(f) seems to miss an important part used in all federal decisions. That is cost effectiveness.

Additional cost can make something not feasible.

(Yes, if the cost of keeping the existing bridges is significantly more than replacing them that could fail the prudence test. What is the difference in the cost is a question we are looking at for 4(f). Again, it is kind of proving the negative. If there is an extraordinary cost to keeping the bridges then that can become the test to determining the prudence of the option)

--Do the 4(f) laws only protect the bridge in its current location? Can it be moved?

(If it is moved it would be considered an adverse impact and so it would count as an impact to the bridge and would take it out of its historic status.)

--The 4(f) criteria only pertains to the northbound bridge, correct? The southbound bridge can be taken down without going through the 4(f) process?

(Yes, that is correct, but in two years the southbound bridge will be 50 years old, and will be up for review. It has been proposed before and the argument was that there was a current bridge next to it that is identical and is already listed so there is no reason to add the other.)

Can it be used for other uses and still remain on 4(f) compliant?

(Yes, any use as long as you don't change the character of the bridge. However, if the Coast Guard sees it not being used for transportation purposes, they can request that it be removed.

--All of the alternatives that include the existing bridges have very significant seismic upgrades required. Would that qualify it for not being used under 4(f)?

(Yes, that would be an adverse impact.)

Use of Existing Bridges presentation – Jeff Heilman

Discussion:

--Is there a requirement to preserve them, or just not damage them?

(It is a little of both. There is another law that does not allow it to just degrade, we would be required to do some preservation of it under 4(f))

--Something that is very critical is the seismic panel that met and the public needs the information available that says this bridge would not survive in a major earthquake. My council would like a summary of those conclusions.

(The seismic panel met in late August, a panel of national experts from all over the country, their work was completed just before Labor Day and their report is in progress. It will be available to this group and the public in 3 to 4 weeks)

--There are a lot of questions to be answered regarding the existing bridges. A lot of that information could be provided in the DEIS and should be included. Why would we spend all this money over the

short term?. Why not just recognize that that information will come from the DEIS? Will it be cheaper to do it later?

(If we find we can make a decision, and there is no reason to carry it forward, then we should take it off. We need to carry it forward until we have a supportable decision, but as soon as we reach that point the most cost-effective way to move forward is to act on the information.)

-- Stewart: Can I get a list of short term natural resource impacts during construction? Can I also get seismic status of the Willamette river bridges, and information about if the Steel Bridge was required to have seismic upgrades before light rail was put on it? What are the specific federal regulations about retrofitting requirements?

--Who currently owns the bridges?

(Joint ownership by the Department of Transportation)

--Can they just be abandoned?

(If no one wants it, normally we would just take it down. Since it is a historical site we have to go through other justifications to show why we would want to do that.)

8. Report on US Coast Guard Hearing

Jay Lyman provided a brief report on the hearing and open house held on September 21.

(On Sept. 21, the US Coast Guard, at the request of the CRC project, held a public hearing to hear testimony on the project. CRC gave a presentation about pier placement and some of the vertical and horizontal constraints associated with the bridges. A total of 60 people showed up and 17 people testified. Several people who testified either are on the Task Force or are represented on the Task Force. Some of the issues brought up were height issues, need to preserve navigation safety, preserving landing approaches at Pearson Air Park, and the need to address railroad swing span issues. Many of the folks who spoke said they were pleased that to this point they felt they have had the opportunity to speak and participate in the project. The hearing was covered in the news, reporters from The Columbian, The Oregonian, and Portland Tribune showed up.)

Jerry Grossnickle: *We brought the testimony from the Truman Hobbs hearing into the record. The navigation system currently is a hazard. It was concluded during that process that the funding for a rail bridge could not come from the Coast Guard but from highway trust funds, since it would benefit the freeway.. We as the Towboat Association have taken the position that since the conditions are dangerous, and we are predicting that there will be a major catastrophe, we would like to see that whatever is done with the I-5 crossing be an improvement over current conditions. If a new structure is put downstream, and if piers of the new structure impede access to the rail bridge, we cannot support any change that does not include total and free access to the I-5 bridge lifts. We believe the Coast Guard would back us up on this.*

(By placing a supplemental bridge downstream, there would be a pier that would be placed in the way of the channel that is under the high point of the bridge. The only way around that would be to make available the lift span channel at all times.)

9. Performance Measures

Mike Baker introduced the measures that are being used in the analysis of the preliminary alternative packages.

--This is a good list for folks to take home and look at. Try to decide if we are comfortable that they are meeting our evaluation criteria. We will need to have a greater discussion about these performance measures.

(They do represent the technical staffs' take at what will be supportable by the data we will have in hand that will allow us to respond to how well these criteria are met. They will also help us understand the costs and benefits of the equation as we look at cost effectiveness.

--How do we discuss through these, and are we comfortable that they are meeting criteria?

(The important thing to remember is that these criteria will also help us understand who benefits from that benefit. How is the data going to be that defined?)

--There are a couple of inverses – for example neighborhood cohesion. A number of neighborhoods could be rejoined together. Same thing under land use criteria. Such as the question of land lost, could we discuss land gained?

--I agree with taking a lot more time with understanding what is being measured. One thing I want to point out is the air quality effects general measure. I think it is important to know what exactly is being measured. What specific toxins are we looking at?

--This is a good opportunity for folks to drop into the CRC offices and talk to staff and learn and understand some of these things.

--When we were considering the evaluation criteria there was discussion about maintain versus enhance natural resources. We seemed to have lost that distinction.

(This is short hand. We have not lost that long hard earned text.)

Next Meeting Date / Location

Wednesday, October 25, 2006, 4pm – 6:30 pm at Oregon Association of Minority Entrepreneurs
4134 N. Vancouver Ave., Portland, OR

Appendices to Task Force Meeting Summary

Handouts from Task Force Members

- Appendix 1: City of Portland Commissioner Adams’
update about the temporary development
moratorium for Hayden Island**



CITY OF

PORTLAND, OREGON

OFFICE OF PUBLIC UTILITIES

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MEMORANDUM

September 27, 2006

To: Columbia River Crossing

From: Portland City Commissioner Sam Adams

Re: Temporary Moratorium for Hayden Island

Several weeks ago council gave their direction for us to explore the possibility of a delay of development on Hayden Island, and to lay out a process for planning for the island's future.

Over the past several weeks, we have conducted analysis on multiple aspects of the transportation system serving the island:

- I-5 and the on/off ramps
- Transit service
- Public safety
- Land-use capacity
- Public Safety access

All of these analyses support the case that the Hayden Island community has been trying to tell the City for quite some time: this island does not have the transportation capacity to absorb significant new development. It needs a smart and considerate plan.

On October 4, I will ask City Council to consider enacting a temporary moratorium on development for six months in the commercial and industrial zoned areas of Hayden.

The ordinance will have exemptions to allow for the following:

- A land use application which has been submitted and deemed complete prior to the effective date of the ordinance.
- An application for building permit for which intake fees has been paid and accepted for review prior to the effective date of the ordinance.
- An application for a building permit under Oregon Mechanical Specialty Code 2004, Oregon Plumbing Code 2005 and Oregon Electrical Specialty Code 2005. This would allow projects like HVAC systems, plumbing and electrical permits to continue.
- An application for a permit that is subject to the Oregon Structural Specialty Code 2004 Edition or any subsequently adopted editions of this code, for work on an

existing building if the Transportation Engineer determines the use of the building after completion of the work will not add more parking spaces and will not generate more vehicle trips than the prior use.

Under this ordinance, tenant improvements with the same use, would be able to continue. For example, if another grocery store moved into the former Zupan's location and did not expand the current facility but improved the inside of the building, they would be allowed to complete this project.

I would like your support for this ordinance.

Below, you will find summary points from the analysis.

David Evans and Associates Analysis

- Interstate 5 in the vicinity of Hayden Island experiences recurring congestion. During weekdays, I-5 operates at capacity conditions for at least seven hours each day.
- Since vehicular access is provided to Hayden Island via one interchange with I-5 and no other access roadways exist, I-5's existing capacity constraint significantly limits access to Hayden Island. During congested periods, automobiles, trucks, emergency vehicles, and buses experience substantial delay. Congestion-related delay of emergency vehicles can significantly affect public safety.
- I-5 in the vicinity of Hayden Island operates at level-of-service (LOS) "F" for three hours or more during both the AM and PM peak periods, which is inconsistent with policies from the City of Portland's Transportation System Plan and Metro's Regional Transportation Plan. These plans consider allowance of LOS F conditions for only one hour during each of the AM and PM peak periods.
- During peak periods, vehicles queued along I-5's southbound off-ramp can exceed the ramp's storage capacity, resulting in vehicles stopped within the ramp's deceleration area and along the I-5 mainline itself. This condition contributes to increased crash potential (over a recent five-year period, approximately 100 vehicular crashes were reported on southbound I-5 within two-tenths of a mile of the off-ramp).
- Vehicular queues can extend beyond the available storage capacities at five other key at-grade intersections on Hayden Island. These conditions result in operational capacity reductions and/or unexpected obstructions that can result in a vehicular crash.
- Interstate 5 in the vicinity of Hayden Island experiences high crash rates. Over a recent five-year period, 429 crashes were reported in the 0.5-mile segment of I-5. Over 75 percent of these consisted of rear-end collisions and 38 percent of the

crashes involved an injury to one or more people. The greatest proportion of crashes occurred when I-5 experienced congested conditions.

Portland Police Bureau

- The average high priority response time for the one year period from June 2005 to May 2006 was 5.13 minutes Citywide. For Hayden Island, the response time was 7.84 minutes.

Hayden Island Transit Service Assessment (Completed by Portland Office of Transportation)

- Hayden Island is only served by one bus route, TriMet Busline 6. While Busline 6 offers frequent service, service reliability is below average and access on Hayden Island to the bus is poor.
- Many of the streets on Hayden Island are privately owned and maintained and do not meet public street standards. Where sidewalks are present, many are narrow and not compliant with Americans with Disabilities Act (ADA) standards.
- The transit mode share for Hayden Island is 2.4% of the total daily trips made to and from the island. Hayden Island is designated a Station Community in the Region 2040 Growth Concept. This is low transit mode share in comparison to other retail centers that are also designated Station Communities and Town Centers.
- Currently, TriMet is analyzing potential route changes for Busline 6 that would terminate Busline 6 on Hayden Island, thus discontinuing service direct transit service between Hayden Island and Vancouver, WA.

Hayden Island Land Use Inventory Technical Memo (Completed by Portland Bureau of Planning)

- The residential zones are currently built to capacity and no additional units are anticipated. Additional housing units are only possible in the CG zone.
- The current retail configuration provides generous amounts of surface parking for the large format retail uses. Two redevelopment scenarios of the 1.2 million square feet of buildings on 4.7 million square feet of site area was calculated using both the minimum and maximum required parking standards of Chapter 33.266, Parking and Loading.

Retail Scenarios in the CG zone

	Lot area	Total building square feet	City parking requirements		Increase over existing in square feet	Increase in vehicle trips (Weekday) ²
			Minimum number of spaces	Maximum number of spaces		
Current	4,760,715	1,205,856	2,412	6,152	0	0
Scenario 1	4,760,715	2,828,540	5,657		1,622,684	80,240
Scenario 2	4,760,715	1,735,839		8,856	529,983	26,218

Note: Minimum parking spaces required for retail is one per 196 square feet of floor area and maximum is 1 space per 500 square feet of floor area.

- **Additional Industrial** - The eastern portion of the island has three vacant and one partially vacant industrial sites totaling approximately 1.01 million square feet of site area. Assuming that the typical size of an industrial facility in Portland, this area could yield an additional 303,000 square feet of building area. A large site in the western portion of the island is home to an auto wholesaler. These three sites total over 824,000 square feet with only 86,542 square feet of building area. Redevelopment of this site could increase building coverage from 86,542 to 247,206 – an increase of 160,664 square feet of industrial building area.

² **Trip Generation.** Institute of Transportation Engineers, 7th Edition, 2003. The manual states an average weekday trip rate of 4.20 vehicle trips per unit of High Rise Residential development. This is less than either Free Standing Retail or a Shopping Center development that generates an average of 56.02 and 42.94, respectively, trips per 1,000 square feet of retail space. Average weekday trip rate of 49.47 is used for project vehicle trip increase (average of 56.02 and 42.94).

Resolution before the Columbia River Crossing Task Force

Declare support for Portland City Council's consideration of a six-month moratorium on development within commercial and industrial zones on Hayden Island.

WHEREAS, the Interstate 5 bridge is a major lifeline for our community, linking Portland and Vancouver, WA and carrying the freight, commuters, and traffic that support the economy and vitality of the region and the West Coast;

WHEREAS, operation of the I-5 crossing over the Columbia River is directly influenced by the 5-mile segment of I-5 between SR 500 in Vancouver, WA and Columbia Boulevard in Portland, known as the I-5 Bridge Influence Area. This segment includes, among Hayden Island's interchanges, six other interchanges, including connections with four state highways and with several major arterial roadways, that serve a variety of land uses, and provides access to downtown Vancouver, two international ports, industrial centers, residential neighborhoods, retail centers, and recreational areas;

WHEREAS, the I-5 freeway in the vicinity of Hayden Island, including the ramps leading to and from the island, is currently operating at capacity during peak periods, which negatively affects vehicular travel on and off the island and threatens public safety;

WHEREAS, Hayden Island's limited entrance and egress, allowing only one way on and off the island by way of Interstate 5, often results in negative impacts on Interstate 5 and the Interstate 5 bridge including increased congestion, heavy delay, restricted access and increased public safety responses;

WHEREAS, an analysis of transit service to Hayden Island prepared by the City's Office of Transportation shows that Hayden Island is not well served by transit. Success in increasing transit service or ridership is limited by the physical barrier and congestion impacts created by I-5, poor street connectivity, substandard street conditions, and potential route changes that will increase travel times and decrease travel options;

WHEREAS, Hayden Island is currently underdeveloped and has significant potential for future commercial development, which will add a large number of vehicle trips to a congested freeway system and the island's substandard internal street system. A land use analysis prepared by the Bureau of Planning describes the existing and potential development under current zoning allows on Hayden Island;

WHEREAS, to avoid exacerbating existing deficiencies in the interstate, regional and local transportation system serving Hayden Island and to allow time for completion of studies that will help determine the location and impact of a new Columbia River I-5 bridge crossing on existing and potential development on the island;

WHEREAS, The Columbia River Crossing project is currently considering a new Interstate 5 bridge spanning the Columbia River and has not completed work identifying a locally preferred alternative that outlines the alignment, massing or design of a new crossing;

WHEREAS, The Portland City Council will hold a public hearing to consider enacting a six month moratorium on Wednesday, October 4, 2006 at 6pm;

NOW, THEREFORE, BE IT RESOLVED that the Columbia River Crossing Task Force hereby declares its support for a six-month moratorium on development within commercial and industrial zones on Hayden Island.

Appendices to Task Force Meeting Summary

Handouts from Public Commenters

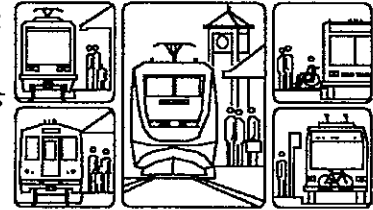
**Appendix 1: Jim Howell's comment: A systemic
 approach to the Columbia River Crossing**

Association of Oregon Rail and Transit Advocates

AORTA • P. O. Box 2772 • Portland, Oregon 97208-2772

Also known as OreARP • Oregon Association of Railway Passengers

Phone & Fax: 503-241-7185 • OregonRail@netscape.com • www.aortarail.org



Sept. 26, 2006

A Systemic Approach to the Columbia River Crossing

The alleged need to retrofit the existing bridges seismically has not been established. If the "big one" hits, the I-5 bridges over the Columbia will be the least of our concerns. The freeway system, with its scores of overpasses, ramps, viaducts and other structures that are vulnerable to a large earthquake will become immediately dysfunctional.

While the freeway system has the I-205 Bridge as an alternate route, the rail system doesn't. The BNSF Railroad Bridge carries more freight tonnage than the freeway and is the only transcontinental north-south rail link west of the Cascades. A string of barges snaking through the "S" curve of the barge channel is far more likely than an earthquake to put the railroad bridge out of commission.

A new supplemental bridge for local traffic and public transportation, built to modern seismic standards, would provide a more useful transportation link to the local road system, which would probably be the most functional system in the event of a large earthquake.

The top priority for the Columbia River Crossing should be the replacement of the swing span on the railroad bridge, with a vertical lift span located closer to the center of the river as recommended by the Columbia River Towboat Association six years ago. The shift of the barge channel to align with this new lift span would eliminate the dangerous downstream "S" curve maneuver required by tugboats wishing to avoid bridge lifts. It would also allow more barge tows to avoid these lifts during high water conditions.

Traffic disruption would be minimal because lifts would only be required for high vessels, which comprise only a small part of total river traffic. (*See Vessel Height vs. Annual Frequency* table, page 3, U.S. Coast Guard Fact Sheet, 9-21-06)

If lifts can be kept to a minimum, no changes to the current freeway bridges are necessary. The bridges were recently painted and their lifts refurbished. If their

approach ramps are removed (see Jim Howell's proposal of Sept. 12, 2005), and a 45 MPH speed limit is posted and enforced on the freeway in the bridge influence area to mitigate line of sight issues, the existing bridges will be able to accommodate the freeway's six lane capacity safely.

This brings into question the earlier decision of the Task Force to eliminate lifts on any new bridge. You should consider the tradeoff between a low profile supplemental bridge with a lift that would operate only occasionally, and a much more expensive high bridge with approaches flying over the railroad fill in downtown Vancouver.

Conclusion: Building a low profile supplemental bridge with a lift span, in addition to retrofitting the opening of the railroad bridge, would:

- enhance navigational and railroad safety;
- accommodate freeway traffic;
- provide greater flexibility in the event of a major earthquake;
- not become a major eyesore in downtown Vancouver; and
- be far less expensive than any new high span bridge.

Contact:

Jim Howell
3325 NE 45th Avenue
Portland, OR 97213
503 284-7182
jimhowell89@hotmail.com

Where We've Been

In the past month, CRC staff has been to the following events. The number of people reached is in parentheses.

Neighborhoods

Oregon:

- Piedmont Neigh. Assn. (20)
- Slavic Coalition (9)

Washington:

- Vancouver Heights Neigh. Assn. (15)
- Fairway/164th Neigh. Assn. (13)
- Shumway Neigh. Assn. (41)
- Meadow Homes Neigh Assn (13)
- 6th Annual Open House at the Public Safety Complex, Clark County Fairgrounds (20)
- Washington Grange (8)

Other

- Vancouver National Historic Reserve Trust (20)
- Portland Design Concepts Workshop (28)
- Metro Council (7)
- Task Force Meeting (17)
- EJ Training (13)
- The Oregon Chapter of the Air & Waste Management Assn. (27)
- African American Community Unity Breakfast (40)
- US Coast Guard Open House and Public Hearing (60)

The Totals

351 people reached in this one month period.

3,138 people reached since March 1, 2006.

What Else Is Happening?

Design Concepts Workshops

The Portland Design Workshop occurred Sept. 25 at OAME with 28 neighborhood and business leaders attending. City Commissioner Sam Adams gave the opening statement. A "mini" design workshop was held Oct. 5 for Shumway Neighborhood Assn. and attracted largest attendance at a design workshop with 41 present. Great feedback was received. Results from the three workshops held will soon be on the Web.

Focus Groups

The Vancouver focus group was held October 17, and received participation by 18 likely voters. We heard feedback about highway and transit issues in the region which will be used to develop questions for an upcoming survey. The Portland focus group is scheduled for October 23, 2006. Summaries for each of the focus groups will be available in early November.

Community and Environmental Justice Group

Nationally recognized Environmental Justice (EJ) expert Running Grass led a workshop and training on EJ issues for the CRC project on Saturday, September 30. The training gave the 13 participants from the Task Force, Community and Environmental Justice Group, and community members a better understanding of Environmental Justice. Strategies for addressing Environmental Justice concerns and identifying specific EJ issues facing the project were also topics of discussion. The Community and Environmental Justice Group will meet on Thursday, October 19 and Thursday, November 30.

Outreach Materials

- The CRC **newsletter**, Bridgenews, arrived in 9,800 mail boxes in late September. The newsletter has been translated into Spanish, Russian and Vietnamese. Locations for

foreign language distribution are being developed by the CEJ group.

- Changes to the most frequently used **traveling displays** have been made. These updates will help focus attention on the two most critical decisions the CRC project is facing now, bridge and transit options. A display is currently at the Fort Vancouver library and has received positive feedback and generated many written comments. In November the display will move to Portland Community College and Jantzen Beach Moorage.
- The electronic CRC **monthly update** for October was distributed October 19.
- A **Podcast** is being developed to target the age 15 - 25 audience. It will be hosted on a number of popular websites viewed by this age group.

Media Coverage

Traffic issues get left behind

James Mayer

The Oregonian - October 17, 2006

City halts Hayden Island projects for 6 months

Anna Griffin

The Oregonian - October 5, 2006

PDX Update - Development

Tribune staff

The Portland Tribune - Oct 5, 2006

Opinion - Freeway canyon: Put a lid on it

Tom Koenniger (editor emeritus)

The Columbian – October 4, 2006

In our view: Tolls Recommended

Columbian editorial writers

The Columbian – September 29, 2006

Is it time for a toll on the I-5 bridge?

KATU.com - September 28, 2006

Put I-5 toll on fast track, report hints

Thomas Rhyll

The Columbian – September 28, 2006

I-5 bridge's age either boon or bane

James Mayer

The Oregonian – September 28, 2006

State commission endorses toll roads

Journal staff

Daily Journal of Commerce – September 26, 2006

State Transportation Study Calls for Toll Roads

Jay Patrick

Kitsap Sun - September 22, 2006

River traffic complexity big obstacle for a bridge

Howard Buck

The Columbian - September 22, 2006

What We're Hearing

- Comments were received from 22 emails and five neighborhood association meetings. Some comments included:
 - Support for covering the freeway to connect downtown with historic reserve.
 - Two complaints over length of time to develop solution.
 - Make sure bridge has sufficient number of lanes to handle future traffic.
 - Give transit higher priority than cars and enhance freight access to ensure region's economic health.
 - Change I-5 alignment in North Portland to go near Portland Int'l Raceway and Expo Center to be least disruptive.
 - Add a roundabout on the east side of the Marine that would address the complex intersections of Marine Drive, MLK and local access.
 - Support for ideas that would reduce merging and weaving via lane change restrictions or an expressway concept from Hazel Dell south.
 - Favor any option that would feed SR 14 directly onto I-5 without having to exit onto local/arterial streets like is required now.
 - Commuters don't want to be downtown. Keep transit alignment on I-5 to allow commute to be as quick as possible.
 - Questions about tolling.
 - There should be a truck-only tunnel under the city with access to both ports.
 - BRT would be better for Clark County.



2007 Task Force Meeting Schedule

The 2007 Task Force meetings will be held on the fourth Tuesday of each month at either the Oregon or Washington departments of transportation building.

Oregon Department of Transportation (ODOT) :

123 NW Flanders St.
Portland OR 97209
Conference room A and B

Washington Department of Transportation (WSDOT):

11018 NE 51st Circle
Vancouver, WA 98682
Cafeteria

2007 Task Force Meeting Date	Time	Location
Tuesday, January 23	4 – 6:30 pm	WSDOT
Tuesday, February 27	4 – 8 pm	ODOT
Tuesday, March 27	4 – 6:30 pm	WSDOT
Tuesday, April 24	4 – 6:30 pm	ODOT
Tuesday, May 22	4 – 8 pm	WSDOT
Tuesday, June 26	4 – 6:30 pm	ODOT
Tuesday, July 24	4 – 6:30 pm	WSDOT
Tuesday, August 28	4 – 8 pm	ODOT
Tuesday, September 25	4 – 6:30 pm	WSDOT
Tuesday, October 23	4 – 6:30 pm	ODOT
Tuesday, November 27	4 – 8 pm	WSDOT
Tuesday, December 11	4 – 6:30 pm	ODOT

October 19, 2006

TO: I-5 CRC Task Force
FROM: Doug Ficco, CRC Project Director
John Osborn, CRC Project Director
SUBJECT: Preliminary Alternative Package Results- Oct 2006 Task Force Meeting
COPY:

The project team has been studying the 12 Alternative Packages and evaluating their performance relative to the screening criteria under each project Value (from the Vision and Values) adopted as part of the project's Evaluation Framework. The majority of screening results will be assembled and presented in October and November.

The first installment of results is now available and will be reviewed at the October meeting. This information is focused on the River Crossing and Transit options as they relate to the following five Value areas:

1. Community Livability,
4. Safety,
6. Stewardship of Natural Resources,
9. Growth Management/Land Use
10. Constructability

The results are presented at three levels:

Component Findings – These provide the most concise roll-up of findings for the two major decisions to be made in this phase. There is a summary for River Crossing options and one for Transit options. Each summary provides an overview of how the options perform on the screening criteria that have been measured to-date.

Value Performance – These provide more detailed findings organized according to each of the project's adopted Values. There is a separate sheet for each Value.

Criterion Performance – These provide the most detailed results. There is a separate sheet for each of the criteria that were used to evaluate how well the project components and alternatives meet the adopted values.

The second installment of results will be presented in November and will center on River Crossing and Transit results as they relate to the project's five remaining Value areas:

2. Mobility, Reliability, Accessibility, Congestion Reduction, and Efficiency,
3. Modal Choice,
5. Regional Economy/Freight Mobility,
7. Distribution of Benefits and Impacts
8. Cost Effectiveness and Financial Resources.

Some information may not be complete until after the November meeting.

The alternative packages were assembled largely to test various component options. In the attached documentation, the most relevant data are the findings related to specific river crossing and transit options. This documentation separates the impacts associated with river crossings from that associated with transit options from that associated with roadway/interchange options. It also notes how specific combinations may affect the performance of another component. The intent is to understand how each river crossing or transit mode choice, and combinations thereof, affect performance and impacts.

Briefly, the findings for river crossings and transit options from the analyses that have been done to-date are as follows.

For the River Crossing, the Supplemental Bridge options perform moderately better on some of the Community Livability criteria, including historic resources and residential impacts. Replacement bridge options perform significantly better on the Safety criteria, moderately better on most of the Stewardship of Natural Resources criteria, and slightly better on the Growth Management/Land Use value. There is little difference between the options on the Constructability criteria or on other Community Livability criteria. The New Arterial Bridge option has the smallest overall footprint and therefore performs moderately better on most of the criteria related to physical impacts. However, this option (included only in Alternative Package 3) would not meet the project's purpose and need.

For the Transit mode, the Express Bus Only option has the smallest footprint and therefore performs moderately better on most of the criteria related to physical impacts, such as property acquisitions, archaeology impacts, natural resource impacts and construction-related impacts. LRT and BRT perform slightly to significantly better on the overall Community Livability, Safety, and Growth Management and Land Use values.

It is important to note that the findings available now are only part of the picture. Many of the key criteria for comparing options (such as transit and traffic performance) are not yet completed. These will be available for the November meeting.



Component Findings

Component Findings and Recommendations

River Crossing Findings

◆ Key Findings
➤ Value 1 – Community Livability and Human Resources (12 of 19 measures reported)
<p>The alternatives with no new river crossings (Alternative Packages 1 and 2) would have the fewest direct adverse impacts to community resources. However, they would not address local or regional plans nor meet the project’s Purpose and Need.</p> <p>Of the Build Alternative Packages:</p> <p>Property acquisitions in the river crossing area (from SR 14 to Marine Drive) are a function of several factors, only one of which is the river crossing option itself. Interchange designs at SR 14, Hayden Island, and Marine Drive interchanges are a major factor. River crossings require the acquisition of approximately 5 to 15 houseboats. This range varies largely on whether HCT is present and on the interchange configurations at Marine Drive and on Hayden Island. Supplemental and replacement bridges in all Build alternatives require acquisition of approximately 30 commercial parcels; most of these may only be partial, not full acquisitions.</p> <p>A new supplemental arterial bridge (Alternative Package 3) would have the fewest impacts to historic, archaeological, and recreational 4(f) properties. Replacement bridges (Alternative Packages 8 - 12) would have the greatest historic impacts due to bridge removal. However, supplemental bridges (Alternative Packages 3 - 7) would also have impacts to the historic character of the bridge because they would likely require substantial seismic upgrades. Alternative Packages 4 - 12 would all impact the historic Apple Tree Park.</p> <p>No neighborhood will be bisected by construction of a new replacement or supplemental bridge and no neighborhood will lose more than 10 percent of its total area for construction of the bridges. Upstream replacement bridges require complete acquisition of Safeway, the only grocery store on Hayden Island and a significant resource for the neighborhood. A downstream replacement bridge and supplemental interstate bridge would avoid the Safeway acquisition with some interchange options and would acquire with other interchange options. The supplemental arterial bridge (Alternative Package 3) would avoid direct impact to Safeway. Safeway could likely be relocated on Hayden Island.</p> <p>A new bridge for LRT or BRT (Alternative Packages 3, 8, 9, and 10) would provide more reliable service and faster travel times, thus better supporting local plans than placing LRT or BRT on the existing lift span bridge (Alternative Packages 4 and 5) or options with BRT-Lite or Express Bus only (Alternative Packages 6, 7, 11, and 12).</p>
➤ Value 4 – Safety (6 of 6 measures reported)
<p>A replacement bridge (Alternative Packages 8 – 12) provides the greatest safety improvements because it would: provide separate facilities for bicycle and pedestrian travel; increase vehicle capacity over I-5 and provide full shoulders for incident response; eliminate bridge lifts which would alleviate both highway and marine conflicts and congestion; and, particularly for downstream replacement bridges (Alternative Packages 8, 9, and 11), reduce encroachment into the desirable clearance zone for Pearson Airpark. In addition, the replacement bridges would be constructed to current seismic standards. Overall, a replacement bridge would best enhance safety.</p> <p>Using a new supplemental bridge for interstate traffic (Alternative Packages 4 – 7) would provide similar highway safety benefits as a replacement bridge except that the obstruction into Pearson Airpark’s airspace would remain because the existing bridges would be reused. Also, unless the existing bridges are seismically retrofitted, they may not withstand an earthquake event.</p>

Using a supplemental bridge for arterial traffic, and continuing to operate I-5 on the existing bridges (Alternative Package 3) would likely have a negative impact on highway safety as congestion would increase, which would also likely increase the “no bridge lift” periods and impact marine safety.

➤ **Value 5 – Regional Economy, Freight Mobility (1 of 8 measures reported)**

Replacement bridges (Alternative Packages 8 – 12) provide the greatest benefit to marine navigation because they eliminate the “no bridge lift” period, remove the S-curve maneuver for vessels, and increase the horizontal clearance between piers.

Supplemental bridges require seismic upgrades to the existing bridge piers that would narrow the horizontal clearance between piers. Furthermore, the new bridge would increase physical obstructions in the river by adding additional piers. These factors increase the size and number of piers in the navigation channel and thus adversely impact navigation operations and safety.

However, using a supplemental bridge to carry interstate traffic (Alternative Packages 4 – 7) and reusing the existing bridges for other modes of transportation could improve marine navigation over No-Build by removing or reducing the “no bridge lift” period.

Using a supplemental bridge for arterial traffic and continuing to operate I-5 on the existing bridges (Alternative Package 3) would likely negatively impact navigation. This is because interstate congestion would increase and likely cause extension of the “no bridge lift” period.

➤ **Value 6 – Stewardship of Natural Resources (10 of 11 measures reported)**

Alternative Packages 1 and 2 (No-Build and TSM/TDM) have the least direct impact on natural resources, but they would not meet the project’s Purpose and Need. They would also likely continue to discharge untreated stormwater runoff from the existing bridge into the Columbia River.

Replacement bridges (Alternative Packages 8 - 12) would perform slightly better than supplemental bridges (Alternative Packages 3 - 7) due to smaller total footprint and greater ability to treat stormwater runoff. Replacement bridge options would also have fewer permanent in-water structure than supplemental bridges.

➤ **Value 7 – Distribution of Benefits and Impacts (1 of 5 measures reported)**

There is little distinction between alternatives from the standpoint of acquisitions.

Noise results are not complete.

➤ **Value 9 – Growth Management/Land Use (1 of 2 measures reported)**

A new bridge for LRT service (Alternative Packages 3, 8, and 9) best adheres to regional plans and policies because it provides more reliable and faster service than running LRT on the existing bridge, or providing BRT, BRT-Lite or Express Bus only. This favors replacement bridge options.

Supplemental bridges and No-Build alternatives better support Clark County planning policies that include historic preservation because replacement bridges remove the existing northbound bridge that is on the National Register of Historic Places.

➤ **Value 10 – Constructability (2 of 4 measures reported)**

Construction impacts would be less for the New Arterial bridge compared to the other Supplemental and Replacement bridge options. Designs are currently conceptual and therefore provide little basis or detail for distinguishing other aspects of constructability at this phase.

Component Findings and Recommendations

Transit Findings

<p>◆ Key Findings</p>
<p>➤ Value 1 – Community Livability and Human Resources</p>
<p>No-Build and TSM/TDM only options (Alternative Packages 1 and 2), followed by Express Bus only (Alternative Packages 7 and 11) would have the lowest direct impact on community resources but would not meet key policies in local plans.</p> <p>Of the Build Alternative Packages, Express Bus only and BRT-Lite (in Alternative Packages 6, 7, 11, and 12) would have the lowest direct impact because they would be contained largely within the I-5 right-of-way. However, better transit and pedestrian access to Hayden Island and downtown Vancouver afforded by LRT and BRT (in Alternative Packages 3 - 5 and 8 - 10) would provide greater potential for commercial and residential vitality and community enhancement. None of the transit options would bisect neighborhoods or affect more than 10 percent of any neighborhood.</p> <p>LRT and BRT (Alternative Packages 3 - 5 and 8 - 10) necessitate widening river crossings across the Oregon Slough which requires acquisition of approximately 5 additional houseboats for most bridge options. LRT and BRT also require acquisition of approximately 30 commercial properties; most of these acquisitions could be partial. BRT-Lite (Alternative Packages 6 and 11) and Express Bus only (Alternative Packages 7 and 12) impact few or no residential or commercial properties.</p> <p>Alternative Packages with LRT or BRT meet local plans better than those with BRT-Lite or Express Bus only. Alternative Packages 8 and 9 appear to best meet local plans and uphold principles of multi-modalism.</p>
<p>➤ Value 4 – Safety</p>
<p>Transit modes that would operate on a guideway separate from vehicle traffic would help reduce conflicts and congestion in I-5 general purpose lanes. Therefore, providing LRT or BRT (Alternative Packages 3 - 5 or 8 - 9) would best enhance safety. However, introducing LRT or BRT at-grade crossings with arterial traffic in Vancouver would create potential new safety hazards.</p>
<p>➤ Value 5 – Regional Economy, Freight Mobility</p>
<p>Transit mode options have little effect on the freight-related measures evaluated to date.</p>
<p>➤ Value 6 – Stewardship of Natural Resources</p>
<p>LRT and BRT (Alternative Packages 3 - 5 and 8 - 10) have larger footprints which cause greater direct adverse impacts than transit options with smaller footprints such as BRT-Lite (Alternative Packages 6 and 11), Express Bus only (Alternative Packages 2, 7, and 12), and No-Build (Alternative Package 1).</p> <p>LRT and BRT, as currently designed, would impact a buffer adjacent to Burnt Bridge Creek, City of Portland E-Zones, and habitat areas. However, these impacts are based on a sample alignment and could likely be reduced through design refinement. An additional consideration is that LRT and BRT are likely to increase transit mode share and better support regional growth management policies, which would lower secondary impacts to natural resources.</p>
<p>➤ Value 7 – Distribution of Benefits and Impacts</p>
<p>Not yet evaluated for transit options.</p>
<p>➤ Value 9 – Growth Management/Land Use</p>
<p>Alternative Packages 3, 4, 8, and 9 best support regional plans and policies because they include LRT. BRT (Alternative Packages 5 and 10) do not satisfy regional plans calling for LRT but would support multi-modalism and compact growth. BRT-Lite (Alternative Packages 6 and 11) is less supportive. Express Bus only options (Alternative Packages 2, 7, and 12) are the worst performing options.</p>
<p>➤ Value 10 – Constructability</p>
<p>LRT and BRT (Alternative Packages 3 - 5 and 8 - 10) would have the greatest amount of construction impacts.</p>



Value Performance

Value Performance

Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES

♦ Best Performing Package(s) and/or Component(s)

The alternatives with the least physical improvements (Alternative Packages 1 and 2) have the lowest direct impacts on existing community resources. However, these packages can do little to enhance access or livability, do not support the community’s future vision as expressed in local plans, and would do little to manage or address the impacts that future population and traffic growth will have on communities and livability.

The diversity of objectives within this value provides no clear winning component or package. Current evaluations have yielded the following conclusions among the Build alternatives:

- LRT, and to a lesser extent BRT, supports local planning goals and provides potential to improve vitality and access to downtown Vancouver and Hayden Island. However, these transit modes require more direct impacts to residential and commercial properties and potentially to existing historic and archaeological resources because of their exclusive ROW.
- Replacement bridges and the new arterial bridge better support LRT or BRT, and generally require slightly less ROW through downtown Vancouver and Hayden Island. However, a replacement bridge would entail removal of the northbound bridge that is a historic resource.
- Upstream replacement bridges require complete removal of the Safeway on Hayden Island, while design refinements may allow other bridge options to avoid or minimize impacts to the only grocery store on the island.

♦ Key Findings

➤ River Crossing

Alternatives using a replacement bridge (Alternative Packages 8 – 12) would have a greater adverse effect on historic resources because they would remove the existing northbound bridge which is on the National Register of Historic Places. Alternatives using a supplemental bridge (Alternative Packages 3 - 7) would also impact this existing bridge due to seismic retrofits and design upgrades. Only No-Build alternatives would avoid impact to the existing bridge. Alternative Packages 4 - 12 would all impact the historic Apple Tree Park.

All of the Build alternatives (Alternative Packages 3 - 12) could affect the recreational trails crossing under them.

Property acquisitions in the river crossing area (from SR 14 to Marine Drive) are a function of several factors, only one of which is the river crossing option itself. Interchange designs at SR 14, Hayden Island, and Marine Drive are a major factor. River crossings require the acquisition or relocation of approximately 5 to 15 houseboats. This range varies largely on whether HCT is present and on the interchange configurations at Marine Drive and on Hayden Island. Supplemental and replacement bridges in all Build alternatives require acquisition of at least portions of approximately 30 commercial parcels.

No neighborhoods will be bisected by new construction and no neighborhoods will lose more than 10 percent of their total area for construction. Upstream replacement bridges require complete acquisition of Safeway, the only grocery store on Hayden Island and a significant resource for the neighborhood. A downstream replacement bridge and supplemental interstate bridge may require partial or full acquisition of Safeway as well due to interchange improvements. Safeway could likely be relocated on Hayden Island.

➤ **Transit Performance**

LRT and BRT would have the greatest potential to affect unknown archaeological resources beneath downtown Vancouver roadways, as well as the locally-designated historic district, because they introduce a new transit ROW through Vancouver. They would also have the greatest opportunity to enhance this district.

LRT and BRT necessitate widening river crossings across the Oregon Slough which requires acquisition of approximately 5 additional houseboats for most bridge options.

LRT and BRT would affect up to 30 commercial properties, mostly partial acquisitions. BRT-Lite (Alternative Packages 5 and 11) affects fewer properties and Express Bus only (Alternative Packages 7 and 12) impacts no commercial properties.

None of the transit options would bisect neighborhoods or affect more than 10 percent of any neighborhood. LRT and BRT add high capacity transit to Vancouver and Hayden Island neighborhoods, helping to improve residents' access to resources.

Alternative Packages with LRT or BRT meet local plans better than those with BRT-Lite or Express Bus only. LRT performs best on a replacement bridge, making Alternative Packages 8 and 9 appear to best meet local plans and uphold principles of multi-modalism.

➤ **Roadways North and South**

Interchange configurations at SR 500 are the primary contributor to the limited range of residential acquisitions occurring from roadways north. Potential commercial property acquisitions from Roadways South options are smaller, ranging from 0 to 14 largely depending upon the interchange configuration on Hayden Island. Likewise, commercial acquisitions from Roadways North are also small, ranging from 5 to 15.

The SR 14 interchange is a key factor for effects on Fort Vancouver and on the Apple Tree Park. Impacts to these historic resources are largely determined by the design of this interchange. Designs seeking to minimize ROW requirements and include three levels of ramps would have less physical impacts but would cause visual impacts to Fort Vancouver. Conversely, interchange designs that expand outward and minimize vertical stacking of ramps could encroach further on Apple Tree Park and downtown Vancouver.

The interchanges at Marine Drive and on Hayden Island can affect the number of houseboats that would be acquired. A more extensive interchange at Marine Drive pushes the bridge over the Oregon Slough north slightly, impacting additional houseboats. Removing an I-5 interchange on Hayden Island, necessitates an arterial crossing over the Oregon Slough which would consume additional house boats.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Value Performance

Value 4 – SAFETY

◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> • With all modes of transportation (bicycle/pedestrian, highway, air, and marine), safety increases when points of conflict are removed and congestion is decreased. • Overall, Alternative Package 10 includes the most improvements and components that would enhance safety such as providing a replacement bridge, a transit mode that would operate in a separate guideway, removing short weaving sections north and south of the river crossing, and adding freight bypass lanes at difficult merge locations. • Alternative Packages 8 and 9 would next best enhance safety by providing a replacement bridge and HCT in a separate guideway.
◆ Key Findings
<p>➤ River Crossing</p> <p>Operating I-5 on a new supplemental or replacement bridge constructed to current seismic standards would best maintain a highway life-line connection across the Columbia River in the event of an earthquake. This connection would have adequate capacity and would maintain a direct connection through the I-5 corridor.</p> <p>A replacement bridge (Alternative Packages 8 – 12) provides the greatest safety improvements because it would provide separate facilities for bicycle and pedestrian travel; increase vehicle capacity over I-5 and provide full shoulders for incident response; eliminate bridge lifts which would alleviate both highway and marine conflicts and congestion; result in fewer piers and bridges, thus further simplifying navigation; and, particularly for downstream replacement bridges (Alternative Packages 8, 9, and 11), reduce encroachment into the desirable clearance zone for Pearson Airpark. In addition, the replacement bridges would be constructed to current seismic standards. Therefore, overall, a replacement bridge would best enhance safety.</p> <p>Using a supplemental bridge for interstate traffic (Alternative Packages 4 – 7) would provide some of the safety benefits as a replacement bridge except that the existing bridges would remain, thus maintaining the obstruction into Pearson Airpark’s airspace and resulting in greater obstructions to marine navigation. Also, the existing bridges, even with seismic upgrades, will likely be more vulnerable to earthquake damage.</p> <p>Using a supplemental bridge for arterial traffic and continuing to operate I-5 on the existing bridges (Alternative Package 3) would have a negative impact on highway safety as congestion would increase, which would also likely increase the “no bridge lift” periods and further impact marine safety.</p>
<p>➤ Transit Performance</p> <p>Transit modes that would operate on a guideway separate from vehicle traffic would help reduce conflicts and congestion in I-5 general purpose lanes. Therefore, providing HCT with either LRT or BRT in an exclusive guideway (on a new supplemental or replacement bridge) would best enhance safety.</p>
<p>➤ Roadways North and South</p> <p>North of the river crossing, a new supplemental or replacement bridge for I-5, which would include widening I-5 through the Bridge Influence Area, would increase safety because full highway shoulders along I-5 could be provided. Widening I-5 would also require reconstruction of the existing 39th Street over-crossing, which is a route to Discovery Middle School. The over-crossing would be constructed with a greater sidewalk width. Accessibility at SR 500 would also be improved because ramps would be added to and from the north.</p> <p>At the 39th Street interchange removing the ramps to and from the north on I-5 would improve bicycle and pedestrian safety on 39th Street by reducing the number of ramp crossings. This improvement could be packaged with a new supplemental or replacement bridge for I-5; it is currently included as an option in four of the Alternative Packages.</p>

Removing a short weaving section at Marine Drive and Hayden Island would improve safety. This improvement could be accomplished with the supplemental bridge options by eliminating the Hayden Island interchange, or with the replacement bridge options by adding braided ramps.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Bicycle and pedestrian safety would be best improved by providing separate facilities across the river and connections to the north and south.

Adding freight bypass lanes in areas where trucks currently have difficulty entering and exiting I-5 would enhance safety. This improvement could be packaged with a new supplemental or replacement bridge for I-5; it is currently included as an option in four of the Alternative Packages.

Re-striping I-5 (in both directions) between 39th Street and SR 500 to add a managed lane could improve safety by increasing capacity on I-5, however, it would also result in substandard shoulder widths which decrease safety.

Value Performance

Value 6 – STEWARDSHIP OF NATURAL RESOURCES

♦ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> • Alternative Package 12 would have the least direct impact on natural resources but could miss potential indirect benefits associated with more robust high capacity transit options. • BRT-Lite and Express Bus have a smaller footprint than BRT and LRT. • Replacement bridges perform slightly better than supplemental bridges because of their smaller footprint in the water and greater ability to manage stormwater runoff.
♦ Key Findings
➤ River Crossing
<p>Alternative Packages 1 and 2 (No-Build and TSM/TDM) have the least direct impact on natural resources but they would not meet the project’s Purpose and Need. They would also likely continue to discharge untreated stormwater runoff from the bridge into the Columbia River.</p> <p>Replacement bridges perform moderately better than supplemental bridges. Replacement bridges can better treat stormwater runoff and would have a smaller total footprint. Replacement bridges would also require fewer in-water piers than supplemental bridges. Short-term impacts are similar for replacement and supplemental bridge alternatives: the replacement alternatives require in-water work to deconstruct the existing bridges and remove piers and foundations, which would likely be accomplished quicker than pier and foundation seismic upgrades associated with the supplemental alternatives.</p>
➤ Transit Performance
<p>The Express Bus and BRT-Lite options would have a smaller footprint and less direct impacts than either BRT or LRT.</p> <p>BRT and LRT, as designed, would impact the Burnt Bridge Creek riparian area, City of Portland Environmental Zones, Metro Goal 5 habitats, and habitats identified in field surveys. However, these impacts are based on a sample alignment and could likely be reduced through design refinement. LRT and (to a lesser extent) BRT are also likely to increase transit mode share and better support growth management, reducing secondary impacts to natural resources.</p>
➤ Roadways North and South
<p>The SR 500 Tunnel Access performs better than SR 500 Flyover Access because it impacts less of the Burnt Bridge Creek riparian and open space area.</p> <p>Hayden Island Access and Hayden Island Folded Diamond Access perform slightly better than Hayden Island Arterial and Full Standard options because they have fewer crossings across the Oregon Slough, and do not come as close to the wetland area southwest of the Marine Drive interchange.</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)

Value Performance

Value 9 – BISTATE COOPERATION

◆ Best Performing Package(s) and/or Component(s)
<p>Alternative Packages 8 and 9 perform the best because they include LRT as the transit mode, which is supported in regional plans, and would not result in cut-through traffic associated with separate arterial bridges (Alternative Packages 3 - 7). Alternative Packages 3 and 4 include LRT but also include arterial bridges.</p>
◆ Key Findings
<p>➤ River Crossing</p>
<p>Replacement bridges better support goals for regional economic development than supplemental bridges (Alternative Packages 3 – 7) because they require less total ROW on Hayden Island and in downtown Vancouver. Replacement bridges and the new arterial bridge option, because they would place LRT on a new bridge without a lift span, better support regional goals for provision of HCT.</p> <p>However, supplemental bridges and No-Build alternatives better support Clark County planning policies that include historic preservation because replacement bridges remove the existing northbound bridge that is on the National Register of Historic Places.</p>
<p>➤ Transit Performance</p>
<p>Alternative Packages 3, 4, 8, and 9 best support regional plans and policies because they include LRT. BRT (Alternative Packages 5 and 10) does not satisfy regional plans calling for LRT but would support multi-modalism and compact growth. BRT-Lite (Alternative Packages 6 and 11) is less supportive. Express Bus only (Alternative Packages 1, 2, 7, and 12) performs the worst.</p>
<p>➤ Roadways North and South</p>
<p>There is no discernable difference between Alternative Packages for this criterion.</p>
<p>➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)</p>
<p>Alternative Package 3 is the best option from a bicycle and pedestrian standpoint because it provides the shortest distance to travel, provides easy access onto the facility, and places bikers and pedestrians next to low-speed traffic traveling locally on an arterial bridge.</p> <p>All packages that provide full-width bike and pedestrian lanes on the new bridge would be a substantial improvement over existing conditions.</p>

Value Performance

Value 10 – CONSTRUCTABILITY

◆ Best Performing Package(s) and/or Component(s)

- Alternative Packages 1 and 2 would have the least amount of construction impacts.
- Among the Build alternatives, Alternative Package 3 would have the least amount of construction impacts because work would occur in a smaller area and it would have the shortest construction period.
- Alternative Packages 4 - 12, which would provide a new supplemental or replacement bridge for I-5, would have a similar duration of construction and would include components that would provide comparable flexibility to accommodate future transportation system improvements. However, a seismic retrofit of the existing bridges (with supplemental bridge options) would take longer than removing the bridges (with replacement bridge options).

Note: Many aspects of constructability are a function of design details that will not be determined until later phases of the project.

◆ Key Findings

➤ River Crossing

Constructing a new supplemental arterial bridge and continuing to use the existing bridges for I-5 (Alternative Package 3) would have the least amount of construction impacts because work would occur in a smaller area and would have the shortest construction period. Its temporary impacts to navigation would be similar to the other Build alternatives.

The construction duration of a new supplemental bridge for I-5, which would include subsequent improvements to seismically retrofit the existing bridges, would be similar to constructing a replacement bridge for I-5, which would include the subsequent removal of the existing bridges. The construction impacts to traffic, navigation, and residences and businesses would be similar.

With a new supplemental or replacement bridge for I-5, future improvements to the transportation system could be constructed by either using the width of the highway shoulders or by constructing further additions to the width of the bridges (such as by cantilevering an additional section). Such flexibility will be determined by future design decisions.

➤ Transit Performance

An Express Bus and Local Bus transit system requires less infrastructure and modifications to the existing transportation network to operate and, therefore, would have lower construction impacts.

Those transit modes that require the construction of an exclusive guideway for operation (either a trackway for LRT or exclusive lanes for BRT) would have the greatest amount of temporary construction impacts. The construction of the guideway would impact a larger area (including the route streets in Vancouver) and would require more time to construct.

BRT-Lite includes infrastructure that would have construction impacts, but less than with LRT or BRT, especially in downtown Vancouver.

➤ Roadways North and South

Improvements at SR 500 would create construction impacts but make future transportation improvements easier to construct.

Construction of improvements at Marine Drive would have associated impacts, but would likely make future transportation improvements easier to construct.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Bicycle and pedestrian improvements would have associated construction impacts but would make future improvements easier to construct.

Constructing freight bypass lanes would have associated impacts but would likely make future transportation improvements easier to construct. This improvement could be packaged with a new supplemental or replacement bridge for I-5; it is currently included as an option in four Alternative Packages.



Criterion Performance

Criterion Performance

Criterion 1.2 – Avoid, then minimize adverse impacts to, and where practicable enhance, neighborhood cohesion

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

<p>◆ Performance Measure(s)</p>
<ul style="list-style-type: none"> • Number of neighborhoods bisected by new construction • Number of significantly impacted neighborhoods (>10% of total area required for new construction) • Number of neighborhoods divided from their identified resources by new construction
<p>◆ Best Performing Package(s) and/or Component(s)</p>
<p>The alternatives with the least physical improvements score the highest on these measures because they would have the least adverse impact to existing neighborhoods. As such, No-Build alternatives (Alternative Packages 1 and 2) rate the highest. However, these packages can do little to enhance access or livability, and do not support the community’s future vision as expressed in local plans.</p> <p>Of the Build alternatives, only Alternative Package 3 completely avoids displacing the only grocery store on Hayden Island. Alternatives with LRT or BRT require more commercial acquisitions than alternatives using BRT-Lite or Express Bus only. Residential acquisitions or relocations range from 5 to 15 houseboats, and vary largely based on interchange configurations at Marine Drive, on Hayden Island, and at SR 500.</p>
<p>◆ Key Findings</p>
<p>➤ River Crossing</p>
<p>No neighborhoods will be bisected by new construction and no neighborhoods will lose more than 10% of their total area for construction. Therefore, the only remaining metric is whether a neighborhood is divided from its resources.</p> <p>Upstream replacement bridges require complete acquisition of Safeway, the only grocery store on Hayden Island and a significant resource for the neighborhood. A downstream replacement bridge and supplemental interstate bridge may require partial or full acquisition of Safeway as well due to interchange improvements. Only a supplemental arterial bridge (Alternative Package 3) would completely avoid direct impact to Safeway. Safeway could likely be relocated on Hayden Island.</p>
<p>➤ Transit</p>
<p>None of the transit options would bisect neighborhoods or affect more than 10% of any neighborhood. Alternative Packages 3 - 5 and 8 - 10 add high capacity transit to Vancouver and Hayden Island neighborhoods, helping to improve residents’ access to resources in these areas.</p>
<p>➤ Roadways North and Roadways South</p>
<p>The interchanges at Marine Drive and on Hayden Island can affect how many houseboats need to be acquired or relocated. A more complex interchange at Marine Drive pushes the bridge slightly north over the Oregon Slough, impacting additional houseboats. Removing an I-5 interchange on Hayden Island necessitates an arterial crossing over the Oregon Slough which would consume additional house boats.</p> <p>None of the Roadways North options would bisect neighborhoods or affect more than 10% of any neighborhood. Some interchange designs at SR 500 cause additional residential acquisitions. Given the preliminary level of current designs, it is premature to judge certain designs as superior or inferior.</p>
<p>➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)</p>
<p>The bicycle and pedestrian components included in Alternative Package 3 are slightly better than the other Build alternatives. This package provides the shortest distance to travel and easy access onto the facility, and places cyclists and pedestrians next to low-speed traffic traveling locally on an arterial bridge.</p> <p>The bicycle and pedestrian components of Alternative Packages 5, 6, and 7 are the least desirable because they have narrow lanes and limited shoulders, and place cyclists and pedestrians next to high-speed traffic. These packages that rely upon enhancements to the existing bridge appear to perform the worst. While Alternative Package 4 also relies upon enhancement of existing bike/ ped facilities, it does not place cyclists and pedestrians next to high-speed interstate traffic.</p>

Criterion Performance

Criterion 1.4 – Avoid or minimize residential displacements

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • How many residential units fall within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<p>Note: Identifying necessary property acquisitions and displacements requires substantial design refinement and property analysis that are not included in the alternatives screening phase. For screening purposes, property acquisition estimates are generalized in accordance with the conceptual nature of the current level of design. They are based on a total count of properties affected (partial or full).</p> <p>Alternative Packages 1 and 2 would avoid residential property acquisitions.</p> <p>Based on conceptual designs of Build alternatives, all Build alternatives have fewer than 30 residential acquisitions. Differences occur primarily due to HCT and interchange designs. LRT and BRT require wider bridge crossings over the Oregon Slough and remove or relocate more houseboats. A more complex interchange at Marine Drive pushes the bridge north over the Oregon Slough, impacting additional houseboats. Removing an I-5 interchange on Hayden Island necessitates an arterial crossing over the Oregon Slough, which would consume or relocate additional house boats.</p>
◆ Key Findings
<p>➤ River Crossing</p>
<p>Property acquisitions in the river crossing area (from SR 14 to Marine Drive) are a function of several factors, only one of which is the river crossing option itself. Interchange designs at SR 14, Hayden Island, and Marine Drive interchanges are a major factor. River crossings acquire or relocate between 5 and 15 houseboats on Hayden island depending upon interchange designs at Marine Drive and Hayden Island, and on whether the river crossing must accommodate LRT or BRT,</p>
<p>➤ Transit</p>
<p>LRT and BRT (Alternative Packages 3 - 5 and 8 - 10) have higher potential to affect residential properties than BRT-Lite or Express Bus because they require dedicated ROW. LRT and BRT necessitate widening river crossings across the Oregon Slough, which requires acquisition or relocation of approximately 5 additional houseboats for most bridge options.</p>
<p>➤ Roadways North and Roadways South</p>
<p>The interchanges at Marine Drive and on Hayden Island can affect how many houseboats need to be acquired or relocated. A more complex interchange at Marine Drive pushes the bridge slightly north over the Oregon Slough, impacting additional houseboats. Removing an I-5 interchange on Hayden Island necessitates an arterial crossing over the Oregon Slough, which would consume additional house boats.</p> <p>Roadways North options account for all likely residential acquisitions. Interchange configurations at SR 500 are the primary contributor to the range of residential acquisitions.</p>
<p>➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)</p>
<p>Not Applicable.</p>

Criterion Performance

Criterion 1.5 – Avoid or minimize business displacements

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • How many commercial or industrial properties fall within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<p>Note: Identifying necessary property acquisitions and displacements requires substantial design refinement and property analysis that are not included in the alternatives screening phase. For screening purposes, property acquisition estimates are generalized in accordance with the conceptual nature of the current level of design. They are based on a total count of properties affected (partial or full).</p> <p>The approximate number of commercial properties that would be affected (from sliver impacts to full acquisitions) ranges from about 30 to 90 for the Build alternatives. BRT-Lite (Alternative Packages 6 and 11) or Express Bus only (Alternative Packages 7 and 12) require fewer commercial acquisitions than those with LRT or BRT (Alternative Packages 3 - 5 and 8 - 10).</p> <p>No-Build alternatives (Alternative Packages 1 and 2) would affect no commercial properties.</p>

◆ Key Findings
<p>➤ River Crossing</p> <p>The property acquisitions in the river crossing area (from SR 14 to Marine Drive) are a function of several factors, only one of which is the river crossing option itself. Interchange designs are a major factor, including SR 14, Hayden Island, and Marine Drive interchanges. All river crossing alternatives require partial or full acquisition of approximately 30 commercial parcels.</p>
<p>➤ Transit</p> <p>LRT and BRT (Alternative Packages 3 - 5, and 8 - 10) require partial or full acquisition of approximately 30 commercial properties. BRT-Lite (Alternatives 6 and 11) and Express Bus only (Alternatives 7 and 12) impact few or no commercial properties.</p>
<p>➤ Roadways North and Roadways South</p> <p>Roadways North options account for all likely residential acquisitions. Interchange configurations at SR 500 are the primary contributor to the range of residential acquisitions. Potential commercial property acquisitions from Roadways South options are minimal (ranging from 0 to 14) largely depending upon the interchange configuration on Hayden Island. Likewise, commercial acquisitions from Roadways North are also minimal (ranging from 5 to 15) largely depending upon the impact of different interchanges at SR 14 on downtown Vancouver.</p>
<p>➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)</p> <p>Not Applicable</p>

Criterion Performance

Criterion 1.6 – Avoid or minimize adverse impacts to, or where practicable preserve, historic and prehistoric cultural resources

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

◆ Performance Measure(s)
<ul style="list-style-type: none">• How many acres of land are located in high probability areas for archaeological resources?• How many of these properties are also within the potential noise impact footprint?• What is the total acreage of these properties?• How many historic, archaeological, and cultural properties fall within the design area footprint in the following categories: National Register listed, Potentially Eligible, National Historic Site?
◆ Best Performing Package(s) and/or Component(s)
<p>Alternative Package 3 would likely have the least adverse effects on historic and archaeological resources of the Build alternatives.</p> <p>Alternative Packages 8 and 12 would likely have the greatest adverse effects on historic resources, followed by 9, 10, and 11.</p> <p>Alternative Packages 4, 8, and 10 would likely have the greatest adverse effects on archaeological resources.</p> <p>Alternative Packages 4 and 7 would likely have the greatest adverse effects on the Vancouver National Historic Site/National Historic Reserve (NHS/NHR). This is due to the easternmost SR 14 WB to I-5 NB ramp’s location east of the cloverleaf ramps.</p> <p>Generally, packages that disturb the least amount of undisturbed native soil within the high probability areas for prehistoric sites would have the lowest potential adverse effects on archaeological resources.</p>

◆ Key Findings
<p>➤ River Crossing</p> <p><i>Above Ground Built Historic Resources:</i></p> <p>Supplemental bridge options (Alternative Packages 3 - 7) would retain the historic bridges. However, preliminary results from a Seismic Panel convened in August 2006 indicate that major seismic upgrades would likely be required for the bridges to avoid collapse in a major earthquake. These retrofits would likely have an adverse effect on the historic character of the bridges.</p> <p>All of the Alternative Packages may acquire the Columbia River levees; this may be reduced to “no adverse effect” and no “use” with appropriate design.</p> <p>Only a supplemental arterial bridge would avoid encroaching upon the historic Apple Tree Park. Downstream replacement bridges cut through or over the parcel more significantly than the others.</p> <p><i>Archaeological Resources:</i></p> <p>None of the river crossing options would directly affect a known archaeological site. However, the area in which all of the river crossing options are located has the potential to contain archaeological resources. At this time, there is little evidence to distinguish one option from another.</p>
<p>➤ Transit</p> <p><i>Above Ground Built Historic Resources:</i></p> <p>The preliminary BRT and LRT (Alternative Packages 3, 4, 5, 8, 9, and 10) alignment uses Washington and McLoughlin, traveling through Vancouver’s locally-designated downtown historic district. Conceptual designs do not appear to have a direct effect on any significant historic resources, but they would affect the visual character. Whether such an effect would be adverse or beneficial will depend on whether it is designed with regard to the character of the district. LRT alternatives may have a lower likelihood to pose an adverse effect than BRT. Both LRT and BRT options involving direct downtown access may result in beneficial effects from improved accessibility to the district, which would enhance the viability of the historic downtown area.</p>

Archaeological Resources:

BRT and LRT (Alternative Packages 3, 4, 5, 8, 9, and 10) would likely have the greatest potential to adversely affect historic and prehistoric resources beneath historic downtown Vancouver because they would require excavation into potentially native soils. Transit alternatives running down I-5 (2, 7, 11, and 12) would more likely impact fill or soils already disturbed by highway construction.

➤ **Roadways North and Roadways South**

Above Ground Built Historic Resources:

The potential increase in noise and congestion in historic downtown Vancouver may adversely affect its historic setting.

The SR 14 interchange is a key factor for effects on Fort Vancouver and on the Apple Tree Park. Impacts to these historic resources are largely determined by the design of this interchange. Designs seeking to minimize ROW requirements and include three levels of ramps could cause visual impacts to Fort Vancouver by overshadowing the historic hospital building. Conversely, interchange designs that expand outward and minimize vertical stacking of ramps could encroach on Apple Tree Park.

Archaeological Resources:

The easternmost SR 14 WB to I-5 NB ramp located farthest east in relation to the cloverleaf ramps (Alternative Packages 4, 7, 8, and 12) has the greatest potential adverse effects on archaeological resources within the National Historic Site (NHS).

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Bike/pedestrian striping in the Downtown Historic District or the Fort Vancouver Reserve would need to consider the historic areas. Build outs or other structures that change the visual character of the historic areas need to be designed in consultation with the Department of Archaeology and Historic Preservation and the National Parks Service.

The pedestrian bridge would affect the Fort Vancouver Reserve, but if designed carefully could have “no adverse effect” and could enhance access to and from the Downtown Historic District. It could be considered a positive effect because it would make the Reserve easier to access from the Downtown Historic District.

Criterion Performance

Criterion 1.7 Magnitude and significance of public park and recreation resources crossed by component's conceptual footprint

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

◆ Performance Measure(s)
<ul style="list-style-type: none"> Number and area of 4(f) public parks that fall within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<p>Of the Build alternatives, Alternative Package 3 would have the lowest direct or secondary impacts on recreational or park resources.</p> <p>Alternative Packages 4 and 8 would likely have the greatest impacts as they would affect both the NHS the greatest and City College Park. The greatest NHS open space impact is the result of SR 14 interchange options that require additional ROW to the east of the existing interchange; City College Park is impacted by Roadways North options and LRT; East Delta Park impact is associated with Marine Drive interchange choices and LRT; Leverich Park impacts are due to SR 500 and BRT/LRT improvements.</p> <p><i>Considerations:</i></p> <p>Any potential “use” of the NHS/NHR would likely affect the whole resource. This includes land within the Roadways North project segments.</p> <p>Sliver acquisition(s) may be allowable as a de minimis impact. This would need to be confirmed with officials that have jurisdiction over the affected resource.</p>
◆ Key Findings
➤ River Crossing
<p>All new river crossings (Alternative Packages 3 - 12) may temporarily or permanently affect recreational trails underlying the existing and/or new bridges. “Use” would need to be determined based on the location of features such as intermediate bent columns and fill, as well as the extent of potential removal of the existing bridges and transfer of ownership to recreational agencies. In this phase of conceptual design, there is no significant difference among the river crossing options.</p> <p><i>Considerations:</i></p> <p>Visual impacts could also be associated with this project. They could affect the historic setting and the recreational value associated with the NHS/NHR cultural landscapes. While visual impacts don’t frequently trigger a “constructive use,” they should be considered, given the importance of the historic cultural landscape.</p>
➤ Transit
<p>LRT and BRT impact City College Park slightly as they realign from McLoughlin Boulevard to I-5. This alignment is preliminary and it may be possible to refine the design to avoid any impact. Furthermore, this alignment provides improved access as it brings HCT to this park (and McLoughlin Park that is immediately to the south) with a major transit station by Clark College.</p> <p>All transit modes require modest slivers of the easternmost portions of Kiggins Bowl because they necessitate a wider I-5 ROW than existing conditions. BRT-Lite requires the most substantial acquisition of Kiggins Bowl.</p>
➤ Roadways North and Roadways South
<p><i>Roadways North:</i></p> <p>Improvements to the SR 14 interchange that extend east of the existing interchange can impact the Fort Vancouver Historic Reserve. Interchange designs for all Build alternatives except Alternative Package 3 require sliver acquisitions of properties within the NHS. These properties are now under US Army ownership, but will likely be transferred to other ownership, and remain within the NHS. They may become recreational properties in the future.</p> <p>Improvements to the interchange at SR 14 are also shown to impact the historic apple tree. All Build alternatives except Package 3 would require acquisition of part of the parcel with the apple tree. These takes are not likely to directly impact the tree, but could cause substantial indirect effects (encroachment, noise, shading, etc.).</p>

Some of the SR 14 interchange designs would also directly affect the land bridge that is currently under construction, while others would build ramps over or under the land bridge.

Marshall Community Park: Alternative Packages 4, 5, 6, 8, 9, 10, 11, and 12 would require sliver acquisitions along the western edge of the park and may result in a “use.” Impacts to Marshall Community Park resulting from the Roadways North segments and the transit impacts to City College Park may need to be considered within the context of the City of Vancouver’s Central Park, which encompasses both of these parks as well as other properties generally extending to the east and to the south (almost to the NHR).

Leverich Park: All Alternative Packages would require sliver acquisitions along the southern and/or western edge of the park, potentially resulting in a “use” of the resources.

Roadways South:

ROW impacts to East Delta Park would involve sliver acquisitions of no more than approximately 5,000 square feet under all Alternative Packages, except for Alternative Package 3, where there would be no ROW impacts.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Criterion Performance

Criterion 1.8 – Support local comprehensive plans and jurisdiction-approved neighborhood plans including development and redevelopment opportunities, consistent with these plans.

(Part of Value 1 – COMMUNITY LIVABILITY AND HUMAN RESOURCES)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • Does the project support/uphold principles of multi-modalism? • Is it in project lists of comprehensive plans? • Are alternatives consistent with the project-specific policies in the Vancouver City Center Vision? • How much developable land will be lost?
◆ Best Performing Package(s) and/or Component(s)
<p>While both BRT and LRT are included in local plans, LRT service (included in Alternative Packages 3, 4, 8, and 9) best supports most local plans.</p> <p>It is difficult to rank the components in terms of land use and impacts to downtown Vancouver, but it is likely that removing direct access to Hayden Island from Interstate 5 may cause significant traffic intrusion into downtown Vancouver.</p> <p>Of the Build alternative, Alternative Packages 8 and 9 appear to best meet local plans because they uphold principles of multi-modalism and will not require as much developable land as Alternative Packages 3 and 4. At this point in the analysis, the direct access to Vancouver and ability to support redevelopment opportunities, as called for in the Vancouver City Center Vision, are unknown.</p> <p>Alternative Packages 1 and 2 are the worst performers, as they fail to follow the recommendations of the Bi-State Trade and Transportation Study and do not provide BRT or LRT services.</p>
◆ Key Findings
➤ River Crossing
<p>An evaluation of compliance with multi-modal policies and planned project lists does not help to discern between river crossing options. Supplemental downstream and arterial bridges provide arterial and Interstate access, though at this point we cannot determine if access is improved. A supplemental arterial may cause significant traffic intrusion into downtown Vancouver without direct access to Hayden Island.</p> <p>River Crossing components have different land use and ROW impacts. Supplemental bridge options and a downstream replacement bridge would displace the Inn at the Quay. Replacement bridges with LRT will also directly impact the FHWA and Army buildings, and possibly the West Coast Bank building. A supplemental arterial bridge would impact two commercial blocks in the southern portion of downtown Vancouver east of Columbia Street.</p> <p>The replacement bridges with LRT and the new supplemental arterial bridge would generally have the most negative property impacts in downtown Vancouver, though all Build alternatives would have impacts. The extent of impacts to the west side of the existing bridge is unclear since the area is planned for redevelopment.</p>
➤ Transit
<p>Express buses in general purpose or managed lanes fail to provide HCT, as explicitly called for in local plans. LRT is most consistent with regional plan policies and was called for in recommendations by the Bi-State Trade and Transportation Study that is referenced in numerous plans. Alternative Packages 3, 8, and 9 provide the most reliable LRT service by placing transit on a new fixed span bridge that would eliminate delays in the transit system resulting from bridge lifts.</p>
➤ Roadways North and Roadways South
<p>Design options for Roadways North and Roadways South do not have significant differences.</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>Alternative Package 3 is the best option for bicyclists and pedestrians. This Alternative Package provides the shortest distance to travel and easy access onto the facility, and places cyclists and pedestrians next to low-speed traffic traveling locally on an arterial bridge.</p> <p>Alternative Packages 5, 6, and 7 are the least desirable because they have narrow lanes and limited shoulders, and place cyclists and pedestrians next to high speed traffic.</p>

Criterion Performance

Criterion 4.1 – Enhance vehicle/freight safety

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none">Highway improvements to I-5 that specifically improve vehicle/freight safety within the Bridge Influence Area.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none">As designed, Alternative Packages 4, 5, and 10 would provide the most improvements to vehicle/freight safety within the Bridge Influence Area by (1) providing full shoulders on I-5; (2) removing three short weaving sections (at Marine Drive, Hayden Island, and SR 14); (3) operating transit in a separated guideway; and (4) adding freight bypass lanes at difficult merge locations. It's important to note that all of these safety factors could be included with any of the river crossing Build options, except the new arterial bridge. All of these safety factors, except item 3 – separated guideway – could be paired with any of the transit modes. Only LRT and BRT would incorporate the “separated guideway” safety factor.
◆ Key Findings
➤ River Crossing
<p>No investment in I-5 would occur with Alternative Package 1, 2030 No Build, and therefore it would not improve vehicle/freight safety over the Columbia River. Alternative Package 2 would include minor improvements to correct some geometric deficiencies at SR 14, which may improve vehicle and freight safety at this interchange but would leave most of the river crossing's substandard design features in place.</p> <p>A new supplemental bridge, with arterial traffic separated from I-5 traffic would allow the Hayden Island interchange on I-5 to be removed. This would improve vehicle and freight safety over the river by eliminating points of conflict and reducing the amount of vehicle weaving. Alternative Package 3 would remove the existing Hayden Island interchange on I-5 and provide a new supplemental arterial bridge connection to Hayden Island, and Alternative Packages 4 and 5 would provide a new supplemental bridge for I-5 that would also eliminate the interchange on Hayden Island. The arterial connection to Hayden Island would be via the existing Columbia River bridges plus a new local access bridge across the Oregon Slough,</p> <p>With a replacement bridge, access to Hayden Island from an interchange off of I-5 would be maintained. To improve vehicle and freight safety at this location on I-5, an interchange option (as included in Alternative Packages 8, 10, and 11) provides braided ramps to remove a short weave section from the I-5 main line between Hayden Island and Marine Drive. This would improve safety compared to other interchange options, though to a somewhat lesser degree than removing the interchange. This design feature could be used with any of the replacement bridge options (upstream or downstream).</p> <p>Vehicle and freight safety would be further improved with either a new supplemental or replacement bridge for I-5 (Alternative Packages 4 - 12) because a new bridge would include full highway shoulders and lanes in both the northbound and southbound direction.</p>
➤ Transit
<p>Vehicle and freight safety would be improved with those modes of transit that would operate in a separated guideway, which would reduce the number of buses on I-5 and in general purpose lanes. Therefore, Alternative Packages 3, 4, 5, 8, 9, and 10 that include LRT or BRT as the transit mode would improve vehicle/freight safety within the Bridge Influence Area. Introducing a new mode, such as LRT or BRT, to city streets creates potential conflicts at at-grade crossings. However, lower speeds and signal controls for at-grade crossings reduce the risk.</p>
➤ Roadways North and Roadways South
<p>North or south of the river crossing, within the Bridge Influence Area, improvements specifically for vehicle/freight safety would not be provided with Alternative Packages 1, 2, and 3.</p> <p>Operating I-5 on a new supplemental or replacement bridge (Alternative Packages 4 – 12) would improve vehicle and freight safety north and south of the river crossing because full shoulders would be provided along I-5 through the whole length of the Bridge Influence Area, from SR 500 in the north to Victory Boulevard in the south. Operating I-5 on a new supplemental or replacement bridge also allows a short weaving section at SR 14 to be removed. Between SR 14 and Mill Plain Boulevard, Alternative Packages 4 – 12 include either a braided ramp or a collector/distributor road, which would improve vehicle and freight safety on the I-5 mainline.</p>

South of the Columbia River, safety would be improved with the removal a short weaving section from Marine Drive to southbound I-5 by adding a braided ramp between the Marine Drive and the Interstate Avenue/Denver Avenue interchange. This improvement is included in Alternative Packages 4, 5, 8, 10, and 11; it could be included as an option with either a new supplemental or a replacement bridge for I-5.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Vehicle and freight safety would be improved with the addition of freight bypass lanes in locations where trucks currently have difficulty entering and exiting I-5. This improvement is included in Alternative Packages 4, 5, 9, and 10; it could be included as an option with either a new supplemental or a replacement bridge for I-5.

Outside of the Bridge Influence Area, re-striping I-5 (in both directions) to add a managed lane network between 139th Street and SR 500 is included in Alternative Packages 4 – 11. Re-striping to add a managed lane would reduce the width of the shoulders in this section of I-5, which may impact vehicle and freight safety.

Criterion Performance

Criterion 4.2 – Enhance bike/pedestrian facilities and safety

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none"> Qualitative assessment of improved bicycle and pedestrian pathways provided within an alternative package.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> Alternative Packages 3 - 12 provide similar improvements to bicycle and pedestrian facilities that best enhance safety.

◆ Key Findings
➤ River Crossing
N/A
➤ Transit
N/A
➤ Roadways North and Roadways South
N/A
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>New bicycle and pedestrian facilities would not be constructed with Alternative Package 1, 2030 No Build, and therefore bicycle and pedestrian safety would not be enhanced.</p> <p>A new supplemental or replacement bridge would include the construction of a two-way bicycle path and a two-way pedestrian path and improved connections to North Portland, Hayden Island, and downtown Vancouver. By providing separated facilities over the river, Alternative Packages 3 - 12 best enhance bicycle and pedestrian safety.</p>

Criterion Performance

Criterion 4.3 – Enhance or maintain marine safety

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • Quality of marine navigation channel geometrics to accommodate ship movements, considering necessary tug and barge turning maneuvers and hazards of additional lift restrictions.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> • A replacement bridge, with Alternative Packages 8 - 12, provides the most benefit to marine safety because the new bridge piers could be located to ease maneuvers between the I-5 bridge and the downstream railroad bridge and there would be no bridge lifts.

◆ Key Findings
➤ River Crossing
<p>Alternative Packages 1 and 2 would maintain the existing Columbia River channel geometrics between the existing I-5 bridges and the downstream railroad bridge.</p> <p>If I-5 traffic continued to operate on the existing bridges, as would occur with Alternative Packages 1, 2, and 3, the bridge lift restriction periods, and associated marine hazards, would remain and likely increase with future increases in congestion on I-5. As congestion on I-5 increases, more restrictions on bridge lifts would negatively impact marine navigation.</p> <p>For marine navigation and safety, a new supplemental bridge would have to be constructed so that the new piers would be in line with the piers of the existing bridges. Even with the piers in line, a new downstream supplemental bridge would reduce the available distance for ships to maneuver between the supplemental bridge and the downstream railroad bridge. Therefore, Alternative Packages 3 - 7, because they increase the number of obstructions in the water, would negatively impact marine maneuvers and safety.</p> <p>Operating I-5 on a new supplemental bridge and using the existing bridges for arterial traffic, as is proposed with Alternative Packages 4 - 7, could reduce the bridge lift restriction period. This aspect would benefit marine safety.</p> <p>A replacement bridge would allow the new bridge piers to be located to ease ship maneuvers between the I-5 bridge and the downstream railroad bridge, would reduce the number of obstructions in the water, and would eliminate bridge lifts. Therefore, Alternative Packages 8 - 12 would provide the greatest enhancement to marine safety.</p>
➤ Transit
➤ Roadways North and Roadways South
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)

Criterion Performance

Criterion 4.4 – Enhance or maintain aviation safety

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none">Ability to accommodate Federal Aviation Administration (FAA) clearance zone for Pearson Airpark.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none">Alternative Packages 8, 9, and 11, which include a downstream replacement bridge that would increase the distance between the I-5 bridge and Pearson Airpark, would best accommodate the FAA clearance zone for Pearson Airpark and therefore best enhance aviation safety.

◆ Key Findings
➤ River Crossing
<p>The towers of the existing I-5 bridges encroach 55 feet into the approach slope to Pearson Airpark. This impact to the FAA clearance zone would continue with those alternatives that would keep the existing bridges (Alternative Packages 1 - 7).</p> <p>A new supplemental bridge would be constructed at a lower elevation than the existing bridge towers; however, they would still have a slight impact on the desirable clearance zone for Pearson Airpark. In addition to the supplemental bridge, the existing bridges (which encroach into the airspace) would remain. Therefore, Alternative Packages 3 - 7 would result in two structures within the airspace that may impact aviation safety.</p> <p>A replacement bridge would enhance aviation safety because, as with a new supplemental bridge, they would be constructed at a lower elevation than the existing bridge towers and the existing bridges would be removed. Alternative Packages 8, 9, and 11 would provide the greatest benefit to aviation safety because the replacement bridge would be downstream from the existing bridges, which would increase the distance between the I-5 bridge and Pearson Airpark. Under Alternative Packages 10 and 12 the replacement bridge would be upstream from the existing bridges, which would slightly reduce the distance between the I-5 bridges and Pearson Airpark. With Alternative Packages 10 and 12, aviation safety would be enhanced but, because of the reduced distance between the bridge and Pearson Airpark, to a slightly lesser degree than with a downstream replacement bridge.</p>
➤ Transit
➤ Roadways North and Roadways South
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)

Criterion Performance

Criterion 4.5 – Provide sustained life-line connectivity

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none">Ability to accommodate life-line connections in the I-5 corridor across the Columbia River to be maintained in an earthquake.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none">All of the Build alternatives would create a life-line connection across the river. Alternative Packages 8 - 12, with a new replacement bridge, would provide the best sustained life-line connectivity in the I-5 corridor across the Columbia River in the event of an earthquake because they would be built to current seismic standards and would carry and maintain travel for all transportation modes (traffic, transit, and bicycle/pedestrian). While the existing bridge could be seismically upgraded, it is unlikely that such an upgrade would provide the same level of seismic safety as would a new bridge.
◆ Key Findings
➤ River Crossing
<p>Alternative Packages 1 and 2 would not include seismically retrofitting the existing bridges. Without being retrofitted, the existing bridges would be significantly more vulnerable to earthquake damage, which would mean a life-line connection would not be provided in the I-5 corridor across the Columbia River.</p> <p>With Alternative Package 3, the new supplemental arterial bridge would be constructed to current seismic standards and would maintain a connection across the Columbia River. However, the arterial bridge would have less capacity than I-5 and would not provide a direct connection through the I-5 corridor. I-5 would continue to operate on the existing bridges which could be retrofitted to current seismic standards. Unless the existing bridges are retrofitted, they may not withstand an earthquake event and a life-line connection with adequate capacity in the I-5 corridor would not be provided.</p> <p>Operating I-5 on a new supplemental or replacement bridge (Alternative Packages 4 – 12), constructed to current seismic standards, would provide a more effective life-line connection across the Columbia River in the event of an earthquake. Replacement bridge options, because they place all modes on the new bridge (Alternative Packages 8 - 12) – provide the most comprehensive life-line connection through the I-5 corridor.</p>
➤ Transit
<p>Transit service, which connects people to their homes, jobs, and other services, is part of the life-line connection in the I-5 corridor. The vulnerability of transit to an earthquake is less a function of the mode and more a function of the structures on which the mode operates. Operating transit on the existing bridges without seismic upgrade (No-Build and TSM/TDM only) provides the highest vulnerability; transit on a seismically upgraded bridge greatly reduces vulnerability; transit on a new bridge provides the highest likelihood for maintaining a life-line connection for transit. Any of the transit modes can be placed on the new structure. However, those packages that place LRT on the existing bridge would not have the flexibility to reroute it to the new bridge following earthquake damage.</p> <p>With Alternative Packages 3, 7, and 8 – 12, the proposed transit service would operate on the new supplemental or replacement bridge which would be constructed to current seismic standards and would likely maintain this connection across the Columbia River and in the I-5 corridor in the event of an earthquake.</p>
➤ Roadways North and Roadways South
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>The bicycle and pedestrian connection across the Columbia River would be on the existing bridges with Alternative Packages 1, 2, and 4 - 7. Unless the existing bridges are seismically retrofitted, this life-line connection across the Columbia River would not be maintained.</p> <p>With Alternative Packages 3 and 8 – 12, the bicycle and pedestrian connection across the Columbia River would be on a new supplemental or replacement bridge which would be constructed to current seismic standards and would maintain this life-line connection across the Columbia River and in the I-5 corridor in an earthquake event.</p>

Criterion Performance

Criterion 4.6 – Enhance I-5 incident/emergency response access within the Bridge Influence Area

(Part of Value 4 – Safety)

◆ Performance Measure(s)
<ul style="list-style-type: none"> Ability to accommodate incident/emergency service access to incidents on I-5 in the Bridge Influence Area.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> Alternative Packages 5 and 10 would provide the greatest amount of access and capacity improvements to I-5 (such as a new supplemental or replacement bridge for I-5, HCT in a separated guideway, and interchange improvements) that would best enhance emergency response access to incidents on I-5 in the Bridge Influence Area.
◆ Key Findings
➤ River Crossing
<p>If I-5 continued to operate on the existing bridges (Alternative Packages 1 - 3), emergency service access to incidents on I-5 would continue to be impacted by bridge lifts and by the substandard width of the bridges, which do not allow shoulders.</p> <p>With Alternative Package 2, the interchange improvements at SR 14 and Hayden Island, which would improve capacity and congestion, may slightly enhance emergency service access. However, the river crossing would still impact existing emergency response due to substandard shoulders. Similarly, in Alternative Package 3, capacity improvements on I-5 from the addition of a new supplemental bridge that would carry arterial traffic and the elimination of the Hayden Island interchange may slightly enhance emergency service access.</p> <p>A new supplemental or replacement bridge for I-5 would provide additional capacity over the Columbia River, include full shoulder widths, and not require bridge lifts. Therefore, Alternative Packages 4 - 12 would enhance emergency response and access on I-5 in the Bridge Influence Area.</p> <p>A new supplemental or replacement bridge for I -5 (Alternative Packages 4 – 12) would also allow for improvements at SR 14 and Hayden Island that would better manage congestion on I-5 and enhance emergency service to incidents.</p>
➤ Transit
<p>Emergency response access to incidents on I-5 would be enhanced through the Bridge Influence Area if HCT operated on a guideway separate from vehicle traffic, because capacity on I-5 would increase with less buses using general purpose lanes. Therefore, Alternative Packages 4 and 5 where LRT or BRT would operate on a separated guideway on a new supplemental bridge, or Alternative Packages 8, 9, and 10 where BRT or LRT would operate on a separated guideway on a replacement bridge, would enhance emergency response access to incidents on I-5 through the Bridge Influence Area.</p>
➤ Roadways North and Roadways South
<p>South of the river crossing, improvements to the Marine Drive interchange may improve emergency response on I-5. This improvement is proposed with Alternative Packages 4, 5, 8, 10, and 11; it could be included as an option with a new supplemental or replacement bridge for I-5.</p> <p>North of the river crossing, ramps to and from the north at SR 500 would be provided with either a new supplemental or replacement bridge for I-5 (Alternative Packages 4 – 12). Adding these ramps at SR 500 would increase access points to I-5, which would improve emergency service and access to incidents on I-5 in the Bridge Influence Area.</p> <p>Eliminating northbound ramps on I-5 at 39th Street (included as an option with Alternative Packages 4, 7, 8, and 12) would result in out-of-direction travel that may impact emergency service and access.</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>A managed lane network on I-5 through the Bridge Influence Area (included with Alternative Packages 4 – 11) would provide options to increase traffic efficiency, which may enhance emergency service access to incidents on I-5.</p>

Criterion Performance

Criterion 5.3 – Enhance or maintain efficiency of marine navigation

(Part of Value 5 – Regional Economy; Freight Mobility)

◆ Performance Measure(s)
<ul style="list-style-type: none"> Potential for an alternative to avert extension of “no bridge lift” periods tied to I-5 congestion.
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> The greatest benefit to the efficiency of marine navigation would be with Alternative Packages 8 - 12, which include a replacement bridge, because this would eliminate the existing liftspan bridge, thus eliminating the “no bridge lift” period and resulting in fewer obstructions to the navigation channel.
◆ Key Findings
➤ River Crossing
<p>As congestion on I-5 increases, it is likely that bridge lift restrictions could be increased, thereby further impacting river navigation. Continuing to operate I-5 on the existing bridges (Alternative Packages 1 - 3) would decrease the efficiency of marine navigation because the “no bridge lift” period would be extended.</p> <p>A new supplemental bridge for I-5 (Alternative Packages 4 - 7) would be constructed, which would remove the limitations that I-5 traffic places on bridge lifts. The existing bridges would be used for arterial traffic and the “no bridge lift” period may decrease, which would enhance marine navigation. However, there would be additional piers in the water.</p> <p>Providing a replacement bridge for I-5 and removing the existing bridges (Alternative Packages 8 – 12) would eliminate the “no bridge lift” period, remove the existing bridge and its navigation obstructions, and provide the greatest benefit to marine navigation.</p>
➤ Transit
<p>None of the transit modes would have a meaningful impact on marine navigation efficiency. However, marine navigation needs would likely impact reliability for some transit mode and river crossing combinations.</p> <p>With a supplemental bridge for I-5, the “no bridge lift” period could be reduced since there would be no direct impact to I-5 traffic. Operating the transit service on the existing bridges (Alternative Packages 4 – 6), which may be subjected to additional bridge lifts, could impact transit schedules but would enhance marine navigation.</p> <p>With a replacement bridge that would also carry transit service (Alternative Packages 8 – 12), the “no bridge lift” period would be eliminated and there would be no impacts to transit service.</p>
➤ Roadways North and Roadways South
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>These elements would have no meaningful impact on river navigation efficiency.</p>

Criterion Performance

Criterion 6.1 – Avoid, then minimize adverse impacts to, and where practicable enhance, threatened or endangered fish or wildlife habitat

(Part of Value 6 – Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none">• What is the total area of critical and native habitat for threatened and endangered species within the design area footprint?• What is the relative quality of the habitat?
◆ Best Performing Package(s) and/or Component(s)
<p>Replacement bridge options perform better than supplemental bridge options. Express Bus and BRT-Lite options have less direct impact than LRT or BRT, although any transit options that increase transit mode share and better support growth management would likely reduce long-term, indirect impacts to threatened and endangered species.</p> <p>Alternative Package 12 has the smallest impact on threatened and endangered species; however, the differences are relatively minor.</p>

◆ Key Findings
<p>➤ River Crossing</p> <p><i>Supplemental downstream bridge:</i></p> <p>Supplemental bridges will add new piers into Columbia River and Oregon Slough (critical habitat for salmonid species), and disturb the (already disturbed) riparian area along the Columbia River and the Oregon Slough. Construction of the supplemental bridge may cause disturbance to peregrine falcons and will disturb salmonid species. Seismic retrofitting of the existing bridge will impact salmonid species, disturb peregrine falcons, and temporarily remove peregrine falcon habitat. Demolition of the existing Oregon Slough Bridge will also impact salmonid species. A supplemental interstate bridge (Alternative Packages 4 – 7) combined with the existing bridges would have approximately 23 to 24 total acres of area over water. These areas are used as surrogates for the actual area/volume of piers in the water because that information is not yet available. It is assumed that the larger the bridge area, the larger the piers that would be needed. Bridges will also indirectly impact designated critical habitat by shading the river.</p> <p><i>Replacement downstream or upstream bridge:</i></p> <p>Replacement bridges will remove peregrine falcon habitat, add new piers to the Columbia River and Oregon Slough (critical habitat for salmonid species), and disturb the riparian area along the Columbia River. Construction of the replacement bridge and demolition of existing bridges will cause disturbance to salmonid species. A downstream replacement bridge (Alternative Packages 8, 9, and 11) would have approximately 20 to 23 acres of area over water. An upstream replacement bridge (Alternative Packages 10 and 12) would have approximately 18 to 24 acres of area over water. These areas are used as surrogates for the actual area/volume of piers in the water because that information is not yet available. It is assumed that the larger the bridge area, the larger the piers that would be needed. Bridges will also indirectly impact designated critical habitat by shading the river.</p> <p><i>Supplemental arterial bridge:</i></p> <p>Seismic retrofitting of the existing bridge will impact salmonid species, disturb peregrine falcons, and potentially remove peregrine falcon habitat. The new arterial bridge will add new piers into the Columbia River (critical habitat for salmonid species) and disturb the riparian area along the Columbia River. Construction of the arterial bridge may cause disturbance to peregrine falcons and will disturb salmonid species. The arterial bridge will have an area of 18 acres over the Columbia River and Oregon Slough.</p> <p>All river crossing options will impact peregrine falcons and salmonid species through habitat loss and disturbance. A replacement bridge performs better for threatened and endangered salmon in the long term. Building a supplemental or a replacement bridge will both require new piers in the Columbia River. Demolition of the existing bridges in the replacement option will cause additional disturbance to salmonid species, but once those piers are removed only the replacement bridge piers will remain. Building a supplemental bridge will require additional piers in the river, along with larger piers on the existing bridge due to seismic retrofitting. Short-term disturbance is likely greater for the supplemental options. In the long term, a replacement bridge will have fewer piers in the water, and therefore have a smaller impact. A supplemental arterial bridge (Alternative Package 3), combined with the existing bridges, would have the least total area over water. The new</p>

arterial bridge is a smaller supplemental bridge so will have fewer impacts than the supplemental interstate bridge.

➤ **Transit**

LRT and BRT options in Alternative Packages 8, 9, and 10 have a separate bridge for the transit component over the Oregon Slough. This would add more piers into the Oregon Slough (critical habitat for salmonid species) and cause disturbance to salmonids during construction.

LRT or BRT require a wider river crossing, increasing area over water.

All LRT and BRT options impact the riparian habitat of Burnt Bridge Creek, which is native habitat for salmonid species.

Express Bus and BRT-Lite components have little direct impacts on threatened and endangered species.

➤ **Roadways North and Roadways South**

Roadways North have no direct impact on threatened or endangered species.

Hayden Island Access and Folded Diamond components have the smallest impacts on salmonid critical habitat, with about 0.02 acres affected. The Full Standard option has a slightly larger impact with 0.06 to 0.08 acres of salmonid critical habitat impacted.

The Marine Drive Flyover Access has an arterial crossing and an on-ramp from MLK crossing the Oregon Slough. This will add additional piers into the Oregon Slough (critical habitat for salmonid species) and cause disturbance to salmonids during construction. This option impacts about 1.85 acres of salmonid critical habitat.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Criterion Performance

Criterion 6.2- Avoid, then minimize adverse impacts to, and where practicable enhance, other fish or wildlife habitat

(Part of Value 6 – Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none">• What is the total area of fish and wildlife habitat within the design area footprint?• What is the range of different habitat types within the design area footprint?• What are the impacts to wildlife crossings/passage?• What is the type and quality of habitat within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<p>Replacement bridge options perform better than supplemental bridge options. Express Bus and BRT-Lite options have less direct impact than LRT or BRT, although any transit options that increase transit mode share and better support growth management would likely reduce long-term, indirect impacts to fish and wildlife.</p> <p>Alternative Package 12 has the smallest direct impact on fish and wildlife habitat; however, the differences are relatively minor.</p>

◆ Key Findings
<p>➤ River Crossing</p> <p>Replacement, downstream or upstream, bridge The replacement bridge options will remove a section of the riparian area (already disturbed) along the Columbia River, but would also provide the opportunity to restore riparian vegetation where the existing bridges are located. New piers will be added within the Columbia River, but the existing piers will be removed. This construction has the potential to impact native fish species, such as lamprey and sturgeon. Demolition of the existing bridge will remove habitat for bridge-nesting species; this can be replaced with the new bridge.</p> <p>Demolition of the existing Oregon Slough Bridge and construction of the new bridge will cause disturbance to native fish species and bridge-nesting species. Construction of the new bridge will also remove (already disturbed) riparian area along the slough, and will add piers in to the slough.</p> <p>Supplemental, downstream, bridge A supplemental bridge will remove a section of the riparian area along the Columbia River and will add new piers in the Columbia River, which has the potential to impact native fish species, such as lamprey and sturgeon. Seismic retrofitting of the existing bridge may also disturb native fish species in the Columbia River, along with bridge-nesting species using the existing bridges.</p> <p>Demolition of the existing Oregon Slough Bridge and construction of the new bridge will cause disturbance to native fish species and bridge-nesting species. Construction of the new bridge will also remove (already disturbed) riparian area along the slough, and add piers in to the slough.</p> <p>New arterial bridge Seismic retrofitting of the existing bridge will impact native fish species and bridge-nesting species using the bridge. The new arterial bridge will add new piers into the Columbia River and disturb a section of the riparian area along the Columbia River. Construction of the arterial bridge will cause disturbance to native fish species and bridge-nesting species. Demolition of the existing Oregon Slough Bridge and construction of the new bridge will cause disturbance to native fish species and bridge-nesting species. Construction of the new bridge will also remove (already disturbed) riparian area along the slough, and add piers in to the slough.</p> <p>All river crossing options impact City of Portland Environmental Zones (conservation zones), Metro Goal 5 habitat zones, and Clark County Sensitive and Critical lands. Impacts occur in the Burnt Bridge Creek area and along the Columbia River. In Portland, this would also include the Oregon Slough, Delta Slough, and the forested areas at the southwestern edge of the Marine Drive interchange. Alternative Package 3 has the smallest impact on these zones. The only habitats identified during field surveys that are impacted by the river crossings are the open water of the Columbia River and Oregon Slough. Overall, Alternative Package 3 has the smallest impact on these habitats, followed by Alternative Packages 9 and 12.</p>

All river crossing options have the potential to impact native fish in the Columbia River and Oregon Slough, bridge-nesting species using the existing bridges, and riparian habitat along the Columbia River and Oregon Slough. All options are likely to have the same impact on wildlife passage.

➤ **Transit**

The LRT and BRT options in Alternative Packages 8, 9, and 10 have a separate bridge for the transit component over the Oregon Slough. This will add additional piers into the Oregon Slough, alter the riparian area, and cause disturbance to native fish and bridge-nesting species during construction.

All LRT and BRT options impact the riparian habitat of Burnt Bridge Creek, which is habitat for native fish, migratory birds, and other wildlife species, and is a WDFW Priority Habitat and Clark County Sensitive and Critical Lands. LRT and BRT options also impact City of Portland Environmental Zones, Metro Goal 5 zones, and habitats identified during field surveys. These habitats are generally low to medium quality.

With two exceptions, Express Bus and BRT-Lite options have no direct impacts on fish and wildlife habitat. Alternative Packages 7 and 11 transit components impact roughly 1 acre of Clark County Sensitive and Critical Lands.

Transit components that increase transit mode share and better support growth management would likely help reduce long-term, indirect impacts to fish and wildlife habitat.

➤ **Roadways North and Roadways South**

Roadways North alternatives have an impact on WDFW Priority Habitats in the Burnt Bridge Creek riparian area and Urban Open Space, and on Clark County Sensitive and Critical Lands. The SR 500 Flyover Access has a greater impact on these habitats than the SR 500 Tunnel Access, and also impacts more of the habitats identified during field surveys. These habitats are of low to medium quality.

The Hayden Island Access option has no impacts to the Oregon Slough and very small impacts to City of Portland Environmental Zones, Metro Goal 5 zones, and on habitats identified during field surveys.

The Hayden Island Arterial Access option has an arterial crossing and an on-ramp from Martin Luther King Boulevard crossing the Oregon Slough. This will add additional piers into the Oregon Slough, alter the riparian area, and cause disturbance to native fish and migratory birds during construction. The Hayden Island Arterial Access has the largest impact on City of Portland Environmental Zones, Metro Goal 5 zones, and on habitats identified during field surveys (Westside Riparian Wetland habitats). These habitats are of low to medium quality.

The Full Standard option has a split off-ramp south from Hayden Island and a Martin Luther King Boulevard crossing over the Oregon Slough. This will add additional piers into the Oregon Slough, alter the riparian area, and cause disturbance to salmonids during construction. The Hayden Island Full Standard component has the second highest impacts to City of Portland Environmental Zones, Metro Goal 5 zones, and habitats identified during field surveys (Westside Riparian Wetland habitats). These habitats are of low to medium quality.

The Hayden Island Folded Diamond option has no impacts to the Oregon Slough and has the smallest impact on City of Portland Environmental Zones, Metro Goal 5 zones, and on habitats identified during field surveys.

➤ **Other (Bike/Ped, Freight, TSM/TDM, Tolling)**

Criterion Performance

Criterion 6.3 - Avoid, then minimize adverse impacts to, and where practicable enhance, rare, threatened, or endangered plant species

(Part of Value 6 - Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none">• What is the total area of rare plant habitat within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none">• All packages and components perform the same. There is no rare plant habitat impacted by any packages and/or components.

◆ Key Findings
➤ River Crossing
No impacts to rare plant habitat.
➤ Transit
No impacts to rare plant habitat.
➤ Roadways North and Roadways South
No impacts to rare plant habitat.
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
No impacts to rare plant habitat.

Criterion Performance

Criterion 6.4 - Avoid, then minimize adverse impacts to, and where practicable enhance, wetlands

(Part of Value 6 – Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • What is the total area of wetlands within the design area footprint? • What are the types and quality of different wetlands within the design area footprint?
◆ Best Performing Package(s) and/or Component(s)
<p>None of the Alternative Packages or components directly impact wetlands. The BRT and LRT components come within 3 feet of a wetland along Burnt Bridge Creek and the Hayden Island Arterial and Full Standard access options come within 40 feet of a wetland southwest of the Marine Drive interchange.</p> <p>The differences among all alternatives are minor.</p>
◆ Key Findings
➤ River Crossing
<p>There are no impacts to wetlands from river crossing options.</p>
➤ Transit
<p>The Express Bus and BRT-Lite options are farthest from the Burnt Bridge Creek wetland, while BRT and LRT options come within about 3 feet of the Burnt Bridge Creek wetland. None of the transit options has any direct impacts to wetlands.</p> <p>Any transit options that increase transit mode share and better support growth management would likely reduce long-term, indirect impacts to other wetlands.</p>
➤ Roadways North and Roadways South
<p>Roadways North components have no impacts on wetlands.</p> <p>The Hayden Island Access and Hayden Island Folded Diamond components are the farthest from the wetland near the Marine Drive interchange, while the Hayden Island Arterial access and the Full Standard components are the closest (within 40 feet).</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>There are no impacts to wetlands under any of these components.</p>

Criterion Performance

Criterion 6.5 - Avoid, then minimize adverse impacts to, and where practicable enhance, water quality

(Part of Value 6 – Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none">• How much area of additional impervious surface would be introduced by this alternative?• How much existing impervious surface would remain?
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none">• Alternative Package 3 followed by Alternative Package 12 has the smallest design area footprints.• It will generally be easier to treat stormwater runoff from a new bridge than from the existing bridges. However, existing upland space for providing extensive treatment facilities is limited.
◆ Key Findings
➤ River Crossing
<p>The new arterial bridge (Alternative Package 3) has the smallest footprint. The replacement bridge options have less total impervious surface area than the supplemental bridge options (by approximately 10-20%).</p> <p>Replacement Alternative Packages 8 - 12 will generally perform better than supplemental alternative because they have less total impervious surface area and are more conducive to full stormwater collection, conveyance, and treatment.</p> <p>No-Build has the least impervious surface area but would not include any treatment of stormwater runoff.</p>
➤ Transit
<p>The BRT and LRT options have the largest footprints, while Express Bus only has no additional footprint. All of the options allow stormwater treatment.</p>
➤ Roadways North and Roadways South
<p>The Hayden Island Access option and the Hayden Island Folded Diamond option generally have a smaller footprint than the Hayden Island Arterial Access and Full Standard Options. All options would allow stormwater treatment.</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)

Criterion Performance

Criterion 6.7 - Avoid, then minimize adverse impacts to, and where practicable enhance, waterways

(Part of Value 6 – Stewardship of Natural Resources)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • What are the removal/fill impacts to waterways? <p><i>Note: We did not have the areas of the piers or estimates of removal/fill to conduct this analysis. We used the total area of the bridge (from the Conceptual Design Package descriptions) as a proxy for the number of piers required and considered seismic retrofitting as well in the analysis.</i></p>
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> • Replacement bridges (downstream or upstream) have the fewest piers in the water, and would leave less in-water structure than alternative packages with a supplemental bridge; Express Bus and BRT-Lite options have no impacts to waterways. • Of the Build options, Alternative Package 12 has the smallest impact on waterways.
◆ Key Findings
<ul style="list-style-type: none"> ➤ River Crossing
<p>Replacement, downstream or upstream, bridge New piers will be added into the Columbia River and Oregon Slough but the existing piers would be removed. The downstream bridge would have an area of 20 to 23 acres and the upstream bridge would have at least 18 to 24 acres of area over water.</p> <p>Supplemental downstream bridge New piers will be added into the Columbia River and Oregon Slough. The supplemental bridge, combined with the existing bridges, would have a total area of 23 to 24 acres of area over water. Seismic retrofitting of the existing bridges will increase the footprint of the existing piers.</p> <p>New arterial bridge New piers will be added into the Columbia River and Oregon Slough. This bridge, combined with the existing bridges, will have a total area over water of 18 acres. Seismic retrofitting of the existing bridges will increase the footprint of the existing piers.</p> <p>All river crossing options will require new piers to be put in the Columbia River and Oregon Slough. Replacement bridges are bigger than supplemental bridges and therefore would require bigger piers; however, supplemental bridge crossings will require seismic retrofitting of the existing bridges. With the information currently available, we expect all river component options to have similar areas of fill in the water, although supplemental options would have more piers.</p>
<ul style="list-style-type: none"> ➤ Transit
<p>Express Bus and BRT Lite options have no impacts on waterways.</p> <p>LRT or BRT require a wider river crossing, increasing area over water. Furthermore, pairing BRT and LRT with a downstream replacement bridge uses a separate structure over the Oregon Slough in order to connect with the existing Expo MAX station.</p>
<ul style="list-style-type: none"> ➤ Roadways North and Roadways South
<p>Roadways North have no impacts to waterways.</p> <p>The Hayden Island Access and Hayden Island Folded Diamond Access options have the smallest impacts on waterways.</p> <p>The Hayden Island Arterial Access option has an arterial bridge over the Oregon Slough and an MLK on-ramp, both of which will require additional piers in the Oregon Slough.</p> <p>The Hayden Island Folded Diamond Access option has a split off-ramp heading south and an MLK crossing, both of which will require additional piers in the Oregon Slough.</p>
<ul style="list-style-type: none"> ➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>There will be no impacts to waterways under these components.</p>

Criterion Performance

Criterion 9.1 – Support adopted regional growth management and comprehensive plans

(Part of Value 9- Bi-State Cooperation)

◆ Performance Measure(s)
<ul style="list-style-type: none"> • Does the package support/ uphold principles of multi-modalism and compact growth? • Which package options are included in the RTP and MTP, project lists, and modeling? • Is the package consistent with other plan policies in regional plans listed in the land use MDR?
◆ Best Performing Package(s) and/or Component(s)
<ul style="list-style-type: none"> • HCT, and specifically LRT, is included in regional plans. Transit is the only component that provides LRT service and best supports most regional plans, including the Bi-State Trade and Transportation Study. • Packages that include a balance of transit and highway improvements are generally more likely to support multi-modalism and compact growth (Alternative Packages 3, 4, 8, and 9). • Medium performing packages include Alternative Packages 5, 6, 10, and 11 (HCT). • Low performing packages include Alternative Packages 1, 2, 7, and 12 (no HCT mode/stations).
◆ Key Findings
➤ River Crossing
<p>River crossings that require less ROW acquisitions on Hayden Island and in downtown Vancouver will better support regional economic development goals, with Alternative Package 5 having the greatest impacts to downtown Vancouver. Alternative Package 3 appears to have the least impacts to downtown Vancouver.</p> <p>Additionally, the Clark County County-wide planning policies include historic preservation, supporting supplementation of the existing bridge. However, those packages that include a balanced approach of transit and highway improvements better support multi-modalism.</p>
➤ Transit
<p>Components with Express Bus fail to provide HCT as explicitly called for in regional plans. Only the LRT component is consistent with plan policies that speak to the regional transit network and with the recommendations of the Bi-State Trade and Transportation Study which are referenced in numerous plans. In addition, this component provides the most reliable light rail service through the construction of a new fixed span bridge.</p>
➤ Roadways North and Roadways South
<p>There is no discernable difference between packages for this criterion.</p>
➤ Other (Bike/Ped, Freight, TSM/TDM, Tolling)
<p>Alternative Package 3 is the best option from a bicycle and pedestrian standpoint because it provides the shortest distance to travel, provides easy access onto the facility, and places bikers and pedestrians next to low-speed traffic traveling locally on an arterial bridge.</p> <p>Alternative Packages 5, 6, and 7 are less desirable options because they create longer distances to travel, place bicyclists and pedestrians close to high-speed freeway traffic, and have narrow lanes with limited shoulders.</p>

Columbia River **CROSSING**

Freight Working Group Recommendations

CRC Task Force

October 25, 2006



Freight Working Group

Purpose:

- Provide advice on how the Columbia River Crossing project can improve freight mobility

Members:

- Boise Building Supply
- Columbia Corridor Association
- Columbia Sportswear
- Esco Corporation
- G&M Trucking
- Georgia Pacific
- Jet Delivery Systems
- Redmond Heavy Hauling
- Swanson Bark
- United Road Service

Freight Components

F-1: Freight in Managed Lanes

F-2: Freight Bypass Lanes

~~F-3: Freight Restrictions~~

~~F-4: Increased Truck Size~~

F-5: Freight Direct Access Ramps

F-6: Enhanced Highway Design
for Freight Mobility



F-1: Freight in Managed Lanes

- An example is truck only lanes
- Effective for long-distance trips and high truck volumes
- Would not be effective in 5-mile Bridge Influence Area due to number of closely-spaced interchanges serving freight
- Difficulties would be experienced accessing managed lanes
- In addition, truck-only facilities should be physically separated from general purpose traffic – requiring direct access ramps and substantial right-of-way
- FWG recommends dropping F-1 from further consideration

F-2: Freight Bypass Lanes

- Freight bypass lanes allow trucks to use an exclusive lane to bypass an interchange or a ramp
- Can reduce delay for truck trips
- Can improve reduce conflicts and improve safety for automobiles and trucks
- FWG recommends continued consideration of F-2

F-5: Freight Direct Access Ramps

- Provide direct and separated access ramp for trucks between freeway and roadway
- Designed for truck operating characteristics
- Can reduce delay for truck trips
- Can improve reduce conflicts and improve safety for automobiles and trucks
- Should be considered at high truck volume locations
- FWG recommends continued consideration of F-5 (not solely for use with freight in managed lanes)

F-6: Enhanced Highway Design for Freight Mobility

- Basic highway improvements that consider freight mobility needs may be single most important freight component
- Geometric improvements:
 - Adding mainline and ramp capacity
 - Improving ramp lengths and grades
 - Extending weaving, merging and diverging distances
 - Improving curves
 - Reducing or eliminating bridge lifts
- FWG recommends addition of F-6

Summary of FWG Recommendations

- Drop F-1: Freight in Managed Lanes
- Retain F-2: Freight Bypass Lanes
- Retain F-5: Freight Direct Access Ramps
- Add F-6: Enhanced Highway Design for Freight Mobility

October 18, 2006

TO: CRC Task Force
FROM: CRC Freight Working Group
SUBJECT: **Screening of Freight Components**

The Columbia River Crossing project's Freight Working Group (FWG), which consists of representatives of the Vancouver-Portland metropolitan area's freight industry and meets regularly to provide input to the project, unanimously recommends the following regarding the remaining freight components being considered:

- Component F-1 – Freight in Managed Lanes: Drop from further consideration
- Component F-2 – Freight Bypass Lanes: Continue to consider as a project component
- Component F-5 – Freight Direct Access Ramps: Continue to consider as a project component
- Component F-6 – Enhanced Highway Design for Freight Mobility: Add as a new component to be considered

Components F-3 and F-4 (Freight Restrictions and Increased Truck Size) were previously dropped from consideration by the Task Force.

For additional information regarding Components F-1, F-2, F-5, and F-6, please refer to the following pages.

Freight Working Group Committee:

Member	Organization
Grant Armbruster	Columbia Sportswear
Steve Bates	Redmond Heavy Hauling
Bryan Bergman	Georgia Pacific
Mark Cash	G&M Trucking
Corky Collier	Columbia Corridor Association
Ken Emmons	United Road Service
Jerry Gaukroger	Boise Building Supply
Lee Johnson	Jet Delivery Systems
John Leber	Swanson Bark
Tracy Whelan	Esco Corporation

Component F-1: Freight in Managed Lanes

Description

Freight in managed lanes could cover a range of facilities from truck-only lanes to managed lanes where vehicles pay a fee to enter the lanes when there is excess capacity. Managed lanes are typically designed for high occupancy vehicles.

Analysis of Operating Conditions

Managed lanes offer a travel time benefit to truck mobility primarily for long distance trips. For short trips, the time delay caused by weave maneuvers required to enter and exit the truck-only lane or a managed lane is often a large portion of the total travel time. Several of the region's major freight generators are accessed to and from I-5 within the Bridge Influence Area such as the Port of Vancouver, the Port of Portland, and the Columbia Corridor and would not benefit from an approximate five-mile-long truck-only lane. In addition, there is generally no net travel time benefit for trucks operating in managed lanes during the off peak, and no need to pay a fee to enter the lane.

Truck-only facilities on an interstate are generally recommended to be physically separated from general purpose traffic to reduce or eliminate the effect of trucks weaving into and out of this lane. Because of this separation, direct-access ramps to truck-only lanes are required and have limited locations. Such a configuration would substantially impact the I-5 Bridge Influence Area, which has limited right-of-way and many interchanges. The cost and environmental impacts of added infrastructure within this corridor would be considerable.

The summary below provides a comparison of conditions within the I-5 Bridge Influence Area to three criteria for truck-only lanes recommended from current research.

Truck-Only Lane Criteria Assessment for I-5 Bridge Influence Area

Criteria	Criteria met today?	Criteria met in 2020?
Truck volume exceeds 30% of the normal traffic mix.	No 125,000 daily trips on the I-5 Columbia River Bridge with at most 9% trucks including smaller single-unit trucks. Peak direction-peak period percentages tend to be lower.	No Previous analysis from the I-5 Partnership and recent I-5 Delta Park study results show truck volumes as a percentage of total traffic will not reach 30%.
Peak hour volume exceeds 1,800 vehicles per lane per hour.	Yes The I-5 Partnership work and recent Delta Park EA shows that peak period/direction volumes within the Bridge Influence Area exceed 1,800 vehicles per lane.	Yes Growing regional demand ensures this criteria will be met in the future.
Off-peak volumes exceed 1,200 vehicles per lane per hour.	Partially The Delta Park EA shows southbound I-5 afternoon volumes exceeding 1,200 vph on the I-5 Bridge. At other Bridge Influence Area locations, volumes drop below 1,200 vph. Northbound morning volumes rarely exceed 1,000 vph.	Partially Barring significant changes in regional jobs/housing balance, it is reasonable to assume these criteria, partially met today, will continue to be at least partially met in 2020.

Source: Identification and Thresholds Analysis of Truck Only Lanes, Working Paper 6.2, I-5 Columbia River Crossing Partnership: Traffic and Tolling Analysis, Prepared by David Evans and Associates, Inc. and Parisi Associates, November 2000.

Recommendation

The FWG recommends dropping Freight Component F-1 from consideration and exploring other more effective freight facilities during the design of alternatives.

Component F-2: Freight Bypass Lanes

Description

Bypass lanes can accommodate a high volume of vehicle trips around a system interchange (highway-to-highway) or around a major arterial interchange. Freight bypass lanes could also be applied to ramps, and could be used to avoid starting from a stop at ramp meters. I-5 at Barbur Boulevard is a local example.

Analysis of Operating Conditions

Freight bypass lanes are used to bypass complex interchanges and intersections, thus minimizing potential for delay due to local congestion. A bypass lane around an interchange reduces delay for through truck trips when the interchange is congested. In addition, it removes trucks from the highway mainline and from the weaving maneuvers of general purpose traffic at major interchanges.

The concept of a truck bypass lane could be applied to ramps by adding an exclusive lane for trucks. This concept can provide a travel-time advantage for trucks during congested conditions and if ramp metering is in effect. In addition, a bypass lane can eliminate trucks starting from a stop condition when entering the highway. Trucks require longer acceleration distances and if a truck enters the highway at a higher speed, it has less impact on general purpose traffic and less reduction of the effective highway capacity.

Recommendation

The FWG recommends carrying forward F-2: Truck-freight bypass lanes.

Component F-3: Freight Restrictions

This component was previously dropped by the Task Force.

Component F-4: Increased Truck Size

This component was previously dropped by the Task Force.

Component F-5: Freight Direct Access Ramps

Description

Freight direct access ramps provide access from an independent highway lane such as a truck-only lane or managed lane. However, a truck access ramp could be warranted to serve a high volume of trucks when there is not an independent highway lane. Such a ramp may or may not be for the exclusive use of trucks, but may be warranted due to the truck volume.

Analysis of Operating Conditions

Separation of trucks and passenger cars could reduce conflicts resulting from different vehicle operating characteristics. Removing trucks from high volume ramps could preserve capacity for general purpose traffic.

A truck access ramp could improve travel time reliability for trucks at locations with high truck volumes and high general purpose traffic volumes. In the Portland-Vancouver region, the location of truck access to and from I-5 is a significant design consideration in order to address the relatively large volume of trucks to and from local industrial land uses such as the Port of Portland, Port of Vancouver, and various distribution centers.

Improvements to access ramps for trucks are an opportunity for “truck-friendly” design by lengthening acceleration and merge distances, reducing grade, and reducing superelevation on curves. Truck-friendly design preserves ramp and mainline capacity for general purpose traffic. In addition, there is a safety benefit for trucks and general purpose traffic.

Recommendations

The FWG recommends revising F-5 as “Access ramps for trucks” to be more inclusive of all potential ramp facilities that benefit trucks and general purpose traffic.

Component F-6: Enhanced Highway Design for Truck Mobility

Description

Enhanced highway design for truck mobility addresses the difference in operating characteristics between trucks and general purpose traffic. Trucks are longer and heavier, require longer distances for acceleration and deceleration, are affected more significantly by steep grades, and are more limited in mobility around tight curves and on super-elevated curves. When truck speeds and mobility differ from that of general purpose traffic, they have the effect of reducing the capacity along a mainline segment and on a ramp.

Analysis of Operating Conditions

Truck needs are essentially the same as those for general purpose traffic. The differentiating issues between trucks and general purpose traffic are their operating characteristics. Adding mainline capacity provides a window of opportunity for increasing the number of hours that the highway operates in uncongested conditions, which facilitates the efficient movement of trucks. An uncongested or less congested system offers better reliability and fast travel times—both of which are important for freight. Improved safety along the corridor will also reduce the unexpected delay associated with incidents, which will also improve the reliability of the system for freight.

The benefits of truck-only facilities are limited to locations with very high volumes of trucks and single-purpose truck movements (through truck trips, direct access, etc.). The FWG recognizes that improvements to truck mobility benefit all traffic. In addition, truck-friendly highway design will result in accrued benefit to all significant truck movements within and through the Bridge Influence Area, whether or not the location warrants a truck-only facility. Examples of major improvements that could provide improved mobility for trucks are:

- Improved design of the eight interchanges in five miles
- Efficient access – truck bypass lanes and truck ramps
- An increase in the number of through lanes to at least preserve the existing hours of uncongested highway conditions
- Geometric improvements to increase capacity and reduce the crash rate – i.e., grades, ramp curves and superelevation, and merge and weave distances
- Reduction in or elimination of the number of bridge lifts

Finally, safety improvements targeted to trucks could reduce the potential for crashes with general purpose traffic and the liability for truck drivers. Truck-friendly design can integrate needed safety improvements with the highway design.

Recommendations

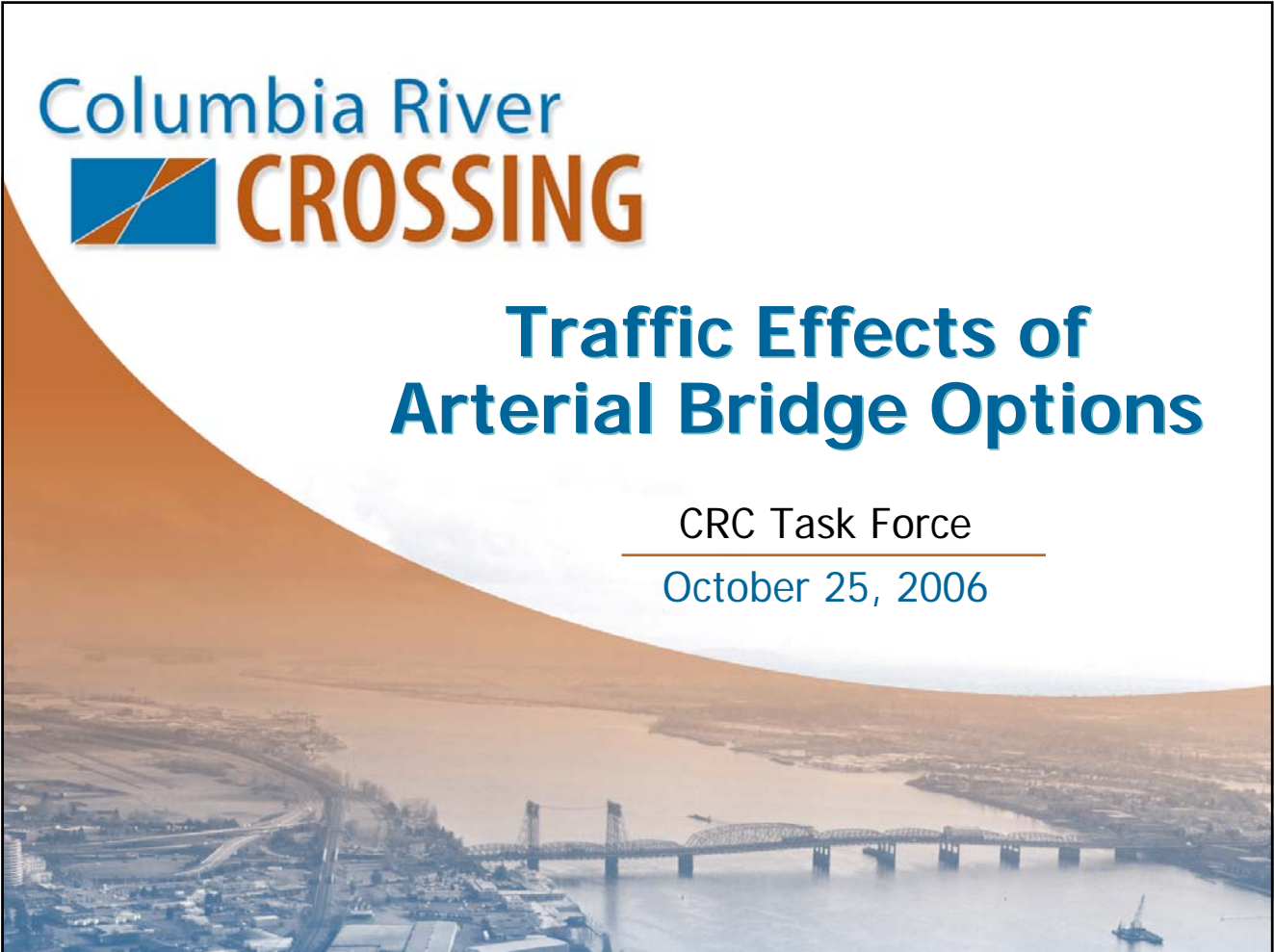
The FWG recommends adding freight component F-6: Enhanced design for truck mobility.

Columbia River
 **CROSSING**

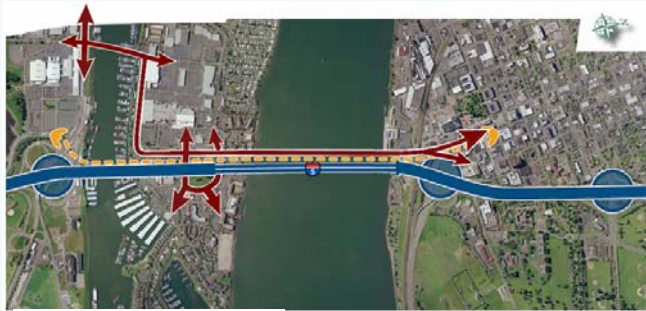
**Traffic Effects of
Arterial Bridge Options**

CRC Task Force

October 25, 2006

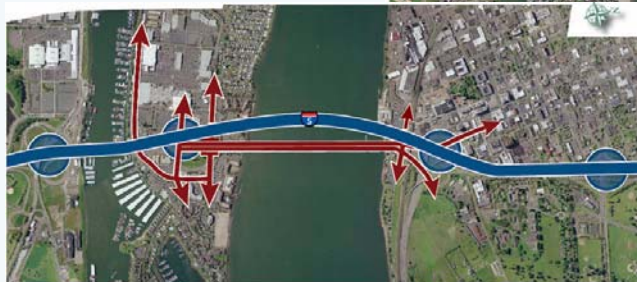


Arterial Alternative Overview



Alternative 3

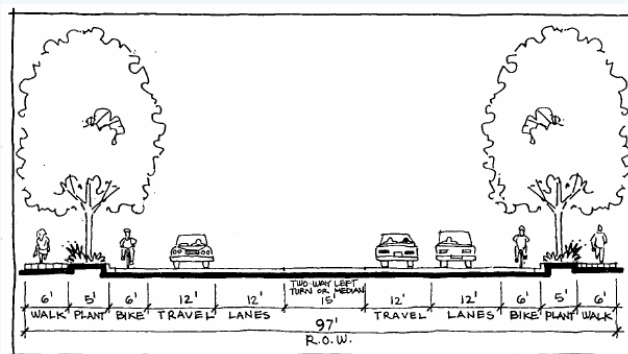
Alternative 4 & 5

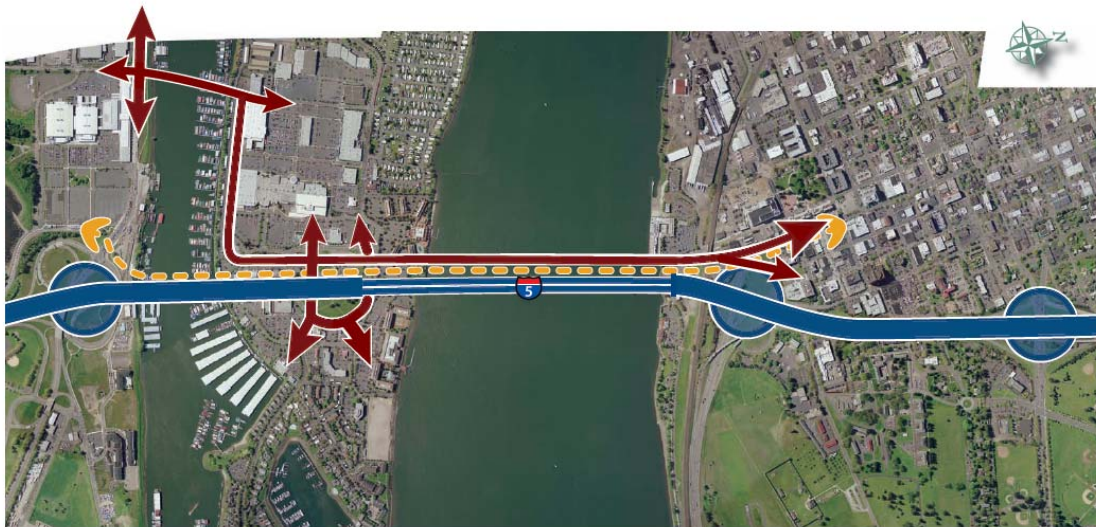


Alternative 6 & 7

Arterial Roadways

- Alternatives 3 through 7 include an arterial roadway crossing the Columbia River
- What is an arterial?
 - Generally 2 to 6 through travel lanes
 - Usually 35 to 55 mph posted speeds
 - Provide high degree of mobility
 - Broad right-of-way
 - Bicycle and pedestrian facilities

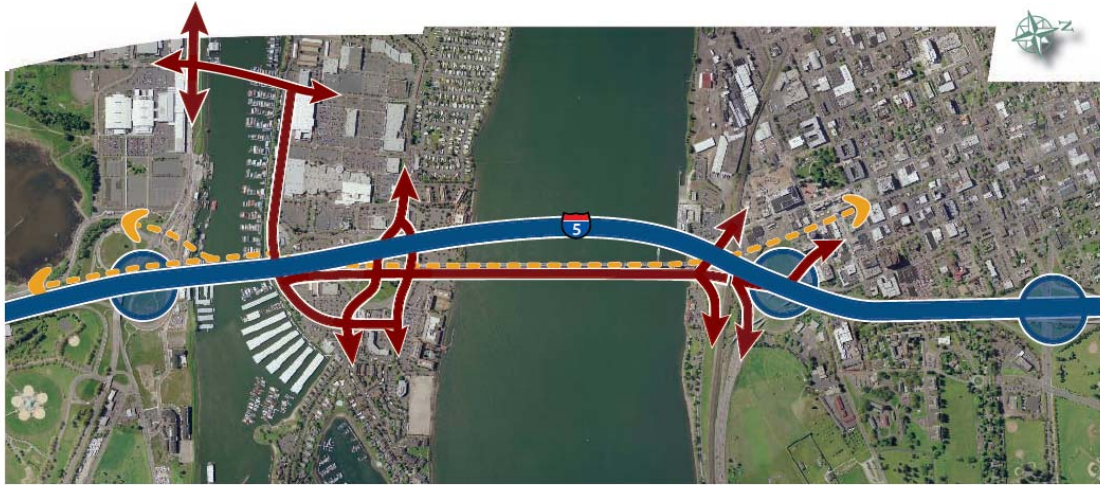




DISCLAIMER These maps are for discussion purposes only and are subject to change.

LEGEND

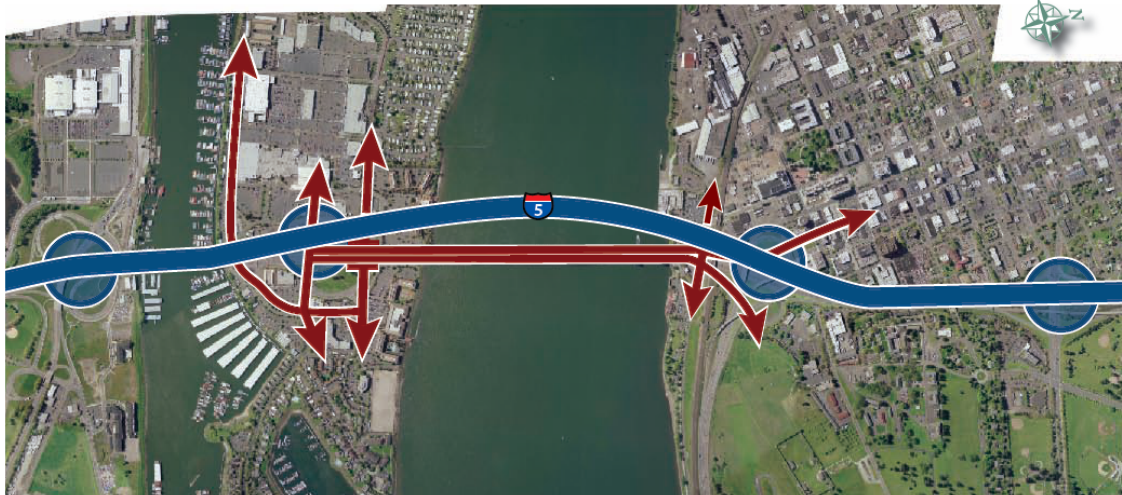
-  I-5 Travel Lanes
-  Arterial Connections
-  High Capacity transit alignments
-  I-5 Interchange



DISCLAIMER These maps are for discussion purposes only and are subject to change.

LEGEND

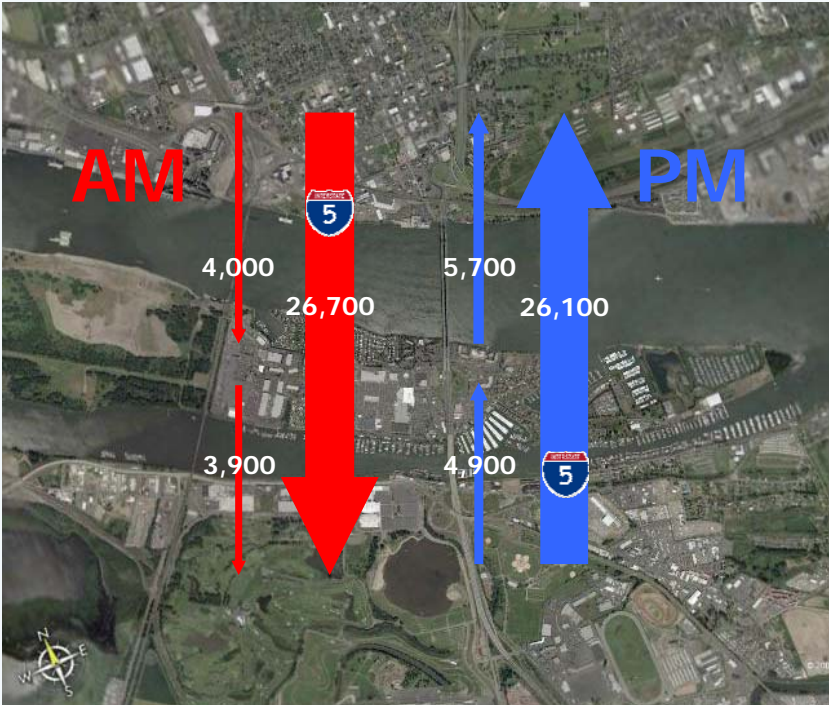
-  I-5 Travel Lanes
-  Arterial Connections
-  High Capacity transit alignments
-  I-5 Interchange



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- LEGEND**
- I-5 Travel Lanes
 - Arterial Connections
 - I-5 Interchange

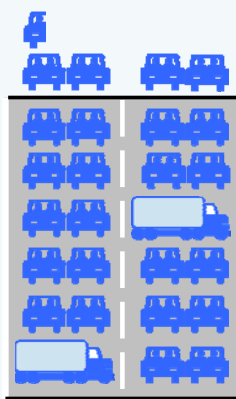
Alternative 3: 2030 4-Hour Volumes



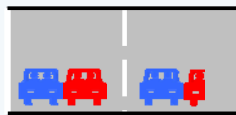
Alternative 3: 2030 4-Hour Volumes

AM 4-Hr

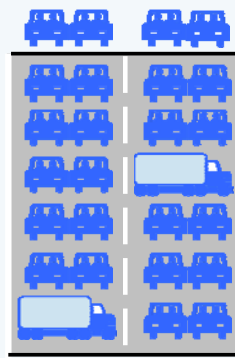
PM 4-Hr



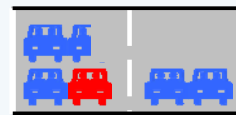
I-5 Bridge



Arterial Bridge



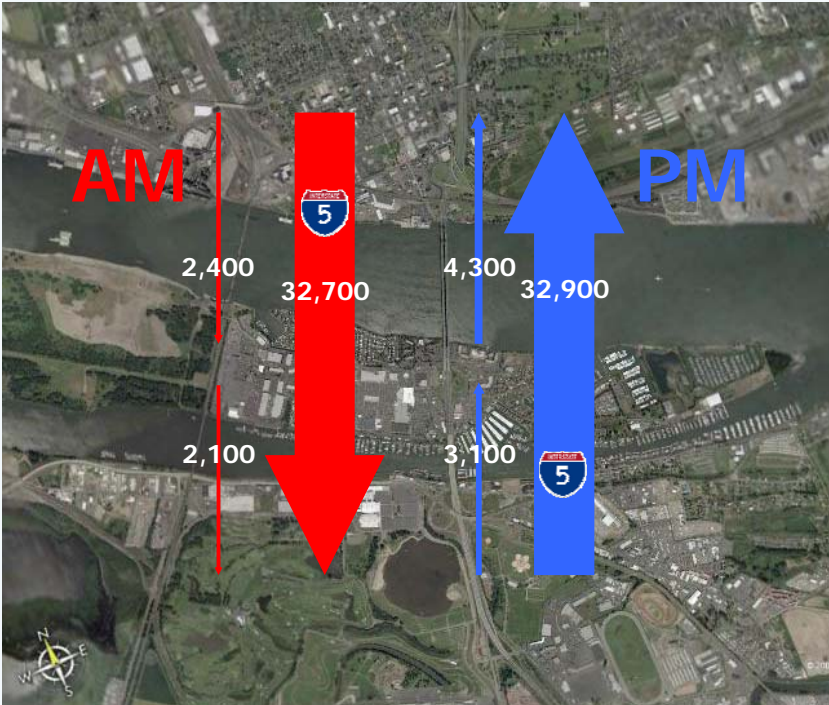
I-5 Bridge



Arterial Bridge

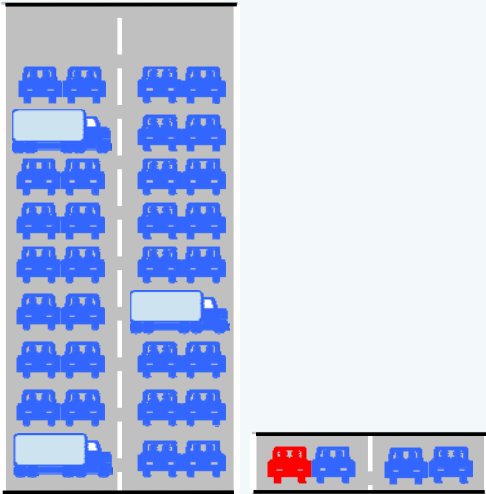


Alternative 4 & 5: 2030 4-Hour Volumes



Alternative 4 & 5: 2030 4-Hour Volumes

PM 4-Hr



I-5 Bridge

Arterial Bridge

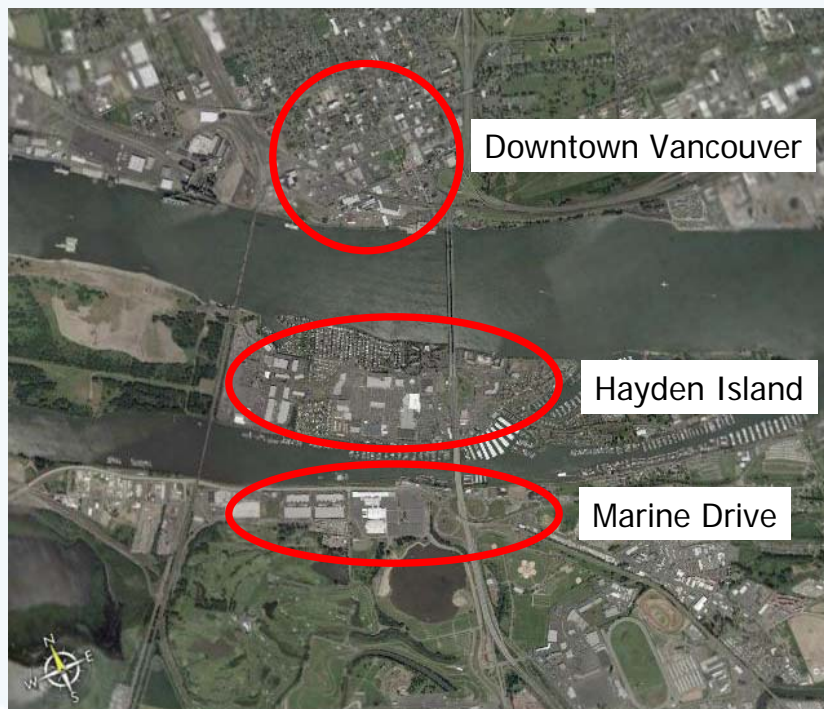
 "Local Trips"  "Regional Trips"



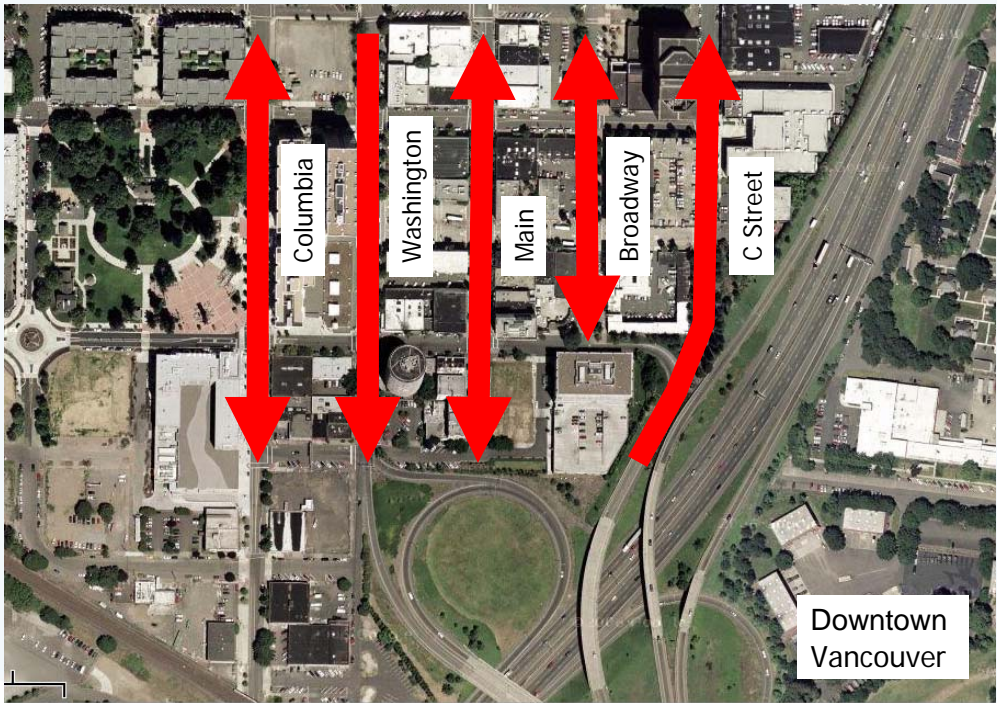
Alternative 6 & 7: 2030 4-Hour Volumes



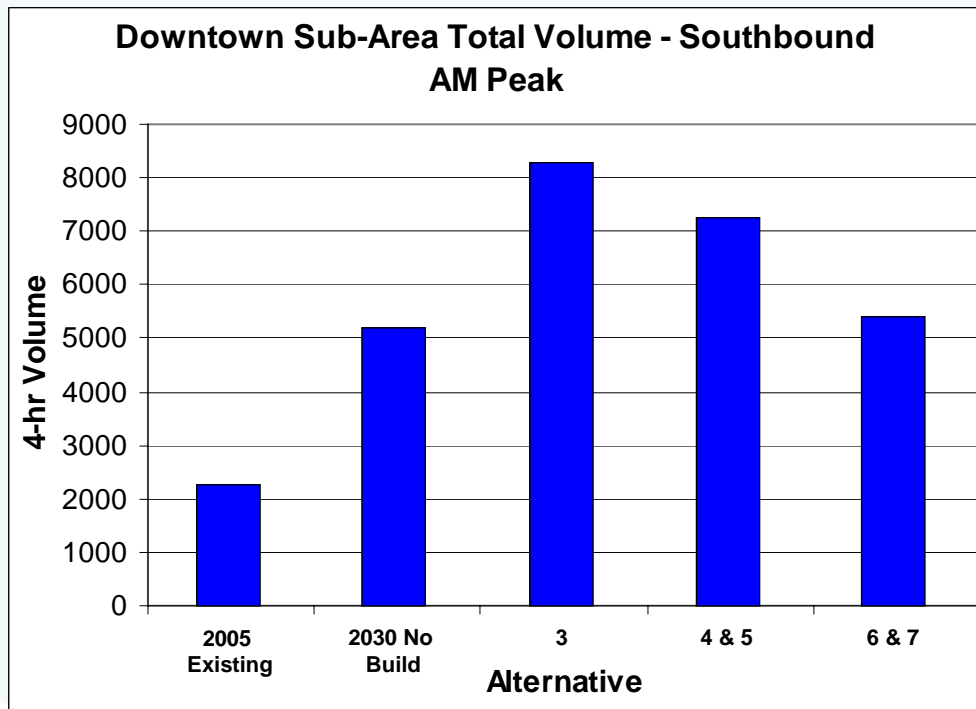
Alternative 3: Impacts to Local Street Networks



Alternative 3: Downtown Vancouver Effects



AM Peak Traffic Impacts in Downtown Vancouver



Findings of Arterial Alternative Analysis

- Alternative 3:
 - The arterial bridge would be moderately used
 - I-5 would remain congested - demand exceeding capacity
 - 60-80% of the arterial volume comprised of “diverted” trips
 - Arterial traffic would increase congestion in downtown Vancouver, on Hayden Island, and in the vicinity of Marine Drive
 - Freight movement may experience increased travel time variability
 - Safety issues along I-5 would not be addressed

Findings of Arterial Alternative Analysis

- Alternatives 4 & 5 and 6 & 7:
 - The arterial bridge would carry low traffic volumes
 - 50-75% of the arterial volume comprised of “diverted” trips
 - Arterial traffic would increase congestion in downtown Vancouver, on Hayden Island, and in the vicinity of Marine Drive
 - The new I-5 bridge could accommodate all “arterial” trips

Columbia River **CROSSING**

Preliminary Results of Alternatives Analysis

Task Force

October 25, 2006



Task Force Meetings and Topics

October 2006 – March 2007

		October	November	December	January	February	March
		25	29	13	23	27	27
Topics:	1.	Preliminary evaluation results	Preliminary evaluation results	Review staff recommendations	Tolling and finance discussion	Review public comments	Refinement discussions on alternatives (interchange options, transit alignment options, etc.)
	2.		Draft staff recommendations for transit modes and river crossing	Draft Task Force recommendations for DEIS alternatives (transit and river crossing)	Economic importance of corridor	Task Force recommendations for DEIS alternatives (transit and river crossing)	

Basic Steps in Alternatives Evaluation

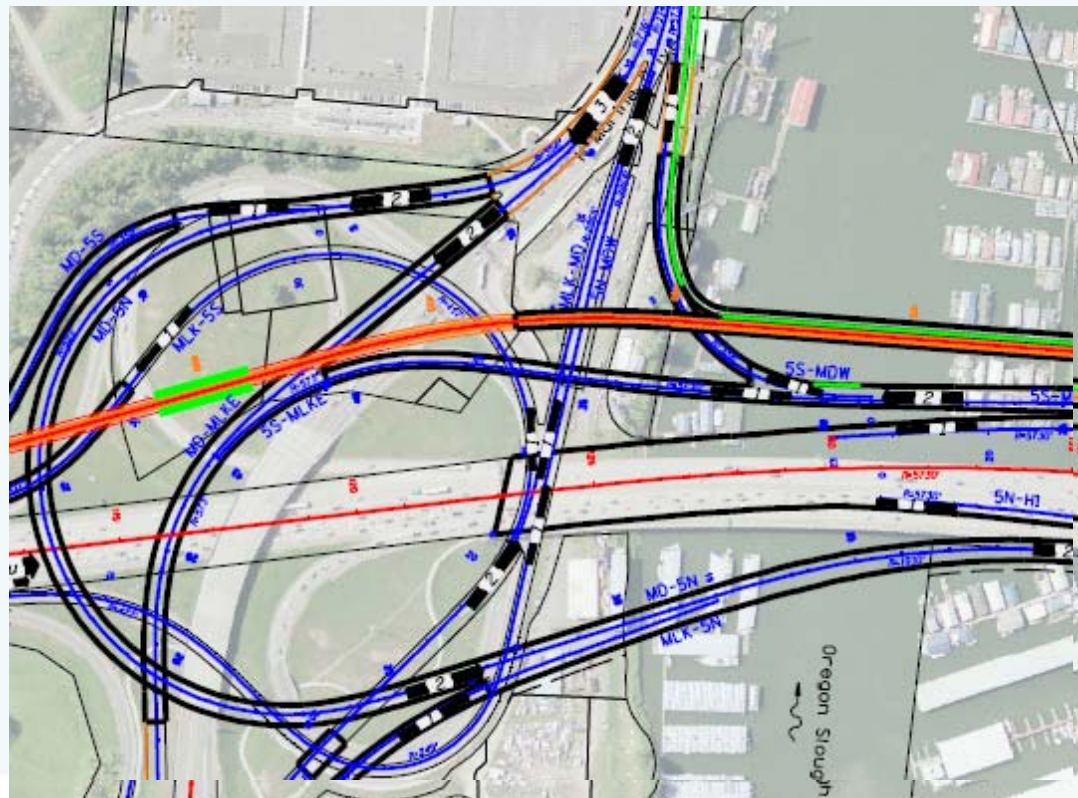
- Measure how well the components and packages meet the adopted Vision and Values
 - Criteria and Measures
 - Other considerations as appropriate
- Shortlist the components – best-performing, and regulation-consistent
 - Narrow the River Crossing options
 - Narrow the Transit options
- Assemble the shortlist of River Crossing and Transit options into packages for the Draft EIS
 - Refine the designs and optimize performance

Current project definitions

- Based on Conceptual Design
 - 1 to 2% design
 - Results are accurate but approximate
 - Site specific impacts will evolve as designs evolve
- BRT and LRT are “Representative Alignments”
 - Current impacts and performance based on this alignment
 - Performance is relatively transferable to similar alignments
 - Specific impacts will differ
 - Additional alignments will be evaluated

Assigning Impacts and Performance Variation

- Separate the impacts due to Interchange Options and Ramp configurations
 - Marine Drive
 - Hayden Island
 - Ramp options
 - SR 14 options



Values and Criteria

1. Community Livability and Human Resources (12 of 19)
2. Mobility, Reliability, Accessibility, Congestion Reduction
3. Modal Choice
4. Safety (6 of 6)
5. Regional Economy, Freight Mobility (1 of 8)
6. Stewardship of Natural Resources (10 of 11)
7. Distribution of Impacts and Benefits
8. Cost Effectiveness and Financial Resources
9. Growth Management, Land Use (2 of 2)
10. Constructability

Reporting of Results

- Performance for each criterion
 - Which option(s) perform best on this criterion?
 - Why?
 - Is this a differentiator?
 - No, Minor, Moderate or Major
- Summary of performance for each Value

(Note: Comparisons do not include No-build (alt 1) because we already know it will advance to the DEIS)

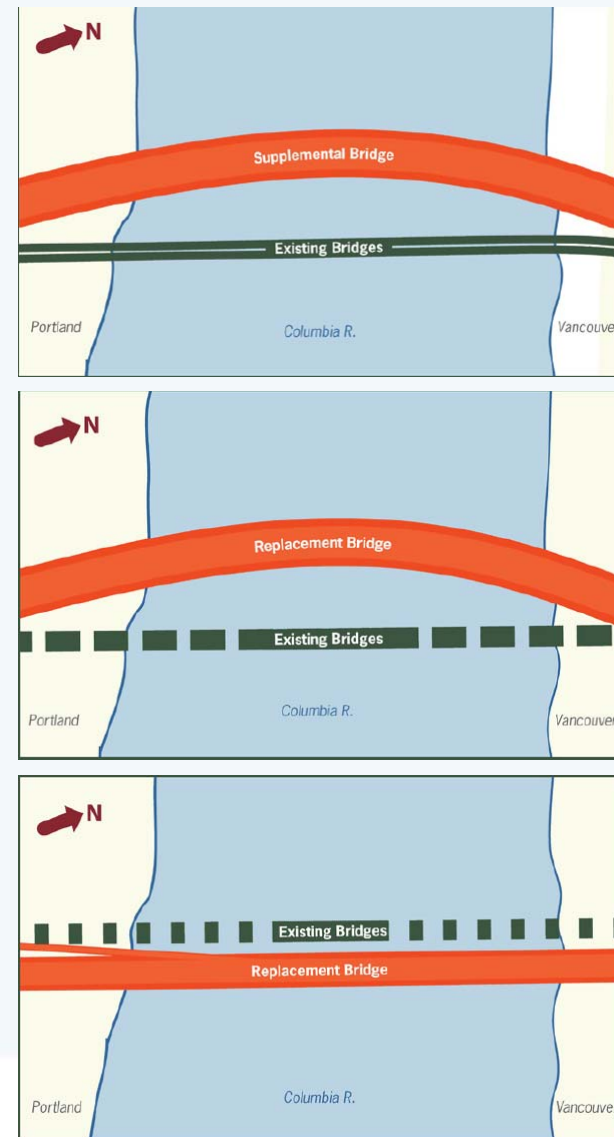
Columbia River **CROSSING**

River Crossing Options



River Crossing Options

- New Arterial (Supplemental) (I-5 on existing bridge) (3)
- Supplemental Downstream (I-5 on new bridge) (4-7)
- Replacement Downstream (8, 9, 11)
- Replacement Upstream (10, 12)



VALUE 1. COMMUNITY LIVABILITY AND HUMAN RESOURCES

River Crossing Options

Preliminary results – RIVER CROSSING

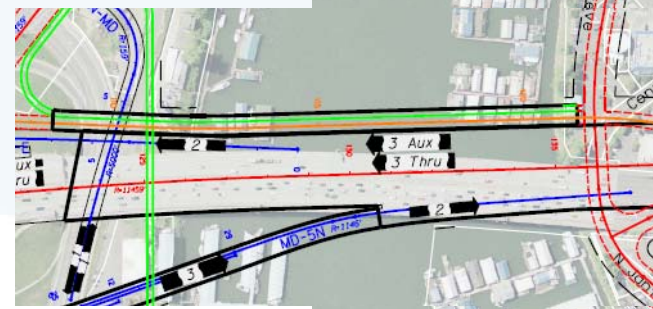
1.2: Neighborhood Cohesion

- Downstream Replacement bridges perform best
 - No alternative would bisect neighborhoods
 - No alternative would acquire a large portion of neighborhoods
 - Supplemental bridges significantly increase cut-through traffic
 - Upstream replacement bridges eliminate the only supermarket on Hayden Island. All other river crossings can avoid it
- Is this a differentiator?
 - Moderate: Downstream Replacement better than Upstream Replacement; All Replacement better than all Supplemental

Preliminary results – RIVER CROSSING

1.4: Residential Displacements

- New Arterial bridge has fewest residential displacements
 - Displaces 0-10 floating homes
 - Others displace 5-15 floating homes
 - Number of displacements varies with Interchange options and transit mode
- Is this a differentiator?
 - Minor: River crossing options similar



Preliminary results – RIVER CROSSING

1.5: Business Displacements

- Replacement alternatives impact less commercial land than Supplemental alternatives
 - Build alternatives range from about 20 to 30 parcels
 - See different location of impacts
- Is this a differentiator?
 - Moderate: Replacement bridges allow smaller interchange footprint

Preliminary results – RIVER CROSSING

1.5: Business Displacements – Hayden Island

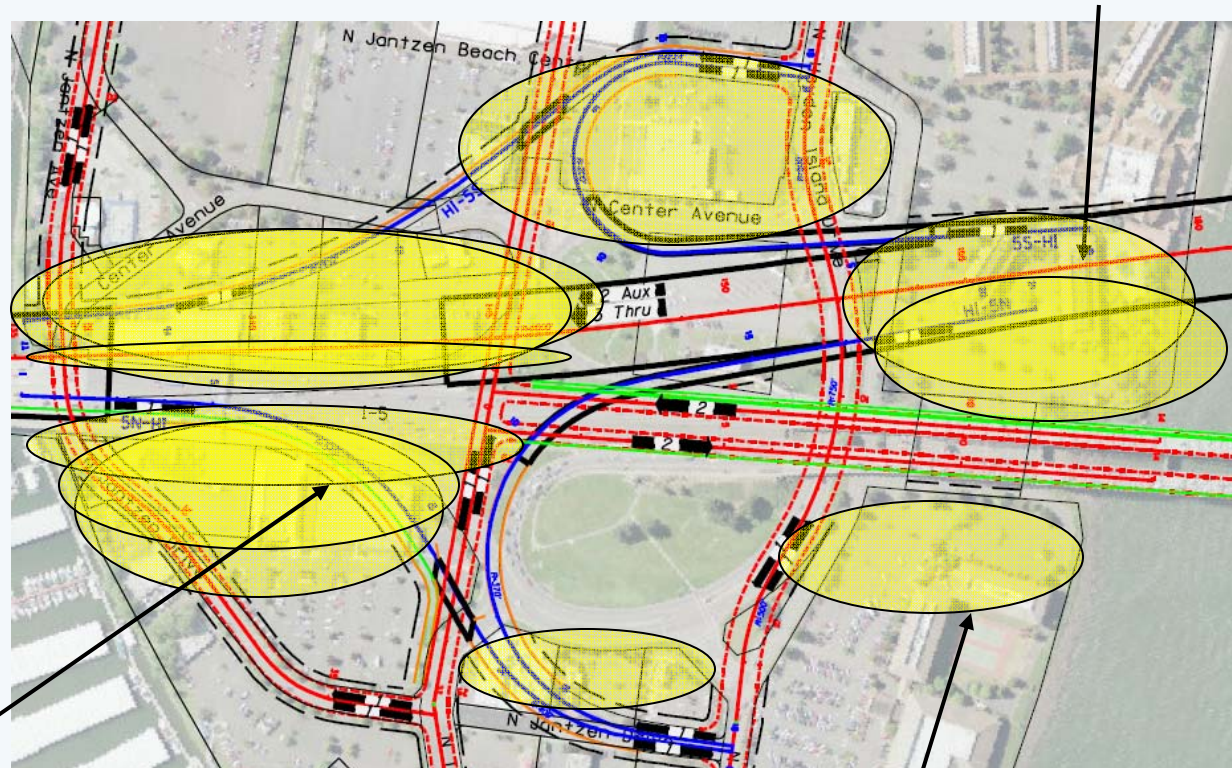
Thunderbird

Upstream Repl (10):

- Avoids Thunderbird and west of I-5
- Hits east of I-5
- Hits Red Lion
- Takes Safeway

Downstream Repl:

- Hits Thunderbird, N. Center Ave to partial Safeway
- Longer and narrower



Safeway

Downstream Supp:

- More of Thunderbird
- Both sides of I-5
- Partial Safeway
- Wider and shorter

Red Lion

Preliminary results – RIVER CROSSING

1.6: Historic & Prehistoric Cultural Resources

- The Supplemental Alternatives have lower potential impacts than the Replacement Alternatives
 - All Bridge build alternatives
 - Impact corner and edge of Reserve
 - No known archaeological sites but potential is high
 - Replacement alternatives
 - Greater impact to historic bridge (removal vs character change)
 - Upstream Replacement could encroach more on Reserve

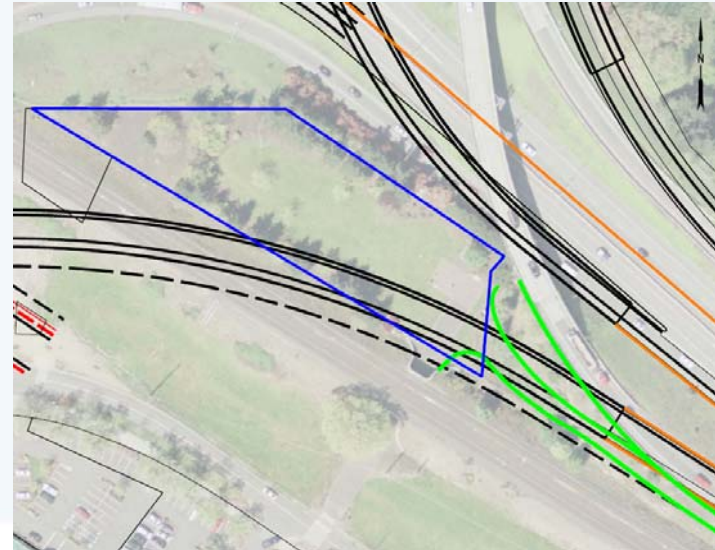
- Is this a differentiator?
 - Moderate: Replacements remove the existing bridges

Preliminary results – RIVER CROSSING

1.7: Park and Recreation Resources

- New Arterial Option would have the lowest impact
 - Avoids impact on new pedestrian “landbridge” over SR14
 - Avoids potential impacts on Apple Tree park (impacts vary with interchange options)

- Is this a differentiator?
 - Moderate: New Arterial better
 - Minor difference among the viable build alternatives

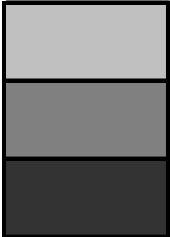


Preliminary results – RIVER CROSSING

1.8: Local Comprehensive Plan Compliance

- Replacement bridges perform better than Supplemental
 - All build options are consistent with local plans (VCCV)
 - Supplemental Bridges:
 - Consume more total developable and redevelopable land
 - Significant cut-through traffic
 - Replacement Bridges:
 - Downstream affects Inn at the Quay; Upstream does not
 - New bridge provides better HCT service
- Is this a differentiator?
 - Moderate: Replacement better than Supplemental

Summary of results for RIVER CROSSING – *Community Livability and Human Resources*

	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream	
1.2 Neighborhoods	Medium Gray	Dark Gray	Dark Gray	Light Gray	Medium Gray	 <p>Better</p> <p>Worse</p>
1.4 Residential Impacts	Light Gray	Light Gray	Medium Gray	Medium Gray	Medium Gray	
1.5 Commercial impacts	Light Gray	Light Gray	Medium Gray	Light Gray	Light Gray	
1.6 Historic and Archae Resources	Light Gray	Light Gray	Light Gray	Medium Gray	Medium Gray	
1.7 Parks	Light Gray	Light Gray	Medium Gray	Medium Gray	Medium Gray	
1.8 Local Plans	Dark Gray	Medium Gray	Medium Gray	Light Gray	Light Gray	

**VALUE 4.
SAFETY**

**VALUE 5.
REGIONAL ECONOMY AND FREIGHT MOBILITY
(Only Marine Navigation Efficiency)**

River Crossing Options

Preliminary results – RIVER CROSSING

4.1 Vehicle and Freight Safety

- Replacement bridges provide greater safety improvements than supplemental bridges:
 - Eliminate bridge lift hazards
 - Significantly less downtown Vancouver cut through traffic
 - (All replacement and most supplemental options bring I-5 up to current safety design standards)
- Is this a differentiator?
 - Moderate: Replacement safer than Supplemental; New Arterial is the worst (does not meet purpose and need)

Preliminary results – RIVER CROSSING

4.2: Bike/Pedestrian Safety

- All river crossing options can provide safe bike/ped facility
- Is this an important difference?
 - No

Preliminary results – RIVER CROSSING

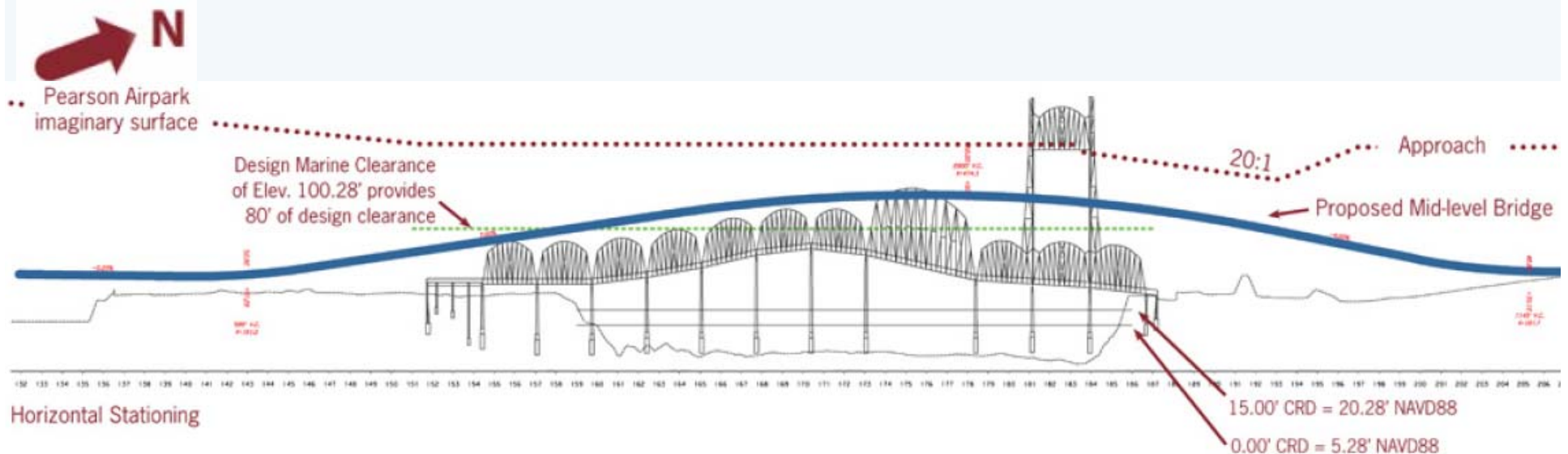
4.3: Marine Safety

- Replacement bridges provide greater marine safety than supplemental bridges:
 - Eliminate bridge lifts
 - Fewer piers in the water
 - Simplify vessel maneuvers
- Is this a differentiator?
 - Major: Replacement safer than Supplemental

Preliminary results – RIVER CROSSING

4.4: Aviation Safety

- Replacement bridges provide greater aviation safety improvements than supplemental bridges:
 - Eliminate existing bridge lift towers from approach airspace
- Is this a differentiator?
- Moderate: Replacement safer than Supplemental



Preliminary results – RIVER CROSSING

4.5: Sustained Lifeline Connectivity

- Replacement bridges provide more comprehensive lifeline than supplemental bridges:
 - Locate all transportation modes on new bridge
- Is this a differentiator?
 - Minor: Replacement better than Supplemental

Preliminary results – RIVER CROSSING

4.6: I-5 Incident/emergency response

- Replacement bridges and Supplemental bridges that locate I-5 traffic on a new bridge perform best:
 - Provide full standard shoulders and lanes
 - New arterial bridge fails this criterion
- Is this a differentiator?
 - Major: Replacement and Supplemental significantly better than New Arterial

Preliminary results – RIVER CROSSING

5.3: Marine Navigation Efficiency

- Replacement Bridges best for navigation
 - They remove the lift span, include fewer piers and simplify navigation routes
 - New Arterial with I-5 on the existing bridges is the worst
 - Maintains and possibly extends restrictions on bridge lifts
 - Increases complex navigation maneuvers
 - Supplemental with other modes on the existing bridges could improve conditions
 - May reduce or remove restrictions on bridge lifts
- Is this a differentiator?
 - Major: Replacement better than Supplemental; New Arterial worse than all others

Summary of results for RIVER CROSSING – *Safety and Marine Navigation Efficiency*

	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream	
4.1 Vehicle/Freight Safety	Worse	Worse	Better	Better	Better	 <p>Better</p> <p>Worse</p>
4.2 Bike/Ped Safety	Worse	Better	Better	Better	Better	
4.3 Marine Safety	Worse	Worse	Worse	Better	Better	
4.4 Aviation Safety	Worse	Worse	Worse	Better	Better	
4.5 Life-line connectivity	Worse	Better	Better	Better	Better	
4.6 I-5 Incident Response	Worse	Worse	Better	Better	Better	
5.3 Efficient Marine Navigation	Worse	Worse	Better	Better	Better	

VALUE 6. STEWARDSHIP OF NATURAL RESOURCES

River Crossing Options

Preliminary results – RIVER CROSSING

6.1: Threatened and Endangered Species & Habitat 6.2 Other Fish and Wildlife Habitat

- Replacement options perform best
 - Fewer piers in water (10-20% smaller deck area)
 - 1 bridge (5 pier sets) vs 2 bridges (14 pier sets)
 - Greater opportunity to reduce storm water pollutants
 - Less in-water work (deconstruct vs upgrade existing piers)
 - However, permanent vs temp removal of peregrine habitat on existing bridge (can be replaced on new bridge)
 - Lower potential salmonid and other fish impacts
 - Higher potential peregrine impacts
 - Is this a differentiator?
 - Moderate: Replacement options better than Supplemental

Preliminary results – RIVER CROSSING

6.4 Wetlands

- River Crossing
 - No impacts to wetlands
- Is this a differentiator?
 - No

Preliminary results – RIVER CROSSING

6.5 Water Quality

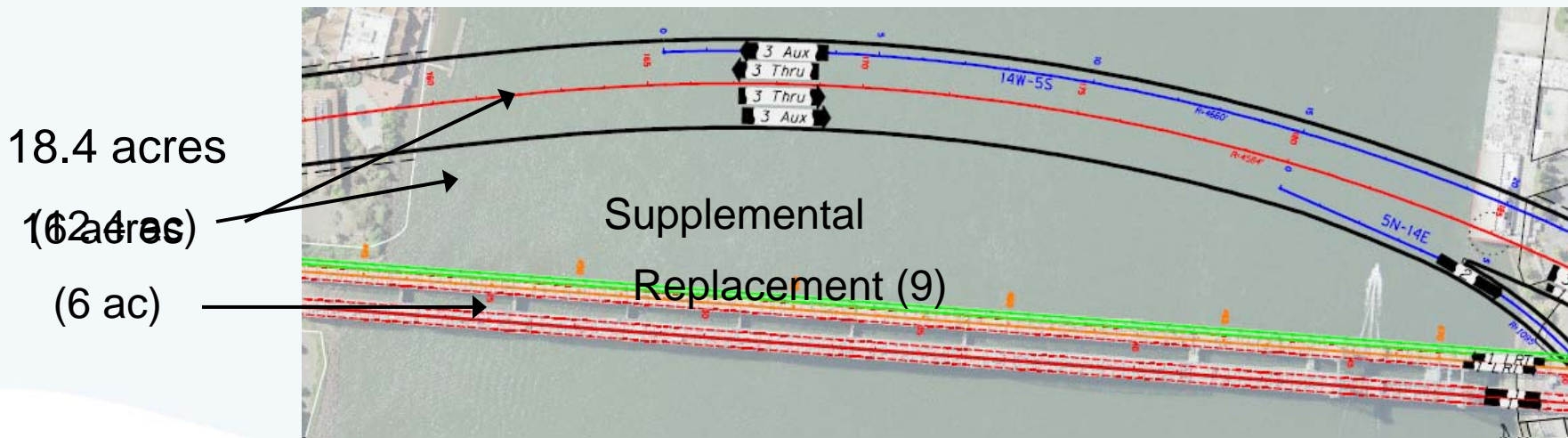
- Replacement options perform better
 - Smaller surface area (10-20% smaller deck area)
 - Less in-water work (deconstruct/remove existing piers vs. retrofit/augment existing piers)
 - Greater opportunity to reduce storm water pollutants

- Is this a differentiator?
 - Moderate: Replacement options can perform better


Preliminary results – RIVER CROSSING

6.7 Waterways

- Replacement options perform slightly better
 - Expect less fill (10-20% smaller bridge deck area)
 - 1 bridge (6 pier sets) vs 2 bridges (14 pier sets)
 - Existing bridge piers removed
- Is this a differentiator?
 - Minor: Replacement options perform better than Supplemental



Summary of results for RIVER CROSSINGS – *Natural Environment*

	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream	
6.1 T&E Fish and Wildlife						
6.2 Other Fish and Wildlife						
6.3 Rare, T&E plants						
6.3 Wetlands						
6.5 Water quality						
6.6 Waterways						

**VALUE 9.
GROWTH MANAGEMENT, LAND USE**

**VALUE 10.
CONSTRUCTABILITY**

River Crossing Options

Preliminary results – RIVER CROSSING Value 9: Growth Management/Land Use

- Replacement Bridges and New Arterial Bridge perform best
 - LRT or BRT on a new bridge is more reliable and has faster travel times than on existing bridge
 - Alternatives that require less property better support regional economic development goals
- Is this a differentiator?
 - Minor: Replacement and New Arterial better than other Supplemental options

Preliminary results – RIVER CROSSING

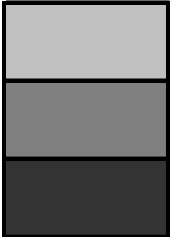
Value 10: Constructability

- Looks only at construction impacts (too early to evaluate other constructability issues)
- New Arterial would have least I-5 traffic disruption
 - Does not require shifting I-5 traffic onto a new bridge
 - All other alternatives relatively equal
- Is this a differentiator?
 - Minor

Summary of results for RIVER CROSSING – *Growth Management and Land Use & Constructability*

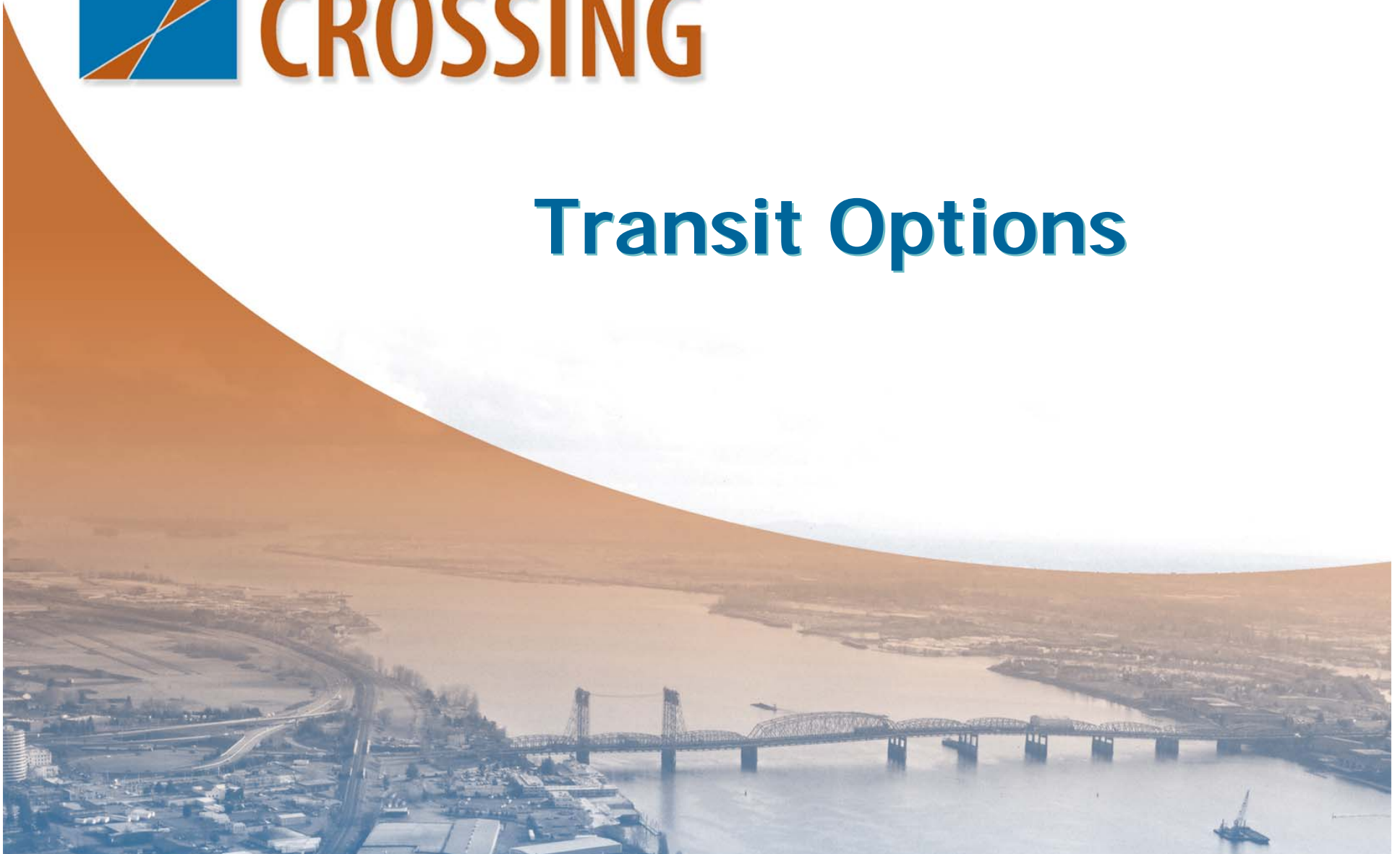
	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream		
9 Growth Management and Land Use							Better
10 Constructability							
							Worse

Summary of results for RIVER CROSSINGS

	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream	
1 Community Livability and Human Resources						 <p>Better</p> <p>Worse</p>
4 Safety						
5 Marine Navigation Efficiency						
6 Natural Environment						
9 Growth Management and Land Use						
10 Constructability						

Columbia River **CROSSING**

Transit Options



Transit Options

- Express Bus Only (2, 7, 12)
- Bus Rapid Transit-lite (BRT-Lite) (w/ Local Bus) (6, 11)
- Bus Rapid Transit (BRT) (w/ Local Bus) (5, 10)
- Light Rail Transit (LRT) (w/ or w/o Express Bus) (3, 4, 8, 9)



VALUE 1. COMMUNITY LIVABILITY AND HUMAN RESOURCES

Transit Options

Preliminary results – TRANSIT

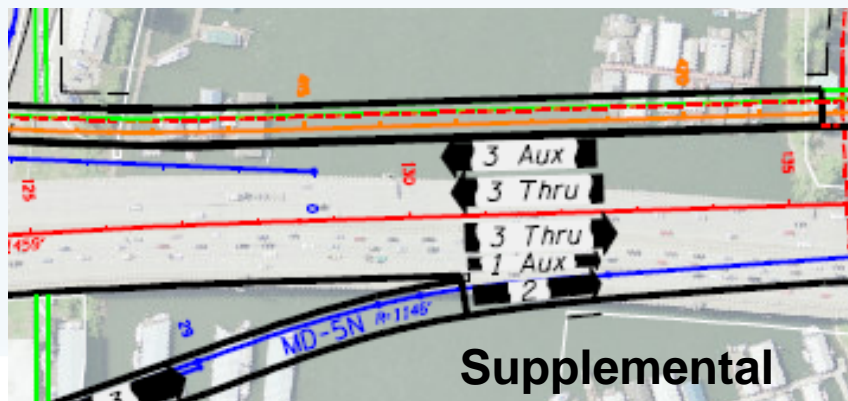
1.2: Neighborhood Cohesion

- No clear best performer
 - None of the alternatives will bisect neighborhoods
 - None will acquire large portions of neighborhoods
 - LRT, BRT Benefit: Improve neighborhood access to the region and support pedestrian-friendly development
 - Express Bus, BRT-Lite Benefit: Impact fewer properties
- Is this a differentiator?
No

Preliminary results – TRANSIT

1.4: Residential Displacements

- Express Bus and BRT-Lite have no residential displacements
 - LRT/BRT displaces 5-10 floating homes
 - LRT/BRT affects up to 10 other residential properties (mostly partial acquisitions)
- Is this a differentiator?
 - Moderate: Express Bus or BRT-Lite have no displacements



Preliminary results – TRANSIT

1.5: Business Displacements

- Express Bus Only has no commercial acquisitions
 - BRT-Lite could have a few partial acquisitions
 - LRT and BRT affect 10 to 30, mostly partial acquisitions
 - Hayden Island, Washington Street and McLoughlin Boulevard
- Is this a Differentiator?
 - Moderate: Express Bus Only and BRT-Lite affect fewer than LRT or BRT

Preliminary results – TRANSIT

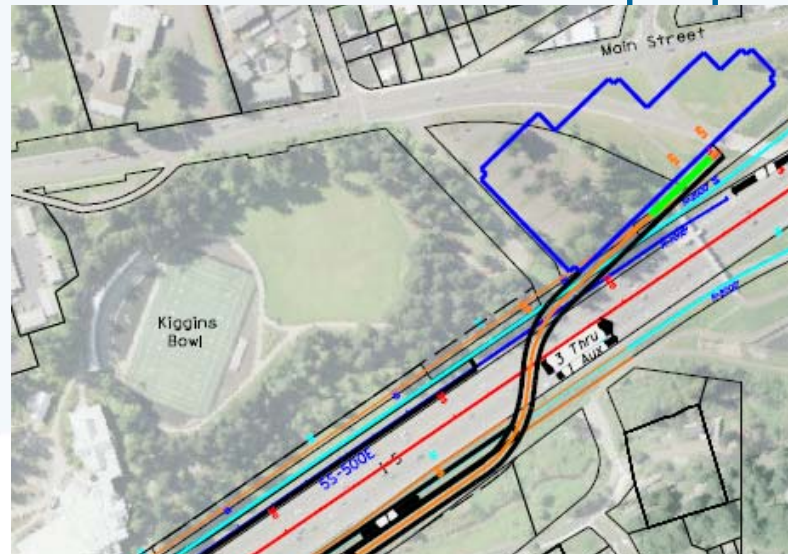
1.6: Historic & Prehistoric Cultural Resources

- Express Bus and BRT-Lite have lowest potential for impacts
- LRT and BRT
 - No direct effect on historic resources
 - Potential historic context and archaeology impacts in downtown and north of McLoughlin
- Is this a differentiator?
 - Moderate: Express Bus and BRT-Lite have less potential than LRT or BRT

Preliminary results – TRANSIT

1.7: Park and Recreation Resources

- Express Bus only and BRT-Lite have slightly fewer impacts
 - Every alternative affects Kiggins Bowl property
 - LRT and BRT also have minor impacts on City College Park, Leverich Park, Delta Park
- Is this a differentiator?
 - Minor: Express Bus and BRT-Lite affect fewer properties



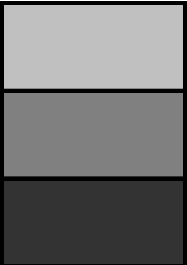
Preliminary results – TRANSIT

1.8: Local Comprehensive Plan Compliance

- LRT, followed by BRT, performs best
 - Greater support for multi-modalism
 - Consistent with Vancouver City Center Vision
 - Greater support for downtown development and redevelopment
 - Downside: Slightly greater use of developable lands

- Is this a differentiator?
 - Major: LRT or BRT more supportive than Express Bus Only

Summary of results for TRANSIT – *Community Livability and Human Resources*

	Express Bus	BRT-Lite	BRT	LRT	
1.2 Neighborhoods	Worse	Worse	Worse	Worse	 <p>Better</p> <p>Worse</p>
1.4 Residential Impacts	Better	Better	Worse	Worse	
1.5 Commercial impacts	Better	Better	Worse	Worse	
1.6 Historic and Archae Resources	Better	Better	Worse	Worse	
1.7 Parks	Better	Better	Worse	Worse	
1.8 Local Plans	Worse	Worse	Worse	Better	

VALUE 4. SAFETY

Transit Options

Preliminary results – TRANSIT

Value 4: Safety

- LRT or BRT is safer
 - Transit on a separate guideway is safer than transit in general-purpose or managed lanes
 - Downside: at-grade crossings provide added potential for conflict
- Is this a differentiator?
 - Moderate: LRT or BRT safer than Express Bus Only and BRT-Lite

VALUE 6. STEWARDSHIP OF NATURAL RESOURCES

Transit Options

Preliminary results – TRANSIT

6.1: T&E Habitat

6.2: Other Fish and Wildlife Habitat

- Express Bus Only would have lower adverse impacts
 - No physical impacts
- LRT and BRT
 - Larger footprint
 - Minor impacts on Burnt Bridge Creek riparian area
 - Upside: More supportive of growth management
- Is this a differentiator?
 - Moderate - Express Bus Only would have lower adverse impacts

Preliminary results – TRANSIT

6.3: Rare and T&E Plants

- No impacts to rare plants or habitat from transit options

Preliminary results – TRANSIT

6.4: Wetlands

- All options are similar
 - No direct impacts from any transit options
 - LRT and BRT
 - Downside: Within three feet of Burnt Bridge Creek wetland
 - Upside: More supportive of growth management goals
- Differentiator?
 - No

Preliminary results – TRANSIT

6.5: Water Quality

- Express Bus only and BRT-Lite would have lower adverse impacts
 - Smallest footprint – less impervious surface area
- LRT and BRT
 - Larger footprint
 - Upside: More consistent with growth management goals
- Is this a differentiator?
 - Minor: Express Bus has less impervious surface

Preliminary results – TRANSIT

6.7: Waterways

- Express Bus only and BRT-Lite would have lower adverse impacts
 - LRT and BRT
 - Generally require wider bridge across waterways
- Is this a differentiator?
 - Moderate: Express Bus only and BRT-Lite would have the lowest impacts.

Summary of results for TRANSIT – *Natural Environment*

	Express Bus	BRT-Lite	BRT	LRT	
6.1 T&E Fish and Wildlife					 <p>Better</p> <p>Worse</p>
6.2 Other Fish and Wildlife					
6.3 Rare, T&E plants					
6.3 Wetlands					
6.5 Water quality					
6.6 Waterways					

VALUE 9. GROWTH MANAGEMENT, LAND USE

VALUE 10. CONSTRUCTABILITY

Transit Options

Preliminary results – TRANSIT

Value 9: Growth Management, Land Use

- LRT is most supportive of regional policy
 - The I-5 Transportation and Trade Partnership Strategic Plan recommends LRT specifically
- Is this a differentiator?
 - Major: LRT, BRT better than BRT-Lite or Express Bus
 - Moderate: LRT better than BRT

Preliminary results – TRANSIT

Value 10: Constructability

- Express Bus Only would have the lowest construction impacts
- Too early to evaluate other constructability issues
- Is this a differentiator?
 - Minor

Summary of results for TRANSIT – *Growth Management and Land Use & Constructability*

	Express Bus	BRT-Lite	BRT	LRT	
9 Growth Management and Land Use	Dark Gray	Dark Gray	Medium Gray	Light Gray	Light Gray
10 Constructability	Light Gray	Light Gray	Medium Gray	Medium Gray	Dark Gray

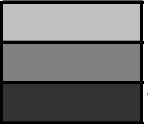
Better

Worse

Summary of results for TRANSIT

	Express Bus	BRT-Lite	BRT	LRT	
1 Community Livability and Human Resources					<p>Better</p> <p>Worse</p>
4 Safety					
5 Marine Navigation Efficiency	N/A	N/A	N/A	N/A	
6 Natural Environment					
9 Growth Management and Land Use					
10 Constructability					

Summary of results for River Crossing and Transit

	TDM/TSM Only	Supplemental Arterial	Supplemental Interstate	Replacement Downstream	Replacement Upstream	
1 Community Livability and Human Resources						 <p>Better</p> <p>Worse</p>
4 Safety						
5 Marine Navigation Efficiency						
6 Natural Environment						
9 Growth Management and Land Use						
10 Constructability						

	Express Bus	BRT-Lite	BRT	LRT
1 Community Livability and Human Resources				
4 Safety				
5 Marine Navigation Efficiency	N/A	N/A	N/A	N/A
6 Natural Environment				
9 Growth Management and Land Use				
10 Constructability				

Partial Results – More findings in November

October 21, 2006

Hal Dengerink and Henry Hewitt
Co-Chairs
Columbia River Crossing Task Force
700 Washington St.
Vancouver, WA 98660

Dear Mr. Dengerink and Mr. Hewitt,

We appreciate the recent letter from the business representatives serving on the CRC Task Force articulating their objectives for the project. As other members of the task force-, we'd like to offer this summary of our objectives for consideration.

We believe that this project is about more than efficiently moving people and goods between our states. We understand that it will shape the way our communities look, feel and function for many decades ahead. Therefore, we believe that we must be very thoughtful. Yet, this process seems to be quickly moving toward answering the very narrow question: "what style and size of replacement bridge should we build?" Instead, the question we should be considering is: "what kind of bi-state region are we trying to create, and what type of transportation system in this corridor will help us achieve this?" Starting here would provide us a framework for wise and prudent decision-making.

A narrow focus on mobility or capacity will result in a shortsighted "solution" that externalizes costs and misses key opportunities. This is how we have planned transportation in the past. Yet, history has taught us that this is a mistake, and that it is a costly strategy. Given the current financial constraints, we must look at what is the most cost-effective investment strategy that will serve the bi-state region for the long-term.

Within this context, there are a number of critical issues to be addressed:

Choice and Access

This process should focus on creating more choices, not more lanes. Adding more lanes will not provide a long-term solution to congestion or freight mobility. Transportation researchers have shown us that more lanes lead to more driving and more congestion and pollution. Atlanta is the poster child for this – having aggressively invested in freeways during the 1990s, only to find itself with no congestion relief and out of compliance with EPA air quality requirements.

Creating choice is our best bet for supporting regional prosperity over the long-term. Tactics for creating choice include: building light rail and improving other transit service; managing demand through intelligent transportation system and transportation demand management strategies; investing in a premier bike and pedestrian facility; encouraging efficient land use; reducing the need to travel across the river to work; and exploring freight-specific management strategies, rather than assuming that more lanes will help

move freight more quickly. Creating more transportation choice is a smart economic development strategy for our region. Livability is one of our region's key economic assets that attracts businesses and talented workers. Light rail and the kind of development it can encourage are key tools for creating community livability.

Health

This project must prioritize improving public health and include health-related costs when assessing the performance of various alternatives.

Sightline Institute's "Cascadia Scorecard 2006: Focus on Sprawl & Health" recently found the following:

- * Car crashes are the number one cause of death for northwesterners under 45;
- * Riding a bus is 10 times safer than driving a car; and
- * More than 1 in 5 residents of Northwest states are obese, in part because of a lack of physical activity.

The hard costs of these health impacts are astronomical. Data compiled between 1995-2004 by the National Safety Council shows that residents in Portland spent as much on the impact of motor vehicle crashes as was spent on the entire transportation system budget (\$1.5 billion). Taking into account quality of life factors, they calculated costs topping \$4 billion! Additional costs associated with asthma and other respiratory problems in the corridor are a disproportionate burden to residents and employers of these residents who are negatively impacted by lost worker productivity and higher health care premiums. Each of the alternatives should account for these costs when being measured for performance.

Fiscal Responsibility and Public Accountability

Currently, the Columbia River Crossing Project is spending between \$1 – 1.5 million/ per month for this study, and the final tab is projected to be in the billions. In addition, we've already sunk millions into studying the crossing through two past studies. Even if we could raise the dollars projected to be spent on this project, at what expense would we do it? What other community needs will not be met as we siphon off limited public resources to pay for this? How long would the "benefits" last?

The project should explore low-cost alternatives, not just high-priced options that assume construction of a colossal new freeway bridge. The project must account fully and mitigate for environmental costs associated with energy consumption, water quality, air quality, wildlife and habitat impacts and global warming. Where possible, the project should also seek to enhance environmental quality, and reduce energy consumption and emissions.

This project must not make false promises to the public about what the project will deliver to citizens. Right now, people are being sold on a project that is going to address congestion. Yet, we have not seen any freeway-building project in the U.S. that has been successful in reducing congestion for any length of time by adding capacity. This false promise is bad for the credibility of the agencies, task force members and everyone involved in the project. It will undermine credibility with federal and state government. It will undermine credibility with the public. If we spend billions of dollars and increase future travel speeds in peak periods by five minutes, are people going to feel like they got

their money's worth? We must be truthful about what the project aims to deliver and be accountable to these outcomes.

Fairness and Equity

The public should have simple and meaningful ways to be involved in all phases of the project. Public involvement should be accessible to everyone, not only paid professionals and lobbyists.

The project must acknowledge the historic impacts on communities from past I-5 development (division of Portland and Vancouver neighborhoods and exposure to unsafe levels of air toxics) and establish a fund of at least 1% of the total project cost for community enhancements (bike and pedestrian projects, natural resource protection and restoration, health facilities, etc.) in affected neighborhoods. In addition, the project should not increase the burdens caused by I-5 in these neighborhoods. Alternatives that widen the bridge to beyond three lanes of car traffic will funnel more people into a bottleneck in North Portland, increasing pollution and its impacts on these communities.

We agree with the business representatives' recommendation for the need to discuss outcomes and goals. We would add that this discussion should be based on the vision and values we developed earlier in the process, rather than the narrow focus of congestion, capacity and access. In addition, we support discussion of performance measures that will assess how well various alternatives meet these outcomes.

Thank you for your consideration of these comments. We look forward to discussing these issues as we move forward.

Sincerely,

Lora Caine
Friends of Clark County

Scott Chapman
Columbia Group Sierra Club

Jill Fuglister
Coalition for a Livable Future

Anja O'Neil
Chairperson, Arnada Neighborhood Association

Dave Frei
Arnada Neighborhood Association

Jeri Sundvall
Environmental Justice Action Group

**METRO**

October 19, 2006

Mr. Hal Dengerink, Co-Chair
Mr. Henry Hewitt, Co-Chair
Columbia River Crossing Task Force
700 Washington Street, Suite 300
Vancouver, WA 98660

Dear Co-Chairs Dengerink & Hewitt:

The members of the Metro Council greatly appreciate the briefing about the Columbia River Crossing Project provided by the project staff at our work session on October 3. We are also grateful for the time, energy and dedication devoted to this important issue by both the project technical team and the members of the Task Force.

Any improvements on the Oregon side will ultimately need to be approved by the Metro Council, after careful consideration of public testimony, before proceeding. Accordingly, the Council concluded that it would be helpful to you if we were to present our perspectives on this project sooner rather than later. Of course, individual Councilors may have additional comments, but we all concur with the following recommendations.

Recognize the I-5 Transportation and Trade Partnership Strategic Plan

In 2002, all of the stakeholders in this effort, from both sides of the Columbia River, agreed with the following five principles:

- The Interstate 5 crossing of the Columbia River should be a maximum of five lanes in each direction (three through lanes and two auxiliary lanes), for a total of ten lanes to accommodate additional auto and truck travel. These lanes could be a combination of freeway, arterial and managed lanes.
- Light rail transit is an integral element of travel in this corridor, including service into Clark County. Premium express bus service in the I-5 and I-205 corridors should be provided to markets not well served by light rail.
- Jurisdictions in the Corridor will develop and agree on a plan to manage land use and development in order to avoid adversely impacting I-5 or the region's growth management plans. Land use changes could dramatically affect commuter patterns and future demands on the interstate highway system.

- Commitment to a comprehensive use of innovative measures such as Transportation Demand Management /Transportation System Management strategies.
- Establishment of an environmental justice program that addresses potential impacts.

While conditions and circumstances have changed somewhat since 2002 and we are not opposed to looking at additional information and ideas, we believe that in the absence of compelling data to the contrary, these principles provide balanced guidance for the project. In addition to the above principles, we recommend the following actions.

Use desired outcomes as a guide

The CRC has ably documented the transportation problems in the bridge influence area. However, we believe that the project would greatly benefit from clear definition and prioritization of desired outcomes. These desired outcomes should represent the common goals that all of us share in our region and should include actions that will enable us to achieve these joint goals. This approach will help the project avoid unintended consequences, and will ensure appropriate and realistic consideration of the geographic scope of the project's potential impacts.

As you know, the Metro Council has initiated an update to our Regional Transportation Plan (RTP). This RTP update represents a significant change in approach. The Council is developing policies that make it explicit that the transportation system is a means to achieving certain outcomes, including our regional land use plan. For example, level of service standards for identifying problems and designing solutions are rough methods that can be greatly improved and much better aligned with Council policies by creating new and better performance standards. We will need to work closely with you as your project proceeds and as the RTP policies are developed to ensure that your proposals are consistent with our new policies.

In addition, the Metro Council suggests the following desired outcomes for the Columbia River Crossing:

- Expand multi-modal choices for our citizens.
- Create a dazzling waterfront and gateway for both sides of the River. This includes actions that the Metro area could take to support the City of Vancouver's efforts to preserve and enhance their downtown.
- Improve the reliability of the transportation system for the freight industry.
- Maintain and improve air quality in the corridor.
- Explore how land use changes could help address the problem

One of the great challenges of transportation planning is that it is inextricably bound to land use. Transportation access greatly shapes land use and vice-versa. We believe that we cannot look at transportation solutions without considering land use. On both sides of the Columbia River, local jurisdictions have created land use plans that they hope to achieve. All transportation

solutions will play some role in either helping or hindering these plans. It is critical to coordinate land use and transportation.

Accordingly, we recommend that all transportation alternatives be evaluated for their land use implications. Obviously, added lanes of traffic, varying levels of transit, etc., and their impact on travel time and access will have an influence on settlement patterns and development. These implications need to be very carefully studied.

Determine project priorities

Your problem statement includes a great many challenges, not all of which are of equal weight. We recommend that you consider each problem element and related goal and determine how important it is compared with the others. In this way you will help communicate what the project is trying to accomplish and help understand why one approach may be favored compared with any other.

Recognize financial limitations

As you know, in a bit more than a year the Highway Trust Fund will be depleted. Resolution of this grave problem is critical, but a solution has not yet been found. In addition, maintenance and system preservation are taking ever-greater resources. Accordingly, we believe that transportation solutions must take into consideration cost, feasibility, and the place any one project may have in the overall transportation improvement picture. We must consider that there is an overall regional transportation budget that will not be able to fund every transportation need. Accordingly, we would be concerned that if a very costly project (initial capital costs as well as ongoing maintenance and preservation costs) were financed with revenues other than toll revenues, this could displace all other projects or greatly reduce the number of other projects because of limited funding resources. The Metro Council will be fiscally responsible when considering all public investments. Project cost and a comparison with the other projects proposed within the same time horizon will need to be considered.

Coordinate with the railroad bridge

As we noted with project staff on October 3, the marine navigation challenge of the Interstate 5 bridges is related to the downstream railroad bridge. We recognize that the CRC project is taking this issue into consideration, but believe that options that involve even greater coordination, including possible improvements to the railroad bridge, should be further explored. We understand that the railroad bridge is privately owned. However, we believe that the railroad system, including this bridge, performs a public function, and the freight carried on it is part of a larger system that needs to be considered. Further, if a CRC alternative further restricts barge turning movements, mitigation in the form of alterations to the railroad bridge may be warranted.

Provide alternatives in the DEIS that demonstrate the fundamental choices before us

We believe a wider range of alternatives must be studied in order to find the solutions that deliver the best results at the lowest costs. In addition, we believe that alternatives should be considered in the draft environmental impact statement that include both capital intensive and alternative approaches – unless it is clearly demonstrated during the current phase of analysis that such approaches are not viable.

Non-transportation solutions may be effective in concert with transportation improvements. It is important to demonstrate to the public that we are making every effort to solve problems in new ways and that we are good stewards of limited public resources. This will take extra effort and may lead to some solutions that ultimately may not be workable. But there is the chance that new innovative solutions could be created and we should not avoid some level of prudent risk in finding new answers to old problems.

Further, we believe that, in the absence of compelling information to the contrary, alternatives included in the environmental impact statement should include:

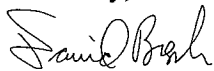
- 1) an alternative that reuses the present bridges;
- 2) an alternative that has a maximum of ten lanes (a combination of freeway, arterial and managed lanes).

Provide thorough public vetting before closing options

We recognize that in order to manage the project effectively, some options will need to be removed from consideration. However, before options are taken off the table, we believe that ample opportunity should be provided for community discussion and debate.

Again, we very much appreciate the work and dedication of the CRC technical team and Task Force members. It is our hope that by sharing our perspectives we can, working with all of the stakeholders, help create an effective and lasting solution to the complex challenges of the Columbia River Crossing.

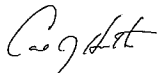
Sincerely,




David Bragdon, President



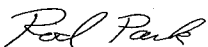
Rex Burkholder, Councilor



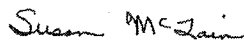
Carl Hosticka, Councilor



Brian Newman, Councilor



Rod Park, Councilor



Susan McLain, Councilor



Robert Liberty, Councilor

cc: Doug Ficco, Co-Director, WSDOT
John Osborne, Co-Director, ODOT

Washington State Department of Transportation Cost Estimate Validation Process (CEVP®)



Sticker shock: Cost estimates for highway projects skyrocket

COMMUNICATING RESULTS

Each project's CEVP® summary reflects the unique features of a separate project. But all of the summaries share the following points:

- Project cost estimates are stated in dollar ranges, not as single numbers. This reflects the limits of estimating precision at the planning stage when crucial decisions are yet to be made and the specific risks cannot be exactly costed.
- Risk considerations specific to each project are identified and described so that specific risk issues can be foreseen, discussed, and evaluated by the public as the project moves forward.
- Likelihood of project construction schedules have been taken into account and schedule-based adjustments made to the estimates to reflect the smaller purchasing power of dollars to be spent on construction several years in the future.
- Changes from previous CEVP® releases are included in the one page summaries for projects that have gone through an updated CEVP® review.

MEDIA RESPONDED POSITIVELY

*"The Transportation Department developed its new numbers through a new process called "cost estimate validation" or CEVP®, which features another layer of review by outside experts...The agency's Urban Corridors Administrators, characterized it as **an effort to deal more openly and honestly with risks and uncertainties.**"*

Seattle Times
June 2002

*"Giving citizens a range of costs, including full disclosure of the variables, **is not only politically smart, but it's common sense**..."*

Seattle Post-Intelligencer
June 2002

Washington State Department of Transportation (WSDOT) wants the public and decision makers to have the best possible information about the probable cost ranges of major transportation projects. The word "range" is important and fundamental to the CEVP®. We cannot completely and accurately predict the future, but we can, using recognized risk and uncertainty techniques, better forecast the range of costs and time a project will require. And then, we can more realistically plan for and manage the best – and the worst – possibilities

WSDOT decided to open the "black box" of estimating and present a candid assessment of the range of potential project costs, including acknowledgement of the uncertainty of eventual project scope, the inevitable consequence of cost escalation due to inflation, and other major risks.

WSDOT's strategy, and commitment, was to deal openly with the process of public infrastructure estimating so that the public would better understand and be better informed as they, and elected officials, make critical project funding decisions. The challenge was to develop a valid procedure to do this.

With the encouragement and support of Secretary Douglas MacDonald, WSDOT developed a specific management-cost-risk assessment tool called the Cost Estimate Validation Process (CEVP®).

WHAT IS CEVP®?

CEVP® is an intense workshop where transportation projects are examined by a team of top engineers and risk managers from local and national private firms and public agencies reviewing project details with WSDOT engineers. Many of the participants have had extensive first-hand experience with large project programming and delivery.

The CEVP® workshop team uses systematic project review and risk assessment methods to evaluate the quality of the information at hand and to identify and describe cost and schedule risks. Importantly, the process examines, from the very beginning, how risks can be lowered and cost vulnerabilities managed or reduced. In other words, a dividend of CEVP® is to promote the activities that will improve final cost and schedule results.

PURPOSE OF CEVP®

1. To Validate/Evaluate an estimate of probable cost early in the development and decision process for a project, in order to identify a reasonable target cost, and
2. To identify cost and schedule risk associated with the project, and
3. To provide risk management tools and processes, and
4. To thereby deliver the promised projects in accordance with the established target cost and planned schedule.

ESTIMATING METHODS	
Conventional	CEVP®
Estimate is a NUMBER	Estimate is a RANGE
Risk in contingencies	Risk is explicit
Risk management can be ad-hoc	Risk management is formal and explicit, significant risks (and opportunities) are quantified
	Relies on judgment from experience



Washington State
Department of Transportation

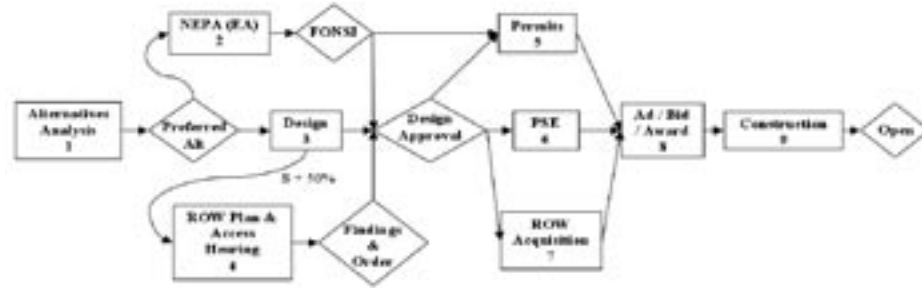
A Cost-Risk Assessment (CRA) will accomplish the following:

- Validate/Evaluate the cost estimate, in terms of quantities and unit costs, to the extent possible based on the project information available (estimate QA/QC)
- Review/validate the markups
- Review/validate schedule estimate
- Reduce reliance on general contingency by identifying project specific risk associated with both cost and schedule.
- Consider and quantify risk and opportunity
- Produce a probabilistic cost and schedule range for the identified scope.

WHAT IS SPECIAL ABOUT CEVP® ?

CEVP® requires specific skills, personnel and resources. WSDOT has found that the process generally requires:

1. A knowledgeable and committed owner.
2. A well-shaped, complete project estimate and schedule
3. Available/involved team members:
 - a. Project Team Members
 - b. Internal and External Subject Matter Experts
 - c. Skilled cost and risk team leads
4. Sufficient expertise to “validate” base costs
5. Suitable Risk modeling technology
6. Ability to understand results (i.e., issues and limitations of a “first-order” analysis).
7. Sufficient time and available resources



PROCEDURES TO CONDUCT CEVP®

1. Project and Method Selection Phase and Preparation – select the right projects, prepare and educate the team, ensure appropriate timing, define scenarios to be assessed, gather data to explain project.
2. Workshop Initiation – Establish workshop goals, workshop scope and project alternatives to be explored; Project Team presentation of: 1) scope and assumptions for each alternative, 2) cost and schedule estimate, 3) major issues and concerns; Development of project flow chart (basis for the cost and schedule risk and uncertainty model)
3. Cost Analysis/Validation and Risk Identification – Cost Analysis/Validation Team breakout activities; Risk Team breakout activities; Environmental Costing Team breakout activities; Modeling Team breakout activities. This can occur simultaneously or in a linear fashion, depending on the structure most important for the project.
4. Integration and Model Construction – Breakout team reports and coordination; Reconciliation of breakout assumptions; Construction of cost/schedule risk and uncertainty model.
5. Presentation of Results – Oral presentation of workshop results; written report of workshop results, with possible beginning mitigation strategies identified.
6. Validation of Results & Generation of Risk Response Plan – Project Team validates workshop results. A risk response plan is created that explains how identified cost-risk is going to be managed. A decision, with management input, will be made as to what “target number” the project will be managed to, as well as how and when to communicate CEVP® results. A decision will be articulated that will express commitment to the CEVP® range, or whether further analysis is needed. This further analysis could include a VE study, or, if it is necessary to explore and evaluate cost on alternative project scenarios, cycling back to step 1 above.
7. Implementation and Performance Measurement – Integration of risk response plan into the project risk management plan. At appropriate periods, and/or by audits, tracking whether project costs have occurred, and if so, whether another CEVP® is warranted, tracking activities taken to reduce cost through management of risk, and ultimately tracking accuracy of the CEVP® by comparing CEVP® results with final costs of WSDOT projects.

Note: CEVP® continues to be developed. The CEVP® summaries are not a warranty that the estimates are perfect, for it is true that you only know the final costs of a project when the project is finally completed. CEVP® cannot change the fact that it is very early in the project development process for many of these major projects. There are still many unknowns. But risk areas that could drive up project costs can be communicated fairly to the public. In addition, the early identification of a risk area creates management opportunities to minimize the potential of project costs associated with some of those risk areas.

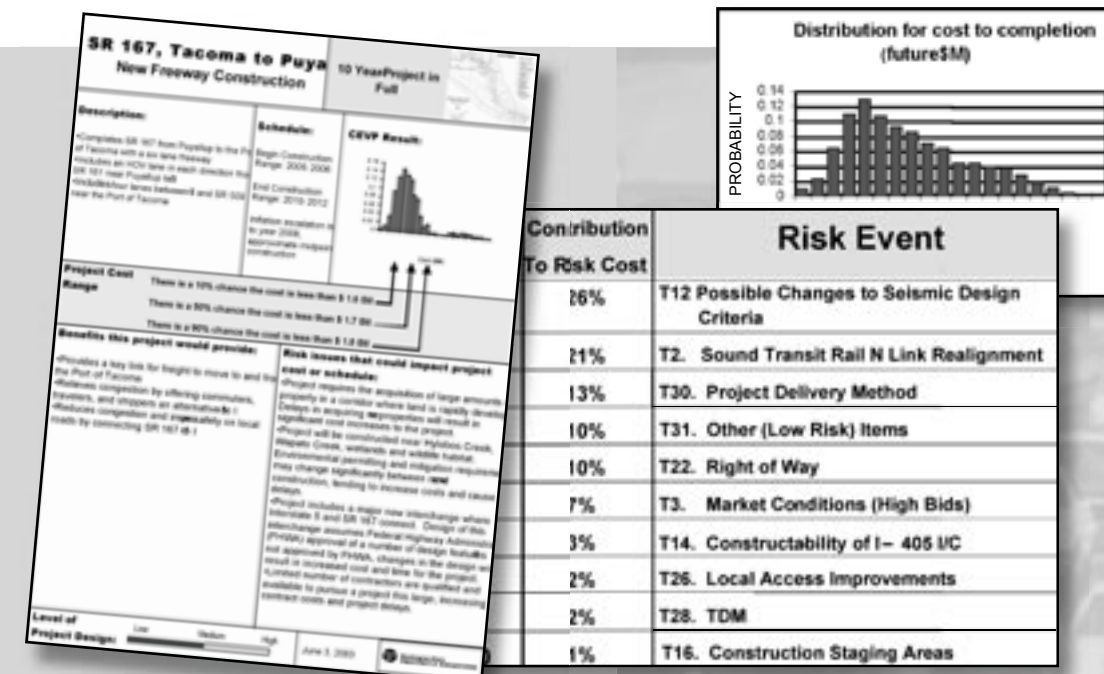
USEFUL RESULTS

USEFUL RESULTS

CEVP® results are presented as cost and schedule distributions. These distributions can describe the following:

- Current dollar versus year of expenditure cost
- Fully funded or partially funded scenarios
- Comparative design options
- Expected date of project completed
- Expected schedule to meet project milestones

Another key output from the CEVP® assessment is the ranked listing of those risk and opportunity factors contributing to the uncertainty in a particular estimate such as those illustrated in the Risk Event table. The ranked risk table presents the most important risk issues, along with a measure of their contribution to the total uncertainty in the estimate. The variety of risks, including technical risks, policy risks, environmental risks, construction risks, etc. can be treated in a consistent way using these data.



19 October, 2006

Patrick Singleton
2928 NE 12th Ave
Portland, OR 97212
igorL85@comcast.net

TO: Columbia River Crossing Task Force

SUBJECT: Selection of Supplemental Bridge Alternatives and Reuse of Existing Bridges

As a concerned citizen and historic roads advocate, I urge you to strongly consider alternatives that allow for the continued use or reuse of the existing historic bridges (Alternatives 3 – 7). I understand that changes must be made to address growing congestion and the need for increased mobility, and that there are challenges to the continued use of the existing bridges. However, these bridges (particularly the northbound 1917 structure) are vitally important to the community and nation as historic landmarks, and can be successfully integrated into a regional transportation system along with a supplemental bridge. Reusing the existing Interstate Bridge in some capacity would be a prudent and fitting decision that maintains the historic integrity of the bridges for future generations to enjoy and experience. I strongly urge you to preserve these important historic bridges.

Ninety years ago this February, the Interstate Bridge was opened for traffic, and for 65 years remained the only local Columbia River crossing. As a vital part of the Pacific Highway and later US Highway 99 (predecessors to Interstate 5), the bridge has played an important role in the development of the Portland-Vancouver region, the states of Oregon, Washington, and California, and the entire nation's highway system. One of the biggest bridges in the country when first built, the Interstate Bridge is the largest and most visible cultural resource that remains of Highway 99 and the Pacific Highway, and this significance is evidenced by its listing on the National Register of Historic Places.

Tearing down this important historic resource would be a significant setback to the historic roads movement and the preservation of historic resources important in the development of our nation's transportation system. Physical objects of our past are being lost daily, and it is a continued struggle to retain important places and structures, particularly along Historic Highway 99. Historic resources, such as the existing Interstate Bridge, convey a sense of time, a sense of place, a sense of respect. They are tangible links to the past that stimulate and encourage us to view the world in new and useful ways. In this regard, the bridges could be utilized as an anchor to promote the growing industry of heritage tourism for downtown Vancouver and the surrounding region. The existing bridges can continue to function successfully as both historic and transportation resources.

I will leave you with a quote that may be found inscribed on a plaque at one end of the Interstate Bridge. I urge you not only to heed these words as they pertain to the current crossing discussion, but also to please remember and do not discard the energies and hard work put in by those who created these important historic bridges.

"Therefore when we build, let us think that we build forever. Let it not be for the present delight, nor for present use alone. Let it be such work as our descendents will thank us for. And let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say as they look upon the labor and wrought substance of them, 'See: this our fathers did for us.'" — John Ruskin.

Thank you for your time,

Patrick Singleton

20 October, 2006

Guy Kudlemyer
5669 D St.
Springfield, OR 97478
gwkuddles@comcast.net

TO: Columbia River Crossing Task Force

SUBJECT: Selection of Supplemental Bridge Alternatives and Reuse of Existing Bridges

As a concerned citizen and historic roads advocate, I strongly urge you to consider and *ultimately implement Alternative #3*. I understand that changes must be made to address growing congestion and the need for increased mobility, and that there are challenges to the continued use of the existing bridges. However, these bridges (particularly the northbound 1917 structure) are vitally important to the community and nation as historic landmarks, and can be successfully integrated into a regional transportation system along with a supplemental bridge. Reusing the existing Interstate Bridge to continue to carry I-5 traffic would be a prudent and fitting decision that maintains the historic integrity of the bridges for future generations to enjoy and experience during their travels on our Interstate Highway System. Nearby historic structures from a time period that harkens back to the Golden Age of Highway Travel, such as Waddle's Restaurant, have already been lost to the bulldozers in our society's relentless efforts to erase the existence of prototypes of our recent past. *I strongly urge you to preserve these important historic bridges.*

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— John Ruskin.

Thank you for your time,









Guy Kudlemyer

RECEIVED

OCT 23 2006

Columbia River Crossing

Task Force Meetings and Topics October 2006 - March 2007

	October	November	December	January	February	March
						
Topics:						
1.	Preliminary evaluation results	Preliminary evaluation results	Review staff recommendations	Tolling and finance discussion	Review public comments	Refinement discussions on alternatives (interchange options, transit alignment options, etc.)
2.		Draft staff recommendations for transit modes and river crossing	Draft Task Force recommendations for DEIS alternatives (transit and river crossing)	Economic importance of corridor	Task Force recommendations for DEIS alternatives (transit and river crossing)	