

January 23, 2007

TO: Columbia River Crossing Task Force
FROM: Doug Ficco and John Osborn
SUBJECT: Task Force Questions

Below are comments and questions received from Task Force members about the Staff Recommendations for River Crossing and Transit DEIS Alternatives and CRC responses.

From Dave Frei:

At this point, the staff recommendation does not address either Criteria 1.1 (Noise) or 1.3 (Air Quality). The long-term (multi-generational) effects upon the neighborhoods along the corridor due to air quality, noise, light pollution, etc. will be huge. I don't understand why staff has not addressed these criteria and why they are willing to narrow the option list without adequately accounting for the possibility that supplemental bridges might reduce these noise and air quality impacts. I have no preconceptions, but just want to ensure we don't eliminate the consideration of any option which could provide relief to the neighborhoods along the corridor.

Response:

All environmental criteria (both those defined by NEPA, as well as those identified in our Evaluation Criteria, which largely are included in the NEPA requirements, must be considered when evaluating alternatives. However, timing is everything. Analyses are costly and time-consuming, so we want to conduct them when they will be the most beneficial. We consider specific environmental criteria such as air quality and noise when 1) we have the alternatives defined to a high enough level that we have adequate data to assess potential impacts, and 2) there is a reasonable probability that the results of an analysis might influence a decision.

For example, it would have been irresponsible and impractical to consider air quality and noise impacts in early 2006, when we were screening the initial list of components down to 12 alternatives. We simply didn't have the components defined well enough to conduct meaningful analyses.

So, did we develop the 12 alternatives to a high enough level to assess air quality and noise? The answer is yes, for the most part. Given the assumptions that were made about highway and transit alternatives, we could have conducted air quality and noise studies, even though we know that the alternatives will be further refined in the DEIS. Thus, the question becomes "Is there a reasonable probability that the results of air quality and noise analyses will influence the decision at this point?" Our answer to that is no. Here's why:

- 1) We have two decisions under consideration: a) How do we cross the Columbia River?, and b) What types of high-capacity transit best meet the needs of the region? Dave's question focuses on the river crossing decision. With the exception of Alternative 3 (arterial only), all of the supplemental and replacement options would carry I-5 traffic on a new bridge, and would thus perform similarly in terms of traffic operations. Since traffic volumes, vehicle types, and speeds are the primary factors affecting both air quality and noise analyses, we can reasonably infer that there would not be significant differences for those two factors between any of the supplemental or replacement bridge options that provide for a new I-5 crossing.

- 2) The exception to that is Alternative 3—the arterial bridge. It does not provide for additional capacity for I-5, but instead provides for an arterial connection between downtown Vancouver and Hayden Island. Our forecasts indicate that Alternative 3 will perform very similarly to the “No Build” alternative, meaning that hours of congestion, vehicle throughput, travel speeds, and other measures will not differ substantially from doing nothing. Air quality, noise, and all other factors will be evaluated for the No Build alternative, and from that we can reasonably infer how Alternative 3 might perform relative to I-5 traffic. Since Alternative 3 would increase traffic and congestion in downtown Vancouver and Hayden Island, we can also infer that air quality and noise would be at least marginally worse in those areas under Alternative 3.

Thus, for the alternatives that improve I-5 capacity across the river (whether supplemental or replacement) we can reasonably assume that they would perform similarly in terms of changes to ambient air quality and noise (either positive or negative impacts). For Alternative 3, it's reasonable to assume that air quality and noise impacts would be similar to, or worse, than the No Build alternative.

Furthermore, we can expect (based on experience in forecasting air quality impacts for other major projects in the Portland-Vancouver metro area) that changes in the vehicle mix and increasingly stringent regulations regarding fuel quality and emissions standards will result in lower corridor emissions in the future, even with projected increases in traffic volumes. In addition, alternatives that improve travel flow and reduce congestion will result in lower emissions and typically perform better than no-build alternatives.

To summarize, in terms of air quality we can reasonably expect that the future No Build conditions will be better than today, and that our river crossing recommendations (replacement bridge) will perform better than the No Build alternative or an arterial-only crossing. For other major transportation projects in the Portland area, the difference between alternatives in future years has been relatively small compared to the reductions in emissions resulting from changes in vehicle mix and regulations pertaining to fuel quality and emissions standards.

From Elliot Eki:

I'd like to hear more about how ODOT's decision to widen I-5 at Lombard will affect the CRC project...if at all.

Response:

ODOT has recently completed an Environmental Assessment for a project to add a third southbound lane to I-5 from Delta Park to Lombard, to improve street connections to the freeway access points at Columbia and Victory boulevards, and to improve safety shoulders in both northbound and southbound directions. Construction is planned for 2008-2010. Additional details of the project proposal can be found at <http://www.oregon.gov/ODOT/HWY/REGION1/I-5DeltaPark/index.shtml>.

Any improvements to I-5 resulting from the CRC project will match to the proposed lanes at Delta Park as defined by the Delta-Lombard project. In other words, the three through lanes proposed for the CRC project will match to the three lanes proposed in each direction at Delta Park.

The Delta-Lombard project identified the need to resolve whether one of the three southbound lanes should be designated as an HOV lane. Since decisions by the CRC project about improvements to the river crossing and transit through the corridor will directly affect the potential use of a southbound HOV lane, the Delta-Lombard project recommendations include utilizing analyses to be conducted as part of the CRC project to reach a recommendation for a southbound HOV lane. Thus, as part of our DEIS analyses of project alternatives, we will be considering the potential viability of a southbound HOV lane through the Delta Park area in conjunction with a larger southbound and northbound HOV system extending north through downtown Vancouver.

February 20, 2007

TO: Columbia River Crossing Task Force
FROM: Doug Ficco and John Osborn
SUBJECT: Response to additional questions

Following our January meeting, Task Force member Jill Fuglister forwarded several questions to CRC staff. Her questions and the staff responses follow.

1. How do you define “transportation equity” and how is it measured for performance evaluation?

Transportation equity can be described as the “fairness” with which both positive and negative impacts resulting from implementing a transportation project or service are distributed among various population groups. Population groups are generally defined by location (neighborhood), race, ethnic background, income, or other distinguishing characteristics. Transportation equity is evaluated in 3 basic steps:

1. Identify the adverse effects and benefits from the alternatives
2. Evaluate how those benefits and effects are distributed among various population groups
3. Determine if the distribution of effects and benefits are proportionate or disproportionate.

There are a number of ways to do this analysis, including both quantitative and be qualitative methods. We will employ both approaches for the CRC project. While we consider equity issues at each step of the evaluation process, the methods will depend on the extent to which the findings would be useful for the decisions to be made at that step. Specific methods and data reports (MDR) for the project further describe how transportation equity will be addressed.

2. If the railroad swing span was fixed, how many lifts annually would there be? How much would this reduce the cost of maintaining current bridges?

Background: The BNSF railroad bridge, located about one mile west of the I-5 bridges, has a swing-span opening near the north (Vancouver) shoreline. Tug and barge operators crossing under the I-5 bridges will typically use the I-5 spans at the “hump”, which are located in the middle of the river channel. That means that a typical maneuver involves an S-curve path between the I-5 bridges and the BNSF bridge. However, during periods of high water, the river currents make the S-curve maneuver hazardous, and the pilots will choose to call for a bridge lift on the I-5 bridges, since the I-5 lift spans line up for a relatively straight path to the BNSF bridge.

We have consulted with representatives of many of the tug and barge firms. Their assessment generally is that relocating the rail span would significantly reduce their need to call for bridge lifts. Other users (such as construction barges and high-mast recreational vessels) would still need to call for lifts due to height restrictions. Therefore:

- a. If no new bridge is built, the number of I-5 bridge lifts could be reduced if the rail span is relocated closer to the center of the river.

- b. If a supplemental bridge is built, the benefits of relocating the railroad span would be affected by the pier locations for the new bridge. There are two barge channels associated with the spans at the I-5 “hump”, and it is likely that one of them would be impaired by the piers supporting the new supplemental bridge. That may or may not affect the number of pilots that would choose to call for a bridge lift.
- c. If a new I-5 bridge is built and the existing bridges are removed, there would be no river navigation benefit provided by relocating the railroad span (other than perhaps resulting in a wider opening at the railroad). The pier spacing and vertical clearances for the new I-5 bridge would allow vessels to cross under the bridge in several locations, including lining up directly with the downstream railroad span.

We do not have the information to reliably estimate what effect moving the railroad span would have on the number of I-5 lifts. We can say that it would be reduced from the 200-1,000 lifts that occur over a typical year (lift requirements vary widely depending on river conditions). However, the effect on annual operating and maintenance costs would be minimal, assuming that bridge tenders would still be required 24/7, since labor costs are the largest component of annual operating expenses. Efforts to limit I-5 Bridge lifts would benefit I-5, but alone would not address the CRC project’s Purpose and Need. The CRC project supports the Bi-State Committee’s recommendation for the region to further study this issue.

3. I know that we were told this at one point, but what are “comparable urban freeways” when considering the crash rates?

I-5 within the Bridge Influence Area is experiencing crash rates that are about double compared to other similar urban freeways in Oregon and Washington (e.g., in the Portland-Vancouver area some examples would be I-5, I-84, I-205, Highway 217, Sunset Highway). When bridge lifts occur, accident rates are three to four times more frequent than without bridge lifts.

4. In the memos in various places it says that the no build/TDM/TSM alternative does not meet the purpose and need? Aren't you only supposed to advance alternatives that meet the purpose and need to the full DEIS? Can you clarify this?

First, it is important to clarify what the No Build alternative is for NEPA purposes. Under federal requirements, it must consist of existing transportation facilities and services, plus programmed projects and services that can reasonably be expected to be funded. It also reflects policies for efficient use of the transportation system (transportation system management, or TSM) as well as policies that encourage alternatives to single occupant vehicle trips (transportation demand management, or TDM) that are adopted in both regional and local transportation plans. NEPA requirements mandate that project alternatives be considered in comparison to a No Build alternative, which means that the No Build must be considered even if it can not be expected to meet the Purpose and Need of the project. All other Alternatives that advance must meet the project Purpose and Need.

A separate TDM/TSM alternative was one of the 12 options considered over the past several months. Alternative 2 represented a TDM/TSM emphasis with minimum investment proposed for I-5, including increased transit (bus) service. Under this alternative, I-5 traffic would stay on the existing bridges and improvements would be targeted at reducing accidents. CRC staff recommended dropping Alternative 2 as a stand alone solution for the project because it did not meet the project’s Purpose and Need.

5. What are bike counts for I-5 bridge v. I-205 bridge?

A bicycle count was performed on September 28, 2005. 160 daily bicycle trips were made on both I-5 bridges. Data from the City of Vancouver shows that about 60 people commute by bicycle over the

bridges during the summer months. This declines to about 20 people commuting by bicycle over the bridges during the winter months. Besides commuting, bicyclists use the bridges for recreational purposes and some bicyclists use the bridge merely to access the Oregon side to conduct bottle recycling.

Approximately 30 to 40 pedestrians cross the bridge daily during the summer months. This drops to less than 15 people during the winter months.

The CRC project does not have bicycle or pedestrian count data for the I-205 bridge.

6. How many bridges in the nation/of this region do not meet “basic collapse” criteria for safety? My understanding is that current bridges are seismically sound, just not up to current seismic standards. Is this still accurate to say? Can you resend me a copy of the memo from the seismic panel?

We have not looked for national data on how many bridges do not meet “no-collapse” criteria. We did review 12 bridges on the Columbia and Willamette Rivers located in close proximity. Eight had been assessed for seismic condition and all had elements that were considered vulnerable. The four that were not evaluated have probable vulnerable elements. You are correct that seismic design criteria have become more stringent since these bridges were originally designed, as scientists are getting better information on potential risks. It is unlikely that any of the area bridges meet current “serviceability” standards. It is unknown how many meet “no-collapse” criteria without doing additional studies.

A copy of the “Panel Assessment of Interstate Bridges Seismic Vulnerabilities” is available upon request. ***It is important to understand that the current I-5 Interstate Bridges are not seismically sound.*** In 1995 ODOT commissioned a study to look at the lift spans which are considered the most vulnerable sections of the bridges. Vulnerabilities were found in the bearings, piles, piers, and lift span tower truss members. Based on the current inspection results for the northbound and southbound bridges, the appraisal and condition ratings range from “intolerable” to “satisfactory”. Both of the bridges have been identified as “deficient” bridges. This classification is a result of the bridges’ functional obsolescence which means they no longer meet the geometric and/or load capacity criteria for the Interstate system.

7. What is the vehicle throughput in the replacement scenario? What is vehicle throughput in no build/TDM/TSM... and does this include tolling?

Vehicle throughput, measured at the I-5 bridge crossing in the peak travel directions during the four-hour morning and afternoon peak periods, is the following for year 2005 Existing Conditions and for year 2030 No Build and year 2030 Replacement Bridge scenarios:

Southbound I-5 4-Hour AM Period: Existing = 19,100 vehicles, No Build = 21,600 vehicles, Replacement Bridge = 26,800

Northbound I-5 4-Hour PM Period: Existing = 20,500, No Build = 20,800, Replacement Bridge = 32,100

The existing average daily traffic counts on the two I-5 Interstate Bridges are about 130,000 vehicles per day. During peak periods the hourly capacity is about 5,500 vehicles in one direction for each bridge. This limited throughput is the reason the peak periods of congestion are increasing as population and travel demand increases.

A replacement bridge would be able to carry about 8,500 to 9,500 vehicles per hour depending on the number of lanes and whether one of the lanes is managed (HOV). Therefore, a replacement bridge could carry about 50-70% more vehicles during peak periods compared to the existing bridges.

The No Build scenario does not include tolling. However, if the existing bridges remain in service for I-5 traffic, peak period vehicle throughput would not change significantly whether tolled or not. Because demand for crossing the river at peak periods exceeds the available capacity of the bridges, the hourly vehicle throughput is limited to the capacity of the existing bridges. Reasonable tolling rates and affordable TDM/TSM programs would help reduce peak hour demand, but given the very strong and growing demand for travel across the river, it is very unlikely that tolling and TDM measures alone would reduce future demand to such a level that it would reduce throughput at the bridge.

8. On pg. 2 of “component findings” under safety, it says that the replacement option would provide the greatest safety improvements because it would “increase vehicle capacity over I-5”. How does this improve safety? Don’t more cars equal more accidents ultimately?

Crash analyses have shown that congestion is the major contributor to the increased accident rates. Providing added capacity will reduce the total hours of congestion. Reducing the hours of congestion combined with providing a new roadway and interchange ramps that meet modern design standards should result in a reduction of crashes per million vehicle miles driven.

9. Have you measured car crash deaths v. incidents? If not, will this happen? When you measure “safety” how is it measured? By “incidents” or what?

We conducted a comprehensive analysis of reported crashes along I-5 and its ramps in the Bridge Influence Area. The analysis covered the five-year period of January 1, 2000 to December 31, 2004. During this period, there were over 2,200 reported vehicle crashes. Thirty-seven percent of the crashes involved at least one injury. Five fatalities were reported. The crash analysis will be updated this spring as data becomes available to reflect the more recent 2002-06 five-year period.

Vehicular crash history is one means of measuring the safety aspects of a highway facility. The crash rate on I-5 is over twice that compared to similar urban freeways in the Portland-Vancouver area. The crash analysis determined that the frequency and location of crashes is related to the number and location of existing non-standard design and safety features, and, as noted above, is also directly related to periods of congestion.

Question from Task Force Member Brad Halverson with Staff Response

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

From: halverbk@comcast.net [<mailto:halverbk@comcast.net>]

Sent: Tuesday, February 20, 2007 6:24 PM

To: Hart, Barbara

Subject: Questions for the CRC team

Hi Barbara,

I would appreciate it if you would forward this to the CRC staff.

I will be out of town for the next three meetings (which smashes my perfect attendance record) on business trips and a church mission trip to the New Orleans area. I realize this means I will not be able to vote on what goes into the DEIS phase of the CRC project. There is not much point in having an alternate at this juncture either.

I do support the staff recommendation with the three proposed options for further study. However, I do believe we need to have more choices to take into the DEIS.

I think we should pursue funding at this time to add the lift span to the downstream railroad bridge immediately. It is my understanding that by doing this now, we will significantly decrease the number of I-5 bridge lifts that are required which is a huge factor in traffic congestion in the off-peak hours and improve the safety for the shipping community using the Columbia River in this area. The railroad bridge improvements were denied funding under the Truman-Hobbs Act because they were going to help the I-5 bridge users more than the railroads. Even if this improvement only helps for five years (assuming that the railroad bridge improvements were completed in 2010 and a new I-5 bridge in 2015), it will show the public and the elected officials that we are willing to do what is necessary to help improve the corridor.

With the addition of the railroad lift span, there will be a significant reduction in the number of vessels requiring bridge lifts. I believe the option of a new but lower profile bridge with a lift span is back on the table. I think I have heard that the high profile of the new bridge would significantly impact views from downtown Vancouver and the waterfront along both sides of the river. A lower bridge would also allow pedestrians and bicyclists to traverse the bridge more easily. With a minimal number of lifts, the Coast Guard should be able to continue and hopefully expand the hours when lifts are prohibited. Finally, this profile may allow a less severe entry to the difficult landings on Hayden Island and Vancouver.

Another option involves the existing northbound bridge. This structure is on the Historic Register. Has the point been proven that will allow its removal?

STAFF RESPONSE:

The Columbia River Crossing provided the Federal Highway Administration with information in support of removing the existing 1917 Northbound Interstate Bridge that is currently listed on the National Register of Historic Places. We have not had a formal ruling on whether the information submitted is sufficient for a FHWA recommendation. Staff believes there is compelling information to support removal of the bridges.

I am very concerned that a new mid-level bridge will be very challenging to navigate for pedestrians and bicyclists due to its long grade. It also will not be a very pleasant place to be with cars and trucks whizzing by at high speeds and close proximity. There will be savings from the narrower construction on a new bridge which can help fund maintenance of the existing northbound bridge (although I do realize that capital and maintenance funds come from different sources). I can see this bridge being used by pedestrians and bicyclists with minimal landing space on each side of the river.

If the I-5 bridge lifts are dramatically reduced by the addition of the railroad lift span, the cost of keeping a bridge tender on hand should almost be eliminated. The stated estimate is the old bridge would cost \$3 million/year to maintain. What is the estimated maintenance cost for a new mid-level bridge?

STAFF RESPONSE:

The annualized operations and maintenance life cycle costs averaged over 30 years in today's dollars are \$3.9 million per year to keep both existing bridges and \$0.6 million per year for a mid-level replacement bridge.

If an existing bridge is kept for transportation purposes, can the DOT's abandon it without a new buyer? Please note: this is not the "we do not want to maintain the existing bridges" discussion that we have often heard in our meetings.

STAFF RESPONSE:

It is unlikely that the Washington and Oregon Departments of Transportation could abandon the existing Interstate bridges without some type of arrangement for another agency to assume ownership because of the need to provide staff around the clock bridge lifts. However, if the bridges no longer serve a highway function and sit idle, the United States Coast Guard indicated they would require the bridges be removed for improved river navigation.

I appreciated the staff's response to the questions posed by other Task Force members after the November meeting. I do realize that some of these questions have been answered already, but I think it is a good time to make sure everyone understands the tradeoffs. I would like the staff's answers that I would like to have answers disseminated to the Task Force as well as this message. I look forward to watching a replay of the meetings.

Sincerely,
Brad Halverson