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SUBMITTED VIA EMAIL (russ.klassen@state.or.us)

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Oregon Department of Transportation Liaison
Oregon Department of State Lands
775 Summer St. N.E., Ste. 100
Salem, Oregon 97301-1279

RE: Comments on the Interstate 5 Colombia River Crossing Project Removal-Fill Permit Application, No. APP0052419

Dear Mr. Klassen,

The Northwest Environmental Defense Center ("NEDC") submits the following comments on the Interstate 5 Columbia River Crossing ("CRC") application for a removal-fill permit from the Oregon Department of State Lands ("DSL"), permit application number APP0052419, submitted by the Oregon Department of Transportation and Washington Department of Transportation (collectively, "ODOT"). NEDC is a non-profit organization whose mission is to protect the environment and natural resources of the Pacific Northwest. Given this mission, NEDC is concerned about the environmental impacts posed by the CRC. NEDC seeks to ensure all state and federal environmental laws and regulations are complied with throughout the development and planning of the bridge project.

DSL must not issue the permit for this project. First, in violation of state law and DSL's regulations, ODOT has failed to seriously consider alternatives to the proposed action that would avoid, reduce or compensate for the significant negative impacts to Oregon's waters that will result from the proposed action. Second, DOT has failed to clearly identify the impacts that will occur in direct contravention of established law,

including failing to take the most fundamental step to identify the wetlands that may be impacted by the proposed action and detailing the steps it will take to minimize such impacts. Finally, DSL must, consistent with both state law and Oregon's long-stated commitment to the protection and preservation of our precious natural resources, step forward to prevent ODOT from taking an action that will significantly impact several of Oregon's most critically imperiled salmon populations. For these reasons, and the many others outlined below, DSL must deny this permit request.

Discussion

The CRC, as currently proposed, is *not* "consistent with the protection, conservation and best use of the water resources of this state" and *will* "unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation." ORS 195.825. First, ODOT has failed to ensure that it will protect Oregon's waters. This fundamental, and fatal, failure is seen first and most prominently in the improper definition of the purpose of the project, and the resulting failure to analyze a reasonable range of alternatives. Second, the CRC as currently envisioned will undoubtedly have significant short- and long-term negative impacts on the Columbia River and the surrounding region. Specifically, this project will negatively and permanently impact navigation on the river, the vitality of salmon populations, and Oregon's citizens' use and enjoyment of the Columbia River. Finally, to allow this project to proceed as designed will be to reverse course on the State's decades-long fight to protect and recovery Oregon's salmon populations.

A. ODOT Ignored Alternatives That Would Meet the Purpose and Need But Have a Lesser Adverse Impact on Waters of the State.

By narrowly defining the purpose and need of the proposed project ODOT has not only avoided the required consideration of available alternative actions and designs that could in fact meet the region's true need—namely a forward-thinking, well thought-out transportation infrastructure—it has eliminated or glossed over important measures necessary to avoid or minimize the impact of the design it has chosen.

1. The Basic Purpose of this Project is to Improve Transportation Facilities in the Portland, OR and Vancouver, WA Region.

As with any permit application, DSL must first determine the true purpose and need of the proposed action; all required determinations under the law flow from this point. As a result, each permit application must include a purpose and need statement that "must be specific enough to allow the Department to determine whether the applicant has considered a reasonable range of alternatives." OAR 141-085-0550(5)(f). DSL's guidance states that the purpose and need statement "should not be overly narrow or too broad" because if "too narrow, . . . it precludes any other alternative but the selected one" but if "too broad, . . . it creates too many alternatives." Here, the purpose and need statement is overly narrow.

Although the permit application materials present a number of issues to be addressed by this proposal, unquestionably the true intent of this action is to build a new, larger bridge across the Columbia River. By myopically focusing on a single bridge structure as the predetermined goal of this process, ODOT has so narrowly defined the scope of its action as to eliminate from consideration a reasonable range of alternatives to the proposed structure, placement, and construction plans. Indeed, focusing exclusively on a purpose and need that revolves around traditional means of transportation unnecessarily pigeonholes the discussion and effectively prevents the potential development of alternative and more sustainable transportation systems. The failure to properly articulate a reasonable purpose and need fatally undermined the rest of ODOT's analysis. DSL must not fall into the same trap.

2. ODOT Failed to Analyze a Reasonable Range of Alternatives.

A permit application for a DSL removal-fill permit must include an analysis of a reasonable range of alternatives. *See* OAR 141-085-0550(5)(o). DSL must consider the "availability of alternatives to the project" and the "availability of alternative sites for the proposed fill or removal." ORS 196.825(3); *see also* OAR 141-085-0565(4). The alternatives analysis is essential because although ODOT may be given deference regarding the "need" for new transportation solutions in the Portland/Vancouver area, DSL must ensure that before it issues a removal and fill permit, it requires ODOT to present sufficient information on the available means for meeting the region's needs. This would include information regarding the location of any river crossing and the resulting adverse effects, both of which are critical issues that may be avoided by

alternative designs or proposals. OAR 141-085-0550 (an application for a removal-fill permit must provide complete and accurate information with "sufficient detail . . . to enable [DSL] to render the necessary determinations and decisions."). The alternatives analysis in Section 5.1 of Attachment A does not adequately address the alternative analysis requirements.

The alternatives analysis must provide DSL with "the underlying information to support its considerations" whether to issue a removal-fill permit. OAR 141-085-0550(5)(o). To satisfy this section the permit application must include "[a] description of alternative project sites and designs that would avoid impacts to waters of this state altogether, with an explanation of why each alternative is, or is not practicable, in light of the project purpose and need," "[a] description of alternative project sites and designs that would minimize adverse impacts to waters of this state with an explanation of why each alternative is, or is not practicable, in light of the project purpose and need," "[a] description of methods to repair, rehabilitate or restore the impact area to rectify the adverse impacts," and a "description of methods to further reduce or eliminate the impacts over time through monitoring and implementation of corrective measures." *Id.* An inadequate alternatives analysis prevents DSL from fully analyzing the project and fully considering the extent of the issues that exist with regard to project impacts.

DSL's guidance entitled "Removal-Fill Guide" notes that the "goal for all projects that require a removal-fill permit is to explore all [of] the alternatives to derive the practicable alternative with the least impact to wetlands or waterways." More specifically, DSL's guidance document entitled "Preparing a Purpose and Need Statement and an Alternatives Analysis" states that the alternatives analysis "is the heart of the removal-fill decision-making process." It further states that a good alternative analysis is built upon a "clearly documented project purpose and need," "project-specific criteria used to evaluate alternatives," "a clearly articulated range of alternative sites and designs that avoid and minimize impacts," and "documented evaluation of each alternative site and design against the project criteria." These guidance documents represent DSL's interpretation of its statutory and regulatory requirements.

ODOT's cursory alternatives analysis precludes the analysis intended by the removal-fill statute and DSL's regulations and guidelines. ODOT offers few alternatives

to the location of the CRC project site or to the manner of the dredging and filling activities. ODOT also does not provide alternatives that were considered and rejected, or any support for their reasoning in rejecting those alternatives.

Regarding the location of the CRC project, the alternatives analysis presents a very limited discussion of possible alternative locations and why the chosen site is preferable. The alternatives analysis indicates that one possible alternative had included three bridges instead of one, but this single variation in design does not supply a description of the greater possible location changes. Even within the narrow purpose and need statement in the permit application, a greater number of location alternatives should have been examined. As discussed below, the proposed project site includes wetlands, and there may be additional wetlands that have not yet been delineated. Additional site locations in the alternatives analysis would help to better evaluate the effects that the existence of wetlands in the project area and whether another location would be preferable. Because the alternatives analysis in ODOT's removal-fill permit application is inadequate, DSL should require ODOT to supply additional information under OAR 141-085-0560(4)(a) to consider alternatives that would avoid, minimize, further reduce or eliminate the impact to waters of this state.

3. ODOT Should Have Analyzed a Phased, No-build Alternative.

ODOT appears to have assumed that the problems with the existing bridge can only be remedied by building a newer, bigger bridge. This is incorrect. By focusing on a single new bridge as the solution, ODOT improperly excluded reasonable alternatives that would meet the stated purpose and need. For example, a phased, no-build alternative would meet the purpose and need to improve transportation facilities but with a lesser adverse impact than the locally preferred alternative. This alternative would include tolling on the existing bridge to fund projects to address the current seismologic issues. Assuming traffic issues continued even after imposition of a toll, construction of an arterial bridge adjacent to the existing bridge would alleviate congestion and provide an opportunity to include improvements for alternative modes of transportation such as bike, pedestrian, and light rail. This is just one of many reasonable alternatives that should have been considered.

By reducing its analysis to only alternatives consisting of a single new bridge, and ignoring options for phased construction or retrofitting to existing structures, ODOT ignored the requirement in DSL's regulations to analyze alternatives that would avoid, minimize, or eliminate impacts to waters of the state while still meeting the purpose and need. This blatant disregard for the required analysis in a removal and fill permit warrants DSL's denial. At the very least, DSL should require ODOT to revise its alternatives analysis to consider alternatives, such as the one suggested above, that will meet the needs the CRC project aims to address but result in lesser adverse impacts on waters of the state.

B. ODOT Failed to Identify Negative Significant Impacts that Will Likely Result and the Measures Necessary to Mitigate Such Impacts.

The description of the potential impacts of the proposed action and the subsequently required mitigation measures provided by ODOT are insufficient. Oregon law allows for permit approval if the project "[i]s consistent with the protection, conservation and best use of the water resources of this state" and "[w]ould not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation." ORS 196.825. To meet these requirements the permit application must first identify the adverse impacts that will result from the project, including impacts to wetlands. OAR 141-085-0550(i) and (k). The application must then provide mitigation plans to compensate for expected adverse impacts. *See* ORS 196.825(3)(i) (requiring DSL to consider "[w]hether the applicant has provided all practicable mitigation to reduce the adverse effects of the proposed fill or removal in the manner set forth in ORS 196.800").

Mitigation efforts must be consistent with the statutory requirements. ORS 196.800 (explaining that mitigation means reducing adverse effects by considering various measures "in the following order"). First, mitigation requires that DSL consider the effect altogether by not taking action or parts of it regarding the removal-fill process. ORS 196.800(8)(a). Second, to minimize the effect ODOT must consider limiting the degree or magnitude of the action. ORS 196.800(8)(b). Third, ODOT must rectify the effect by repairing, rehabilitating or restoring the affected environment. ORS 196.800(8)(c). Pursuant to ORS 196.800(d), mitigation also requires "reducing or

eliminating the effect over time by preservation and maintenance operations during the life of the action by monitoring and taking appropriate corrective measures." These provisions establish a sequential preference for the types of mitigation measures a permit applicant will take to offset the negative impacts of the proposed removal and fill action.

The CRC permit application fails to meet the requirements for DSL approval. ODOT's permit application violates DSL's regulations by failing to identify adverse impacts that will result from the project, as explained below. As a result, ODOT's mitigation plans are inadequate. DSL should either deny ODOT's permit application, or request additional information from ODOT to allow DSL to complete the analysis required.

1. ODOT Failed to Identify the Wetlands Impacted and Failed to Prepare a Compensatory Wetland Mitigation Plan.

Pursuant to ORS 196.818, a permit applicant must submit a wetland delineation report to determine whether waters of the state are present on the proposed project site, where the boundaries of those waters are, and whether waters of the state or a proposed activity in waters of the state are subject to permit requirements. ODOT made inconsistent statements regarding whether the project will impact wetlands, and thereby failed to identify the adverse impacts of the project. If the project will in fact impact wetlands, ODOT should have prepared a compensatory wetland mitigation plan.

The CRC application claims on one hand that the project will not impact jurisdictional wetlands, *see* Attachment A, section 3.2, but at the same time acknowledges the existence of wetlands in the project area and explicitly states that the applicant has not determined the extent to which wetlands exist. ODOT states in section 5.4 of Attachment A that "No jurisdictional wetlands will be impacted in Oregon during construction or operation of the CRC project." Page 4 of the application form also indicates that freshwater wetlands are not a water resource affected by the project. However, section 5.3.2 of Attachment A describes wetland delineation studies which indicate the presence of wetlands within the project area. Section 5.3.3, describing affected species, also describes the existence of wetlands in the project area. Plus, the DSL concurrence letter in Attachment H states that "4 wetlands, totaling 2.61 acres . . . are subject to the permit requirements of the state Removal-Fill Law." Figure 2 of

Appendix A in ODOT's permit application further establishes the existence of these wetlands. Yet Attachment H was not included in the materials made available to the public on DSL's removal-fill public notice website, *available at* http://www.statelandsonline.com/index.cfm?fuseaction=Comments.AppDetailLF&id=52419, as required by DSL's public notice regulations. OAR 141-085-0560. With this information in hand, it is clear that the information in the permit application contradicts the conclusions in the wetland delineation report.

What is more confusing, in section 5.3.2 ODOT states that it has been unable to fully determine the existence of potential wetlands beyond those wetlands previously delineated. Under OAR 141-085-0550(k), "[w]henever possible, wetland determination and delineation reports should be submitted for review well in advance of the permit application" and "[a] jurisdictional determination must be obtained prior to the permit decision." In section 5.3.2 ODOT states, "[p]otentially Jurisdictional Water Area O has been identified by Parametrix staff as an area that needs further investigation" and that "Further investigation of this area will occur during the early growing season once property access permission is obtained." This suggests that ODOT has not adequately analyzed what may be a significant addition to the application process. DSL should require ODOT to explain these conclusions.

Although DSL's requirement to identify existing wetlands applies "whenever possible," the CRC project has been in the planning phase for years, and ODOT should have been able to fully investigate the areas discussed in Section 5.3.2 before applying for this permit. More significantly, if ODOT has not received a jurisdiction determination of these potential wetlands, under OAR 141-085-0550(k), DSL may not issue a permit decision. Although section 5.3.2 of Attachment A of the application states "[n]o impacts to jurisdictional wetlands are proposed as part of this project," DSL should require ODOT to further address the uncertainty regarding the existence of wetlands in the project area, recognizing the possibility of fill of material into wetlands during the course of the project. OAR 141-085-0560(4)(a) allows DSL to request that the applicant submit supplemental information and answer additional questions prior to DSL's permit decision. NEDC urges DSL to request this additional information.

Due to these inconsistencies, it is possible that ODOT has failed to identify wetlands that exist in the project area. Such cursory analysis of whether wetlands exist in the proposed project area runs counter to Oregon's policy objectives that recognize the special significance of wetlands and seek to protect and conserve these resources. Oregon has recognized the importance of wetlands as a resource that benefits state ecosystems, species, and residents. The findings listed in ORS 196.668 recognize that wetlands:

- Provide a natural means of flood and storm damage protection through the absorption and storage of water during high runoff periods, thereby reducing flood crests and preventing loss of life and property
- Provide essential breeding, spawning, rearing, feeding, nesting and wintering habitats for a major portion of this state's fish and wildlife
- Provide essential habitat for waterfowl using the Pacific Flyway and for the rearing of salmon and other anadromous and resident fish
- Act as accumulation areas for sediments which retain nutrients and other pollutants that may prevent entry of the pollutants into other waterways
- Provide a valuable public service of maintaining clean water by retaining nutrients, metals and toxic materials from the water to protect water quality
- Provide significant opportunities for environmental and ecological research, public recreation and education and provide scenic diversity and aesthetic value as open space and areas of visual enjoyment

Oregon has a strong interest in protecting the state's wetlands. *See, e.g.*, OAR 141-085-0506(5) (stating that "[i]n regard to the regulation of wetlands, the Department will administer these rules to ensure that…[t]he protection, conservation and best use of this state's wetland resources, including their functions and values, are promoted through the integration and coordination of the local comprehensive plans and the Department permitting process" and "a stable wetland resource base is maintained through avoidance of reasonably expected adverse impacts, and by compensating for unavoidable wetland impacts").

If the project area does, in fact, include wetlands that may be subject to discharge of material during the course of the project, ODOT has failed to provide the wetlands compensatory mitigation plan required under OAR 141-085-0680 to 141-085-0715. This compensatory mitigation plan is a major aspect of the permit application, the absence of which would result in an incomplete and inaccurate permit application under OAR 141-085-0550(2).

Oregon's Administrative Rules 141-085-0680 through 141-085-0760 describe the Compensatory Mitigation for Wetlands and Tidal Waters, including mitigation requirements. A project that involves the removal or fill of wetlands is subject to a great deal more analysis and action by the permit applicant and increased scrutiny and evaluation by DSL than a project that does not involve wetlands. In particular, if wetlands must be destroyed then additional wetlands resources must be created. For a project with the scope and magnitude of the CRC, determining 1) whether wetlands exist, 2) where they exist, and 3) whether they will be subject to removal or fill is of critical importance. Without this analysis DSL is unable to fulfill its obligation to prevent the unpermitted fill of wetlands and to promote the policy considerations of the state. NEDC urges DSL to take the steps discussed above and require ODOT to provide a complete and sufficient analysis of the wetlands that exist in the project area.

2. ODOT Failed to Identify and Mitigate Adverse Impacts to Water Quality.

ODOT has failed to properly address negative impacts to Oregon's water quality that will result from the project. At each turn, ODOT's analysis raises more questions than answers. For example, the permit application discusses the use of temporary cofferdams in the CRC project. The cofferdams, however, are not watertight and will "need to be continuously pumped after dewatering." ODOT fails to discuss the potential for pollutants such concrete, sediment, and other contaminants to be discharged as a result of this process, and any alternatives that might avoid these problems.

Moreover, section 5.2 of the permit application states that the locally preferred alternative "would stabilize weak soils along the Columbia River, Hayden Island, around Marine Drive, and Burnt Bridge Creek that would be susceptible to liquefaction during a future seismic event(s)," noting that the "[s]oil would be stabilized using ground improvements such as soil mixing and stone columns."

Question: What type of substance is going to be mixed with the soil? Can these materials be contained, or is there the possibility of detrimental discharge?

The CRC project will result in reduced water quality during construction and throughout the design life of the CRC. *See* BiOp at 57. Preventing a harmful reduction in water quality will be impossible under the current plan due to discharge of stormwater and construction contaminants. In fact, the BiOp states that the ability to prevent the threat to "the survival and productivity of salmonids" will be "unfeasible." Sediment and dissolved heavy metals will have a devastating effect on an already fragile population. In addition, the construction methods and heavy equipment will also contribute to an increase in sediment and possible spills of petroleum-based contaminants. *See* BiOp at 62. Although ODOT claims that it will effectively treat stormwater throughout the course of the CRC project, it fails to provide specific information on how it will accomplish this significant task. The current plan makes little effort to mitigate the harmful effects of this likely reduction in water quality.

The Application proposes the implementation of a Water Quality Sampling Plan, prepared by the contractor, to monitor in-water projects according to Oregon Water Quality Certification. The CRC's engineer will review the Sampling Plan's methodology and method of implementation. In the almost certain event that the sampling shows harmful reductions in water quality, it is unclear whether the engineer will have the will or ability to make significant changes.

Question: Will the state reserve the ability to approve or deny the Sampling Plan? Will the state reserve the right to supervise the implementation of the plan?
Question: More importantly, can any sampling plan significantly reduce the harmful effects to water quality and protected species?

3. ODOT Failed to Identify and Mitigate Adverse Impacts to Salmon.

ODOT's permit application not only fails to identify and minimize adverse impacts to wetlands, but it also fails to adequately identify and minimize adverse impacts to aquatic life and habitat. Before issuing a removal and fill permit, DSL must determine that a proposed project "is consistent with the protection, conservation and best use of the water resources of this state." ORS 196.825(1)(a). Because the term "water resources" includes "not only water itself but also aquatic life and habitats therein," ORS

196.800(13), DSL must consider the potential adverse impacts to aquatic life in addition to water quality, and determine that the CRC has adequately mitigated those impacts before issuing the permit. Under ORS 196.800(8)(c), mitigation means "the reduction of adverse effects" including, *inter alia*, "repairing, rehabilitating or restoring the affected environment." Based on the limited information provided in the permit application, it is unlikely that DSL will be able to determine that ODOT has adequately mitigated the impacts to aquatic life that will result from the CRC's removal and fill activities, and therefore should not issue the removal-fill permit.

The new infrastructure resulting from the CRC will disrupt habitat for salmon. NEDC is concerned that the proposed mitigation does not advance the policy objectives for the protection of wetlands set forth in ORS 196.805. The policy states "the protection, conservation and best use of the water resources of this state are matters of the utmost public concern," and that "streams, lakes, bays, estuaries and other bodies of water in this state, including not only water and materials for domestic, agricultural and industrial use but also habitats and spawning areas for fish, avenues for transportation and sites for commerce and public recreation, are vital to the economy and well-being of this state and its people." ORS 196.805(1). NEDC's primary concern is that approval of ODOT's removal-fill permit is not in line with the statute's requirements, especially those regarding the impacts on salmon. As a policy concern of the Oregon legislature, DSL should ensure that the CRC is addressing and incorporating logical and sound measures to reduce adverse impacts on water resources of the state, and more specifically aquatic life.

Direct physical threats to salmonids from the proposed CRC include pumps, handling, and the use of clamshell buckets. The CRC plan includes the erection of cofferdams, which will be drained to provide a dry space for pier construction. The planned use of screens should prevent fish from being pulled into the pumps; however, there may be a need for state supervision to ensure that the use of screens abides by the specifications in permit application section 5.2.1. Any fish that are trapped inside of the draining cofferdams will have to be physically removed and released. The contractor is to supply a fishery biologist to conduct and oversee the capture, removal, and release of the fish. State supervision may be required to ensure that the handling of threatened

species is done in accordance with ODOT Standard Specification 00290.31(i) or its equivalent. Another potential direct physical harm to salmonids is the use of clamshell buckets for dredging outside of cofferdams. There do not appear to be any precautions in the permit application to prevent threatened species from being caught in the clamshell buckets. It may be necessary for the state to mandate preventive measures or limits to reduce the chance that salmonids will be caught and harmed.

Although the CRC removal-fill permit application does not have a satisfactory amount of information about what will be done to mitigate impacts, it does state that ODOT plans to incorporate drilled shafts rather than impact pile driving. The drilled shafts still create concern regarding the noise levels that cause injury thresholds for listed fish throughout large portions of the Columbia River. In-water piers will cast a shadow on the river and create impermeable surfaces. Attendant adverse impacts on salmon may include, but are not limited to: direct harm to these species; loss or degradation of spawning, rearing, resting, and staging habitat; and migration delays and/or blockages.

Drilled shafts can disturb and eliminate spawning sites in the immediate area. Furthermore, the increased construction can block sunlight and reduce available oxygen levels for fish eggs, disturbing behavior, migration, and spawning and harming invertebrate food sources. Drilling shafts can also affect the riparian zone, a key component of this fish habitat. Their use can destroy riparian vegetation, cause rapid bed degradation, and induce bank collapse. Furthermore, these impacts to riparian areas can reduce the shading of the river that is crucial to the maintenance of cool water temperatures for fish survival. NEDC is concerned that there is no mention of the number of temporary pile drive structures that will be used. There is also no reference to the impacts of the larger size drilling shafts and associated impacts such as fluids that can affect water toxicity and salt oxygen levels.

In-water construction during the project will create noise levels harmful to migrating salmonid species. Drill shaft, impact pile driving, and vibratory methods will all be used. Of these, impact pile driving creates the most noise, followed by vibratory, and then drill shaft methods. A combination of vibratory and impact methods will be used to erect almost 800 piles, resulting in an estimated 1,800 impacts a day during the first 18 months of construction. In addition, vibratory hammers will be used to install the

steel casings necessary for drill shaft construction of the permanent piers. *See* National Marine Fisheries Service, Biological Opinion No. 2010/03196, January 19, 2011 (hereafter "BiOp"), page 5 and 6; *available at* http://www.columbiarivercrossing.org/FileLibrary/Biological_Assessment_Opinion/NMFS_Biological_Opinion_011911.pdf. The noise impacts will continue intermittently throughout the 4-year construction. *See* Attachment A of permit applciation, Table 4-2. The noise created by these construction methods has been shown to adversely affect migratory salmonids and may hinder their ability to pass through the construction area and successfully reach breeding areas. *See* Anthony Hawkins, *Assessing the impact of pile driving upon fish*, Proceedings of the 2005 International Conference on Ecology and Transportation (2006) (Abstract), *available at* http://escholarship.org/uc/item/28n858z1#page-1 (attached hereto as Attachment 1).

The method proposed for noise reduction during impact and vibratory construction is a bubble curtain. There is evidence that bubble curtains do provide some reduction in noise in the range of 6%-10%. James A. Reyff, *Reducing Underwater Sounds with Air Bubble Curtains*, 262 TR News, 33 (2009), *available at* http://onlinepubs.trb.org/onlinepubs/trnews/trnews262rpo.pdf (attached hereto as Attachment 2). However, it is unclear whether bubble curtains or any other noise mitigation methods will be used while installing the casings used in drill shaft construction. This is significant, as casings will be installed for 72 shafts, with each installation lasting 2 days. Without any efforts at noise attenuation, this would result in 144 workdays of un-dampened noise in the river. The BiOp and permit application provide little evidence that the proposed methods of reducing the impact of noise on salmonids will be sufficient or that there are not more effective alternatives.

According to the BiOp, the CRC will have little effect on salmon habitat. This is due to the fact that so little suitable habitat exists in the impacted area. *See* BiOp at 63. Nonetheless, ODOT has proposed a mitigation project to enhance salmonid habitat along the Sandy River in the Dabney State Recreation Area. This project does not appear to be an effective compensation for any loss of habitat near the CRC site; however, it cannot offset or prevent the likely reduction in the actual number of salmonids able to pass through the CRC site on their way upstream to spawning areas.

State law allows the director of DSL to "impose such conditions as the director considers necessary to carry out the purposes of ORS 196.805 and 196.830 and subsection (1) of [196.825] and to provide mitigation for the reasonably expected adverse effects of the project." ORS 196.825(5). Those statutes express the State of Oregon's "utmost public concern" for "the protection, conservation and best use of the water resources of this state." ORS 196.805. The CRC project will likely cause significant harmful effects to protected salmonids in the Columbia River. Unfortunately, the mitigation proposals offered in the permit application are far from perfect. The director of DSL should consider additional and alternative methods of protecting these threatened fish.

The continued existence of healthy populations of ecologically, culturally, recreationally, and economically valuable fish species ranks very high in the public interest. The degradation of the river system negatively affects the aquatic ecosystem and ODOT must take into account these mitigation requirements before beginning work on the project. DSL cannot base its conclusion on certain aspects, while ignoring others. Because the protection and conservation of water resources are of the utmost public concern, we urge DSL to seek more information regarding the combined cumulative of the project's impacts on salmon.

Mitigation efforts must be consistent with state efforts to ensure the vitality of the river system and the survival of diminished salmon populations. Contrary to the statutory requirements and DSL's regulations setting forth a sequential preference for avoidance, minimization, rectification and reduction before compensation, ODOT simply supplied a Compensatory Non-wetlands Mitigation plan in Section 5.5 of Attachment A and Attachment F. The proposed off-site compensatory mitigation efforts will do little to compensate for the on-site harms. It appears unlikely that the enhancement of salmon habitat at Dabney State Recreation Area, 14 miles upstream from the CRC project site, will offset the damage to a fish population that may not be able to reach that location.

4. ODOT Failed to Analyze or Mitigate the Negative Impacts Due to Extended In-Water Work Windows.

The permit application provides that all work will take place during approved work windows; however, the permit lacks specific information as to what those windows

will be. Instead, ODOT states in Table 4-2 of Attachment A in the permit application that pile driving will occur September 15 through April 15 of year, and all other construction, include drilling shafts and the use of cofferdams, will occur *year-round*. These work windows represent a variance from the Oregon Department of Fish and Wildlife's ("ODFW") In-Water Work Guidelines, which were established to minimize the potential impacts to important fish, wildlife and habitat resources. ODOT does not identify additional mitigation measures to address the adverse impacts that will result from the extended in-water work windows. Given these extreme variances, including year-round activities that ODFW would otherwise generally cabin to only winter months, ODOT failed to identify significant adverse impacts. DSL should require ODOT to identify these impacts and provide additional mitigation to reduce the adverse impacts.

For example, the lighting on the temporary structures suggests that the construction could possibly occur year round and at night. There is no information regarding the cumulative impacts on aquatic species that night work may have. The other suggestion, that all pumps must employ a fish screen and that NMFS will operate and maintain each fish screen installed, fails to address exactly where the screens will be utilized and how they will protect aquatic life. Considering the size of this project, DSL needs to request a more thoroughly analyzed permit to assess the likely environmental harm to aquatic life, including ESA species in the Columbia River.

5. ODOT Failed to Identify and Properly Mitigate Other Adverse Impacts From the CRC.

ODOT failed to identify and mitigate significant adverse impacts that are likely to result from the CRC. For example, ODOT failed to identify the adverse economic impact of a bridge with a lower vertical clearance. Pursuant to ORS 196.825(1)(b), DSL must consider whether the project will unreasonably interfere with the policy of the state to preserve the use of waters for navigation, fishing, and public recreation. The Columbia River is a major corridor for transportation, namely barges. The existing bridge has a vertical clearance of 178 when open, but the CRC's proposed bridges will have a vertical clearance of only 116 feet. Thus the CRC will likely create a permanent restriction on

upstream navigation due to a lower bridge height. ODOT, however, failed to identify the possible adverse impacts to navigation in its permit application.

Question: What impacts will this project have on river navigation such as barge traffic and other forms of commerce that rely on the river corridor?
Question: Based on the permit application materials, can DSL ensure that the CRC will "not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for," *inter alia*, navigation, as required by ORS 196.825(1)(b)?

Section 5.2.2 states that if heavy equipment begins to leak while at the project site "the equipment shall be immediately removed from the area and not used again until adequately repaired. Where off site repair is not practicable the implemented SPCC Plan will prevent and or contain accidental spills in the work repair area." Although ODOT's application states that the SPCC will prevent and contain spills in the work area for equipment that cannot be removed, the lack of an established SPCC prevents the public, and DSL, from evaluating that plan.

In addition, Section 5.2.2 discusses demolition plans for the project site. This includes using large cranes "to haul out larger segments to reduce the amount of cutting concrete disturbed." The demolition plans also include using a diamond wire saw for underwater cutting of pilings, and the section claims that these saws will "avoid incidental fallback (or spalling) to ensure whole segments can be lifted out of the water and not[h]ing is left behind." However, ODOT fails to discuss alternative approaches that may (or may not) have less environmental impact, and its fails to specify how often will water quality be monitored during demolition to ensure these measures are truly protective.

Section 5.2.2 also discusses the use of project equipment on barges. Equipment on barges "shall use only vegetable based oils in hydraulic lines." Presumably, this is to ensure that if a spill or leak occurs, any oil discharged into the affected waters will not be as harmful. Minimization Measure 1 in Section 5.2.5.1 explains the drilled shafts that will be used to install permanent foundations for the in water piers. Minimization Measure 6 in Section 5.2.5.6 describes the technique that will be used to fill the holes

from the temporary piles. The permit application states that the holes "shall be filled with clean native sediments immediately following removal." Yet, ODOT does not discuss where the "clean native sediments" used to fill the holes come from and whether additional dredging to take place to secure the material.

Finally, Section 5.3.1.1 describes the Colombia Slough substrate that will be affected by the project. The section states "[b]enthic habitat in the Lower Slough is dominated by sand is extremely low in dissolved oxygen and contains toxic pollutants." Section 5.3.1.2 describes the Columbia River and North Portland Harbor area that will be impacted. The section discussing the substrate of this area describes detrimental scouring that has taken place here. The completion of the CRC project will likely increase the activity that has led to the scouring of the river bottom and alteration of sedimentation patterns in the river. Consistent with the statue and its own regulations, DSL should require ODOT to mitigate for these adverse impacts.

C. In light of Oregon's unique sovereign interest in the survival and recovery of listed salmon and steelhead in the Columbia River, DSL should impose additional permit conditions on the CRC.

As noted above, Oregon has a unique sovereign interest in the survival and recovery of listed salmon and steelhead in the Columbia River. Oregon legislation on removal-fill permits provides the guiding policy that "the protection, conservation, and best use of the water resources of this state are matters of the utmost public concern." ORS 196.805(1). The definition of "water resources" includes aquatic life and habitats existing within the waters of this state. ORS 196.800(13). This necessarily encompasses salmon and steelhead of the Columbia River. No authorization to place fill or remove material from the waters of the state may be inconsistent with the protection, preservation, and best use of the water resources (e.g. salmon) of the state. OAR 141-085-0506. As explained above, the impacts to listed salmon from the proposed CRC have been inadequately analyzed. As such, in the precautionary interest of protecting the water resources of the state, DSL should deny the removal-fill permit, or in the alternative, impose stringent permit conditions per ORS 196.825(5) to further minimize potential effects on salmonids.

The state has intervened many times in the past on behalf of salmon in the Columbia. In the recently decided Bonneville Dam California Sea Lion case, *HSUS v. Guttierez,* the state intervened to support lethal take of California Sea Lions to reduce

predation levels on salmonids. In supporting that intervention, the state's brief urged that "the threat to the salmon and steelhead in the Columbia River is current and it is significant," and described the state's position that the "preservation of salmon and steelhead in the Pacific Northwest is a matter of grave importance to the community and to the environment." State of Oregon's Mem. in Support of Or. Dept. of Fish and Wildlife's Mot. For Sum. J., Humane Society of the United States v. Gutierrez, 625 F.Supp.2d 1052 (D. Or. 2008) (No. 3:08-cv-00357) (attached here to as Attachment 3).

In other recent and lengthy litigation, Oregon has intervened as a plaintiff against NMFS to challenge the National Oceanic and Atmospheric Administration's ("NOAA's") arbitrary and capricious "no jeopardy" evaluations of impacts to endangered and threatened salmonids expected from dam management practices on the Columbia River. Speaking of the urgency required to protect Columbia salmonids, the state expressed its belief that "time is literally running out for these populations." State of Oregon's 2nd Sup. Complaint as Intervenor Supporting Plaintiffs, National Wildlife Federation v. National Marine Fisheries Service, 839 F.Supp.2d 1117 (D. Or. 2011) ("NWF v. NMFS") (No. 3:01-cv-00640-SI) (attached hereto as Attachment 4).

Because the BiOp for the CRC does not adequately characterize the potential effects of the project on salmonids, DSL should add strict conditions to the CRC removal-fill permit, if it grants one at all. While the BiOp made a finding of no jeopardy, it was significantly flawed and may misrepresent the actual threat to the survival and recovery of listed salmon.

The deficiencies in NMFS's BiOp are manifold: analyses of the environmental baseline, direct effects and cumulative effects are incomplete. As such, the finding of "no jeopardy" for the CRC proposal is suspect. In addition, the incidental take statement ("ITS") issued in the BiOp relies on improper assessments of the environmental baseline and assumptions regarding the current status of the species in question, and does not provide a reliable method of tracking "take" for purposes of triggering agency re-consultation to prevent jeopardy. *See* Comments from the Pacific Environmental Advocacy Center on the Final Environmental Impact Statement (submitted on behalf of, *inter alia*, NEDC), page 138 (hereafter "PEAC comments") (attached hereto as Attachment 5). In determining the environmental baseline, NMFS failed to consider best

available science and additive adverse impacts from previous ITSs issued for projects impacting the evolutionary significant units ("ESUs") in question. *See* PEAC comments at 131. This failure is due primarily to the lack of an effective system for tracking all incidental take allowances.

One major issue for the CRC project's "no jeopardy" determination is that the agency made a finding in 2008 of jeopardy for Upper Willamette River ("UWR") Chinook and UWR Steelhead due to proposed Willamette Project dam system operations, and since then has issued 69 BiOps for projects with impacts to the UWR Chinook, and 60 BiOps on projects with impacts to UWR steelhead, all finding no jeopardy (both ESUs which will be impacted by the CRC). *See* PEAC comments at 135. Since it is unclear yet whether the survival of UWR Chinook and steelhead have been improved through the Reasonably Prudent Alternatives of the Willamette Project, and because the additive take from the other permitted projects has not been tallied, NMFS cannot reasonably know whether the CRC project puts the UWR Chinook and Steelhead in jeopardy. *See* PEAC comments at 136. NEDC feels that the failure to consider fully the additive impacts from "take" allowances for all affected listed salmonids renders NMFS's "no jeopardy" finding unreliable. As such, DSL should refrain from issuing a permit which might in actuality jeopardize the continued existence of listed salmonids, which are some of Oregon's most iconic and highly valued water resources. In the alternative, DSL should impose strict permit conditions.

DSL should use its power to promote Oregon's interest in protecting salmon through this permit process. That course of action would be most consistent with the State's past policy of speaking up on behalf of Columbia River salmon when federal agencies have failed to properly assess impacts to listed species. The State's intervening memo in the *NWF v. NMFS* litigation illustrates Oregon's previous refusal to acquiesce to NMFS's inadequate BiOPs.

In the most recent case, the State confronted NOAA for failing to follow the traditionally applied jeopardy analysis without a rational explanation. State of Oregon's 2nd Supp. Complaint, *NWF v. NMFS*, at 27. The state asserted that NOAA failed to use best available science, and to determine the point at which survival and recovery of the species at issue are placed at risk. *Id* at 19.

The state has taken issue time and again with NOAA's biological opinions for the Federal Columbia River Power System. The state's 2005 memo from *NWF* lists several deficiencies of the 2004 FCRPS BiOp, many of which are at issue in the current CRC BiOp. These include: departing from the appropriate jeopardy framework by improperly accounting for the current status of the species and improperly defining the environmental baseline, and promulgating an ITS which fails to provide ways to ensure that take is not exceeded. In the 2004 BiOP, the ITS deficiency was its reliance on vague future improvements. In the CRC BiOp, the deficiency is its reliance on vague surrogate measures of "take" which defy practical tracking of impacts. State of Oregon's 2nd Sup. Complaint, NWF v. NMFS. *See also* PEAC's comments at 138.

The biological information provided to show that the CRC will not jeopardize endangered salmonids of the Columbia watershed suffers from many of the same pitfalls that the state has been litigating against for years. Thus, DSL should take a precautionary approach in issuing permit conditions, if it chooses to issue a permit at all.

To protect salmon as a water resource of the state, DSL should impose precautionary permit conditions to compensate for the ecological deficiencies of the CRC's FEIS and BiOp. The CRC project will loom over almost every fish that hatches and spawns in the Columbia River basin, as they pass through the action area in upstream and downstream migration. The CRC would be the largest in-water work project to take place in the Columbia River since salmon were listed under the Endangered Species Act. If the CRC impacts are the "straw that breaks the camel's back" for threatened fish populations, it could have deleterious consequences for a range of ESUs.

There are several shortcomings of the FEIS and BiOp that DSL should be concerned with in determining whether to permit or what conditions should be added to the removal-fill permit. In considering the direct and indirect effects of the action, the BiOp does not adequately assess impacts from pile driving on salmonids. It neglects to analyze the impacts of sub-lethal effects of pile driving noise at the population level (sub-lethal injuries to salmonids' hearing and behavior can affect an individual's ability to forage, escape predation, and reproduce). *See* PEAC comments at 107. This is especially problematic because pile driving noise will permeate the action area year round for up to four years. The BiOp does not provide an actual cap for take that will occur as a result of

underwater noise. BiOp at 70. *See also* PEAC comments at 111. Additionally, the impact of noise from the operation of the CRC bridges over the project lifetime has not been addressed, and impacts to habitat from shading over the lifetime of the project are given little analysis. *Id* at 108. Finally, the ITS for the project gives a non-numerical "extent of take" allowance, without linking that surrogate to actual death or injury to the species. BiOp at 75. This handicaps the ability to assess through monitoring whether the project has overcome its take limit.

These deficiencies should be compensated for with strict conditions in the removal-fill permit where possible. It is possible that permit conditions cannot truly adequately remedy some or all of these shortcomings, in which case DSL should refrain from issuing the permit until or unless the deficiencies can be remedied by CRC planners. Under ORS 196.825(5), DSL may impose such conditions as the director considers necessary to carry out the purposes of ORS 196.805 (as described above). DSL has the discretion to include *any* condition that is related to protection of water resources. *See* DSL Removal Fill Guide at 6-16. The ITS conditions and CRC permit application describe several conditions the project would abide by. NEDC presents the following concerns about the ability of these conditions to protect salmon.

With regard to "General Measures and Conditions," 5.2.1 of the permit application, the condition requiring a biologist to monitor for project effects that may "affect listed species or critical habitat in a manner or to an extent not previously considered," is rendered less effective by the fact that NMFS has provided no measureable biological standard by which to determine whether the CRC project is exceeding the incidental take permit. The BiOp merely provides a surrogate for the extent of allowable take which is unfortunately merely coextensive with the project's scope, and does not serve the same purpose as a numeric cap. *See* BiOp at 75. *See also* PEAC comments at 138. Permitting the project without a having a reasonable cap to compare take levels to is hardly consistent with the state's interest in salmon protection. However, if the permitting proceeds, NEDC asks DSL to consider including biological guidance in the permit conditions for monitoring to better measure and control potential take levels in the breadth of the impact area. This would apply to section 5.2.5.5 of the permit application regarding monitoring of effects from hydro-acoustics as well.

With regard to the anti- perching device condition that applies to piles not active in the construction area which are in place 6 months or longer, NEDC urges DSL to consider if salmon interests may be better served by installing anti-perching devices on even shorter-term (less than 6 month) pilings as well. In addition, DSL should include a condition that the number of pilings must be the minimum necessary to fulfill the essential purpose of the crossing. The permit application says that the design has already been refined to the minimum number of piers necessary for a safe structure, but the DSL condition would hold the project to that stipulation.

The most important conditioning leverage DSL has is with regard to the in-water work window that the CRC project plans to employ. Limiting the in-water work period is important because in-water work will result in increased underwater noise, turbidity, artificial lighting, avian predation, hydraulic shadowing, and shading. *See* FEIS Ecosystem technical report at 5.1. NMFS's incidental take permit conditions approve of the schedule to allow impact pile driving between September 15 and April 15, with the limitation that impact pile driving can only occur during daylight hours. BiOP at 80. Otherwise, NMFS has approved in-water construction activity year-round, with the limitation that it does not cause sound pressures that are injurious to fish, and will not violate water quality standards established by ODEQ and WDOE. *Id*.

Because all CRC work shall be performed according to the requirements and conditions of regulatory permits issued by federal and state governments, DSL can and should choose to narrow the permissible period of in-water work for the CRC project. It is in the interest of the State of Oregon to require that the CRC abide by Oregon's guidelines for the timing of in-water work to protect fish and wildlife resources. The guidelines provide a way of planning in-water work "during periods of time that would have the *least* impact on important fish, wildlife, and habitat resources." ODFW In Water Work Timing Guidelines (emphasis added).

The guideline given for the Columbia is November 1 through Feb 28, a significantly shorter time period than NMFS has approved for the construction activities with the greatest physical impacts to salmon. Noise from impact pile driving will undoubtedly damage fish swim bladders and hearing, and will disturb behavior. Pile

driving would likely have an appreciable impact on all listed salmonids ESUs. *See* Ecosystem Technical Report at 5-29.

The plan allows for several minutes of un-attenuated pile driving, and would additionally allow two pile drivers to operate at once, in close proximity. The CRC planners assume operation of multiple pile drivers would not cause increased noise levels. *See* Ecosystems Technical Report at 5.2.1.1. However, DSL should take a precautionary approach and consider permit conditions to minimize both of these potential causes of harm to fish as well.

Even vibratory pile driving, which NMFS would allow throughout the year, may cause injury to salmonids. Though the CRC technical report denies the likelihood of this, it admits that the project will produce noise in excess of the threshold at which sound may cause behavioral interference with fish. *See* Ecosystems Technical Report at 5.2.1.2. DSL should consider permit conditions to attenuate the sound from vibratory driving, and limit the range of time that salmonids will be exposed to these hydro acoustic impacts as well, especially during sensitive peak migratory times for listed ESUs. The permit application also provides for a 12 hour rest period for impact driving, but potentially DSL should also consider a rest period for vibratory driving as well, to lessen impacts on fish behavior.

NEDC also asks DSL to consider additional permit conditions to minimize the amount of time when nighttime zone lighting is allowed. Bright work zone lighting may have impacts on salmonid migration behavior and vulnerability to predators. Finally, DSL should insist on any other conditions not listed in the ITS or proposal to implement management practices which would further reduce sources of turbidity, treat stormwater runoff during the life of the project, and reduce and the potential for contact between construction contamination sources and the river.

In sum, Oregon has a unique interest in protecting the salmon of the Columbia River. Oregon has spent years challenging inadequate BiOps of proposed activities on the Columbia. The current project relies on a biological opinion which suffers from many of the same flaws. In response, the state should take a precautionary approach to the CRC, by either refusing a removal-fill permit at this time, or by binding CRC

planners to strict conditions in the permitting in order to reduce impacts to Columbia basin salmon, a vital water resource of our state.

Conclusion

NEDC urges DSL to address the aforementioned deficiencies in the CRC's application for a removal-fill permit before authorizing any removal or fill activities. The lack of sufficient information precludes DSL from making the required considerations under ORS 196.825. Issuing the permit without this information would contravene DSL's own regulations as well as Oregon's policies regarding protection and preservation of water resources of the state.

Respectfully submitted,

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Title:
Assessing the impact of pile driving upon fish

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Keywords:
reconstruction, jetty, monitored, harbor, Scotland, sound, levees, percussive, vibratory pile driving

Abstract:
Pile driving associated with the removal and reconstruction of a jetty was monitored at a busy harbor in the North East of Scotland, adjacent to an important Atlantic salmon river. The main concern was with the impact of noise upon salmon migrating through the lower part of the river estuary. Pile driving was allowed to proceed subject to an agreed program of works to monitor sound levels and ensure least disturbance to salmon. Both percussive and vibratory pile driving took place. Sound-pressure levels from both were measured. Percussive pile driving involved the repeated striking of the head of a steel pile by a double-acting hydraulic hammer, with a 5 tonne ram weight operated with a mean stroke of about 1 m. Vibratory pile driving was achieved by means of a variable eccentric vibrator attached to the head of the pile. The majority of piles were initially driven into the substrate by vibration, over a period of several minutes. Each pile was then subsequently driven to its full depth with a sequence of repeated hammer blows. Steel facing piles were inserted adjacent to the quayside and subsequently backfilled to provide a new frontage to the quay. Diagonal-bearing piles were also inserted well behind the quay to strengthen the adjacent roadway. Sound pressure levels generated by pile driving in water were measured using a calibrated hydrophone suspended 1 m above the bottom. The hydrophone was connected to a low-noise amplifier, which controlled the signal gain and bandwidth. The output was connected to

a laptop PC by a digital audio interface. When recording at close range, where sound levels were especially high, a less-sensitive hydrophone transducer was used, connected directly to the audio interface. All sound recordings were made as 16-bit WAV files. For some of the piles, particle-velocity amplitudes were measured by means of an assembly of three orthogonally mounted, calibrated geophones placed on the seabed. The sound-pressure levels (SPL) of the background noise and vibro-piling noise were measured as a root-mean-square (rms) level expressed in decibels relative to a reference level of one micro Pascal (dB re 1µPa). The shorter-duration impulsive sounds generated by the individual blows of the pile-driver hammer were measured in several different ways: the peak pressure reached during the impulse, the rms pressure measured over the time period that contained 90% of the sound energy (rms impulse), and as the sound-exposure level (SEL) expressed in dB re 1µPa2-s. The latter was defined as the constant sound level of 1s duration that would contain the same acoustic energy as the original sound. Sound levels were converted to source levels (SL), i.e., normalized to an equivalent noise level at a distance of 1 m. In all SL calculations, it was assumed that the spreading loss was represented by the expression 15 log R where R was the distance in meters. Received sound level in water may be expressed in terms of sound pressure, particle velocity, or intensity, all of which can vary with time over the duration of the sound. In this study, the majority of measurements were expressed in terms of sound pressure. However, it was recognised that it was really necessary to determine the particle velocities as this is the stimulus which is received by the ear of a fish like the salmon. On a few occasions, the particle velocities were measured and the acoustic intensity calculated. Background-noise levels within the harbor and even within the river itself were high, within the range 118 – 149 dB re1µPa rms over a bandwidth of 10 Hz-10 kHz. Much of the noise derived from manoeuvring and stationary ships. The sound-pressure levels generated in water by percussive pile driving were very high, but variable depending on the pile type, the substrate being penetrated, the distance from the source, and whether the bubble curtain was in operation. Within the harbor, they ranged from 142-176 dB re 1µPa peak, with sound exposure levels (SELs) of between 133-154 dB re 1µPa2-s, without the bubble curtain in operation. Estimated source levels ranged from 177-202 dB re 1µPa peak. Within the river, more than 220 meters away from the pile driver and separated from it by a spit of land, the soundpressure levels reaching the fish ranged from 162-168 dB re1µPa peak, with SELs of between 129-145 dB re 1µPa2-s. Sounds measured at a distance from the source within the harbor consisted of a low-frequency pre-pulse, followed by the main sound pulse. In this case, and in the river itself, the sound was propagated through the substrate, as well as the water, perhaps accompanied by flexural waves at interfaces between strata. Particle velocities within the harbor and in the river reached 110 dB re 1 nms-1, mainly in a vertical direction, and intensities of up to 0.023 Wm-2 were registered. Chapter 2 22 ICOET 2005 Proceedings The main energy generated by the percussive pile driver extended up to and above 10 kHz close to the source, with most of the energy below 2 kHz. By the time the sound reached the river the higher frequencies had been removed and the predominant frequencies were below 1 kHz, still with considerable energy within the hearing range of salmon (which declines above 250 Hz). Vibro-piling also generated high sound levels in water, with sound-pressure levels within the harbor ranging from 142- 155 dB re1µPa rms and source levels between 173-185 dB re 1µPa rms. Levels in the river ranged from 140-143 dB re 1µPa rms. A bubble curtain was successful in reducing the peak amplitude of the sound from the pile driver by up to 5 dB and in reducing the high-frequency content of the sound. The bubbles therefore reduced the likelihood of damage or injury to fish. However, they did not reduce energy at the lower frequencies to which fish are sensitive, especially at a distance from the source. The principal purpose of monitoring the pile driving was to assess the impact upon salmon. There is some controversy and uncertainty about the actual levels of pile-driving sound which affect fish adversely. It is evident that sound affects different species to a differing degree. Thus, although in some instances a level of 180 db re1µPa has been adopted as a standard, above which sounds are likely to kill or cause damage to fish, this is a very uncertain figure which is open to question. It was concluded that the sound pressure levels (SPLs) and sound exposure levels (SELs) generated by percussive pile driving within the harbor were not likely to have killed fish, whether the fish were within the river or the harbor itself. However, the sound levels were high enough close to the pile driver to injure or induce hearing

loss in some species of fish. The noise from pile driving in the harbor was certainly high enough to be detected by salmon in the river at considerable distances from the source. The levels of sound from both percussive and vibro-piling were well above the hearing thresholds of the fish. As salmon could not be observed during this exercise, it was not possible to determine whether salmon reacted adversely to the sounds. However, there was a risk that their upstream migration may have been delayed or prevented with consequent effects upon spawning populations. The measurements indicated that any pile driving within the river itself would have the potential to injure or induce hearing loss in salmon and might have adverse effects upon their behavior. During this exercise, trains of low frequency ‘thumping’ sounds were recorded within the River Dee, similar to those made by fish. The sounds may be emitted by European eels, which are common at the location.

Reducing Underwater Sounds with Air Bubble Curtains

Protecting Fish and Marine Mammals from Pile-Driving Noise

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Pile driving at large construction sites produces formidable noise. Marine pile driving similarly can produce high sound pressures underwater—but these can be lethal to fish and can harass marine mammals, including those protected by federal law. This problem has contributed to costly construction delays on major bridge projects. To protect marine life, engineers have designed air bubble curtains to reduce underwater sounds.

Problem

In 2000, the California Department of Transportation (Caltrans) undertook a demonstration project to install steel piles as part of the design to replace the eastern span of the San Francisco–Oakland Bay Bridge. The demonstration involved driving 8-foot-diameter steel piles that were more than 300 feet long. The new bridge would require more than 250 of the piles.

An unconfined air bubble curtain with two vertically stacked rings is deployed on a harbor project to reduce underwater sounds; oil-free compressors supply air to the system.

Caltrans also conducted tests on sound reduction methods that had been developed to protect marine mammals. The underwater sounds during this demonstration, however, fatally injured fish, which were observed floating on the surface and exposed to predation by seagulls. Because the sound reduction methods were not protecting the fish adequately, state and federal agencies raised concerns about the endangered fish species in the area.

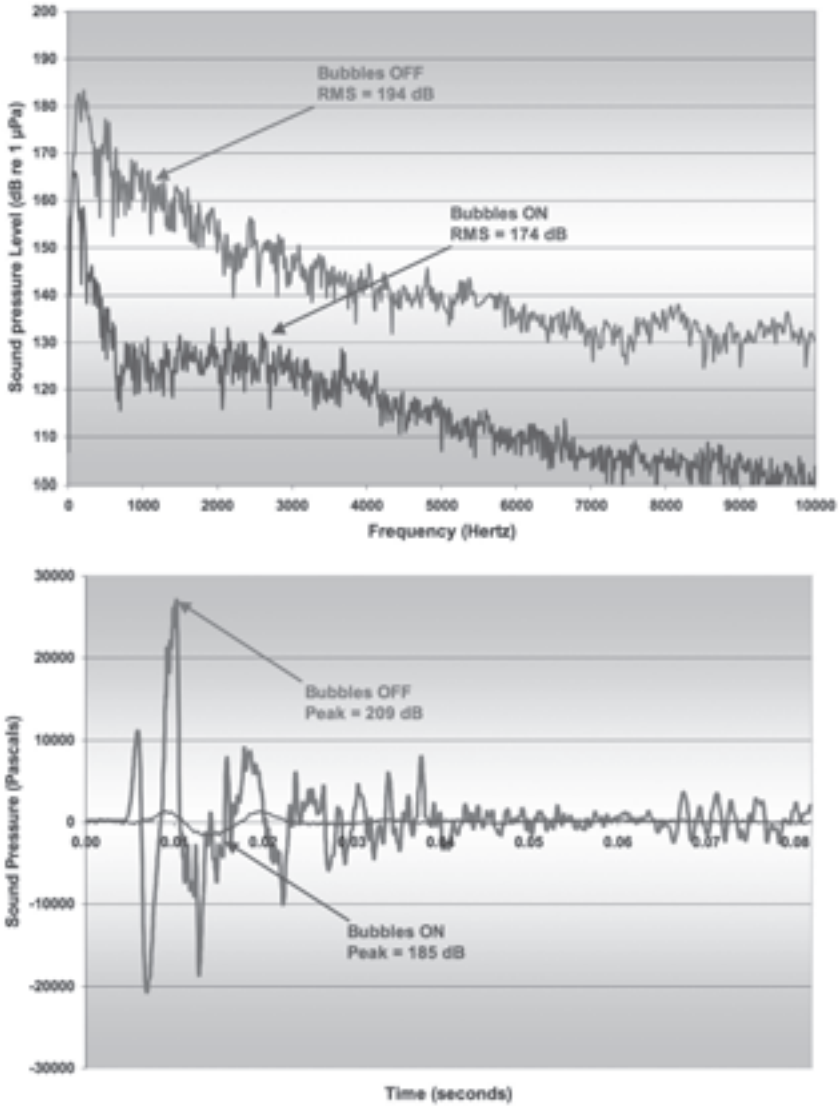
While the designers were working on developing an air bubble curtain that would effectively protect fish, pile driving began on the nearby Benicia-Martinez Bridge, located in the Carquinez Strait, a critical migration route for endangered fish in Northern California. Fish were fatally injured by the construction noise. This caused additional alarm and slowed the construction of the bridge.

The construction plans had not included methods to reduce underwater sounds. The pile driving had been restricted to slack tide conditions, when fish were least likely to be present, and was suspended when the endangered fish began their migration. The potential delay of 7 months threatened to stop the project permanently because of funding issues.

Solution and Application

Air provides an effective barrier to sound propagating through water, because of the difference in density between air and water. Air bubble curtain systems have been used to reduce underwater sound pressures from explosions or from other sources of high-amplitude sounds.

The first documented use of air bubble curtains on a marine pile-driving project was in Hong Kong; the curtains reduced the sounds by 3 to 5 decibels, protecting marine mammals (*1*). Engineers in Canada then reported favorable results with an air bubble curtain to protect fish at a wharf project. Caltrans, however, faced several complications: the sound levels were much higher, the water was



Example waveforms and frequency spectra for 2.4-m-diameter steel pile with and without bubble curtain: Benicia-Martinez Bridge, Carquinez Strait, California.

deeper, and the currents stronger. The curtain of air bubbles must be able to extend from the bottom of the pile to the water surface without any gaps.

Moreover, the driving templates that had been designed and fabricated for the project did not support the use of available air bubble curtains. Engineers therefore developed two types of curtains.

Design Variations

First, they placed a perforated tube at the bottom of a large cylinder that extended from just below the mud line to above the water surface, with the pile inside. The large cylinder would prevent currents from sweeping the air bubbles away from the pile.

Because many projects could not accommodate a large cylinder around the pile, multistage air-bubble curtains were developed. These systems place a series of rings around the pile at different depths. Although currents could sweep the bubbles away, the ring above would generate more bubbles, maintaining a uniform presence of air around the entire pile.

The prefabricated pile template for the Benicia-Martinez Bridge could not accommodate complete rings. The engineers therefore developed stacked quarter-rings that were placed at each quadrant of the piles. Because of the water depth, large compressors were required to deliver air to the bottom of the water column.

Underwater sound tests were conducted for these air bubble curtains with the air supplies turned on and off. The sound was reduced by 20 to 30 decibels close to the pile, where most of the fish injuries had occurred (2). Tests on other projects in shallower waters measured reductions of 10 to 20 decibels. In comparison, most highway noise barriers achieve reductions of only 5 to 10 decibels.

The key was that no fish injuries or mortality were observed with the air bubble curtains. Sound reductions from the pile driving were recorded out to 1 kilometer away. Areas with adverse effect on fish and marine mammals were estimated to decrease in size by up to 90 percent.

Research Group Formed

While the engineers were working on an effective design for the air bubble curtains against pile-driving sounds, researchers were trying to determine the effects of the noise on fish. Highway and resource agency officials, expert consultants, and university researchers formed the Fisheries Hydroacoustic Working Group (FHWG), which released the first research findings on the effects of sound on fish in 2005 (3). The group concluded that little was known and much additional research was needed.

In 2008, FHWG developed interim criteria to identify the potential effects of underwater sound on fish. All impact pile-driving activities exceeded the sound levels at which the onset of impacts to small fish occurs. On bridge projects that used larger steel-pipe piles, the impacts could extend 1 to 2 kilometers out into open water.

Benefits

Use of the air bubble curtains during pile driving has reduced sounds substantially. Biologists from Caltrans have not identified any injured fish with the air bubble curtains in use during pile driving. In San Francisco Bay, pile driving has been permitted during fish migration seasons, as long as the air bubble curtains reduce the sound levels sufficiently. In this way, pile driving that had been limited to seasonal windows can be completed before deadlines.

Projects now incorporate efforts to reduce underwater sounds from pile driving. In addition to air bubble curtains, options include dewatered cofferdams and other methods to install piles. Attenuation systems that use air to reduce underwater sounds are in routine use on the West Coast for marine pile-driving. Although the air bubble curtains can increase the time and cost of pile driving, proper planning can minimize the delays.

The FHWG continues to research the effects of sound on marine species and to develop more effective techniques to reduce underwater sound from marine construction. A National Cooperative Highway Research Program project is testing the effect of pile-driving sounds on fish in a laboratory setting (see box, below). A pooled-fund study will investigate changes to pile designs that could reduce sound pressures.

The Federal Highway Administration presented Caltrans and FHWG with a 2005 Environmental Excellence Award. Caltrans and the Washington State Department of Transportation (DOT) have developed guidance manuals for assessing the impacts of pile driving before design, so that the appropriate measures to reduce sound can be incorporated. Washington State DOT is investigating methods to reduce pile-driving sounds further, to allow pile driving year-round in waters with endangered or threatened species. For more information on this topic and for copies of research documents, see the Caltrans website, www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm.

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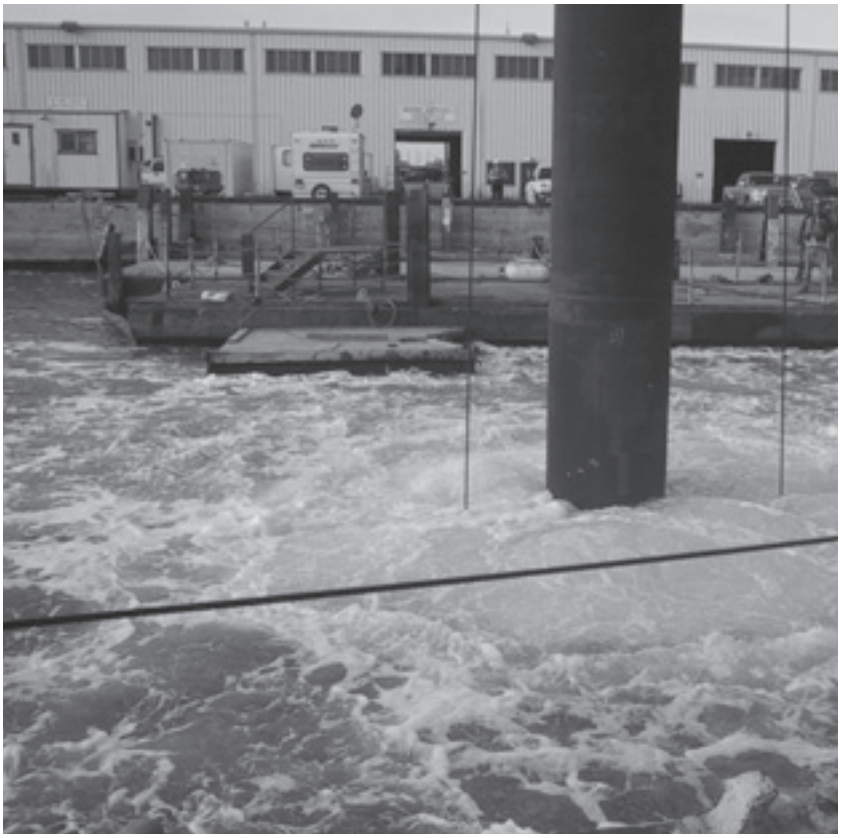
More Clues from the Lab

National Cooperative Highway Research Program Project 25-28, Predicting and Mitigating Hydroacoustic Impacts on Fish from Pile Installation, is studying the science behind aquatic pile driving and its impact on fish. The project team, led by Art Popper, University of Maryland, has developed a wave tube apparatus to study the effects on fish in a laboratory setting, using auditory signals that closely replicate those of pile driving. Variables include the intensity of the pile-driving signal, the number of strikes, and the intervals between strikes. Postexposure experiments assess the sample fish for hearing loss and tissue damage. Results of the study are expected this fall.



Air bubble curtain submerged and in action; the bubble curtain not only reduces the sound, but also keeps fish away from the pile.

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EDITOR'S NOTE: Appreciation is expressed to Stephen Maher, Transportation Research Board, for his efforts in developing this article.

Suggestions for "Research Pays Off" topics are welcome. Contact G. P. Jayaprakash, Transportation Research Board, Keck 488, 500 Fifth Street, NW, Washington, DC 20001 (telephone 202-334-2952, e-mail gjayaprakash@nas.edu).

2008 WL 2895993 (D.Or.) (Trial Motion, Memorandum and Affidavit)
United States District Court, D. Oregon.

THE HUMANE SOCIETY OF THE UNITED STATES, Wild Fish Conservancy, Bethanie O'driscoll, Andrea Kozil, Plaintiffs,
v.
Carlos M. GUTIERREZ , Secretary of Commerce, James W. Balsiger, Acting Director, National Marine Fisheries Service, James Lecky, Director, Office of Protected Resources, National Marine Fisheries Service, Defendants,
and
OREGON DEPARTMENT OF FISH AND WILDLIFE and Washington State Department of Fish and Wildlife, Intevenor-Defendants.

No. 308CV00357.
July 17, 2008.

Memorandum in Support of Odfw Motion for Summary Judgment and In Opposition to Hsus Motion for Summary Judgment

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INTRODUCTION

Preservation of salmon and steelhead in the Pacific Northwest is a matter of grave importance to the community and to the environment. Several Columbia River and Snake River salmonid populations have been listed as threatened or endangered under the federal Endangered Species Act since 1992.

Salmon and steelhead (together "salmonids") mortality in the Columbia River basin is the product of a complex combination of natural and human-influenced causes; sport and commercial fishermen, tribes, hydro-electric dams, and birds and other natural predators all play a role. Since 2002, predation by California Sea Lion ("CSL") males has dramatically increased as the CSLs have discovered that salmonid cluster near the fish ladders at the Bonneville Dam, where they are easy prey.

CSLs did not commonly occur in the Columbia River prior to the early 1980s While, historically, a few CSLs might have visited the area from time to time, large numbers of CSLs were not sighted in the Columbia River prior to the early 1990s. Over time, CSLs have had an ever-increasing impact, particularly on the listed spring Chinook run, as the CSLs feed to prepare for the breeding season on the Channel Islands, off the coast of southern California. Since 2002, the CSLs are most visible feasting near the Bonneville Dam, 146 miles upstream from the mouth of the Columbia.

The States of Idaho, Oregon and Washington applied to the federal government for the right to take lethal measures against no more than eighty-five CSLs per year for five years. The States made the application because of the significant and increasing number of salmonids they could observe being consumed by the CSLs.

Contrary to plaintiffs' assumption that "only" 4.2% of the affected salmonids are taken by CSLs, which assumes that the only takings are those occurring during daylight hours in the immediate vicinity of the Bonneville Dam, this recent incursion of CSLs into the Columbia is responsible for taking between an estimated sixteen to twenty percent of the five salmon populations that return to the Columbia from February through May of each year. Such a depredation is, by any legal or common sense measure, significant. If left unchecked it would add a new source of mortality for fish that already are on a

downward spiral toward extinction.

Sea lions are protected by the Marine Mammal Protection Act ("MMPA"), 16 U.S.C. §1361 *et seq.*1 However, Congress recognized that the marine mammals classified as pinnipeds - a class including walruses, true seals, fur seals and sea lions - can cause significant depredation on salmonid species, many of which are listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. § 1531 *et seq.* Accordingly, in 1994, after a particularly drastic episode of pinniped predation on steelhead at the Ballard Locks in Seattle, Washington, Congress added Section 120 to the MMPA, allowing for the killing of pinnipeds where they were having a significant and negative impact on salmonid stocks.

While many species of salmon and steelhead remain endangered or threatened, CSLs, since being protected by the MMPA, have thrived, with approximately a quarter million CSLs along the Pacific Coast of the United States. The federal government has determined that CSLs have reached their optimum sustainable population ("OSP"), and, as a species, can sustain over eight thousand human-caused deaths each year without any danger to the CSL population (this is referred to as the potential biological removal, or "PBR" number). By the most recent measurements, the actual CSL death toll is less than one-fortieth the PBR number. The eighty-five CSLs at issue here are one percent of the PBR number. The number of animals affected by the federal authorization will have no effect on the CSLs, which already have a huge surplus of males beyond the number necessary for reproduction of the species.

As set forth below, each step required by the MMPA has been carefully followed, The need for Section 120 authority has been clearly documented. Plaintiffs - as they did in the preliminary injunction hearing - continue to ignore the overall taking of salmonids, focusing solely on the numbers taken at the Bonneville Dam, during the day, specifically observed. In granting the Section 120 authority, the United States took this difference plaintiffs would overlook into account. Summary judgment should issue.

FACTS

The history leading up to the litigation is amply chronicled in the *Request for MMPA Section 120 Pinniped Removal Authority Application*, Administrative Record ("AR") Doc. 357 at 4-15,19-20, and is incorporated herein by reference. Accordingly, only the outline of the situation is recounted here.

There is no dispute between the parties that there are CSLs at the Bonneville Dam and, by logical extension, in the Columbia River between its mouth and the Bonneville Dam. Plaintiffs' Memo at 7. There is also no dispute that Upper River Columbia spring-run Chinook, Snake River spring/summer Chinook, Snake River Basin steelhead, Middle Columbia River steelhead, and Lower Columbia River steelhead at issue are food sources for the CSLs, and are particularly vulnerable to CSL predation in the approximately five miles below the Bonneville Dam. *Id.* at 6-7. The Upper River Columbia spring-run Chinook are listed as "endangered;" the other four are each listed as "threatened." *Id.* at 6-7; 70 Fed. Reg. 37,160, 50 C.F.R. § 223.102(c), 224.101.

CSLs appeared in significant numbers for the first time at the Bonneville Dam in 2002. AR Doc. 357 at 5. There, they have consumed an ever increasing percentage of the salmon attempting to pass the Dam. As shown in the chart below, from a measured 0.4% in 2002, the take has risen to 4.2% in 2007:2

TABLE

The States became alarmed because the situation parallels the one fourteen years ago at Ballard Locks in Seattle, Washington, which was the trigger event for the passage of Section 120. In that situation, predation on the Lake Washington Winter steelhead caused that run, which was not even listed under the Endangered Species Act, to become virtually extinct before any lethal take of CSLs occurred. AR Doc. 357 at 3. To avoid a repeat of the outcome, the States of Idaho, Oregon,

and Washington joined in an application under Section 120 of the MMPA to act as promptly as Congress allowed, given the emergency nature of this new threat to the runs, to take CSLs for five years starting in 2008. In doing so, the States hoped to reduce the salmonid predation not only at the Bonneville Dam, but along the entire 146 miles from the Bonneville Dam to the mouth of the Columbia. AR Doc. 357 at 1.

The States have undertaken a wide variety of non-lethal steps to reduce CSL predation on salmon at the Bonneville Dam. Beginning in 2005, the States used a variety of devices designed to drive the CSLs away from the Bonneville Dam using bright flashes of light, whistling and popping sounds, high frequency sounds that CSLs find unpleasant, and large explosions of sound causing underwater waves of pressure. ODFW Concise Fact 2 (hereafter "OCF"). There were even attempts using sea lion excluder devices ("SLED"s) (essentially jail cell bars) to keep the CSLs from the fish ladders. AR Doc. 357 at 7-10. None of these were effective.3

ARGUMENT

I. The Legal Standards on this Motion.

A. The standard for summary judgment

Summary judgment should issue where "there is no genuine issue as to any material fact and ***the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P 56(c); *Celotex. Corp. v. Catrett*, 477 U.S. 317 (1986).

Rule 56(c) mandates the entry of summary judgment against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial. The moving party is "entitled to a judgment as a matter of law" when the nonmoving party has failed to make a sufficient showing on an essential element of her case with respect to which she has the burden of proof, or where on the record taken as a whole, a rational trier of fact could not find in favor of the party opposing the motion. *Celotex. Corp. v. Catrett*, 477 U.S. 317,332 (1986); *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586,106 S. Ct. 1348,1355, 89 L.Ed.2d 538 (1986); *Taylor v. List*, 880 F.2d 1040 (9th Cir. 1989).

The test is whether a reasonable jury could return a verdict for the non-moving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242,248,106 S. Ct. 2505, 91 L.Ed.2d 202 (1986). A scintilla of evidence, or evidence that is merely colorable or not significantly probative, does not present a genuine issue of material fact. *Hotchkins v. Fleet Delivery Service*, 25 F. Supp. 2d 1141, 1145 (D. Or. 1998), *citing United Steelworkers of America v. Phelps Dodge Corp.*, 865 F.2d 1539, 1542 (9th Cir.), *cert, denied*, 493 U.S. 809, 110 S. Ct. 51,107 L.Ed.2d 20 (1989).

Plaintiffs fail to demonstrate an absence of material fact for their allegation that there is no need for the application of Section 120 removal authority. By contrast, the United States and the States have presented abundant evidence that the CSL constitute a significant threat to the continued viability of the affected salmonid runs. Even if plaintiffs are correct that there are other sources of greater impact on the salmonids - a disputed fact - that is legally of no consequence and should not affect the entry of summary judgment on behalf of defendants.

Summary judgment should issue for the reasons set forth below.

B. The admissibility of evidence on review of an APA decision.

Plaintiffs correctly state that the administrative decision at issue here must be upheld unless "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. §706(2)(a). However, their statement of the standard of

review implies it is the defendants who have the burden of coming forward with evidence in support of the agency decision Plaintiffs' Memo at 12. The burden - at all times but particularly on plaintiffs' motion for summary judgment - remains on the plaintiffs. The moving party has the initial burden of identifying relevant portions of the record that demonstrate the absence of a fact or facts necessary for one or more essential elements of each cause of action upon which the moving party seeks judgment. *Everett v. Santa Barbara High Sch. Dist.*, 2000 U.S. Dist. LEXIS 22774 (C.D. Cal. March 7, 2000), at 15-16, *referencing* *Celotex Corp. v. Catrett*, 477 U.S. 317, 323,106 S. Ct. 2548, 91 L. Ed. 2d 265 (1986); *DaCosta v. West*, 1995 U.S. Dist. LEXIS 17470 at 8 (N.D. Cal. Nov. 9, 1995).

Plaintiffs' argument is entirely predicated on the theory that CSLs are not having a "significant negative impact" on the salmonid populations. Plaintiffs are incorrect and, as they are incorrect, they do not make the demonstration that the approval of the Section 120 application was in any way arbitrary or capricious.

As ODFW demonstrates in Section II below, the CSL impact on threatened and endangered salmonid populations is indeed significant and the proposed taking of CSLs will ameliorate that threat in a meaningful way. As demonstrated in Sections II (D) and III below, the threat to the salmonid population is real, imminent and in need of immediate attention.

Finally, in Section IV, ODFW demonstrates how plaintiffs' assertions of harm to the CSL are both factually incorrect and legally insufficient.

Accordingly, plaintiffs are unable to meet any of the burdens required under Fed. R. Civ. P. 47, and their request for summary judgment should be denied. By contrast, the same facts demonstrate that there is no basis for revocation or remand of the grant of Section 120 authority, and summary judgment should issue on behalf of defendants.

C. The statutory framework of Marine Mammal Protection Act.

Section 120 of the MMPA was carefully crafted by the Congress to strike the balance between protection of both marine mammal and endangered or threatened salmonid species.4 In circumstances such as the one before the Court, the lethal taking of pinnipeds - a category that includes CSLs - may be permitted. 16 U.S.C. 1389 ("Section 120" of the MMPA). The importance of protecting salmonid runs is made evident by the fact that Congress has not created such an exception to protect any species other than salmonids. Even when salmonids are involved, the Congress required a set of findings prior to the issuance of a Section 120 permit.5

Plaintiffs note that Section 120 was intended to be used sparingly, and it has been. The current application is only the second such approved in the fourteen years since Section 120's enactment.

II. The salmonid population will suffer "significant negative impact" without authorization of lethal taking.

A. The behavior of the California Sea Lions is new and not part of the historical ecosystem.

California Sea Lions are native to the Pacific Coast, but historically were not highly abundant in the Pacific Northwest. The male of the species, in particular, ranges well north of its namesake state, particularly in the period before mating season, in search of food so that the breeding males can gain weight to compete for females in the breeding season. The presence of CSLs off the Oregon Coast, therefore, is ordinary and normal. AR Doc. 357 at 4.

The concentrated presence of CSLs over one hundred miles down the Columbia River - past Portland, deep into the Gorge and to the Bonneville Dam - is only a recent phenomenon. OCF 1; AR Doc. 392 at 1-3. Only the occasional CSL was sighted at the Bonneville Dam before 2002. *Id.*

B. The history to date shows that alternatives have not mitigated the risk from California Sea Lions.

Although increasing numbers of CSLs in the lower Columbia River were observed in the 1990s, it was not until 2003-04 that the risk to the salmon congregating below Bonneville Dam became apparent. Since that time, the National Marine Fisheries Service ("NMFS") and the States have engaged in concerted use of non-ethal deterrents. AR Doc. 357 at 13-14.

In 2005, NMFS and the States decided to attempt non-lethal hazing as authorized in Section 109 of the MMPA. OCF 2; AR Doc. 357 at 7-10; AR Doc 395. This effort included a variety of tools to dissuade the CSLs from remaining around the Bonneville Dam. *Id.* One mechanism used was "cracker shells." *Id.* Cracker shells are 12 gauge projectiles fired over a distance of forty yards, which then go off causing a flash of light and a high volume explosion. *Id.* Another tool used was the "seal bomb." *Id.* A seal bomb is an underwater explosive that creates a bright flash of light and underwater pressure wave. *Id.* "Zingers" - devices that whistle and pop, commonly used to deter birds from grass fields - were also used. *Id.* All these measures worked to a limited degree on a temporary basis - but usually for less than a single day. *Id.* Most CSLs began returning to the area below the Bonneville Dam once hazing efforts had stopped. All CSLs were back the next morning. *Id.*

In 2006, the efforts included ceramic underwater pingers, devices that emit a high frequency noise that the fish can not detect but the CSLs can. OCF 2; AR Doc. 357 at 7-10. Any CSL close to such a device would find the noise painful. *Id.* However, after a short period, the CSLs either became accustomed to the noise or adapted to swim with their heads lifted out of the water. *Id.* Jail cell-like bars were also deployed in the mouth of each fishway entrance to keep CSLs from taking salmonids inside the fish ladders. At least ten CSLs had learned to feed inside the fishways prior to installation of the barriers. Smaller sea lions are still able to pass between the bars and enter the fishways. For the most part, this tool works, but CSLs simply forage for salmonids immediately in front of the bars as the salmonids cluster near the fish ladder entrance. *Id.*

All of these same devices were again deployed in 2007, only this time on an everyday schedule for nearly all daylight hours each day (10 hours per day, seven days per week, late February through May). OCF 2; AR Doc. 357 at 7-10. The non-lethal hazing efforts were ineffective. CSL's taking of fish at the Bonneville Dam was worse than ever. *Id.*

The simple fact is that non-ethal methods utilized to protect salmonids from CSLs have failed. AR Doc. 357 at 7-10

C. Lethal taking by definition must succeed to a certain extent.

No lethal take of CSLs under Section 120 of the MMPA has ever occured so ODFW can not contend that studies prove a correlation between lethal taking of CSLs and an increase in some salmon populations. However, ODFW believes that, unless checked, this new and growing source of mortality can and will likely have a devastating effect on salmon recovery. As the present litigation concerns only the second Section 120 application in the statute's history, no such study exists. It is logical to conclude, however, that a reduction in the number of CSLs consuming fish will lead to an increase in salmon survival. OCF 11; AR Doc. 393 at 8-6. This conclusion follows as a matter of simple mathematics. If, pursuant to the authorization, eighty- five CSLs are removed from the area around the Bonneville Dam, it will preserve at the very least the 4000 fish that the CSLs would otherwise consume. AR Doc. 392 Table 1.1-4. Utilizing the 269,000 figure as the projected affected salmonid run in 2008, those 4000 fish represents 1.48% of the run, and (assuming 4.2% would be taken by CSLs in 2008 as in 2007) a full 35% of the problem of CSL predation on salmonids. Accordingly, the least the Section 120 authorization could do is reduce the problem by one-third, which is hardly, as plaintiffs claim, ineffective in addressing the problem. Also, some of those salmonids will go on to reproduce, and the increase will have a positive ripple effect in the salmonid populations. *Id.*

D. The California Sea Lion is a significant threat to the salmonid population.

Plaintiffs have asserted that the CSL impact on the wild salmonid populations is, at most, 4.2%, and that the CSL take

fluctuates between 0.4% and 4.2%. That is inaccurate.

To begin with, as noted above, the CSL take at the Bonneville Dam has, with minor exception, been increasing steadily since their incursion into the area below Bonneville Dam in 2002, *starting* at 0.4% and rising to 4.2% last year. AR Doc. 392 1-5, Table 1.1-4 More importantly, plaintiffs conflate the observed take at the Bonneville Dam with the overall CSL take along the entire 146 miles between the mouth of the Columbia and the Bonneville Dam. In fact, the chart from the NMFS EA upon which the plaintiffs so heavily rely is a measurement of predation occurring in that one-quarter of a mile immediately below the Dam, amounting to only 8% of the area of the five mile expanse below the Bonneville Dam. OCF 3. Moreover, that measurement is only of daylight, observed predation. It does not include predation events missed by observers or nighttime feeding that is likely to occur at some, if lower, level. *Id.* Losses of salmonids to CSLs in the area within five miles of the Dam that can not be seen by the observers are roughly equal to that observed predation occurring in the much smaller observation area immediately below the dam, and therefore it can be extrapolated that there was approximately a 10% loss of salmonids occurring within five miles of the dam in Spring of 2007.

Plaintiffs also overlook the impact of CSLs along the remainder of the 146-mile stretch of the Columbia River.6 Throughout the course of any CSL's travels to the Bonneville Dam, the animal is going to be feeding. OCF 5. The adult male CSL requires fifteen to thirty pounds of fish per day to maintain and put on weight in preparation for the breeding season. *Id.* Examinations of CSL scat indicate that, at the Dam, their diet is as much as 95% salmonids. ODFW estimates that CSLs in the lower Columbia will each consume fifteen to thirty pounds of fish per day. OCF 5. The total could be as many as 13,000 salmonids. AR Doc. 357 at 12-13. Therefore, the plaintiffs' estimates of salmonid takes by CSLs are significantly understated.

Moreover, in telling this Court that the Dam itself, humans and birds are equally or more harmful to the fish, plaintiffs' construct would have this Court require takings by CSL to be more than the other sources of salmonid mortality to be "significant." That comparison is irrelevant. Nothing requires the States or the federal government to fully mitigate all other sources of salmonid mortality before relying on Section 120.7 Regardless of other such sources of mortality, CSLs must be managed in concert with other salmon recovery efforts.8 OCF 11.

Plaintiffs and defendants dispute that percentage of salmonids taken. That is a dispute of material fact that precludes summary judgment for plaintiffs because they contend a percentage higher than 4.2% is needed to be "significant." It is not, however, material to defendant's motion, as defendants believe that plaintiffs' must concede higher numbers along the course of the Columbia and, regardless, suggest even plaintiffs' suggested number is legally sufficient to support the Section 120 application.9

III. The California Sea Lion taking will meet the requirement of "individual identification."

Subsection (b)(l) of Section 120 requires that the taking of the CSLs be only of those specifically identified as being part of the significant risk to the salmonids. Plaintiffs, in asserting this will not be the case, misapprehend the nature of the process that the States propose to undertake.

Plaintiffs attempt to minimize the process of CSL identification by suggesting that a CSL will be taken "if it is seen eating fish on any one day of any year ***has simply been seen around Bonneville Dan for a total of 5 days over a number of years, and has been sighted around Bonneville after non-lethal harassment has occurred." Plaintiffs' Memo at 19.

Plaintiffs' characterization minimizes the actual work done in identification of these animals. First, given the duration of the spring run, seeing a particular CSL in the affected area over time - an area in which the endangered salmonids are logically the primary food source - is not insignificant. OCF 8. The *only* reason for a CSL to swim over 140 miles to the Bonneville Dam is to forage on salmonids. *Id.* A CSL seen eating salmonids and remaining at the Dam makes it a member of the identifiable CSL population affecting the protected fish. *Id.* A CSL that shows an ability to resist or ignore the persistent use of multiple types of non-lethal deterrents - and, in 2007, they were utilized for 10 hours per day, seven days per week - is,

similarly, identifiable as a part of the problem. *Id.*

Plaintiffs also ignore that this set of criteria was not created in a vacuum. The region has the Ballard Locks experience - where the steelhead run is technically extinct - and the past three years of increasingly intensive non-lethal efforts as a baseline for reaching their determination of sufficient evidence that a specific CSL is identifiably part of the problem. AR Doc. 357 at 2-3.

By contrast, plaintiffs provide no legal basis for their assertion that this set of criteria is insufficiently specific. Nor do plaintiffs offer a formula for what might, in their view, meet the specificity requirement. The technical experts on the Pinniped Fishery Interaction Task Force, which reviewed the data on these animals at this site, considered and rejected the arguments plaintiffs raise again. Section 120 should be read,, in a common sense fashion, not to require so much documented predation from an individual CLS that, by the time lethal taking is effectuated, the CSL has already caused precisely the harm Section 120 intends be avoided. The steps that the States intend to follow would avoid that "Catch-22." Accordingly, they reflect the intent of the Congress in enacting Section 120 and NMFS' authorization, based upon being informed of those proposed steps, is entitled to due deference. *Chevron, U.S.A., Inc. v. NRDC,* 467 U.S. 837 (1984).

IV. The California Sea Lion will not be harmed as a species, so there is no countervailing consideration.

By stark contrast to the Columbia River salmon and steelhead runs, CSLs are thriving. The CSL population is not endangered, not threatened, not depleted. http://www.nmfs.noaa.gov/pr/species/mammals/. In fact, is it considered a "non-depleted marine mammal." *Id.* The population has been growing at 5.4% to 6.1% per year, and now is estimated to be between 237,000 and 300,000. AR Doc. 357 at 4. Biologists use the concept of potential biological removal - or PBR - to establish a figure beneath which human-caused mortality does not cause a risk to a species. Id. For the CSL, the PBR number, established by NMFS, is currently 8,511 CSLs per year.10 http:// swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Programs/Coastal/Marine_ Mammal/Draft% 202007%20PacSARs.pdf. Most of the actual impacts of CSLs occur in the commercial fishing industry and have, at last measurement (2000-04), been only somewhat greater than 159/year, meaning CSL loss is approximately 2% of their PBR. The Section 120 take authorized by the federal government is barely 1% of the PBR.

With the number of CSLs being killed by human interaction even with the Section 120 plan at less than one-fortieth the sustainable rate, it can not be suggested that the irreparable injury in this case is harmful to the species. Plaintiffs do not appear to make that argument.

CONCLUSION

Both federal law and state activity under those laws seek to balance the competing needs of endangered species in instances such as the one here. Because of the sensitivity of lethal taking requests, this is only the second such request approved under Section 120. None of the parties took the request lightly. The threat to the salmon and steelhead in the Columbia River is current and it is significant. The loss of salmonids to CSLs at Bonneville Dam is new and growing. The exercise of this authority poses no threat to the CSL population.

The facts are that the Section 120 authorization properly identifies individual pinnipeds which are the source of salmonid predation. The authorization is based on properly reached determination that CSLs have a "significant impact" on the salmonids from the mouth of the Columbia River to the Bonneville Dam. Accordingly, the material facts dictate that the grant of Section 120 authority was proper, and that summary judgment should be denied plaintiffs and granted to the defendants in this action.

DATED this 17 day of July, 2008.

Footnotes

1 ODFW addresses in its Memorandum only the issues pertaining to the MMPA, and not the necessity of or sufficiency of any environmental impact statement under the National Environmental Policy Act, 42 U.S.C. 4321 *et. seq.* ("NEPA"), also raised by plaintiffs but responded to by the United States. ODFW joins in the arguments of the United States.

2 These numbers come from the National Marine Fisheries Service ("NMFS") Final Environmental Assessment: Reducing the Impact on At-risk Salmon and Steelhead by California Sea Lions in the Area Downstream of Bonneville Dam on the Columbia River, Oregon and Washington (Mar. 12, 2008) ("EA") Table 1.14, AR Doc. 392, and are used throughout Plaintiffs' Memo. Although ODFW believes the statistics actually support the defendants' position, ODFW notes that observation times and durations were not consistent.

3 The SLEDs were somewhat effective in keeping CSLs out of the fish ladders - Smaller sea lions are still able to pass between the bars and enter the fishways - but not in preventing predation once the salmon left the ladders on the lower end. OCF 2, AR Does. 357, 395.

4 16 U.S.C. 1389(b)(1) even contemplates protection of salmonids that are "approaching threatened species or endangered species status." The pertinent language of 16 U.S.C. §1389 is:
(a) Pnniped removal authority
Notwithstanding any other provision of this subchapter, the Secretary may permit the intentional lethal taking of pinnipeds in accordance with this section.
(b) Application
(1) A State may apply to the Secretary to authorize the intentional lethal taking of individually identifiable pinnipeds which are having a significant negative impact on the decline or recovery of salmonid fishery stocks which -
(A) have been listed as threatened species or endangered species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);
(B) the Secretary finds are approaching threatened species or endangered species status (as those terms are defined in that Act); or
(C) migrate through the Ballard Lock at Seattle, Washington.
(2) An such application shall include a means of identifing the individual pinniped or pinnipeds, and shall include a detailed description of the problem interaction and expected benefits of the taking.

5 16 U.S.C. 1391 (d) states:
(d) Considerations
In considering whether an application should be approved or denied, the Pinniped-Fishery Interaction Task Force and the Secretary shall consider -
(1) population trends, feeding habits, the location of the pinniped interaction, how and when the interaction occurs, and how many individual pinnipeds are involved;
(2) past efforts to nonlethaly deter such pinnipeds, and whether the applicant has demonstrated that no feasible and prudent alternatives exist and that the applicant has taken all reasonable nonlethal steps without success;
(3) the extent to which such pinnipeds are causing undue injury or impact to, or imbalance with, other species in the ecosystem, including fish populations; and
(4) the extent to which such pinnipeds are exhibiting behavior that presents an ongoing threat to public safety.

6 The Section 120 application's approval clearly reflected an understanding that salmonids were not merely being consumed at the Bonneville Dam, but along the course of the Columbia River. OCS 5; AR Docs. 392,357.

7 Plaintiffs suggest that the allowed take by humans has increased 33%. Plaintiffs' Memo at 9. The citations provided by plaintiffs do not support that assertion, and ODFW is uncertain as to the basis for that claim. Regardless, the *percentage* of fishing's impacts on the ESA runs permitted to be taken has not increased. Any increase in numbers would be due to the higher fish totals projected. OCF 9, 10. Moreover, plaintiffs fail to distinguish between an increase in harvest of the hatchery portion of the run, and increased harvest of ESA protected salmon. An increase in fishing of the run does not alter the requirement that ESA-protected fish be released. OCF 10.

8 Additionally, ODFW notes that plaintiffs move back and forth between noting percentages taken of adults and of juveniles - juvenile survival rates are extremely low - and therefore the numbers they put forth are not reasonably susceptible to comparison. So, while plaintiffs note that dams take 59% of the juvenile salmonids, they do not tell the Court that the take of adults - the apples

to apples comparison - is only 9.9% for Upper Columbia River spring Chinook. Moreover, plaintiffs neglect to mention that, according to the chart they refer to, although the take by fishermen has ranged as high as 17 percent the average annual take is only 10.7%. ArR Doc. 392 at 3-32, Table 3.5-7. The hydrosystem take of adults is 9.9% for Upper River Columbia spring Chinook. *Id.* The take by birds is estimated as being between 04 and 5.0% of adult fish. Accordingly, the ODFW estimate of 16%-20% take by CSLs is not only a significant threat to the most at-risk of the runs, it is the greatest threat to adult salmonids.

9 Plaintiffs have suggested that, if their number is correct, the higher percentages taken by other sources of mortality precludes a grant of the Section 120 application. However, nowhere in the law is there a basis for equating "significant" with "single highest impact."

10 At the time of the Section 120 application, the PBR was 8,333. AR 357 at 1.

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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, *et al.*,

Plaintiffs,

and

STATE OF OREGON,

Intervenor-Plaintiff,

v.

NATIONAL MARINE FISHERIES SERVICE *et al.*,

Defendants,

and

NORTHWEST IRRIGATION UTILITIES, *et al.*,

Intervenor-Defendants.

Case No. CV01-640-RE (Lead Case)
Case No. CV05-0023-RE
(Consolidated Cases)

STATE OF OREGON'S SECOND SUPPLEMENTAL COMPLAINT-IN-INTERVENTION FOR DECLARATORY AND INJUNCTIVE RELIEF

COLUMBIA SNAKE RIVER IRRIGATORS ASSOCIATION, *et al.*

Plaintiffs

v.

CARLOS M. GUTIERREZ, *et al.*,

Defendants.

INTRODUCTION

1. By this supplemental complaint under Fed. R. Civ. P. 15(d) and LR 15.1, the State of Oregon, intervenor-plaintiff in this action, seeks review of the biological opinion issued on May 5, 2008, by defendant National Marine Fisheries Services (NMFS or NOAA) for the Columbia and lower Snake River dams and related facilities (the 2008 BiOp). The 2008 BiOp was prepared following remand and in consultation with the U.S. Army Corps of Engineers (the Corps), the Bonneville Power Administration (BPA), and the U.S. Bureau of Reclamation (BOR) (collectively, the Action Agencies) under Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536. It supersedes NOAA's 2004 Biological Opinion (the 2004 BiOp), which this court invalidated following summary judgment proceedings, and remanded with instructions to correct various defects under the ESA and its implementing regulations. *National Wildlife Federation v. National Marine Fisheries Service,* 2005 WL 1278878 (D. Or. May 26, 2005) (Docket #986); *National Wildlife Federation v. National Marine Fisheries Service,* CV-01-640-RE, Opinion and Order of Remand (Oct. 7, 2005) (Docket #1087); *aff'd, NWF v. NMFS,* 524 F.3d 917 (9th Cir. 2008) (amended opinion). As set forth below, the 2008 BiOp is invalid because it fails to comply with the ESA, 16 U.S.C. §§ 1531 *et seq.*, and the Administrative Procedures Act (APA), 5 U.S.C. §§ 551 *et seq.*

2. Although the 2008 BiOp replaced the invalidated 2004 BiOp, NOAA's stated goal on remand was to correct the legal deficiencies found in its 2000 Federal Columbia River

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Power System (FCRPS) BiOp and Reasonable and Prudent Alternative (RPA). 2008 BiOp at 1-6. But the 2008 BiOp does *not* cure the inadequacies of the 2000 BiOp.

3. Instead, the 2008 BiOp analyzes actions substantially similar to the Updated Proposed Action (UPA) of the invalidated 2004 BiOp and the admittedly inadequate RPA from the 2000 BiOp. NOAA now finds that those similar actions will not cause jeopardy. NOAA does so by viewing those actions through the lens of an analytical approach to jeopardy that is arbitrary and capricious, contrary to law, and not based upon the best available science. NOAA's approach, announced in its July and September 2006 memoranda (the Jeopardy Memo and Metrics Memo, respectively), represents a sharp departure from the approach used in the 1995 and 2000 BiOps and from the "Conceptual Framework for the Remand Process Including the Jeopardy Analysis" developed by the parties during the collaborative effort on remand and submitted to this Court in the first remand report (First Remand Report, Docket #1222).

4. This court has repeatedly admonished NOAA that the imperiled condition of federally protected Columbia and Snake River salmon and steelhead cannot adequately be addressed merely by minor adjustments to the status quo. Repeatedly, this court has rejected NOAA's efforts to justify inadequate proposed operations—driven by allegiance to status quo power production—through novel methodologies and defective science. With the 2008 BiOp, we return again to that same juncture.

5. NOAA once again offers measures similar to those NOAA itself deemed inadequate in 2000 and unsuccessfully sought to defend in 2004. As with the 2004 BiOp, NOAA bases its "no jeopardy" finding for the 2008 RPA on a novel and unsustainable interpretation of the ESA, and pushes the court, the parties, and the protected fish back to where they were when this litigation commenced more than seven years ago.

6. NOAA has demonstrated its inability—or unwillingness—to produce a biological opinion that complies with the ESA, and the time has come for measures that will ensure compliance. At a minimum, the 2008 BiOp must be vacated. Furthermore, Oregon supports the

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court's expressed interest in receiving independent scientific testimony on appropriate dam operations and other measures to properly address the vital needs of these iconic fish before it is too late. Time is literally running out for these populations. Meaningful changes in hydrosystem operations readily could occur, and must occur, if we are to reverse the unacceptably high risk of extinction of several ESUs in the basin. Such changes are essential to avert the need to move to the "natural river option"[1] as a long-term solution to meet ESA requirements.

7. In addition to the claims against NOAA set forth herein, this action also seeks review of the Corps' and BOR's separate violations of ESA Section 7, caused by their on-going operation of the FCRPS and decisions related to those operations, including the Corps' 2008 Record of Consultation and Statement of Decision and the Bureau's Decision Document (collectively, the "2008 RODs"). The Corps' and BOR's actions described herein fail to ensure that operation of the FCRPS under these decisions will avoid jeopardy to ESA-listed salmon and steelhead and avoid destruction or adverse modification of their critical habitat. This action also seeks a declaration that the actions of NOAA, the Corps, and BOR (including the latters' 2008 RODs), are arbitrary, capricious, an abuse of discretion, and not in accordance with law in violation of the APA, 5 U.S.C. § 706(2)(A).

8. Further, this action alleges violations of ESA section 9, 16 U.S.C. § 1538, by the Corps and BOR arising from their on-going operation of the FCRPS and decisions related to those operations, including the 2008 RODs. The Corps and BOR's actions are "taking" listed species in a number of ways, including causing mortality and injury to adult and juvenile ESA-listed salmon and steelhead and, consequently, violate ESA section 9.

9. Plaintiffs also seek injunctive relief to protect ESA-listed salmon and steelhead from harm, including but not limited to jeopardy, destruction and adverse modification of critical

[1] The "natural river option" involves partial removal of the four lower Snake River dams to provide more normative river conditions and potentially reduce constraints on other water uses, such as irrigation and recreation.

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habitat, and take until the federal defendants comply with the law. This relief is necessary to preserve the status quo, to correct illegal final agency action, and to prevent unlawful agency action that may cause irreparable harm to the environment and species listed for protection under the ESA.

PARTIES

10. The State of Oregon is a sovereign state of the United States of America. Oregon has a unique sovereign interest in the survival and recovery of listed salmon and steelhead in the Columbia River Basin. Oregon also has a unique sovereign interest in the beneficial attributes of the FCRPS, including power production, navigation, flood control and irrigation. In view of those interests, Oregon has a clearly cognizable interest in the lawful operation of the FCRPS.

11. Defendant NOAA is an agency of the United States Department of Commerce responsible for administering the provisions of the ESA with regard to threatened and endangered marine species, including the species of threatened and endangered salmon and steelhead that inhabit the Columbia River basin.

12. Defendant United States Army Corps of Engineers is an agency of the United States Army and the Department of the Defense that constructs and operates federal engineering projects throughout the United States, primarily in rivers, coasts, and wetlands. The Corps has primary management authority over the operation and maintenance of several dams, reservoirs, and associated facilities on the Columbia and Snake Rivers that are at issue in this case.

13. Defendant United States Bureau of Reclamation, an agency of the United States Department of the Interior that constructs and operates federal water projects throughout the United States. The Bureau has primary management authority over several projects on the Snake and Columbia Rivers that are at issue in this action.

JURISDICTION AND VENUE

14. This court has jurisdiction over this action under 5 U.S.C. §§ 701-706 (APA), 28 U.S.C. § 1331 (federal question), § 2201 (declaratory judgment), and § 2202 (injunctive relief);

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and the ESA, 16 U.S.C. § 1540(g). As required by the ESA, 16 U.S.C. § 1540(g), and CWA, 33 U.S.C. § 1365(b), Oregon provided 60 days' notice of intent to sue the Corps and BOR. A copy of that notice is appended as Exhibit 1.

15. Venue is properly vested in this Court under 28 U.S.C. § 1391(e).

BACKGROUND

16. Since the advent of ESA listings of Columbia and Snake River salmon and steelhead, this court often has been called upon to rule on the proper application of the ESA to the FCRPS. In 1994, this court concluded that the biological opinion for operation of the FCRPS during 1993, and the process NMFS and the Action Agencies had followed to produce it, was:

> seriously, 'significantly,' flawed because it is too heavily geared towards a status quo that has allowed all forms of river activity to proceed in a deficit situation – that is, relatively small steps, minor improvements and adjustments – when the situation literally cries out for a major overhaul. Instead of looking for what can be done to protect [ESA-listed salmon] from jeopardy, NMFS and the action agencies have narrowly focused their attention on what the establishment is capable of handling with minimal disruption.

Idaho Dep't of Fish and Game v. National Marine Fisheries Service, 850 F. Supp. 886, 900 (D. Or. 1994), *vacated as moot*, 56 F.3d 1071 (9th Cir. 1995) (hereinafter *IDFG*).[2] The court concluded that the biological opinion was "arbitrary and capricious and otherwise not in accordance with law." *Id.*

17. Following expiration of the 1995 biological opinion, NMFS released the 2000 FCRPS BiOp. On May 5, 2001, this litigation was commenced, challenging the legal validity of that BiOp. The State of Oregon appeared as *amicus* in that stage of the proceedings.

18. In their Fourth Supplemental Complaint, plaintiffs National Wildlife Federation *et al.* accurately describe the agency actions and judicial proceedings regarding both the 2000 BiOp and the 2004 BiOp, which NOAA issued following a successful challenge to the 2000

[2] The Court's opinion in *IDFG* also provides a summary of the history of litigation over FCRPS operations and ESA-listed salmon prior to 1994. *See IDFG*, 850 F. Supp. at 888-91.

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opinion. (4th Supp. Comp., ¶¶ 34-51.) That complaint also accurately describes the remand process that culminated in the 2008 FCRPS BiOp now at issue. (4th Supp. Comp., ¶¶ 52-62.) Those discussions are incorporated in their entirety as though set forth herein, with further discussion to follow.

THE LEGAL DEFICIENCIES OF THE 2008 BIOP

19. Unlike the approach taken by the Interior Columbia Technical Recovery Team (ICTRT),[3] the 2008 BiOp's "potential for recovery" analysis bears no logical or analytical connection to any scientifically-based recovery criteria, yet NOAA fails to rationally explain its decision not to employ the ICTRT approach in its jeopardy analysis. NOAA's "Metrics Memo" approach to analyzing jeopardy represents a sharp departure from NOAA's own past practices, is arbitrary and capricious and contrary to law, and is not based on the best available scientific information. The approach taken in the 2008 BiOp to evaluate the risk to the likelihood of both survival and recovery for each Evolutionarily Significant Unit (ESU) and Distinct Population Segment (DPS) does not rationally address either one, because it fails to consider population viability requirements and the species' minimum requirements for survival and recovery. Because NOAA fails to first determine the point at which survival and recovery are placed at risk, it cannot demonstrate that the likelihood of achieving both will not be appreciably reduced.

20. Both the ICTRT and NOAA begin their analyses with the calculation of "survival gaps," but they use significantly different methodologies. The ICTRT conducts a scientifically-based population viability analysis, in which the likelihood of survival is calculated as a function of abundance and productivity[4], with varying combinations yielding the same probability of

[3] This group is composed of scientists appointed by NOAA Fisheries to assess and describe the minimum requirements for survival and recovery of ESA-listed salmon and steelhead in the interior Columbia River Basin. These scientists were selected based on their recognized and demonstrated expertise, and include non-representative participation from federal, state, tribal and academic scientists.

[4] Productivity, or recruits per spawner, is the returning adult progeny produced from each spawner.

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survival. (*Interior Columbia Basin Technical Recovery Team (ICTRT) 2007. Viability criteria for application to Interior Columbia Basin Salmonid ESUs*. Review Draft, March 2007). Survival in this context is defined as remaining above a "quasi-extinction threshold" (QET), which for this purpose is set at 50 spawning adults per year for a four-year period. As part of this analysis, the ICTRT constructs a suite of "viability curves," each of which delineates a constant probability of extinction risk and takes into consideration minimum abundance thresholds, as defined by the ICTRT. These thresholds are based on conservation biology science and are calculated using an index of historical stream habitat capacity. The ICTRT incorporates minimum abundance thresholds into its analysis as targets below which average abundance should not fall at any productivity level. Once these viability curves have been generated, actual (estimated) population values of productivity and abundance are plotted to determine the current status of the population relative to the specific extinction risk curves. To meet minimum abundance and productivity viability criteria, a population must be in the region of likely survival on or above the extinction risk curve (i.e., the probability of the population falling below QET= 50 fish for four consecutive years over the course of 100 years is 5% or less). For populations whose current abundance and productivity fall below the relevant viability curve, and thus pose an unacceptably high risk of extinction (i.e., greater than 5%), the ICTRT calculates the percentage increase in productivity necessary to move the population above the viability curve and into the region of likely survival. The necessary increase in productivity represents the current "survival gap." (Interior Columbia Basin Technical Recovery Team (ICTRT) 2007; Required survival rate changes to meet Technical Recovery Team abundance and productivity viability criteria for Interior Columbia River Basin salmon and steelhead populations. November 2007).

21. NOAA's jeopardy standard and gap analysis, on the other hand, do not assess population status in relation to minimum requirements for survival and recovery. NOAA's jeopardy standard and analysis employ four "metrics" in an attempt to address the survival and

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recovery prongs. These are the quasi-extinction risk, the returns-per-spawner ratio (R/S), the median population growth rate (lambda, or λ), and an abundance trend. Problems with this approach are described below.

22. For purposes of the survival prong of this analysis, NOAA uses only the first metric and calculates whether there is a sufficiently low probability (5%) that a given population will fall below the QET four or more years in a row over the course of 24 years (i.e., quasi-extinction risk). 2008 BiOp at 7-15. NOAA purports to base its calculations of this metric on a QET of 50.[5] Thus, a population with a greater than 5% chance of averaging less than 50 adult returns for four years in a row over 24 years would have a "survival gap," or a percentage by which survival would have to improve in order to satisfy this standard. See 2008 BiOp at 7-7.

23. The 2008 BiOp's survival-risk analysis departs from the ICTRT's methodology without rational explanation and is scientifically deficient in several respects. First, the 2008 BiOp's 24-year (as opposed to the ICTRT's 100-year) time frame for assessing extinction risk, is too short to provide reasonable assurance that the likelihood of survival is not being appreciably reduced. Second, NOAA's assessment fails to consider factors relevant to actual survival and recovery, including minimum abundance thresholds, and fails to adequately account for variance.[6] Third, the 2008 BiOp calculates survival gaps for some, but not all, of the populations for which sufficient data were available. Fourth, NOAA uses consistently optimistic

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[5] NOAA "primarily" considered QET=50 in its assessment of this metric, but did calculate extinction risks at QET=30, 10, and 1 as a "sensitivity analysis." *See* 2008 BiOp at 7-18, 7-19. Since NOAA ultimately discounted its own quantitative analysis in favor of a qualitative approach, *see* BiOp at 7-7 and 7-8, the qualitative discussion of this sensitivity analysis appears to have played a significant role in NOAA's no jeopardy conclusion, but its actual significance cannot be assessed because it is never explained.

[6] "Variance" describes the extent to which an actual value may deviate from its statistically predicated value. Under both the survival and recovery prongs of its jeopardy analysis, NOAA failed to adequately consider variance in constructing its confidence intervals, with the result that it cannot demonstrate with the requisite degree of certainty that the actual value will not fall below the desired value. By failing to adequately account for variability, NOAA also failed to meet its burden of demonstrating that the proposed actions will not jeopardize endangered species, and effectively shifts the risk of being wrong onto the protected fish.

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assumptions about numerous variables, including but not limited to climate and ocean conditions, to produce a more favorable picture of survival and extinction risk than is warranted.

24. Perhaps more importantly than these specific defects, NOAA ultimately does not rely on its quantitative analysis in determining whether the RPA satisfies the survival prong of the jeopardy analysis. Instead, due to "considerable uncertainty" involved in the quantitative assessment of short-term extinction risks, *see. e.g.,* 2008 BiOp at 8.3-32, 34, NOAA ultimately depends on qualitative factors to make its no jeopardy finding, and presents its quantitative analysis solely "for convenience." *Id.* at 7-8. Unfortunately, NOAA never provides a rational explanation of how the various factors it lists "qualitatively" provide an appropriate basis for a no-jeopardy finding.

25. For NOAA's recovery-prong analysis, NOAA calculates changes in density-independent survival (gaps) necessary for the R/S, lambda, and abundance trend metrics[7] to equal 1.0, which, according to NOAA, represents a population that is neither increasing nor decreasing. (Id. at 7-24). A population meets NOAA's "potential for recovery" standard if there are no survival gaps. Thus, for each of these metrics, so long as they reflect a population that is doing no worse than maintaining status quo abundance, or is projected to do so as a result of the PA and RPA, NOAA would conclude that the population's likelihood of recovery is not appreciably reduced by the actions under consideration. As with the extinction risk analysis, NOAA's recovery-prong analysis also fails to adequately account for variance.

26. NOAA's "potential for recovery" approach does not even adhere to its own standard as described in the Jeopardy Memo and Metrics Memo. These memos require the recovery prong of the jeopardy analysis to demonstrate that species are "trending towards

[7] Over the base period (about 20 years) for a population: R/S is the average logarithmic value, converted back to the base of the logarithm, of the returning number of adult spawners produced per spawner in an earlier year; lambda (λ) is the annualized rate of change (growth rate) in the number of adult spawners on a brood cycle (four years running, summed) basis; abundance trend is the annual rate of change in the logarithmic values of the annual numbers of spawners.

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recovery" evidenced by population growth rates greater than one and positive abundance trends. (Metrics Memo at 3.) In contrast, the 2008 BiOp shifts from having to actually demonstrate a trend towards recovery to an even weaker standard characterized as the "potential for recovery" and evidenced by population growth rates and abundance trends that simply close the survival gap necessary for one or more productivity indices to equal at least 1.0, which represents neither a positive or negative trend. Analytically, it is a remarkably easier burden of proof to simply not be able to detect a trend than it is to demonstrate a positive trend.

27. NOAA's "potential for recovery" approach to the recovery prong of its jeopardy analysis is arbitrary and capricious, contrary to law, and not based on the best available scientific information in at least the following ways:

- It includes no viability component or any other measure of progress towards recovery. Without determining the point at which recovery is placed at risk, it cannot ensure that the likelihood of recovery is not appreciably diminished.
- The standard and assessment fails to adequately consider the tendency of populations to be more productive at lower abundance (i.e., density-dependent population productivity).
- Its trend measurements are dependent upon a timeframe that excludes historical abundance levels, and unduly emphasizes the several most recent years when abundance has been relatively high, causing an upward bias, and creating the misleading impression of movement toward recovery. Specifically, the trend lines were heavily influenced by the relatively low abundances in the 1990s and the relatively high abundances of the early 2000s, both of which appear to be more related to environmental conditions such as ocean productivity and snowpack runoff than to movement toward recovery. The relatively high abundances of the early 2000s have not been sustained in subsequent years.
- The trend lines often do not represent a statistically significant fit to the data due to high data variance. Thus where NOAA concludes that their standards are met (i.e., the populations are stable or increasing), their analysis cannot statistically exclude the conclusion that the standard is not met (i.e., the populations are declining). Actually, a population that meets criteria with a value of 1.0 has a 50% probability that the true value is less than 1.0 and thus a 50% likelihood of not meeting their criteria.
- By setting a standard that requires minimal or no improvement in current population performance, and that fails to assess risk in connection with any time frame for achieving recovery, NOAA permits species to linger at the brink of extinction, without separately considering how prolonged periods of low abundance increase extinction risk and adversely affect the potential for survival and recovery.

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- It departs dramatically from the ICTRT's approach without rational explanation or scientific basis.
- It departs from the approach used in the 1995 and 2000 BiOps, without any explanation of why the approach of the previous analysis is no longer scientifically valid.
- Without reasoned explanation, it fails to follow the Conceptual Jeopardy Framework developed by the parties and presented to the court in the First Remand Report.
- It is not applied uniformly across populations and species, and relies on vague and irregularly-applied qualitative factors to close survival gaps that otherwise exist.

28. Having established baseline survival gaps, both NOAA and the ICTRT use the Comprehensive Fish Passage Model (COMPASS) to adjust those gaps to reflect survival improvements resulting from changes to the FCRPS that have been implemented between the baseline period and present. But NOAA's approach differs substantially from that used by the ICTRT. As a result of this difference and various limitations of the COMPASS model, the 2008 BiOp erroneously underestimates the survival gaps. Again the 2008 BiOp purports to be grounded in the work of the ICTRT, but its unexplained departure from the ICTRT's approach is arbitrary and capricious and a failure to employ the best available science.

29. Remarkably, NOAA's flawed analysis of the base conditions indicates that about half of the listed populations of Columbia and Snake River salmon and steelhead are not jeopardized by status quo FCRPS operations, even before adjustments for assumed and predicted survival improvements resulting from current and proposed mitigation in the RPA. Thus, NOAA contends that most populations do not require *any* improvement in baseline or current status to avoid jeopardy.

30. The 2008 BiOp also relies on non-hydropower operations to make very significant baseline-to-current adjustments in many—if not most—populations. The BiOp uses actions such as habitat, predator control and hatchery measures to both quantitatively and qualitatively reduce the current survival gaps by adjusting the base survival gaps upward. Unaccountably, many of these measures are virtually identical to those described in the 2004

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BiOp. NOAA provides no explanation as to why consideration of these same measures now produces such a different result.

31. The 2008 BiOp's habitat adjustments are based on overly optimistic assumptions about the level of survival improvements that would result from habitat restoration actions in tributaries and estuaries. As is discussed below, these assumptions are not supported by evidence and are arbitrary and capricious.

32. For any survival gaps that do remain following the various base-to-current adjustments, NOAA makes a current-to-prospective adjustment to reflect the expected results of the future actions that constitute the RPA. As noted above, the prospective actions represent only minor modifications of the proposed actions and RPA that did not satisfactorily avoid jeopardy in the 2000 and 2004 BiOps. Thus, NOAA's reliance upon them here to close the remaining survival gaps is suspect. For the reasons that follow, NOAA's reliance on prospective actions in support of its ultimate finding of no jeopardy is arbitrary and capricious, not reflective of best available science, and contrary to law.

33. With respect to dam operation measures, the 2008 BiOp's gap-closing analysis at both the base-to-current and current-to-prospective stages are arbitrary and capricious, contrary to law, and not based on the best available science in at least the following ways:

34. Although COMPASS, as well as other models, has clearly demonstrated that reduction of fish travel time (FTT) through the FCRPS increases both direct juvenile (system) survival as well as smolt-to-adult return (life-cycle) survival of Snake River spring Chinook and steelhead, the 2008 BiOp and RPA reduce reliance on actions that are directly aimed at improving in-river migration conditions and thus reducing FTT, such as increases in flow through reservoir releases to speed water travel time, and reductions in fish delays at dams through increased spill. Instead they propose actions that would clearly impair in-river migration conditions, including reductions of flow and spill compared to recent court-ordered operations

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that apparently benefited fish. As an example, the 2008 BiOp and RPA requires cessation of spill in favor of maximum collection and transport of juvenile fish during much of May.

35. The emphasis in the 2008 FCRPS Biological Opinion on a Columbia River operations strategy that maximizes transportation during some periods of juvenile migration was based on a flawed analysis that:

a. Overestimates the benefits of transportation compared to in-river migration by:

i. Comparing the survival of transported fish to the survival of in-river migrants that experienced sub-optimal in-river migration conditions resulting from operational decisions by the Action Agencies. The survival of transported fish should have been compared only to that of in-river migrants that experience river migration conditions that are closer to optimal (as have occurred under recent Court-ordered operations);

ii. Including inappropriate fish in the in-river migrant samples used for the comparisons: *e.g.*, fish that were captured in collection facilities at dams and then returned to the river ("by-passed" fish). Often, large proportions of these fish were handled and marked before being returned to the river. By-passed fish, and in particular handled by-passed fish, have lower survivals than fish that migrated in-river over spillways and other routes where they are not collected or handled. The survival of transported fish should have been compared to in-river migrants that are not affected by the collection facilities at the dam in order to provide an accurate basis for comparison.

b. Fails to take into account risks caused by transportation. The measure of benefits of transportation need to be based on a risk/benefit analysis that considers net benefits after risks have been accounted for. Risks that have not been accounted for include:

i. Returning steelhead adults that were transported as juveniles returned to Bonneville Dam slightly later and took a significantly longer time to complete

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their migration from Bonneville to Lower Granite Dam, than did in-river fish. (FPC memo dated Jan 18 2007). Later return times and delayed migration by adults can decrease fish condition and increase pre-spawning mortality.

ii. Returning adults that were transported as juveniles were significantly less successful (~10% reduction) at homing to their natal basin (i.e., above Lower Granite Dam) than returning adults from juveniles that migrated in-river. This differential includes losses due to straying and other sources of mortality (FPC memo dated Jan 18 2007). This represents a loss of fish to the listed population due to transportation.

iii. Tagging studies have shown that returning adults that were transported from the Snake River as juveniles are more likely to stray into non-natal basins in the Columbia, particularly into the John Day and Deschutes rivers in Oregon, than fish that migrated in-river (e.g., Keefer et al. 2005 Straying Rates Of Known-Origin Adult Chinook Salmon And Steelhead Within The Columbia River Basin, 2000-2003. Report to the US Army Corps of Engineers and the Bonneville Power Administration). Increased straying both impacts the local populations that receive the strays, and represents a loss of fish from those populations that were the source of the strays. Snake River hatchery steelhead strays are considered one of the most significant threats to recovery of Oregon's Mid-Columbia steelhead in both the John Day and Deschutes river basins. (Carmichael, R.W. and B.J. Taylor. 2007. Review Draft: Conservation and recovery plan for Oregon steelhead populations in the Middle Columbia River Distinct Population Segment. Oregon Department of Fish and Wildlife, Salem. 691 p.)

36. The 2008 BiOp relies entirely upon hatchery operations to maintain the Snake River Sockeye population, yet acknowledges that this ESU is at a high risk of both extinction and hatchery domestication (loss of genetic diversity and reduction of fitness in the natural

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environment). In fact, NOAA concludes that the absence of a functional natural population is this ESU's greatest limiting factor. Notwithstanding these findings, as well as NOAA's conclusion that hatchery operations in the future will continue to have both adverse and beneficial effects, NOAA fails to effectively address the need to improve in-river passage conditions to increase the natural population; the RPA will likely have the opposite effect. For example, the RPA calls for No Spill/Maximum Transport at Lower Snake River Projects from May 7 through May 20, during which time sockeye smolt migration is often at its height. Transportation has little or no beneficial impact on sockeye, and the increased travel time resulting from reduced spill will have known adverse consequences. Preliminary analyses indicate juvenile sockeye survival and subsequent adult returns improved dramatically during recent outmigration years associated with court-ordered river operations, which increased spill and reduced smolt transportation. Thus measures that NOAA claims will improve survival rates for some other ESUs are likely to adversely impact Snake River Sockeye, yet NOAA fails to account for these effects.

37. In addition, the 2008 BiOp attributes significant survival improvements to the construction and operation of surface passage outlets, including removable spillway weirs (RSWs), temporary spillway weirs (TSWs) and the Bonneville Dam Corner Collector. But the 2008 BiOp does not take into account that the effectiveness of surface passage routes has not been fully evaluated and demonstrated, in particular RSWs and TSWs. There is considerable uncertainty whether the expected survival will in fact occur, and whether these technological improvements will provide at least as good of fish benefits as a full spill program.

38. The adjustments for habitat measures similarly are arbitrary and capricious, contrary to law, and not based on the best available science in the following ways:

- The 2008 BiOp allocates exceedingly high survival benefits from habitat improvements. While the best available science indicates that under certain conditions smolt production could be increased by freshwater habitat improvements, improvements in survival associated with migration through the FCRPS are required to ensure adequate numbers of these smolts return as adults. In general, tributary habitat improvements have a limited

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impact on the survival of Snake River salmonids migrating through the mainstream FCRPS hydrosystem.

- NOAA fails to account for any uncertainty that the habitat improvements will in fact result in the desired survival benefits, and instead assumes they will be 100 percent effective at producing the benefits they are calculated to provide.

- The estimated benefits resulting from habitat improvements fail to consider on-going habitat degradation resulting from upstream human and natural forces.

- NOAA optimistically assumes that highly effective habitat improvement opportunities will be as available in the future as they are now in order to meet overall assumed survival benefits for habitat improvements.

- The 2008 BiOp also relies on contingent habitat improvement measures to replace measures that prove less effective than estimated, yet the availability of funding for these contingent projects is equivocal, at best, thus they are not reasonably certain to occur.

- Habitat protection measures are credited with survival benefits, while in fact they do not promote survival, they simply prevent its further decline.

39. The analysis of whether the 2008 PA/RPA destroys or adversely modifies designated critical habitat of listed salmon and steelhead in the Columbia Basin also is arbitrary and capricious, contrary to law, and fails to use the best available scientific information for reasons that include, but are not limited to, the following:

- The analysis employs an arbitrary definition of the "current pre-Prospective Action condition of designated critical habitat relative to the functionality of its PCEs (primary constituent elements)." 2008 FCRPS BiOp at 7-52. This definition is crucial to the analysis of whether the 2008 PA/RPA destroys or adversely modifies critical habitat because it establishes the basis for comparing the environmental baseline and the likely future state of critical habitat after implementation of the Prospective Actions. NOAA's approach to defining existing environmental conditions skews this analysis by assuming as part of the environmental baseline current and recent adverse environmental conditions that are to a significant degree under the control of the operating agencies, such as mainstem river flows, amount of spill at mainstem hydroelectric dams, and water temperature. By doing so, NOAA arbitrarily evaluates proposed hydrosystem operations against a baseline that already includes ongoing operations that NOAA acknowledges have adverse impacts on the designated critical habitat of ESA-listed salmon and steelhead.

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- NOAA failed to assess whether improvements in operations of the FCRPS that affect PCEs are necessary in order to avoid destruction or adverse modification of critical habitat.

- NOAA arbitrarily evaluates the impacts of the 2008 PA/RPA only on the habitat's value to the listed ESUs' "long term *trend toward* recovery" rather than on these ESUs' actual "likelihood of . . . recovery." 50 C.F.R. § 402.02 (definition of "destroy or adversely modify"). This allows NOAA to examine only whether the actions' impacts on critical habitat reduce appreciably the likelihood that salmon and steelhead will trend toward recovery – i.e. the likelihood that their populations will show some increase over time, even if very slight – rather than complying with section 7's directive to assess whether the actions' impacts on critical habitat will reduce appreciably the likelihood that listed ESUs will actually recover, i.e. the likelihood that listed ESUs' will increase their populations to the point that they may be removed from protection under the ESA.

- By considering only the impacts of the 2008 PA/RPA on each ESU's "long term trend toward recovery," rather than the ESU's likelihood of actual recovery, NOAA avoids identifying or considering the rate of population growth or any other measure of improvement necessary for the ESUs to actually recover in assessing whether these actions destroy or adversely modify critical habitat, contrary to this Court and the Ninth Circuit's prior decision in this case. *See, e.g. NWF v. NMFS*, 524 F.3d at 936 ("It is only logical to require that the agency know roughly at what point survival and recovery will be placed at risk before it may conclude that no harm will result from "significant" impairments to habitat that is already severely degraded.").

- The analysis of critical habitat-related impacts on listed ESUs also fails to rationally account for potentially serious short-term impacts and fails to consider adequately how these short-term risks affect the conservation of listed salmon and steelhead, again contrary to the decisions of the Court and the Ninth Circuit. *See NWF v. NMFS*, 524 F.3d at 934-935.

- In assessing whether the 2008 PA/RPA destroys or adversely modifies designated critical habitat of the listed ESUs, NOAA further fails to consider the impacts of the actions in light of available information describing steps necessary for salmon and steelhead recovery, as well as in light of available information describing recovered salmonid populations. This information includes, but is not limited to, NMFS, *Viable Salmon Populations* (2000); NMFS, *Habitat Approach* (1999); NMFS, *Proposed Recovery Plan for Snake River Salmon* (1995); Federal Caucus, *Conservation of Columbia Basin Fish* (2000); and Northwest Power and Conservation Council, *Return to the River* (2000), and the more recent work of the ICTRT also discussed herein.

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THE CORPS' AND BOR'S VIOLATIONS OF THE ESA

40. The Corps operates a number of the projects in the Columbia and Snake River basins that affect listed salmon and steelhead. The Bureau of Reclamation also operates projects on these rivers and is the primary agency responsible for federal water storage and diversion facilities in the Upper Snake basin.

41. Though each agency had already been relying upon the 2008 FCRPS BiOp to operate FCRPS projects, in part, through records of decision, the Corps and Bureau have formally agreed to implement the PA/RPA evaluated in the 2008 FCRPS BiOp, and on that basis also have concluded that their operations would avoid jeopardy.

42. The Action Agencies' reliance on the 2008 FCRPS BiOp, which they knew or should have known is invalid, fails to meet their independent and continuing legal duty to comply with the substantive requirements of ESA section 7(a)(2) to avoid jeopardy and adverse modification of critical habitat.

43. NOAA has determined that FCRPS operations by the Corps and BOR will take ESA-listed salmon and steelhead.[8] However, NOAA provides the Corps and BOR with an ITS authorizing them to lawfully take a large percentage of each ESU/DPS affected by he hydrosystem. *See id.* § 14.1 to 14.2. For example, total mortality of Snake River fall chinook caused by the FCRPS is estimated as high as 87%. 2008 BiOp at 14-27. In the absence of a valid ITS or exemption under the Act, this take is prohibited. This provision does not protect BOR and the Corps from liability under Section 9 because the 2008 FCRPS BiOp is arbitrary, capricious, and contrary to law. The incidental take statement ("ITS") contained therein is consequently also invalid. Since the agencies may not lawfully take listed species in the absence of a valid take statement, they are in violation of § 9, 16 U.S.C. § 1538(a)(1)(B), (G).

[8] This take occurs in a number of ways including mortality and injury to adults and juveniles caused by turbine passage, bypass and collection systems, delayed migration and increased predation associated with reservoir operations and an altered hydrograph, loss of spawning and rearing habitat and impaired water quality.

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FIRST CLAIM FOR RELIEF

(Declaratory Judgment – NOAA Violated the ESA and APA)

44. The State of Oregon incorporates by reference all preceding paragraphs.

45. NMFS has violated the requirements of ESA section 7 and its implementing regulations by arbitrarily, capriciously and without any rational basis concluding in the 2008 FCRPS BiOp that the PA/RPA of the Corps, BPA and BOR are not likely to jeopardize any listed species or destroy or adversely modify their critical habitat and by issuing a biological opinion that is otherwise not in accordance with law. The defects in the 2008 FCRPS BiOp are set forth above and incorporated herein.

46. The 2008 BiOp's conclusions are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law and are reviewable under the APA, 5 U.S.C. §§ 701-706.

SECOND CLAIM FOR RELIEF

THE CORPS' AND BOR'S VIOLATIONS OF SECTION 7 OF THE ESA AND APA

47. Plaintiffs incorporate by reference all preceding paragraphs.

48. The Corps and BOR have an independent and continuing legal duty to comply with the substantive requirements of ESA section 7(a)(2) to avoid jeopardy and adverse modification of critical habitat without regard to whether they have received a biological opinion for their actions. Indeed, the Corps and BOR may not meet their duty to comply with § 7 by relying on an invalid opinion. *Stop H-3 Ass'n.*, 740 F.2d at 1460; *Resources Ltd.*, 35 F.3d at 1304. For each of the reasons described in paragraphs 72-102 above, the Corps' and BOR's reliance on the 2008 FCRPS BiOp in their 2008 RODs and through their other actions is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law and is reviewable under the APA, 5 U.S.C. §§ 701-706.

49. In addition to their reliance on the invalid 2008 FCRPS BiOp, which incorporates each and every one of the legal violations committed by NOAA as described above, the Corps

and BOR's actions and omissions are arbitrary and capricious and in violation of the ESA for at least the following additional reasons:

- The Corps and BOR have not obtained a valid, complete § 7(a)(2) consultation for operation of their projects and have not evaluated, proposed or implemented further protective measures for ESA-listed salmon and steelhead in order to avoid jeopardy and destruction and adverse modification of critical habitat;

- The ESA requires the Corps and BOR to operate their projects in a manner that avoids harm to listed species pending compliance with the procedural requirements of § 7(a)(2). The Corps and the Bureau have not developed any analysis of their own to establish that their actions comply with the requirements of ESA § 7(a)(2). *See Greenpeace v. National Marine Fisheries Service,* 106 F. Supp. 2d 1066 (W.D. Wash. 2000) (enjoining implementation of fishing management plans in specific areas pending completion of BiOp);

- BOR and the Corps are violating ESA § 7(d) by taking actions that may foreclose implementation of measures required to avoid jeopardy, including decisions to produce power by running water through the turbines rather than spilling it over the dams, drafting water from up-stream reservoirs and operating the projects at elevations that do not avoid harm to listed species, delivering water to contract holders, and otherwise managing water resources in a way that does not minimize or avoid mortality of salmon and steelhead.

50. Because the Corps and BOR have not obtained a valid, complete consultation, or taken any other appropriate steps to ensure that their operations will not harm ESA-listed species, the Corps' and BOR's are operating their projects in violation of § 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2), and its implementing regulations and § 7(d) of the ESA, 16 U.S.C. § 1536(d).

51. BOR and the Corps' project operations and 2008 RODs are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the ESA and are reviewable under the ESA, 16 U.S.C. § 1540(g)(1) and the APA, 5 U.S.C. §§ 701-706.

THIRD CLAIM FOR RELIEF

THE CORPS' AND BOR'S VIOLATIONS OF SECTION 9 OF THE ESA

52. Plaintiffs incorporate by reference all preceding paragraphs.

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53. By their actions and inactions alleged above, and as admitted by NOAA in the 2008 FCRPS BiOp, the Corps and BOR are currently taking, and unless enjoined will continue to take, ESA-listed salmon and steelhead. The ITS issued as part of the invalid 2008 FCRPS BiOp does not exempt the Corps and BOR from liability for this take.

54. By their actions and inactions alleged above, the Corps and BOR are violating Section 9 of the ESA, 16 U.S.C. §§ 1538(a)(1)(B) & (G), 1538(g), and the salmon 4(d) rule, 50 C.F.R. § 223.203(a).

PRAYER FOR RELIEF

WHEREFORE, the State of Oregon respectfully requests that the court:

1. Adjudge and declare that NOAA has violated ESA section 7 and its implementing regulations by making a no-jeopardy/no-adverse modification finding in the 2008 FCRPS BiOp and issuing an incidental take statement that are arbitrary, capricious, an abuse of discretion and otherwise not in accordance with law;

2. Enjoin NOAA to withdraw the 2008 FCRPS BiOp and the accompanying incidental take statement, notify the Action Agencies of these withdrawals, and reinitiate consultation with the Action Agencies in order to prepare a biological opinion for the FCRPS, its operations, and any related actions that complies with the requirements of the ESA, on a schedule to be set by the court;

3. Adjudge and declare that BOR and the Corps have violated ESA section 7(a)(2) and its implementing regulations by continuing to operate their projects in the Columbia and Snake River basin without a valid biological opinion and by failing to ensure that these projects avoid jeopardy, in violation of the requirements of ESA section 7, 16 U.S.C. § 1536, and that their actions are arbitrary, capricious, an abuse of discretion, and not in accordance with law;

4. Adjudge and declare that BOR and the Corps have violated ESA section 7(d) by making irretrievable and irreversible commitments of resources before conclusion of a valid consultation;

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5. Adjudge and declare that the Corps and BOR have violated ESA section 9, 16 U.S.C. §§ 1538(a)(1)(B), (a)(1)(G), & (g), and the ESA implementing regulations by taking endangered salmon and steelhead without a valid incidental take statement;

6. Grant such preliminary and permanent injunctive relief as may be necessary to protect the ESA-listed species until the court decides the merits of this case or the agency complies with the law;

7. Award costs associated with this litigation; and

8. Grant such further and additional relief as the Court may deem just and proper.

DATED this 9TH day of January, 2009.

Respectfully submitted,

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RE: Comments on September 2011 Final Environmental Impact Statement for the Interstate 5 Columbia Crossing Project

Introduction

The Pacific Environmental Advocacy Center ("PEAC") submits the following comments on behalf of its clients Coalition for a Livable Future, the Northeast Coalition of Neighborhoods, the Rosemere Neighborhood Association, Northwest Environmental Defense Center, Columbia Riverkeeper, the Portland Audubon Society, Oregon Public Health Institute, Upstream Public Health, and Association of Oregon Rail and Trail Advocates. These comments will refer to these groups collectively as "PEAC" but, to be clear, "PEAC" is in fact representing the concerns and views of a broad and diverse coalition of groups.

The voluminous Columbia River Crossing ("CRC") Final Environmental Impact Statement ("FEIS"), approved by the Federal Highway Administration ("FHWA") and the Federal Transit Administration ("FTA") (collectively "the Federal agencies"), purports to analyze and disclose the impacts of what can best be described as a massive monument to the mid-twentieth century motor vehicle mentality. The CRC's Locally Preferred Alternative

("LPA") sprawls across north Portland, Hayden Island, the Columbia River, and into Vancouver, Washington, dwarfing the bridges it intends to replace, adding substantial new motor vehicle capacity and multiple new or enlarged highway interchanges, covering many additional acres of land with new impermeable surfaces, and creating a new, much larger obstacle that migrating salmon will have to maneuver under and around. Adding a light rail line and "improved" bicycle facilities is simply putting green lipstick on an environmental pig. Those "add-ons" do not change the fact that this project is, and from the beginning has been viewed by its proponents as, primarily a major highway expansion project. On its face the CRC certainly looks like the exact opposite of what many individuals, groups and governmental bodies in Oregon and Washington have been trying to promote, encourage and legally require in terms of sustainable development, sustainable transportation solutions, actual reductions in water pollution and air pollution (including greenhouse gas emissions) and real improvements in salmon habitat.

Model on Display at CRC Headquarters, October 2011

But not to worry, throughout the FEIS the public is told that the LPA is the best, "sustainable" way to address future transportation needs in the "Bridge Influence Area" ("BIA"), and will supposedly have much lower environmental impacts on most resources and, at worst, essentially the same adverse impacts on significant resources like the region's threatened salmonid species. Such counter-intuitive conclusions should, consistent with the specific requirements of the National Environmental Policy Act, 42 U.S.C. § 4321, *et seq*., and its implementing regulations, 40 C.F.R. §§ 1500.1-1508.28, ("NEPA") be supported by extensive and well-documented analysis using the best available information. The Draft Environmental Impact Statement ("DEIS") failed miserably in that regard as PEAC's DEIS comments, and the comments of many others, documented. More than three years later the FEIS attempts to address those failings in the DEIS by adding the "refined" LPA, and substantial additional analysis, including, in particular, analysis regarding impacts on salmon. There are at least two problems with this "cure" for the inadequate DEIS.

First, as explained below, it is illegal under NEPA to issue a cursory DEIS for public scrutiny and to then, more than three years later, dump much of the detailed analysis that NEPA requires of the DEIS into the FEIS. Such a process does not give the public a meaningful opportunity to scrutinize and comment on the CRC's actual analysis and reasoning regarding their assertions of insignificant or improved impacts. Curiously, although the CRC spent millions of dollars on new and updated analyses, it refused to update the DEIS's incorrect and inflated traffic projections even though new, contradictory traffic information was available and consultants hired by the state of Oregon both concluded that the DEIS's traffic projections were significantly overstated.

Almost all of the other descriptions, quantifications and analyses of environmental impacts depend upon the reliability of CRC's traffic projections. Thus, CRC's refusal to update the

DEIS information that most clearly needed to be updated ignores NEPA's requirement that an EIS include "high quality" information, and causes many of their conclusions and assertions in the FEIS to be arbitrary and capricious. This combination of a cursory DEIS, significant new information regarding traffic forecasts, the significant new analyses added to the FEIS and the substantial changes to the LPA combine to trigger the federal agencies' obligation under 40 C.F.R. § 1502.9(a) and (c) to prepare a supplemental draft EIS so that the public will have a meaningful opportunity to scrutinize and comment on all of these changes and new information. Rather than doing that, the CRC actually went out of its way to limit its consideration of alternatives and changes to the project to only those that arguably would not trigger the need for an SDEIS. Those efforts violated both the letter and spirit of NEPA generally and 40 C.F.R. §§ 1500.2, 1502.9 and 1502.14, specifically.

Second, despite taking more than three years to prepare the FEIS, that NEPA document still fails to adequately address many of this massive project's impacts and still fails to satisfy many of NEPA's very specific requirements. Despite numerous comments criticizing the CRC's overly narrow definition of the project's purpose and need, that portion of the DEIS remains essentially unchanged in the FEIS, in violation of 40 C.F.R. §§ 1502.3 and 1502.14. That unreasonably narrow statement of purpose and need continues, in the FEIS, to lead to an impermissibly narrow range of alternatives.

The FEIS considers only alternatives that focus on highway capacity expansion and still fails to consider any alternative that attempts to address the area's transportation needs by focusing on things other than adding additional traffic lanes over the Columbia River. In DEIS comments, the CRC was presented with multiple viable alternatives, and has continued to receive viable alternative bridge proposals during the more than three years between the DEIS and FEIS,

including at least one that would have addressed even the CRC's overly narrow purpose and need statement without building a sprawling replacement bridge. A vigorous comparison of alternatives is the heart of an EIS and the public was entitled to see and compare alternatives that approached the transportation needs of the area in different ways. Instead the CRC unilaterally made judgment calls about what tradeoffs were appropriate and what impacts were acceptable or necessary and limited the FEIS's comparison to one between no action whatsoever and spending billions of dollars on expanding highway capacity.

Indeed one tradeoff that was not disclosed in the DEIS, but that became apparent when the DEIS bridge design was reexamined, was the CRC's decision not to even consider bridge design alternatives that may have significantly decreased impacts on salmon. The CRC had before it bridge designs that would have required far fewer in water piers and a much narrower "footprint" over the river. The CRC, however, failed to even disclose such potentially beneficial designs in the DEIS and refused to include them in the FEIS or a supplemental DEIS, even after they were put forth by an independent review panel as viable options. This failure to consider such viable, less environmentally harmful options violates 40 C.F.R. §§ 1500.2(e), 1502.14, and the federal agencies' endangered species conservation obligations under 16 U.S.C. § 1536(a)(1).

The FEIS also fails to adequately and properly consider the likely adverse impacts to many of the regions resources, in part because it often improperly limits analysis to the BIA even though the potential adverse impacts from this proposal will clearly cascade far beyond that artificial boundary. In terms of the duty to evaluate cumulative impacts, the FEIS merely contains a series of conclusory assertions regarding the supposed absence of such impacts. But conclusory and unsupported assertions do not satisfy NEPA's requirement for a detailed statement. *Trout Unlimited v. Morton,* 509 F.2d 1276, 1284 (9th Cir. 1974). The analysis of

impacts to water resources, including both surface and groundwater, is still quite incomplete and fails to support many of its assertions of no or limited impacts. That is simply unacceptable for a proposal that will create at least 43 acres of new impermeable surfaces and their associated storm water runoff. The air analysis in the FEIS was significantly revised, but in part because of its invalid traffic forecasts and assumptions, still fails to address many of the localized impacts to the neighborhoods along the I-5 corridor including in particular impacts from hazardous air pollutants. The traffic forecasts in the FEIS, as already noted, are hopelessly flawed and those flaws infect the related and new tolling and financial analysis. Rather than address the likelihood of induced growth, as 40 C.F.R. § 1508.8(b) requires, the FEIS includes a new report "explaining' why there will be no induced growth from the LPA's added highway capacity. The FEIS also fails to adequately address human health issues and improperly refuses to treat neighborhoods in Vancouver as environmental justice communities.

Finally, and perhaps most significantly, the FEIS fails to acknowledge and independently analyze all of the adverse impacts that the LPA and other action alternatives would have on salmon, specifically, and aquatic resources generally. The FEIS's analysis of these important issues is significantly expanded from the DEIS, and there is no excuse whatsoever for why all of this new analysis was not contained in the DEIS, as is strongly encouraged by 40 C.F.R. § 1502.25, and required by 40 C.F.R. § 1502.9(a). But this new analysis, partly contained in the Biological Opinion ("BiOp") prepared by the National Marine Fisheries Service ("NMFS"), also completely misses the mark by failing to address all impacts on salmon, including cumulative impacts from this huge project and the many other projects on the Columbia and Willamette Rivers that are already adversely affecting salmon. Indeed a complete analysis is especially important when the CRC is seeking to kill and harass salmon in the Columbia well outside the

standard in-water work window that has been put in place specifically to prevent such adverse effects. The federal agencies' obligations under NEPA and under Section 7(a)(1) and 7(a)(2) of the ESA clearly requires a much broader and more comprehensive analysis of all adverse impacts on salmon than is contained in the FEIS or the BiOp.

Overall it is remarkable how much incomplete and missing analysis is found when the public reviews this FEIS, which has already cost Oregon and Washington taxpayers more than $130 million. This would be Oregon's largest public works project, and its taxpayers and the taxpayers of Washington are entitled to a much more thorough and complete analysis, a true comparison of all reasonable alternatives that "sharply defines the issues and provide[s] a clear basis of choice among options" (40 C.F.R. § 1502.14), and a meaningful opportunity to review and comment on all of those things in a supplemental DEIS.[1]

Failure to Prepare a Supplemental DEIS

The CRC staff's and the federal agencies' explanations for why a supplemental DEIS is not required ignore and misconstrue numerous regulations and statutes. More importantly their arguments focus on only one of the several factors that combine to make a supplemental DEIS the only possible course that complies with both the specific language of the applicable laws and their spirit.

NEPA's disclosure goals are two-fold: (1) to insure that the agency has carefully and fully contemplated the environmental effects of its action, and (2) "to insure that the public has sufficient information to challenge the agency." *Idaho Sporting Congress v. Thomas*, 137 F.3d

[1] When responding to PEAC's FOIA requests the Federal agencies improperly withheld a large number of documents. PEAC administratively appealed that decision on July 5, 2011, and the Federal agencies have not yet responded to that appeal. *See* NEPA Process/FOIA Appeals Materials Folder. When PEAC obtains the improperly withheld documents it reserves the right to submit additional comments based on those documents.

1146, 1151 (9th Cir. 1998) (overruled on other grounds by *The Lands Council v. McNair,* 537 F.3d 981 (9th Cir. 2008); Robertson *v. Methow Valley Citizens Council,* 490 U.S. 332, 349 (1989); *see also* 40 C.F.R. §§ 1500.1 and 1500.2. The CRC's refusal to prepare a SDEIS implicates both of those goals, but it falls most heavily on NEPA's requirement that the analysis be subject to vigorous and meaningful public scrutiny. NEPA's public scrutiny requirement is most directly implemented by the CEQ regulations requiring: (1) that agencies first prepare a draft EIS that "fulfill[s] and satisf[ies] to the fullest extent possible the requirements established for final statements," 40 C.F.R. § 1502.9(a); (2) that federal agencies must solicit public comment on that statement, 40 C.F.R. § 1503.1; and (3) that agencies must respond to those comments from the public (in its FEIS) and if necessary make changes to the DEIS. 40 C.F.R. § 1503.4. There is no requirement that agencies must respond to comments on an FEIS and because it is final, changes to an FEIS in response to comments are not possible. Thus the only meaningful opportunity for the public to scrutinize and challenge an agency's NEPA analysis is when the public reviews the analysis put forth in the DEIS.

Contrary to repeated assertions by CRC staff at public hearings, there is absolutely nothing in NEPA, CEQ's regulations, or FHWA's NEPA regulations, that allows, or even suggests, that a DEIS can contain less rigorous or detailed analysis than an FEIS. Moreover there is also nothing in those regulations that says an agency can wait until after it publishes a DEIS to prepare the analyses necessary to support or explain its conclusions regarding all of the impacts that it must consider under NEPA. In fact 40 C.F.R § 1502.25 requires that, "to the fullest extent possible" the analysis required by statutes like the ESA shall be prepared concurrently with and integrated into the draft EIS. Indeed, if a draft EIS could be issued quickly and initially without all of the necessary analysis, and the agency could then take its time to add all of the detail into the FEIS,

there would be no need for a regulation like 23 C.F.R. § 771.129, which requires a written evaluation of the DEIS when the agency takes more than three years to issue the FEIS. If it was standard practice to produce a cursory DEIS and to do all the required analysis later and include it in the FEIS, it would not matter how much time had passed between the publication of a DEIS and the publication of the FEIS.

Finally, although the Federal Agencies have cited 23 U.S.C. §139(f)(4)(D) to support their argument that detailed analysis of the LPA can wait until the FEIS, that statute in fact says no such thing. It does say that an agency can decide to provide more detail regarding a LPA, but an LPA usually should be identified in the DEIS, *see* 40 C.F.R. § 1502.14(e), and any additional detail included in the DEIS. More specifically, there is nothing in NEPA or any other applicable law that allows the CRC to issue a DEIS with technical reports that cite nothing specifically in support of its "analysis" and to then include revised technical reports with the FEIS that suddenly include the citations required by 40 C.F.R. § 1502.24. This is not simply adding "detail" or "refinements" regarding the LPA. This is suddenly including the very basic analysis and support for an agency's assertions, assumptions and conclusions only in a FEIS and thereby avoiding any real public scrutiny of that essential analysis.

There is no reason most if not all of this new analysis could not have been included in the DEIS. The CRC staff and Federal Agencies simply chose not to include it and to issue a woefully incomplete DEIS. Indeed the fact that it has taken the CRC staff more than three years to issue the FEIS clearly shows that they decided to issue a cursory DEIS, that is really only a very lengthy scoping document, and to then prepare some of the detailed supporting analysis that NEPA requires. But NEPA does not allow them to make such an anti-democratic choice that essentially cuts the public out of the analytical processes underlying the FEIS. Under NEPA you

cannot let your DEIS horse out the barn for public scrutiny unless it is pulling a fully-loaded and detailed analytical cart.

As was explained in PEAC's DEIS comments, the DEIS was a completely inadequate document lacking much basic and essential analysis to support its repeated assertions of no or limited impacts. What analysis there was often lacked supporting citations, even in its so-called "technical reports." It was impossible for the public to meaningfully scrutinize the CRC staff's assertions and conclusions without this underlying analysis and support. Thus, under 40 C.F.R. § 1502.9(a), a supplemental DEIS was necessary.

The CRC has now done some of the necessary, detailed and supporting analysis for its conclusions and assertions. For example it has prepared a more detailed tolling, financial and air analysis. It has prepared a Biological Assessment ("BA") regarding impacts on ESA species and MSA fisheries, it has added more detail to the FEIS and its appendices regarding impacts on species like salmon and it has consulted with NMFS regarding that analysis and NMFS has issued a BiOp. This new analysis, for the first time, discloses that the standard in-water work window designed to protect salmon will be suspended for much of the time the new proposed bridge is under construction. (This new disclosure and analysis by itself is enough to justify a Supplemental DEIS.) CRC has prepared a completely new and lengthy Metroscope 2010 modeling report that supposedly supports its assertions of no induced growth. A sustainability strategy has suddenly appeared as an appendix to the FEIS. FEIS Appendix C. New bridge designs were identified and evaluated in a lengthy report. *See* BRP Report, Non-NEPA Reports Folder. The CRC staff also made numerous changes to the DEIS alternatives when developing the LPA in the FEIS. Additional detail and changes from the DEIS are set forth in FEIS Changes, contained in the NEPA Process Folder. These are all just examples of the many

changes to the FEIS, and PEAC has simply not had enough time during the very limited FEIS 30-day comment period to identify and list all of those changes.

CRC has argued repeatedly at public hearings that all these changes are simply refinements to and added detail regarding the LPA and that such changes are normal between the DEIS and FEIS.[2] The Federal Agencies have prepared several "NEPA Determinations" finding that some of the design changes in fact do not have "significant impacts," and thus do not trigger the need for a SDEIS under section 1502.9(c).[3] There are at least two problems with these arguments and findings. First they ignore the fact that much of the newly added analysis and information has absolutely nothing to do with the specific changes made to the LPA. The DEIS was required to have a detailed analysis regarding, among other things, tolling, finances, induced growth, air impacts and impacts on threatened salmon. The delay in providing that detailed analysis (which in any case is still quite inadequate) has nothing to do with changes made to the LPA. Section 1502.25 required that this detailed analysis regarding threatened and endangered species, including the BA and BiOp, must, "to the fullest extent possible," be prepared and included in the DEIS. PEAC sees no valid explanation for putting off all this ESA and detailed NEPA analysis until the FEIS. Indeed the real explanation for this delayed analysis appears to be the CRC's choice to put out a cursory DEIS before sufficient planning and analysis had been done regarding the LPA and mitigation measures.

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[2] Far from being normal, these changes to the DEIS action alternatives were necessitated in part by a clear legal error by the CRC regarding what alternatives must be presented and evaluated in the DEIS. Then CRC Executive Director Brandman repeatedly stated, in response to criticism regarding the size and cost of the DEIS replacement bridge alternatives, that NEPA regulations required the CRC to develop DEIS alternatives without regard to cost. Brandman e-mail in NEPA Process Exhibits Folder, and Oregonian Traffic Estimates in Media Folder. There is, of course, no such regulation.

[3] Although these evaluations are prominently included with the FEIS, Appendix O, PEAC has not found the specific certification required by 23 C.F.R. § 771.129(a).

Second, the Federal Agencies' reports examine the various changes in isolation and do not really consider the cumulative impacts of all the changes and new information. When considered together, and in light of the incomplete and unsupported DEIS, all of these changes and new information clearly trigger the need for a SDEIS under 40 23 C.F.R § 1502.9(c) and 23 C.F.R § 771.130.

The Federal Agencies' decisions not to require a SDEIS also ignore new, very significant information regarding environmental impacts that most certainly had to be evaluated in a SDEIS. First, the new traffic data and expert evaluations criticizing the DEIS's traffic estimates show very real, significant effects that the FEIS simply ignores. *See generally*, INDIRECT IMPACTS—INDUCED GROWTH, TRAFFIC PROJECTIONS AND FINANCIAL ANALYSIS Exhibits Folder. By over-estimating future traffic over the I-5 bridge, the DEIS, and now the FEIS, seriously over-estimate the adverse impacts from the no action alternative and significantly overstate the supposed benefits from the proposed action alternatives. For purposes of the required alternatives analysis, and the required analysis of many other direct and indirect impacts like air emissions, such erroneous over-estimates are clearly significant impacts that the FEIS now fails to address and that the public should have seen in a SDEIS.[4] Second, when reevaluating the replacement bridge's design, that analysis disclosed, for the first time, that there are alternative bridge designs available that could have far fewer adverse impacts on salmon and other aquatic species. In addition, the Peterson alternative presented to the CRC in 2010 confirms that alternative designs are available that require far fewer in water piers and create less shade

[4] There is simply no legal basis for the assertions in several government reports downplaying these errors that such erroneous traffic estimates are "good enough" for NEPA (*see* OST Review in INDIRECT IMPACTS—INDUCED GROWTH, TRAFFIC PROJECTIONS AND FINANCIAL ANALYSIS Exhibits/Sources Folder) and that accurate or the best traffic estimates are only necessary for the financial analysis that will be prepared for prospective bondholders.

over the river. The Federal Agencies' NEPA and ESA responsibilities (see 40 C.F.R. § 1500.2 and 16 U.S.C. § 1536 (a)(1)) do not allow them to summarily dismiss such less harmful alternatives and those alternatives had to be presented to the public for its evaluation in a SDEIS. Under the ESA, it is not enough for the Federal Agencies to simply avoid jeopardy (and the BiOp and NEPA analysis in the FEIS do not even show that). The Federal Agencies had to at least acknowledge and consider alternatives—here bridge designs—that could actually enhance salmon habitat and increase the chances for recovery. See *Sierra Club v. Glickman*, 156 F.3d 606 (5th Cir. 1998). Instead, those designs appear to have been summarily dismissed primarily because of concerns about aviation use at Pearson field. Such concerns, even if valid, (and the bridge design report questioned those concerns, *see* BRP Report, Non-NEPA Reports Folder**),** are not enough to justify the CRC FEIS summarily choosing to put the interests of Cessnas ahead of salmon.[5] The public was entitled to a SDEIS with a complete analysis of the tradeoffs involved and the impacts of such choices and alternatives. Rather than considering such alternatives and other environmentally friendly changes in good faith, as NEPA requires, CRC and state officials publicly stated that they would only consider changes to their LPA that, at least arguably, would not require a SDEIS. *See* Bailey CRC Letter in NEPA Process Folder. Such an approach to NEPA analysis violates both the spirit and specific requirements of that statute and its implementing regulations.

Overall, the missing analysis in the DEIS, new analysis and changes in the FEIS that could have been put into the DEIS, the cumulative impacts of all the changes to the action alternatives, and the failure to address significant new information showing materially incorrect traffic

[5] Agencies must consider otherwise reasonable alternatives even though they would require action by another agency or even legislative action to change current law. *Envir. Defense Fund v. Froehlke,* 473 F.2d 346 (8th Cir. 1974); *Muckleshoot Indian Tribe v. USFS,* 177 F.3d 800, 814 (9th Cir. 1999).

forecasts and less harmful alternatives for salmon, all combine to trigger the need for a supplemental DEIS under 40 C.F.R. § 1502.9 and 23 C.F.R. § 771.130. Absent a SDEIS, the public will not have a meaningful opportunity to comment on all of this significant information and these significant impacts.[6] Indeed the federal agencies desire to avoid such public scrutiny is so determined that those agencies even rejected a request to give the public an additional 30 days to comment on the substantially changed and very lengthy FEIS. *See* FEIS Comment Extension and Denial of Extension in NEPA Process Folder. Apparently even though they are proposing to spend over $3 billion on the largest public works project in the history of Oregon and the largest in-water project in the Columbia River since salmon were listed under the ESA, an additional 30 days is just too much to ask.[7] Additional exhibits supporting these SDEIS Comments can be found in the Media Folder, the Non-NEPA Reports Folder, the NEPA Process Folder, and the Other Comments.

[6] Posting some of this information and analysis on its website or disclosing it at public meetings during the more than 3 years between the DEIS and FEIS is no substitute for the opportunity to comment as part of the official and required NEPA process. Until analysis appeared in or was incorporated into the FEIS the public had no way of knowing what analysis the CRC considered final and a part of the required NEPA analysis. For example, the Independent Review Panel went out of its way to assert that its findings and hearing were NOT part of the NEPA process. NEPA does not provide for or allow a "rolling evaluation." None of these interim documents or interim analysis was released as part of an arguably NEPA compliant document until they were expressly used by or incorporated into this FEIS, and agencies can only use such NEPA compliant documents to satisfy NEPA's requirements. NEPA requires a comprehensive EIS that gathers all of the relevant analysis and information in one place for public comment precisely to avoid such confusion and obfuscations regarding what is and is not final and relevant to the required NEPA evaluation.

[7] Indeed the Federal Agencies also rejected a request for additional time to comment on the DEIS. They rushed through the DEIS comment process and then took more than three years to finalize the FEIS. Apparently an additional 30 days for public comment is unreasonable but more than three years to revise an FEIS is reasonable.

Purpose and Need

The FEIS did not change the purpose and need statement from the DEIS despite many comments, from PEAC and others, that the purpose and need were improperly narrow. Nor did the CRC sufficiently respond to the genuine concerns presented in PEAC's comments. The purpose's scope is still geographically limited to the Bridge Influence Area (BIA) rather than focusing on broader transportation concerns between Portland and Vancouver. The purpose and need were not expanded to address the region's commitment to sustainable development but rather were maintained in a way that only allows alternatives that increase car capacity. The FEIS fails to analyze an adequate scope of project impacts due to a limited scope of review. The project purpose is unjustifiably limited to improving freight and traffic conditions along the I-5 freeway corridor, yet the north-south flow of traffic through the Portland-Vancouver metropolitan area is regional in nature, with an additional crossing along the I-205 freeway. By failing to consider regional alternatives, and therefore, regional impacts, the FEIS has insufficiently analyzed the ecological, health-based and cumulative impacts of the project. Given the crucial role that the purpose and need statement plays in directing the range of the alternatives, a fuller explanation of the decisions that went into the development of the purpose and need statement is necessary.

The CRC's responses to PEAC's comments were vague and unhelpful.

The CRC responded to a wide range of PEAC comments with a formulaic answer that did not adequately address PEAC's concerns. When an agency has decided to not take action in response to a comment, such as by modifying the proposed action, it must "explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position." 40 C.F.R. § 1503.4(a)(5). The CRC did not meet this

standard of explanation but rather used a blanket response to concerns that ranged from the failure to integrate sustainability into the purpose to the claim that the purpose and need statement led to an inappropriately narrow range of alternatives. *See, e.g.,* responses 035-032; -036; -038; -041. The responses addressed this entire range of comments by claiming that the purpose and need were based on "extensive analysis." *Id*. However, the law requires a more detailed response that vague references to an analysis in order to demonstrate that the CRC truly considered the legitimate concerns raised in the comments.

Rather than providing helpful explanation, the CRC's responses contained circular and confusing logic. PEAC commented that a broader purpose and need statement is necessary in order to allow consideration of a wider range of alternatives. PEAC Comments at 27. In response, the CRC consistently stated that the initial assortment of alternatives was limited prior to the DEIS in order to meet the project's purpose and need, which are best met by a multimodal alternative including highway improvements. *See, e.g.,* Responses 035-029; -034; -42. This response does not address PEAC's concern but rather supports its argument that having a properly defined purpose and need is essential to the creation of an appropriate range of alternatives. Because the purpose and need is crucial to shaping the ultimate range of alternatives, there should be a detailed explanation of how they were developed, in order to allow true public evaluation of the process and decisions that produced the purpose and need statement.

The purpose and need were inappropriately focused on the BIA.

The CRC failed to explain or justify the narrow restriction of the purpose and need to concerns at I-5 river crossing. Rather, the responses refer to an "extensive analysis" of transportation problems identified in earlier studies. Responses 035-032; -036; -038; -041; -051. The only specific study cited in the responses is the Transportation and Trade Partnership Study

and Strategic Plan. Response 035-051. This study identifies the importance of the I-5 corridor and the need for improvements to meet growing demand and recommends a multimodal approach. PORTLAND/VANCOUVER I-5 TRANSPORTATION AND TRADE TASK FORCE, FINAL STRATEGIC PLAN 3- 4 (June 2002) in Traffic and Induced Growth Folder. However, the study does not explain the decisions behind the development of the purpose and need which were done by a separate agency at a separate time and the CRC cannot claim that the study restricts its ability to shape an appropriate purpose and need. The CRC must explain why the purpose and need were so narrowly focused on the BIA in order to allow a true evaluation of the process.

The CRC relied on this same "extensive analysis" to respond to PEAC's claim that the true purpose of the project was to increase car capacity. PEAC DEIS Comments at 20; Responses 035-032; -036. The responses recognized the importance of the purpose and need in shaping the range of analysis as the responses consistently justified highway improvements as necessary in order to meet the stated purpose and need. Because the purpose and need are so influential in directing the course of the project, how they were developed should be fully explained in order to ensure a thorough and impartial process. Merely referring to earlier studies and an extensive analysis is insufficient because that only describes the process through which the purpose and need were narrowed not the actually decisions behind the final purpose and need statement or any justifications for its narrow scope.

The purpose and need statement ignores the region's deep commitment to sustainable development.

PEAC commented that the purpose and need were focused narrowly on increasing car capacity and thus failed to reflect the strong state, local, and community support for sustainable development. PEAC Comments at 21. The CRC did not specifically address why sustainability was not included in the purpose and need but merely discussed how projects that did not include

highway improvements did not meet the purpose and need.[8] This response emphasized again the importance of having a properly defined purpose and need in order to develop a true range of alternatives. Responses at 035-038; 041 (stating that a multimodal approach best meets the project's purpose and need). Failing to include the region's commitment to sustainable development in the purpose and need statement meant that, from the outset of the project, alternatives would be biased toward increasing car capacity rather than proactively moving the region toward meeting its emission reduction goals. If the purpose and need had recognized sustainable development as an essential purpose of the project, more innovative and environmentally low impact projects could have been evaluated as alternatives.

The CRC also failed to respond to how the narrow purpose and need led to a selection of alternatives that did not include an option that would actively reduce vehicle miles traveled (VMT) and greenhouse gas emissions. Rather, the CRC argued that there is "no requirement that any action by itself reduce future emissions and that broad reductions only come from a wide variety of actions" and that a build alternative is a step in the right direction. Response 035-037. While there is no requirement that a single project *by itself* reduces future emissions, a project of this scale and investment must at least contribute to the regional sustainability and climate change goals. Transportation is a major source of emissions and the CRC crossing is currently the region's most significant and expensive transportation project. Every alternative presented in the FEIS only reduces emissions below the no-build, business-as-usual scenario, and does not proactively reduce emissions. This is not consistent with the regional goals of mitigating climate

[8] The CRC staff did include a new "Sustainability Strategy" with the FEIS. FEIS, Appendix C. This approach to sustainability is the equivalent of buying a Hummer and then insisting that you will drive it "sustainably." The new CRC "strategy" is an interesting exercise in creative writing, but this post hoc (post-alternatives analysis) action is no substitute for making sustainability an important part of the CRC's purpose and need statement.

change by reducing VMT and GHG emissions by 75 percent from 1990 levels by 2050. In order to explore the relationship and trade-offs between increasing car capacity and increasing VMT and emissions levels, a viable alternative should have been evaluated that actively decreased emissions and VMTs, such as a plan that focuses on decreasing car use through tolling, transit investments, and adjusting regional transportation management. By narrowly restricting the purpose to focus on congestion in the I-5 corridor, viable alternatives that could truly decrease emissions and VMT were excluded without true consideration.

The purpose and need statement inappropriately limits the range of alternatives.

Federal agencies must include in an EIS a statement that "briefly specif[ies] the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. §1502.13. The required purpose and need statement is critical because it determines the scope of reasonable alternatives. *See Nat'l Parks & Conservation Ass'n v. BLM,* 586 F.3d 735, 746 (9th Cir. 2009); *Simmons v. U.S. Army Corps of Engineers,* 120 F.3d 664, 666 (7th Cir. 1997) (noting that "[o]ne obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing 'reasonable alternatives' out of consideration (and even out of existence)"). In evaluating a claim that an agency failed to consider a reasonable range of alternatives, "a court begins by determining whether or not the Purpose and Need Statement was reasonable." *Westlands Water Dist. v. U.S. Dept. of Interior,* 376 F.3d 853, 865 (9th Cir. 2004).

The CRC's responses never refuted that the narrow purpose and need statement led to an inadequate range of alternatives. Rather, the responses merely asserted that the alternatives were created by an "evaluation and screening of a wide array of possible solutions" which revealed that capital improvements were necessary within the I-5 corridor in order to meet the purpose and need. Responses 035-029; -034; -042; -45; -047; -048. This response did not demonstrate

that the alternatives were adequate, but supports the argument that drawing the purpose and need too narrowly results in the inappropriate exclusion of disfavored ideas and concepts. Here, by focusing the purpose and need solely on increasing mobility in the I-5 BIA, many alternatives that would have less environmental impact while still relieving congestion were rejected out of hand. The CRC cannot write off the crucial interaction between the purpose and need and the range of alternatives by referring to vague screening processes. It must acknowledge and explain why the purpose and need were drawn so that the only alternatives, from a very wide initial array, focused exclusively on highway improvements that would increase car capacity.

The CRC failed to justify the impermissible narrow range of alternatives evaluated in the DEIS and FEIS.

The range of alternatives in the DEIS and FEIS was not reasonable and only presented an extreme choice between expensive build options and the untenable no-action, do nothing alternative. PEAC Comments at 28-31. The CRC did not respond to this comment but only insisted that alternatives that did not include highway improvements did not meet the project's purpose and need, specifically traffic congestion and safety problems. Response 035-042. These conclusory statements were insufficient explanation of why certain alternatives were dropped from a full evaluation in the DEIS and FEIS.

Rather than explaining the justification for dropping certain aspects of the project the responses only mention vague "analyses and input" that indicated certain alternatives would not meet the project's purpose and need. Response 035-042. The response referred the reader to Appendix C of the DEIS for a more thorough explanation of the early screening process. This two-page document explains the process that components went through and includes a conclusory chart showing which early components failed the six pass/fail screening questions. However, this document does not contain any analysis or explanation for why certain

components were deemed to have failed these threshold questions. NEPA requires that both conclusions and the underlying analysis appear in the EIS.

The Development of Alternatives Memo suffers from the same problems of superficial analysis rather than actual discussion. Response 035-053. The document identifies that its purpose is to "briefly summarize the process" through which the alternatives were developed. COLUMBIA RIVER CROSSING, DEVELOPMENT OF THE RANGE OF ALTERNATIVES MEMO [MEMO] 1 (June 2007) in Alternatives Folder. True to its word, the memo focuses entirely on process, rather than in-depth discussion of why the range was so restricted. *Id*. at 3 (noting that "analysis revealed" in Attachment G that the replacement bridge was the best option). The analysis contained in Attachment G to the Memo, titled Component Findings, only evaluates 12 option packages that combined a supplemental or replacement bridge with different transit options. *Id*. Thus, the only explanation for the early dismissal of other options, such as opening up a new corridor or improving I-205, is the checklist in Appendix C. This is simply inadequate to explain the limited options the CRC evaluated in the DEIS and FEIS.

The DEIS and FEIS should have included a fuller range of alternatives in order for the public to truly examine the pros and cons and trade-offs of different potential solutions. The decision to focus exclusively on build alternatives that involved massive new bridge construction meant that the CRC failed to evaluate a full range of alternatives as required by NEPA and inadequately justified this limited range. NEPA requires that an EIS must consider a reasonable range of alternatives. 40 C.F.R. §1502.14. This analysis is the "heart" of the NEPA process, *Center for Biological Diversity v. U.S. Dept. of Interior,* 623 F.3d 633, 642 (9th Cir. 2010), and the federal agencies must "rigorously explore and objectively evaluate *all* reasonable alternatives." 40 C.F.R. §1502.14(a) (emphasis added); *Muckleshoot Indian Tribe v. USFS,* 177

F.3d 800 (9th Cir. 1999). "The existence of reasonable but unexamined alternatives renders an EIS inadequate." *Friends of Southeast's Future v. Morrison,* 153 F.3d 1059, 1065 (9th Cir. 1998). While NEPA does not require a specific number of alternatives,[9] "[a]n agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action, and sufficient to permit a reasoned choice." *Alaska Wilderness Recreation & Tourism Ass'n v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995).

The CRC did not explain why it excluded discussion of available alternatives with less environmental impact.

In both the DEIS and FEIS, the CRC only considered options that increased highway capacity. It did this despite being presented with viable alternatives that were both cheaper and had potentially less environmental impact. The CRC did not attempt to honestly evaluate these options but merely responded that other alternatives had been dropped in the early stages of the screening process. *See, e.g*., Responses 035-042; 004-011; 004-016; 034-005.[10] Rather than just issuing conclusory rejections of these alternatives, the CRC, consistent with 40 C.F.R. § 1500.2, should have honestly considered these options' impact on the environment and compared that with the replacement and supplement bridge alternatives. These or similar low-impact alternatives should be evaluated in a SEIS so that the public can compare these options to the LPA and comment on the different approaches.

The CRC was aware of the following sophisticated alternatives:

a. The Association of Oregon Rail and Transit Advocates had developed a detailed, phased approach to addressing the project's purpose and needs. See attachments to AORTA

[9] 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.14; *Native Ecosystems Council v. USFS,* 428 F.3d 1233, 1246 (9th Cir. 2005).

[10] The CRC cannot dismiss or refuse to consider options that include tolling the existing bridges and I-205. Either the FHWA of Congress could approve such an option, and an agency must consider options that would require a change in the law or other agency action. *See id*.

Comments; www.aortarail.org/. The approach would likely be cheaper overall and allow for continuing evaluation of the impact of gradual improvement. The proposed steps are: 1. Fix the rail bridge, which will decrease the use of the I-5 drawbridge and decrease the number of lifts by 95%. 2. Construct multi-modal bridge to Hayden Island. 3. Construct a new bridge for commuter trains, intercity trains, car, bikes and pedestrians that would open up more track capacity for freight trains. Correct Mill Plain and Marine Drive to allow trucks to bypass I-5. Enhance commuter rail between Vancouver and Union Station in Portland. This new bridge could be located far from Pearson Field so that it could be a suspension bridge design without piers in the water. 4. Upgrade the I-5 bridges to current seismic standards. 5. Build a new bridge between Hayden Island and Vancouver.

AORTA's well thought out plan was dismissed in the responses by claiming it did not meet the project's purpose and need. *See, e.g.,* response 034-005. This assertion is a conclusion not a discussion. The Development of the Range of Alternatives Memo referred to only evaluated a small range of options after more than half of the components had been removed due to early screening. MEMO at 3.

b. The CRC also failed to adequately address the recommendations of the Portland Pedestrian Advisory Committee that were aimed at limiting environmental impacts and enhancing the urban landscape. PAC's recommendations included: providing HOV or truck lanes to access port facilities, encouraging long distance freight use of I-205, capping the number of lanes at 4, expanding the light rail options, using congestion pricing as the primary means of regulating traffic flow, including both light rail and express buses, including traffic calming elements in the design, reducing lane widths, adding a local street along the Columbia, increasing bike and pedestrian network connectivity, and creating world class bike and

pedestrian routes. PAC Comments at 6-10. The CRC's responses did not show that the CRC seriously considered these options but reveal the same assumptive attitude that focused on highway construction. Response 004-011; 004-016. The CRC cannot simply ignore low-impact alternatives without presenting thorough analyses to the public. [11]

c. A third viable lower-impact alternative was presented to the CRC by Kevin Peterson, an accomplished bridge architect, which at least appears to meet the project's purpose and need statement. *See* Peterson Alternative Folder. This plan proposes a straight alignment bridge with a four lane collector-distributor serving Marine View Drive, Hayden Island and the SR-14 interchanges on a separate lower level below six lanes of thru traffic on the upper deck. *Id*. This new bridge would be place upstream of the existing I-5 bridges rather than the current downstream replacement bridge being suggested. This upstream alignment would allow for different bridge designs, such as a cable suspension bridge. Light rail transit and a bike and pedestrian pathway are included in the design, with the possibility of adapting the through lanes on the upper deck to light rail or high speed transit at a later time because of the straight alignment and the lack of cars merging onto the upper decks.

The potential benefits of this alternative include a substantially reduced footprint and less use of urban land, greater safety benefits by not having local traffic merge into interstate traffic, ability to expand transit options in the future, the potential to avoid piers in the water, and lower costs. *Id*. The potential benefits of this plan are extensive suggesting that the proposal deserved detailed review and should have been presented to the public. Indeed the potential that this

[11] The CRC's Executive Director told Metro and the Portland City Council that even measures to maximize use of the light rail line that is a part of the LPA would be "outside the scope" of the project. See attached videotape of 1/26/09 Hearing, NEPA Process Folder. Thus highway expansion rather than other transportation options was the clear and primary focus of the LPA and CRC's "alternatives analysis."

proposal has to reduce impacts on environmental justice communities, on Hayden Island and on Vancouver communities and to reduce impacts on salmon legally required that it be thoroughly and publicly analyzed. The CRC instead appears stubbornly wedded to traditional highway construction and unwilling to rigorously analyze more innovative solutions.

The CRC must develop an alternative that proactively reduces the factors, such as emissions, contributing to climate change.

PEAC and other groups commented that an alternative should have been presented that proactively reduced climate change factors, such as emissions and VMTs, given the region's commitment to reducing emissions. PEAC Comments at 33; Portland Planning Commission Comments at 9; Sustainable Development Commission at 2. Given that cars are a major source of emissions, a viable alternative should have been presented that reduced future emissions from current levels, not just from a future no-build, business-as-usual scenario. This would allow the public and agency to evaluate a side-by-side comparison of the different alternatives and compare the trade-offs present in each scheme.

The CRC failed to adequately respond to this assertion, using the same formulaic response that alternatives that did not involve highway construction failed to meet the project's purpose and needs. Response 035-045. It further claimed that the DEIS and FEIS demonstrated that the project would not increase greenhouse gas emissions. Response 035-044. This ignores the point that not increasing emissions is not the same as an alternative that would actively reduce emissions, such as one that involved larger investment in transit or other methods of reducing single occupancy vehicle use. Given the region's ambitious emission goals and public interest in climate change, an option should have been presented that moved the region toward meeting these goals.

The CRC also disregarded arguments about decreasing design speeds, asserting that increased design speeds reduce congestion and thus emissions. Response 035-004. It also noted that design speed is different than actual posted speed, which will remain lower. Response 035-040. However, this does not justify the fact that having higher design speeds necessitates a larger structure with the resulting environmental and community impacts and that reducing speeds is another way to reduce emission levels distinct from reducing VMTs. In the middle of a congested urban area, it is logical to design a bridge at a lower design speed potentially resulting in a smaller structure, decreased emissions, and safer conditions. The CRC should not have cursorily rejected a lower design speed but must seriously evaluate the benefits of a reduced speed and a resulting smaller footprint fro the project. ODOT and WashDOT clearly prefer a massive, sprawling structure that is simply not appropriate for densely populated urban areas. But the preferences of those highway agencies should not dictate the full range of alternatives presented in the EIS. But that appears to be exactly what happened here.

The CRC must develop an alternative that does not include highway construction.

A full range of alternatives should have included at least one option that did not include highway construction. PEAC comments at 36. Components that could have been combined to produce this alternative include increased transit, increased TMD/TSM, improvements to the rail bridge, tolling, strengthening the current bridge to meet seismic standards, and other structural or non structural solutions in the region. Additional options include a land use alternative where congestion is addressed through land transformation, such as having people work and live in close proximity. It is possible that a combination of these could satisfy the project's purpose and

need but the CRC did not ever evaluate these components in combination instead inflexibly insisting that alternatives that do not include highway improvements did not meet the project's purpose and need. *See, e.g.*, response 035-042. The CRC's intransigence prevented the consideration of more creative, innovative solutions. At the very least, a more complete range of alternatives would allow a more accurate comparison of the trade-offs involved in the different projects.

By focusing exclusively on the BIA, the range of alternatives did not evaluate the I-5 CRC project in the context of regional transportation. The DEIS and FEIS failed to evaluate how the alternative would impact the regional transit network or redistribute congestion problems. Merely shifting traffic and congestion would not serve the Portland and Vancouver communities or through freight carriers. More consideration should have been given to changes outside the I-5 corridor that could impact congestion in the BIA. For example, simultaneous investment in other routes between the Portland and Vancouver areas, mainly the I-205, should have been evaluated. These options were excluded from thorough consideration through a screening process that was not adequately explained or justified. Overall, the CRC presented a range of alternatives that precluded the discussion of more innovative solutions that could have addressed broader regional transportation concerns by consistently averring the necessity of highway improvements. The CRC must go back and provide greater analysis of a wider range of alternatives and more explanation of its decision-making process.

The FEIS Does Not Provide the Alternatives Analysis Required for a CWA 404 Permit.

The FEIS suggests that it may be used by the U.S. Army Corps to evaluate the CRC's future application for a Section 404 permit under the Clean Water Act. In performing its substantive review of an application, the Corps would be required to undergo a "public interest

review," which requires a determination of the "extent of public and private need for the proposed work," "the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed ... work," and "the permanence of … detrimental effects." 33 C.F.R. §§ 320.1(a)(1), 320.4(a)(2)(i)-(iii). In making these determinations, the Corps must consider "[a]ll factors which may be relevant to the proposal," including "the cumulative effects" of the project. 33 C.F.R. § 320.4(a)(1). In reviewing a Section 404 application, the Corps must also follow rules developed by EPA under Section 404(b) of the CWA, 33 U.S.C. § 1344(b), which are known as the "404(b)(1) Guidelines." 33 C.F.R. § 320.4(a). The 404(b)(1) Guidelines are codified at 40 C.F.R. Part 230. The Corps is prohibited from issuing any permit if, among other requirements:

> (i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences; or
>
> (ii) The proposed discharge will result in significant degradation of the aquatic ecosystem … ; or
>
> (iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem; or
>
> (iv) There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines.

40 C.F.R. § 230.12(a)(3).

Where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge that do not involve a discharge to the special aquatic site "are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." 40 C.F.R. § 230.10(a)(3). The FEIS does not come close to providing the necessary information to satisfy these requirements for a 404 permit application.

CUMULATIVE IMPACTS

This section of PEAC's comments focuses on the FEIS' general discussion of cumulative impacts, FEIS 3-429 to 3-460, and its related technical report. Other sections of this comment address other resource specific cumulative impacts issues, such as the significant omissions regarding cumulative impacts in the FEIS' discussion of impacts to threatened salmonid species.

NEPA documents must "provide full and fair discussion of significant environmental impacts." 40 C.F.R. §1502.1. Agencies must "consider every significant aspect of the environmental impact of a proposed action," *Ore. Natural Desert Ass'n v. BLM*, 625 F.3d 1092, 1100 (9th Cir. 2010), which includes the cumulative effects of a proposed action. *See* 40 C.F.R. §1508.25(c)(3). A "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. 40 C.F.R. 1508.7. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id.* A proper consideration of the cumulative impacts of a project requires "some quantified or detailed information; ... [g]eneral statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Ocean Advocates v. U.S. Army Corps*, 361 F.3d 1108, 1128 (9th Cir. 2004)(*amended opinion*, 402 F.3d at 868). The analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects," *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1075 (9th Cir. 2002), and explain "how [] individual impacts might combine or synergistically interact with each other to affect the [] environment." *Klamath-Siskiyou*

Wildlands Ctr. v. BLM, 387 F.3d 989, 997 (9th Cir. 2004). Under NEPA, the federal agencies must to take a "hard look" at significant environmental consequences. *Kern*, 284 F.3d at 1066. "A 'hard look' does not dictate a soft touch or brush-off of negative effects." *Native Ecosystems Council v. USFS*, 428 F.3d 1233, 1241 (9th Cir. 2005).[12]

The Ninth Circuit has underscored the importance of cumulative impact analysis. *See Kern*, 284 F.3d at 1076 (EAs require "adequate consideration of cumulative effects" and must be addressed "fully"). This is particularly true in an EIS, which "more thoroughly than an EA, [explores] the environmental consequences of a proposed action." *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998). The burden on a commentor to demonstrate inadequate cumulative impacts analysis is a low one, *Te-Moak Tribe of Western Shoshone of Nevada v. U.S. Dept. of Interior*, 608 F.3d 592, 605 (9th Cir. 2010), not even requiring that commentor to specify a particular project implicating cumulative impacts. *See, e.g., City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1161 (9th Cir. 1997). PEAC need "show only the potential for cumulative impact." *Te-Moak Tribe*, 608 F.3d at 605.

When PEAC looked for a cumulative effects "analysis" that satisfies the Ninth Circuit case law in the "cumulative effects" section of the FEIS and its "Cumulative Effects Technical Report, " PEAC discovered (quoting Gertrude Stein) that "there is no there there." The FEIS's cumulative impacts "analysis" violates virtually every requirement for such analysis set out in the Ninth Circuit's case law. In this section of the FEIS, FEIS 3-429 to 3-460, the reader finds a series of conclusory assertions about no or limited cumulative impacts. The "analysis" simply

[12] Although a proposed action's impact may be minor, combined actions over time may be significant. 40 C.F.R. § 1508.7. Analysis must address combined or synergistic effects in addition to isolated effects. *See Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 997 (9th Cir. 2004). Analysis must be based on quantified or detailed information rather than vague or general statements about possible effects. *Ocean Advocates v. U.S. Army Corp of Engineers*, 361 F.3d 1108, 1128 (9th Cir. 2004) (*amended by* 402 F.3rd 846 (9th Cir. 2005)).

lists other projects with potential cumulative effects but makes no attempt to analyze or quantify such effects in any way. Other than an occasional general citation to a "technical report", the "analysis" cites nothing to support its repeated conclusory assertions about limited or no cumulative impacts. And when the public goes to the Cumulative Effects technical report, remarkably it is similarly devoid of specific citations to research or other analysis to support its assertions. What is the point of preparing a "technical report" that cites no technical information? This lack of cited support violates the above-cited case law and 40 C.F.R. § 1502.24.

Several statements in the cumulative effects "analysis" merits special attention. This section of the FEIS repeatedly refers to the "CRC project area." *See, e.g.,* FEIS at 3-429. The term is undefined and it is unclear how that area differs from the BIA. The technical report compounds this confusion by using the term "study area." Overall the geographic scope of the cumulative effects analysis is completely unclear. Although the Bradwood LNG proposal is discussed, apparently the CRC staff is unaware that in March of 2011 the Ninth Circuit vacated FERC's license issued to Bradwood. However, another LNG proposal for a terminal on the Columbia River, Oregon LNG, is moving forward and that proposal is not mentioned in the FEIS. The FEIS asserts that tolling will have "no negative impacts" on low-income populations. FEIS at 3-436. That assertion is completely unsupported and is in fact simply outrageous.

Perhaps the single most significant omission from the cumulative impacts discussion is the total failure to mention the impacts from construction activities on aquatic species, including the impacts when construction continues outside the in water work window. Years of in-water work, including substantial periods of work outside the protective in-water work window, will have significant cumulative impacts on aquatic species including all the species of threatened salmon. The analysis also erroneously asserts that the LPA, once constructed, would have the

same adverse impacts on salmon. In fact the LPA would have much larger in-water piers, and would cast a much larger shadow on the river, and would create many more acres of impermeable surfaces and their associated storm water run off. It will be one more large obstacle that migrating salmon must maneuver under and around, and the FEIS fails to discuss how the cumulative impacts of the ever increasing number of such obstacles in the Columbia and Willamette Rivers and how such repeated additions to and degradations of salmon is consistent with the federal agencies' responsibilities under sections 7(a)(1) and (2) of the ESA.

DIRECT IMPACTS—AIR, WATER, AQUATIC SPECIES, and ENVIRONMENTAL JUSTICE/COMMUNITY/PUBLIC HEALTH IMPACTS

WATER QUALITY

The FEIS water quality section, like the water quality section in the DEIS, fails to provide the public with essential basic information about the project.

One of the primary purposes of an environmental impact statement is to "provide full and fair discussion of significant environmental impacts" that "inform[s] decisionmakers and the public."[13] Where an EIS fails to provide basic information about a proposed project that is essential for decisionmakers and the public to make an informed decision about the project, it fails to meet the requirements of NEPA and its implementing regulations. The CRC FEIS has failed to provide important information to the public in a number of circumstances. This puts the burden on the public to seek out relevant information needed to come to conclusions and meaningfully comment on the proposed project.

The FEIS water quality section fails to adequately quantify the total number of acres of impervious surfaces created by the project. On this point, the FEIS continually hides the ball. Exhibit 3.14-4 indicates the amount of pollutant generating impervious surfaces (PGIS) that will

[13] 40 C.F.R. § 1502.1.

be created. The provided estimate of the proposed increase in total impervious (PGIS and non-PGIS) area is approximately 42 acres.[14] However, this estimate does not include all areas that may create impervious surfaces.[15] Further, Exhibit 3.14-4's claim that the untreated PGIS area will drop from 219 acres under the no-build alternative to zero for the LPAs seems to be directly contradicted in the Water Quality and Hydrology Technical Report.[16] These inconsistencies fail to disclose to the public essential information about the actual impacts of the proposed project as required by NEPA.

In addition, the FEIS makes a distinction between the amount of contributing impervious area (CIA) created, which presumably includes PGIS and non-PGIS, and PGIS created. This distinction helps to obscure the total amount of impervious surface created by the proposed project. The distinction is also relevant in considering how much of the runoff from impervious surfaces will be treated before entering receiving waters. Oregon law requires more than just runoff from PGIS be treated, while Washington law limits the required treatment.[17] The FEIS does not clearly resolve whether Oregon standards for treating runoff from impervious surfaces will be met in all areas, or if Washington standards will be applied in some instances.[18]

The FEIS Water Quality and Hydrology Technical Report fails to provide specific citations to relevant sources that support the report's assertions. A general reference section is provided in the technical report and occasionally sources from that reference section are generally cited in the report's text. However, this is not sufficient to allow members of the public to determine when and how sources are used to support the assertions in the FEIS and

[14] FEIS at 3-341 to 3-342.
[15] *See e.g.*, FEIS at 3-341 (not including TriMet's Ruby Junction Maintenance Facility).
[16] Water Quality & Hydrology Technical Report for the FEIS, at 1-13 ("[U]ntreated PGIS would be reduced from the current 219 acres to approximately 8 acres for both LPA options.")
[17] Water Quality & Hydrology Technical Report for the FEIS, at 1-13.
[18] *See id.*

technical reports. Some 42 references are provided for the water quality technical report alone, leaving the public with the onerous task of reading through all the references to determine which might support any given portion of the technical report. Even where general citations are provided, the public is left to read through large reference materials to determine where the reference might provide information pertinent to the technical report. In addition, CRC seems to assume that despite this huge volume of information without specific citations, the public will still have an opportunity to meaningfully comment within a thirty-day comment period. The lack of specific citations serves to hamper the public in trying to meaningfully comment on the proposed project and undermines the NEPA process.

CRC's response to PEAC's water quality comments fails to meet NEPA requirements

PEAC submitted a number of comments addressing water quality issues identified in the DEIS. CEQ regulations require that agencies preparing final environmental impact statements "assess and consider comments" and where a comment does not warrant further agency response, the agency must "[e]xplain why" and cite "sources, authorities or reasons which support the agency's position."[19] Overall, the response to comments indicates that the FEIS is striving to meet the requirements of NEPA. But ultimately it fails for two basic reasons. First, to the extent that responses include updated or further information, that information is helpful, but should have been included in the DEIS. Providing the information in the FEIS indicates that it is available and should be provided to the public in a form that allows them to meaningfully comment on the information. A Supplemental EIS should be prepared to allow the public to adequately address all the new and updated information added to the FEIS. Second, to the extent that the FEIS attempts to equate compliance with other regulations and law as compliance with

[19] 40 C.F.R. § 1503.4(a).

NEPA, it violates NEPA. NEPA requires an independent analysis of impacts. While the underlying regulatory framework is relevant for NEPA purposes, compliance with it does not discharge an agency's duty to conduct a full NEPA analysis. The following discusses specific comments and responses where the FEIS fails to adequately address PEAC's comments related to water quality issues.

Specific inadequate responses:

PEAC pointed out that the DEIS failed to analyze the water quality impacts on the Columbia River, Columbia Slough, and Burnt Bridge Creek. PEAC noted that one alternative had runoff going into the Columbia Slough instead of the Columbia River, despite the fact that the Slough is probably more sensitive to water quality changes. In response, the FEIS states, that "[d]ue to design refinements, diversion of stormwater from the Hayden Island area to the Columbia Slough is no longer needed. Mitigation for stormwater is discussed as stormwater treatment, treatment facilities, and "best management practices" in Section 3.14 of the FEIS.[20] Further:

> Project designs have been refined so that stormwater is no longer diverted from the Hayden Island area to the Columbia Slough watershed. Furthermore, stormwater treatment will need to comply with local, state, and federal regulations which are meant to be protective of the environment. When approved, stormwater runoff would not exceed water quality standards. Please see Chapter 3 (Section 3.14) for updated analysis of stormwater management.[21]

While these comments do clarify that refined project designs will no longer result in Hayden Island area runoff to the Columbia Slough, there is still runoff to the Columbia Slough. Incomprehensibly, the FEIS seems to ignore the possible effects on the Columbia Slough, lumping it together with the Columbia River, and concluding that because "the Columbia River

[20] FEIS Comment Response O-035-012.
[21] FEIS Comment Response O-035-133.

and Columbia Slough are large water bodies . . . the project-related increase in stormwater quantity would not result in a measurable increase of flows in these surface waters."[22] In addition, the response ignores the broader issue. Water quality impacts on the receiving waters are not adequately discussed in the DEIS or FEIS. This is especially true for the Columbia Slough, which is a sensitive waterbody. The FEIS seems to equate the proposed compliance with water quality standards with disclosing impacts from the proposed project under NEPA. This is not sufficient. NEPA requires that agencies discuss direct and indirect effects and their significance.[23] Simply stating that water quality standards will be complied with does not disclose effects.

In another comment PEAC noted that the DEIS did not include any analysis about the specific pollutants in current stormwater discharges, so composition of re-diverted stormwater discharges was unknown. As a result, there is no way for the DEIS to accurately gauge pollutant concentrations and whether discharges will comply with water quality standards and TMDLs for the receiving waters. This is true for both treated and untreated stormwater. In response, the FEIS states:

> All permits and approvals for water quality and ESA would be obtained prior to construction and operation of the proposed project . . . . Construction activities are also regulated under Oregon DEQ and Washington DOE water quality permits. These permits set thresholds for turbidity and other water quality parameters . . . .
>
> The project met regularly with NMFS, USFWS, Oregon DEQ, Washington DOE, EPA, and many other agencies since 2006 to discuss the project and potential impacts. Both NMFS and USFWS concurred with coordinating through the DEIS and then initiating formal consultation after the DEIS. Submittal of a biological assessment occurred in July 2010, with the project receiving a letter of concurrence from USFWS in November 2010 and biological opinion from NMFS in January 2011.[24]

[22] FEIS at 3-343.
[23] 40 C.F.R. § 1502.6.
[24] FEIS Comment Response O-035-058.

As a result, the FEIS concludes that "[t]here is no evidence that complying with these treatment standards will result in a violation of standards under the Clean Water Act."[25] However, that is not the primary issue for NEPA purposes. All relevant laws, federal and state, should be complied with in carrying out the project, but compliance with those laws does not remove the agency's responsibility to prepare an EIS that adequately addresses impacts to the environment in a way that allows the public to meaningfully comment on the proposal. As discussed further below, the FEIS also does not correct the deficiencies noted in the DEIS with respect to pollutant load analysis.

PEAC further noted that the DEIS failed to properly evaluate base level runoff from the I-5 bridge, relying on EPA guidance about "typical" highway runoff. The base level is needed to determine if there is an actual increase in the volume of stormwater discharges from the increase in area of impervious surfaces. In response, the FEIS states:

> The DEIS and the associated Water Quality and Hydrology Technical Report used the WSDOT/FHWA method for evaluating highway runoff. The EPA reference supports that typical highway runoff includes those pollutants listed on 3-381 of the DEIS. The project team notes a reasonable connection between DDE, PCBs, arsenic, and dioxin highway runoff. However, there may be some indirect connection between temperature and total dissolved gas and highway runoff. There is a connection between PAHs in the forms of oils and greases and highway runoff under some situations. The proposed stormwater treatment facilities would treat for pollutants such as these.[26]

This response indicates that the project team is willing to rely on a model that may not accurately represent stormwater conditions on the ground. Further, it fails to address PEAC's concern that without a proper base line, it is impossible to determine whether the proposed project will reduce the harmful effects of stormwater runoff. The response simply assumes that the stormwater treatment facilities will treat for the relevant pollutants and their interactions. As discussed

[25] *Id.*
[26] FEIS Comment Response O-035-130.

further below, the stormwater treatment plan has not yet been finalized or fully provided to the public. Without this information, or information about the base line for current runoff, there is no way for the public to obtain an accurate determination of what, if anything, this project will succeed in doing with regard to stormwater pollution reduction.

In a related comment, PEAC stated that the DEIS must properly analyze the current pollutants in runoff, to accurately determine the environmental impact the build alternatives will have on discharges to receiving waters. Because the DEIS discloses the location of current discharges through road-side grates, obtaining samples from these location would not be difficult. In response, the FEIS concludes:

> The analysis referred to in the comment is not required under current local, state, or federal regulations. Also, although collecting and analyzing stormwater runoff from the I-5 bridge may have resulted in some site-specific and storm-specific data, this data is generally limited unless it is done over many, many sampling periods under different meteorological and traffic conditions. Updated stormwater modeling has been completed and is discussed in Section 3.14 of the FEIS and in the Water Quality and Hydrology Technical Report.[27]

The response is correct that regulations do not require a specific type of sampling analysis. However, again, the response misses the underlying point. There has not been a proper determination of the pollutants currently being discharged in runoff from the I-5 bridge. As a result, it is impossible to determine what effect the proposed project will have on pollution reduction. Further, the response's direction to updated stormwater modeling is not helpful. Even less pollutants are considered in the FEIS than were first considered in the DEIS, with no explanation for this change.

Much of PEAC's concern with the DEIS water quality analysis rests on the assertion that even though there will be an increase in impervious surfaces, creating more runoff, this increase

[27] FEIS Comment Response O-035-131.

is offset by more storm treatment facilities. In response to PEAC's comments concerning the flaws in this assumption, the FEIS states essentially the same thing:

> [A]lthough the total amount of pollutant generating impervious surface would slightly increase for the LPA, the amount of untreated impervious surface would drop dramatically (from 219 acres to 0 acres) compared to existing conditions and the No-Build Alternative. As a result, the LPA is expected to improve water quality in the Columbia River relative to the No-Build Alternative."[28]

However, there is still no base line provided. It remains unclear whether the FEIS assertions are supported.

Further, PEAC noted that because the stormwater collection and treatment system is still not finalized the DEIS cannot accurately report impacts to the public. Generally the delay in analysis of impacts to water quality makes it impossible for the public comment, in violation of NEPA. This delay in making many decisions also puts the resolution of important issues in the Final EIS, when the public can no longer meaningfully comment. In response to this comment, the FEIS states:

> The level of design for alternatives evaluated in the DEIS was conceptual, but provided an understanding of whether and how stormwater could be retained and treated to current standards for each of the alternatives. While the exact location and type of treatment facilities were not finalized prior to the DEIS, the effect on local waterbodies was identified for each of the alternatives. Advancements in design have changed the amount of runoff that would flow into some local watersheds, but this has not significantly changed the impact of this project on water quality and has not affected the ability of the project to meet existing water quality standards. Water quality analysis has been updated for the FEIS, and is included in Chapter 3 (Section 3.14).[29]

This new analysis has been provided only in the FEIS, when the public will not longer have the opportunity to meaningfully comment. Where new information is included, especially information that has a direct bearing on whether the project will effectively avoid environmental

[28] FEIS Comment Response O-035-130; *see also* O-035-132, O-035-134.
[29] FEIS Comment Response O-035-135.

degradation, the public must have an opportunity to review it before a decision is made. A supplemental EIS should be prepared to allow the public this opportunity. The stormwater facilities design is an integral part of the proposed project and bears directly on environmental issues.

PEAC also noted that the DEIS failed to disclose the water quality impacts from stormwater discharges off the 35-38 acres of untreated impervious surfaces under each of the build alternatives. In response the FEIS claims that the DEIS adequately discussed pollutant loading "including impacts from untreated areas."[30] It then concludes that "although the total amount of pollutant generating impervious surface would slightly increase for the LPA, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. As a result, the LPA is expected to improve water quality in the Columbia River relative to the No-Build Alternative."[31]

However, the FEIS still fails to consider increased pollutants from staging sites as part of the analysis for impervious surfaces. Staging sites are not considered as one of the project elements leading to the increase in impervious surfaces.[32] Yet, the FEIS acknowledges that "[s]taging and casting/assembly site activities may increase stormwater runoff over existing conditions and may increase pollutant levels in the runoff."[33] The FEIS simply concludes that "any staging and/or casting site would be required to meet all applicable stormwater requirements. All necessary permits would be secured prior to site development and operations for any major staging or casting yard."[34] This does not disclose the effects from staging site

[30] FEIS Comment Response O-035-134.
[31] *Id.*
[32] FEIS Exhibit 3.14-5 at 3-343.
[33] FEIS at 3-348.
[34] *Id.*

impervious surfaces, and does not provide an explanation for why these sites are not included in the analysis of impervious surfaces created. Overall, the FEIS readily admits direct impacts to waterways, however the FEIS also claims there will be no impacts to waterways. These statements conflict and show a lack of ground and surface water modeling to limit adverse impacts to natural resources.

PEAC commented that the DEIS fails to adequately analyze the effects of project construction on water quality standards. In response, the FEIS directs attention to "Chapter 3 (Sections 3.15 and 3.18) of the FEIS for the mitigation measures developed to avoid and minimize the impacts listed. Impacts that cannot be avoided must be minimized. The existence of potential impacts related to sediments and contaminants do not automatically mean that water quality standards would be exceeded if such impacts are not measurable. Construction activities will require the approval of the Washington State Department of Ecology and Oregon DEQ through a water quality certification and NPDES 1200-CA permit, limiting water quality impacts and imposing appropriate impact avoidance and minimization measures."[35] This does not adequately address the issue because, as this response admits, impacts related to sediments and contaminants during construction may affect water quality, and there is no measurement of those impacts. Just saying that such effects will not "automatically" violate water quality standards is not sufficient. There is no showing in the FEIS whether water quality standards will be violated or not violated. Further, water quality standards are not the only measure of impacts to the environment that may be relevant.

One of PEAC's comments focused on the water quality mitigation section of the DEIS, which was wholly inadequate. There was no listing of best management practices or any details.

[35] FEIS Comment Response O-035-137.

The section simply provided conclusory statements. In response, the FEIS indicates that the water quality analysis and discussion has been updated, and now includes best management practices.[36] Further, "[t]he development of stormwater treatment systems that meet the standards of local and state jurisdictions, plus those of WSDOT and ODOT, includes rigorous review by those agencies and others."[37]

The inclusion of best management practices is an improvement, however, as with much of the water quality analysis, it should have been included in the DEIS to allow the public to meaningfully comment. Further, relying on the scrutiny of other agencies in their functions as regulators of stormwater runoff is not adequate for NEPA purposes. As stated earlier, it is certainly important that all relevant regulations and laws be complied with by the proposed project. However, NEPA imposes a separate obligation to consider and analyze impacts to the environment. The regulatory framework in place is certainly part of that consideration[38], but compliance with regulation in and of itself does not meet the requirements of NEPA. Other impacts may not be addressed by regulations, and regulations may be focused on only eliminating certain impacts but not others. An EIS must address all direct and indirect effects and their significance.[39]

The FEIS does not satisfy the requirements of NEPA and a Supplemental EIS should be prepared.

The FEIS still fails to provide a base line level of stormwater runoff volume and pollutant loads.

The FEIS continues to emphasize that the no-build alternative will have a worse effect on water quality than the locally preferred alternatives (LPAs). The FEIS states:

[36] FEIS Comment Response O-035-138.
[37] *Id.*
[38] 40 C.F.R. § 1502.16(c).
[39] 40 C.F.R. § 1502.16.

> "The No-Build Alternative would adversely affect the quality of receiving waters in the long-term. Pollutant-loading of project waterways is currently influenced by a high percentage of untreated stormwater across the project corridor. If the LPA were not constructed this stormwater would likely remain untreated. Refer to Section 4.3 for further detail. The No-Build Alternative would not increase impervious surface and therefore, not increase stormwater volumes. However, average daily traffic (ADT) would increase with the No-Build Alternative and pollutant loads and concentrations would increase, though quantification is not possible. Yet, as previously stated, the majority of the stormwater would remain untreated."[40]

However, the assertion that the no build alternative will result in worse water quality is not supported by sufficient evidence. No base line has been established for the current volume and pollutant loads of stormwater runoff from the I-5 Bridge. Thus, it is impossible to conclude, from the information provided in the FEIS, that the LPAs will result in better water quality than the no build alternative.

In addition, the conclusion that the stormwater treatment plan will address the increased acreage of impervious surfaces and the relevant pollutants is not supported by the information in the FEIS. The FEIS has not accounted for all the stormwater runoff that will be created due to increase in impervious surfaces. For example, "no options have been identified to treat runoff from about 7.1 acres of new and resurfaced I-5 impervious surface immediately north of Victory Boulevard."[41]

Further, the FEIS seems to indicate that actually not all of the acres of contributing impervious area (CIA) will end up being treated. "The total CIA for the project is estimated to be 298 acres."[42] In reviewing the technical report on pages 1-17 and 1-18, if one adds up the number of acres that stormwater treatment facilities will cover in both Washington and Oregon, only 216 total acres will be treated. Because the public is not given information to establish how

[40] Water Quality & Hydrology Technical Report for the FEIS, at 1-12.
[41] Water Quality & Hydrology Technical Report for the FEIS, at 1-17.
[42] Water Quality & Hydrology Technical Report for the FEIS, at 2-2.

much pollution is likely to result from these 82 acres of untreated runoff, it is impossible to say how much of an effect this may have on water quality.

There are still many aspects of the project that require further analysis.

The DEIS delayed the full consideration of many integral project components until the FEIS. Thus, the public is presented with brand new and updated information in the FEIS. This does not allow the public to meaningfully comment on this new information. A supplemental EIS should be prepared to give the public this opportunity. In addition, in some cases the analysis that was delayed until the FEIS still has not been completed.

The Stormwater treatment facility design is still not finalized.

The FEIS fully admits that the final stormwater treatment design is still not complete. In the Water Quality and Hydrology section summary, the FEIS states:

> This section also discusses a conceptual stormwater treatment design for the LPA that has been developed for analysis purposes and to advance discussions with agencies on regulatory approvals. This design meets regulatory criteria. Agency coordination will continue through the development of the final stormwater design, to be completed as part of future permitting.[43]

The FEIS concludes that the "design of the stormwater collection and treatment system will be further developed, refined and analyzed after the ROD as part of the final project design."[44] This delay in allowing the public access to such a crucial component of the overall project is unacceptable. The FEIS continues to rely on the stormwater collection and treatment system as a cure all in the water quality context. Over and over the FEIS relies on the stormwater treatment system to gloss over the increased volume of stormwater runoff that will result from the creation of acres of new impervious surfaces, and in explaining away possible effects from pollution in the runoff. Yet, the actual stormwater treatment system design has not been finalized. This

[43] FEIS at 3-333.
[44] FEIS at 3-350.

provides no assurance that the stormwater treatment system will actually provide the benefits the FEIS asserts, and calls into question the entire water quality analysis.

The FEIS improperly puts off flood plain evaluations.

Executive Order 11988 and local and state regulations require more detailed analysis of floodplain impacts, including a no-rise analysis, prior to project approval.[45] The LPAs involve new bridge piers within the Columbia River. Thus, there is "the potential long-term impact of a rise in the flood elevation."[46] The FEIS delays consideration of this impact, indicating that it "would be addressed in a later design phase by conducting a flood-rise analysis."[47] If the flood-rise is later found to exceed that allowed, "the rise would be mitigated through floodplain excavation (cut/fill balance) activities."[48] This suggests that not only is the FEIS waiting to determine if future action will need to be taken, but that it fails to consider this future action as part of the indirect effects of the proposed project. Further excavation might be required to deal with a flood-rise that exceeds the allowed levels, resulting in churned up sediments and turbidity increases. However, the analysis of these impacts is not included in the FEIS and is delayed to some future time "prior to permitting" when the public will no longer be able to consider the effects as part of the proposed project.[49]

Pollutant loads are not properly analyzed to ensure that water quality standards and Total Maximum Daily Load (TMDL) allocations will be met.

The FEIS states that water quality limited waterways "may" be addressed through permitting, but does not adequately analyze impacts to water quality. For example, "[t]here may

[45] FEIS at 3-344.
[46] Water Quality & Hydrology Technical Report for the FEIS, at 6-1.
[47] *Id.*
[48] *Id.*
[49] FEIS at 3-344.

be special runoff control requirements [during construction] to address the 303(d) listings of each of the waterways in the project area."[50] Such statements do not adequately address pollutant loads and impacts associated with the proposed project. Relying on permitting compliance does not comply with NEPA because it fails to address all the potential impacts from pollutants. Permits do not limit all relevant pollutants. As a result, there may be impacts to water quality even where permits are complied with. These impacts must be disclosed in a NEPA analysis.

The FEIS reduces the number of pollutants considered as compared to the DEIS, without explanation. The FEIS no longer considers Total phosphorus in its consideration of annual pollutant load estimates.[51] However, both the Columbia Slough and Fairview Creek have TMDLs established for Eutrophication (pH, dissolved oxygen, phosphorus, and chlorophyll *a*), which includes phosphorus.[52] By not even considering the pollutants for which the receiving waters are water quality limited, the FEIS fails to adequately ensure that water quality standards will be met. In addition, the FEIS fails to accurately report the extent to which receiving waters are water quality limited. FEIS Exhibit 3.14-3 lists Burnt Ridge Creek as not having an established TMDL. However, while technically correct, the creek is currently under TMDL study to determine what needs to be done to improve failed water quality standards. The Washington State Department of Ecology has been gathering data for the past two years and this should be ignored. The FEIS should provide the public with this relevant background information. NEPA regulations require that an EIS provide a "full and fair discussion" of environmental impacts.[53]

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[50] FEIS at 3-345.
[51] FEIS at 3-307; compare DEIS at 3-386.
[52] Water Quality & Hydrology Technical Report for the FEIS, at exhibit 4-2, 4-4 to 4-5 & exhibit 1-3 at 1-11.
[53] 40 C.F.R. § 1502.1.

The technical report further admits that not all relevant pollutants are being analyzed. For example, in the Columbia Slough Basin analysis the technical report states that the analysis "does not include estimates for fecal coliform and lead" because "it is not clear whether these pollutants, for which there are TMDLs, would be reduced through the construction of the LPA."[54] The report goes on to conclude, however, that "with the addition of stormwater treatment and evidence that shows reduction of several pollutants, it is not likely that there would be a substantial increase in these pollutants and the LPA may actually result in a decrease of these pollutants."[55] There is no evidence that these pollutants will be decreased, or that the proposed stormwater treatment will have any impact on these specific pollutants. Further, the FEIS admits that "[p]ollutants from roadways typically include fuel, oil, grease, and other automotive fluids; heavy metals such as copper and zinc; and small particles from erosion or road sanding which can temporarily make waterways more turbid (cloudy)."[56] However, not even all these "typical" pollutants are considered and analyzed in discussing effects to water quality. Failing to analyze relevant pollutants, especially for which the receiving waters are water quality limited, does not promote confidence in the FEIS analysis of water quality impacts and does not satisfy the requirements of NEPA.

The FEIS also fails to provide support, even in the technical report, for assertions that riparian shading does not really affect water temperature in the Columbia River. The report states:

> "No TMDL has been established for any pollutant associated with highway runoff. However, the Columbia River in the project area is 303(d) listed for temperature. The project would remove approximately 250 feet of vegetation along the north and south

[54] Water Quality & Hydrology Technical Report for the FEIS, at 4-8.
[55] *Id.*
[56] FEIS at 3-333.

> shorelines of the river in the vicinity of the new bridge structure and along the north and south shorelines of Hayden Island. Yet, this would not have a significant on the Columbia River water temperatures due to the large size of the river and the very minor role riparian vegetation plays on cooling water temperatures along the river currently."[57]

Thus, despite the FEIS' recognition that the Columbia River is water quality limited for temperature, among other pollutants,[58] it merely concludes, without citing any support for its assertion, that temperature will not be significantly affected by the proposed project.

Finally, the FEIS asserts that "[t]here are no known records of contaminated sediments in the Columbia River portion of the project area."[59] As a result, the FEIS assumes no re-suspension of pollutants in these sediments.[60] However, the Boise Cascade property within the project footprint (slated for shoreline redevelopment) was a former Superfund site. In addition, there is a scrap metal processing station immediately adjacent to the current bridge with considerable permit violations, including PCBs and other volatiles. The FEIS does not seem to have adequately researched potential contaminants in the area. This question has been raised several times with regard to mobilization of sediment into Vancouver Lake's flushing channel downstream, which is a closed system. Pollutants entering Vancouver Lake would not be flushed back out. Yet, there is no coordination planned to operate the flushing gates to prevent sediment or pollutant transport into the Lake during pile driving operations or other sediment disturbing activities.

The FEIS improperly limits consideration of the alternatives.

The FEIS only evaluates and provides updated analysis of water quality issues for the no build and locally preferred alternatives (LPAs). The FEIS states that Section 6002 of

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[57] *Id.*
[58] The Columbia River is water quality limited for Toxics, Eutrophication, and temperature, with TMDLs set for Dioxin and Total Dissolved Gas. FEIS Exhibit 3.14-3.
[59] FEIS at 3-346.
[60] *Id.*

SAFETEA-LU [23 USC 139(f)(4)(D)], allows for this narrowing of analysis "to facilitate development of mitigation measures and compliance with other environmental laws."[61] However, 23 U.S.C. § 139(f)(4)(D) goes on to state that this more focused analysis should only occur "if the lead agency determines that the development of such higher level of detail will not prevent the lead agency from making an impartial decision as to whether to accept another alternative which is being considered in the environmental review process." In addition, U.S. Dept. of Transportation Guidance on the issue states, "Under any scenario, a non-Federal lead agency proposing to develop the preferred alternative to a higher level of detail should state why it needs the greater design detail and why such work will not prejudice the consideration of alternatives."[62] In the context of the CRC FEIS, there are two problems with allowing the FEIS to only update the analysis for the no build alternative and LPAs. First, because there was not sufficient analysis of the alternatives in the DEIS, it is important that all the alternatives be developed completely in an FEIS, and where appropriate, a Supplemental EIS. Second, the FEIS

[61] FEIS at 3-334.

[62] UDOT SAFETEA-LU Environmental Review Process (Public Law 109-59) -FINAL GUIDANCE, 29 (November 15, 2006), *available at* http://www.fhwa.dot.gov/hep/section6002/index.htm, states "Under any scenario, a non-Federal lead agency proposing to develop the preferred alternative to a higher level of detail should state why it needs the greater design detail and why such work will not prejudice the consideration of alternatives. All lead agencies should evaluate carefully any proposal to develop a preferred alternative to a higher level of detail and consider the potential that such action has for creating a bias in the later consideration of alternatives and selection of the project alternative. The evaluation also should consider other factors that may affect the environmental review process. Examples of such factors include whether the identification of a preferred alternative might have an unacceptably adverse effect on public confidence in the environmental review process for the project; whether that adverse effect on public confidence could be avoided by delaying the differential treatment of alternatives until a later point in the environmental review process; how the difference in level of detail among the alternatives might affect the presentation of the alternatives in the environmental documents; or the extent to which the proposed preferred alternative is supported by the results of public and participating agency involvement."

has not explained why only the LPAs should be developed to a higher level, or why that updated analysis will not result in prejudicing the consideration of the other alternatives.

The alternatives analysis of the new information needs to be more fully developed.

The FEIS fails to fully consider alternatives as required by NEPA. By only providing an analysis of the LPA, along with the conclusory statement that most of the new information did not warrant updating analysis of the non-preferred alternatives,[63] the FEIS ignores the import of the alternatives analysis, which NEPA regulations describe, "as the 'heart' of the EIS."[64]

Further, even if *most* of the new information does not warrant analysis, if any new information demonstrates a substantial impact to the projected environmental effects of a non-preferred alternatives, CRC Project staff must disclose such information. This disclosure is pertinent to the process of public commenting and transparency. For example, "the conceptual stormwater treatment design used in the DEIS to analyze Alternatives 2 through 5 was updated for this FEIS, and since publication of the DEIS a more precise understanding of the project footprint and stormwater basins has been developed. If Alternatives 2 through 5 were reanalyzed using the updated stormwater design, they would provide water quality improvements similar to the LPA."[65] However, the other alternatives were not reanalyzed, so the public has no way to determine what "similar" water quality improvements might entail.

PEAC requests that the CRC Project staff perform a supplemental analysis in light of the new information for the non-preferred alternatives to adequately fulfill the obligation under NEPA of fully analyzing alternatives. Under NEPA, agencies must prepare supplemental EISs where there is "significant new circumstances or information relevant to environmental concerns

[63] FEIS at 3-334.
[64] *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1120 (9th Cir. 2002) (abrogated on other grounds by *Wilderness Soc. V. USFS*, 630 F.3d 1173 (9th Cir. 2011).
[65] FEIS at 3-340.

and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9. The FEIS provides significant new information further developing the LPAs and bearing directly on water quality and other environmental issues.

Under USDOT Guidance documents, the FEIS must ensure that considering some alternatives in more detail will not prejudice the final consideration of the other alternatives.

Under USDOT guidance documents, the lead agencies of a proposed project "should evaluate carefully any proposal to develop a preferred alternative to a higher level of detail and consider the potential that such action has for creating a bias in the later consideration of alternatives and selection of the project alternative."[66] Further, other factors should be considered that may affect the environmental review process more generally. For example, the agencies should evaluate "whether the identification of a preferred alternative might have an unacceptably adverse effect on public confidence in the environmental review process for the project; whether that adverse effect on public confidence could be avoided by delaying the differential treatment of alternatives until a later point in the environmental review process; how the difference in level of detail among the alternatives might affect the presentation of the alternatives in the environmental documents; or the extent to which the proposed preferred alternative is supported by the results of public and participating agency involvement."[67]

Here, the FEIS fails to consider, or at the very least explain its consideration, of these factors. There is no indication that the FEIS considered whether bias would result by only further developing the LPAs' analyses. Further, there is no indication that the public perception of these alternatives was considered, given the overwhelming focus just on the LPAs in the

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66 UDOT SAFETEA-LU Environmental Review Process (Public Law 109-59) -FINAL GUIDANCE, 29 (November 15, 2006), *available at* http://www.fhwa.dot.gov/hep/section6002/index.htm.

[67] *Id.*

FEIS. This is inconsistent with USDOT guidance. If the FEIS intends to rely on 23 U.S.C. § 139(f)(4)(D) to allow it to duck its responsibility to consider all alternatives in the FEIS, then the FEIS should at least comply with USDOT guidance documents dealing specifically with 23 U.S.C. § 139(f)(4)(D) requirements. The FEIS must explain why further consideration of the other alternatives is not warranted, and ensure that this result will not prejudice the overall environmental analysis.

The FEIS fails to describe how mitigation efforts will reduce impacts to the water bodies.

NEPA requires that an agency include a discussion of mitigation measures in an environmental impact statement.[68] Incorporation of detailed mitigation strategies are required by law. The Supreme Court does not allow for the omission of details regarding mitigation strategies:

> Omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.[69]

The section concerning potential mitigation measures for adverse effects to water quality is wholly inadequate. The Water Quality and Hydrology Technical Report does not sufficiently disclose what mitigation measures will be imposed to prevent a significant environmental impact. The Report states that, "hydraulic analysis and a flood-rise analysis for the Columbia River structures would be conducted to ensure that there are no adverse effects of the project to the Columbia River's hydrologic regime."[70] This perfunctory description of mitigation measures and referencing future analyses in the FEIS is inconsistent with the "hard look" the CRC project

[68] 40 C.F.R. §§ 1502.14(f), 1502.16(h).
[69] *Methow Valley,* 490 U.S. at 352.
[70] Water Quality and Hydrology Technical Report for the Final Environmental Impact Statement at 1-16.

staff are required to render under NEPA. Mitigation must be "in sufficient detail to ensure that environmental consequences have been fairly evaluated."[71]

Specifically, because Burnt Bridge Creek and Fairview Creek are more prone to be affected by increased impervious surfaces, it is essential that the FEIS disclose how mitigation will be implemented. Stating broadly that "[e]ngineered water quality facilities would be designed to reduce the rate of runoff," does not sufficiently fulfill the obligation to provide mitigation strategies as required by NEPA.[72] In addition, the FEIS states that much of the proposed mitigation is contingent on third party approval.[73] This fails to ensure that even the mitigation that has been disclosed in the FEIS will actually occur, or that the actual mitigation will be comparable to what is discussed in the FEIS.

The CRC Project Staff should prepare a Supplemental Environmental Impact Statement describing in detail the mitigation strategies to be employed. All major federal action should be halted until the hydraulic analysis and a flood-rise analysis for the Columbia River structures are performed. After incorporating the findings of these analyses, and the required comment period for the proposed SEIS, the public will be adequately informed, allowing for all of the environmental consequences to be fairly evaluated as required by law.[74]

The Long-term Effects section fails to provide adequate information.

The FEIS needs to describe what significant environmental impacts will occur as predicted by modeling. The FEIS should describe what the change in water quality will be for

[71] *Methow Valley*, 490 U.S. at 352.
[72] FEIS at 3-343.
[73] FEIS at 3-345 ("The LPA would not be constructed until state, federal, and local agencies approve the proposed impact minimization and mitigation methods.").
[74] *Methow Valley*, 490 U.S. at 352.

each water body involved, not just provide a determination that addition of pollutants will increase or decrease slightly.

Exhibit 3.14-4[75] does not adequately demonstrate to the public what environmental impacts may occur from all possible pollutant additions.

The FEIS states that total suspended solids and other pollutants entering the project waterways would decrease substantially in the main project area as a result of the construction of the LPA as shown in Exhibit 3.14-4. But exhibit 3.14-4 only addresses TSS, dissolved copper, and dissolved zinc. Inclusion of other pollutants in this analysis should be required. Due to sensitive habitats in the area, additions of other pollutants such as lead and phosphorus can have a significant impact to the environment and should be analyzed. The FEIS fails to provide this information.

The assumed stormwater treatment does not address long-term effects.

The FEIS states that under the LPA, "stormwater runoff from all existing, new or reconstructed impervious surface area within the CIA would be treated, while stormwater runoff from most of the existing PGIS does not currently undergo stormwater treatment."[76] The FEIS seems to describe stormwater treatment as the development of very large stormwater retention ponds, some surrounding the Rosemere neighborhood. Large bodies of standing water adjacent to residential areas is not healthy, and could result in mosquito problems. Rosemere has submitted various comments that groundwater mounding in the area has resulted in toxic buildup, and further injection or standing stormwater treatment ponds could contribute to the degradation of the creek as well as additional mounding. Yet, the FEIS includes mention of

[75] FEIS at 3-341.
[76] FEIS at 3-340.

injection. This fails to address the possible long-term effects of the proposed stormwater treatment and the concerns of the Rosemere neighborhood.

Analysis of the new and rebuilt impervious surfaces fails to analyze impacts under each of the non-preferred alternatives.

Exhibit 3.14-5 does not include information for all of the build alternatives. It is essential that the public can understand what the alternatives of the proposed action are, and what the differences are. This failure to provide analysis for each alternative frustrates the public's ability to understand the alternatives and their differences.

The FEIS fails to describe why the CRC Project staff is willing to accept environmental degradation as an option.

All federal action should consider impacts to the environment a significant factor in determining what projects to undertake. This FEIS demonstrates a possibility of pollutant loads increasing: "The Columbia Slough drainage . . . may experience a slight increase in dissolved copper under LPA Options A and B (0.01 to 0.02 pounds per year)."[77] At high concentrations, copper is acutely lethal to fish. Dissolved copper is a potent inhibitor of olfactory function in juvenile Coho salmon.[78]

The FEIS needs to more thoroughly analyze the impact of the proposed action to assess possible environmental harm. The FEIS needs to explain why the CRC Project staff is willing to allow increases in pollutants that may harm the Coho. As explained above, projected pollutant loads for each waterway should be included for all relevant pollutants. Even if the FEIS concludes that the loads are only slight, disclosure is still required. Slight changes to the chemistry of the water may have a significant impact. For example, the FEIS acknowledges that

[77] FEIS at 3-341.
[78] Baldwin, D.H., et al. *Sublethal effects of copper on coho salmon: impacts on overlapping receptor pathways in the peripheral olfactory nervous system.* Environmental Toxicology and Chemistry 22 (2003): 2266-2274.

the Columbia Slough does not meet Oregon State water quality standards for temperature, iron and manganese, and deicing materials that contribute to low levels of dissolved oxygen.[79] The FEIS needs to provide reasons why the staff is willing to allow environmental degradation as part of the project.

The FEIS needs to present the overall impact of the project as it relates to its existence in a dynamic ecosystem, and not just limit its disclosures to positively described outcomes and references to broad mitigation strategies.

The FEIS fails to summarize the actual amount of the total impervious area. In Exhibit 3.14.4, the FEIS demonstrates that the amount of impervious surface will increase due to the adoption of the LPA[80], but fails to explain why the Ruby Junction facility was not included in the exhibit. This is an area that will expand PGIS and the additions to this facility are within the scope of the project. The increase in impervious surface warrants full disclosure regarding impervious surface changes and the resulting impacts.

The Indirect Effects analysis does not adequately evaluate the current conditions of the water bodies. In the Indirect Effects section, the FEIS states that because all development that comes out of this project must comply with existing stormwater treatment regulations, the impacts to existing resources would be negligible.[81] However, regulations do not eliminate all pollutants; rather they decrease the amount that will impact the environment compared to if there was no mitigation at all. A large increase in pollutants in stormwater that has been treated could lead to a net increase of pollutants in waterways as compared to no build options. The FEIS needs to take into account illegal pollution and failures by other entities that may violate their

[79] FEIS at 3-337
[80] FEIS at 3-343.
[81] FEIS at 3-344.

permits, adding to the level of pollutants in the water bodies. Such an approach better complies with the protective measures that the Clean Water Act supports.[82]

The FEIS should disclose what the likelihood of certain pollutant loads will be. By stating that, "decreasing traffic congestion . . . *may* consequently reduce the amount of copper and other traffic-related pollutants currently carried by corridor stormwater runoff," the FEIS does not actually disclose the results of studies, but couches it in vague terms with the use of the qualifier *may*.[83] Such ambiguity prevents the public from being able to comment in an informed fashion.

The Hydrology analysis fails to aggregate effects.

The FEIS does not take into account other projects that may be occurring on the Columbia River. The cumulative impact of all projects could have a substantial effect on the water quality and hydrology of the water bodies. Cumulative impact, under NEPA, is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions."[84] In addition, "[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[85] The FEIS improperly limits its cumulative impacts analysis to projects in the immediate project area rather than the watershed as a whole. In addition, the cumulative impacts analysis merely concludes that the "combination of impacts from the CRC project, regulations, and other foreseeable actions is likely to result in water

[82] 33 U.S.C. §1251.
[83] FEIS at 3-342.
[84] 40 C.F.R. § 1508.7.
[85] *Id.*

quality improvements relative to existing conditions" without analyzing the full range of cumulative impacts.[86]

The FEIS fails to adequately address impacts to Wetlands and Jurisdictional Waters.

Stormwater and other impacts are not adequately considered.

The FEIS states that "[n]o project construction will occur in the Columbia Slough, Burnt Bridge Creek, or Fairview Creek waterways."[87] However, this is a false statement. The I-5 Corridor abuts the project footprint, and will be directly impacted by construction activities, including the development of stormwater treatment facilities, groundwater injection systems, and outfalls. Best Management Practices need to be implemented to diminish adverse impacts to natural resources.

Further, wetland buffers should not be ignored in analyzing impacts to wetlands. The FEIS states:

> The LPA project footprint would not encroach upon any delineated wetlands. However, the LPA footprint would encroach upon three wetland buffers: Victory Interchange (0.01 acre for LPA Option A and 0.05 acre for LPA Option B), Kiggins Bowl (0.3 acre), and Burnt Bridge Creek (0. 1 acre).[88]

Stormwater impacts have not been identified relative to wetland buffers. This means that the FEIS essentially conflicts itself, finding no impact to wetlands although buffer areas will be effected. The FEIS must disclose stormwater impacts on these sensitive areas, which are likely to affect the wetlands themselves.

[86] FEIS at 3-457.
[87] FEIS at 3-360.
[88] FEIS at 3-363.

In addition, the FEIS states that "new impervious surface would not discharge untreated stormwater runoff into the wetlands, and the wildlife activities that may be impacted are already negatively affected by the urbanized environment."[89] However, impervious surface would not be sufficient to prevent all discharge to wetlands, especially near the SR500 interchange where multiple retention ponds are being planned. There is insufficient documentation to quantify the intense amount of stormwater that will be mobilized. To imply that Burnt Bridge Creek and its surrounding habitat is already doomed because of existing contamination is irresponsible, and undermines Washington State Department of Ecology's current program to establish a TMDL to remedy failed water quality standards for this urban stream. Taking the approach that new construction can't make anything worse is negligent.

The FEIS also admits that "[a]s with the existing bridge piers, replacement bridge piers in the Columbia River for the LPA may result in long-term impacts to aquatic species, including protected fish species."[90] However, there does not appear to be any discussion on how CRC plans to mitigate potential impacts to ESA species, including fish migration windows, turbidity control, and impacts from mobilized contaminants. Rosemere requested information from archives relative to the design and build of the Glen Jackson bridge, and CRC responded that no such records existed to cross compare construction impacts.

The FEIS concludes that "[t]he development and use of any of the staging and casting sites would meet all applicable stormwater requirements during and following utilization of the sites."[91] However, the FEIS has not identified which stormwater regulations are required, and

[89] FEIS at 3-363.
[90] FEIS at 3-364.
[91] FEIS at 3-366.

does not seem to be following NPDES mandates relative to flow control or MS4 usage piggybacking on other jurisdictional permits. Washington State requires flow control for all MS4 NPDES permittees. The CRC project will be using existing MS4 facilities within the City of Vancouver. Flow control is required per state law to all waters of the state, including the Columbia River. Yet, the FEIS states that flow control is not required for discharges to the Columbia Slough, North Portland Harbor, or the Columbia River.[92] It is in error to say that MS4 outflows are exempt from flow control standards. NPDES activities also have a direct correlation to ESA impacts, and such construction activity could result in a "taking" of protected fish habitat that would require remediation. There does not appear to be an analysis of these impacts involving NMFS, though it is acknowledged in passing.

Mitigation is not adequately addressed.

The CRC project must demonstrate how resources within the environmental overlay zones will be avoided and impacts will be minimized to the maximum extent possible; unavoidable impacts will require mitigation. This analysis is absent from the FEIS where it is required. Mitigation and avoidance under AKART is not included. This is a violation of NEPA mandates, and does not meet the standards of basic stormwater management requirements as prescribed by the Washington State Pollution Control Hearings Board. CRC's view that it cannot be penalized and held responsible for pre-existing conditions is a tactic to avoid compliance with current construction standards at the state level as well.

The mitigation site plan must demonstrate that the mitigation will replace all of the resources and functions affected and that a suitable mitigation site is owned by the applicant. It

[92] FEIS at 3-341.

appears that CRC's intent is to pillage in the existing construction footprint with the expectation that all will be forgiven by investing in a wetland bank. This should not be allowed. The FEIS states:

> The compensatory mitigation ultimately selected will be based on a functional assessment of adverse effects and replacement of equivalent functional value. The project mitigation will provide meaningful improvement in the size, amount, distribution, and quality of habitats relative to that which existed prior to implementation of the CRC project."[93]

This implies that CRC will establish its own standards on how it will determine where and when to employ mitigation work. Standards require mitigation be employed in the same kind of habitat under the same environmental conditions to ensure equal compensation, and CRC has not conducted area wide surveys to categorize habitat types that will be impacted, nor have they analyzed how the habitats will be valued per jurisdiction. Mitigation should be required within the same watershed at the subwatershed level, not at some distant undisclosed location, and the acre per acre ration is absent from the description. There is a passing mention of the "no net loss" scenario, but water flows in natural streams have not been identified to determine what "no net loss" is in actual terms, including those waterways listed for impairments. There are vague ratios provided for open water issues, but not for habitat issues, riparian buffers, or wetlands. CRC has identified an undisclosed Lewis River mitigation area, but this is at the opposite end of the county. The Columbia River in Vancouver is being affected, and the Lewis River mitigation idea is far too removed to be of any good to the impacted area.

The Troutdale Sole Source Aquifer Technical Report is outdated and insufficient, rendering those sections that rely on it inadequate.

[93] FEIS at 3-367.

Rosemere hit the high points of concern about the sole source report with comments submitted last year.[94] The concerns raised by Rosemere have been ignored, though they have

[94] The comments noted herein do not represent all of Rosemere's concerns, but begin to address substantial issues:
1) First, the report focuses on construction related impacts, and CRC appears to justify this focus as something specifically requested by EPA's July 2008 letter. We view EPA's letter more as a request for detailed groundwater characterization and discussion of potential impacts on the groundwater in the project area. This is not what CRC provided.
2) Long term impacts and benefits from storm water management should be evaluated – CRC only provides one paragraph. Currently, little stormwater is infiltrated in the project footprint (primarily in areas that will be added to the impervious surface). After build-out, a substantial proportion of the storm water will be infiltrated. Benefits of this are groundwater recharge. Impacts could be mobilization of on/off- site contaminants caused by a higher water table and/or changes in groundwater flow direction and rate caused by infiltration created groundwater mounds. There are noted groundwater mounds, some of which are known to be contaminated, within the Burnt Bridge Creek Basin. This is in addition to possible introduction of contaminants due to inadequate stormwater treatment.
3) The hydrogeologic characterization seems incomplete and general. Site specific detail is lacking which is important for a several mile long area which is likely to have local variations that could be affected by the planned focused infiltration of groundwater. Specifically, CRC only provides an outdated and very general groundwater contour map. They do provide a detailed depth to groundwater map taken form Clark Co GIS although this is again is outdated from 1995. Instead, calculations should have been included to subtract the topography and provide a detailed groundwater elevation map. An additional source could be the referenced groundwater model. The model should have been compared to actual groundwater levels to validate it's accuracy so both measured and modeled representation of the groundwater contours should be available. This is important because the description of groundwater flow is very general without this level of detail. Flow rate is not discussed, except in reference to modeled travel times to wells (1 to 5 years, very short). CRC should employ their own model and run their own groundwater mobility scenarios.
4) The characterization of Burnt Bridge Creek is questionable, and this is important because it defines the northern area of the project. The report states the creek is underlain by low permeability conditions because groundwater levels are lower to the south, but there is no evidence provided to qualify this statement. At a minimum, boring logs (along I-5) should be provided as well as detailed groundwater contours. It is just as likely that the lower groundwater levels to the south are caused by pumping at WS-3 and the lower topography than an undocumented lithologic change. Therefore, additional characterization is needed to clear this up.
5) There is an indication that stormwater cannot be treated and infiltrated from the area between Mill Plain Blvd. and Fourth Plain Blvd. because the storm drain is too deep. There should be a better answer to this problem than the mere claim that infiltration cannot be achieved, and more effort needs to be made to find an appropriate resolution to this problem.
6) The city of Vancouver's local CARA ordinance is mentioned, but there does not seem to be a

technical merit, and EPA does not appear to be seeking answers. Because the FEIS chapters on Water Quality and Hydrology and Geology and Soils seem to replicate the Troutdale Sole Source Aquifer Technical report almost verbatim, these comments pertain to the noted chapters as well.

The Sole Source Aquifer Technical Report is clearly out of date and lacks sufficient detail in the designated protected area. Several years of drilling have occurred which should give much more detail to the lithologic model. CRC project staff has had plenty of time to gather water level data, analyze this data and present a clearer understanding of ground water flow. The Ground Water remediation efforts at the Swan Manufacturing site should be revisited now that they have a couple years of operational data. This should include recalibrating the CRC groundwater model, but it does not. The Swan manufacturing site is being treated under supervision of the Washington State Department of Ecology, so there should be better data available for CRC to use – however CRC's FEIS fails to identify existing baseline studies for consistent analysis.

Further, the reports do not address the currently proposed project – there is a new alignment over the river, a different design implemented, and the SR500 interchange has been removed. There are various blanket statements that are not specific enough to address the noted changes in design. The statement that finer grained material at Burnt Bridge Creek reduces

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plan to engage with the City of Vancouver on this subject. Since the CARA ordinance states that all infiltrated stormwater will enter drinking water wells in less than 5 years, it seems like Vancouver should be directly involved. Vancouver might want to engage on is integration of stormwater improvements in the surrounding area with the CRC project. CRC seems to be strictly isolating itself form it's surroundings where integration might serve the community well, including enhancing recharge of city well fields. After construction such improvements may be impossible. Collaboration is needed here, not isolation.

7) The referenced groundwater model is interesting, but one figure seems incomplete. A couple wells don't seem to be turned on in the model (Great Western Malting) which would affect the result. The model identifies 35 wells in the area, but they are not all accounted for in the model.

infiltration south of the creek is questionable. Of course there is infiltration south of the creek, and CRC plans to use this capacity to infiltrate storm water. The notion that recharge occurs in the Cascades is irrelevant and the modeled flow lines to municipal well WS-1 appear to show the overwhelming importance of local recharge to the primary use of groundwater under the project. The flow lines appear to show that the project area will essentially control water quality at municipal well WS-1, and to some extent water quantity. Yet, CRC maintains that there are no impacts to the aquifer, even though direct impacts are expected at municipal wells. This is a very important conflict that needs to be resolved in order to prevent adverse impacts to Vancouver's water supply.

In addition, it makes storm water treatment and infiltration extremely important. CRC's statement that in the summary that "Improved storm water quality is *thought* to help improved surface water and groundwater quality over time" is alarming. A more affirmative statement based on experience would give more confidence. Stormwater treatment and infiltration is extremely important. There is a fair amount of discussion about stormwater management but it is lacking in detail. There is going to be a lot of runoff and some quantification of the amount of pollutants CRC expects and the capacity of the proposed treatment methods would give more confidence that they have a handle on this. A casual look at the pond near the foot bridge over I-5 shows what the concerns are. Fortunately they describe this pond as a detention pond not suitable for treatment.

One thing that is not identified is the affect of ground shaking during pile driving. CRC does state that they consider an alteration of "the physical characteristics of the groundwater resource" an adverse affect on the Troutdale Sole Source Aquifer. The bridge footprint in itself is comprised of a liquefaction zone, a seismic hazard, which is a primary

justification for needing a new bridge. There does not seem to be analysis of ground shaking during pile driving, and how that could impact liquefaction. Because the UGA and alluvium in the area are unconsolidated, ground shaking could alter the physical characteristics. It is conceivable that this could mobilize contaminants or damage municipal wells. For example, PCE is present in the groundwater from municipal well WS-1 from an unknown source. PCE could be mobilized by consolidation induced by ground shaking. Rosemere has brought this to the attention of the EPA on several occasions, yet these concerns have been dismissed, even though there are various artesian upwellings in the footprint area that directly impact the water supply. Vancouver should be very concerned about this.

The general impression is that CRC recognizes that the aquifer is vulnerable but it is questionable whether they have a sufficiently detailed understanding of the aquifer and flow system and the potential impact to groundwater. The main long term concern is storm water treatment which CRC seems to treat as an engineering problem to be addressed at a later time. Generally it is good for the water supply to infiltrate stormwater, however this must be done well to avoid reduction of water quality. Contaminants of concern could be directly disturbed by construction. The potential affect of vibration should at least be acknowledged with references to other projects where there was a substantial amount of pile driving.

This is also of concern in the Hayden Island area where pile driving will occur down more than 200 feet, piercing the aquifer through toxic landfill, all within proximity to residential areas on the island. This item has not been sufficiently addressed, although CRC has been conducting core soil samples over the past year. The results of those samplings do not appear to be included in overall analysis of these concerns, and EPA has failed to follow up on these concerns. Instead, EPA offers the opinion that all documents provided by CRC are "adequate"

unless consultants need to be hired for more specifics. This does not make sense relative to the potential for adverse impacts. Due diligence has not been performed here and Rosemere's previous comments have been ignored.

AIR QUALITY

Flawed Underlying Assumptions Condemn the Air Quality Analysis.

Any projection of what will happen in the future must be based on assumptions. In the current economic and environmental climate in the greater Portland Metro Area, we cannot waste scarce transportation dollars on false assumptions. CRC uses an assumption that air pollution decreases in the project area to avoid any discussion of the impacts on air quality and public health of this massive road-building project. As discussed in numerous comments on the traffic analysis for the CRC, those assumptions are incorrect.

The FEIS follows the DEIS in its reliance on Metro's 2035 Regional Transportation Plan (RTP). The RTP is only workable after underestimating future traffic projections and assuming no growth. In fact, the CRC project team previously asserted:

> [T]he [Metro] modeling indicated that fewer trips would cross the river and the duration of congestion would be substantially lower with the project. The air quality modeling presented indicates that fewer trips combined with less congestion would reduce pollutant emissions relative to the no-build. The induced growth analysis indicated that the project would be very unlikely to result in induced sprawl.[95]

The CRC project team fails to provide any explanation or analysis to support Metro's modeling, but instead continuously repeats Metro's predictions. The CRC project team unjustifiably uses Metro's modeling results as the project's go-to answer for almost any air quality concern raised.

The FEIS ignores that, at best, the CRC shifts congestion from the North Portland and Vancouver area into the Portland city center and north of Vancouver. No discussion is provided

[95] DEIS Comment Response to O-035-087.

on how the CRC will impact neighborhoods surrounding I-5 south and north of the project area, or in those sections of the project area where interchange improvements will drive more and heavier traffic farther away from I-5.[96] At worst, the CRC will enable a massive increase in car, light truck, and heavy truck traffic.

Even if the CRC's conclusion that traffic will not increase proves true, the FEIS' air quality analysis looks to area-wide air quality for year 2030 – ignoring the next 29 years. In 2030, air quality in the project area is projected to improve, due to in large part to regulatory requirements and advanced technology. The FEIS states, "Recent regulations, including those for fuel formulations, help control emissions from heavy-duty diesel on-road and off-road vehicles. New gasoline reformulation rules should substantially reduce benzene emissions. These standards are expected to continue reducing pollutants in vehicle emissions over the next 25 to 30 years." FEIS at 3-276. These improvements, if they happen at all,[97] would occur gradually

[96] Both the DEIS and the FEIS provide emissions analysis for four subareas adjacent to I-5. The project team identifies the four selected neighborhoods as: (1) NE 99th St. and E 39th St. in Vancouver, (2) E 39th St. to State Route 14 in Vancouver, (3) State Route 14 to Columbia Blvd. in Portland, and (4) Columbia Blvd. to the I-405 junction in Portland. However, neither the DEIS nor FEIS explain how or why the project team selected these specific neighborhoods as opposed to other neighborhoods along I-5. In particular, the FEIS should have included information on pollution impacts north and south of the project area, where the congestion now experienced along the Interstate Bridge will occur. The multi-lane project area will have a far greater number of lanes than I-5 north and south of the project area. Thus, while cars and trucks may have plenty of room to cross the river at 70 MPH, congestion will be experienced both north and south of the bridge where the road will remain 4 to 6 lane interstate with a speed limit of 50 MPH.

[97] One need not look far to find evidence that projections of future regulatory improvements (i.e. pollution reductions mandated by any government authority) are almost always too optimistic. *See* Statement by the President on the National Ambient Air Quality Standards (September 2, 2011) (withdrawing the final Ozone NAAQS revision that would have been more protective of public health and the environment); HR 2401 and 2584, Sec. 462 (2011) (delaying or eliminating EPA rules to protect the environment from air pollution); E&E Daily, Green groups say Senate MACT bill worse than House version (July 21, 2011) (proposed senate bill would postpone or eliminate hazardous air pollution standards for ubiquitous "industrial boilers" and utilities); EPA, Light Duty Automotive Technology and Fuel Economy Trends: 1995 -2007 (September 2007) (noting a decrease in fuel economy from 1987 – 2004).

over this period. Impacts to air quality and human health would still be a factor in the interim. Similar to the DEIS, the FEIS does not acknowledge this because it fast-forwards to year 2030 with its projections.[98] No indication exists that 2030 will have the greatest air pollution impacts of all the years between now and 2030. In fact, it is reasonable to assume that the years with serious traffic disruptions will result in more air pollution than in 2030. By choosing 2030 as the relevant model year, the CRC project team underestimates several decades of impact on the communities surrounding I-5.

It is a truth universally acknowledged that all models are wrong, but some models are useful.[99] The longer the time period covered by the model, the more wrong it is likely to be. Considering the serious deficiencies of the model outlined in comments on the traffic projections, the air quality analysis might give those living in the CRC project area comfort, but fails to meet the NEPA standard to examine the environmental impacts of a proposed action. The EIS must describe the relevant pollutants, the *range* of expected concentrations, and the health and environmental impacts of those concentrations.

CRC failed to adequately respond to PEAC's DEIS comments.

The CRC project team failed to adequately respond to several of PEAC's concerns expressed in its DEIS comments. First, in Section O-035-088, PEAC commented that the DEIS "fails to consider the health effects of exposure to multiple criteria air pollutants and air toxics, and their possible synergistic effects." The authors of the response answered

> [T]he DEIS did consider these issues, Pages 3-275 through 3-277 and Section 3.10.2 explain, and the Air Quality Technical Report (Section 4.2.2 and 5.2)

[98] Analyses that focus on 2030 impacts: Regional NAAQS and MSAT Emissions projections, Subarea NAAQS and MSATS Emissions projections Maximum One-Hour and Maximum Eight-Hour Carbon Monoxide Concentrations Analysis, and the Intersection Ranking and Hotspot Analysis.

[99] With apologies to George E. P. Box and Jane Austen.

> further details, the relevance of such air-quality-related health risks to the project, including the known limitations and uncertainties of current science and methodologies, the information, findings and relevance of the Portland Air Toxics Assessment study, and the approach developed and implemented in coordination with regulatory agencies to address these concerns. Please see Chapter 3 (Section 3.10) of the FEIS and the accompanying Air Quality Technical Report for an updated discussion of these issues.

Needless to say, this overbroad response failed to resolve PEAC's concern. The pages referred to in the DEIS did not discuss the health effects of exposure to multiple criteria air pollutants. While each criteria air pollutant is now at least mentioned in the FEIS, the FEIS still does not address the health effects of multiple criteria air pollutants. Furthermore, the fact that the FEIS acknowledges that Volatile Organic Compounds and nitrogen dioxide contribute to the creation of ozone does not address PEAC's concern. Thus, the CRC project team failed to adequately respond to PEAC's comments in Section O-035-089 of the DEIS.

Next, PEAC raised concern in its comment about how the CRC project team avoids analyzing the effects of criteria pollutants. Specifically, in Section O-035-099, PEAC noted how "the DEIS essentially equates compliance with the NAAQS with a sufficient analysis of the air quality impacts of the project." In response to this, the authors state that

> The DEIS and Air Quality Technical report indicate that regional pollutant emissions from vehicles will continue to decrease in the future even though VMT increases, suggesting air quality will improve in the future. This is supported by air quality monitoring conducted by the state air quality agencies that shows most pollutant levels have decreased over the last ten years.

This response completely ignores PEAC's concern that the DEIS uses NAAQS compliance as a substitute for an analysis of the air quality impacts of the project. Thus, this response is inadequate.

The CRC improperly provides significant new information without completing an SEIS.

While the FEIS does provide new material to resolve uncertainties, it is not appropriate to introduce an overwhelming amount of new material in an FEIS. In such a situation where the CRC project team must introduce a vast amount of new material, the need for a Supplemental EIS (SEIS) is obvious. Nevertheless, the CRC project team failed to issue an SEIS. The Air Quality section explicitly introduces new information including: (1) a revised list of project area intersections with the greatest potential to experience air quality effects, (2) air toxics monitoring data from the Harriet Tubman Elementary School in Portland, (3) a study on the temporary impact of a comparable construction project, (4) updated MSAT emissions and concentrating models, (5) new guidance from the FHWA on the list of MSATs to analyze, and (6) new guidance from ODOT for mitigating construction impacts. Furthermore, the CRC project team illegitimately uses some of this new information to dismiss public concerns, which the public raised regarding the DEIS. Also, many of the FEIS adjustments still act as blanket assertions and conclusions without providing any meaningful analysis. This fails to meet NEPA requirements.

CRC's analysis of criteria pollutant impacts and conformity do not satisfy NEPA's mandate to evaluate impacts from the proposed action.

CRC's NAAQS analysis is insufficient to disclose and analyze the impacts of air pollution.

The CRC claims that "An air quality impact would occur with a violation of the NAAQS or SAAQS."[100] Thus, the CRC continues the fatal flaw of its DEIS – equating NAAQS compliance with a discussion and analysis of "impacts" under NEPA.

Criteria pollutants under the Clean Air Act are pollutants that EPA has determined "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or

[100] Air Quality Technical Report at 2-2.

welfare."[101] To date, EPA has made "endangerment findings" for six pollutants: particulate matter (PM, PM_{10}, and $PM_{2.5}$), ground-level ozone (O_3), sulfur dioxide (SO_2), nitrogen oxides (NO_x), lead (Pb), and carbon monoxide (CO). Once EPA makes an endangerment finding, EPA must then develop "air quality criteria" for that pollutant.[102] The criteria is intended to accurately reflect the latest scientific knowledge about effects on public health and welfare that can be expected from various levels of that pollutant in the ambient air.[103] Once the criteria are established, EPA must set National Ambient Air Quality Standards (NAAQS) to protect human health and welfare.[104]

The Clean Air Act requires that EPA establish an independent scientific review board (the Clean Air Scientific Advisory Committee or CASAC).[105] Every five years, the EPA and CASAC must review the criteria and the NAAQSA to ensure that they continue to protect public health and welfare based on the latest science.[106] If warranted, EPA must make revisions to criteria and promulgate new standards for each listed pollutant.[107] EPA is also required to involve the public in the criteria development and NAAQS review process by publishing notice in the federal register and reviewing public comments.[108]

Nevertheless, criteria pollutants often pose significant health threats even when ambient concentrations are at or below the national standard for three reasons. First, EPA does not

[101] 42 U.S.C. § 7408.
[102] *Id.*
[103] *Id.*
[104] 42 U.S.C. § 7409.
[105] 42 U.S.C. § 7409(d)(2)(A).
[106] 42 U.S.C. § 7409(d)(1) & (2)(A).
[107] 42 U.S.C. § 7409(d).
[108] 42 U.S.C. § 7607(d).

comply with its duty to review the criteria and NAAQS every five years.[109] Second, EPA has on at least two occasions rejected the NAAQS levels that CASAC has recommended as requisite to protect public health and welfare. Third, for some criteria pollutants, there is no level under which the population will experience "no impacts." Simply put, the more pollution present in the ambient air, the more death and disease associated with the exposure, even if the NAAQS are satisfied.

While PEAC did raise these concerns in its DEIS comments, it bears repeating since the CRC project team marginalized these concerns by stating that the project was compliant with NAAQS and nothing more could be done. Moreover, PEAC's concerns are highlighted by significant controversy around updated NAAQS that has continued since the DEIS was released in 2008.[110] While delays continue to plague the implementation of the final NAAQS revision for ozone, all available scientific evidence points to a significant revision downward of the ozone standard. Under an appropriate ozone standard, the project area is likely to be in non-compliance with the NAAQS, and the pollution increases occasioned by either construction related emissions or increased car and truck emissions, will pose an undue health threat even considering the CRC's false reliance on NAAQS compliance to demonstrate "no effects" under NEPA. If the

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[109] *See American Lung Association v. Reilly*, 962 F.2d 258, 263 (2d Cir. 1992) (failure to review NAAQS for ozone); *Environmental Defense Fund v. Thomas*, 870 F.2d 892, 900 (2d Cir. 1989) (failure to review NAAQS for sulfur dioxide), *cert denied sub nom. American Lung Association v. Browner*, 884 F.Supp. 345, 346 (D. Ariz. 1994) (failure to review NAAQS for PM); *Center for Biological Diversity v. Johnson*, Civ. No. 05-1814 (D.D.C. filed 2005) (failure to review NAAQS for nitrogen oxides and sulfur dioxide); *Communities for a Better Environment v. EP*A, Civ. No. C 07-03678 JSW (N.D. Cal, May 5, 2008) (failure to review NAAQS for carbon monoxide).

[110] *See* Statement by the President on the National Ambient Air Quality Standards (September 2, 2011) (withdrawing the final Ozone NAAQS revision that would have been more protective of public health and the environment); HR 2401 and 2584, Sec. 462 (2011) (delaying or eliminating EPA rules to protect the environment from air pollution – including updated NAAQS) in Air Quality Citation Sources Folder.

CRC depends upon future regulatory action to demonstrate that pollution will go down, the CRC must also account for future regulatory action revising the NAAQS downward to reflect the scientific consensus that the Ozone and PM2.5 NAAQS are inadequate to protect public health and welfare.

Ignoring both the underlying scientific debate and the reality, adequately explained in PEAC's DEIS comments, that health and welfare impacts are experienced at pollution concentrations under the NAAQS, the CRC project team responds that "conformity rules state that the project must not cause or contribute to a violation of the national ambient air quality standards (NAAQS)."[111] Then the CRC project team asserts that "the project cannot arbitrarily set its own 'standards' under the current regulatory environment."[112] This assertion, without any explanation, assumes several faulty premises. First, the CRC project team does not provide any legal justification that precludes the team from disclosing impacts from air pollution in a NEPA document. Rather, the team simply says it cannot adopt standards because the NAAQS exist. The question, for NEPA purposes, however, is not whether the proposed action will meet regulatory standards, but whether the impacts of the project are adequately considered by the agency before making an irretrievable commitment of resources to a course of action.

Moreover, this response ignores that the Air Quality Technical Report does not reflect an analysis of whether the project area will attain and maintain the NAAQS. The Technical Report simply estimated the emissions associated with each project alternative and compared that to baseline. The logic seems to be that the project area is currently in attainment or maintenance of all the NAAQS as demonstrated by historical monitoring used for area designations under those NAAQS, thus is on-road mobile emissions are reduced in 2030 by the project (or under the no

[111] DEIS comment Response O-035-097.
[112] *Id.*

build alternative), the project must maintain the areas attainment status. Putting aside the many false assumptions in the traffic and regulatory analysis that results in the conclusion that on-road emissions will go down by 2030, the type of analysis in the Air Quality Technical Report proves nothing, and certainly does not demonstrate that the project area will experience "no effects" from the proposed project.

The Technical Report analysis depends upon the historic monitoring used to assess compliance with the NAAQS when area designations for those NAAQS first took place, and upon the limited ongoing monitoring for those pollutants. First of all, adding future project emissions to historic monitoring results cannot yield useful information about future compliance with the NAAQS because it does not account for permitted emissions that were not being emitted during the monitoring periods. That is, under the Oregon State Implementation Plan (SIP) programs regulating stationary sources, sources may increase their emissions at any time to allowable levels without undergoing any further permit review or the installation of new technology. The allowable emissions are set with reference to allowable emissions in some prior year, most commonly 1977 and 1978. Any stationary source with a permit limit set based on baseline emissions from 1977 and 1978 can increase its emissions up to that level.

Thus, historic monitoring results only indicate the air quality at that particular point in time based on what sources were operating at a particular level (often, not its allowable level). Therefore, the logic of simply comparing pre-project mobile emissions with post-project mobile emissions and concluding that the project will not cause or contribute to a violation of the NAAQS simply doesn't work in Oregon. Pollution may increase from other sources at any time, throwing an attainment area into nonattainment because increases are already authorized by permits. The Technical Report does not explain how its logic would apply if the area

experiences increases in pollution from other sources. Without undertaking a more sophisticated analysis, the TSD's conclusion that the project will not cause or contribute to a violation of any NAAQS is unsound.

Second, the CRC project team ignored other applicable standards, the Oregon Ambient Benchmark Concentrations. Indeed, the FEIS fails to discuss the health impacts expected from increased toxic air pollution, either from construction, congestion caused by construction, or the alteration of traffic volumes and locations as a result of the proposed action.

In addition, this simplistic "analysis" fails to seriously consider whether the project area will attain the new NAAQS that it identifies in exhibit 2-1 of the Air Quality TSD. The TSD recognizes that ozone status could change depending on what final ozone standard is adopted by EPA, yet it undertakes no further study of increased NOx emissions from roadways. Furthermore, the TSD notes that the monitoring stations that are monitoring NOx are not within a meaningful distance from the roadway, and further monitoring is needed.

Moreover, the NAAQS serve as a floor, not a ceiling. The existence of NAAQS does not prevent the CRC project team from disclosing impacts from pollution even where the NAAQS are attained. Particularly where there is great scientific controversy regarding the levels at which some NAAQS are set, such as is the case with ozone, the CRC must consider the significant health impacts that will occur at levels below the NAAQS.

Recently, EPA determined that the 8-hour Ozone NAAQS is inadequate to protect human health and the environment. 75 Fed. Reg. 2938 (Jan. 19, 2010). Specifically, EPA found that "children and adults with asthma and other preexisting pulmonary diseases are at increased risk

to the effects of O3 exposures." Draft Final Decision at 45.[113] The new 8-hour standard was expected to be adopted during the summer of 2011 and EPA was expected to set the new standard between 0.060 and 0.070 ppm.[114] Adoption of the final Ozone rule was delayed by the Obama administration due to concerns about the economic costs of the rule – not its health ramifications.[115] The impacts of ozone formation on communities in and around the project area are significant, and the CRC should have evaluated the likely new 8-hour NAAQS.

By once again relying upon compliance with the NAAQS instead of addressing EPA's scientific findings (and those of the CASAC) about ozone, the CRC fails to offer a rational conclusion on ozone impacts. Essentially, the Technical Report states that: "The impact of this proposed standard on the CRC project is expected to be minimal as the project is already included in estimates of ozone precursor emissions as part of the Portland Ozone Maintenance Area plan."[116] What is concerning, however, is that the Portland Ozone Maintenance Area plan presents a plan for continued compliance with the old 8-hour ozone standard, and was last updated in February 2007. The Technical Report does not demonstrate compliance with the old ozone NAAQS through modeling, and even if it had, such a demonstration would shed no light on compliance with the new ozone standards. Where EPA has found that people "with asthma

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[113] Available at: http://www.epa.gov/glo/pdfs/201107_OMBdraft-OzoneNAAQSpreamble.pdf, attached in Air Quality Citation Sources Folder.

[114] After EPA set the 8-hour NAAQS at 0.075 ppm, "CASAC took the unusual step of sending EPA a letter expressing strong, unanimous disagreement with EPA's decisions on both the primary and secondary standards (Henderson, 2008). The CASAC explained that it did not endorse the revised primary O3 standard as being sufficiently protective of public health because it failed to satisfy the explicit stipulation of the Act to provide an adequate margin of safety." 75 Fed. Reg. 2938, at * (Jan. 19, 2010); *see also* CASAC, Review of the Agency's Final Ozone Staff Paper (March 26, 2007) ("*Ozone Panel members were unanimous in recommending that the level of the current primary ozone standard should be lowered from 0.08 ppm to no greater than 0.070 ppm.*" (emphasis in original)).

[115] The draft final rule is posted on EPA's website: http://www.epa.gov/air/ozonepollution/pdfs/201107_OMBdraft-OzoneNAAQSpreamble.pdf

[116] Air Quality Technical Report at 2-3.

and other preexisting pulmonary diseases are at increased risk" from ozone exposure, Draft Final Ozone Decision at 45, something more is required.

CRC's Conformity analysis is insufficient to disclose and analyze the impacts of air pollution.

The Project team must complete two steps in order to properly demonstrate conformity analysis. The first step is a regional analysis; this is when the project must be included in a conforming regional transportation plan and transportation improvement plan. The second step in this analysis requires the project to analyze the most congested intersections and demonstrate that, if the project is constructed, carbon monoxide levels (including carbon monoxide contributed by the project) will not exceed standards. The six intersections are: (1) E 39th St. at Main St. in Vancouver, (2) Mill Plain Blvd. at C St. in Vancouver, (3) Mill Plain Blvd. at I-5 Interchange in Vancouver, (4) Lombard St. at Interstate Ave. in Portland, (5) Fremont at MLK Jr. Blvd in Portland, and (6) Lombard St. at MLK Jr. Blvd. in Portland. Similar to the DEIS, the FEIS does not cite any authority nor provide any reasoning as to how or why the project team selected these intersections as the most congested intersections.

The FEIS fails to make clear that the conformity analysis does not require emissions from the demolition and construction period to be analyzed. As a result, the asserted impacts are inaccurate and incomplete because the conformity analysis pretends to reflect real emissions and pollutants within the ambient air. This demonstrates that just by fulfilling minimum standards under a separate and different regulatory requirement still does not amount to NEPA impact analysis.

FEIS fails to properly quantify NO_2 concentrations.

Despite EPA establishing requirements for an NO_2 monitoring network, the CRC project team fails to fully complete this mandated task. The FEIS misleadingly asserts that current

monitoring suggests the roadway NO_2 concentrations are below the proposed standard. However, none of the monitoring followed the regulatory requirement that it be conducted within 50 meters of a roadway. The CRC Project team admits in the FEIS that "additional monitoring will be needed to evaluate the *full* extent of roadway NO_2 impacts."[117] This admission is worthless for two reasons. First, the CRC Project team must include this information in the FEIS so that the public is fully aware of the CRC project's impacts. Second, the CRC Project team fails to provide any details, and even neglects to commit to additional monitoring to be in compliance with the new regulations. Thus, the CRC project team's NO_2 impact analysis is not only insufficient and incomplete, but is also not in compliance with Clean Air Act requirements.

The FEIS fails to adequately disclose or analyze impacts from Mobile Source Air Toxics (MSATs).

The FEIS makes the outrageous claim that:

> The Clean Air Act identifies 188 air toxics, of which MSATs are the subset emitted by mobile sources. Although MSATs pose potential public health concerns, there are no established regulatory limits for relevant MSAT pollutants.

FEIS at 3-273. On the contrary, the Oregon Environmental Quality Commission (EQC), the rulemaking body of the Department of Environmental Quality (DEQ), has established by rule Ambient Benchmark Concentrations (ABCs) for all six of the MSATs identified by EPA to be the most dangerous: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter (DPM). The ABCs for these pollutants are:

Pollutant	Oregon ABC (ug m-3)
Benzene	0.13

[117] Air Quality Technical report for the FEIS at 2-3. (emphasis added).

1,3-butadiene	0.03
Formaldehyde	3
Acrolein	0.02
Acetaldehyde	0.45
Diesel particulate matter (DPM)	0.1
Naphthalene	0.03
Polycyclic aromatic hydrocarbons	0.0009

The CRC project team relied on Portland Air Toxics Solution (PATS), which is a Portland geographical region program attempting to reduce Oregon's air toxic pollutant concentrations. The FEIS states:

> As part of the Portland Air Toxics Solution (PATS) program, the DEQ (DEQ 2006) performed computer modeling to estimate and assess risks from 19 air toxics in the Portland-Vancouver metropolitan area, including the priority MSATs that the CRC project has evaluated. Although the PATS model is not intended for project-level analysis and is not connected to the CRC project, the PATS regional analysis provides perspective on the CRC results. The PATS study indicated that diesel exhaust, motor vehicles, and burning are important sources of air toxics in Portland. Regional modeling of on-road sources shows elevated benzene levels along freeways, with the highest concentrations in downtown Portland and in the Beaverton/Hillsboro area. Modeled formaldehyde levels show a similar pattern to benzene, except that the peak concentration for combined mobile sources is at PDX. The DEQ model indicated that diesel particulate matter (PM) concentrations from mobile sources peak in downtown Portland and are in the lower concentration range through most of the CRC's main project area.

FEIS at 3-277.

The FEIS' description of the PATS process is very misleading to those suffering from mobile source air toxic exposure in the project area. The FEIS tries to minimize the toxic air pollutant loading in the project area by claiming that air toxics are "in the lower concentration

range through most of the CRC's main project area." This easily leads to a conclusion that neither a current, nor future impacts from MSATs can be expected in the project area, a conclusion that is patently false. According to the PATS 2017 Modeling Summary for the 15 pollutants that will be over health-based benchmarks in 2017, the project area will be 5 – 10 times over the benchmark concentration for 1, 3 butadiene.[118] While this is lower than the projected concentration in downtown Portland, which will be over 10 times the benchmark concentration, it is hardly a "lower concentration range." For Benzene, even more of the project area is at 10 times or more over the benchmark concentration. These pollutants are probable human carcinogens, with a possible associations with heart disease. A reduction of 85% is required in all areas over the benchmark concentration, including those in the project area, to bring 1,3 butadiene and benzene concentrations down to safe levels.

For Diesel Particulate and PAH, the situation is even more dire, with the most densely populated portion of the I-5 corridor through North Portland exhibiting greater than 10 times the benchmark concentration or more. Diesel Particulate is associated with increased lung cancer, breathing and heart problems. PAH is a collection of chemicals containing one known carcinogen, and seven probable (Class B2) human carcinogens. Since Diesel Particulate and PAH come mainly from on and off road gas and diesel engines, including cars and trucks, construction equipment, ships, and rail sources, increases due to construction and construction-related traffic delays will impact residents in the project area regardless of the reductions that CRC assumes will occur by 2030 due to decreased trips across the river and better technology.[119]

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[118] *See* PATS 2017 Modeling Summary in Air Quality Citation Sources Folder. Modeled concentrations in 2017 for each of the MSATs are included in this document.

[119] The concentration maps presented in the Air Quality Technical Report for these toxics are misleading because they present only the modeled concentrations from on-road and off-road mobile sources. This presentation ignores that the area affected by the CRC's on-road and off-

In short, the FEIS claims that the PATS regional analysis provides perspective on the CRC result, but the CRC analysis neglects to communicate any of the information developed in the PATS regional analysis, and provides misleading information about risks. Since the Air Quality Technical Report was completed, the PATS modeling has been completed and a final PATS report is close to release. Much more information about the air toxics impacts in areas affected by the CRC are available, and should be included in the FEIS or an SEIS.

The FEIS' reliance on the Harriet Tubman Middle School Monitoring Initiative to conclude that the project will not have impacts on sensitive populations is misplaced.

The CRC project team's reliance on results from an unrelated study to demonstrate CRC's air impact on sensitive populations is misplaced for several reasons. First, the study only monitored one school in the Portland area. Relying on the results from a single school neglects the impacts of the entire project area, including all of Vancouver. The FEIS fails to explain how results from Harriet Tubman Middle School comprise an accurate representative geographic sample.

Second, the Harriet Tubman study compared concentrations to "sample screening levels" (SSLs) that are significantly higher than the Oregon ABCs:

Pollutant	Oregon ABC (ug m-3)	EPA SSL (ug m-3)	Harriet Tubman Max Sample (ug m-3)
Benzene	0.13	30	2.247
1,3-butadiene	0.03	20	0.268
Formaldehyde	3	50	3.091

road mobile emissions will exceed the health-based benchmarks and the impacts of on-road and off-road mobile emissions will exacerbate those exceedances. By presenting only the mobile source emissions, the Air Quality Technical Report understates the baseline and the increase attributable to the CRC.

The Harriet Tubman samples exceeded all three benchmark concentrations, but were below the SSLs. Third, the Harriet Tubman study sampled air on 10 different days within a single 60-day period. Additionally, the Harriet Tubman analysis did not sample diesel particulate matter. Thus, the FEIS' reliance on the Harriet Tubman study fails to adequately describe how the CRC project will impact sensitive populations. In fact, the Harriet Tubman study actually demonstrates that concentrations, at least on some days, are higher than the Oregon ABCs.

The FEIS fails to adequately disclose and describe the temporary air quality effects of construction and congestion related construction.

While the FEIS acknowledges that all of the CRC build alternatives would cause short-term increases in air pollutant emissions, it fails to inventory which air pollutant emissions will increase or how much. The discussion does not include information about the specific pollutants that will increase and their associated health and environmental effects. Moreover, the FEIS continually attempts to minimize impacts without any basis in existing evidence.

The FEIS depends on inadequate mitigation measures to minimize the impacts of construction and construction related congestion emissions.

The FEIS depends upon mitigation measures to understate the impact of temporary emission increases from construction and construction related congestion. The FEIS fails to describe the mitigation efforts, however, simply depending upon future development of plans for mitigation. *See* FEIS at 3-283. The FEIS states: "For a project of this magnitude, the contractor will be required to develop a pollution control plan that includes documentation of operational measures that will be used to reduce emissions. Section 290 of the ODOT standard specifications describes requirements for environmental protection, including air pollution control measures." After locating and reading the ODOT specification section 290, it is clear that only one mitigation measure is required, a limit on idling diesel equipment, but the limit has so many

exceptions as to be made meaningless. Section 290.30(c)(1) of ODOT standard specifications states:

> **(1) Vehicle and Equipment Idling** - Establish truck staging areas for diesel-powered vehicles located where truck emissions have a minimum impact on sensitive populations, such as residences, schools, hospitals and nursing homes. Limit idling of trucks and other diesel powered equipment to five minutes, when the equipment is not in use or in motion, except as follows:
>
> • When traffic conditions or mechanical difficulties, over which the operator has no control, force the equipment to remain motionless.
>
> • When operating the equipment's heating, cooling or auxiliary systems is necessary to accomplish the equipment's intended use.
>
> • To bring the equipment to the manufacturer's recommended operating temperature.
>
> • When the outdoor temperature is below 20 °F.
>
> • When needed to repair equipment.
>
> • Under other circumstances specifically authorized by the Engineer.

This is the only measure included in the specification to mitigate air pollution increases from construction and construction related congestion. To ensure that real mitigation of temporary air pollution increases occurs, the FEIS must specify actual mitigation measures. Where will the diesel staging area be located to avoid impacting residences, schools, hospitals and nursing homes? How will exposures to pollutants from diesel combustion be minimized?

The FEIS erroneously relies on an inapposite study of an unrelated and dissimilar construction project to support its assertion that no impacts from construction will occur.

The FEIS depends upon a study of the Dan Ryan Expressway Reconstruction in Chicago, Illinois. While the Dan Ryan Expressway is the busiest expressway in Chicago, serving double the number of vehicles of the I-5 corridor, it still does not provide an accurate insight for the construction impacts of the CRC project.

First, the Dan Ryan Expressway is located in a non-attainment area for the annual particulate matter 2.5; the CRC is located in a maintenance area for carbon monoxide. Second, the city of Chicago is relatively consistent with natural flatness in the region, while the city of Portland is within the Willamette Valley, cradled by Mount Hood, Mount Adams and Mount Tabor. Generally, air pollution travels more easily in a flat geographic region compared to a valleyed geographic region. Third, Chicago is windy and located next to Lake Michigan while Portland is not windy and is inland. Finally, the Dan Ryan Expressway project monitored for only one relevant MSAT, PAH. PAH in Portland has been associated with residential wood combustion, as well as mobile on-road and off-road sources. A more reasonable measure of toxics impacts would include at least Diesel Particulate. Moreover, the CRC claims that no standards exists for MSATs, which, as discussed above, is false. Therefore CRC does not provide any comparison of the PAH emissions increases due to construction of the Dan Ryan Expressway to the Oregon Ambient Benchmark Concentrations.

As a result, the FEIS claim that "the results from the Dan Ryan Expressway project [indicate] that the CRC's construction activities should not result in any violations of the air quality standards and should not pose an **undue** health risk to the neighboring communities" is unfounded. The FEIS fails to provide an adequate analysis for the air quality impacts, and no analysis whatsoever for increases in cancer causing air toxic pollutants, resulting from on-site construction. Since the FEIS does not disclose what the impact of construction will be, the CRC's conclusion that no undue health or environmental risks will be present is a baseless conclusion. As described above, much of the project area exceeds or will exceed Oregon's Ambient Benchmark Concentrations for several MSATs when construction is occurring. Thus, any increase in these pollutants will have health impacts for some part of the project area

population, most likely the most vulnerable, children and the elderly. The FEIS' misleading and minimizing statements will provide cold comfort to those families who will be unduly impacted by air pollution from construction.

The FEIS fails to properly analyze the impacts of off-site staging and casting.

Although the FEIS acknowledges that the project's staging and casting construction activities may have associated pollutant-emitting sources, it avoids conducting a thorough analysis by relying on Air Contaminant Discharge Permits. This piece-meal strategy serves as an escape from fully disclosing the project's complete impact. As explained to earlier, this is further demonstrated by fact that the CRC project team did not consider construction related activities in the carbon monoxide hot spot analysis.[120] Thus, by not disclosing the project's full impacts, the FEIS is incomplete.

Furthermore, while this is an FEIS, the off-site construction plans have yet to be finalized. This is because the FEIS fails to identify the number of off-site locations the project needs, fails to explain the final purpose of the locations, and fails to provide actual off-site locations. Instead the FEIS states that the project "would require *at least one* large site to stage equipment and materials, and *could also require* a large site for use as casting yard for fabricating segments of the new bridges."[121] This information serves as a progress report, not a final statement. Additionally, the project team has not selected a specific site but rather provides a list of candidate sites. The potential sites include the Port of Vancouver Parcel 1A, Red Lion at the Quay, Thunderbird Hotel site on Hayden Island, Port of Vancouver Alcoa/Evergreen West, and Sundial. With only a list of candidates, the analysis is incomplete since different locations would impact different areas. This is further supported by the technical report's language

[120] 40 CFR 93.123(c)(5).
[121] FEIS 3-282 (emphasis added).

distinguishing two sites from the other sites.[122] Thus, the temporary effects analysis is also incomplete and further fails to meet the NEPA requirements.

Under the transportation conformity rules (40 CFR 93.123(c)(5)), CRC must conduct carbon monoxide and particulate matter hot spot analyses for any construction activity lasting more than five years. CRC did not conduct a hot spot analysis for the potential staging areas, the Hayden Island interchange site or the local access bridge site, yet the FEIS fails to analyze the likelihood of concentrated construction activity lasting longer than five years. The health of local residents will be disproportionately adversely impacted should concentrated construction activity at the Thunderbird Hotel staging area, the Hayden Island interchange or local access bridge last longer than five years.

The FEIS fails to properly analyze Greenhouse Gas (GHG) impacts.

The FEIS claims that the LPA will result in a net decrease in GHG emissions compared to the No-Build Alternative.[123] The FEIS condems humanity to catastrophic climate change, concluding that "total emissions are expected to continue to increase for the foreseeable future." FEIS at 3-440. Certainly, there can no longer be any doubt that our climate is changing due to human sources of greenhouse gases. The composition of the atmosphere has been shifted to the extent that CO_2 levels are higher than they have been in the past 800,000 years.[124] James Hansen, a NASA climate scientist, tells us that to avoid catastrophic melting of ice sheets, CO_2

[122]Air Quality Technical Report 6-2. ("The proposed Port of Vancouver sites and the Sundial site are sufficiently far away from the project area that they would not have a direct effect on the project area.")

[123] The careful reader understands that the FEIS is only claiming a reduction in comparison to the no action alternative. See FEIS at 3-433. But the not so careful reader will believe that the FEIS is actually claiming an overall net reduction in GHG emissions. See FEIS at 3-444 ("the LPA is expected to reduce regional emissions"). This lack of clarity can be quite misleading.

[124] "Provocative New Study Warns of Crossing Planetary Boundaries," Carl Zimmer: Yale Environment 360, http://www.e360.yale.edu/content/feature.msp?id=2192 in Air Quality Citation Sources Folder.

levels must be no higher than 350 parts per million. Today, the atmosphere contains up to 389 parts per million. If, as the FEIS claims, emissions continue to increase for the foreseeable future, any hope we have to preserve the livability of our climate is lost.

Contrary to the CRC project team, the President of the United States, the Oregon Governor, and the Oregon Legislature have recognized that global warming poses a serious threat to the economic well-being, public health, natural resources and environment of Oregon, the nation and our world, and are focused on developing policy solutions to the looming climate crisis. In January 2009, President Obama stood before the nation and called for a "new era of responsibility," promising that his government would "restore science to its rightful place" and "roll back the specter of a warming planet."[125] The President spoke of a clean energy future where "[w]e will harness the sun and the winds and the soil to fuel our cars and run our factories," built upon a strong and interlocking foundation of innovation and sustainability.[126] The U.S. Environmental Protection Agency has stated that the dangers presented by climate change are "not a close case" and "[i]n both magnitude and probability, climate change is an enormous problem."[127]

About five years ago, the Oregon Governor's Advisory Group on Global Warming issued a report calling for immediate and significant action to address global warming and to reduce Oregon's exposure to the risks of global warming.[128] The Oregon Legislature has adopted

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[125] *See* http://www.whitehouse.gov/blog/inaugural-address/ In Air Quality Citation Source Folder
[126] *See id.*
[127] *U.S. Environmental Protection Agency, Climate Change Division, Office of Atmospheric Programs, Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act,* at ES-1, 3-4 (April 17, 2009), available at http://epa.gov/climatechange/endangerment/downloads/TSD_Endangerment.pdf in Air Quality Citation Source Folder.
[128] Governor's Advisory Group on Global Warming, *Oregon Strategy for Greenhouse Gas Reductions* at i (2004) (available at

aggressive greenhouse gas reduction goals, declaring it to be the policy of the state to reduce greenhouse gas emissions in Oregon as follows:

> (a) By 2010, arrest the growth of Oregon's greenhouse gas emissions and begin to reduce greenhouse gas emissions.
> (b) By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
> (c) By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels.

House Bill 3543 (2007).

In order for Oregon, the nation and our world to "roll back the spector of a warming planet," global climate change must be a top priority for all transportation projects, as the transportation sector accounts for 38% of the total GHG emissions in Oregon. Oregon's aggressive greenhouse gas reduction targets are impossible to achieve without critical evaluation of massive transportation projects like the CRC. By taking forward thinking action, not fatalistically maintaining the status quo, the CRC can help prevent the transformation of Oregon from one of the most beautiful places on earth to what the Governor's Advisory Group on Global Warming described in 2004 as "**dramatically altered and far less habitable** within only a few generations."[129]

Climate Change is not just a problem for our children and grandchildren, however. Global climate changes are already occurring. In the Pacific Northwest storms are more frequent and intense, and heat waves, droughts and floods are more severe and frequent. In addition, Pacific Northwest temperatures have been rising since 1920, precipitation has increased 10% since 1916 with some areas showing as high as a 40% rise, the sea level is rising 1-2mm per year, glaciers

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http://www.oregon.gov/ENERGY/GBLWRM/docs/GWReport-FInal.pdf) in Air Quality Citation Source Folder.

[129] Governor's Advisory Group on Global Warming, *Oregon Strategy for Greenhouse Gas Reductions* at i (2004) (available at http://www.oregon.gov/ENERGY/GBLWRM/docs/GWReport-FInal.pdf) In Air Quality Citation Source Folder.

are rapidly retreating, and Cascade snowpack is melting earlier and faster each spring.[130] These changes in the water cycle, along with other global climate changes, threaten crops, salmon, recreation, fishing, and water supplies. Global climate change also affects the reproductive success, range, and diet of vulnerable species.[131] A recent study revealed that climate change may be responsible for widespread decline in Western forests.[132]

Prominent international organizations have released reports documenting the harm being caused by the accelerating climate crisis. The magnitude of human suffering that global warming is causing, and will cause, has repeatedly been underlined and amplified. A series of reports, including a magisterial call for action from the Lancet, one of the world's leading medical journals, lend even greater urgency to addressing health and welfare impacts ranging from flooded coasts to sweltering heatwaves to spreading diseases.[133] The Lancet Commission's study, conducted by top academics working jointly with University College London, made world headlines when it was released in May 2009 and concluded simply that "[c]limate change is the biggest global health threat of the 21st century."[134] Bigger, in other words, than cancer, AIDS, multi-drug-resistant tuberculosis, starvation, malaria, or pandemic flu. As the report puts it, "[e]ffects of climate change on health will affect most populations in the next decades and put

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[130] *Scientific Consensus Statement on the Likely Impacts of Climate Change on the Pacific Northwest*, Consensus Statement drafted by a subcommittee of participants in the scientific meeting "Impacts of Climate Change on the Pacific Northwest" convened at OSU on June 15, 2004 at 4 (available at www.ef.org/westcoastclimate/E_OSU%20Consensus%20Statement.pdf).
[131] *See* IPCC, *Climate Change 2001*: *Impacts, Adaptation and Vulnerability* (2001), available at http:www.grida.no/climate/ipcc_tar/wg2/index.htm; IPCC, *Climate Change 2007*: *The Synthesis Report* (2007), available at http:www.ipcc.ch; NRC, *Climate Change Science: An Analysis of Some Key Questions*, (2001) (available at http://books.nap.edu/html/climatechange/) In Air Quality Citation Source Folder.
[132] Phillip J. vanMantgnm, *et al.*, "Widespread Increase of Tree Mortality Rates in the Western United States," *Science* Vol. 323 (Jan. 23, 2009) (available at http://www.sciencemag.org).
[133] *Anthony Costello et al., The Lancet Commissions, Managing the health effects of climate change, 373 The Lancet 1693, 1693 (May 16, 2009)* In Air Quality Citation Source Folder.
[134] *Id.*

the lives and wellbeing of billions of people at increased risk."[135]

Moreover, major climate-linked disasters are on the rise. "In recent years, more than 2 billion people were affected by natural disasters, many of which were directly or indirectly related to extreme meteorological phenomena, including heatwaves and coldwaves, floods, droughts, and windstorms."[136] Reinsurance giant Munich Re tracks such disasters and reports that in 2007 there were 960 major natural disasters – the highest number ever – and "more than 90% [were] the result of extreme weather-related or climate-related events."[137] The 2007 events were accompanied by 16,000 reported fatalities and $82 billion in economic losses.[138] Munich Re reports that "the number of great weather-related disasters has climbed from an average of less than two per year in 1950 to more than six annually by 2007. Over the same period, average annual economic losses have risen from less than $5 billion to more than $60 billion."[139]

Increasing CO_2 also causes acidification of the oceans. Acidic seawater interferes with the survival and growth of coral reefs and invertebrates because the acid dissolves the minerals these organisms need to build skeletons.[140] "According to recent surveys, the ocean is now acidifying 100 times faster than at any time during the past 20 million years."[141]

The FEIS' claim that the LPA will reduce GHGs is based on three primary factors:

1. tolling will decrease the number of cars crossing the River;

2. the LPA provides light rail that will divert some cars; and

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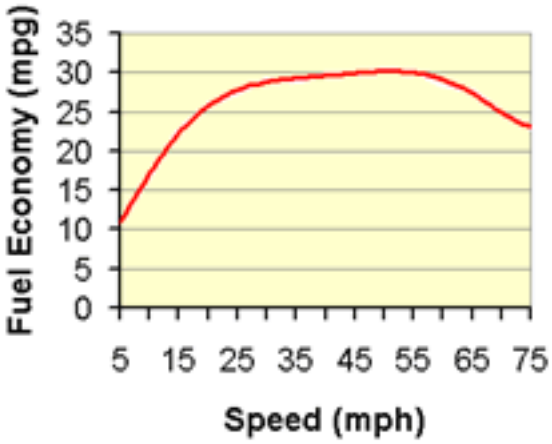
[135] *Id.*
[136] *Id.* at 1706.
[137] *Id.*; *see also* Ernst Rauch, Munich Re, *Effects of Climate Change on the Insurance Industry*, 26A Stanford Environmental Law Journal 239 (2007) in Air Quality Citation Source Folder
[138] Lancet Report at 1706.
[139] *Id.*
[140] "Provocative New Study Warns of Crossing Planetary Boundaries," Carl Zimmer: Yale Environment 360, http://www.e360.yale.edu/content/feature.msp?id=2192 in Air Quality Citation Source Folder.
[141] *Id.*

3. the LPA will reduce congestion, which will increase average speeds, which will reduce GHG emissions.

Obviously, the first two factors depend upon the validity of the CRC's traffic projections, as discussed above. The third factor, however, is patently false. The LPA is being built to accommodate 70 MPH traffic. As shown in the graph below, fuel economy is typically highest when traveling at speeds between 35 MPH and 50 MPH. The fuel efficiency of vehicles drops



precipitously after reaching 60 MPH.[142] Thus, the CRC cannot base its claim to reduced GHG emissions on the design speed of the project which is 70 MPH.

Moreover, the analysis of energy impacts contained in the Energy Technical Report is flawed for several reasons. First, the analysis used a national weighted fleet mix, rather than the regional or local weighted fleet mix. No data was provided to demonstrate that the expected fleet traveling across the River was similar to the national weighted fleet mix. Second, the analysis used weekdays in July as representative "typical" operating conditions. In the Pacific Northwest Climate, however, the use of July weekdays to represent "typical" operating conditions is inappropriate. Summer in the Pacific Northwest features excellent visibility and

[142] fueleconomy.gov

decreased traffic volumes due to school closures. Rainy, gray weather, on the other hand, which lasts for approximately eight months of the year in the Portland Metro area, is much more representative of "typical" operating conditions.

Using inappropriate assumptions about typical traffic patterns and a design speed at a non-efficient MPH results in an analysis that falsely claims that the LPA will decrease GHG in comparison with the no-build alternative. Of course, the GHG analysis suffers the same flaws as all of the analyses that are based on the CRC's erroneous traffic projections for 2030.

HUMAN HEALTH IMPACTS[143]

The FEIS Fails To Provide Adequate Analysis On The Impact Of CRC On Human Health:

The CRC has the potential to significantly affect public health in the I-5 corridor as well as in the surrounding neighborhoods and the I-205 corridor, but the FEIS does not provide adequate analysis that addresses public health concerns of the CRC. A project of the scale of CRC can have a huge impact on the ability of people to live healthy lives both during and after construction. Noise, air quality, mental health, physical activity, safety, access to fresh food, access to meet daily needs, social capital, housing quality, availability of affordable housing, and water quality[144] are all affected by transportation and have direct or indirect effects on public health. Adverse effects of living close to a major highway include a rise in asthma[145], diabetes,

[143] Cited articles are located in the Health Impacts Folder.

144 Design for Health. Health Impact Assessment Preliminary Checklist Background and Instructions. Version 2.0, 2007. www.designforhealth.net

145 Kim JJ, Smorodinsky S, Lipsett M, Singer BC, Hodgson AT, Ostro B. Traffic-related air pollution and respiratory health: East Bay Children's Respiratory health Study. American Journal of Respiratory and Critical Care Medicine 170: 520-526 2004.

obesity due to decreased physical activity[146], cardiovascular disease, hypertension, injury, and mortality[147].

The current FEIS approaches human health impact as a minor side-effect of the CRC and only a cursory glance has been given to the health impacts, including on Environmental Justice populations. The FEIS fails to provide adequate information on the impact to human health in the Environmental Justice Technical Report, Indirect Effects Technical Report, Noise & Vibration Technical Report & Hazardous Materials Technical Report, or Air Quality Technical Report. Information provided on the positive or negative health impacts of the CRC is frequently unsupported by evidentiary data.

The FEIS fails to approach the issue of public health impact in a structured manner[148]. First, a baseline health status of communities affected directly and indirectly by the project must be established. Second, an analysis of the direct, indirect and cumulative public health consequences of the proposed project must be carried out. Third, potential mitigation measures must be identified, should any significant health impact be identified. Finally, the ways in which the health effects identified might disproportionately affect low income or minority populations, or children, must be discussed.

Legal Basis for Including Public Health Analysis in the EIS:

NEPA requires health impacts, including health impact related to economic and social effects, to be addressed in the EIS. The inclusion of a systematic approach to public health impact of the CRC is supported by NEPA, the regulations issued by the Council on Environmental Quality (CEQ), the agency in the Executive Office of the President charged with

146 Cohen DA, et. al.. Public parks and physical activity among adolescent girls. Pediatrics 118:1381-1389 2006.

147 Design for Health. Health Impact Assessment Preliminary Checklist Background and Instructions. Version 2.0., 2007. www.designforhealth.net

148 Wernham, Bear. Public Health Analysis Under The National Environmental Policy Act, 2010.

overseeing implementation of NEPA (Executive Orders 12898 and 13045), and available guidance on NEPA and environmental justice. NEPA requires that the FEIS include an analysis of the proposed project's human health impact and prohibits the agency from delegating the analysis to a separate agency external to the NEPA process.

NEPA expressly recognizes the interdependence of environmental quality and human health. NEPA states that the Congressional intent embodied in the statute is to "assure for all Americans safe, ***healthful***, productive, and aesthetically and culturally pleasing surroundings." 42 U.S.C. § 4331 (emphasis added). Among NEPA's fundamental purposes is to "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate ***the health and welfare of man***." 42 U.S.C.§ 4321 (emphasis added). NEPA is intended to, "attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences." 42 U.S.C.§ 4331. NEPA is intended to apply to all federal actions "affecting the quality of the human environment." 42 U.S.C.§ 4332(c).

The NEPA regulations promulgated by the Council for Environmental Quality ("CEQ") also support the inclusion of a health impact analysis. In determining whether an effect may be significant, the lead agency must consider "[t]he degree to which the effects on the human environment are likely to be highly controversial." 40 CFR § 1508.27(b)(4). The CEQ regulations specifically define health as one of the effects that must be considered in an EIS. In defining "effects," the regulations state, "[e]ffects includes ecological, aesthetic, historic, cultural, economic, social, or ***health***, whether direct, indirect or cumulative." 40 CFR § 1508.8. The regulations instruct agencies to consider "the degree to which the proposed action affects ***public health or safety***" in determining significance. 40 CFR § 1508.27.

The United States EPA and CEQ have guidance documents on the requirement to analyze health impacts. These documents rely on the statutory provisions of NEPA and upon two Presidential Executive Orders. Executive Order 12898 instructs agencies to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse ***human health*** or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. Executive Order 13045 states that agencies must, "make it a high priority to identify and assess ***environmental health risks and safety risks*** that may disproportionately affect children; and … shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

Health in DEIS & FEIS:

While the DEIS and FEIS reference health in several sections, they fail to adequately address the human health impact in the following ways:

Noise & Vibration: The Noise & Vibration Technical Report of the FEIS discusses in depth, the temporary and long-term effects of noise and vibration arising from the project and proposes several mitigation methods. However, there is no discussion on how noise and vibration, including cumulative levels, would affect, temporarily or permanently, the health of people in the surrounding communities, especially children and the elderly. A number of studies have shown that longterm exposure to moderate noise can increase stress, hypertension, blood pressure, heart disease, and sleep disturbances.[149]

Air Quality: The Air Quality Technical Report of the FEIS does not adequately address health risks associated with the project, citing insufficient/inconclusive data, which is unacceptable. Health of communities surrounding the affected area should be a pressing concern. The FEIS

149 Van Kempen EEMM, Kruize H, Boshuizen HC, Amelin CB, Staatsen BAM, de HollanderAEM. (2002). The association between noise exposure and blood pressure and ischemic heart disease: A meta-analysis. Environmental Health Perspectives: 110: 307-317.

needs to assess actual risk to human health through respiratory illness, asthma, cancer and other relevant health risks.

Obesity: The CLF-PEAC comments to the DEIS presented obesity as a cause for concern in the project. However, both the DEIS and the FEIS failed to address the overall impact of the project on obesity. While the FEIS addresses needs for bicycle and pedestrian-oriented design in the project, it needs to carry out an analysis of the impacts of such measures on whether the project provides greater opportunities to walk, bike or use public transit and the overall walkability of the surrounding neighborhoods. Walking, biking and public transit use have been shown to be associated with obesity, healthcare cost expenditures and overall lifespan.[150,151]

Construction Related Health Impacts: The FEIS states that with mitigation measures, there will be no adverse construction-related impacts on air quality or noise. The FEIS, again, fails to consider the impact of construction and related activities on people residing in neighboring communities – especially children and elderly who are more sensitive to health risks and other hazards that construction activities might pose. Also, the FEIS fails to provide a convincing argument that the air quality impact due to construction is fairly low. The Chicago highway example is cited as a comparable but no information is provided as to how the case study is relevant to this project.

Benefits of Including a Separate Public Health Analysis in the FEIS:

A complete analysis of health effects responsive to NEPA would consider all potentially significant direct, indirect and cumulative health impacts associated with the proposed action and alternatives and would include descriptions of baseline heath status and determinants of health for the affected population. The inclusion of a systematic approach to determining the public

150 Edwards, Ryan D. (2008) Public transit, obesity, and medical costs: Assessing the magnitudes. Preventive Medicine, 46 (1). pp. 14-21.

151 Frank L, Andresen M and Schmid T. "Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars." American Journal of Preventive Medicine, 27(2): 87–96, August 2004

health impact of the CRC would result in practical, evidence-driven recommendations that address identified health impacts.

A Health Impact Assessment (HIA) is a tool that could be used to address the potential public health impact of the CRC. An HIA[152] is a practical tool that can provide a structured process to determine a policy or project's impact on health; bring both immediate and long-term health benefits; and ensure that policy and project dollars are used efficiently to provide the greatest benefit.

Such an analysis would involve close collaboration between the decision makers on the project, public health experts, and affected communities. This analysis, which is currently lacking in the FEIS, can have several benefits[153]:

- By using sound, objective data gathered on health impacts, potentially unexpected health consequences and unanticipated costs can be identified and thus avoided.
- We can develop healthier communities by identifying design solutions that address the root causes of many prominent health problems like asthma, diabetes, and cardiovascular disease.
- It can build consensus by addressing the affected community's fears about the CRC transparently, by providing practical solutions and by engaging the community residents in the decision making process especially pertaining to health concerns.
- It can provide a clear, structured way to recognize the positive contributions of the CRC on the health of communities. It can also give the CRC committee an

152 Frequently Asked Questions. http://www.humanimpact.org/hia

153 Frequently Asked Questions about Integrating Health Impact Assessment into Environment Impact Statement. http://www.humanimpact.org/hia

opportunity to build productive and positive working relationships with the community and establish smart planning measures in the region.

- It will help ensure the CRC project meets its stated objectives.

Considerations for the CRC project must go beyond the freeway and infrastructure, and health must be an overriding consideration. Any change to the I-5 corridor should be viewed as an opportunity for repair and improvement of the current health situation. Understanding all of the health implications of the proposed project will help to advance better transportation policy. Conducting a Health Impact Assessment can ensure that the CRC is an improvement project for all stakeholders, especially impacted communities. Therefore, an HIA should be conducted to adequately address human health as a part of the FEIS, and the HIA findings should be used to provide evidence-based recommendations to help improve the health outcomes of the CRC project.

BICYCLE FACILITIES

The FEIS fails to explain how bicycle and pedestrian facilities are designed to meet the forecasted increases in alternative transportation. According to the FEIS, current demand of bicyclists and pedestrians on the I-5 bridge is 304 bikes and 64 pedestrians per day.[154] In the CRC's fact sheet regarding bicycle and pedestrian improvements, dated October 1st, 2011, by 2030 the number of bicyclists is expected to be 5000 and pedestrians 1000 per day.[155] Facing this 16-fold increase in alternative transportation use, the FEIS plans call for a path width of 16 to 20 feet, depending on the width of the overall structure.[156] The FEIS fails to explain why, despite significant anticipated growth, current plans call for a design width of just two feet wider than

[154] FEIS Traffic Technical Report, 5-28.
[155] CRC Bicycle and Pedestrian Improvements Fact Sheet, 3. Available at http://columbiarivercrossing.org/FileLibrary/FactSheets/CRC_Ped_Bike_Folio.pdf
[156] FEIS Chapter 2, 2-30.

the minimum 14 feet standard for Oregon and Washington.[157] The lack of any discussion regarding the chosen width indicates an indifference to the quality of bicycle and pedestrian facilities. In fact the proposed path appears to use only about one half of the area under the "northbound bridge," and the FEIS does not explain what the other half of this area would be used for. If it cannot be used for bikes, is this hidden capacity for future vehicle traffic?

Further demonstrating the project's disinterest in alternative transportation, the FEIS contains glaring contradictions about the planned width of the bicycle path. As mentioned, Chapter 2 of the FEIS claims that the portion of the path over the river crossing "would be 16 to 20 feet wide, located within the superstructure above the bridge columns and below the bridge deck."[158] However, in the very same FEIS, the Traffic Technical Report claims the river crossing path "could be up to 24-feet wide, located within the superstructure above the bridge columns and below the bridge deck."[159] Also, the fact sheet on bicycle and pedestrian improvements claims "the path across the bridge will be 20 feet wide."[160] By providing confusing and contradictory claims about path width, the CRC literature fails to adequately inform the public about what it claims to be an important aspect of the project. The lack of attention to the design of the bicycle and pedestrian path confirms the claim that such facilities are merely lipstick on a mega-highway project pig.

As noted by the Portland Pedestrian Advisory Committee's June 18, 2010 letter (PAC Letter in Other Comments Folder), the CRC revisions to the LPA significantly curtailed bicycle and pedestrian facilities while at the same time maintaining essentially the same vehicle lane

[157] FEIS Traffic Technical Report, 5-28.
[158] FEIS Chapter 2, 2-30
[159] FEIS Traffic Technical Report, 2-32.
[160] CRC Bicycle and Pedestrian Improvements Fact Sheet, 3.

capacity.[161] Moreover those changes adopted a stacked design that moved the bicycle lanes to the enclosed underside of the bridge. Since 2008, the bridge pathway design has been stripped of most bicycle and pedestrian amenities**.** The design has gone:

–from two paths on either side of the bridge (at 12' and 26' wide) to just one
–from access at both sides of I-5 (which is very wide) in Vancouver to just on one
–from two elevators in the system to one
–from four or more viewpoints along the route to just one
–from 2 open-air, full-view paths to one that is deeply overhung and enclosed along half its length

Further, the quality of the bicycle and pedestrian facilities are always vastly overstated when the CRC presents them to the public:

–the path is touted as "twenty-four feet wide" when in fact it is only so at its flattest, straightest part – most of the route is just the DOT standard 16' wide
–travel distance on the planned path would actually be LONGER; it is more circuitous than today's route
–access to the path from Vancouver will require going up 5 blocks worth of corkscrews
–the under-bridge path is always depicted on a blazingly-sunny day at dawn, and never with a glimpse to the east, and the 200 feet of concrete overhang and multiple structural walls
–the under-bridge path is described as "world-class" despite the fact that no one else in the world has ever made the mistake of building one like it

These are changes that will have significant impacts on cyclists and pedestrians, yet they are not even discussed when the Federal agencies address whether changes to the LPA required a SDEIS. Apparently only changes that impact motor vehicles can be significant.

ENVIRONEMTNAL JUSTICE IMPACTS AND DIRECT IMPACTS TO COMMUNITIES

Rosemere Comments- Environmental Justice

[161] The FEIS rather conspicuously fails to disclose the actual width of the LPA bridges, see FEIS at 2-7 and 2-10, while at the same time disclosing this information for the other alternatives. This disparity in information is of course completely inconsistent with the CRC's insistence that it is providing greater detail and analysis regarding the LPA in the FEIS. The lack of information also creates the very real impression that the FEIS is hiding the true vehicle traffic lane capacity of the LPA bridges.

As the originator of Environmental Justice (EJ) Studies in Vancouver, Rosemere identified 17 west side neighborhoods that qualified (meeting EPA thresholds) as low-income/minority populations. At the Washington Elementary School in Rosemere, later renamed Rose Village, students in the subsidized lunch program rate in the upper 90th percentile, among the highest in the city. The history of EJ studies done by Rosemere is well documented. Further, the studies have resulted in Title VI complaints with EPA's Office of Civil Rights and a well publicized case in the 9th Circuit Court of Appeals where Rosemere prevailed, making national headlines.[162] To now see CRC staff disqualify EJ identification is disingenuous.

The FEIS concludes that the Shumway, Rose Village, and Esther Short neighborhoods are not identified as being "disproportionately below the poverty level."[163] EPA requested, in support of EJ studies, that CRC obtain data relative to elevated asthma cases in neighborhoods adjacent to the I-5 corridor in the construction zone. However, CRC simply responded that no such data was available and EPA has become complicit in allowing a lack of data to presume that no such EJ communities exist. Claiming that there is no time to gather information and research is also disingenuous given the years that have passed between the DEIS and FEIS. An article in the October 21, 2011 *Oregonian* illustrates that such information is readily available. *See EJ Oregonian*, Media Folder.

The use of the federal poverty line is inadequate to determine whether potentially impacted communities are low-income environmental justice communities pursuant to Executive Order

[162] **Rosemere Neighborhood Ass'n v. U.S. Envtl. Prot. Agency**, 581 F.3d 1169 (9th Cir. 2009); Jennifer Koons, Appeals Court Finds Widespread Failure by EPA to Investigate Civil Rights Complaints, N.Y. Times (Sept. 18, 2009), *available at* http://www.nytimes.com/gwire/2009/09/18/18greenwire-appeals-court-finds-widespread-failure-by-epa-78403.html.

[163] See FEIS Section 3.5.

12898 and the FTA's Draft Circular on Environmental Justice. CRC also has failed to comply with Executive Order 12898, requiring each federal agency to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

CRC initially convened a Community and Environmental Justice Group (CEJG) comprised of community residents and representatives from both Vancouver and Portland communities, including residents of diverse economic backgrounds and ethnicities. While agency obtained a veneer of diversity, the CEJG was not given a basic environmental justice training until two years into the process and precluded CEJG discussion of environmental justice concerns, including specific impacts, mitigation measures and community benefit agreements. CRC disbanded the CEJG prior to release of the DEIS.

Due to the significant disproportionate impacts on a low-income population, Executive Order 12898 and NEPA require CRC to conduct an alternatives analysis that avoids, reduces or mitigates such impact.

AQUATIC SPECIES/SALMON

THE BIOLOGICAL OPINION VIOLATES THE ENDANGERED SPECIES ACT.

The Endangered Species Act

Section 7 of the ESA requires that each federal agency ensure that its actions, and any action it authorizes, are not likely to "jeopardize the continued existence" of a listed species. 16 U.S.C. § 1536(a)(2). In fulfilling this mandate, each federal agency that undertakes, or is requested to approve, an action that may affect a listed species must consult with the appropriate federal wildlife agency – here NMFS. *Id.*; 50 C.F.R. § 402.14. Through this consultation process, NMFS must, using "the best scientific and commercial data available," 16 U.S.C. § 1536(a)(2),

provide its "biological opinion" on the impacts the action will have on listed species and whether as a result of those impacts the action is likely to jeopardize the species. *Id.* § 1536(b)(3); 50 C.F.R. § 402.14(g)(4).164 Thus, NMFS must (1) "review all relevant information," (2) "evaluate the current status of the listed species," and (3) "evaluate the effects of the action and cumulative effects on the listed species." 50 C.F.R. § 402.14(g).

The first step in this process is for NMFS is to define the "action area" which is "all areas to be affected directly or indirectly" by the action. *Id.* § 402.02. NMFS must then describe the "environmental baseline" as it exists within the action area, including the "past and present impacts of all Federal, State, or private actions and other human activities, the anticipated impacts of all proposed Federal projects in the action area . . ., and the impact of State or private actions which are contemporaneous with" the action. *Id.* The effects that must be considered include the "direct and indirect effects . . . together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline." *Id.* The Service must also evaluate the "cumulative effects," *id.* § 402.14(g)(3), which include the "effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area." *Id.* § 402.02.

Based on this information, NMFS must determine whether the action is likely to jeopardize the continued existence of the listed species. If so, the Service must provide a Reasonable and Prudent Alternative ("RPA") that will avoid that result. However, if the Service concludes the project is not likely to jeopardize the species, it must provide an Incidental Take

164 An agency action is deemed to "jeopardize the continued existence of a listed species" if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02.

Statement ("ITS") that "specifies the impact of [the] incidental taking" that will occur as a result of the project. 16 U.S.C. § 1536(b)(3)(B)(4); 50 C.F.R. § 402.14(i).

Reinitiatation of Consultation

As a threshold matter, consultation must be immediately reinitiated so that NMFS may properly consider the impacts of the CRC on the newly designated critical habitat for the eulachon. 76 Fed. Reg. 65,324 (Oct. 20, 2011). NMFS' regulations implementing the ESA state that reinitation of consultation is required whenever "a new species is listed or critical habitat designated that may be affected by the identified action" 50 C.F.R. § 402.16(d). Failure to take this mandatory action is a clear violation of the ESA.

Indeed, this analysis is vital considering the significant impacts the CRC may have on eulachon's habitat. Specifically, when NMFS) listed the Southern Distinct Population Segment of eulachon as threatened under the ESA, dredging was recognized as a major impact to the species; habitat. *See Status Review Update for Eulachon in Washington, Oregon, and California*, Prepared by the Eulachon Biological Review Team (Jan. 20, 2010) ("Potential dredging impacts on eulachon consist of direct effects of entrainment of adults and eggs and potential for smother of eggs with sediment . . . Indirect effects may consist of alteration of freshwater spawning habitat and estuarine nursery habitat.") (citations omitted) in Biological Opinions Folder. According to NMFS, "[d]redging during eulachon spawning would be particularly detrimental, as eggs associated with benthic substrates are likely to be destroyed." *Id.* at 13019. Here, given the size of the pillars being driven and the related inwater work when placing these structures, the effects of the bridge construction are likely very similar to a dredging project. NMFS must carefully consider these impacts in its new Biological Opinion.

NMFS' Biological Opinion Fails to Comply with the Endangered Species Act.

NMFS Has Improperly Constricted the Action Area and Inaccurately Described the Environmental Base Line.

To properly evaluate the effects of an action, NMFS must define the appropriate "action area" and establish the "environmental baseline" to which the project's impacts will be added. 50 C.F.R. § 402.02. NMFS limited the "action area" here to "(1) The area where underwater noise caused by pile driving will exceed background; (2) the lower Columbia River where dissolved and suspended pollutants caused by stormwater runoff from CRC is redistributed to the Pacific Ocean; and (3) the eastern Pacific Ocean where southern resident killer whales overlap with Chinook salmon from the Columbia basin." BiOp at 19.165 This constricted action area fails to satisfy the regulatory requirement that the action area include "all areas" that will be "directly or indirectly" affected by the project. Specifically, NMFS fails to include the significant upland areas that will be impacted by the CRC, and which in turn, will significantly affect the species at issue. NMFS must, given the nature, scope, size and location of this project, define the action area to include the true geographic reach of the project's impacts on the salmon. To accomplish this, the designation of the action areas must begin with an accurate description of the direct and indirect impacts resulting from the CRC. Only through a process of describing an action area that represents the full geographic scope of the impacts of the project on the species at issue will NMFS be able to accurately evaluate the impact this project will have on the species.

165 NMFS later describes the "action area" as "the lower Columbia River basin, that portion of the mainstem Columbia River and its tributaries downstream of Bonneville Dam to its Pacific Ocean terminus." NMFS does not explain why the "eastern Pacific Ocean" was dropped from this analysis.

Furthermore, by unlawfully constricting the "action area," NMFS excluded many of the adverse impacts on salmon that must be considered as part of the environmental baseline. Specifically, NMFS fails to appropriately address the significant impacts the urbanization of the Columbia River watershed, and specifically the area from the Bonneville Dam to the mouth of the river, has had on the species at issue. As discussed below, in order to insure the species' long-term survival and recovery it is critical to preserve the species habitat, yet the Service has not adequately taken these factors into account.

NMFS Has Not Meaningfully Analyzed the Effect of the CRC on the species

The CRC is the largest construction project envisioned for the Columbia River in recent memory. Not that one would know that from BiOp. The curt analysis provided by NMFS on a project of this magnitude, a project which in size and scope is unprecedented since the listing of the salmon species in the area, falls well short of the intent and mandates of the ESA and is a disservice to species NMFS is charged with protecting.

Every BiOp must include a "detailed discussion of the effects of the action on listed species." 50 C.F.R. § 402.14(h). These effects must include both the direct effects, and the indirect effects "caused by the proposed action." *Id.* § 402.02. These impacts must then be added to the cumulative effects of other projects in order to ultimately consider whether this project may jeopardize the species. Here, NMFS has not properly analyzed any of these effects.

a. NMFS Has Failed to Address the Direct and Indirect Impacts the Crossing Will Have on the Species

To begin with, the he effects of an action that must be considered include the "direct and indirect effects . . . together with the effects of other *activities that are interrelated or*

interdependent with that action, that will be added to the environmental baseline." *Id*. (emphasis added). Here, NMFS admits that it has failed to undertake the appropriate analysis, stating "[t]he present level of planning for these actions is not sufficient to support a complete analysis of effects that are reasonably certain to occur on ESA-listed species or their designated critical habitats." BiOp at 19. NMFS' failure to address the effects is without question a fatal flaw that must be remedied before the action is authorized.

Moreover, NMFS' analysis of the direct and indirect impacts the CRC will have on the species addressed is flawed. For example, NMFS in its cursory analysis of the impacts of underwater noise during the construction of the crossing fails to acknowledge the true extent of the potential harm to salmonids. NMFS states "Modeling of the population-level effects pile driving, the primary source of impacts from CRC, shows that the magnitude and temporary duration of those effects will not increase the risk of extinction faced by these species." BiOp at 73.166 This conclusion is dubious because NMFS never fully addresses the impact of the activities authorized here. Specifically, NMFS focuses mainly on the mortality and injury that will from the action, but fails to address the impact to the species of the sub-leathal effects. According to NMFS, all fish will "may experience a temporary threshold shift in hearing due to a temporary fatiguing of the auditory system that can reduce the survival, growth, and reproduction of the affected fish by increasing the risk of predation and reducing foraging or spawning success" at sound levels equal or greater than 150 dB re: 1 μPa^2 BiOp at 62-63. NMFS further states that some activities will cause this level of underwater noise up to twelve miles away from the construction site. *Id.* at 58, Table 24. And, despite the clear limitations on in-water work established to protect salmon species—limitations not discussed in the BiOp—

166 NMFS' conclusion is suspect as it specifically admits previously that "this model was not able to assign those mortalities to individual populations." BiOp at 72.

such activities are allowed to occur year round for up to four years. *Id.* at 78. NMFS fails to explain how these known impacts that will affect all fish within the in-water action area will affect the populations.

Next, NMFS erroneously relies on unspecified and unproven stormwater best management practices (BMPs) to conclude that the CRC is unlike to appreciably reduce the likelihood of survival and recovery of listed species. BiOp at 73. In reality, Oregon and Washington's experience with Industrial General Stormwater Permits and Municipal Separate Storm Sewer System demonstrate stormwater discharges often fail to comply with established permit limits and therefore such permits regularly fail to protect water quality. While the goal of improving stormwater management over existing conditions is necessary, NMFS cannot rely on alleged or anticipated improvements in water quality without quantifying, or at a minimum, estimating the amount of pollution and quantity of annual stormwater discharges.

Furthermore, NMFS fails to meaningfully discuss any impacts, other than stormwater discharge, from the ongoing operation of the crossing. Specifically, NMFS fails to meaningfully address the impact the physical structures both during construction and once built will have on the river and its species. For example, the increased shade areas over the construction period and caused by the bridge itself will significantly alter the habitat it the area. These impact are given little or no consideration in the BiOp. Moreover, the BiOp does not address any noise issues related to the operation of the crossing. It is certainly conceivable that underwater noise created by the bridge will have onging impacts to the nearby habitat quality. In order to give "the benefit of the doubt to the species" required by the ESA, H.R. Conf. Rep. No. 697, 96th Cong., 2d Sess. 12 (1979), NMFS must address all known and potential impacts to the species. Its failure to do so here renders the BiOp arbitrary and capricious.

b. NMFS' Cumulative Effects Analysis Does Not Adequately Address the Many Impacts on the species

NMFS' cumulative impacts analysis is deficient as it wholly fails to address the effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area." 50 C.F.R. § 402.02. To analyze these impacts correctly, NMFS must describe all relevant future activities and *assess* how those activities would impact the species. *Id.* § 402.14(g)(4); *Greenpeace v. NMFS*, 80 F. Supp. 2d 1137, 1149 (W.D.Wash. 2000) (holding that mere listing of future activities without any explanation or analysis of how those activities may affect the listed species was not sufficient to consider cumulative effects). As a threshold matter, as noted earlier, NMFS' unlawful constriction of the "action area" significantly contributes to this flaw. By limiting the action area to only the in-water portion of the action area, NMFS has ignored upland actions that will occur in the immediate vicinity of the project that may have a cumulative effect on species impacted by the CRC. Indeed, although NMFS notes the likely population growth in the area and identifies some of the potential resulting consequences, NMFS fails to meaningfully address the impact to the area and the species.

The NMFS' Incidental Take Statement also Does Not Comply with the Endangered Species Act

As noted, if, at the conclusion of the consultation, the Service concludes that the action will not jeopardize the listed species, the Service must determine whether the action will result in

the "incidental take" of individuals of the species and what level of such take" will occur.167 Based on this analysis, the Service provides the agency with an "Incidental Take Statement" ("ITS"). 16 U.S.C. § 1536(b)(4); 50 C.F.R § 402.14(i). The ITS provides an exception to the prohibition against take established in Section 9 of the Act by authorizing the "incidental take" of a specific number of individuals of a listed species, where the take "result(s) from, but [is] not the purpose of, carrying out an otherwise lawful activity." 50 C.F.R. § 402.02; see also 16 U.S.C. § 1536(b)(4). An ITS must state the impact that the take will have on the species, identify the "reasonable and prudent measures" ("RPMs") considered necessary to minimize the expected impact, and establish "terms and conditions" necessary for implementation of the RPMs. 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i).

Here, the NMFS made two significant flaws in its ITS analysis. First, if NMFS had appropriately assessed the true impacts of this development on the species, it would have reached the singular conclusion that the development would result in the take of a significant number of species. However, as detailed above, the NMFS has failed at each step of the analysis and thus could not have accurately described the true amount of take that will result from this project.

Second, even had the agency properly evaluated the impacts, the ESA requires that NMFS specify the level of take that will occur. 50 C.F.R. § 402.14(i). An ITS must express the amount or extent of take in some form, either as a numeric value or as a surrogate ecological condition that has some connection to the taking of the species. *Arizona Cattle Growers' Ass'n v. U.S. Fish and Wildlife*, 273 F.3d 1229, 1250-51 (9th Cir. 2001). "Incidental Take Statements set forth a 'trigger' that, when reached, results in an unacceptable level of incidental take,

167 "Take" is defined to include engaging in or attempting to engage in conduct that will "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" an individual of a listed species. 16 U.S.C. § 1532(19).

invalidating the safe harbor provision, and requiring the parties to reinitiate consultation." *Id.* at 1249. Rather than comply with this requirement, with regard to take associated with underwater noise, NMFS failed to provide a cap for the amount of take that will occur. *See* BiOp at 77. To the extent NMFS attempted to set a take limit by describing the areas in which take will occur, this fails to comply the ESA as NMFS has simply restated the predicted impacts of the project, without establishing when an unaccpetable level of take is reached. *See Or. Natural Res. Council v. Allen*, 476 F.3d 1031, 1039 (9th Cir. 2007) ("The Incidental Take Statement and BiOp are rendered tautological, they both define and limit the level of take using the parameters of the project."). In short, without actually evaluating the level of this take, the NMFS has violated its obligation to insure that if the authorized level of take is exceeded, consultation will be reinitiated in order to protect against jeopardy.

THE FEIS's EVALUATION OF IMPACTS ON AQUATIC SPECIES VIOALTES NEPA AND THE ESA

The FEIS is so inadequate as to preclude meaningful analysis of salmon and steelhead issues.

The FEIS does not contain a valid and complete analysis of cumulative impacts to salmon and steelhead.

The FEIS is a NEPA document, and NEPA documents must "provide full and fair discussion of significant environmental impacts." 40 C.F.R. §1502.1. Accordingly, FHWA and FTA must take a "hard look" at the significant environmental consequences of the CRC Project. *Kern v. U.S. B.L.M.*, 284 F.3d 1062, 1066 (9th Cir. 2002). "A 'hard look' does not dictate a soft touch or brush-off of negative effects." *Native Ecosystems Council v. USFS*, 428 F.3d 1233, 1241 (9th Cir. 2005). Rather, agencies must "consider every significant aspect of the environmental impact of a proposed action," *Ore. Natural Desert Ass'n v. BLM*, 625 F.3d 1092,

1100 (9th Cir. 2010), which includes the cumulative impacts of a proposed action. *See* 40 C.F.R. §1508.25(c)(3).

A "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. §1508.7. A proper consideration of the cumulative impacts of a project requires "some quantified or detailed information; ... [g]eneral statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Ocean Advocates v. U.S. Army Corps*, 361 F.3d 1108, 1128 (9th Cir. 2004)(*amended opinion*, 402 F.3d at 868).

A cumulative impacts analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects," *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1075 (9th Cir. 2002), and explain "how [] individual impacts might combine or synergistically interact with each other to affect the [] environment." *Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 997 (9th Cir. 2004). An agency can address impacts from past actions by providing specific information regarding the aggregate effects of those past actions, but the agency must still address whether and how those past aggregate impacts and the impacts of the agency's current proposal and likely future actions will have cumulative impacts on the environment. *See, e.g., League of Wilderness Defenders v. Allen* 615 F.3d 1122, 1136 (9th Cir. 2010).

Although a proposed action's impact may be minor, combined actions over time may be significant. 40 C.F.R. § 1508.7. Analysis must address combined or synergistic effects in addition to isolated effects. *See Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 997 (9th Cir. 2004). Analysis must be based on quantified or detailed information rather than vague or general statements about possible effects. *Ocean v. U.S. Army Corps*, 361 F.3d 1108, 1128 (9th Cir. 2004) (amended opinion, 402 F.3d at 868). Detailed discussion of such information ensures that the twin aims of NEPA are fulfilled, which are: (1) informed agency decision-making and (2) providing the public with useful information so as to allow public participation in the decision-making process and implementation of that decision. *Oregon Natural Dessert Ass'n v. BLM*, 625 F.3d 1092, 1099 (9th Cir. 2010). NEPA's "chief tool" to accomplish this is the EIS, id. at 11, which serves "to obviate the need for speculation," *Ocean Advocates v. U.S. Army Corps of Engineers*, 402 F.3d 846, 870 (9th Cir. 2005).

The Ninth Circuit has underscored the importance of cumulative impacts analysis. *See Kern*, 284 F.3d at 1076 (EAs require "adequate consideration of cumulative effects" and must be addressed "fully"). This is particularly true in an EIS, which "more thoroughly than an EA, [explores] the environmental consequences of a proposed action whenever 'substantial questions are raised as to whether a project *may* cause significant [environmental] degradation.'" *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998) (quoting *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998)).

The CRC Project FEIS acknowledges that a valid cumulative effects analysis must include an analysis of the incremental impacts of the proposed action together with the effects of other actions. Cumulative Effects Technical Report for the Final Environmental Impact

Statement at 1-11, citing 40 C.F.R. §1508.7. The FEIS then fails to properly analyze the past, present and future actions in the Columbia River Basin that will cumulatively add to the adverse impacts to salmon and steelhead. It is not enough to say that the CRC Project alone has a small effect on these species when the entire purpose of a cumulative impacts analysis is to take a hard look at all the *other* factors that influence ecosystem health. The FEIS fails to adequately disclose, explore or analyze any of these cumulative impacts on salmon and steelhead and is therefore in violation of NEPA.

The FEIS's cumulative impacts analysis is deficient in relation to salmon and steelhead in three major respects. First, it attempts improperly to tier with non-NEPA documents. Second, it fails to consider the effects of the CRC Project itself to salmon and steelhead beyond ESA-listed salmon and steelhead. Third, it fails to discuss the impacts of past authorized take of salmon and steelhead in any detail.

The FEIS's cumulative effects analysis impermissibly tiers to the Biological Assessment and Biological Opinion.

The CRC Project Biological Opinion's cumulative impact analysis is guided by the ESA rather than NEPA, which requires a significantly different and considerably narrower cumulative impact analysis. The ESA requires NMFS to only consider future non-federal activities that are reasonably certain to occur within an action area (*see* 50 C.F.R. § 402.02 (definition of cumulative effects)), whereas NEPA requires FHWA and FTA to consider *all* past, present, and foreseeable future actions, regardless of who performs the action, that combine with the proposed action to cause an incremental environmental impact (*see* 40 C.F.R. § 1508.7).[168] *See*

[168] NMFS itself recently recognized that an ESA cumulative impact analysis is "narrower than the NEPA definition of cumulative impacts." 73 Fed. Reg. 47869 (2008). Moreover, according to the Interior Solicitor, a cumulative impact analysis under the ESA may not consider certain

Portland Audubon Society v. Lujan, 795 F.Supp. 1489, 1509 (D.Or. 1992) (rejecting agency's request for the court to "accept that its consultation with the United State Fish and Wildlife Service under the Endangered Species Act constitutes a substitute for compliance with NEPA."); *Makua v. Rumsfeld*, 163 F.Supp. 2d 1202, 1218 (D.Ha. 2001) (highlighting lower standard applied under NEPA to determine whether an action will have the potential to cause impacts short of extinction and under ESA to determine whether an action will jeopardize). *See also Oregon Environmental Council v. Kunzman*, 714 F.2d 901 (9th Cir. 1983) ("[o]ne agency cannot rely on another's examination of environmental effects under NEPA"). Additionally, unlike a NEPA document, a BiOp is not subject to public comment and scrutiny by non-federal scientists.

The FEIS's Ecosystems section (section 3.16) refers the reader to Appendix K of the Biological Assessment for a "detailed description of estimated impacts to each run" of ESA-listed salmon and steelhead. *Id.* 3-393. Insofar as the FEIS fails to include its own detailed description of estimated impacts to salmon and steelhead, it cannot "tier" to the BA, which is not a NEPA document and is not even incorporated into the FEIS. *See League of Wilderness Defenders-Blue Mountains Biodiversity*, 549 F.3d 1211, 1219 (9th Cir. 2008) (remanding so the USFS can reissue its NEPA documentation to include the omitted, but clearly relevant, information); *Muckleshoot Indian Tribe*, 177 F.3d at 810 (noting that the 9th Circuit "[h]as

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future actions which might be likely to jeopardize a listed species, whereas a cumulative impact analysis under NEPA must consider these projects. Solicitor's Opinion M-36938, Cumulative Impacts under Section 7 of the Endangered Species Act, 88 Interior Dec. 903, 905 (1981). Additionally, the Solicitor determined, unlike under NEPA, the effects of possible future federal actions should not be considered as "cumulative effects" in determining ESA compliance because "all other future federal actions will themselves" be allowed to proceed only if they are later found to comply with ESA. 88 Interior Dec. at 905-07. Further, the preamble to the consultation rules acknowledged that NEPA "warrants] a more expanded review of cumulative effects" and that cumulative effects under the ESA are limited. 51 Fed. Reg. 19933 (June 3, 1986).

previously interpreted the regulations to allow tiering only to another environmental impact statement."); *Or. Natural Res. Council v. U.S. BLM,* 470 F.3d 818, 823 (9th Cir. 2006) (holding similarly proposed tiering impermissible because "the Watershed Analysis is not a NEPA document.").

Similarly, the FEIS attempts to tier to the Biological Opinion itself. *See* FEIS Cumulative Effects section 3.19, at 3-455. The Biological Opinion is not a NEPA document, either, and tiering to it is disallowed as well.

The FEIS's cumulative impacts analysis does not consider the impacts of the CRC Project to salmon and steelhead.

In terms of cumulative impacts, the FEIS's fundamental error is its failure to even consider, much less analyze, the cumulative impacts of the CRC Project along with the existing and likely future impacts of other activities in the Columbia River Basin. These ignored activities include other in-water projects and projects conducted out of the water which affect the watershed by increasing erosion, pollution runoff, or habitat destruction. The missing cumulative impacts analysis should have included both a more specific analysis of the cumulative impacts of these activities on salmon, steelhead, and other species, and a more general analysis of the cumulative impacts of the CRC Project itself and these other activities on resources such as wildlife and aquatic resources. The error here is quite similar to that identified in *Te-Moak Tribe of Western Shoshone v. U.S. Dept. of the Interior*, 608 F.3d 592, 603 (9th Cir. 2010), which invalidated an EA in which the cumulative impacts analysis focused primarily on the impacts of the proposal at issue and included only conclusory assertions of no cumulative impacts.

An interested reader might reasonably look for the FEIS's salmon and steelhead cumulative impacts analysis in the section titled "Cumulative Effects" (FEIS section 3.19). However, that reader would be disappointed because the Cumulative Effects section's "Ecosystems" subsection (FEIS subsection 3.19.18) is only four pages long. *Id*, 3-452 - 3-456. And, other than a discussion of the Biological Opinion's "no jeopardy" and "no adverse modification" conclusions, only *two sentences* out of those four pages are dedicated to considering the impacts of the CRC Project itself to ecosystems. Those two sentences are as follows:

> Although the direct effects of the [CRC Project] would include disturbances to native vegetation, trees, and wetland buffers, the most significant ecosystems effects of the [CRC Project] are changes to aquatic habitat. The [CRC Project] would significantly improve runoff water quality as a result of improved stormwater management, although its in-water bridge piers would have adverse effects on protected fish species in the Columbia River similar to the effects of the existing I-5 bridge piers.

Id. at 3-454. So, the analysis of cumulative impacts to ecosystems in the Cumulative Effects section is limited to an acknowledgment that the CRC Project will "disturb" native vegetation, trees, and wetlands, and that the aquatic habitat will be "affected." Specifically, the aquatic habitat will be affected by "improved" runoff water quality and by "adverse effects" from bridge piers. *Id.* That is all the information given on the effects of the CRC Project to ecosystems, including salmon and steelhead, in the Cumulative Effects section of the FEIS. This "analysis" does not satisfy NEPA.

The observant interested reader, however, will not be dismayed by the lack of information in the Cumulative Effects section itself. That reader will have noticed that the introduction to the Cumulative Effects section refers to that section's technical report, stating that "[t]he information in [the Cumulative Effects section] is based on more detailed information in the CRC Cumulative Effects Technical Report." *Id.* at 3-429. Accordingly, the reader will make his way to the Cumulative Effects Technical Report to satisfy his curiosity regarding the CRC Project's cumulative impacts to salmon and steelhead. Unfortunately, however, the reader will not find "more detailed information" regarding cumulative effects to ecosystems in the Cumulative Effects Technical Report. Rather, he will find *even less* information on ecosystems than was included in the Cumulative Effects section itself.

In the Cumulative Effects Technical Report, the impacts of the CRC Project to ecosystems are addressed in a mere *two paragraphs*. Those two paragraphs, in their entirety, are as follows:

> Although the effects of [the CRC Project] would include disturbance to native vegetation and trees and wetland buffers, the most significant ecosystems effects of the [CRC Project] are beneficial changes to aquatic habitat. The [CRC Project] would significantly improve water quality in area waterways as a result of improved stormwater management, although its in-water bridge piers would have adverse effects on protected fish species in the Columbia River similar to the effects of the existing I-5 bridge piers.
>
> The [CRC Project] would also remove the peregrine falcon habitat in the steel structure of the existing I-5 bridges. Whether these effects are temporary, with peregrine falcons reestablishing themselves on new bridge structures, or permanent, long-term adverse effects on the overall viability of the species are not anticipated.

Id, 3-1 to 3-2. Notably, the first paragraph is almost identical to the cumulative impacts treatment in the main Cumulative Effects section. The only real difference between the technical report language and the language in the main Cumulative Effects section is the addition of the second paragraph addressing peregrine falcons in two sentences. With analysis like this in the "more detailed" technical report, the reader wonders if he miscomprehends the meaning of the word "technical." This is not a detailed or quantitative discussion as required by NEPA. *See Ocean v. U.S. Army Corps*, 361 F.3d at 1128. NEPA requires more specificity than this. *See Kern*, 284 F.3d at 1076.

Having read the entire Cumulative Effects section and the entire Cumulative Effects Technical Report, and being left with no real analysis of the impacts of the CRC Project on salmon and steelhead, our hypothetical interested reader would likely be showing signs of wear. However, he might still take a hopeful glance at the Ecosystems section of the FEIS (FEIS section 3.16). Regrettably, however, the Ecosystems section is also extremely vague and does not, even once, use the word "cumulative."

What about the Ecosystems Technical Report, though? After all, the Ecosystems section says "[t]he information presented in this section is based on the CRC Ecosystems Technical Report." *Id.* at 3-371. Once again, however, the interested reader will be foiled. The Ecosystems Technical Report does not analyze *any* cumulative effects from the CRC Project. *Id* at 2-6. Instead, the Ecosystems Technical Report refers the interested reader to the Cumulative Effects Technical Report for an analysis of cumulative effects from the CRC Project, stating that "[p]otential cumulative effects from [the CRC Project] are evaluated in the Cumulative Effects

Technical Report. Please refer to [the Cumulative Effects Technical Report] for an evaluation of possible cumulative effects." *Id.* Alas, as already discussed, the Cumulative Effects Technical Report contains only two paragraphs relevant to the cumulative impacts of the CRC Project on ecosystems, including salmon and steelhead.

In conclusion, the FEIS offers a cursory and wholly inadequate treatment of cumulative impacts from the CRC Project to salmon and steelhead and therefore violates NEPA.

The FEIS's cumulative impacts analysis does not consider the impacts of numerous past and ongoing activities to salmon and steelhead.

The Cumulative Effects section of the FEIS (FEIS section 3.19) does not address past or present projects other than the CRC Project that affect salmon and steelhead. Rather than engaging in detailed analysis, the Cumulative Effects ecosystems section (FEIS subsection 3.19.18) reads like a general encyclopia article on ESA-listed pacific salmon. Rather than discussing any specific projects that adversely affect salmon and steelhead, the section offers an extremely generalized review of ESA-listed species and how climate change is likely to affect those species in the future. The section does cite a 2010 status review of ESA-listed salmon and steelhead, but offers no details and no specificity. Futhermore, even though NEPA environmental analysis is not limited to effects on ESA-listed species, there is no mention whatsoever of salmon and steelhead ESUs that are *not* listed under the ESA (including the Okanogan River and Lake Wenatchee sockeye salmon ESUs; the middle Columbia River spring-run and upper Columbia River summer/fall-run, and Deschutes River summer/fall-run chinook ESUs; the Southwest Washington steelhead ESU; and the pink salmon ESUs).

The Cumulative Effects Technical Report is no better. After its perfunctory treatment of the effects of the CRC Project itself on ecosystems, the Cumulative Effects Technical Report goes on, in only four paragraphs, to describe the "Effects from Other Actions (Past, Present, Future)" that also play into the cumulative impacts analysis. *Id.* at 3-2. Almost needless to say, those four paragraphs do not describe *any* other projects that affect salmon and steelhead. Rather, the section generally emphasizes that protected fish species' true concern should not be the CRC Project, but instead climate change, hydropower dams, hatcheries, and fisherman. Such cursory "analysis" fails to meet the requirement for high quality scientific analysis as required by 40 C.F.R. §§ 1502.24 and 1500.1(b).

Similarly, discussion of mitigation cannot be substituted for analysis of impacts. *See Te-Moak Tribe*, 608 F.3d at 604-05 (BLM's cumulative impacts analysis in Environmental Assessment ("EA") inadequate). In *Te-Moak Tribe*, the EA concluded that no cumulative effects would occur because all effects from mining exploration would be "avoided or mitigated." *Id*. at 604. Such vague discussion of cumulative impacts is inadequate. *Id*. FHWA and FTA make the same mistake when concluding that impacts are "small" or will be avoided. *See, e.g.*, Cumulative Impacts Technical Report at 3-2. The FEIS goes even further and passes responsibility for the salmon and steelhead to the Basinwide Salmon Recovery Strategy, notably *not* a NEPA document and out of the control of the CRC. *Id.*

The FEIS is actually open about its failure to consider and analyze projects other than the CRC Project. For example, the Cumulative Effects section of the FEIS states that "[w]hile not

explicitly identified and analyzed, ongoing and future federal projects such as the Federal Columbia River Power System and salmon recovery efforts were taken into account during the project development and ESA analysis." Cumulative Effects, 3-455. There is an irony here, however, because the Cumulative Effects section goes on to say that, in the future, agencies will be required to analyze the CRC Project as part of their Biological Assessments and Biological Opinions: "future federal actions must comply with Section 7(a)(2) of the ESA, requiring federal action agencies to ensure that their actions do not result in jeopardy or adverse modification of critical habitat, and Section 9 of the ESA criminally and civilly prohibits any person to take a listed species or critical habitat in the future. *When future federal actions occur, the CRC project would be analyzed as an existing condition, if the CRC project is in construction or has been completed.*" *Id.* (italics added; internal quotation marks omitted). Because NEPA cumulative impacts analysis is much broader than ESA cumulative impacts analysis, this statement is an admission that individual projects, such as the CRC Project, must be "analyzed as [] existing condition[s]" in the cumulative impacts section of an EIS. The irony is that FHWA and FTA have completely failed to undertake any such analysis of their own.

In sum, the FEIS hardly touches on the combined cumulative impacts and briskly brushes off all negative effects. NEPA's "hardlook" requires more from FHWA and FTA. *Native Ecosystems*, 428 F.3d at 1241.

FHWA and FTA have failed to ensure their actions will not violate section 7(a)(2) of the Endangered Species Act.

The ESA represents "an explicit congressional decision to require agencies to afford first priority to the declared national policy of saving endangered species." *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 185 (1978). Section 7 of the statute requires that every federal agency "shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species…." 16 U.S.C. § 1536(a)(2). This provision gives rise to both substantive and procedural obligations. A federal agency proposing to take or authorize an action that may affect listed species or designated critical habitat must, in cases involving Pacific salmonids, consult with NMFS pursuant to the procedures set forth in section 7. This culminates in NMFS issuing a Biological Opinion that provides advice as to whether the proposed agency action is likely to jeopardize listed species or adversely modify critical habitat. Substantively, federal action agencies have a free-standing obligation to ensure that their actions do not run counter to section 7's prohibitions; an agency cannot "abrogate its responsibility to ensure that its actions will not jeopardize a listed species; its decision to rely on a [ ] biological opinion must not have been arbitrary or capricious. *Resources Limited v. Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1993) (internal citations omitted). Both NMFS and action agencies must use "the best scientific and commercial data available" in complying with section 7. 16 U.S.C. § 1536(a)(2).

On February 23, 2004, NMFS issued a Biological Opinion that examined "all basins in Oregon with anadromous fish use…or designated critical habitat." Biological Opinion on EPA's Proposed Approval of Revised Oregon Water Quality Standards at 6. In that Biological Opinion,

NMFS determined the degraded status of listed salmon and steelhead habitat throughout the state "is such that there must be a significant improvements [sic] in the environmental conditions [these fish] experience," and declared that "[a]ny further degradation of these conditions would significantly reduce the likelihood of survival and recovery of these species." *Id.* at 24. NMFS regulations define "jeopardize the continued existence of" as engaging in an action that "reduce[s] appreciably the likelihood of both the survival and recovery of the species in the wild…." 50 C.F.R. § 402.02. Regulations define "destruction or adverse modification" of critical habitat in a similar manner. *See id.*

FWHA, FTA, and NMFS have failed to ensure that the CRC Project is not likely to jeopardize salmon and steelhead ESUs listed as threatened under the Endangered Species Act, 16 U.S.C. §1531 et seq. (ESA), or destroy or adversely modify these species' designated critical habitat. Without any means of accurately determining the current status of these fish and their habitat, keeping track of authorized mortality and injury to these populations, and assessing implementation of measures determined by NMFS as necessary to comply with section 7 of the ESA, allowing additional adverse impacts to these species and their critical habitat is unlawful.

The CRC Project is merely one of a long litany of projects carried out or approved by federal agencies with similar, or in some cases more extensive, adverse impacts on these highly imperiled fish. For example, in 2008 NMFS determined that two of the listed evolutionarily significant units (ESUs) affected by the CRC Project face jeopardy to their continued existence and destruction or adverse modification to their critical habitat unless the U.S. Army Corps of Engineers (Corps) and others implement a long list of measures to improve survival of these fish and restore their habitat. Nevertheless, NMFS lacks any sort of mechanism to keep track of accumulated adverse impacts to listed salmonids and their habitat, including death and injury to

these fish expressly authorized by NMFS. NMFS also appears to have no system for assessing whether the measures identified as necessary to avoid jeopardy and adverse modification of the ESUs' critical habitat are actually being implemented or are effective. Thus even the "small" impacts of the CRC Project could, to use a familiar analogy, potentially be the straw that breaks the camel's back for Columbia River Basin salmon and steelhead near extinction.

Section 7 does not prohibit all negative impacts on listed salmon and steelhead or their critical habitat; rather, it only prohibits agency actions that have the effect of jeopardizing an *entire* listed ESU or adversely modifying the conservation value of an *entire* critical habitat designation. *See* Consultation Handbook at 4-36 and 4-39.[169] A Department of Interior Solicitor's opinion, included as an appendix to the Handbook, explained the implications of these broadly focused prohibitions as follows:

> [A] project passing muster under section 7 is in effect allocated the right to consume (and is presumed to utilize) a certain portion of the remaining natural resources of the area. It is this "cushion" of remaining natural resources which is available for allocation to projects until the utilization is such that any future use may be likely to jeopardize a listed species or adversely modify or destroy its critical habitat. At this point, any additional federal activity in the area requiring further consumption of resources would be precluded under section 7.

Cumulative Effects to be Considered Under Section 7 of the Endangered Species Act, August 27, 1981 at 6 (this opinion is SO-3 in Appendix D of the Handbook). This "straw that breaks the camel's back" approach to assessing jeopardy and adverse modification of critical habitat obviously makes it crucial for federal agencies and NMFS to keep careful track of the "cushion" of remaining resources available for allocating to actions that adversely affect ESUs and their critical habitat.

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[169] The Consultation Handbook was jointly published by FWS and NMFS to provide greater detail on the substantive and procedural requirements of section 7; it is available at http://www.fws.gov/endangered/esa-library/index.html#consultations_policy.

Through the section 7 process, NMFS may also authorize federal actions to cause "incidental take" of protected ESUs, which but for such authorization would generally be illegal under section 9's prohibition against take. See 16 U.S.C. § 1538(a)(1)(A). "Incidental" take refers to death or injury to listed species "that result from, but are not the purpose of, an otherwise lawful activity." *Id.* NMFS may issue an "incidental take statement" (ITS) as part of a biological opinion; an ITS authorizes incidental take resulting from an agency action so long the level of take does not otherwise violate section 7(a)(2) and the federal agency implements "reasonable and prudent measures" to minimize incidental take. *See* 16 U.S.C. § 1536(b)(4). Congress intended NMFS to specify numeric estimates of incidental take in an ITS if such an estimate can be "practically obtained," though the Service may employ a "surrogate" for estimating incidental take provided "these conditions are linked to the take of the protected species." *Arizona Cattle Growers Ass'n v. U.S. Fish and Wildlife Service*, 273 F.3d 1229, 1250 (9th Cir. 2001).

Taken together, the provisions of section 7 and its implementing documents require NMFS to determine the current status of a species and its critical habitat – as affected by all previously authorized federal actions, all past and present non-federal activities, and future non-federal actions "reasonably certain" to occur – in assessing whether a proposed federal action is likely to jeopardize listed ESUs or destroy or adversely modify critical habitat. This analysis of the current status of the species also must consider all past "incidental take" authorized by the Service. Only if a proposed action that will have adverse effects on listed ESUs and critical habitat will not tip the species into jeopardy or adversely modify its critical habitat may the action proceed. NMFS, FHWA, and FTA have failed to undertake any of this analysis.

To illustrate what might be a possible potential starting point for NMFS' analysis of past incidental take, please refer to Appendices A, A1, B, B1, and B2 in ESA Exhibits Folder. For a compilation of all biological opinions issued by NMFS since January 1, 2005, in relation to salmon and steelhead ESUs affected by the CRC Project, see the attached folder entitled "Biological Opinions.2005-01-01 to 2011-01-19." Many, if not all, of these biological opinions should have been considered in some detail and in some meaningful way, by NMFS in issuing the Biological Opinion and by FHWA and FTA in the FEIS.

The Biological Opinion issued by NMFS is inadequate and does not ensure compliance with the Endangered Species Act.

Section 7 regulations set forth the procedure for NMFS to assess whether a proposed action is likely to tip an ESU into jeopardy or adversely modify designated critical habitat. NMFS must first evaluate the "current status of the species or critical habitat," 50 C.F.R. §402.14(g)(2), which the Handbook describes as "the effects of all past human and natural activities or events that have led to the current status of the species" or critical habitat. Handbook at 4-19. Next, NMFS must evaluate "the effects of the action and cumulative effects on the listed species or critical habitat." 50 C.F.R. §402.14(g)(3). The regulations define "effects of the action" to include direct and indirect effects of the action that will be added to the "environmental baseline." 50 C.F.R. §402.02. The "environmental baseline" includes "the past and present impacts of all Federal, State, or private actions and other human activities in the action area," *Id.,* which the Handbook characterizes as a "snapshot" of a species' health at a specified point in time. Handbook at 4-22. The "action area" means "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the

action." 50 C.F.R. § 402.02. Finally, "cumulative effects" include the effects of future non-Federal activities reasonably certain to occur in the action area. *See id.*

If NMFS determines that a proposed federal action is likely to cause jeopardy to a listed ESU or adversely modify designated critical habitat, it must suggest "reasonable and prudent alternatives," if any, which would allow the federal agency to accomplish the goal of its proposed action to the degree possible within its authority without running afoul of section 7(a)(2). 16 U.S.C. §1536(b)(3)(A).

NMFS' CRC Project Biological Opinion is inadequate because it has a flawed assessment of the statuses of the salmon and steelhead ESUs and the Incidental Take Statement is unlawful.

The Biological Opinion's evaluation of the statuses of listed salmon and steelhead and their critical habitat is inadequate.

The Biological Opinion does not consider the best available science.

Section 7(a)(2) of the ESA, 16 U.S.C. §1536(a)(2), requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of listed species or destroy or adversely modify these species' designated critical habitat. The section 7 consultation process assists federal agencies in complying with this mandate. In fulfilling both their substantive and procedural mandates under this section, the ESA requires federal agencies to use "the best scientific and commercial data available." *Id*.

Courts interpret this "best science" mandate to require that federal agencies consider all available information relevant to complying with section 7. In *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988), the Ninth Circuit emphasized that agencies "cannot ignore available biological information or fail to develop projections of [actions affecting listed species] which may indicate potential conflicts between development and the preservation of protected species."

See also Kandra v. U.S., 145 F. Supp 2d 1192, 1208 (D. Ore. 2001) ("The Ninth Circuit has interpreted this provision to mean an agency cannot ignore available biological information."); *Southwest Center for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (D.C. Cir. 2000) (the best science requirement "prohibits the Secretary from disregarding available scientific evidence that is in some way better than the evidence he relies on."). The Biological Opinion does not satisfy this "best science" requirement.

The Biological Opinion does not consider the 2010 *Status review update for Pacific salmon and steelhead listed under the ESA*.

On December 10, 2010, NMFS released the *Status review update for Pacific salmon and steelhead listed under the Endangered Species Act.* This document updated the last formal status update, issued in 2005. This document, although available before the Biological Opinion was issued in early 2011, was not considered or cited in the Biological Opinion. As NMFS issued both the status update and the Biological Opinion, it was aware of the development of both documents and surely would have considered the status update to be some of "the best available science." NMFS therefore easily could have included a discussion of the status update in the Biological Opinion. Its failure to do so renders inadequate the Biological Opinion's evaluation of the statuses of listed salmon and steelhead and their critical habitat. *See also* Appendix A and Appendix B.

The Biological Opinion does not consider additive adverse impacts from prior-issued Incidental Take Statements.

When formulating a biological opinion NMFS has an obligation to evaluate both the "current status of the listed species or critical habitat," as well as the "effects of the action." 50 C.F.R. §402.14(g)(2) and (3). The regulations further define the latter to include a "snapshot" of the species' and critical habitat's health in light of all actions that have previously taken place in

the action area. *See supra* at 3-4. The court carefully examined these requirements in *Fund for Animals v. Babbit*, 130 F.Supp 2d 121 (D.D.C. 2001). Pointing to other federal actions also affecting endangered desert pronghorn which the challenged biological opinion did not consider, the court found that the Biological Opinion had improperly looked at the proposed action's impact on pronghorn "in isolation" from other impacts on the species, and held that FWS had acted unlawful by failing to "analyze the effects of the action in conjunction with the effects of other agencies' actions on the pronghorn." *Id.* at 121, 128. The court also determined that FWS had too narrowly defined the "action area" of the project under consideration in order to "avoid taking into account the impacts of other federal activities on the pronghorn." *Id.* at 129.

Finally, the *Fund for Animals* court noted that FWS had failed to keep track of all incidental take of pronghorn. It observed that "FWS has authorized a total level of take greater than the incidental take provided for in any individual BO without analyzing whether that total level jeopardizes the survival of the pronghorn species." *Id*. at 130. Thus FWS' failure to account for additive incidental take from all federal actions was unlawful because "[w]hile the take of one or two pronghorn as a result of a particular activity may not jeopardize the species as a whole, the aggregate take of pronghorn resulting from each federal activity affecting pronghorn may pose such a risk." *Id*.

Like FWS in the pronghorn case, NMFS in the CRC Project Biological Opinion has failed to consider other federal actions' impacts on listed ESUs and critical habitat. NMFS did not consider or analyze the adverse impacts identified in any of its previous Biological Opinions in assessing the "current status" in 2011 of listed ESUs and critical habitat affected by the CRC Project. Although NMFS does cite a few Biological Opinions (notably the FCRPS and

Willamette Project Biological Opinions), it does not offer any analysis or detail of the impacts of those projects.

Even more obvious is NMFS' complete failure to keep track of total incidental take of listed salmon and steelhead ESUs. Almost all of the hundreds of biological opinions NMFS has issued for projects with adverse impacts on listed Columbia River Basin salmon and steelhead ESUs have included ITSs authorizing some level of incidental take of these fish. However, just as the *Fund for Animals* court pointed out with respect to desert pronghorn and the GAO report documented for most other species overseen by FWS, NMFS lacks any system for keeping a tally over time of incidental take of salmon and steelhead it authorizes. Yet the agency continues again and again to issue additional authorizations to incidentally kill or injure species – as it did in the CRC Project Biological Opinion. These allowances permit death and injury to species which NMFS expressly acknowledges are near extinction. Information about take previously authorized by NMFS is obviously available to the agency by simply examining its prior incidental take statements, yet NMFS did not consider this information prior to issuing the incidental take statement as part of its CRC Project Biological Opinion.

NMFS must make decisions as to whether a proposed federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat by assessing a proposed action's impacts on the *entire* species and *entire* critical habitat designations. This means that as long as the species as a whole remains viable, or a species' overall critical habitat can still fulfill its conservation function, adverse effects on listed species and their critical habitat, no matter how large, do not run afoul of section 7(a)(2). Conversely, under this scheme even a small localized impact to the species and/or critical habitat can tip a species into jeopardy, or critical habitat into adverse modification, if the species or its habitat as a

whole has declined to the point at which no "resource cushion" of allowable impact remains. This system of assessing jeopardy and adverse modification clearly puts a premium on accurate and up-to-date information on the status of affected ESUs and their critical habitat, including the total number of fish authorized to be killed or injured. Instead, NMFS simply repeats essentially the same version of the "current status" of these species and their habitat each time it formulates a biological opinion. Given that the current status of the ESUs and their habitat virtually do not change – even after NMFS repeatedly authorizes additional adverse impacts and additional take of individuals – it is obviously not difficult for NMFS to continue to allow more such impacts. In other words, it's easy to feel comfortable loading more straws onto the camel when one never counts the straws.

Unfortunately, FWS and NMFS have had difficulties keeping track of the status of listed species in attempting to fulfill their role in the section 7 process. A 2009 report by the Government Accountability Office found that FWS was unable to account for required monitoring reports for the majority of biological opinions it issued, meaning that FWS was unable to accurately track accumulated impacts on listed species. *See* GAO Report 09-550, entitled "The U.S. Fish and Wildlife Service Has Incomplete Information about Effects on Listed Species from Section 7 Consultations" (available at http://www.gao.gov/search?q=09-550). The GAO also found that FWS "lacks a systematic method of tracking cumulative take for most species," and concluded that "[w]without cumulative take information, the Service may not be able to effectively evaluate the collective impacts of federally authorized actions over time, across multiple offices, and across species' ranges. Although one action may not unduly harm a listed species, cumulative effects over time and across landscapes could lead to a species' demise without the Service's knowledge or ability to respond." GAO Report at 16, 26. As the facts of

this case demonstrate, NMFS' procedures for fulfilling its section 7 responsibilities suffer from exactly the same deficiencies outlined in the GAO report.

Finally, even when incidental take statements issued by NMFS *have* provided actual numeric estimates of the number of salmon and steelhead likely to be killed or injured by a proposed project, NMFS did not even consider this take in the CRC Project Biological Opinion and ITS prior to allowing additional incidental take of affected ESUs. This demonstrates NMFS' complete lack of effort to track total take of listed ESUs over time, no matter how it is quantified or estimated. However, there obviously must be some limit on the additive amount of take over time that NMFS can authorize without resulting in jeopardy – as the GAO recognized in its report on FWS' failure to track overall take authorized by the agency. *See* supra at 3. Failing to consider even numerically estimated take in its past ITSs prior to authorizing additional take renders the CRC Project Biological Opinion inadequate.

Tracking Implementation of the Willamette Project RPA.

The Willamette River and the habitat it provides for threatened salmon and steelhead are fundamentally degraded and altered from historic conditions. Since the 1870s, development began to strip away the riparian forests surrounding the river, resulting in large functional losses to the river's complexity and productivity and reducing the amount of habitat crucial for salmon and steelhead. Once highly braided and complex, the Willamette River system was also dramatically simplified through activities such as channelization and the placement of bank stabilizing "revetments." The river banks are now lined with more than 96 miles of revetments, about half of which the Corps constructed. These activities and the resulting impacts reduced available salmonid rearing habitat by as much as 75 %. Moreover, thirty-seven dams in the basin now block salmonid access to more than 435 miles of important stream and river spawning

habitat in the Willamette Basin, and altering temperature regimes in the Willamette River and its tributaries. Finally, while human civilization has advanced in the region, water quality, salmon and steelhead and their habitat have suffered further due to agriculture, urbanization, mining, and timber harvest; adverse impacts from river dredging and associated industrial activities resulted in additional additive harm

As a result of these impacts, salmon and steelhead in the Willamette River have declined to the point that they are facing extinction. In 1999, NMFS listed the Upper Willamette River (UWR) chinook[170] and steelhead[171] ESUs as threatened under the ESA. In 2005, NMFS designated extensive portions of the Willamette Basin as critical habitat for UWR chinook and steelhead. These ESUs are adversely affected by the CRC Project and are addressed in the CRC Project Biological Opinion.

On July 11, 2008, NMFS issued a Biological Opinion for the Army Corps of Engineers' ("the Corps") operation of the that agency's Willamette Project dam system; this Biological Opinion determined that the agency's proposed operation of the dams was likely to jeopardize the continued existence of UWR chinook and UWR steelhead, as well as destroy or adversely modify these ESUs' critical habitat. The action area described in NMFS' 2008 Willamette Project Biological Opinion was expansive, including "[a]ll river reaches, riparian zones, and floodplain areas located downstream of the 13 Willamette Project dams, including the mainstem Willamette River…". As required by the ESA, NMFS specified a reasonable and prudent alternative ("the RPA") to the Corps' proposed operations that would allow the Corps to operate its dams in a manner that avoids jeopardy and destruction or adverse modification of critical habitat. The RPA requires the Corps, in cooperation with other federal agencies and the State of

[170] *Id.*
[171] 64 Fed. Reg. 14,517 (Mar. 25, 1999).

Oregon, to implement a comprehensive slate of measures to improve survival of Willamette salmon and steelhead and to improve their habitat, including steps to improve hatchery practices, increase water flows and improve water quality, restore habitat throughout the Willamette Basin, and even allow for fish passage over several of the Corps' dams in the Willamette Basin. These measures will take many years and millions of dollars to fully implement. The Biological Opinion calls for a timeline for these measures, as well as creation of a detailed organizational structure to oversee implementation of the RPA; the Corps and NMFS are part of each element of this structure.

Between the issuance of the Willamette Project Biological Opinion on July 11, 2008, and the issuance of the CRC Project Biological Opinion on January 19, 2011, NMFS issued 69 additional Biological Opinions for projects affecting UWR chinook salmon, and 60 additional Biological Opinions for projects affecting UWR steelhead, almost all finding additional adverse impacts to those ESUs and their critical habitat, and all concluding that the proposed actions would not result in jeopardy or destruction or adverse modification of critical habitat. In each of these Biological Opinions, however, NMFS has not evaluated whether the habitat restoration requirements or any other substantive elements of the 2008 Willamette Project Biological Opinion's RPA have been implemented or have been effective in improving survival of UWR chinook and UWR steelhead.

Additionally, NMFS has continued to authorize adverse impacts and incidental take even though NMFS' 2008 BiOp for the Corps' Willamette Project found jeopardy and adverse modification for UWR chinook and steelhead (the "action area" for this action extends from and includes the mainstem Willamette and the Columbia River from the confluence of the Willamette and Columbia rivers). NMFS' Executive summary of the Willamette Project

Biological Opinion points out that the RPA set forth in the Biological Opinion (and adopted by the Corps) includes "many measures… that the Action Agencies will carry out in the shorter term that will ensure that the UWR chinook will not go extinct in the near future." The Corps also issued its own explanation of the Willamette Project Biological Opinion and RPA, which asserts that these documents "require monitoring and reporting to ensure compliance with [RPA] requirements."

Quite clearly, it would be problematic – if not impossible – for NMFS to approve additional adverse impacts on listed ESUs and their designated critical habitat if those species were already facing jeopardy and destruction and adverse modification of their critical habitat due to prior federal agency actions. *See* Solicitor's Opinion, supra at 3 (once a species reaches the jeopardy threshold, "any additional federal activity in the area requiring further consumption of resources would be precluded under section 7"). However, there is no indication in the CRC Project Biological Opinion that NMFS considered any information related to whether the Corps and cooperating entities are implementing the Willamette Project Biological Opinion's RPA, including short-term measures identified by NMFS as needed to avoid extinction of UWR chinook, and whether those measure have proven to be effective. This information is highly relevant to assessing whether the Corps, in continuing to operate the Willamette Project, is avoiding jeopardy to UWR chinook and steelhead and adverse modification to their critical habitat throughout the watershed. Additionally, this information is (or at least should be) readily available to NMFS given that the agency is part of every work group and decision-making body for implementing the RPA.

NMFS' failure to consider in the CRC Project Biological Opinion whether the UWR ESUs remain in a jeopardy and adverse modification situation necessarily results in one of two

scenarios. First, NMFS could have simply failed to consider available information relevant to this question, including the monitoring information required by NMFS in its Willamette Project Biological Opinion and RPA. In that case, NMFS has clearly failed to consider the best science available in completing its CRC Project Biological Opinion. On the other hand, NMFS and the Corps could be neglecting to strictly monitor implementation and effectiveness of the Willamette Project Biological Opinion's RPA. In that case, FHWA and FTA would be failing to comply with their section 7 duties by proposing additional impacts to the UWR ESUs from the CRC Project without knowing whether the Corps has been taking the steps already identified as necessary to avoid jeopardy and adverse modification to these ESUs. Additionally, NMFS would lack sufficient data to render a biological opinion on the CRC Project. *See* 50 C.F.R. §402.14(f) (allowing NMFS to request additional data it concludes would "provide a better information base from which to formulate a biological opinion").

In sum, NMFS has, or should have, ready access to information not only relevant, but vital to its assessment as to whether the proposed CRC Project is likely to jeopardize the affected salmon and steelhead ESUs and their critical habitat. Information in prior Biological Opinions and incidental take statements issued by NMFS, as well as monitoring data relevant to measures set forth in the Willamette Project RPA, constitutes the "best science" regarding the status of ESUs and their critical habitat affected by the CRC Project. This information was clearly available to NMFS, yet there is no indication that the agency considered it in formulating its CRC Project Biological Opinion. NMFS thus violated its duty under section 7 to use the best available science.

The Biological Opinion's Incidental Take Statement is unlawful.

The CRC Project Biological Opinion's incidental take statement (ITS) allows for incidental take of fish throughout the duration of the project without a numeric estimate of, or limitation on, the actual number of juvenile fish likely to be killed or injured. In addition to NMFS' failure to track the impacts of additive incidental take the agency has authorized over time, the ITS itself is unlawful. In fact, this ITS provides a good indication as to why NMFS has no method to keep track of overall incidental take.

In *Ariz. Cattle Growers' Ass'n v. U.S. Fish & Wildlife*, 273 F.3d 1229, 1250–51 (9th Cir. 2001), the Ninth Circuit discussed the Services' authority to authorize incidental take. Citing NMFS' and FWS' Consultation Handbook, the court noted that if the Service uses a surrogate for estimating the extent of incidental take rather than providing a numeric limit, the agency "must establish a link between the activity and the taking of species." *Id*. at 1250. In *ONRC v. Allen*, 476 F.3d 1031, 1040 (9th Cir. 2007), the court noted that ITSs "also provide for ongoing monitoring of incidental take by the action agency and the FWS." Part of this monitoring function allows the action agency to know when it has incidentally killed or injured too many members of the listed species, thus triggering its duty to reinitiate formal consultation under section 7. *See id*. at 1039 (finding an ITS illegal when its "permissible level of take is coextensive with the project's own scope"). The court emphasized that the chosen surrogate in an ITS "must be able to perform the functions of a numerical limitation." *Id*. at 1038

The CRC Project ITS says "the extent of take is defined as the area where the CRC action will: (1) Reduce water quality during construction and through stormwater discharge for the life of the CRC; (2) produce harmful underwater noise during construction; and (3) convert benthic foraging habitat to less productive aquatic habitat types during construction and for the life of the CRC." While all of these surrogate indicators are inadequate, the "benthic foraging habitat"

surrogate is the most obviously deficient. That surrogate is characterized as follows: "[t]he extent of take due to loss of benthic foraging habitat is described by the area permanently displaced by bridge columns, *i.e.*, 0.17 acre. Thus, the best available indicator for the extent of this loss is 0.17 acre." However, this level of incidental take is "coextensive with the project's own scope" and both "define[ ] and limit[ ] the level of take using the parameters of the project," which the court found unlawful in *ONRC v. Allen*, 476 F.3d at 1039.

Even more importantly, by failing to link these surrogate measures of incidental take to actual death or injury to members of listed ESUs, NMFS has eliminated the monitoring value of the ITS. Although turbidity and noise levels can be measured, NMFS has articulated no means that these measurements relate to how many fish will be taken. The ITS thus does not provide a meaningful measure of incidental take by the proposed CRC Project. Accordingly, it is impossible for NMFS to keep track of the total amount of take that it has authorized over time, as incrementally increased by the CRC Project ITS. Lacking any ability to track total incidental take authorized by NMFS, the agency has no way to assess whether the additional increment of incidental take it authorized in the CRC Project Biological Opinion will jeopardize the continued existence of the ESUs affected by the project, as it must under section 7. *See* 16 U.S.C. §1536(b)(4)(A). NMFS' use of surrogates for defining allowable incidental take without linking those surrogates in a meaningful way to actual take is much like tracking one's bank account withdrawals by taking notes such as "today I took some money out of my account," and "yesterday I withdrew a bit from my account." Such notations are just as meaningless for tracking total withdrawals of money from a bank account as "[no] more than a 10% cumulative increase in natural stream turbidity 300 feet from an upland or in-water CRC construction activity" is for keeping track of the number of total salmon and steelhead injured or killed.

The FEIS's ESA analysis is inferior to the Biological Opinion's ESA analysis, and therefore does not ensure compliance with the ESA.

FHWA and FTA have free-standing obligations to ensure that their actions are not likely to jeopardize affected ESUs or destroy or adversely modify their critical habitat. *Resources Limited v. Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1993) (internal citations omitted). Despite this obligation, FHWA and FTA have completely failed to independently consider information described in the above subsections, despite the fact that this information is also readily available to these agencies. The FEIS simply parrots the conclusions of NMFS' Biological Opinion with no independent analysis. Accordingly, the action agencies' conclusion that they have fulfilled their duty under section 7(a)(2) to ensure against jeopardy and destruction or adverse modification of critical habitat is arbitrary.

The Biological Opinion and FEIS do not adequately address in-water work window (IWWW) issues.

The normal in-water work window (IWWW) for work in the Columbia River is November 1 through February 28. Oregon at 2, ESA Exhibits Folder. However, the CRC Project proposal includes in-water work from at least September 15 to April 15, and possibly even year round.

The in-water work window guidelines are based on ODFW district fish biologists' recommendations, with primary consideration given to important fish species including anadromous and other game fish and threatened, endangered, or sensitive species. *Id.* at 1. While ODFW has not issued a variance to the normal in-water work window, NMFS, in its Biological Opinion, expresses its approval of an expanded in-water work window for the CRC Project. CRC Biological Opinion, at 80. Incredibly NMFS routinely denies such variances for project's with

much smaller potential impacts on salmon. *See* Lake Oswego, ESA Exhibits Folder.

Neither the Biological Opinion nor the FEIS address the state variance process for in-water work, and do not specifically or adequately address the increased impacts to wildlife from work during this time of special sensitivity to salmonids. This is a very significant and material omission from both the BiOp and FEIS. Indeed, the DEIS did not disclose that there would or could be a variance from the standard in-ware work window. Instead the DEIS actually suggested that the project would comply with that restriction. See DEIS Ecosystems Tech. Report at 1-10. This abrupt change between the DEIS and FEIS and lack of analysis regarding that change requires a SDEIS.

The Federal Agencies Have Failed to Consider Their Conservation Obligations Under ESA Section 7(a)(1)

The citizens of the Pacific Northwest understand that simply avoiding "jeopardy"-- the immediate extinction of our native salmon and steelhead -- is not a long-term strategy for protecting these important species. The ESA recognizes that reality as well, and, as is noted above, federal agencies have an obligation under 16 U.S.C.§ 1536(a)(1) to also consider and carry out programs for the conservation of listed species. However, apparently the CRC staff and the Federal agencies are not aware of this obligation or do not consider it to be important, because it is completely ignored in the FEIS. The CRC staff and those federal agencies were in fact made aware of alternatives, including alternative bridge designs, that would likely have reduced in-water impacts on threatened salmonids and possibly improved their existing habitat. Those federal agencies were required to at least evaluate such options and include that evaluation in the FEIS. Instead those options were dismissed because of concerns about Cessnas at Pearson Field and the "project schedule." The ESA and NEPA do not allow the Federal Agencies to summarily prefer Cessnas over salmon or to hide behind the project schedule when they have

already taken more than three years to finalize the FEIS.

INDIRECT IMPACTS—INDUCED GROWTH, TRAFFIC PROJECTIONS AND FINANCIAL ANALYSIS

Induced Growth: Metroscope 2010

The most significant addition to the induced growth analysis in the FEIS is the 2010 Metroscope model. Unlike project traffic models, Metroscope does not assume steady growth in Clark County regardless of whether the CRC is built.[172] Rather, it uses commute times and other factors to determine whether additional highway capacity will induce growth in Clark County.[173] Unfortunately, the model relies on problematic assumptions that lead to counterintuitive conclusions. First, the model assumes that Metro's Urban Growth Boundary and Clark County's Urban Growth Area will remain fixed until 2030.[174] For Metro, this is not an appropriate assumption given that the boundary was just expanded by 1,985 acres on October 20, 2011. Moreover, as a 2004 study published in the land use journal Urban Studies indicates, Portland's relatively tighter UGB has historically had a spillover effect into Clark County, where land use regulations have been less rigid, resulting in increased sprawl in that area.[175] Therefore, the assumption of fixed growth boundaries fails to account for historical trends and, as the Metroscope study admits,

> If Metro continues to follow a policy of maintaining a tight Urban Growth Boundary (UGB) and is not successful at accommodating growth through increased levels of

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[172] CRC Responses to PEAC DEIS Comments, 54
[173] "Columbia River Crossing MetroScope Results Documentation" (2010), 4. Available at http://www.columbiarivercrossing.org/FileLibrary/TechnicalReports/CRC_Metroscope%20Results_120910.pdf in Indirect Effects Folder.
[174] *Id* at 5.
[175] Myung-Jin Jun, "The Effects of Portland's Urban Growth Boundary on Urban Development Patterns and Commuting." *Urban Studies* (June 2004), 1333-1348.

> redevelopment and infill there would be greater pressure on Clark County and the cities of Clark County to expand their Urban Growth Area (UGA), and there could be significantly more induced household growth in Clark County than reflected in this analysis.[176]

In a 2001 paper written by two Metro analysts who helped develop Metroscope, the dangers of assuming fixed growth boundaries for studies of time-saving highway projects are discussed:

> When financially unconstrained systems are run with the same fixed land use, we generate the mirror image of the simulation of a congested system. Despite decreasing travel times and increasing speeds, commuters travel no further than they did on the congested system; per capita VMT and travel distances remain roughly the same as before. Again implicit transportation price changes up or down appear to have no effect on commuter behavior. In this instance, commuters pocket large amounts of "travel cost savings" though nothing in the model specifies what happens to these consumer surpluses.[177]

Due to Clark County's historical failure to maintain tight growth boundaries and the Metroscope creators' admission that fixed land use assumptions lead to inaccurate results, Metroscope's 2010 model is fundamentally flawed.

The model makes a second questionable assumption when establishing employment and residential locations for purposes of determining likely commute routes and times. The model assumes that all commutes occur between 7 residential locations in Clark County and 50 employment locations in Oregon, without providing adequate justification for the selections.[178] The locations are critical to model accuracy because they dictate the lengths and routes of trips that the model uses to compare impacts of increased capacity and tolling. If a given commute involves more time on I-5, it will experience a greater time savings and therefore an increased

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[176] "Columbia River Crossing MetroScope Results Documentation." 5.
[177] Conder, Sonny. "Alternative Futures for Transportation and Land Use – Integrated Models Contrasted with "Trend-Delphi" Methods: The Portland Metro Results" (2001), 7. Available at http://library.oregonmetro.gov/files/altfuturesfortransandlanduse.pdf
[178] "Columbia River Crossing MetroScope Results Documentation." 14.

likelihood of sprawl, whereas a commute that spends less time on I-5 will experience minimal benefit and therefore a lower likelihood of sprawl. Despite their importance to the model's success, the locations' selection was apparently based on merely what the authors considered designated work centers or typical residential locations:

> The Oregon employment locations are transportation analysis zones (TAZ) selected from areas in Oregon designated as Regional Centers, Town Centers, Central City, or regionally significant industrial areas. Clark County residential locations were identified to include the weighted residential centroid of the county and typical residential locations throughout the county.[179]

The lack of detailed justification for the selection of such important model inputs is disconcerting, particularly given that many locations are noticeably distant from the I-5 corridor (Figure 3.1-1), which would tend to underestimate induced growth.

Given that both assumptions mentioned would tend to downplay induced growth potential, the model's pro-CRC outcome is unsurprising. However, the model's bias reveals itself in Figure 3.3-1, which compares the number and duration of northbound commutes between 4 and 6 p.m. for the no-build alternative and the build-with-toll alternative.[180] The latter includes a "toll impedance" factor which adds time to the perceived commute duration in order to reflect the discouraging effect tolls have on driving. According to the model, the average commute length for the no-build alternative is 35.9 minutes and that for the build-with-toll alternative is 34.1 minutes (including toll impedance).[181] The model predicts that despite expanding Columbia River Bridge bottleneck from 6 to 12 lanes, the average commuter during afternoon rush hour would only perceive a time savings of 1.8 minutes.[182] While this conclusion suggests minimal

[179] "Columbia River Crossing MetroScope Results Documentation." 14.
[180] "Columbia River Crossing MetroScope Results Documentation." 26.
[181] "Columbia River Crossing MetroScope Results Documentation." 26.
[182] "Columbia River Crossing MetroScope Results Documentation." 26.

induced growth, it is wholly inconsistent with Figure 7-16 of the FEIS Traffic Technical Report, which indicates a 20 minute savings for the 2 hour P.M. peak trip from I-84 to 179th Street.[183] Applying the 6 minute toll penalty used in the FEIS Indirect Effects Technical Report, a 14 minute perceived time savings is realized.[184] Obviously, not all commutes will obtain the full 14 minute perceived benefit due to varying route selection. However, it is difficult to imagine the average commuter only realizes 1.8 minutes of the benefit, which indicates inherent flaws in the underlying assumptions of the Metroscope model. The FEIS contains large time savings (14 minutes) to justify the project, but minimal time benefits (1.8 minutes) to downplay the likelihood of induced sprawl.

Literature review

Another component of the FEIS induced growth analysis is a literature review of induced growth studies.[185] As in the DEIS, the literature review fails to explain why certain studies were chosen over others and why they apply to the particular facts of the CRC. In the FEIS, the review is distilled into 6 factors that influence induced growth, and each is addressed in Exhibit 2-1 in the FEIS Indirect Effects Technical Report.[186] Nearly every factor oversimplifies the facts of the CRC at the expense of complete evaluation of the project's induced growth impact.

The first two factors pertain to whether the CRC creates new access to underserved areas or areas on the urban edge.[187] The analysis finds that the CRC would not create new access because I-5 has been an interstate corridor since 1958 and the urban edge would not be more accessible because the project is 7 miles from the north edge of the Urban Growth Area. While the project

[183] FEIS Traffic Technical Report, Exhibit 7-16.
[184] FEIS Indirect Effects Technical Report, 2-7.
[185] FEIS Indirect Effects Technical Report, 2-2.
[186] FEIS Indirect Effects Technical Report, 2-2.
[187] FEIS Indirect Effects Technical Report, Exhibit 2-1.

may not create *new* access, it does, according to traffic models, significantly increase access to areas all along the I-5 corridor, including access to the edge of the growth boundary. The failure of the analysis to acknowledge and discuss this important fact indicates an incomplete analysis.

The next factor is whether the project would substantially improve travel times.[188] Rather than simply answer the straightforward quantitative question, the analysis immediately launches into an explanation of why an improvement in travel time would likely be minimized by an added toll. The analysis is analogous to an interviewee who asks himself a question then provides a non-responsive and evasive answer. The answer is simple: transportation models show that a round trip from 179th to I-84 during peak periods would be reduced from 90 minutes to 62 minutes.[189] That this fact was so abruptly downplayed indicates lack of objectivity persistent throughout the induced growth analysis.

Next, the analysis asks whether the project reduces auto travel costs. As described prematurely under the previous factor, the toll increases costs, making the 28 minute round trip savings feel like a 16 minute perceived savings, which the analysis claims, without further justification, "is not expected to have a significant impact on induced demand." However, while the analysis stresses the dampening effects of tolling, it completely fails to consider cost savings resulting from a shorter, less congested commute, which include improved fuel economy and less vehicle wear and tear. Absent is the question whether some of the 6 minute toll impedance effect would be counteracted by these savings. Ignoring the cost savings associated with a less congested commute is consistent with a theme prevalent throughout the analysis of downplaying factors likely to induce growth.

[188] FEIS Indirect Effects Technical Report, Exhibit 2-1.
[189] FEIS Traffic Technical Report, Exhibit 7-16.

The fifth factor considers the impact of local land use regulations and concludes that due to the region's commitment to effective growth management the risk of sprawl is low.[190] As discussed, this assertion flies in the face of Clark County's history of expanding growth areas in response to Metro's relatively firm boundaries.[191]

The final factor looks at whether there are real estate markets supporting low density developments and concludes that while some low density areas exist, they are quite far from the project area and therefore unlikely to contribute to induced growth.[192]

The following comments, on pages 147- 175 regarding financing, traffic modeling and projections, and induced growth are adopted and incorporated from separate comments that Joe Cortright will also be submitting. The documents cited in this section are located in the Indirect Impacts Folder.

CRC project financing is highly uncertain, making it impossible to know what will actually be built and therefore what will be the actual environmental, social and land use impacts.

In order to assess the impacts of the project, you have to know what the project is. It is clear from the record that the scale of the project will be adjusted to fit available financing. But as yet, the project's financing is simply conjectural: none of the sources of funding (federal highway earmarks, FTA transit funding, Oregon and Washington gas tax increases, tolls, and a CTRAN sales tax) have been committed to the project. The Governors have directed that the project be phased, and the CRC has indicated that it is planning to break the project into phases, but as yet, no meaningful action has been taken.

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[190] FEIS Traffic Technical Report, Exhibit 7-16.
[191] "The Effects of Portland's Urban Growth Boundary on Urban Development Patterns and Commuting."
[192] FEIS Traffic Technical Report, Exhibit 7-16.

It is apparent from the staff report that the financial plan for the CRC is completely unresolved at this point. We have no idea what kind of project will actually be built, so we have no way of accurately assessing its impacts.

The CRC depends on a complex, multi-part financing plan. None of the parts of the plan have yet been approved by any of the bodies that must approve such funding. There are four key elements to this financing plan: toll bonds, Oregon and Washington appropriations, federal New Starts funding, and federal highway funding.

The CRC financing plan rests on seven key assumptions about decisions that will be made and amounts that will be provided for project funding:

1. Washington legislative approval of facility tolling.
2. Washington legislative approval of funding for the state share of the project.
3. Oregon legislative approval of funding for the state share of the project.
4. Earmarking or Federal Highway Administration approval of funding for the highway portion of the project.
5. Federal Transit Administration approval of New Starts Funding
6. Oregon and Washington Treasurers' approvals for the authorization of toll-backed revenue bonds
7. Voter approval in the CTRAN district or a portion thereof of operating funds for light rail.

In order to construct the project as currently described by the Project Sponsors Council, all of these financial approvals must be made, and made at the full amount budgeted. If any of these sources of funds or approvals is not made, or if funding is provided at less than the budgeted amount or if funding or approval is delayed, there is no assurance that all of the component parts of the project will be constructed.

There are major risks that one or several of these assumptions are incorrect and that expected sources of funding will not materialize, and additional risks that they will not materialize in the amounts budgeted or on the schedule currently planned.

In addition, it now seems certain that the project will need to be broken into a series of separate phases. The timing and the ultimate scope of the Columbia River Crossing project will depend upon the amount of funds received for project construction. There is no assurance at this time that any given component of the project will be completed.

At the present time, it is highly likely that funding will not be available to construct the entire project as described. Acknowledging this fact, on July 20 of this year, Governor John Kitzhaber directed CRC to develop a "sequencing" plan for the project (Kitzhaber 2011):

> The Treasurer also identified potential replacement revenue strategies, which I appreciate and am willing to explore. But I believe that if we are going to get the CRC done, it is time to start planning for a project that adapts to the available resources and fits into today's economic reality. To that end, I am going to ask the Oregon Department of Transportation and the CRC to prepare a sequencing plan that accommodates anticipated cash flow.
> (Kitzhaber 2011)

The need to sequence or phase the project to fit available funding is likely to result in major changes to the project's scope, timing and ultimate impacts. More than a year ago, the Independent Review Panel appointed by then-Governor Kulongoski and Governor Gregoire concluded that the project would need to be broken into phases because of the low likelihood of all of the projected funding materializing. The IRP recommended the project be broken into

three phases each of 1 to $1.5 billion (Independent Review Panel 2010, page 186). The IRP is particularly significant because the Directors of the Oregon and Washington Department's of Transportation both said that they accepted the report and agreed to implement its findings (Garrett and Hammond 2010). The IRP also recommended that phases be constructed to be independent and self-standing, so that the project would be functional regardless of whether funding for subsequent phases was ever realized.

The IRP warned that there may not enough money to complete the whole project and that it ought to be designed so that it could be built in phases, and that if subsequent funding did not become available—which it specifically identified as a possibility—that the project would be functional.

> There is a possibility that despite best efforts to assemble funding, the Project Sponsors may encounter a significant shortfall in funding to complete all of CRC as currently envisioned. There is also a possibility that a number of current uncertainties in design and schedule will adversely affect the total cost of the project. Projects of this size and scope are often planned and developed assuming a phased construction effort. Phasing (as opposed to staging) refers to the completion of some major portion of a total project, with such completion having meaningful value, yet deferring subsequent construction till later, often uncertain, dates when additional funding can be obtained.
> Independent Review Panel 2010, Page 185

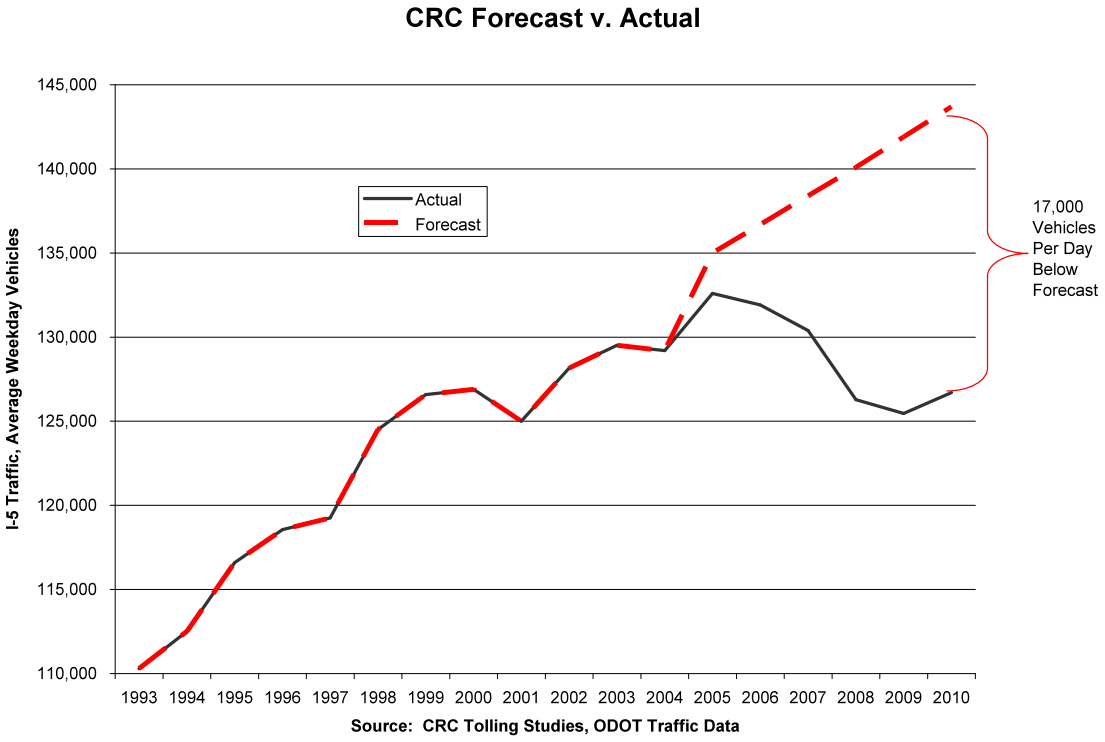
Because the project will be phased or sequenced, and that phasing plan has not even been presented, much less adopted, no one has any assurance as to what portion of the project will actually be built. Because the project consists of a diverse array of components, some of which increase traffic (new bridge lanes, new intersection capacity), and others which reduce or divert it (light rail transit, tolling), not knowing which phases will actually be built means that the FEIS fails to disclose what will be the net environmental, economic and social impacts of this project.

CRC traffic and toll revenue forecasts are inaccurate, meaning traffic and traffic related impacts are not accurately assessed.

Assessing the environmental, social and land use impacts of the Columbia River Crossing project depends on accurate estimates of future traffic levels. The FEIS purports to offer very detailed estimates of traffic flows across the I-5 bridge and related roadways, through the year 2030.

The traffic and toll revenue forecasts prepared for the Columbia River Crossing are not accurate. The original forecasts were prepared based on 2005 base year data, and were published in 2007, and incorporated in the May 2008, Draft Environmental Impact Statement. The language in the FEIS and DEIS is virtually identical in many cases. The Columbia River Crossing has not produced new forecasts of travel since that time.

Actual traffic data show that CRC traffic projections are wrong. The CRC projections are that traffic on the I-5 bridges should have reached 143,700 vehicles per day in 2010. Actual traffic levels were 126,700 vehicles per day in 2010, 17,000 vehicles per day below the CRC forecast. These figures are based on our analysis of ODOT's data on traffic levels on I-5, through November 2010.



In addition, the question is not merely whether traffic is increasing again now, but whether they will recover to the previous levels, and whether they will grow at anything close to the rate CRC projected in the DEIS. The evidence shows the growth rate is much slower than forecast, raising serious questions about the project's financial viability.

The Treasurer's independent review of the traffic forecasts confirmed the flaws in CRC traffic forecasts. In 2011, the Oregon State Treasurer retained Robert Bain of RB Consult to review the CRC finance plan and traffic projections. Bain concluded that:

- Traffic and revenue analyses prepare for the CRC were unsuitable for credit analysis
- CRC traffic projections were confusing and outdated
- Authors of the traffic projections failed to examine historical data or verify their models against actual trends

- Diversion estimates to I-205 were "worrying."
- Overall, the CRC appears to have overestimated traffic.
- Toll revenue appears to be over-estimated by 25 percent.

(Bain 2011) in Indirect Impacts Folder.

Both ODOT and CRC consultants have concluded that the models used to estimate CRC traffic do not produce valid, accurate estimates of traffic for tolled facilities. In February 2009, the Oregon Department of Transportation received a report prepared by Parsons Brinckerhoff, David Evans and Associates Inc., and Stantec Consulting Services Inc. The authors of this report all happen to be contractors for the Columbia River Crossing project. The report is entitled *Tolling White Paper 3: Travel Demand Model Sufficiency.* This document is available on the Internet at the following address: http://www.oregon.gov/ODOT/TD/TP/docs/LRPU/twp3.pdf in Indirect Impacts Folder.

ODOT's report finds that the current models used to forecast traffic in Oregon, and specifically in the Portland Metropolitan Area, including the Metro model, are inadequate to accurately predict traffic volumes on tolled facilities, such as the proposed Columbia River Crossing. Consider ODOT's summary of this report:

> Existing models in Oregon are rated as excellent for the purposes they were designed, and some are internationally recognized. However, Oregon models have not been specifically designed to evaluate toll projects, so **planners are not able to confidently forecast travel patterns for projects that are considering tolling/pricing. Existing models are not able to determine how travelers would change their mode, route, travel time, or destination in response to tolling/pricing.**
> Oregon Department of Transportation, Tolling and Travel Demand Model Sufficiency, Highlights of Tolling White Paper 3, March 2009, page 1, http://www.oregon.gov/ODOT/TD/TP/docs/LRPU/Highlight3.pdf#Tolling_White_Paper

_3 in Indirect Impacts Folder.
(Emphasis added)

As the ODOT study shows, the Oregon Department of Transportation and the principal contractors for the Columbia River Crossing concur that the traffic forecasting methods used by the CRC are not accurate or reliable. Accurate estimates of future traffic levels are central to assessing the need for this project, justifying its size, evaluating its environmental impacts, and most crucially, determining the viability of its financial plan.

The recession does not explain the decline in I-5 traffic, and in any case, CRC has not revised its traffic projections or impact analysis to reflect the much slower rate of growth.

It has been claimed that the decline in traffic since 2005 is attributable to the economic recession which began in December 2007. The current staff report alludes to this same argument, claiming that the traffic projections and financial documents need to be "recalibrated to reflect stalled economic growth." (Staff report, PDF page 30). Robert Bain, the consultant to the Oregon State Treasurer conclusively disposed of this argument in his report:

> Traffic volumes using the I-5 Bridge have flattened-off over the last 15-20 years; well before the current recessionary period. This is highlighted by the red dotted trend line in the chart below which was estimated up to and including the year 2006 (i.e. it omits the recent 2007 – 2010 period characterised by fuel price hikes and economic recession). The clear inference is that the flattening-off is a long-term traffic trend; not simply a manifestation of recent circumstances.
> (Bain 2011, page 3) in Indirect Impacts Folder.

And even though CRC financial plans now concede that DEIS projections are wrong, the traffic estimates in the FEIS—which form the basis of the claims about the project's environmental, social, traffic and economic impacts—have not been revised to reflect this new reality—they are essentially the same traffic figures given in the DEIS.

Most of the impact analysis in the FEIS is based, directly or indirectly, on comparisons of traffic levels between the no-build alternative and the proposed project, and these traffic level estimates are drawn from data that has been shown to be wrong, from models that are not even designed forecast traffic for tolled facilities like the CRC, and which have not been updated to reflect the acknowledged changes that have occurred since the DEIS was published. Consequently, the FEIS does not constitute a fair and reasonable analysis or disclosure of the environmental, social, and economic impacts of the CRC.

The FEIS fails to meet US DOT's own requirement that funding be reasonably available in the region's fiscally constrained transportation plan.

U.S. DOT policy requires that US DOT not approve a Final Environmental Impact Statement for any project for which reasonably available funding has not been identified in the region's approved fiscally constrained transportation plan. The US DOT's transportation planning requirements provide:

Table 2. Fiscal Constraint Requirement before Approving the NEPA Decision

Before a Final Environmental Decision (ROD, FONSI, CE) is approved in:	Fiscal Constraint must be demonstrated by:
Metropolitan Areas	• Entire Project is in the MTP • At least one subsequent phase of the Project is in the TIP (more if within TIP timeframe) • Full funding is reasonably available for the completion of the entire Project

Source: U.S. Department of Transportation, Office of Planning, Environment, and Realty, Supplement to January 28, 2008 "Transportation Planning Requirements and Their Relationship to NEPA Process Completion" February 9, 2011

Nearly all of the elements of the financial plan for the CRC are speculative or un-approved.

A cornerstone of the CRC finance plan is the claim that $400 million will be available from the federal government as a result of an earmark or other discretionary funding, over and above funding that would otherwise come to the region, because of the alleged special character of this project. (The latest version of the plan actually assumes a $500 earmark in some scenarios).

For years, CRC advocates have traded on the idea that the CRC is a special project that will get funding from "a special pot" that wouldn't otherwise be available to the region, and that it wouldn't compete for dollars that could go to other projects, like federal formula funds. For example, earlier this year, Matt Garrett, ODOT director said:

> "Federal highway funds are being sought from a category known as Projects of National Significance. Very few projects in the country and no other projects in the region can compete for these funds . . . . These sources are unique to the CRC project and do not affect other Oregon projects."

Notice in particular three things about Mr. Garrett's statements. First, the passive voice and indefinite form "funds will be sought." Second, Mr. Garrett is silent on what would happen if these discretionary funds either aren't available, or fall short of the amounts being "sought." And third, Mr. Garrett in no way rules out seeking funding for CRC from other sources.

The just released FEIS Financial Plan, however, opens the door to using funding the CRC using federal formula allocations that are available for a wide range of projects in the region and the state. The financial plan tries to downplay the likelihood that these funds will be used.

"Federal Revenue and Financing Options"

Federal Formula Funds

ODOT, WSDOT, C-TRAN, TriMet, Portland's Metro Regional Government (Metro), and the Southwest Washington Regional Transportation Council (RTC) receive transportation funding from a variety of federal formula grant programs. In an urban area, the metropolitan planning organizations (MPOs) program these funds to specific eligible uses. In the Portland-Vancouver region, this is accomplished through Metro's or RTC's Metropolitan Transportation Improvement Program (MTIP) processes. State and federal funds are also programmed in ODOT's and WSDOT's State Transportation Improvement Programs (STIPs). While federal formula funds potentially could be used for the CRC project, many of these funds are currently programmed for other uses, and the finance plan for the CRC project does not anticipate reprogramming of these funds.
(Final Environmental Impact Statement, Finance Plan, Section 4.3.1, page 4-7)

It is clear from this wording that there is no definitive determination of whether any funds are actually available or committed for the CRC. The wording of the FEIS Financial Plan makes it clear that everything about the plan is effectively hypothetical, and will change later.

> As stated earlier, the financial plan scenarios discussed above are illustrative of the financial tradeoffs between the alternatives. The finance plan will be refined during final design, and the final plan may differ from the scenarios discussed above.
> (Final Environmental Impact Statement, Financial Plan, page 4-18)

The current illustrative financial plan scenarios are valid if, and only if, the CRC could obtain a $400 million to $500 million earmark or discretionary allocation. That was always at best just a speculation. Recent developments in Washington DC make it clear that it is a virtual impossibility.

ODOT Director Matt Garrett conceded there was currently no evidence that there would be any such funding available as part of the transportation reauthorization process:

> We thought there might be a specific project of national significance. At least with the language we have right now, the discretionary money is not really clear where that's going to present itself.

Matt Garret, Metro LUFO Hearing August 11, 2011

More recently, Peter DeFazio, a key legislator, whose support is vital to any federal funding, has repeatedly expressed his dismay about the size and cost of the CRC. On August 7, DeFazio told the Associated Press that the outlook for funding for the Columbia River Crossing is now "very, very, very, very grim." (Fought and Cooper 2011).

In the Oregonian on August 14, DeFazio said:

> "I kept on telling the project to keep the costs down, don't build a gold-plated project," a clearly frustrated DeFazio said. "How can you have a $4 billion project? They let the engineers loose, told them to solve all the region's infrastructure problems in one fell swoop... They need to get it all straight and come up with a viable project, a viable financing plan that can withstand a vigorous review."
> (Manning, Jeff. "Columbia River Crossing could be a casualty of the federal budget crunch", The Oregonian, August 14, 2011).

Later, DeFazio told Oregon Public Broadcasting:

> "I said, how can it cost three or four billion bucks to go across the Columbia River? . . . Now with the proposed Republican cuts in transportation . . . they want to cut this [transportation spending] by 35 percent, that means minimally we lose 600,000 to a million jobs and projects like this don't go forward. . . . Right now it's very problematic. . . . The Columbia River Crossing problem was thrown out to engineers, it wasn't overseen: they said solve all the problems in this twelve-mile corridor and they did it in a big engineering way, and not in an appropriate way.
> "Think Out Loud," Oregon Public Broadcasting, August 18, 2011.

Federal transportation funding faces major cutbacks. There are no earmarks or projects of national significance. As a result, CRC's funding strategy is tantamount to "bait and switch": advocates tell everyone that the federal money for the CRC will come from a "special pot" of earmarks that won't compete with other local projects, and but it should be increasingly clear that when this doesn't materialize, they will seek funding from all of the other sources of funds listed in the FEIS.

When they do, this will reduce the amount of money available for other projects in the region. Because the CRC is such a large project with a high risk of cost overruns, and because it faces revenue shortfalls from other funding sources, it would likely be a drain on the region's transportation financing capacity the next decade. Indeed, the recently released project schedule—which does not include phasing—extends the construction period to 2023. No one in the region has identified, approved, or committed funds for the construction of the CRC. Therefore, to move forward with this project would be a violation of US DOT's own policy requiring that the reasonable availability of funds for a project in a fiscally constrained plan be in place prior to approving the FEIS.

Historical data show that traffic levels on I-5 are declining, and prove that FEIS traffic estimates are inaccurate.

The levels of traffic crossing the I-5 and I-205 bridges are the central issue raised by this FEIS. The need for the project is predicated on the claim that traffic levels are steadily increasing, and that additional capacity is needed. The Environmental Impact Statement's claims hinge on a comparison of predicted future traffic levels with, and without the bridge.

Even though traffic is at the heart of the need for this project, and is central to evaluating and disclosing its environmental impacts, the FEIS contains a paucity of actual data on traffic levels. The baseline traffic levels reported in the FEIS are purported to represent 2005 "base year" conditions.

The FEIS contains no actual data on current traffic levels over the I-5 bridges. The most recent data are from 2005.

According to the FEIS, the levels of reported traffic in 2005 was 134,000 vehicles per day. That figure is, in fact, not accurate. According to ODOT's published data, traffic in 2005 was 132,600 vehicles per day. If the FEIS does not even contain correct data about so-called "base year" traffic six years ago, how can anyone put any faith in the project's projections of traffic levels two decades hence?

We are a significant way (more than 20 percent) through the forecast period, and the FEIS contains no information that would enable one to validate the estimates contained in traffic projections. Actual data on traffic levels over the I-5 and I-205 bridges between 2005 and 2011 are omitted from the FEIS. The FEIS actually contains no historical time series data on traffic levels.

The CRC predicts sustained rapid growth in the no-build scenario, but has done nothing to validate its predictions, even though we have six years of actual experience since the base year of their projections. The base year for the forecasts of future traffic for the Columbia River Crossing is 2005, with a stated level of 134,000 vehicles per day. The CRC forecasts that traffic in the no-build scenario on the I-5 bridges will be 184,000 vehicles per day in 2030.

We now have nearly six years of experience—more 20 percent of the planning period--since the base year of the CRC traffic forecasts. CRC has done nothing to test whether their estimates have been borne out by actual experience.

The Oregon and Washington Departments of Transportation collect data that track the average level of traffic volumes on I-5 across the Columbia River. These data are reported by the Southwest Washington Regional Transportation Council. Data are from the council website: http://www.rtc.wa.gov/data/traffic/brdgawd.asp "Columbia River Bridges." The following table shows average annual traffic over the I-5 Columbia River Bridges for the past 15 years. It also displays the annual growth rate of traffic each year, compared to the preceding year, and the average annual growth rate for three five-year periods.

Average Daily Traffic, I-5 Bridges,

Year	Average Daily Traffic	Annual Growth Rate
1994	112,988	
1995	116,589	3.2%
1996	118,558	1.7%
1997	120,644	1.8%
1998	124,516	3.2%
1999	126,589	1.7%
2000	126,903	0.2%
2001	125,652	-1.0%
2002	128,162	2.0%
2003	129,657	1.2%
2004	130,279	0.5%
2005	132,603	1.8%
2006	131,916	-0.5%
2007	130,389	-1.2%
2008	126,278	-3.2%
2009	125,436	-0.7%

Annual Average Growth (Five-year Periods)	
1994-1999	2.3%
1999-2004	0.6%
2004-2009	-0.8%

This data shows several key trends. First, for the past four years, average traffic levels on the I-5 bridges have been declining, not increasing. Second, the growth rate in traffic on the I-5 bridges has been decelerating for the entire period shown in this table. Growth rates averaged 2.3 percent per year during the late 1990s, only 0.6 percent per year in the next five year period through 2004, and traffic decreased at an average rate of 0.8 percent per year for the past five years. Third, the slowdown in traffic growth rates and the annual decline in traffic clearly preceded the recession that began in December 2007.

It is apparent that the baseline forecast for growth of I-5 traffic included in the Final Environmental Impact Statement assumed a very dramatic acceleration in traffic growth from historical trends. To grow from a 2005 level estimated at 134,000 to a projected 2030 level of 184,000 in the FEIS base case, I-5 traffic would need to increase 1.3 percent per year over the 25-year period, 2005 to 2030. That would require more than doubling the rate of growth actually observed in the 1999-2004 period (0.6 percent). And as illustrated above, the historical data show that the rate of traffic increase has been decelerating (and now declining) and not increasing, as forecast in the FEIS. The FEIS and the traffic projections offer no explanation as to why the rate of increase of traffic should more than double from this long term trend.

Figure 1 shows the actual level of traffic reported by the Regional Planning Council (from the table above), and the forecast level of traffic growth required to achieve the 2030 projection of 184,000 vehicles per day. The actual level of traffic recorded in 2009 was roughly 14,000

vehicles less than the more than 140,000 vehicles per day implied by the CRC traffic forecasts. Whereas the CRC forecast implied that traffic over the I-5 bridges (in the no build scenario) would increase by almost 7,000 vehicles per day; in reality, the number of vehicles crossing the bridge declined by 7,000.

Figure 1: I-5 Bridge Traffic: Actual v. Predicted

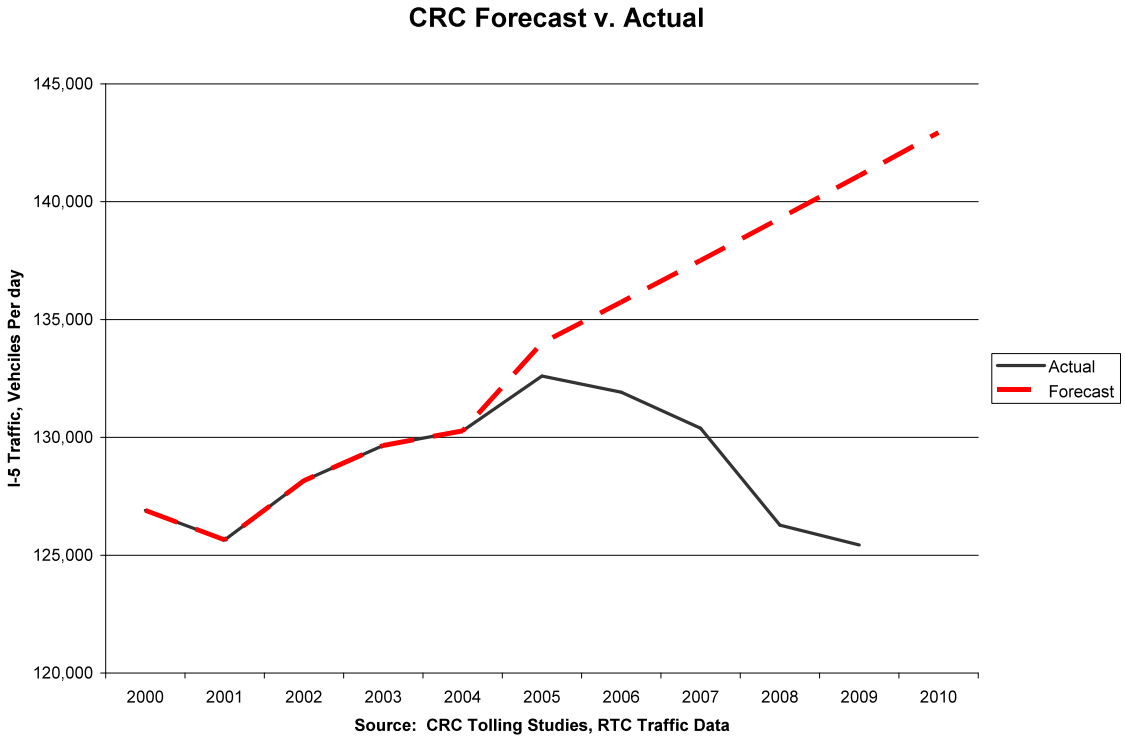
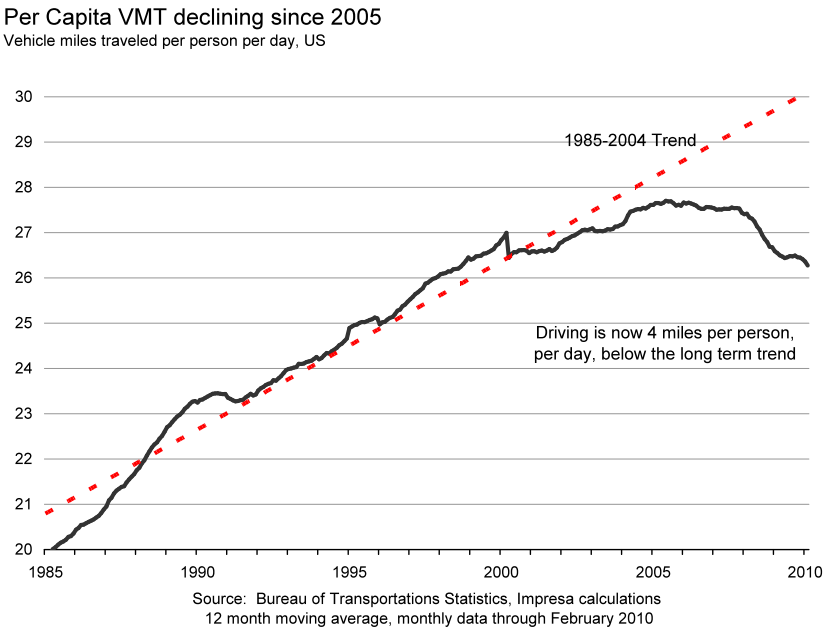


Figure 2: National Trends in Vehicle Miles Traveled



As Figure 2 makes clear, travel demand estimates based on pre-2005 trends are very likely to overestimate travel demand growth. Following the big increase in gas prices after 2004, American citizens began driving less. That trend has persisted over the past five years.

It might be argued that the past four years of declining traffic are a temporary aberration, and that in the longer term, forecast growth will make up for these declines. This is unlikely to be true for three reasons. First, as noted above, the trend has been for a decelerating rate of growth over the past 15 years. Second, as discussed below, changes in gas prices and consumer behavior that are very long term in nature are behind the decline in CRC traffic. And third, the departure from forecast experienced so far means it is likely impossible to make up the shortfall over the remaining time in the forecast period. In order to reach the expected No-Build 2030 traffic volumes of 184,000 from the actual 2009 level of traffic, traffic would have to increase by 1.85 percent per year for each of the next 20 years. That is a growth rate about forty percent faster

than the 1.30 percent forecast in the DEIS, and two and a half times faster than the 0.7 percent growth rate actually observed over the fifteen year period 1994 to 2009. The CRC project materials provide no basis for believing such a dramatic increase in driving will occur.

The tendency to overestimate future traffic levels in mature travel corridors is also apparently an endemic problem with the current methodology used to predict future transportation demand. After a careful review of the literature, the Government Accountability Office found:

> . . . current travel demand models tend to predict unreasonably bad conditions in the absence of a proposed highway or transit investment. Travel forecasting, as previously discussed, does not contend well with land-use changes or effects on nearby roads or other transportation alternatives that result from transportation improvements or growing congestion. Before conditions get as bad as they are forecasted, people make other changes, such as residence or employment changes to avoid the excessive travel costs. (Government Accountability Office, 2005)

The weakness of transportation models in accurately predicting future traffic levels is a continuing problem. So it is not merely the CRC traffic projection model that is problematic; rather the entire class of four-step (trip generation, assignment, mode, routing models) have proved inaccurate in practice. After an exhaustive review of the state of the art, the Transportation Research Board of the National Academies wrote:

> "In 2005, as has been true for the past four decades, these models could not provide accurate information to inform decision making on many transportation and land use policies or traffic operation projects."
> (Committee for Determination of the State of the Practice in Metropolitan Area Travel Forecasting, 2007)

While technology has allowed for faster computation, and more detailed mapping, they conclude:

> "The practice of metropolitan travel forecasting has been resistant to fundamental change. Every 10 years or so there begins a cycle of research, innovation, resolve to put innovation into practice, and eventual failure to affect any appreciable change in how travel forecasting is practiced."
> (Committee for Determination of the State of the Practice in Metropolitan Area Travel Forecasting, 2007) pages 123-124.

An "Investment-grade traffic forecast" would show substantially different traffic and pollution effects.

CRC has not prepared an investment-grade forecast. Investment grade forecasts use more realistic assumptions about travel behavior on tolled facilities. While in public statements, CRC officials have claimed that the investment grade forecast is a mere "refinement" of the forecasts contained in the FEIS, that is untrue. The investment grade forecasts show that traffic may be much more sensitive to tolls that allowed for in the FEIS models. For example, the Investment Grade Forecast prepared for the Washington State Department of Transportation showed that traffic levels on the 520 Floating Bridge would fall by almost half when tolls were introduced, because drivers would shift to the parallel and un-tolled I-90 bridge. (Wilbur Smith & Associates, Wilbur Smith Associates, "SR 520 Bridge Investment Grade Traffic and Revenue Study," Washington State Department of Transportation, August 29, 2011, http://www.wsdot.wa.gov/ NR/rdonlyres/A3B026EC-C9AF-4B43-BA31-4CB30FFD2CEB/0/SR520InvestmentGradeStudy. pdf.) in Indirect Impacts Folder.

The situation is nearly identical for the Columbia River Crossing. While the I-5 bridge is proposed to be tolled, the parallel I-205 bridge is not. Consequently, more traffic may be diverted from I-5 to I-205, producing much higher levels of congestion than estimated in the FEIS. The failure to accurately estimate traffic effects means that the FEIS does not comply

with NEPA because it doesn't reveal what the actual patterns of traffic will be under the LPA. CRC should be required to disclose the actual patterns of traffic than can be expected by undertaking an "investment grade" analysis prior as part of the NEPA review.

Metroscope estimates of induced demand effects are implausible and contradict FEIS travel estimates.

The FEIS relies for validation of its minimal impacts on land use on the Metro "Metroscope" model. The results of the Metroscope model are not plausible, and are not consistent with the literature on induced demand. The Metroscope forecast predicts that the existing 6 travel lanes on the I-5 bridge would accommodate 18,067 trips in the afternoon peak in 2030 under the No-Build alternative. In contrast, the LPA is predicted without tolls--with 10 lanes of traffic—is predicted would accommodate just 18,643 trips in the two hours of the afternoon peak in 2030. There is no reasonable basis for estimating that a 66% increase in capacity (3 lanes to 5 lanes) would produce only a 3% increase in traffic over the next decade compared to the no-build.

The Metroscope model is based in part on the Metro transportation forecasting model, which the Oregon Department of Transportation and CRC consultants have determined are not capable of accurately predicting traffic on tolled facilities.

In addition, there is no evidence that the Metroscope models are consistent with, or support the traffic forecasts contained in the FEIS. The FEIS claims that automobile traffic during the PM peak hour would be 33% higher under the LPA than under the No-build (FEIS, Summary, Exhibit 18). The Metroscope model claims that automobile traffic during the PM peak hour

would be 10% lower under the LPA than under the No-Build (Metroscope, Figure 3.3-1 2030 PM 2-Hour Travel Time Histograms by Alternative, page 25). Far from confirming the findings of the FEIS, the Metroscope model contradicts them. With plainly contradictory evidence that is unexplained by the FEIS, no one can reasonably assume that the FEIS accurately characterizes the environmental impacts of the LPA.

Projections grossly over-estimate base case traffic, and under-estimate induced demand, thereby biasing estimates and concealing the project's true environment impacts.

It is evident that the FEIS creates a fictitiously high level of predicted no-build traffic for two reasons. First, this creates a justification for the project. Second, it enables the project to claim that the traffic volumes created by the LPA will be less than the artificially inflated "no-build" scenario, and will therefore have fewer impacts.

Models fail to adjust for changing gasoline prices and dramatic shift in traffic trends.

The modeling for the CRC is based on 1994 vintage regional transportation surveys, and implicitly assumes that gasoline prices will be low and stable. It does not reflect the tripling of gasoline prices in the past decade or their effects on travel behavior, mode choice, and land use development patterns.

CRC traffic forecasts appear to be badly out of date, and there is no evidence that they have been adjusted to deal with current gasoline prices or development trends. The CRC traffic forecasts are poorly documented, and don't indicate what baseline data were used, what assumptions were

made, and what error and uncertainty factors are associated with these estimates. It appears from the documents included in the Draft Environmental Impact Statement that traffic projections were made in 2007, based on 2005 data. The key measures of traffic activity (184,000 crossings of the I-5 bridge in the no-build, and 178,000 in the build alternatives), have remained essentially unchanged for several years. (See for example, Draft Environmental Impact Statement, Summary, Exhibit 26 Summary of Transportation Effects and Cost for Each Alternative, Page S-30). The forecast documents, including those released in 2010, use the same numbers (184,000 in the no-build, and 181,000 for the LPA) as the project has publicly quoted since the DEIS was released in 2008. The forecast documents refer to the "current year" for traffic purposes as "2005." The modeling was based on Metro's transportation model (Columbia River Crossing, 2010f). The Metro model was calibrated based on behavioral data collected in 1994 and assumes that real gasoline prices would not increase at all, i.e. that gasoline prices increase no faster than the rate of inflation (Higgins, 2008) in Indirect Impacts Folder.

There is clear evidence that the persistently much higher level of gas prices since 2005 has produced a sea change in consumer behavior. Nationally, per capita driving has been in decline since 2004, and is now at 1999 levels.

Consumers are not only driving less, but are scrapping cars faster than they are buying new ones. Nationally, the number of vehicles in operation declined by four million in 2009 (Brown, 2010). In Oregon, vehicle registrations have declined by 30,000 compared to the previous year (Har, 2010).

The rise in gasoline prices and a growing interest in alternatives to car-dependent living has triggered a shift in housing markets within metropolitan areas. The biggest price decreases in housing and the highest foreclosure and default rates have been recorded in outlying suburban locations (Cortright, 2008) in Indirect Impacts Folder..

The CRC's transportation model is based on observations made in 2005, and assumes the consumers will continue to behave as they did in 1994 (when gasoline cost $1.10 gallon). As a result CRC predicts the rate of increase of vehicle travel will be double that of the previous decade. This is highly suspect in a world where gasoline prices have more than doubled, where driving is in decline, and consumer behavior patterns are obviously changing.

A wealth of evidence shows that car ownership is declining, the number of young drivers is declining, that vehicle miles traveled are declining, and that gasoline sales are declining, both nationally and in Oregon and Washington. The FEIS contains no analysis of these trends. See for example articles by Williams-Derry, 2011 in Indirect Impacts Folder.

FEIS claims about induced demand are incorrect and the FEIS summary of induced demand literature distorts the professional consensus.

The FEIS misrepresents the academic literature on induced demand and distorts the findings of its own literature review.

The FEIS report on Indirect Effects (Appendix A, page A-1) reports that the predecessor of the CRC commissioned Parsons Brinckerhoff to conduct a literature review of 75 studies of the effect of transportation facilities on demand. While the text of the report purports to summarize

the findings of the report, the FEIS neither includes quotations from the actual report or the report itself. I obtained a copy of the report. Among its conclusions:

> 1.5. Households reinvest travel time savings in longer trips and more travel.
> Household location choice is influenced by many factors including: housing costs, access to jobs, access to goods and services, type of community, amenities/quality of life, public services/schools and property tax rates. The more numerous non-work trips for personal, family, civic, education, and recreation, may prove to be equally as significant as the work trip in housing location choice, especially for multiple worker households.
> Evidence suggests that households do not locate so as to minimize their travel distance from work; rather, they tend to keep their overall travel time within a certain amount, Despite differences in travel conditions and opportunities across US cities over the past 20-year, people spend the same amount of time per day, on average, in travel. The stability in commuting travel times suggests that transport accessibility improvements will allow households to locate further away from jobs, and that that any travel time savings may be used for more travel. (In the Vancouver-Portland region it may lead to household locations in outlying cities, rather than in the "rural sprawl" that typifies most other metropolitan areas.) The development shift to the suburbs in the past few decades initially reduced commute travel times as housing and jobs co-located along previously uncongested freeways. However, the increased traffic congestion of suburban areas has led to larger increases of late in suburban commute times.
> Parsons Brinckerhoff, Land Use-Transportation Literature Review For the I-5 Trade Corridor Regional Land Use Committee, September 17, 2001, page 12

The latest literature on induced demand—which is not addressed in the FEIS or DEIS—takes the very strong view that additional transportation capacity directly induces additional travel. One paper published by the National Bureau of Economic Research, elevates the proposition to a "fundamental law"—finding that for interstate highways in metropolitan areas distances traveled increase one for one with interstate highway lane miles. (Duranton & Turner, The Fundamental Law of Road Congestion: Evidence from US Cities, National Bureau of Economic Research, 2009, No. 15376).

Moreover, the FEIS too narrowly defines induced demand to be demand resulting from changes in land use patterns due to changes in accessibility. This is only one of several sources of

induced, or generated demand. Additional transportation system capacity can cause more and longer trips even without changes in land use patterns. See for example Litman:

> Traffic congestion tends to maintain equilibrium. Congestion reaches a point at which it constrains further growth in peak-period trips. If road capacity increases, the number of peak-period trips also increases until congestion again limits further traffic growth. The additional travel is called "generated traffic." Generated traffic consists of diverted traffic (trips shifted in time, route and destination), and induced vehicle travel (shifts from other modes, longer trips and new vehicle trips). Research indicates that generated traffic often fills a significant portion of capacity added to congested urban road.
> Litman, Todd, Generated Traffic and Induced Travel, Implications for Transport Planning, Victoria Transport Policy Institute, 8 June 2011, in Indirect Impacts Folder.

The results of regional travel demand models were manually adjusted by CRC advocates to shift additional traffic to I-5.

The models used to predict traffic are purported in the FEIS to be robust, verifiable, and scientific. But in fact, the Metro travel model is a black box, with the key factors driving predicted outcomes not accessible to outside scrutiny. In addition, the CRC officials concede having manually adjusted the outputs of the model to produce different results.

While the CRC traffic forecasts based their initial estimates on the regional transportation model, they adjusted these estimates to shift some forecast traffic from I-205 to I-5. The authors of the study labeled this manual adjustment "post-processing"—but it simply means that they used their own judgment to select higher values for I-5 than those produced by the regional transportation model. The reasonableness of this adjustment is debatable. The CRC claims that an analysis of 2005 actual traffic data shows that actual traffic on I-5 was underestimated, relative to I-205 by the regional model. The authors made no apparent attempt to see if their adjustment was supported by data in any subsequent year. But each year after 2005, traffic volumes have been

proportionately higher on I-205 than I-5, undercutting the stated basis for this "post-processing" adjustment.

According to the report, the effect of the "post-processing" adjustment was to increase traffic volumes assigned to the I-5 bridges by 6 percent over the levels predicted by the regional transportation model without this modification.

The report concedes:

> However, the post processing methodology forecasts less traffic diversion from I-5 to I-205; forecasted 2030 average weekday volumes on the I-5 Bridge are about 6 percent higher with the post-processing methodology than with the regional travel demand models.
> (Columbia River Crossing, 2010b).

The effect of this adjustment is to understate the amount of diversion that will occur to I-205, even with the relatively high value of time estimates used in the travel demand model.

Despite its technical sounding name "post-processing" really represents a judgment on the part of the CRC to disregard the outputs of the Metro travel demand model, and to manually choose the values for traffic.

CRC has failed to disclose visual impacts.

The Columbia River Crossing will have an enormous impact on the views from downtown Vancouver and on Hayden Island. The project will cross the river approximately 70 to 80 feet in the air, and touch down up to a quarter mile away. Almost nothing in the Final Environmental

Impact Statement reveals how this massive structure will affect the views and light of human beings standing on the ground anywhere near the structure.

The project's visual impact technical report contains only a handful of computer simulated images of the bridge. All of them are taken from distant points floating in the air (where no human being will ever actually perceive the structure). For example, Figure 4.8 shows the bridge from a point somewhere along Hayden Island riverfront, several hundred feet east of the bridge, using a "wide angle" perspective that diminishes the perceived height of the structure." Figure 4-12 shows the bridge from a point hovering several hundred feet above downtown Vancouver. Figure 4-13 shows a portion of the structure relatively close up, but again, from the perspective of someone floating somewhere in the air, and not on the ground. Figure 4-13 also depicts the now discarded open-web design, rather than the truss currently proposed.

The decision to present such a limited and artificial set of perspectives represents a conscious attempt on the part of the sponsoring agencies to conceal the project's visual impacts. It is a decades-old gambit: Robert Moses used the same scheme to try to sell the Brooklyn-Battery Bridge in the 1930s. He concealed the fact that the bridge would have obliterated views from the ground (and lower ten stories of buildings) in Lower Manhattan, by showing the bridge as it might be viewed, in the words of Robert Caro "by a high flying and myopic pigeon." (Caro, Robert. 1976. The Power Broker. Page 464) in Indirect Impacts Folder.

Under NEPA, the sponsoring agencies have an affirmative responsibility to disclose the impacts the project will have on the environment, including the viewshed. The presented FEIS not only

fails to do so, but presents evidence that conceals and distorts the bridge's visual impacts. As such, the FEIS fails to comply with NEPA, and the agencies should be directed to present a fair and accurate set of renderings disclosing the visual impact as it will be perceived by humans standing on the ground near the structure.

Despite making major changes to the project, the CRC did not undertake a supplemental environmental impact statement, as required by NEPA.

The FEIS claims:

Both agencies concluded from these determinations that these changes and new information would not result in any new significant environmental impacts that were not previously considered in the DEIS. These changes in impacts are described in Appendix O of this FEIS. (FEIS, page 2-86.)

The implication is that the standard is "new significant environmental impacts." But this is not the standard that triggers the need for a supplemental environmental impact statement. The standard is whether there are significant changes to the project.

The project is changed is several ways: The footprint on Hayden Island is significantly different. An arterial bridge is being built to Hayden Island. The bridge will be a composite truss, not an open-web. The number of lanes on the bridge will be different. AT least one of the garages in downtown Vancouver is proposed to be built partially underground, and not entirely above ground as in the DEIS. The size of the Clark College park and ride lot has been more than doubled. The new stacked design will have substantial adverse impacts on the bridge's highly touted bicycle and pedestrian facilities which are now reduced in size and relegated to the lower level of the stacked bridge. Moreover, because the project is likely to be phased, and there is no

certainty as to which phases will actually ever be completed, the project as completed may be very different than the one described in the FEIS, with different environmental impacts.

CRC proponents have implied that the full build FEIS represents the envelope of maximum impacts, and that any smaller project would have lesser impacts, but that is not correct. Some aspects of the project have environmental benefits (tolling, transit), and others have negative environmental effects. Implementing just a portion of the project would likely divert traffic to different locations, with different effects. Prior to issuing a record of decision, DOT should prepare an FEIS that reflects the actual project proposed to be built, and not one that may include many components or features that may never be constructed.

The sponsoring agencies cannot know whether there are "significant impacts" from these changes without undertaking a supplemental environmental impact statement. Moreover, the objectives of NEPA—giving the public the opportunity to review and comment on this analysis of impacts—is thwarted if the sponsoring agency is allowed to make substantial changes to a project after the DEIS.

Conclusion

The CRC's LPA and FEIS are living proof that dinosaurs, at least transportation dinosaurs, are not extinct. Under NEPA, and the ESA, the citizens of Oregon and Washington are entitled to an FEIS that actually considers transportation options other than expanding highway capacity and that fully and objectively evaluates all of the adverse impacts, including in particular the impacts on threatened salmon, of the CRC's highway expansion proposals. The FEIS actually issued by the CRC and approved by the Federal agencies does neither of those

things. For all the reasons set forth above, PEAC respectfully requests, on behalf of its clients listed below, that the responsible federal agencies and the CRC Task Force withdraw the CRC FEIS and issue a corrected Supplemental DEIS for public comment.

Respectfully submitted,

/s/Tom Buchele

_____

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