From:	Swanson, Terry (ECY)
To:	Krueger, Paul W (UCO);
CC:	Burcar, Joe (ECY); Harper, Kim; Tallent, Geoff (ECY); McFarland, Brenden; Lange, Sandra; Robohm, Richard (ECY); Luengo, Eric (ECY); Boyer, Michael;
Subject:	Ecology"s Comments on SR-520 Bridge
Date:	Tuesday, October 31, 2006 10:00:19 PM
Attachments:	SR-520DEISfincomms.doc

Paul, I am enclosing Ecology's comments on the 520 Bridge Replacement and HOV project. There are a lot of comments covering Shorelines, Water Quality, Wetlands and Air Quality.

I will submit a formal cover letter with my signature when I return from my three day workshop that I am attending for the last part of this week.

Ecology's main area of concern with the DEIS is that while the document was easy to read for a basic understanding of the project, the alternatives were not adequately analyzed or easy to compare, nor were the impacts associated with the alternatives and the options fully described. Additionally, we had a difficult time jumping back and forth among the main text, appendices, and addenda, making our review cumbersome and more lengthy than expected.

The complexity of the project allowed for several different means of categorizing the material. Therefore, you will find the Shorelines comments organized by Appendices; the Wetlands comments by number and text references; the Water Quality comments primarily by basins; and the Air Quality comments in a more narrative form. I trust that you will find the comments easy to understand and follow.

Because the DEIS has significant gaps in the material necessary to make a reasonable decision when choosing among the alternatives, Ecology strongly encourages that the FEIS contain the information called for in our comments. With that information, Ecology will be able to make a clear decision on Concurrence Point #3, which is concurrence on the Preferred Alternative and draft Mitigation Plan.

I know that you will have many questions regarding Ecology's comments, and I look forward to meeting with WSDOT to go over our concerns and comments with you. Ecology technical staff is prepared to meet with your staff to discuss any and all comments. You and I can set some times up to meet, and I know that we need to meet soon to introduce new staff to the technical committee as well. In the meantime, should you have immediate technical questions, you should contact Joe Burcar for Shorelines, Richard Robohm for Wetlands, Eric Luengo for WQ; and Mike Boyer for Air Quality. Please refer to their email addresses in the cc above or let me know if you need phone numbers.

Sincerely,

Terry Swanson
Ecology Transportation Liaison Team Lead
360.407.6789 <<SR-520DEISfincomms.doc>>

The Department of Ecology

Comments on the

Draft Environmental Impact Statement for the

SR-520 Bridge Replacement and HOV project

October 31, 2006

S-001-001

1. GENERAL COMMENTS

The SR- 520 Bridge replacement Draft Environmental Impact Statement (DEIS) does a good job in providing a general history of the existing bridge, the reasons for replacing that bridge and descriptions of the east and west side locations including an explanation of the DEIS alternatives. Essentially, the DEIS provides broad insight to many of the social and environmental issues surrounding the project in a narrative format but does not provide any clear conclusions on relative environmental impacts for all of the alternatives analyzed. Technical information serving as the basis for much of the information described in the DEIS resides in twenty-four individual appendices (appendix A-X) not physically located within the DEIS.

The original technical appendices (A-X) developed over the past several years considered environmental impacts associated with the following three options:

- no action
- reconstruction of an improved 4-lane bridge
- construction of a 6-lane bridge with two HOV lanes

After completion of these discipline reports, WSDOT added the following four sub-alternatives on both the east and west side of the project to be considered within the DEIS:

- Second Montlake Bridge option
- Pacific Street Interchange option
- 108th Ave Park & Ride
- Bellevue Way

Twenty-four addenda were then created for each of the twenty four original discipline reports. Unfortunately, the addenda do not consider individual impacts for each of the sub-alternatives; rather they compare the sub-alternative individually to the originally identified three project alternatives. Thus the DEIS fails to compare/quantify impacts for all of the currently considered alternatives. Further, the DEIS does not providing any sound conclusions on the relative environmental impacts of all the alternatives.

It is assumed that WSDOT intended to tie the evaluation of the new sub-alternatives into the narrative portion of the DEIS. However, not all of the alternatives are compared within the narrative portion of the DEIS leaving the reviewer to refer back to the more than 4,000 pages of technical appendices within 48 discipline reports/addendums.

S-001-001

The format of the DEIS does not allow for side-by-side comparison of all of the environmental impacts associated with all of the project alternatives/options. This lack of clarity does not provide a clear conclusion within the DEIS identifying the least-impacting environmental alternative. Through the EIS review process, WSDOT should provide an objective comparison of all of the DEIS alternatives and sub-alternative options in a format that can be easily understood by all reviewers, including the public.

In an effort to dissolve some of the complexity surrounding this project and in the spirit of broad public participation and understanding of the issues, Ecology encourages WSDOT to begin the Final EIS with a clear explanation of unavoidable environmental impacts associated with the project. Initial identification of these issues should provide context for discussion of the pros and con's of the alternatives described within the EIS.

WSDOT should consider all reasonably anticipated future changes to the project within the EIS review process (i.e. future in-water work or project expansion associated with future conversion to light rail etc.).

S-001-002

2. SHORELINE COMMENTS

By way of background and to provide context, Ecology offers the following information relating to the Shoreline Management Act and its implementing regulations:

RCW 90.58.030 – SMA finding of fact…"*insure the development of these shorelines in a manner which, while allowing for limited reduction of rights of the public in the navigable waters, will promote and enhance the public interest. This policy contemplates protecting against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life, while protecting generally public rights of navigation and corollary rights incidental thereto*"

Pursuant to WAC 173-27-370 **Lake Washington is listed as a Shoreline of Statewide Significance.** RCW 90.58.020 provides the following goal that in relation to Shorelines of Statewide Significance:

1) *Recognize and protect the statewide interest over local interest;*
2) *Preserve the natural character of the shoreline;*
3) *Result in long term over short term benefit;*
4) *Protect resources and ecology of the shoreline;*
5) *Increase public access to publicly owned areas of the shoreline;*
6) *Increase recreational opportunities for the public in the shoreline;*
7) *Provide for any other element as defined in RCW 90.58.100 deemed appropriate of necessary.*

The above goals will be applied to analysis of all shoreline aspects of the SR-520 project.

The following comments are ordered by Appendices:

S-001-003

Appendix A: Description of Alternatives & Construction Techniques

Exhibit 8-5 on page 8-6 within the DEIS depicts the footprint of the temporary bridges (plan view) also identifying the need for up to 1600 piles to support a temporary bridge structure. However, the **DEIS does not show any elevation views of the structure or diagrams indicating the relationship of the structure compared to the water level of the lake.**

S-001-004

Information presented at the DEIS public meetings showed that the 'temporary' detour bridges would be constructed below the current and proposed bridge at the lake level that would exist within the project area for a minimum of 5-years. It is anticipated that in the project areas of the Arboretum and Portage Bay, recreational opportunities (kayaking, canoeing, etc.) would be restricted from currently available recreational opportunities (i.e. passage under the current bridge). Neither Appendix A (Construction impacts), Appendix L (Navigable Waterways), or Appendix O (Recreational Impacts) discusses this potential impact. **The DEIS should provide discussion either identifying the degree to which each of the DEIS alternatives will affect this shoreline use or identify the impact as unavoidable for which some form of mitigation should be discussed.**

S-001-005

Also, as mentioned earlier, the format of the DEIS does not describe anticipated impacts for all the project alternatives and/or options. This gap in analysis is illustrated on pgs. 8-6 through 8-9 within the discussion of temporary bridges. The exhibits (8-5 & 8-6) only show temporary work bridges for the 4-lane alternative, the 6-lane alternative and the Pacific Street Interchange option. The Second Montlake Bridge option is not clearly explained or considered within this section. The last sentence of the second paragraph on page 8-7 references the Second Montlake Bridge option, stating that all work associated with the bridge would be done from barges or on land. The reality is that the Second Montlake Bridge option would still be associated with either the 4-lane or 6-lane alternative through Portage Bay, Union Bay and the Arboretum. This gap is carried into the discussion on construction effects to ecosystems on page 8-25 and 8-26. The DEIS compares the amount of in-water work and temporary bridge coverage, but only between the Pacific Interchange option and the 4 and 6-lane alternatives. Based on the diagrams shown in exhibit 8-5 & 8-6, it is anticipated that the Second Montlake Bridge option in comparison to the Pacific Street Interchange option would disturb less aquatic and wetland habitat through both temporary impacts and permanent roadway footprint. However**, this comparison is never explained or analyzed within the DEIS.**

S-001-006

Appendix E: Ecosystems report

As stated below within the reference to the shoreline Conditional Use Permit Criteria[1], shoreline proposals shall only be approved when significant shoreline affects can be avoided and the public's interest suffers no substantial impacts. Also to be considered is the designation of Lake Washington as a shoreline of statewide significance requiring compliance with the goals identified as part of RCW 90.58.020.

S-001-007

Although not specifically stated within the DEIS, when comparing the relative intrusion to the aquatic environment, it is anticipated that the Pacific Street Interchange option would pose a higher potential for substantial impacts to the aquatic ecology than the other DEIS alternatives. This distinction is not clearly identified within the DEIS, nor are the associated impacts to aquatic species thoroughly described or analyzed within the document.

S-001-008

WSDOT has proposed a marine maintenance facility to be located under the eastern high rise of the 520 bridge. On page 6-7, WSDOT has stated that effects of the dock on the spawning area are uncertain and that the spawning beach maybe displaced. **As with any other dock proposed in Lake Washington, Ecology would request that WSDOT make additional efforts to first avoid potential impacts to the spawning area. If avoidance is not feasible then the final EIS should provide a detailed methodology to ensure the footprint of the structure is reduced to the absolute minimum necessary.** Exhibit 3-13 on page 3-44 of the DEIS provides a conceptual design of the proposed Bridge operation facility.

[1] Shoreline Conditional Use Criteria – WAC 173-27-160

S-001-008

The sketch depicts an F-shaped dock with unknown deck width. **The final EIS should evaluate the necessary use of the dock in determining both the orientation (i.e. will an L-shaped dock serve the moorage needs) and deck width (i.e. Does the deck provide walking access to the vessels or a more intensive use).**

Although Ecology believes that the impacts of all of the DEIS alternatives/options need to be further evaluated prior to identification of mitigation options, Ecology would encourage WSDOT to first consider avoidance of impacts followed by identification of mitigation/restoration opportunities within the project area before consideration of regional mitigation opportunities.

S-001-009

Lastly, the DEIS on page 6-8 anticipates that overwater coverage within Lake Washington for the replacement bridge will increase from 10.4-acres to 21.5-acres with the 4-lane option and 27.5-acres under the 6-lane option. **The DEIS acknowledges the increased shading to aquatic habitat, but states: *"the additional shaded area would be negligible compared to the surface area of the lake".* It is not understood what impacts this will have on the aquatic environment, nor is it understood what WSDOT considers *"negligible"*? Regardless of the total surface area of Lake Washington, potential impacts to aquatic environments need to be evaluated parallel with the consideration of project alternatives. The Final EIS should provide additional analysis of the significance of the increased overwater coverage associated with the 520 bridge expansion.** Once the impacts are quantified, consideration of appropriate project minimization, avoidance or mitigation options should then be proposed.

S-001-010

Appendix K: Land-use, Relocation, and Economics

Appendix K provides a section dedicated to review of the project alternatives for "Consistency with local plans and policies". Within the evaluation of the Shoreline Master Program (SMP) WSDOT has generally evaluated locally administered SMP's within all the jurisdictions within the project area. The project will be located within shoreline jurisdiction of Seattle, Medina, Hunts Point and Kirkland. As described in the appendix, depending on the shoreline designation, the project (road or bridge) may be listed as either a permitted or conditional use. **A "special use" permit as described in the evaluation of the Seattle SMP is assumed to be equivalent to a shoreline Conditional Use permit for which Ecology would expect would be required by the City of Seattle.** For SMP's within Medina and Hunts Point, roads are not a listed use, which according to WAC 173-27-030[2] would be reviewed as a Conditional Use permit within these jurisdictions. Within the City of Kirkland, roads are classified as "permitted" requiring review of a shoreline substantial development permit to ensure the project is consist with the SMP.

The analysis did not discuss the necessity for review of a **height variance** for the project. RCW 90.58.320 provides a restriction to approving shoreline approval for structures over 35-feet in height that obstruct the view of substantial number of residences. **Unless more specifically addressed within one of the locally administered SMP's, Ecology would anticipate that shoreline variance approval will be required for the project.**

For shoreline Conditional Use permits, the review criteria listed in WAC 173-27-160 must be considered prior to permit approval. Initial review of the locally applicable SMP's suggests that Conditional Use permits will be required within the Cities of Seattle, Medina, and Hunts Point. **Because these permits will require consistency with the Conditional Use criteria[3],**

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[2] "Conditional use" means a use, development, or substantial development which is classified as a conditional use or is not classified within the applicable master program;
[3] WAC 173-27-160

S-001-010

Ecology would suggest that WSDOT consider the application of the criteria prior to selection of a preferred alternative.

Lastly, all of these jurisdictions are in the initial stages of a comprehensive Shoreline Master Program review which, pursuant to RCW 90.58.080, will need to be completed by the Cities prior to December 1st, 2009. These reviews provide WSDOT an opportunity to engage the local jurisdictions in pre-project planning for the 520 bridge. **Ecology encourages WSDOT to partner with the local jurisdictions in a closer screening of the locally administered SMP to identify any potential conflicts between current SMP regulations and the 520 bridge construction.** Early identification of potential conflicts will allow for either consideration of policy changes during the local jurisdictions SMP update and/or changes in 520 bridge alternatives considered.

S-001-011

Appendix L: Navigable Waterways

It is anticipated that construction barges as well as sections of the existing and replacement bridge will need to be floated to and from the project site through the Ballard Locks. **Even though these impacts would not be considered permanent, impacts to navigation, specifically recreation/commercial vessel operation, could be significant.** It is assumed that these potential impacts would apply to all of the DEIS alternatives currently being considered, with the exception of the 'no build' alternative**. Regardless of the degree of impacts associated with individual built alternatives, prior to shoreline permit submittal WSDOT will need to further explore potential impacts to navigable waterways within the project area and associated waterways leading to Puget Sound including identification of appropriate mitigating measures.**

S-001-012

As mentioned earlier (discussion of Appendix A), impacts of the temporary bridge if constructed at lake level may affect public use of the shoreline. **Special attention within the project area should be focused on Union Bay and the existing waterfront recreational facility at the University of Washington.** The University's facility is both a "water enjoyment" and "water dependent" use which the SMA identifies as preferred uses. **The preferred EIS alternative should result in minimum disruption to these uses to ensure that both the recreational and navigational assets of this area are preserved.**

Lastly, the in-water impacts to recreational opportunities, specifically impacts to water uses associated with the Pacific Street Interchange option, are not adequately evaluated in the appendix. This may partially be due to further concentration within the Navigation analysis (appendix L) as well as the fact that the Pacific Street Interchange option is the only alternative with in-water components. **Regardless, negative impacts to recreational boating/navigation within Union Bay should be fully understood and evaluated** as part of the environmental review and future consistency with the goals of the Shoreline Management Act.

S-001-013

Appendix O: Recreational Impacts

The recreational impact appendix provides an overview of public recreational areas located within the project area with potential to be impacted by one of the following ways:

1. Required acquisition for additional road right-of-way or construction staging area;
2. Relocation of existing trails or additional coverage of trails;
3. Aesthetic/environmental changes or impacts or the potential to degrade recreational experiences.

S-001-013

The report (including the addendum) begins by inventorying the recreational areas located adjacent or within the project area. Within the addendum the Pacific Street Interchange, South Kirkland Park & Ride, and the second Montlake Bridge alternatives are evaluated independently for their potential impacts to each of the adjacent recreational areas. As described earlier, because of the formatting of the DEIS, impacts associated with each of the DEIS alternatives/options are not compared to each other. However within the Recreational appendix, exhibit 7 (Affected Parklands in the Seattle Project Area – 6 Lanes with Pacific Interchange Option) and exhibit 18 (Affected Parkland in the Seattle Project Area – Second Montlake Bridge Option) provide an objective comparison of the two DEIS alternatives within similar matrices. **Within the charts it apparent that the Second Montlake Bridge option has less adverse effects along with more beneficial effects to recreational resources on the west side of the project area, however this conclusion is not mentioned within the DEIS.**

The recreational discipline report also does not mention the noise affect of a highway/roadway located above (elevated) an existing recreational use. In the case of the Pacific Street Interchange option, the bridge deck would be constructed over the existing University of Washington Waterfront Activity Center. It is understood that sound walls can be used to mitigate noise from transmitting at a similar elevation to an adjacent neighborhood, but it is not understood what mitigating techniques can be deployed to mitigate overhead noise. **Vehicle noise impacts associated with elevated roadways over recreational areas should be considered within the evaluation of all the DEIS alternatives.**

S-001-014

Appendix S: Visual Impacts

As previously mentioned, because of the fragmentation of the comparison of the DEIS alternatives/options within the discipline reports, the Second Montlake Bridge alternative was not compared directly to the Pacific Street Interchange option for comparable visual impacts. As with many of the environmental impact considerations, **the DEIS should compare all of the proposed alternatives for their associated impacts.**

S-001-015

Appendix X: Pacific Street Option Location analysis

Ecology provided WSDOT with initial comments in May of 2005 specific to the Pacific Street interchange option. The comments identified three SMA/shoreline issues associated with this option. Specifically, concerns pertaining to potential impacts to aquatic (fisheries), human (water dependent/water enjoyment uses) and terrestrial (wildlife) were identified**. As previously stated, it is anticipated that the Pacific Street interchange alternative when compared to the Second Montlake Bridge option, the four-lane alternative and possibly the original 6-lane alternative would result in more disruption to recreational opportunities with a higher potential for negative impacts to aquatic resources.**

REFERENCE PROVIDED ON CONDITIONAL USE CRITERIA IN WASHINGTON'S ADMIN. CODE

CONDITIONAL USE CRITERIA (WAC 173-27-160):

(1) Uses which are classified or set forth in the applicable master program as conditional uses may be authorized provided that the applicant demonstrates all of the following:

(a) That the proposed use is consistent with the policies of RCW 90.58.020 and the master program;

(b) That the proposed use will not interfere with the normal public use of public shorelines;

(c) That the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program;

(d) That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and

S-001-015

(e) That the public interest suffers no substantial detrimental effect.

(2) In the granting of all conditional use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if conditional use permits were granted for other developments in the area where similar circumstances exist, the total of the conditional uses shall also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.

(3) Other uses which are not classified or set forth in the applicable master program may be authorized as conditional uses provided the applicant can demonstrate consistency with the requirements of this section and the requirements for conditional uses contained in the master program.

(4) Uses which are specifically prohibited by the master program may not be authorized pursuant to either subsection (1) or (2) of this section.

S-001-016

3. WETLANDS COMMENTS

1. The DEIS is organized such that it is very **difficult to compare wetland impacts**, both among the main alternatives and among the various options under the 6-Lane Alternative.

S-001-017

2. Total permanent wetland and buffer impacts are not shown for the 4-Lane and 6-Lane Alternatives in the DEIS either in text or tables. The DEIS repeatedly separates the east and west sides of the project in all wetland impact tables such that the reader must manually add the impact acreage from both sides to get total project impacts**. The total acreages for permanent wetland impacts for the entire project should be readily available and clearly portrayed in summary tables that compare the alternatives.**

S-001-018

3. **Total permanent wetland and buffer impacts are not shown for all of the options under the 6-lane alternative.** Tables such as Exhibits 4-17, 5-20, 7-17 and 7-18 do not list all of the options that are being evaluated as potential parts of this project. The tables that address Seattle-side wetland impacts include only the main alternatives and the Pacific Street Interchange Option. These tables have a small footnote that states that other Seattle options would not differ from the 6-Lane Alternative. Wetland impacts for the 2nd Montlake Bridge Option and the No Montlake Freeway Transit Stop Option are not shown in any tables in the DEIS. The tables that address the eastside wetland impacts do not show the impacts for the No Evergreen Point Freeway Transit Stop Option and the South Kirkland Park-and-Ride Transit Access – Bellevue Way Option. The eastside tables do not have any footnotes explaining why these options are not included in the tables. These tables are not adequate to compare wetland impacts among the options. All options should be given equal consideration by showing the potential wetland impacts associated with each, regardless of whether they are the same as another alternative or option. The way the wetland impacts information is currently organized in the DEIS, it appears as if the options missing from these tables were not fully evaluated.

S-001-019

4. In addition to showing total project impacts for the base alternatives, **the DEIS should provide a table that summarizes the total permanent wetland and buffer impacts for the entire project area that would result from all the possible combinations of options under the 6-Lane Alternative.** For example, the 6-Lane Alternative combined with the Pacific Street Interchange Option and the Kirkland Park-and-Ride Access – 108th Ave NE Option could potentially result in almost 16 acres of wetland impact. This appears to be the highest total of any of the possible combinations of the options. It also appears that combining the 6-Lane Alternative with the 2nd

S-001-019

Montlake Bridge Option and the North Bike Path Option (eastside) would result in the least acreage of permanent wetland impacts of the possible combinations at just under 12 acres. There is no mention in the DEIS that permanent wetland impacts could be as high as 16 acres for the whole project. Again, the failure of the DEIS to total wetland impacts for both sides of the project is misleading. By only totaling impacts for each side, readers are left with the impression that project impacts would be much less than 16 acres. The same holds true in comparing total wetland buffer impacts among the possible combinations of options; it appears that wetland buffer impacts could be as high as 20 acres for the entire project.

S-001-020

5. The DEIS has used high (conservative) numbers for estimating permanent shade impacts to wetlands on the west side of the project. All wetland areas under the footprint of the elevated bridge on the west side have been included in the total acreage for shade impacts. However, it is likely that there will be some wetland areas in Portage Bay and/or the Arboretum that may remain vegetated under the bridge, particularly near the edges of the bridge. In the absence of solid quantitative estimates of area under the bridge that may be vegetated, it is appropriate that the DEIS uses the conservative approach in totaling shade impacts.

   WSDOT will need to complete a detailed shade/light intensity study for this project prior to receiving a 401 Certification so that potential shade impacts are more accurately quantified. In assessing which areas are likely to be impacted, the study should:

   - take into account the proposed height and width of the bridge in a specific location, the aspect of the bridge, nearby trees or structures that may increase shade, substrate type, hydrology, depth of water and extent of light penetration down to soil surface in ponded areas, type of vegetation currently present, and other relevant factors;
   - map all wetland areas that are likely to lose vegetation as well as those areas that may remain vegetated but will likely change in species composition. The maps should indicate areas that may switch from forested or scrub-shrub to emergent communities;
   - assess the acreage extent of wetland that will either lose vegetation or convert to a different vegetative class, as well as assess the extent of loss of function in the affected wetlands.

S-001-021

6. The DEIS states on pg. 5-47, 3rd paragraph that the Evergreen Point Approach would be 10-41 ft higher, thus "…allowing more light to penetrate to the surface of the ground or water." However, **the DEIS does not note here how much wider the bridge would be in that area. Width of the new structures is an obvious factor in determining the amount of shading under the bridge.** It is misleading to omit this information and other relevant factors from the discussion on shading on this page. This vague discussion in the DEIS implies that the increased height of the new bridge will result in more vegetated area underneath, but the analysis has not been done to support this.

S-001-022

7. **The DEIS does not address how wetland impacts were avoided or reduced in designing the main alternatives and the 6-lane options, nor does it discuss the feasibility of using various techniques such as retaining walls to avoid or reduce potential impacts.** The DEIS should discuss whether all the options have an equal potential for further reducing impacts as design progresses. For example, is it equally possible to use retaining walls to minimize impacts for both of the access options for the Kirkland Park-and-Ride or does one option offer greater opportunity? The DEIS

S-001-022 should clearly address whether and how the basic designs of the options already incorporate efforts to avoid and minimize wetland impacts.

S-001-023 8. **In general, the potential for indirect impacts to wetlands has not been adequately addressed in the document.** For example, the DEIS does not discuss the potential for indirect effects to the large, high quality wetland in the Cozy Cove Basin as a result of losing a substantial portion of the forested buffer that currently lies between the wetland and SR 520. Page 7-32 of the DEIS states that a little less than an acre of this forested buffer would be filled under both the 4-Lane and 6-Lane alternatives. This, and other indirect impacts should be clearly identified and assessed, and options for mitigating these impacts proposed. In this case, it may be advisable to enhance the buffer that would remain around this wetland or to further explore ways to avoid or minimize these impacts. If these impacts cannot be reduced at the affected wetland, then compensatory mitigation for compromised function in this wetland may be necessary at another location. Ratios for this would need to be determined based on the extent of impacts to the wetland functions.

S-001-024 9. Under the 6-Lane Alternative and the options that would provide access to the Kirkland Park-and-Ride, it appears that a substantial area of riparian wetlands along Yarrow Creek will be filled. **The loss of these wetlands is noted on pages 7-33 and 7-34 of the DEIS, but the discussion does not give any perspective as to what proportion of the existing riparian wetlands in this sub-basin will be lost and how that will affect the stream and remaining wetlands.** Filling portions of up to six wetlands in such a small sub-basin may have considerable effects on stream flows, fish use of the creek and other related resources. This is not adequately addressed in either the wetland or fish impact discussions for the east side.

S-001-025 10. **Temporary construction-related impacts to wetlands and buffers are not adequately addressed in the body of the DEIS or in the appendices.** The temporary work bridges that would be constructed through Portage Bay and the Arboretum would have fill impacts from the hundreds of pilings that will support the structures, as well as clearing and shading impacts to wetland vegetation. Appendix E estimates that 1800 pilings for the temporary bridges would be located in wetland or aquatic habitat on the west side. These impacts have not been quantified in the DEIS, nor is there any table or other visual comparison of impacts among the alternatives and options. Acreage estimates that are provided are buried in Appendix E and lump shading and clearing as one number; no acreage is given for temporary fill. These numbers are given only for the main alternatives, not for the 6-Lane options. **The DEIS should include a table summarizing temporary impacts so that comparisons among the options can easily be made.**

S-001-026 11. **The DEIS text on page 8-25 mentions the possibility of temporary impacts to westside wetlands, but it is silent regarding eastside wetlands.** It is highly unlikely that widening of the highway and installing access ramps will have no temporary impacts to wetlands on the east side. It is typical that temporary impacts may extend into adjacent wetlands 15 or even 20 feet beyond the toe of the permanent road footprint depending on the topography and the proposed design. This is particularly common in areas where retaining walls are proposed due to the need to excavate for wall footings and, in many cases, install wells to dewater footing areas where there is shallow groundwater. **Given these considerations, the DEIS should clarify the extent of temporary wetland impacts to both eastside and westside wetlands and show whether those vary among the alternatives and options.**

S-001-027 12. **Where temporary wetland impacts are discussed qualitatively in the DEIS, the assessment is poor.** No specifics are provided and the scope of potential impacts is not made clear. Page 8-25, 3rd paragraph states that the temporary bridges "could affect

S-001-027

nearby wetlands", yet it is clear that wetlands will be negatively impacted. Though subtle, word choice of this nature tends to downplay the possible effects and leads the reader to conclude that temporary impacts will be minor. In fact, Appendix E indicates that 3 to 4 acres of wetland would be cleared or shaded due to the temporary bridges on the west side.

S-001-028

13. **The DEIS should have clarified that temporal loss of wetland function includes the period during which the temporary impacts persist as well as the time it takes to replant and re-grow the vegetation that was lost due to temporary impacts.** Appendix E of the DEIS indicates that the temporary work bridges on the west side would remain in place for 4 to 7 years. Page 8-25 of the DEIS states that wetland areas that are temporarily disturbed will be replanted following construction to restore the areas to preconstruction conditions. So in addition to waiting 4 to 7 years to replant the areas, it will take time for those plants to grow in size and develop structure so that the wetland functions similar to preconstruction conditions. This lag in replacing actual wetland functions will vary depending on the type of vegetation that is impacted, as well as other variables. Aquatic bed vegetation such as water lily may re-establish within the first year following removal of the temporary bridges; cleared trees may take 50 or more years to grow back to the size of the trees that will be cleared in existing forested wetlands in the area. Ecology considers the loss of wetland functions for a minimum of 4 years (and for much longer in some wetlands) to be a long-term impact. To account for this temporal loss, Ecology may require compensatory mitigation in addition to restoring the temporarily disturbed areas. Ratios for long-term temporary impacts to forested and scrub-shrub wetlands are generally one-quarter of the typical ratios for permanent impacts. Depending on the length of time that wetlands will be disturbed and the nature of the functions that are temporarily lost, compensatory mitigation could also be required for temporary impacts to emergent wetlands.

S-001-029

14. **Appendix E is confusing with regards to wetlands.** The Ecosystems Discipline Report (DR) uses the old Ecology wetland rating system, but the DEIS apparently uses the new version. This is not explained anywhere and one is left to wonder why the impacts to Category I wetlands decreased so much since the Ecosystems DR was written. The Ecosystems Addendum Report shows shade impact acreages that are much less than those shown in the DEIS text and tables and no explanation is given for this. Other inconsistencies exist between Appendix E and the information in the body of the DEIS. **These reports should be updated to be consistent, or clear explanations for these inconsistencies should be provided in the DEIS.**

S-001-030

15. **The majority of wetland effects associated with this project will occur in wetlands that are currently directly adjacent to the existing SR 520 roadway. Therefore these wetlands will be impacted in ways somewhat similar to the original impacts from the existing road, but to a greater extent. One exception to this is Marsh Island** in the Arboretum which is not directly adjacent to the bridge and so has not been affected by direct fill or shading. It is likely that SR 520 has more indirectly affected wildlife use of the island as well as the quality of the water that enters the wetland on the Island. However, the Pacific Street Interchange Option would affect Marsh Island in ways that the other westside options would not. The Union Bay Bridge would cross directly over Marsh Island, shading vegetation, thus affecting a number of wetland functions, as well as increasing the extent of wildlife disturbance in that area. It is also not yet known whether one of the large supports for the Union Bay Bridge would need to be located on the Island thus resulting in direct fill of a portion of this wetland. **The Pacific Street Interchange Option would disproportionately affect the Marsh Island system in comparison to the basic alternatives and other westside options. This important difference should have been identified and discussed in the DEIS.**

S-001-031

16. All of the proposed alternatives and options would pass through the Arboretum at higher elevations than the existing structure. While this may benefit some wildlife species that are currently limited to crossing under the bridge on Foster Island to a very narrow tunnel, it is not clear how this will affect birds and other wildlife that use the canopies of the trees. The DEIS also does not address changes to water access for ducks trying to land and take off in the Arboretum area. The document should discuss these potential impacts and identify any differences among the alternatives and options.

S-001-032

17. **Ecology recommends using the Washington Function Assessment Method (WAFAM, Hruby et al. 1999) to quantify existing wetland functions in the project area.** This would provide more detailed information and a more complete picture of the wetland functions that may be lost than does the method that is more commonly used by WSDOT (Wetland Functions Characterization Tool for Linear Projects, Null et al. 2000). Using WAFAM will help in assessing the potential function loss, particularly for permanent shading and temporary impacts.

S-001-033

18. **The DEIS does not show wetland impacts broken down by Cowardin class or Hydrogeomorphic type in any of the tables in the body of the document, nor in Appendix E. This is important information that should be presented clearly in a table so readers can get a better idea of the extent of the types of wetland lost and relate this to functions lost.** The following table is an example that Ecology composed by gleaning the information from several places in the text of Appendix E.

SR 520 Bridge Permanent Impacts by Wetland Type

	4-Lane Alternative			6-Lane Alternative		
Wetland Type	**Seattle Side**	**East Side**	**Total**	**Seattle Side**	**East Side**	**Total**
Total	4.7	**3.2**	7.9	6.9	6.5	13.4
Cowardin Class						
FO	0.7	0.9	1.6	0.8	1.5	2.3
SS	1.0	0.5	1.5	1.3	1.9	3.2
EM	0.6	1.7	2.3	0.7	3.1	3.8
AB	2.4		2.4	4.1		4.1
HGM Type						
Depressional		0.5	0.5		0.9	0.9
Riverine					1.9	1.9
Slope		2.6	2.6		3.6	3.6
Fringe - Lacustrine	4.7	0.1	4.8	6.9	0.1	0.1

S-001-034

19. **The DEIS provides very little information as to how WSDOT proposes to provide compensatory mitigation for unavoidable wetland impacts beyond some brief statements on ratios.** This information is not sufficient for Ecology to determine whether project impacts will be adequately mitigated. Ecology is aware that specific locations for wetland mitigation have not yet been selected but more information on a general proposed approach should have been provided.

S-001-035

20. The DEIS states on page 5-49 that WSDOT is proposing **a 1:1 ratio** to compensate for shading impacts and then goes on to suggest that planting trees and shrubs in existing wetlands around Lake Washington would be adequate mitigation. **Applying the same ratio across the board does not take into account the wetland ratings or the**

S-001-035

extent of loss of function for a particular wetland. Ecology does not have guidance that speaks directly to shading impacts to wetlands but makes clear that compensatory mitigation should adequately replace the functions that are lost in the impacted wetlands. If a wetland is shaded to the extent that it will lose all of its vegetation, it would be necessary to assess the functions that will be lost due to this change. **Ratios should be selected based on the potential loss of function.** For conversion of wetland types, ratios are generally one-half of the typical ratios for permanent fill impacts. If enhancement only is proposed, then ratios are likely to be 4 times the ratios that would apply if re-establishment of wetland were the selected mitigation. However, **the extent of mitigation needed to replace the lost functions cannot be determined without a shade impact study and a wetland function impact study.**

S-001-036

21. The DEIS states on page 7-31 that the 6-Lane Alternative would require 14.2 acres of wetland mitigation for eastside wetland impacts. This section notes that the project team did not find an undeveloped area of suitable size available in the project area basins to accommodate all the mitigation needed. It also notes that they did not find enough suitable areas across the basins to get the total mitigation acreage needed. Therefore, the DEIS states, the project team turned to an existing watershed characterization study to identify potential mitigation sites in the larger Lake Washington/Cedar River Watershed (WRIA 8). It is not clear from this discussion whether the project team asked local jurisdictions or other entities for help in identifying potential mitigation sites closer to the areas that will be impacted**. Ecology is concerned that the project team is considering potential mitigation sites that are a considerable distance from the project area, such as projects that received high priority in the watershed characterization study that are located in the vicinity of Woodinville and Issaquah and that drain to Lake Sammamish or its associated creeks rather than to Lake Washington where the affected wetlands drain. Given that the impacts to the eastside wetlands are in an urban area, we recommend looking for mitigation in the local urban area (e.g., Kelsey Creek basin, Yarrow Creek basin).**

    Ecology and other state and federal agency representatives have discussed possible mitigation options with staff from the City of Bellevue. City staff have identified a number of priority projects in the affected sub-basins or in nearby areas that could be viable options. We have conducted a similar process with City of Seattle staff in looking at options for westside mitigation. Ecology recommends that the SR 520 project team coordinate closely with our staff as well as those from other state, local and federal agencies during the process of mitigation site selection.

S-001-037

22. **Exhibit 3-1b shows a stormwater treatment wetland for the 6-Lane Alternative proposed for the same location in which the project team has proposed locating some of the wetland mitigation. This conflict in use of that area will obviously need to be resolved.** It appears that there is some flexibility in siting the feature because the 4-Lane Alternative shows a similarly-sized stormwater wetland in a different location between two of the ramps that will be removed as part of this project.

4. WATER QUALITY COMMENTS

A. General:

S-001-038

Regarding the stormwater management efforts, the DEIS does a good job of following the layout for planning for and applying principles found in the Highway Runoff Manual (HRM) and its Ecology equivalent guidance manual. In combination with the narrative found in the DEIS, the Water Resources Discipline Report found in Appendix T has adequately explained and broken down the elements of stormwater management and plans for compliance by satisfying the minimum requirements for treatment and flow control. The amount of early planning and agency coordination has helped create a well-thought-out DEIS concerning stormwater impacts and establishing a clear precedent for projects of this magnitude. The DEIS delivers a message that the stormwater management issues should be addressed by adhering to the policy and associated guidance in the HRM to achieve the intended goals of the state to protect and preserve our important water resources.

S-001-039

Beginning with Chapter 3 "Developing the Alternatives", page 3-38 under Stormwater Treatment does an effective job of providing some background information on the locality of the project limits. Based on the comparable drainage characteristics of the east and west sides of the project area, it is logical to separate the two sides when providing a description of the management efforts in each area. This approach allows the narrative to explain the similar types of design schemes that correspond to the general characteristics or environmental factors that affect that specific area.

S-001-040

In addition, the schematics found in Appendix T or the Water Resources Discipline Report offer an excellent visual aid for displaying the locations of BMPS and the extent of the sub-basins within the project limits. The reader can easily conceptualize Threshold discharge areas (TDAs) from the various exhibits showing schematics of the delineated sub-basins and the constraints of the right-of-way. Specifically, Exhibit 22 does an excellent job of illustrating the TDA limits and the conceptual layout of proposed stormwater BMPs within each TDA or sub-basin area.

Given the limitations and constraints in the project area, the results of the BMP selection process are clear. The fact that vaults have been considered shows that the project team is selecting the best available science in order to achieve compliance regardless of the associated maintenance requirements of these facilities. Selecting vaults is a viable choice based on the fact that the types of maintenance activities required for vaults may already be required in that area so maintenance scheduling can additionally be coordinated with vaults for efficiency. The amount of land acquisition or use of right-of-way is also reduced through use of vaults considering the smaller footprint.

Operational treatment and flow control BMPs may be constructed at a larger scale depending on the alternative that is selected. The amount of new and replaced impervious surface would be greater within each TDA if the 6-lane alternative is selected. Conversely, facility size will be comparably smaller if the 4-lane alternative is selected. Given the consideration that has been explicitly addressed in the DEIS, it appears that the stormwater management requirements will be satisfied regardless of which alternative is selected. Traffic considerations should have a stronger bearing on whether the 6-lane alternative should be selected, however, the space constraints due to limited right-of-way may require that land acquisition be considered in order to have adequate space available for the constructed operational stormwater BMPs. In this case, the stormwater design may have a stronger bearing on the selection of the preferred alternative.

S-001-041

One cautionary comment relates to the section titled "Stormwater Treatment" in that it also includes the details for meeting the flow control requirements. Care should be taken not to confuse the reader with the requirements for controlling water quality and those for water quantity. Detention facilities and other flow control BMPs have an affect on water quality but they also function to reduce the hazard of flooding and property damage or loss. The primary function of flow control BMPs is not to remove pollutants from stormwater runoff, but to control the release rate of water to the receiving water body of the corresponding drainage basin in order to mimic the natural hydrologic cycle. This is a separate objective from those of stormwater treatment BMPs; hence a separate section outlining the details of meeting the objectives of quantity control would be sufficient in differentiating the goals between treatment and flow control.

S-001-042

The chapter tabs of the actual bound document do not do an effective job of marking certain sections for quick reference. The divisions between chapters are marked but the method of highlighting or bolding the color of the tab of the corresponding section does not provide the best clarity for the reader.

S-001-043

B. Stormwater Treatment and Flow Control

Seattle side:

Options for treatment and flow control in the basins on the west side of the project area are limited due to the amount of wetland area, and the other development that is encroaching on the project right-of-way. It is evident from the details in the documentation that careful consideration was taken to ensure that water quality standards will be met despite the limiting factors. **The DEIS would benefit by including tables similar to Exhibits 35 and 37 in order to compare the stormwater impact scenarios for each alternative on the Seattle side of the project area.** It appears that the flow control exemptions on Seattle side of the project area resulted in less attention paid to that side in terms of providing more detailed data on potential pollutant loading scenarios for each sub-basin and for each alternative.

S-001-044

Lake Union Basin:

Once the emerging treatment technology is selected at final design, questions may arise. It is curious that an emerging treatment BMP is being selected for this basin, since not a lot of information is provided as to why this option is being considered. On page 46 of Appendix T the fourth sentence in the first paragraph indicates the facility will be a "…space-efficient underground facility". This information leads one to conclude that space constraints are the limiting factor in the BMP selection. **Ecology suggests a water quality wet vault for consideration as a treatment option. Using an emerging BMP might prove inappropriate given that the potential for a specific proposed BMP to be denied a "use level" designation. If that is the case, the engineering team will be forced to consider more traditional opportunities.**

S-001-045

Portage Bay Basin

The BMP options are more limited in the Portage Bay Basin in contrast to the characteristics of the Union Bay Basin. Little or no wetland areas and the limited availability of right-of-way are an excellent basis for selecting the water quality wet vault for treatment in this basin. As indicated, discharges to the receiving water body in this drainage area are exempt from the flow control requirement; therefore, omitting a flow detention facility is justified. **If discharges are not directly to the exempt receiving water body and are to a non-exempt tributary, the flow control requirement will apply to the discharge from that basin.**

S-001-046

Union Bay Basin

WSDOT has explicitly indicated that the "demonstrative" approach will be conducted in the engineering plan for stormwater management in this basin. An impressive design feature in this basin is the water quality vegetation cells that contain compost-amended soils to help facilitate treatment. This feature is an excellent use of resources since they will be constructed in the cofferdams, which will already be in place for the construction of the bridge pilings. **One consideration is ensuring that this design element does not in any way affect the structural integrity of the bridge piling itself. If any findings lead to this possibility then the plan should be replaced with an alternative plan at the earliest stage of design as possible. The structural integrity of the bridge should in no way be compromised for the benefit of achieving compliance for stormwater quality.**

Pre-treatment prior to conveyance into the vegetation cells or bridge pier wetlands is facilitated via sedimentation vaults located below the road surface within the bridge deck. Specific details have not been outlined for the sedimentation vault design leading to question whether the vault is one continuous facility, or whether there are individual vaults located in the proximity above a bridge pier wetland or vegetation cell. **Another consideration is the maintenance of the sedimentation vaults, which is not addressed in the DEIS.**

S-001-047

Evergreen Point Bridge

Lake Washington Basin

The spill lagoons are another excellent innovative technique for effectively managing stormwater runoff; however, because this method of runoff quality control is not proven to meet the treatment standards, the demonstrative approach will need to be followed in this sub-basin for this specific method. While pollutants are not removed in the spill lagoons, the concentrations are diluted within the containment area and later when the runoff is assimilated into the waters of Lake Washington. Is it possible to predict the pollutant concentrations as the runoff is diluted through the spill lagoons and out into Lake Washington**? Monitoring should be in place to ensure that the pollutant concentration thresholds for the acute and chronic mixing zone boundaries are not exceeded, and such that there is no potential for serious impact on the water quality of Lake Washington.**

High efficiency street sweeping in combination with the spill lagoons is definitely an critical factor in removing pollutants from the bridge deck. Pollutants that are not captured in the street sweeping events will more than likely find their way via runoff into Lake Washington. **If it is determined that the street sweeping machine is not achieving the desired level of pollutant removal from the surface of the bridge deck, then a contingency plan (e.g. considering sweeping frequency, etc.,) must be developed otherwise the pollutant concentrations might exceed the maximum that is allowed within the mixing zone boundaries.** This problem can be alleviated by selecting the proper street sweeper. Consideration must be given to ensure that this machine was designed at a level that is conductive to the method proposed. In other words, the street sweeper must be as effective in removing pollutants from the bridge deck as well or better than the conditions assumed in the modeling scenario used to determine the effectiveness of using spill containment lagoons to meet the water quality standards in the lake.

S-001-048

Eastside

Fairweather Creek Basin

The existing conditions in this sub-basin are such that offsite runoff and stormwater facilities might influence the drainage characteristics of this specific area. Careful consideration must be given to offsite flow contributing to the basin in order to adequately model the hydrologic conditions when designing the onsite BMPs.

The flow control or flow duration standard is applicable in this basin, and it has been noted that there is sufficient planning and scoping for the inclusion of the required flow detention. **One concern is that there are multiple treatment facilities in this basin, however, only a single flow control facility is proposed in the form of a water quality wet vault with flow control**. Perhaps yet again some discharges are still exempt in TDAs within this sub-basin that have direct discharge to an exempt water body, or it is also possible that the BMP with flow control is designed to provide flow control for the entire basin. If the latter is the case, it is evident that this facility will be quite larger to accommodate the detention of flows from the entire basin which has been identified in Exhibit 37 to have a large amount of impervious surface. **The design parameters must be clarified for this BMP when the specific design details are being developed.**

S-001-049

Cozy Cove Basin

There is little information in either the DEIS or Appendix T regarding the effects of urbanization on stream flows and aquatic habitat for this basin. The amount of development surrounding or within this sub-basin leads to the conclusion that the unnamed tributaries in this area may be vulnerable to further development. The DEIS indicates that a water quality wet vault with flow control will also be used in this sub-basin. This is the only BMP identified in this sub-basin area, so the assumption is that the size of this facility will be as large compared to the water quality wet vaults with flow control that are proposed for construction in the Fairweather Creek Basin. The basis for this assumption, besides that it is the single BMP located in this basin, is that according to Exhibits 35 and 37. the Cozy Cove Basin has one of the largest amounts of increase in impervious surface area within the basin depending on the alternative that is selected.

S-001-050

Yarrow Bay Wetland Basin

Flows from the adjacent Yarrow Creek Basin will be treated and discharged to the wetland within the Yarrow Bay Wetland Basin. **It is not clear whether flow control is required for the drainage area that is being proposed to be discharged into the wetland, or if the wetland itself is being utilized to meet the flow duration standard in this sub-basin. This needs clarification.**

S-001-051

Yarrow Bay Creek Basin

This sub-basin is the largest of all the basins on the eastside and the number and size of the flow control and treatment BMPs onsite reflects that fact. There is a relatively low increase in the amount of impervious surface that is being added to this sub-basin; however, given the larger size of the sub-basin, the magnitude of the scaling will be similar to that of adjacent sub-basins.

S-001-052

West Kelsey Creek Basin

The BMPs in this sub-basin are only proposed for the 6-lane alternative. Does this mean that the amount of new and replaced impervious or disturbed land is low enough such that the minimum requirements for treatment and flow control are not triggered in the 4-lane alternative, or that this sub-basin will not be part of the 4-lane alternative? **This needs clarification.**

S-001-053

5. AIR QUALITY COMMENTS

Ecology's Air Quality comments mirror our recent comments on the DEIS developed for the Alaska Way Viaduct and the I-405 expansion project. We commend WSDOT for addressing and meeting the state and federal transportation conformity requirements for this technically challenging construction project. **However, the "SR 520 Bridge Replacement and HOV Project Draft EIS" does not address mitigating the impacts of diesel particulate emissions caused by the construction phases of the project.**

S-001-054

The EPA, Ecology, and the Puget Sound Clean Air Agency have determined that diesel particulate emissions have serious cancer and non-cancer health effects that occur below the National Ambient Air Quality Standards for particulate matter. As stated in the draft EIS, the Seattle area ranks in the nation's worst 5% for air toxic emissions. Although federal diesel fuel and vehicle emission standards will eventually provide substantial benefits for reducing emissions, increases in diesel emissions due to eight to ten years of construction of mega-sized highway projects in the Central Puget Sound Area will offset many of these benefits.

Federal, state, and local air quality agencies in Washington are aggressively pursuing the adoption of voluntary programs that reduce exposure to diesel emissions. These voluntary programs include the use of cleaner fuels, the installation of retrofit emissions control technology, and the adoption of no-idle policies. Counties, cities, ports, school districts, transit authorities and state agencies actively participate in these voluntary programs.

In fact, the Washington State Department of Transportation (WSDOT) is already an active participant in many of these voluntary programs that reduce diesel emissions. WSDOT emission reduction activities include the early use of ultra-low sulfur diesel fuel, the use of bio-diesel fuel, installation of diesel oxidation catalysts (DOC) and closed crankcase ventilation (CCV) filters on WSDOT equipment, and the reduction of idling of emergency vehicles by replacing light bulbs with light emitting diodes (LED) on informational signs. Although these efforts are commendable, WSDOT lags behind many other states for reducing diesel emissions from construction equipment on highway projects.

States such as California, New York, Massachusetts, and Connecticut have demonstrated the success of reducing diesel emissions by retrofitting equipment with retrofit emissions control technology and adopting anti-idle policies. These programs are cost effective and reasonably easy to implement. **Ecology urges WSDOT to work with the Puget Sound Clean Air Agency to adopt the appropriate emission control strategies that mitigate any increases in diesel emissions due to the construction of SR 520 Bridge Replacement and HOV Project. Mitigation measures should reflect increases in emissions due to the use of construction equipment and the delay and diversion of highway traffic.** As with the WSDOT equipment retrofit, Ecology staff can provide technical assistance for retrofitting contracted diesel equipment.

State of Washington
Department of Fish and Wildlife
Mailing Address: c/o DOE, 3190 160th Ave SE, Bellevue, WA 98008, (425) 649-4423, TDD (360) 902-2207

October 24, 2006

RECEIVED
OCT 26 2006
WSDOT

Paul Krueger
SR 520 Project Office
414 Olive Way, Suite 400
Seattle, WA 98101

Dear Mr. Paul Krueger,

SUBJECT: WDFW review of the SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement, WRIA's 08.6007, 08.0028, 08.0252, 08.0253, 08.0254, 08.055, 08.un-named, 08.0257. Project location: SR 520 from Seattle to Bellevue, Washington.

S-002-001 I would like to thank you for the opportunity for letting the Washington Department of Fish and Wildlife (WDFW) comment on the SR520 DEIS. I also would like to reiterate WDFW commitment to working with the WSDOT on this project and to that end I would like to drive right in and run thru some comments and questions I have.

Alternatives and impacts: As we discussed at the October 11 meeting at the NOAA facility all of the alternatives need to be represented in the DEIS. The lack of a central table of impacts showing the permanent and temporary fill and shading amounts for the all of the alternatives is very basic and critical for anyone reading the DEIS to get a clear view of the impacts. The fact that the 2nd Montlake Bridge would result in the same amount of permanent fill and shading impacts as the standard six lane needs to be clearly shown in a table not as a side note. Due to the likelihood of building one or more of the six lane alternatives, such as the six lane with pacific street option, north bike path and 108th Street Park and Ride, the central table will need to show varying combinations of all the possible alternatives. It is not clear what the permanent and temporary impacts would be if more than one of the alternatives were constructed. Also the eastside 6-lane Bellevue Way Park and Ride and Evergreen Point alternatives were not presented at all leaving only the 108th Street and Ride alternative. Temporary construction impacts for filling, shading and clearing of the buffers need to be addressed as well.

S-002-002 **Work windows:** Due to the shear size of this project (one example: estimated 1600 – 1800 temporary piles are to be installed) and the lack of hard information in the DEIS determining the proper work windows for this project is very difficult. The work windows that the WDFW and federal services (US Corp, NOAA and USFWS) have used in the past for the Lake Washington and Ship Canal systems are for smaller project, such as a single-family pier or bulkhead, not for a

S-002-002

project of this size. WDFW Mitigation Policy POL-M5002 states avoiding impacts as the highest mitigation priority. Which in the case of an allowable work window would limit work below the Ordinary High Water Line (OHWL) and potential some over-water work, due to lighting issues, to a period when the proposed work will not affect the juvenile out migration and returning adults salmonids. After talking with local fisheries experts (Kurt Fresh, Roger Tabor, etc…) December 1 thru April 1, potential the last half of November as well, of each year would be the best work window that we could currently offer for the Ship Canal, Union Bay, and potential part of the western Lake Washington sections, the floating bridge section would depend on the work that needs to be done, eastern Lake Washington section would be July 16 - September 30, potential part of October, and the Medina – Bellevue creeks would be June 1 – September 30 for the non-fish bearing sections and July 1 – August 31 for the fish bearing sections. Due to the likelihood that work, such as multiple pile drivers, will be occurring in same or different sections at the same time proper Best Management Practices (BMP's) will need to be implemented and closely monitored.

S-002-003

As a side not I would like to say the WDFW is very aware the existing problems with the Lake Washington Ship Canal: low dissolved Oxygen levels, high temperature levels, abundance of artificial lighting at night, and circulation issues go well beyond WSDOT responsibility. However due to these problems potential work that could delay the juvenile out migration or returning adults salmon even for just the period of a workday could result in the loss of salmon. To assist the regulatory agencies in confirming these windows and potential widening them I would recommend: first identify what are the potential impacts of the different alternatives, second collaborate with the regulatory agencies and local fisheries biologist to determine which of these impacts are limiting the possible work windows, and third work out potential studies with the regulatory agencies and local fisheries biologist that could analyze these impacts. Potential studies could include using multiple pile drives in the same and different sections at the same time to evaluate potential salmon passage delays related to construction noise, this could be applied to work inside cofferdams as well, how salmonids move along the existing SR 520 bridge (elevated and floating sections) and the Montlake Cut, how salmon predator fish use the existing SR 520 bridge, and the potential short and long-term effects of using different types of artificial lighting. One other avenue with very high mitigation potential would be to model, evaluate, and then implement a project that would significantly reduce the water temperature in the Ship Canal. One potential example could be artificially cooling the Ship Canal water with colder water from the bottom of Lake Washington.

S-002-004

Piling: Page 4-39 of the DEIS mentions that fewer however larger piling would be installed in the proposed bridge. What are the numbers and sizes of the existing piles, located below the OHWL, that are to be removed? What are the numbers and sizes of the permanent and temporary piling to be installed below the OHWL for the four lanes, six lanes with the second Montlake Bridge and six lanes with the pacific street options? A best estimate will work however due to the shear number of permanent and temporary piles please reference how many of these piles will be in the Portage Bay, Union Bay, East and West Lake Washington Basin sections.

S-002-005 Concerning the removal of existing bridge piles. WDFW requires abandoned piling to be removed when possible and the holes to be filled and capped with appropriate material. If the pile has to be cut off then it should be done below the sediment line and capped with appropriate material.

S-002-006 **Bridge widths:** I realize the bridge widths vary from option to option however it would be very helpful to show what the design widths would be like at a few sections in the near shore areas of Portage Bay, Union Bay and East Lake Washington sections with the different options.

S-002-007 **Float anchors:** Page 3-14 of the DEIS refers to the use of fluke and gravity anchors for the proposed and existing floating bridge sections. What are the sizes of the gravity anchors proposed and the existing ones to be abandoned? I have heard estimates for NOAA that the existing gravity anchors could be up to sixty feet high by eighty feet wide. Due to the potential size of these structures could they affect lake circulation and if so would it be possible to reuse these anchors rather then installing more or potential removing all or part of the existing gravity anchors?

S-002-008 **Eastside Sockeye Spawning Area:** Page 6-7 discusses the potential effects that the new bridge and proposed facility pier might have on the identified lakeshore sockeye spawning area. Consideration should be given to make sure the pilings for the bridge are not install in upwelling pockets. When possible existing fluke and/or gravity anchors should be removed and sockeye-spawning gravel (2-inch minus well rounded clean gravel) installed to restore previously lost spawning habitat. Also would it be possible to remove part or the entire hardened bulkhead at this site and replace it with a bio-engineered bank protection structure?

The WDFW understands the need for a maintenance facility pier however current state and federal pier requirements will need to review. Upon the understanding that vehicles will need to operate on the pier for maintenance use the current ambient light requirement can be waived however the pier should be no wider then ten feet (recommend eight feet), piling spaced every eighteen feet and no skirting should be installed. The WDFW is aware that two existing residential docks will be removed as mitigation for the maintenance pier. Please provide the dimensions of these piers with your JARPA application to receive credit. The WDFW does have a planting plan requirement for new piers.

S-002-009 **Eastside Culvert replacement:** From the information I have gathered at the technique meeting WSDOT will be using WDFW stream simulation model to calculate the replacement culverts widths. I didn't see this stated in the DEIS and want to make sure this is correct? Due to the potential of increasing flow rate from filling in wetlands and storm water increase WDFW is expecting this model to be used as stated in the technique meetings. Also what would the culvert lengths be with the different options compared to the existing conditions? Please remember to include the Bellevue Way Park and Ride and Evergreen Point alternatives as well.

S-002-010 **Eastside Wetland/Basin modification:** Page 7-31 states in addition to improving water quality, storm water control, and treatment "this project" would enhance habitat for fish and aquatic life. Installing fish passage culverts is a valued aspect of this project however WDFW concern is that by filling in some of the wetland and wetland buffer areas this will affect the amount of water these very small systems can naturally store thus distorting the normal flow even more. WDFW has worked with the Nature Conservancy and private homeowners trying to stabilize existing conditions and will recommend if part or all of the wetland mitigation needs to occur offsite then flow and stream bank stabilization projects, such as large woody debris, should be installed to help maintain these systems. Large woody debris collected from the acres of forested areas that are to be removed for the construction of this project could be used for this purpose.

S-002-011 **Storm water treatment wetland:** Page 3-41 shows Exhibit 3-12 the Storm water treatment wetland at Bridge Columns – please provide a diagram showing the locations of the treatment wetlands with the different alternatives. Also are any of the Storm water treatment wetlands being proposed in existing wetlands?

S-002-012 **Wetlands:** Page 5-45 and 5-47 discusses enhancing and replanting low-quality wetlands as mitigation for temporary construction and shading mitigation. Has WSDOT categorized the wetlands that are to be impacted in terms, such as forest wetlands, that will allow this?

Wetland replacement mitigation: I just wanted to reinforce what we had agreed upon at the October 11 NOAA facility meeting that when possible wetland mitigation should occur onsite or near the project area. The original proposed mitigation was not received well by any of the regulatory agencies and we recommended WSDOT focus on the sites the Cities of Seattle and Bellevue have proposed. I would also recommend contacting the University of Washington and Arboretum society for potential projects.

S-002-013 **Construction impacts:** Due to the size of the project and projected construction period of seven to eight years this is an area where particular attention will need to be placed. The more information WSDOT is able to give the regulatory agencies on the construction phases (number, place and time when the permanent and temporary piling are to be installed, cofferdam installation and work, barges -how many, general areas they will be used, and when, use of artificial lighting, culverts replacement method, etc…) and the BMP's that will be implemented the easier it will be to commit on this project.

As the Assist Regional Habitat Program Manager for this area I believe we have the opportunity to enhance fish life and habitat while allowing the people of Puget Sound to have a more extensive transportation system. Please provide a written response to my questions and comments so that I may properly review this project. Providing a central table is highly recommended. If you have any questions, please contact me at (425) 649-4423. Thank you for your time.

Sincerely,

Stewart G. Reinbold
Habitat Program

SGR:sgr: SR 520 DEIS letter 102406
cc: David Brock, Mill Creek

UNIVERSITY OF WASHINGTON

OFFICE OF THE PRESIDENT

Mark A. Emmert, President

October 30, 2006

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WSDOT

Mr. Paul Krueger
WSDOT Environmental Manager
414 Olive Way, Suite 400
Seattle, WA 98101

Dear Mr. Krueger:

Please find attached the University of Washington's response to the *SR 520 Bridge Replacement and HOV Project: Draft Environmental Impact Statement: August 18, 2006.* We request that the Washington State Department of Transportation respond to the comments and concerns raised in this letter and the attached reports.

The University of Washington was founded in 1861 with a mission to provide education, research, and service to the citizens of Washington. Since then, the University has developed into a world-class institution, becoming an essential asset to our community and our state. Granting over 12,000 degrees annually, we have numerous highly rated academic programs, including bioengineering, drama, microbiology, computer science and engineering, medicine, and much more. We win more research funding than any other public university in the nation, roughly $1 billion annually. Our partnerships with business and industry have spawned more than 200 startups out of the intellectual property that has flowed from our laboratories and our research. Additionally, the University is home to one of the top ten hospitals in the nation, serving all patients regardless of where they come from or their socioeconomic background.

The University is also a national leader in environmental stewardship. Through our aggressive Transportation Management Plan, we have reduced Single Occupancy Vehicle (SOV) trips to campus by approximately 5,100 trips each day compared to the number of trips in 1989. Furthermore, we have committed to reducing greenhouse gasses by signing the Seattle Climate Partnership Agreement. We are a strong partner in managing the internationally renowned Washington Park Arboretum, which has plantings constituting one of the premier woody plant collections in the United States.

S-003-001

Although the University is not taking a position on the options currently under consideration, we must note that the Pacific Interchange option appears to be the one that would have the greatest negative impacts on our mission. This option takes away land dedicated exclusively for educational purposes, constraining future growth of the University. Without careful design and aggressive mitigation, it will split significant areas of land away

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S-003-001

from the central campus. Moreover, it appears that this option would have the most serious environmental impacts to the Arboretum, wetlands, shorelands, and fish. To the extent that it would make SOV trips easier, we believe this option would be at odds with our goal of reducing these trips. Finally, its construction poses very serious challenges to students, faculty, staff, visitors, fans, and patients who need to come to the University. Easy access to our campus and hospital is vital for us to meet our mission and maintain our financial health.

S-003-002

While it is conceivable these concerns can be mitigated, it remains to be seen how this will be accomplished and at what cost. Indeed, the DEIS does not adequately address mitigations or costs. Any final plan must commit to fully funding mitigation of University concerns. Otherwise, a project meant to solve transportation problems in the region may permanently damage one of the state's greatest assets.

Our DEIS comments are organized into two parts: 1) general comments grouped by topic and 2) comments directed to specific sections of the DEIS. In addition, we are including two reports related to transportation and environmental issues: 1) Mirai Comments on SR 520 Bridge Replacement and HOV Project DEIS and 2) Otak SR 520 Bridge Replacement and HOV Project EIS Review.

Thank you for the opportunity to comment. We look forward to your response.

Sincerely yours,

Mark A. Emmert
President

University of Washington
Comments on the *SR 520 Bridge Replacement and HOV Project*
Draft Environmental Impact Statement
October 30, 2006

I. GENERAL COMMENTS

S-003-003

Use of University Lands

Pursuant to legislative direction, the State of Washington conveyed "unto the State of Washington for the use and benefit of the University of Washington" Lots 1 through 6 of Section 16 upon which the Seattle Campus of the University of Washington was built. The language "for the use and benefit of the University" was a condition of the deeds from the city founders and their heirs that allowed the movement of the University from the downtown campus to its present location. Those earliest supporters of the State and the University were prescient of the pressures of urban development on the property set aside for the University. The intent of the donors and their heirs was that the current University location be used "exclusively for educational purposes."

Certain shorelands within Section 16 were separately conveyed to the University of Washington. The University owns portions of the State Arboretum Park and co-manages it with the City of Seattle.

Under state law, the Board of Regents has "full control" of University property "except as otherwise provided by law." RCW 28B.20.130(1). University regulations reserve University property, including all grounds, parking lots, water fronts, and airspace owned or operated by the University, primarily for educational use. WAC 478-136-012(1). "Educational use" includes instruction, research, public assembly, student activities, and recreational activities related to educational use. WAC 478-136-010.

The Board of Regents of the University of Washington has been given complete discretion over the use of the property of the University and they may make such use of the property as in their discretion will promote the best interest of the University. 1959-1960 Op. Attorney Gen. Wash. No 75.

Consistent with its agreement with and the intent of the founding families of Seattle, the Legislature has dictated that the University campus is to be used for university purposes. Just as the Regents have broad discretion to determine that an activity is for university purposes, they also have great discretion to determine that a use is not compatible with university purposes. WSDOT will need to work with the Regents to determine whether options under consideration for replacement of SR 520 are an appropriate use of campus lands.

S-003-004

SEPA/NEPA Issues

The DEIS does not detail mitigation for any of the identified impacts. Mitigation is the avoidance, minimization, rectification, compensation, reduction, or elimination of adverse impacts to the built and natural environment. Mitigation may also involve monitoring and a contingency plan for correcting problems if they occur or the mitigation is not adequate. Mitigation is defined as avoiding (by not acting), minimizing (by limiting the action), using appropriate technology, rectifying (repairing the damage), reducing (over time), eliminating, compensating (by replacing, enhancing or providing substitute resources or environments), or monitoring (and taking corrective actions) environmental impacts. The EIS should identify possible mitigation measures that will or may be applied or implemented as part of the project. The discussion should include information on the intended environmental benefit of the proposed mitigation as it related to the identified impact. If the technical feasibility or economic practicality is uncertain, the mitigation measure may be discussed, but discussion of the uncertainties must be included. The EIS should also clearly identify the mitigation measures as either mandatory or as potential so reviewers may better assess the impacts of the proposal.

SEPA rules state that the beneficial aspects of a proposal shall not be used to balance adverse impacts in determining significance.

An EIS provides decision-makers and the public with a complete and impartial discussion of the proposed project, existing conditions, probable significant adverse environmental impacts, and reasonable alternatives and mitigation measures that would avoid or minimize adverse impacts. This provides information needed for informed decisions. A critical defect in the DEIS is its relationship and inclusion of information from the Technical Appendix. The Technical Appendix contains information which is critical for decision makers yet is either not mentioned in the DEIS or is misconstrued. Certainly we all understand that most decision makers do not have the time to read both the DEIS and the Technical Appendix. Therefore the DEIS must include an adequate summary of adverse environmental impacts for each element of the environment discussed in the document. This discussion must include the disclosed impact, potential mitigation if there is any, and its feasibility. Each element of the environment must include a discussion of impacts which may or cannot be mitigated.

The primary purpose of an EIS is to provide an impartial discussion of significant environmental impacts, and reasonable alternatives and mitigation measures that avoid or minimize adverse environmental impacts. The discussion of impacts should include direct, indirect and cumulative impacts. The SEPA Handbook gives examples of these types of impacts. For example a road may be constructed which impacts a wetland (a direct impact). The new road will encourage increased development and traffic in the area because of the improved access (an indirect impact). Increase runoff and contaminants from the development would be added to the volumes and levels of contamination from similar developments surrounding the wetland (cumulative impacts). The document does not clearly distinguish project impacts as direct, indirect or cumulative. A detailed chart should be developed which identifies each impact, whether the impact is direct, indirect or cumulative, and mitigation which is practical, feasible and within control of WSDOT.

S-003-004 Mitigation must be reasonable and capable of being accomplished. WSDOT does not clearly state what mitigation is within the department's control and what mitigation would be the responsibility of other agencies or beyond the scope of this project or WSDOT.

WAC 197-11-440 (8) discusses optional elements of the environment to be analyzed in an EIS. One example is a cost/benefit analysis. This type of analysis is critical to help evaluate the proposal. This same type of analysis should be done for mitigation to ensure that decision-makers can determine the practicality and feasibility of the mitigation.

S-003-005 The document does not discuss any of the impacts from the Graving Dock. Specifically what are the impacts, both temporary and long term, of moving the pontoons into Lake Washington? Will there be an economic impact to the Locks i.e. will businesses which rely on this facility be adversely impacted? What will be the impact on the boating community? How will this impact fish?

S-003-006 During construction WSDOT will implement a travel demand management program. This program will help reduce impacts during construction. Why will this program be discontinued once the proposal is completed? Isn't in the best interest of the region to continue to implement travel demand management? If the travel demand management is effective during construction, will it have a similar advantage of reducing trips and therefore reducing the need for the six lane option? Why wouldn't the travel demand management program reduce the size of the project?

S-003-007 The impact of the Pacific Street Interchange on the health and vitality of the academic, business and residential community at the University of Washington and in surrounding neighborhoods has not been adequately addressed. Some analysis should be conducted on moving the interchange away from Foster and Marsh Islands, an environmentally sensitive area.

The entire proposal promotes the use of SOV due to an increase in road capacity on the new bridge, the expanded intersections at Montlake and Pacific, and two new lanes along Montlake. This impact, both in the short and long term, is not adequately addresses.

S-003-008 WSDOT has not provided an archeological study of Foster Island. This survey should be completed now, prior to further planning for the project. This is especially important to avoid similar negative financial impacts to the citizens of the State associated with the Port Angeles Graving Dock Project.

S-003-009 WSDOT has stated in the past that placing the bridge over Foster Island will result in fewer impacts to fish because less time will be spent in the water during construction. However, this statement is not based on documentation in the DEIS. More analysis is required to determine the validity of the statement.

S-003-010 Construction impacts from the temporary detour bridge have not been adequately analyzed in the DEIS as required by SEPA/NEPA guidelines.

S-003-011

Without a detailed analysis of mitigation, its feasibility and practicality, decision-makers will have a difficult time making informed decisions on this project. The University has identified mitigation which should be included in the Final EIS. Measures include:

1) Additional parking for both ICA and UWMC.
2) Police to manage traffic for football and other events during construction.
3) Costs will increase during game day as people choose to ride Metro rather than drive.
4) Parking revenue to the University will be significantly reduced during game days and potentially overall depending on parking mitigation.
5) Many units impacted by the Pacific Street Interchange are self sustaining. These include the Waterfront Activities Center, Intercollegiate Athletics, UW Medical Center, UW Physicians and others. Mitigation for business losses by these units must be included in the FEIS.
6) Patients coming to the UW Medical Center and UW Physicians should have access to improved valet parking. This mitigation should be included in the FEIS.
7) The UW's Transportation Management Plan may be adversely impacted due to the increased access to campus by SOVs via the Pacific Interchange. This will result in significant costs increases and potentially jeopardize continued growth on campus. How will this be mitigated?

S-003-012

Campus Master Plan and Design

The proposed Portage Bay Bridge alternative will have a significant impact on the University's south east campus and the stadium, limiting access to the site, disrupting parking and for the most part eliminating the opportunity for any future development in this area of campus. While the University's Campus Master Plan does not identify this as a development site, studies of future development potential were undertaken and show that this area has significant development potential. The loss of future developable space will need to be addressed by mitigation.

The visual impact as well as noise and light impacts will significantly impact the historic Canoe House and the Waterfront Activities Center. The Waterfront Activities Center is used by University students and a significant number of community members. This is a unique, one of a kind, resource for the community. The scale and height of the proposed structure will be an intrusion and destroy the serene, tranquil, open and magnificent natural beauty of the area.

The Waterfront Activities Center (WAC) provides water-related recreation to faculty, staff, students and the general public. It is open 337 days a year including holidays and weekends. More than 220,000 people visit this facility each year; 35% of those are the general public. The WAC rents 15,000-20,000 boats each year. The WAC lounge is used 300-340 times per year, with more than 250 requests for use denied due to lack of availability. When the WAC was constructed, the City required it to provide public canoe access to the Arboretum. If public access to this facility is limited by construction or long-term design, how will this access be

S-003-012 provided? Access to the WAC must be maintained throughout construction of 520 and impacts to the facility, including business loss, must be mitigated.

The widening of Montlake will have a significant negative impact in the vicinity of the stadium, the future Sound Transit Station, Edmondson Pavilion, and the Intramural facility with respect to access by pedestrians (especially for events), vehicles and bicyclists. Additionally, above grade crossings will be required from the central campus to these facilities as mitigation. The proximity of the expanded roadway to these activities and buildings and the loss of open space in this area will be significant. Adequate mitigation should be included in the FEIS to determine its feasibility and practicality.

The proposed lowering of Montlake and Pacific Street intersection and inclusion of above grade pedestrian and bicycle crossings must be studied in depth before an analysis of environmental impacts can be provided. Safe and convenient pedestrian access must be provided not only for the University but for all the users of the Sound Transit Station. The lid MUST NOT intrude on the view north and south and the view provided by Rainier Vista. The Vista is a unique and valued element of campus.

Open plazas, such as the one over the Montlake/Pacific Intersection, do not always solve pedestrian and bicycle access issues. Without proper analysis and design they can be desolate areas which detract from the environment and therefore are not used or enjoyed by the public. The DEIS talks about a lid but provides no information on its parameters, constraints or opportunities. Most importantly it is not adequately analyzed as a mitigating measure and therefore it is impossible to determine if the impact of the major intersection is actually mitigated. How feasible is this mitigation in terms of engineering and cost? Without adequate analysis it is not known if the mitigation is practical or feasible and therefore the impact is unmitigated.

S-003-013 The DEIS does not discuss the Design Advisory Group and the Aesthetic Handbook that was developed. This information should be included in the EIS under aesthetics.

S-003-014 What is the grade of the Union Bay Bridge? Is this grade too steep for bikes, and if so, how will bicycles get to and from campus?

S-003-015 What steps will be taken to maintain the noise walls and eliminate graffiti? Is there a sufficient WSDOT operating budget to manage the maintenance of these walls?

S-003-016 **University of Washington Botanic Gardens/Arboretum**

The University of Washington has grave concerns about the SR 520 project alternatives with regard to their effects on adjacent roads and lands on the western shores of Lake Washington in Seattle. These alternatives will have significant impacts on the UW Botanic Gardens in the Washington Park Arboretum and its world-renowned plant and tree collection.

S-003-016

The form of the Arboretum was designed by the Olmsted firm at the beginning of the last century as a crucial component of their vision for the boulevard and park network for Seattle. The arboretum now forms the southern limb of UW Botanic Gardens which also includes sensitive shoreline wetlands and a nature reserve (Union Bay Natural Area), besides the Union Bay Gardens surrounding Merrill Hall (Center for Urban Horticulture) to the north of SR 520. The Arboretum alone is the largest open green space in the central metropolitan area of Seattle and provides an invaluable park experience for local people as well as visitors to the city. It has some 350,000 visitations a year.

The Arboretum is the only collection in Washington to be officially designated a State Arboretum. The tree collections are in the very top tier of North American botanic gardens and arboreta and, indeed, are of international significance, with world-class holdings of oaks, maples, hollies, and many other plant groups. Already the first two are deemed leading collections in the North American Plant Collections Consortium, a major new conservation and stewardship initiative of the American Public Gardens Association. Any development that impinges on this national treasure must be assessed with the greatest care and consideration for future generations.

In the 1960s, the northern part of the Arboretum and the Montlake neighborhood was sliced through east-west by SR 520: only after an extensive public process were plans for a further highway running north-south through the Arboretum abandoned. Proposals on the table today present an equally dismaying series of options, which, if implemented, will impact very adversely on the most ecologically sensitive parts of the Botanic Gardens, notably the wetlands lying at the heart of the Arboretum. At present, SR 520 is largely at a low level near the Arboretum: proposals include raising it to 50-70 feet above the waterline [DEIS p. 5-7], making it visible over much more of the Botanic Gardens than it is at presently.

One alternative now proposed [DEIS p. 5-27] has a 'footprint' some 400 feet wide over the western approaches to the Arboretum. One option [DEIS p. 5-32] calls for a large intersection over the wetlands and, from that, a bridge over 110 feet high leading northwards to the main campus of the University. The southern arm of what effectively would be a cross at the heart of the Botanic Gardens would funnel increased [DEIS 5-32] traffic onto the present-day northern part of the Arboretum and on to Lake Washington Boulevard, one of the Olmsteds' most important thoroughfares in Seattle, impacting on the Arboretum and its users as a whole.

Construction will take several years [DESIS p. 8-10] and involve the building of a temporary bridge on Arboretum property [p. 8-8]. No meaningful traffic plan through the Arboretum for the construction period has been presented.

Additional alternatives should be commissioned to assess the effects of such a system which would remove the concerns about the out-of-proportion scale of the proposed developments and their visual impact, the shading of the Arboretum, traffic noise, and the effects on salmon passing through waters surrounded by the Botanic Gardens. If such a scheme were acceptable after such a study, its implementation would also allow not only the Arboretum to be returned to the original Olmsted vision, but also restore tranquility to the Botanic Gardens as a whole - as well as to the adjoining neighborhoods.

S-003-016 Any mitigation for impacts to this area must occur within the area of the Botanic Gardens and Washington Park Arboretum.

S-003-017

UW Medical Center and UW Physicians

The University of Washington Medical Center (UWMC) is one of the top-ten hospitals in the nation, providing irreplaceable services to the region and state. UWMC is also a self-sustaining business unit of the University with revenues in excess of $600M annually. It is critical that its operations be protected during construction of SR 520 and after. More than 1,400 patients are seen in UWMC clinics each day. Maintaining access for patients, staff and visitors is crucial for the success of this facility and health care of patients.

UW Physicians (UWP) is another self-sustaining unit of the University whose members are medical staff of UWMC and faculty of the University of Washington Medical School. The patients who this group cares for must have access to facilities on campus during construction and after.

WSDOT has discussed using Transit Demand Management to reduce traffic congestion in the area during construction. WSDOT should study providing permanent incentives to residents in the area to permanently reduce traffic volumes rather than just during the time period of this construction.

It was understood that WSDOT wanted UWMC's preference as to which option was more desirable when construction work required closure of NE Pacific Street east of the Emergency Department entrance to the intersection with Montlake Boulevard (for lowering of the NE Pacific Street/Montlake Boulevard intersection). If the Pacific Interchange option is selected as the preferred alternative, UWMC prefers to always leave a lane open eastbound and westbound on NE Pacific Street **AND** for construction to occur 24 hours per day, 7 days a per week. **UWMC must keep access to its Emergency Department open at all times**.

UWMC is extremely concerned about the time period when, in order to lower the NE Pacific Street/Montlake Boulevard intersection, Montlake Boulevard (north of the Montlake Bridge) will be relocated to within 16 feet of the east wall of UWMC's Surgery Pavilion:

- What will the vibration from construction equipment and vehicles do to UWMC's ability to perform surgeries and other invasive procedures in that building?
- Can the construction work be done at night?
- Will the current landscaping, which the local community requested remain in place, be destroyed? What will be the final landscaping after the project is complete?

UWMC would like to see how travel times to its facility (as the destination) would be impacted by the Pacific Interchange option. All travel time modeling results presented thus far show only vehicles traveling through the Montlake/Pacific intersection, not to UWMC.

S-003-017

Construction dust is a great concern to UWMC as it is a source of infection for immuno-compromised patients. UWMC is responsible for protecting these patients against dust. We must be given the opportunity to review and approve the mitigation plans for dust control. There must be protection and filtering on UWMC's air intakes and watering/cleaning of the general area to control dust.

WSDOT's work on the Pacific Interchange must be coordinated with the construction schedule for UWMC's expansion. Currently, UWMC expects to start construction during the third quarter of 2008, with a 2-year construction period.

UWMC is concerned that the construction will cause a loss in patient volume due to difficulty of access, noise and dust. WSDOT must assure UWMC's financial stability during construction period and during the period when UWMC is working to regain its lost volume. We expect WSDOT to guarantee UWMC and UWP's required operating margin during this time period.

S-003-018

UW School of Medicine

Two "build" alternatives and seven options were studied for replacement of SR 520. While all of these options may have impacts on the University of Washington School of Medicine, we believe the Pacific Interchange will have the greatest impacts.

Construction of the Pacific Interchange will cause vibration, dust and noise that will adversely affect the research and teaching missions of the School of Medicine. Although any construction project may create impacts, this project is of such a magnitude that adverse effects will be more pervasive, over a longer period of time and thus more harmful. Potential impacts could result in lost productivity of researchers or even loss of faculty due to the difficulty in conducting research. This research is recognized as a major economic benefit to the region. Mitigation must be provided for vibration, dust and noise impacts on this research.

Vibration: The DEIS does not address the impact of vibration, its existing condition or its anticipated effect in the area of concern. Much of the research that is done within the Magnusson Health Sciences Building is vibration sensitive. As pilings are pounded or trucks continuously move to and from the project site, it can be expected that the vibration will be transmitted to the building foundations. Sensitive research instruments will pick up this vibration and render the science unusable. Without analysis of this issue in a matter similar to that of noise, the report should be considered incomplete.

Dust: Dust generated by the construction project does not seem to be addressed in the document. It is anticipated that the HSB will require a greater amount of preventative maintenance to keep the heating, ventilating and air conditioning equipment operating effectively.

S-003-019

Noise: Noise impacts on the University are addressed in the verbiage of the document but are not graphically presented in the summary. This information should be graphically presented similarly to that of south of the Cut. Further, the University requests that noise analysis evaluate impacts from trucks and cars struggling to get up the new Union Bay Bridge and braking on the way down. This bridge may have a considerable grade and this may change the noise profile of traffic using it.

S-003-020

UW Intercollegiate Athletics

The document contains very little mention of the financial impacts upon Husky Stadium and the Intercollegiate Athletics Department (ICA). Construction related to SR 520 will have a significant impact upon the operating costs for ICA and possibly on its revenues.

ICA is a self-sustaining $50M business at the UW. There is little ability to reduce the scope of the athletics department and, thus, its expenses. For example, NCAA has minimum requirements regarding sports sponsorships and scholarships that we must meet in order to remain a Division 1A institution. Construction on SR 520 may significantly add to ICA costs and reduce revenue. If football game attendance goes down, ICA may put the greater University at great risk financially. To the extent that fans believe it is too difficult to get through construction to the stadium, then the University could be left to deal with an annual deficit in athletics.

Also, there is no mention of the economic impact over a multiple year time-frame caused by construction so close to Husky Stadium and Hec Ed Pavilion. Intercollegiate Athletics annually generates $25M-$30M in revenue from events in Husky Stadium alone. This provides considerable support to the economy of the region, supporting hotels, restaurants, and other services. For example, ICA generates almost $2M annually in sales and admissions tax for local government. A significant decline in attendance (spending) will have a huge multiplying impact upon the economy of this area.

Economic impacts to ICA need to be thoroughly analyzed in the Final Environmental Impact Statement.

S-003-021

The SR 520 corridor has been a consistent environmental fixture in Seattle for more than 40 years. The community has adapted to its existence and generations of community members, including the University of Washington population, have known no other aesthetic environment. The sensibilities of the State have matured over this time and it now advocates sustainability. To create a second freeway across one of the most iconic, scenic waterways and shoreline environments in America does not support the environmental policies advocated by State leadership. The University believes the peninsula of land on which Husky Stadium, the Waterfront Activities Center, canoe house, campus parking and community green space are located, should remain dedicated to supporting educational purposes.

S-003-021

A University campus—especially one as internationally renowned for its environmental beauty as the University of Washington--should be protected from new roadway intrusions. The essence of the experience related to visiting the campus in this area will be adversely changed if the Pacific Interchange option is chosen. The University is concerned about visitors to Husky Stadium and how the quality of their experience will be diminished.

S-003-022

The DEIS appears to have no analysis of impacts to the University's sports programs, especially the Rowing Program. The rowing program is internationally renowned and uses the waters in Union Bay and Lake Washington for practice. Further, this area hosts the annual Windermere Cup, an event which upholds a tradition of inviting qualified international athletes to the area, including Olympians, who may not ordinarily have a chance to compete in the U.S. Indeed, for many international athletes, the Windermere Cup marks their first visit to the U.S. Invited international rowing teams have come from Australia, China, Croatia, Czech Republic, Egypt, Germany, Great Britain, Italy, Lithuania, Poland, New Zealand, and South Africa. Stanford, Northeastern, Yale, U.C.L.A., Dartmouth and Notre Dame Universities and the US Navy are just a sampling of the collegiate teams to have competed in the regatta. The FEIS needs to include analysis of how the different 520 replacement options impact the University's rowing program and associated events. In particular, how will new bridge columns impact the use of this area by shells, create aesthetic impacts and force changes to the rowing program?

II. COMMENTS DIRECTED TO SPECIFIC SECTIONS OF THE DEIS:

1. Introduction to the Project

S-003-023

1-2 Under "Logical Termini," it states that the project must be useable and reasonable even if no other transportation improvements are made in the area. However, the Pacific Interchange option requires significant improvements beyond the immediate area of the project to make it function properly. Does the Pacific Interchange option require a project scope beyond the logical boundary of the bridge replacement?

S-003-024

1-3 Please include University of Washington under the list of communities included in the project area. The University comprises a community of some 60,000+ people who live, visit, work and learn on campus.

S-003-025

1-12 *6-Lane Alternative* – WSDOT is committing to build five 500-foot-long landscaped lids across SR-520 to help connect communities. WSDOT should commit in writing to a landscaped lid that connects the UW campus across the intersection of Pacific and Montlake. WSDOT consultants represented the commitment to provide a lid at this location during workshops. Lowering and lidding Pacific Place, Montlake Boulevard and Pacific Street should also be investigated.

S-003-026

1-13 *Montlake Interchange and Surrounding Areas* – There is no visual representation of a second Montlake Bridge solution. This is not a balanced representation, since a preferred option has not been selected.

S-003-027

1-13 Photos showing the Montlake Interchange are cropped in such a way as to not show the impacts on the University & Arboretum of selecting the Pacific Interchange alterative. This shows the benefits of selecting the Pacific Interchange option without showing the concurrent impacts. Please expand these pictures to show more of the Union Bay Bridge, Arboretum Interchange, and Pacific/Montlake Interchange.

S-003-028

1-13 Do cost estimates on this page include mitigation for impacts on the University of Washington and Arboretum? These impacts will be considerable and costs to sufficiently mitigate will be large.

S-003-029

1-17 *What have we learned from these outreach efforts?* – The second paragraph from the bottom of the page references neighborhoods desiring to have corridor noise mitigated, which wasn't provided in the 1960s. The University would desire this consideration with the Pacific Interchange.

S-003-030

1-18 The DEIS states that "Seattle residents in some locales" have concerns about the Pacific Interchange option. In fact, many Seattle neighborhoods surrounding the SR-520 project have taken a position against this option. This statement does not necessarily reflect the sentiments of neighborhoods in the area. The University participated in multiple workshops in which grave concerns regarding the Pacific Interchange were voiced. Theses concerns are not shown here.

S-003-031

1-18 Not all groups want sound walls. There may be trade-off's that make sound walls unacceptable due to their height and visual impacts.

2. The Project Area: Then and Now

S-003-032

2-10 Discussion of development in the Seattle area does not include any information about the University of Washington Campus. This is a historic campus, established in 1896 and pre-dates many of the buildings & neighborhoods listed in the DEIS. A more thorough discussion of its history, and the project's impact on the historical context of the campus, is required.

S-003-033

2-22 The views of the current bridge in the Arboretum are from nearby areas only. The bridge as it is now cannot be seen from outside the immediate area but with the proposed height being increased the impact will be greater and from more areas in the Arboretum.

S-003-034

2-24, sidebar: It is misleading to compare the 80,000 trips generated by the University on the 20+ roads entering and leaving the campus area with the 115,000 trips traveling on one road - SR 520. The implication is that the University generates 80,000/115,000 or 70% of the traffic on SR 520, which it does not. No analysis is shown of University related SR 520 traffic. In fact, less than 10% of the University employee and student population – less than 6,200 people live on the east side and more than half of them commute by HOV. The University's current campus population is closer to 60,000 people, not the 55,000 noted in the DEIS.

The University's Transportation Management Plan does NOT rely on SOV's. Its basic premise and success is based on the fact that the University discourages SOV's from coming to campus. The University's UPass Program is one of the most successful programs in the country. How will the proposal impact the University TMP?

S-003-035

2-25 *Exhibit 2-8 Neighborhoods and Community Facilities in the Seattle Project Area* – There is no representation on the map of Husky Stadium or Bank of America Arena at Hec Edmundson Pavilion, which are major community facilities with far-reaching impacts.

S-003-036

2-32 A summary of noise studies for the area around University of Washington should be included in this section.

S-003-037

2-33: Exhibit 2-12. Noise Levels in the Project Area -- If the Pacific Interchange option were to be selected, further noise study should be undertaken to evaluate the impact on various areas and types of activities on campus and its shoreline.

S-003-038

2-36 *What are the state, regional and local plans and policies relevant to this project?* -- The current University of Washington Master Plan for the Seattle campus identifies development in the vicinity of the Waterfront Activities Center (Expansion Site 63E). The plan requires development to be sensitive to the existing shoreline and the historic canoe house. The Pacific Interchange encroaches on a site that was not designated for development and would not meet

S-003-038 the criteria of being sensitive to the shoreline. It should be noted that the Campus Master Plan was adopted by the Board of Regents and the City of Seattle.

S-003-039 2-36 The Washington Park Arboretum Master Plan is not described correctly and descriptions are not accurate. This section needs to be made more succinct and accurate. Impacts and mitigation need to be described.

S-003-040 2-44, Exhibit 2-16: Basins and Streams: The University Drainage Slough is NOT Ravenna Creek as identified in the graphic. The stream shown cutting through NE 41st Street does not appear to exist.

3. Developing the Alternatives

S-003-041 3-25, Exhibit3-5a, page 9-4 and 9-7: The alignment of the Pacific Street Interchange as shown destroys real development potential on the University of Washington campus. Loss of this development potential will need to be addressed. If this option is pursued, the route should be shifted as far to the south as possible. The State should consider negotiations with the Corps of Engineers to utilize their property on the north side of the Montlake Cut. In addition, location of the viaduct interchange should not impact the historic Canoe House on the University's Campus.

S-003-042 3-27[-]3-29; 5-6[-]5-7; 5-37[-]5-40: The document does not provide enough detail to adequately analyze the impacts of a second Montlake Bridge to both the existing bridge and the residences. The drainage plans to do not contain enough detail to understand or identify impacts.

S-003-043 3-28 There were many concerns about the Pacific Interchange that were captured at the WSDOT/UW Workshops. The 110-foot bridge height creates a higher profile of the Pacific Interchange Bridge. The University's preference would be to see the entire Pacific Interchange covered by a lid where it reaches land to the Montlake and Pacific intersections. It may be appropriate for this lid to extend down further along Montlake Blvd, Pacific St. and Pacific Place. Among the issues we are requesting further investigation by WSDOT: how to deal with weather-related (snow) traffic jams on the steep incline of the new bridge; noise impacts on the University and surrounding areas; the risk and impact of debris from the overpass; whether this will result in degradation of the natural beauty of the site; how this will impact the pedestrian experience around the Stadium and other areas of campus; impacts from loss of University parking; impacts from loss of tailgating at UW events; how less access to the athletic campus will affect the University; whether the University will lose the opportunity to host traditional rowing (a UW strength) races due to bridge impacts; whether the Pacific Interchange will conflict with the Sound Transit station; whether this is a possibility for crime under and around the new freeway; financial impact to campus programming; sports recruiting impacts; increased filling and shading of the wetland and shoreline habitats; negative impact to wildlife species, including endangered species; impact on boaters attending football games and Boating Opening Day; whether staging buses in the depressed Montlake intersection is dangerous and disorienting to transit riders; and whether the bridge diminishes the view from Husky Stadium and from the related campus roads, paths, parking lots and shoreline zones.

S-003-044

Page 3-28, Paragraph 2: The description of the option is incomplete as it omits the planned widening NE Pacific Street and NE Pacific Place. The description also omits integral design features, such as raising the landscape surrounding the Pacific Street and Montlake Blvd intersection and providing a lid or facsimile above this intersection. This level of completeness is required so that this design alternative can be properly compared to the base 6 lane alternative, the description of which includes mention of lids, sound walls, reconstruction of intersections, etc.

S-003-045

Page 3-28, Paragraph 4: This section asserts that the Pacific Street Interchange option would "provide a more reliable transit connection to the Sound Transit University Link light rail station at Husky Stadium…" This assertion is misleading because the Pacific Interchange Option is irrelevant for light rail: the transfer between SR 520 transit and light rail would require an extraordinary 1,500 foot walk between modes that alone would preclude most transfers. Even without this distance, the trip between the east side and downtown, the dominant SR 520 trip pattern, would be less attractive and slower than the current one seat direct bus service. More analysis is required to determine if this area will become a "kiss-n-ride" area. WSDOT should detail how transportation planning is being coordinated between KC Metro, UW, Seattle and Sound Transit.

S-003-046

3-29 It is only in WSDOT's opinion that the Pacific Interchange is best for the Arboretum. It actually creates a net loss of an island as the bridge will go right over it. The wording sounds as if this is okay and glosses over the fact that the loss of any Arboretum land is a loss for the community at large.

S-003-047

3-38 The proposed new trail in the Arboretum described on this page is a multi-use trail that is not compatible with a bike only trail. What is the impact to the Arboretum, UW and others if there is no bike access to Madison Park? What are the impacts of not providing this access?

S-003-048

3-39 Are the storm water treatment facilities to be fenced? If not, these would make excellent interpretive and education opportunities. Opening these facilities to the public should be considered as part of the design.

4. Comparison of the Alternatives

S-003-049

4-7 There is no discussion about the traffic that would impact the Arboretum via Lake Washington Blvd. Any increase in traffic whatsoever is a negative impact on the Arboretum. It is already hazardous for guests and employees to try to cross the road. Additional traffic may also create problems for bicyclists on this road. One of the main reasons for people to visit the Arboretum is for a quiet respite from the congested City. What is the impact of closing Lake Washington Blvd. to all traffic?

S-003-050

4-10, Sidebar: The condensation of Level of Service (LOS) A – D into the term "low to moderate" is not a standard use of LOS terminology. This use obscures the changes that the standard use, i.e., LOS A, LOS B, LOS C and LOS D reveals and therefore hides the changes from the DEIS reader.

S-003-051 4-10, paragraph 2: The DEIS inappropriately limits the analysis of the effect of increased local street traffic volumes associated with the Pacific Interchange. Of particular concern are: NE 45th Street and Union Bay Place NE, NE 55th Street and 25th Ave NE, NE 45th Street and 15th Ave NE, NE Northlake Way and 6th Ave NE, NE 40th Street and 7th Ave NE, NE 40th St and 6th Ave NE and NE 40th St and Latona Ave NE.

S-003-052 4-10, paragraph 3: The analysis asserts that it "...currently takes about 25 minutes for traffic to make the short journey southbound between 25th Ave NE and the Montlake Interchange". This misleadingly implies that 25 minutes is the normal condition, something that was not concluded from the analysis. It may be that a set of Montlake bridge openings and SR 520 ramp metering conditions occasionally leads to extreme travel times as long as 25 minutes, but frequency is not demonstrated. Therefore the travel time benefit shown by the pacific interchange can only be attributed to occasional and perhaps worst case conditions.

S-003-053 4-12, paragraph 4: The bus stop in the U District is at the Pacific Place and Pacific Street intersection, not at the Montlake Blvd and Pacific Street intersection.

S-003-054 4-12, last paragraph: The assertion that "The Pacific Street Interchange option would make transit to and from SR 520 more reliable in the vicinity of the University link light rail station at Husky Stadium" is misleading and contradicts the analysis shown in the Addendum to the Transportation Technical Report dated 2/13/06. The assertion is misleading because the Pacific Interchange Option is irrelevant for light rail: the transfer between SR 520 transit and light rail would require an extraordinary 1,500 foot walk between modes that alone would preclude most transfers. Even without this distance, the trip between the east side and downtown, the dominant SR 520 trip pattern, would be an otherwise less attractive slower one than the current one-seat direct bus service. The assertion is contradicted by the Addendum to the Transportation Technical Report, pages 5-13 and 5-14, which shows that in both the AM peak hour and PM peak hour, at both the westbound and eastbound ramps, "traffic would queue back through the HOV direct access ramp intersection".

S-003-055 The queuing issues described in Addendum to the Transportation Technical Report, pages 5-13 and 5-14 indicate that the "tight diamond interchange" shown on page 3-25, Exhibit 3-5a. is too closely spaced to prevent blockage of the HOV ramps. This condition leads designers to increase the space the intersections, thus increasing the visual, light and other impacts of the proposed interchange. This increase in interchange footprint is not analyzed in the DEIS.

S-003-056 4-16 If the existing off-ramps are removed as part of the construction, where does all of the traffic go during the time before the new off ramps are built?

S-003-057 4-22 There is no discussion of the impacts on recreation or education in the Arboretum under possible affects.

S-003-058 4-25 Under the Key Points-How is visibility improved by adding sound walls?

S-003-059 4-26 While WSDOT describes the increased bridge height as a positive aspect, this could actually be a negative impact on the Arboretum. First, most plants that survive in these more

S-003-059 shady, droughty areas are invasive in nature. Second, this creates additional work for Arboretum staff who are already overburdened. If adequate maintenance of these areas cannot be provided due to limited resources, the mitigation is not practical or feasible.

S-003-060 4-29, section of "Community Cohesion:" The DEIS fails to show an analysis of the affect of the Pacific Street Interchange on Community Cohesion, and specifically on the cohesion between the sectors of the University caused by additional traffic and street width on Montlake Blvd and Pacific Streets. Extensive lidding of these areas -- Montlake Blvd, Pacific St. and Pacific Place- may be required to knit the campus back together.

S-003-061 4-30 This may increase views at the water level but a large structure will be overshadowing the whole area.

S-003-062 4-31 Property acquisition- does fair market value apply to the Arboretum and University?

S-003-063 4-32 Is construction staging talked about elsewhere in the document? If not, where will that be discussed?

S-003-064 4-38 Lake Washington Blvd. will be impacted. This is a historic Olmstead Boulevard. Impacts should be discussed and analyzed.

5. Detailed Comparison of Alternatives – Seattle

S-003-065 5-3 Viewer sensitivity- The UW Botanic Garden has approximately 320,000 (250,000 in the Arboretum) visitors a year who would be impacted visually by this huge proposed bridge.

S-003-066 5-4 The Pacific Interchange is detrimental to the historic Canoe House. The National Register of Historic Places Inventory nomination form states that the structure was constructed by the U.S. Navy as a seaplane hanger in 1918, and the structure is significant to the state as a rare, if not unique, example of an architectural type developed in the early years of aviation. The airplane hanger was a response to new technology. Its efficient form was essentially without historical precedent. No other examples of the hanger type dating from the period of the First World War are known in Washington. No other early hangers are known to have survived in the vicinity of Seattle, which has figured prominently in aviation history since the founding of the Boeing Company in 1916.

Part of what makes this structure so significant is its location. The nomination form goes on to state that in 1917 and 1918 portions of the campus were taken over for war preparations. Army Training Corps activities were located on the upper campus. The U.S. Naval Training Camp extended along lower ground fronting Lakes Union and Washington and the Ship Canal connecting the two bodies of water. The location of the Canoe House is significant to the University of Washington, the City of Seattle, State and Nation because it is the home of rowing which started as early as 1902 and 1904. During the early years the Pocock Brothers were brought to campus to fabricate racing shells according to a revolutionary, light-weight design which contributed to the varsity crew's success and subsequent recognition nationwide. All crew activities, including Mr. Pocock's shell-building shop were housed in the former Naval Military

S-003-066 Hanger from 1922 to 1949, when activities were shifted to a new facility called the Conibear Shell House. During the years the crew team was housed in the Canoe House the varsity crews compiled a distinguished record, of which a high point was competing in the World Olympic Games of 1936. During this time in the Canoe House, George Pocock was permitted to fill orders for his superior racing shells from Harvard, Columbia, Cornell, Princeton, Syracuse and other universities around the country. The University has worked hard to maintain this critical element of history. Both the structure's use and its current location reflect on its significance. Both the structure's use and location are significant and any impact should be analyzed, disclosed and mitigated.

S-003-067 5-6 Visual Quality- The Pacific Interchange may reduce the width of the freeway but would add another bridge that would have profound visual impact for visitors to the UW Botanic Gardens and the Arboretum.

S-003-068 5-7 The visual impact of the bridge being at its highest point in the Arboretum is a definitively negative effect on the recreational and educational users of this area. This bridge will be 60 feet high at the base with an additionally higher total including sound walls. This cannot be mitigated by plants/trees. It would take 60 years to have any effect that would adequately address the issue of such a huge piece of concrete.

S-003-069 5-10 There is no discussion under Local Streets of the impact on Lake Washington Blvd., a one-lane road that is currently overcapacity. Any additional traffic would create negative impacts on the user experience, damage the plant collection and diminish educational use.

The Pacific Street Interchange would alleviate the traffic on Montlake Blvd. south of the cut but would increase the traffic south of the 520 onto Lake Washington Blvd.

Again, there is no detailed discussion on the impacts of traffic through the Arboretum on Lake Washington Blvd. Any increase at all is a negative for the Arboretum.

S-003-070 5-12, paragraph 1: The DEIS has omitted that volumes would also increase on 24thAve E, south of Roanoke and Lake Washington Blvd in the Arboretum. What is the street capacity and impacts from increased traffic on the Montlake neighborhood?

S-003-071 5-12 to 5-14: The DEIS inappropriately limits the analysis of the effect of increased local street traffic volumes associated with the Pacific Interchange. Of particular concern are: NE 45th Street and Union Bay Place NE, NE 55th Street and 25th Ave NE, NE 45th Street and 15th Ave NE, NE Northlake Way and 6th Ave NE, NE 40th Street and 7th Ave NE, NE 40th St and 6th Ave NE and NE 40th St and Latona Ave NE. Analysis must be provided in the FEIS.

S-003-072 5-13, sidebar: The condensation of LOS A – D into the term "low to moderate" is not a standard use of LOS terminology. This use obscures the changes that the standard use, i.e., LOS A, LOS B, LOS C and LOS D reveals and therefore hides the changes from the DEIS reader. This should be corrected in the FEIS.

S-003-073 5-14, paragraph 3: The analysis asserts that it "...currently takes about 25 minutes for traffic to make the short journey southbound between 25th Ave NE and the Montlake Interchange". This misleadingly implies that 25 minutes is the normal condition, something that was not concluded from the analysis. It may be that a set of Montlake bridge openings and SR 520 ramp metering conditions occasionally leads to extreme travel times as long as 25 minutes, but frequency is not demonstrated. Therefore the travel time benefit shown by the Pacific Interchange can only be attributed to occasional and perhaps worst case conditions. For decision makers to make informed decisions, a worst case scenario must be tempered with a frequency analysis.

S-003-074 5-16, paragraph 1: The analysis asserts that it "...bus travel times to and from eastbound SR-520 would improve by approximately 15 minutes..." This misleadingly implies that 15 minutes is the normal condition, something that was not concluded from the analysis. It may be that a set of Montlake bridge openings and SR 520 ramp metering conditions occasionally leads to extreme travel times as long as 15 minutes, but frequency of this congestion is not demonstrated in this analysis. Therefore the travel time benefit shown by the pacific interchange can only be attributed to occasional and perhaps worst case conditions. Further, the Addendum to the Transportation Technical Report dated 2/13/06, pages 5-13 and 5-14, shows that in both the AM peak hour and PM peak hour, at both the westbound and eastbound ramps associated with the Pacific Interchange, "traffic would queue back through the HOV direct access ramp intersection". The affect of this queuing on travel time is not shown.

S-003-075 5-17, paragraph 4 says that "The Pacific Interchange option would remove an additional 250 parking spaces in the University of Washington E-11 and E-12 parking lots…" whereas page 5-17, exhibit 5-8 sets that number at 180. What is the exact number of spaces removed from these parking lots and what is the mitigation for this?

S-003-076 5-18 Where is the parking replacement for access to the Arboretum via MOHAI to be? This is a loss of 150 parking spaces that visitors to the Arboretum use.

S-003-077 5-22 Noise analysis and the impact to the UW are not adequately addressed.

S-003-078 5-23 There needs to be discussion about the noise impacts on the Arboretum and University during the 7-10 year construction period. The loss of recreation and education opportunities during this period must be analyzed and mitigated.

S-003-079 5-24, section of "Community Cohesion:" The DEIS fails to show an analysis of the affect of the Pacific Street Interchange on Community Cohesion , and specifically on the cohesion between the sectors of the University caused by additional traffic on Montlake Blvd and Pacific Streets. The University of Washington campus community is approximately 65,000 people and warrants analysis as well.

S-003-080 5-26 through 5-30: No analysis is offered on the effect of the Pacific Interchange option on the University's Waterfront Activity Center, canoe house, the climbing rock nor the passive use of open space south of the E11 and E12 parking areas.

S-003-081

5-36 There is no discussion about the impacts on the historical aspects of Lake Washington Blvd.

6. Detailed Comparison of Alternatives – Lake Washington

S-003-082

6-1: Views – This is an incomplete study: views from the back side of Husky Stadium are dramatically altered by the Pacific Interchange. The repeating theme of the iconic view from the UW peninsula being devastatingly negative should be shown and analyzed in the FEIS.

S-003-083

Page 6-4 and 6-5: How would the second Montlake Bridge (before, during and after construction) meet navigational standards? Several ships that enter Lake Washington require an air draft of at least 105 feet.

8. Construction Effects

S-003-084

8-5 Not only is the new proposed bridge wide, up to 420 ft. in some places, but there is a temporary bridge (7-10 years) to be built during construction. This will have a significant long term effect on the Arboretum, which should be analyzed in the FEIS.

S-003-085

8-12 Where will the traffic go during the removal phase of the Lake Washington Blvd ramps?

S-003-086

8-16 The replanting of the area taken for the temporary bridge will have a tremendous effect on the Arboretum. This is a place where people seek the trees and it will take a half a century at least to recover. These impacts should be disclosed, analyzed and mitigation identified.

S-003-087

8-16 Construction Impacts: The dual projects of Sound Transit and the SR 520 Interchange could create operational difficulties for Intercollegiate Athletics (ICA) to the point that it could no longer operate. The financial burden of supporting ICA programs could fall to the University and the State of Washington. Thus far, ICA is a self-sustaining higher education program. The construction could be in conflict of ICA's construction at Husky Stadium, depending on timing. Construction impacts on the access to and operations of UWMC, UW Physicians and UW Medical School could also be significant. These impacts should be disclosed, analyzed and mitigation identified.

9. Other Considerations

S-003-088

9-4 The implementation of the Washington Park Arboretum Master Plan should be included. How will this project impact the ongoing implementation of this master plan?

S-003-089

9-6-11: There are roughly four paragraphs dealing with the impacts of the SR 520 Pacific Interchange. Although the paragraphs are largely accurate, the University of Washington should be viewed as an equivalent neighbor to Montlake and perhaps its issues should be represented more in depth and with more clarity. Mitigation for these impacts should be identified.

S-003-090

Appendix J: Indirect and Cumulative Effects Discipline Report

Page 37 This section mentions indirect effects but it does not define the specific indirect impacts. The reader is left with the assumption that the phrase "indirect effect" is enough to clarify the impact analysis. This is not the case. Is the indirect effect growth? Is the indirect effect more traffic? Is the indirect effect more congestion or economic development? How can the 4-Lane Alternative encourage more growth in less developed outlying areas northeast and east of Lake Washington than the 6-Lane Alternative? The 6-Lane Alternative goes exactly in the same place as the 4-Lane Alternative. While it directs growth to the highly urbanized areas of Seattle it also opens the east up to more population growth as well. This section does not consider the reverse commute (from west to east) and its impact on the growth of the region. It also states that the indirect effects on the economy which are not described are minimal and only a matter of timing. Why then does the State consider any other alternative than the 4-Lane Alternative which has fewer impacts to the Arboretum, wetlands, fish and wildlife?

S-003-091

Appendix R: Addendum to the Transportation Discipline Report

Page 1-3, paragraph 2, states "The intent of the Pacific Street Interchange option is to reduce the traffic effects of the Montlake interchange on the surrounding neighborhood". Instead, the Pacific Interchange shifts the effects from the northern part of the Montlake neighborhood to the Arboretum, to the University of Washington and to the residential and commercial areas north of the Ship Canal.

Page 1-5, paragraph 3, asserts that the Pacific Street Interchange option would provide "a more direct connection between buses and the proposed Sound Transit North Link Station at Husky Stadium." This statement is misleading because the Pacific Interchange Option is irrelevant for light rail: the transfer between SR 520 transit and light rail would require an extraordinary 1,500 foot walk between modes that alone would preclude most transfers. Even without this distance, the trip between the east side and downtown, the dominate SR 520 trip pattern, would be an otherwise less attractive and slower trip than the current one-seat direct bus service.

Page 2-11, last paragraph, states that "at times, northbound and southbound traffic would queue back through the adjacent intersections." The affect of this queuing on bus reliability and travel time should be revealed in the main body of the DEIS, particularly in sections discussing the affect on transit, for example DEIS page 4-12 last paragraph and page 5-16, first paragraph.

Page 7-1, last paragraph, states that with the Pacific Street Interchange option: "Bus travel times would likely be better than under the No Build Alternative because of the HOV direct access ramps and buses would not be delayed by draw bridge openings. This would improve the reliability between bus and light rail connections at the University of Washington Station at Husky Stadium that is planned as a part of the North Link light rail system." The assertion is contradicted by the analysis shown on pages 5-13 and 5-14, which shows that in both the AM peak hour and PM peak hour, at both the westbound and eastbound ramps, "traffic would queue back through the HOV direct access ramp intersection." The statement about improved reliability between bus and light rail connections at the University of Washington Station at Husky Stadium is misleading because the Pacific Interchange Option is irrelevant for light rail:

S-003-091

the transfer between SR 520 transit and light rail would require an extraordinary 1,500 foot walk between modes that alone would preclude most transfers. Even without this distance, the trip between the east side and downtown, the dominant SR 520 trip pattern, would be an otherwise less attractive and slower trip than the current one-seat direct bus service.

Page 7-2, first paragraph, states: "The Pacific Street Interchange option would increase capacity in the University of Washington/Montlake area. These capacity improvements would likely improve bus travel times in the area" without showing analysis to support the assertion. Most local bus service travels on NE Pacific Street to 15th Ave NE; in the PM peak period, this project will add 37% to the traffic volume on NE Pacific Street, 33% to the volume on 15th Ave NE (exhibit 3-27), will degrade the intersection of these two streets, to LOS E (Exhibit 5-4) and according to exhibit 3-20 will remove the HOV lane on EB NE Pacific Street. It is hard to imagine this additional traffic added to an already congested local street system will improve bus travel times.

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Memorandum

To: Peter Dewey, Assistant Director of Transportation Services, University of Washington
Aaron Hoard, Deputy Director, Office of Regional Affairs, University of Washington
Theresa Doherty, Assistant Vice President for Regional Affairs, University of Washington
From: Tom Noguchi, Mirai Transportation Planning and Engineering
Subject: Comments on SR 520 Bridge Replacement and HOV Project DEIS
Date: October 13, 2006

The purpose of this memo is to transmit comments on the SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement (DEIS), which was issued by Washington State Department of Transportation (WSDOT), Federal Highway Administration and Sound Transit, dated August 18, 2006.

1. Goals of 6-Lane Alternative Options

The DEIS explains the 6-Lane Alternative options and how they came about on **pages 3-20 and 21**. It states that WSDOT working with the adjacent communities, identified the following goals:

- Narrow the width of the 6-lane alternative
- Improve transit connections
- Improve HOV access
- Design the project to enhance local communities
- Design a facility that is structurally feasible and cost-effective
- Preserve options for future connection to the proposed Sound Transit University Link light rail station at Husky Stadium

S-003-092

The Pacific Street Interchange option described in **pages 3-24 through 3- 28** was identified as one that would support these goals. Most of these goals are positive goals to be achieved with the SR 520 Project. However, WSDOT and Sound Transit need to explain what the goals of "improving transit connections" and "preserving options for future connection to the Husky Stadium station" mean; why those goals are important; and how the Pacific Street Interchange option specifically addresses these goals.

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S-003-092

The Pacific Street Interchange option would do little to improve transit connections; would need several costly design changes to the currently proposed design to improve HOV access; would not enhance the University of Washington as a community; and would not be a cost-effective design solution.

S-003-093

2. Transit Connections to Sound Transit Husky Stadium Station

The DEIS on **page 3-28** states the Pacific Street Interchange option "would provide a more reliable transit connection to the Sound Transit University Link light rail station at Husky Stadium than the 6-Lane Alternative because buses coming from SR 520 to the Pacific Street bus stops would not be affected by congestion on Montlake Boulevard."

The Pacific Street Interchange option would not improve the transit connection between the North Link Husky Stadium station and SR 520 because:

- No bus-to-rail transfer facility (bus stop or transit center) for bus riders traveling on SR 520 is proposed at the North Link Husky Stadium station entrance. Constructing such a facility associated with the new Pacific Street connection to the new interchange would be difficult. Such a facility would need about an additional 30 to 50 feet of right-of-way on the east leg of the Montlake Boulevard and Pacific Street intersection. With the proposed design, bus riders transferring to rail transit would have to use the current bus stop on Pacific Street, and walk about 1,500 feet to the station platform, which is not convenient.

- When East Link light rail is completed between Eastside communities and downtown Seattle, the transit riders who would have access to the East Link would travel to and from downtown Seattle on East Link light rail. Those who ride regional buses to and from downtown Seattle to Eastside should ride direct express busses via SR 520 without making transfers at the Husky Stadium station. The DEIS should explain why the transit connection to and from the Eastside at the North Link Husky Stadium station is needed.

S-003-094

3. Traffic Impacts of Tolls

The DEIS indicates that single occupant drivers who want to cross Lake Washington on SR 520 under both the 4-Lane and 6-Lane Alternatives would have to pay tolls (**pages 3-46 and 47**). It assumed that the toll amount for single occupant drivers during peak periods would be **$3.35** one way in 2006 dollars. Commuters would have to pay **$6.70** per day to cross Lake Washington twice, which would act as a strong

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disincentive to drive alone. Due to the tolls, some drivers would either not use SR 520 or not take any trips at all.

In order to understand the traffic impacts due to the tolls, WSDOT should analyze the forecast traffic volumes and publish the results under each alternative with and without the tolls. In addition, the DEIS should include information about the amount of traffic shifts to I-90 and SR 522 from SR 520 due to the tolls.

S-003-095

4. Daily Traffic Volumes

The DEIS compares 2030 forecast traffic volumes for the alternatives (**page 4-4**). The traffic volume comparisons are shown based on the average of peak periods. The EIS should also show daily traffic volumes among the alternatives.

S-003-096

5. Intersection Levels of Service Analysis

Pages 4-8 and 9 show intersection levels of service on key arterials in the University District and surrounding communities. WSDOT calculated intersection levels of service based on the method in the Highway Capacity Manual 2000. It shows many intersections would operate at LOS D or better on Montlake Boulevard and Pacific Street. Those LOS results, particularly in the afternoon peak hour are contrary to experience of many drivers. It is not clear how the levels of service in congested areas were calculated.

The **Highway Capacity Manual** provides cautions and states the following:

> *Limitation to the Intersection Level of Service Methodology: "the methodology does not take into account the potential impact of downstream congestion on intersection operation. Nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation." (page 16-1, HCM 2000)*

The DEIS should indicate which intersections would be affected by vehicle queues extending from the downstream congestion and what adjustments were made to calculate the delay at the intersections in the contested areas. If adjustments were not adequately made to reflect the impacts of vehicle queues from the downstream intersections or traffic merge points, 2030 arterial intersection levels of service shown in the DEIS are seriously understated.

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6. Travel Time Analysis

The DEIS includes changes to travel time during the peak hours on Montlake Boulevard from 25th Avenue NE to the Montlake interchange on **page 4-10**. However, it fails to show the travel time benefit for the user of SR 520. The DEIS should show how the travel time would be affected by choosing travel times between several locations in the University area and the ramp merge points on SR 520, with or without the Pacific Street interchange option.

S-003-098

7. Traffic Impact and HOV Lanes on Pacific Street

The DEIS shows that the Pacific Street interchange option would significantly increase traffic volumes on Pacific Street west of Montlake Boulevard. The increase in volumes from the No Build would be over **1,000 vehicles** during the PM peak hour, which is an increase of **36 percent (page 5-11)**. To accommodate this demand, the DEIS assumed that the existing eastbound HOV lane would be converted to general purpose traffic use (Addendum, 2-13-2006, **Exhibit 3-20**).

The conversion of the HOV lane to a general purpose lane on Pacific Street should not be supported. To provide HOVs and transit a travel time advantage, an eastbound HOV lane should be retained on Pacific Street.

The DEIS fails to show intersection levels of service at several intersections on Pacific Street. The increased traffic volumes on Pacific Street might require improvements to bring the levels of service to an acceptable level.

S-003-099

8. Traffic Impact on Montlake Boulevard

Exhibit 5-5 on page 5-11 of the DEIS also shows a significant traffic volume increase with the Pacific Street Interchange option compared with the No Build Alternative on Montlake Boulevard north of Pacific Street. The increased volume on this street during the afternoon peak hour would be **1,090 vehicles** per hour, which is an increase of **22 percent**. The increased vehicle volumes would impact intersection levels of service on Montlake Boulevard and NE 45th Street. The DEIS failed to show the impacts of the increased traffic on Montlake Boulevard.

S-003-100

9. Traffic Impact on Lake Washington Boulevard through Arboretum

The same Exhibit shows that the traffic volume with the Pacific Street Interchange option would not increase traffic on Lake Washington Boulevard south of SR 520. Contrary to the DEIS, it is highly likely that the traffic volumes on Lake Washington Boulevard south of SR 520 through Arboretum would increase. The DEIS does not

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adequately explain why WSDOT forecast no traffic volume increase on Lake Washington Boulevard through Arboretum with the Pacific Street Interchange option.

The reasons for the substantially increased traffic volumes on Lake Washington Boulevard are as follows:

- The SR 520 access from the areas south of SR 520 would be provided only at Lake Washington Boulevard.
- The Pacific Street extension with the connection to Lake Washington Boulevard would provide an attractive driving route for the movements between Capital Hill/ Madison Park/Madrona Park areas and Laurelhurst/Sand Point/View Ridge areas.

S-003-101

10. Ramp Meters and Vehicle Queues on SR 520 On-Ramps Impacting Transit and Carpool Vehicle Travel

The operation of ramp metering would affect the vehicle queues on the on-ramps during the AM and PM peak periods. Particularly, it is important to evaluate the adequacy of vehicle storage capacity on the on-ramps in the new Pacific Street interchange. The DEIS should discuss WSDOT's ramp meter policies and explain the assumptions used to analyze traffic conditions for the Pacific Street Interchange option.

The DEIS forecasts that the new eastbound on-ramp with the Pacific Street interchange option would carry **1,820 vehicles per hour** in the AM peak hour and **1,540 vehicle per hour** in the PM peak hour. These volumes would exceed the capacity provided with the ramp metering. Therefore, there would be long vehicle queues on the eastbound on-ramp. While the length of the queues would be affected by the operational ramp meter policy of WSDOT, it is highly likely that the eastbound vehicle queues from the point of the ramp meter would exceed the length of the on-ramp and extend through the overpass and to the new Pacific Street extension. While the new Pacific Street extension would provide single occupant vehicle storage capacity, it would not provide high levels of access for eastbound HOVs and transit to the HOV ramps. The eastbound HOV lane proposed on the overpass between the HOV ramp and the intersection with the westbound ramps would not be adequate.

S-003-102

11. Lack of Transit and Carpool Facilities in the Pacific Street Interchange Concept

The Addendum to Transportation Discipline Report dated February 13, 2006 provides traffic analysis of the Pacific Street Interchange. The proposed interchange concept is shown in **Exhibit 3-19** of the Addendum. The interchange can be characterized as a tight diamond interchange with the HOV ramps between the eastbound and westbound ramps. The separations of the HOV ramps and the SOV ramps are approximately **150 feet**. Only **100 feet** of vehicle queuing spaces are provided between the ramps. Because of the lack of the vehicle storage spaces between these ramps, it is highly likely that this interchange would not function adequately with the traffic volumes shown in **Exhibits 3-24 and 3-27** and excessive delays would occur during the AM and PM peak periods. Since carpools, vanpools and transit would operate in a mixed condition on the arterials until they get to the HOV ramps, they would encounter excessive delays unless additional faculties to separate them from general purpose traffic were provided. Because of the interchange design and the lack of HOV facilities, the proposed Pacific Street Interchange design concept would **not** support three of the following goals listed on **page 3-21** of the DEIS:

- Improve transit connections
- Improve HOV access
- Provide more reliable transit connection to the proposed Sound Transit University Link light rail station at Husky Stadium

S-003-103

12. Pacific Street Interchange Design Option

Pacific Street Interchange Option – Screening and Location Analysis, dated July 24, 2006 (Appendix X) explains that WSDOT identified and screened three interchange configuration options: full diamond interchange, 3-level interchange and half-diamond interchange. No concept drawings, except for full diamond interchange location in **Exhibit 1**, are included. It appears that a **Single Point Urban Interchange** concept was not evaluated. WSDOT should evaluate a design concept of a Single Point Urban Interchange with **flyover HOV ramps** concept as one of the viable design options and evaluate impacts, feasibility and cost-effectiveness.

Technical Memorandum

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Date: October 17, 2006

Subject: SR 520 Bridge Replacement and HOV Project EIS Review

Project No.: 30907

This technical memorandum represents a series of comments on, and concerns about, the Draft Environmental Impact Statement (DEIS) for the proposed SR 520 Bridge Replacement and HOV Project. The DEIS was jointly prepared and submitted by the Federal Highway Administration (FHWA), the Washington State Department of Transportation (WSDOT), and Sound Transit.

Otak, Inc. was retained by the University of Washington to review, interpret, and comment on portions of the DEIS—specifically, those sections addressing wetland, water resources, wildlife, and geological issues in the Seattle and Lake Washington portions of the project. Comments and concerns for each of these resources are grouped together below under separate subheadings.

S-003-104

The stated purpose of an EIS is to respond to the requirements of the National Environmental Policy Act (NEPA) as well as the State Environmental Policy Act (SEPA). The EIS describes a project that has potential for significant adverse environmental effects, identifies alternatives to the project, and identifies and analyzes the potential adverse environmental effects, including ways and means to avoid, minimize, and mitigate for adverse environmental effects. An EIS is designed to represent a full disclosure document—one which identifies and analyzes environmental effects as thoroughly and objectively as possible.

The DEIS for the proposed SR 520 Bridge Replacement and HOV Project falls short of a thorough and objective identification and analysis of potential environmental effects of the project. As presented in the DEIS, several important analyses of environmental effects are either not performed, performed using questionable assumptions or inappropriate analyses, or some of the conclusions within the DEIS are based on analyses or data that are not provided within the DEIS or

S-003-104

its Technical Appendices. Numerous negative environmental effects which are likely to occur are minimized or dismissed. Furthermore, key conclusions regarding significant adverse environmental effects of the project provided in the various Technical Appendices are omitted from the main text of the DEIS. In many places within the DEIS, the language reads more as advocating the project rather than as a neutral description and assessment of the project and its potential effects.

Following are four sections presenting our specific comments addressing each of the resources we were asked to assess: Wetland; Water Resources; Wildlife Habitat; and Geology. General comments within each section are followed by specific comments and associated examples in tabular form.

S-003-105

Wetlands

The DEIS wetland analysis relies on old regulation and policy standards from the City of Seattle and Department of Ecology (Ecology), resulting in a four-fold difference in required buffers and discrepancies in wetland ratings. Although Technical Appendices reports may have been completed prior to the formal adoption of current standards (standards in place at the time of the publication of the DEIS), all of the draft versions of current codes and policies were available at the time of the original report preparation. Thus the wetland ratings and buffers are significantly under-represented in the DEIS.

S-003-106

Several discrepancies and inconsistencies occur in the DEIS text analyzing potential wetland impacts from the proposed project. Technical Appendix E (Ecosystems) has discrepancies between text and exhibits that describe wetland impacts. The text consistently underestimates impacts that are shown in exhibits (tables and figures), and may mislead the reader as to the extent of wetland impacts. There is minimal quantification of wetland impacts, only qualitative statements that impacts between alternatives are similar.

S-003-107

Statements on wetland impacts from shading and temporary construction techniques made in Appendix E are not substantiated with scientific literature citations or other available evidence. In general, the wetland section lacks peer-reviewed literature sources to justify statements on potential wetland impacts. Furthermore, the acreages of wetlands that will be impacted from shading is inconsistent among analyses: Appendix E and the DEIS text claim that wetland shading impact will occur immediately beneath all bridge structures, whereas the Appendix E Addendum claims that only twenty percent of the area beneath the proposed bridge structures will count as impact, based on a single reference not provided.

S-003-108

No substantive discussion of compensatory mitigation occurs in the DEIS. It is not clear what opportunities are under consideration or what opportunities exist in the project area or the watershed, although Appendix E mentions some potential mitigation sites.

Table 1 provides a series of wetland-specific comments and the appropriate locations in the DEIS documents.

Table 1
Wetland Comments

	Section	Page or Exhibit Number	Comment
S-003-109	Draft EIS	Exhibit 4-17	Buffer impacts for the Pacific St. interchange option listed in Exhibit 4-17 (6.6 acre) are higher than shown on Exhibit 7 in Appendix E (4.8 acre).
S-003-110	Draft EIS	Page 5-47	Union Bay wetlands are described as Category II wetlands, which contradicts Exhibit 26 in Appendix E, which identifies them as Category I. The statement that all direct wetland impacts from filling are due to bridge pilings does not account for filling by stormwater pond outfall near Museum of History and Industry. Wetland impacts from shading by new bridges are considered less than existing structures but there are no scientific literature citations to substantiate this conclusion. Although some of the new bridges will be higher than current structures, they will also be wider, resulting in a different shade impact zone. The potential effects are not quantified rationally nor are there any citations as to what parameters were used to determine impact/no impacts from shading.
S-003-111	Draft EIS	Page 5-49	A replacement ratio of 3:1 is described for mitigation of impacts to Category I wetlands, which contradicts Exhibit 28 in Appendix E which uses 4:1 ratio.
S-003-112	Appendix E—Ecosystems Discipline Report	Page 19 and Exhibit 11	Wetlands were rated using the 1993 Ecology system instead of the significantly revised 2004 system. They state that the revised ratings would be applied during the permitting stage, however it should be used now so users of the DEIS are informed of current standards. The wetland rating system strongly influences the proposed buffer widths based on Ecology's *Wetlands in Washington State, Volume II* recommendations.

Table 1 (cont.)
Wetland Comments

	Section	Page or Exhibit Number	Comment
S-003-113	Appendix E—Ecosystems Discipline Report	Exhibit 12	The most recent version of the City of Seattle Municipal Code (25.09.160) should be used to identify the City's standards for wetland classification and buffer width requirements. This would require 200-foot buffers for these high functioning Category I wetlands instead of the 50-foot buffers listed in Exhibit 12. All calculations of buffer impacts from both construction and operations of the roadway should be revised to reflect this four-fold increase in buffer width.
S-003-114	Appendix E—Ecosystems Discipline Report	Page 51	The fifteen proposed stormwater treatment cells (20' x 40') attached to bridge columns are not considered direct wetland or lake impacts, only shading impacts. However, 12 out of 15 cells will displace existing wetlands (POW, PEM, and PSS) to create stormwater treatment facilities. We estimate that only 3 out of 15 cells occur in open water and may not be considered wetland impacts. In addition, there is no documentation that this experimental design has been proven to effectively treat stormwater. It should not be considered wetland enhancement.
S-003-115	Appendix E—Ecosystems Discipline Report	Exhibit 21	Direct impacts in Wetland LWS-4 have different values in graphic (0.12 acre) versus summary table (0.14 acre). Although the acreage differences are minor, the inconsistencies are troubling.
S-003-116	Appendix E—Ecosystems Discipline Report	Exhibits 21 and 23	Pedestrian/bicycle path between SR 520 and Lake Washington Blvd. ramp crosses Wetland LWS-4 and its buffer, but there is no listing of impacts. Any path in this area should be tallied as part of the impacts.
S-003-117	Appendix E—Ecosystems Discipline Report	Pages 72-73	Temporary construction impacts from shading by work and detour bridges are estimated to be 4+ years under 4-lane and 5+ years under 6-lane alternative. Although this area will eventually be revegetated, these timeframes represent generations of wildlife displaced from habitats, and involve significant periods of time following construction for the wetland and upland habitats to re-establish to current conditions. Furthermore, disruption of the established wetland communities due to construction can allow highly invasive non-native species (e.g. Himalayan blackberry, reed canarygrass, etc.) that favor disturbed conditions to establish. These "temporary" impacts should be accounted for in the mitigation approach.

Table 1 (cont.)
Wetland Comments

	Section	Page or Exhibit Number	Comment
S-003-118	Appendix E—Ecosystems Discipline Report	Pages 73-74	Installation and eventual removal of 1,600 pilings under 4-lane and 1,800 pilings under 6-lane alternative for work and detour bridges will disturb wetlands, but this impact is downplayed. The report indicates that the 4-lane alternative will have more construction impacts than the 6-lane alternative.
S-003-119	Appendix E—Ecosystems Discipline Report	Page 80	The area of potential wetland creation from removing old bridges is not quantified. The DEIS (Page 5-49) states that 0.6 acres of onsite wetland creation could occur by removing ramps on the WSDOT-owned peninsula near the Arboretum. However, there are other opportunities for wetland creation/restoration from removing existing ramps that aren't quantified.
S-003-120	Appendix E—Addendum to Ecosystems Discipline Report	Exhibit 4 and 7	Inconsistent labeling of wetland in University Slough area that is impacted by Pacific St. interchange option. Exhibit 4 identifies this as Wetland UB-2 but Exhibit 7 identifies as Wetland UB-1. Assume that UB-2 is correct.
S-003-121	Appendix E—Addendum to Ecosystems Discipline Report	Exhibit 6	Exhibit 6 underestimates wetland impacts when compared to Exhibits 7 and 11, and Exhibit 23 in Ecosystems Discipline Report. There is discrepancy between wetland impacts shown in Exhibit 6 compared to other exhibits for the original 6-lane alternative (6 acre vs. 6.94 acre), Pacific St. interchange option (5.3 acre vs. 8.05 acre), and second Montlake bridge option (6 acre vs. 7.05 acre).
S-003-122	Appendix E—Addendum to Ecosystems Discipline Report	Exhibit 10	Wetland impacts from bridge columns shown in Exhibit 10 for Portage Bay are not calculated correctly. If each column covers 78.5 square feet, then both the Pacific St. interchange option and second Montlake bridge option impact 2,826 square feet.
S-003-123	Appendix E—Addendum to Ecosystems Discipline Report	Exhibit 13	Exhibit 13 lists replacement ratios for Category II – IV wetlands although the Seattle segment only contains Category I wetlands. Exhibit 13 underestimates wetland impacts from shading compared to Exhibits 7 and 11 for the original 6-lane alternative (1.3 acre vs. 6 acre), Pacific St. interchange option (1.6 acre vs. 4.78 acre), and second Montlake bridge option (1.3acre vs. 6.26 acre), claiming that only twenty percent of shaded wetlands count as impacts for the project.
S-003-124	Appendix E—Addendum to Ecosystems Discipline Report	Page 29	A replacement ratio of 1:1 will be used to compensate for shading impacts to wetlands. However, it is unclear whether this has been approved by federal, state, and city agencies. Because shading impacts is the main reason for mitigation there needs to be agency approval and confirmation of this approach.

Table 1 (cont.)
Wetland Comments

Section	Page or Exhibit Number	Comment
Appendix J—Indirect and Cumulative Effects Discipline Report	Page 8	One of the sources of data for population growth is too restrictive. The use of permit applications for proposed development within 0.25 miles of project corridor underestimates the potential affects of the build alternatives.
Appendix J—Indirect and Cumulative Effects Discipline Report	Page 58	Cumulative negative effects to wetlands due to additional transportation projects in the area are identified and deemed possible. This information is not divulged in the DEIS main text.
Appendix J—Indirect and Cumulative Effects Discipline Report	Pages 43-44	The assessment of indirect effects on water resources and wetlands from population growth was only measured by increased impervious surface in watersheds. We disagree with the assumption that indirect impacts to wetlands can be quantified by impervious surface percentages.

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S-003-126
S-003-127

Water Resources

S-003-128

Two reports are incorporated by reference into Technical Appendix T—Water Resources which should be considered for review but are not provided in the DEIS:

- CH2M HILL, Parametrix, Inc., Parsons Brinckerhoff, and EnviroIssues. 2002. Trans-Lake Washington Project. AKART and Water Quality Studies for an SR 520 Replacement Floating Bridge. Prepared for the Washington State Department of Transportation Office of Urban Mobility and Sound Transit. December 23, 2002.
- The SR 520 Bridge Replacement and HOV Project Preliminary Stormwater Management Report (CH2M HILL and Parametrix 2004)

Chapter 8-24, 25, 26—talks about unavoidable impacts but these are not specified in the DEIS.

Table 2 contains a series of specific comments concerning water resources in the DEIS and Appendix T—Water Resources.

Table 2
Water Resources Comments

	Section	Page or Exhibit Number	Comment
S-003-129	Appendix T—Water Resources	Page 82	The technical appendix provides a limited evaluation of temporary construction effects on surface water bodies by determining construction actions that may disturb soil and in-water sediments, and by evaluating the potential for accidental spills of hazardous materials. However, areas where erosion and sediment disturbance would be a problem are not identified, nor are Best Management Practices to reduce the risks specified. Instead, this is all left to the TECS plan that is not yet prepared. This lack of information makes it difficult for the reader to fully understand the problems associated with these direct impacts to water quality.
S-003-130	Appendix T—Water Resources	Page 86	*"It is unlikely that turbidity would increase in the photic zone (the area of the lake or water body where there is enough light for photosynthesis to take place), and therefore turbidity from project construction would not adversely affect plant photosynthesis or lake productivity. Similarly, water column concentrations in these same upper layers of the lake would be unlikely to reach concentrations that would adversely affect fish (1,000 mg/L for 24 hour [Parametrix 1997]) in this same zone."* The report cited here is not available for review so there is no way to verify these scientific findings.
S-003-131	Appendix T—Water Resources	Page 83	*"Construction of the new bridges would involve work in and near the waters of Portage Bay and Lake Washington. Construction of work bridges, installation of new columns for the Portage Bay Bridge and the approaches to the Evergreen Point Bridge, and anchoring of the floating bridge pontoons would all take place in the open water, as would construction of the Union Bay Bridge under the Pacific Street Interchange option."* There is no discussion of how this is going to be done or the specific impacts that will result. The DEIS does provide general water quality impacts from general construction activities, but does not address the effects from this work, some of which reflect new technologies that may have impacts which have not yet been determined. Rather, the DEIS states that WSDOT will *"mitigate the project's potential effects on water quality"* because they will *"implement plans to control erosion, sedimentation, and spills during construction consistent with the requirements of federal, state, and local permits related to in-water work."* More detail is needed in order to determine if this alternative is viable first.
S-003-132	Draft EIS	Page 8-24, 8-25	The DEIS indicates that there will be increased turbidity, but fails to mention to what degree or the potential impacts.

Table 2 (cont.)
Water Resources Comments

	Section	Page or Exhibit Number	Comment
S-003-133	Draft EIS	Page 8-25	Construction impacts are discussed as temporary, but this project could potentially take a decade to complete. There is not an adequate discussion of the treatment of water quality from storms during the construction phase. Specifically, the impacts to water quality, not just related to construction-generated parameters, but from the runoff from the "temporary" roads and associated structures.
S-003-134	Draft EIS	Page 5-45 and 6-6	*"The quality of water discharging to Lake Union and Portage Bay during storms would generally be better than the quality of water today because stormwater facilities would treat runoff from the road surface, which is currently untreated."* *"Although the new bridge would have substantially more impervious surface than the current bridge, new stormwater treatment facilities would meet or exceed current federal and state water quality standards."* Although these statements are true, they are misleading. The assumptions are based on the fact that there is currently no water quality treatment and therefore treatment of future runoff will be beneficial over current conditions. However, this assumption is not supported in the Technical Appendix T. Instead, the amount of pollution-generating surface under the alternatives is substantially higher than that of today. And, in fact, the treatments proposed for water quality provide relatively limited improvements over current conditions for some parameters. Rather, they are needed to simply maintain the same quality in the case of some metals (copper and zinc). In some areas (such as Portage Bay) some pollutant levels under the proposed alternatives will actually be higher than the levels monitored in today's runoff (see Exhibit 29 in Appendix T).
S-003-135	Appendix T—Water Resources	Page 64	*"From these calculations (Exhibit 32), the water resources discipline team determined that the proposed BMPs for the 4-Lane Alternative would not increase the amount of pollutants discharged to Lake Washington compared to existing 2002 conditions. This would represent an improvement over 2030 discharges under the Continued Operation Scenario (CH2M HILL et al. 2002). The same improvement would occur for the 6-Lane Alternative, except that oil/grease pollutant loading rate would increase by 57 percent compared to 2002 conditions and zinc would increase by 18 percent."* It is unclear how the discipline team determined water quality pollution in this scenario. Furthermore, a pollutant loading rate increase of 57 percent for oil/grease and 18 percent for zinc is significant and needs further discussion to define these impacts on the aquatic environment.

Table 2 (cont.)
Water Resources Comments

	Section	Page or Exhibit Number	Comment
S-003-136	Appendix T—Water Resources	Page 59	Modeling of pollutant loading for the water quality parameters is presented using amounts that are not comparable to standards and therefore it is difficult to determine their ecological significance (see Exhibit 29). Specifically, WSDOT presents loadings in pounds per year (mass per unit time) vs. qualities presented more typically in mass per unit volume (typically mg/L) for ecological comparisons to Ecology, NOAA Fisheries, EPA, or U.S.F.W. criteria.
S-003-137	Draft EIS	Page 12	The resource agencies disagree with the method that WSDOT uses to calculate pollutant levels in stormwater runoff. WSDOT's method uses the roadway surface area as a basis for calculating the quantities of pollutants that will be discharged in stormwater runoff. NOAA Fisheries and the U.S. Fish and Wildlife Service prefer a method that uses the average daily traffic volumes on the roadway to estimate pollutant quantities. We agree with the agencies.
S-003-138	Appendix T—Water Resources	Page 66	Although metals are included in the analysis, they are presented for total metals only, which limits the understanding of the impact of these parameters on aquatic species. Total metals account for the total runoff metal content, some of which is dissolved and some of which is particulate bound. Total metals do not have ecological significance except with regard to their attachment to sediments. Conversely, the dissolved portion is bioavailable and therefore has a greater ecological relevance. The dissolved phase fraction should therefore be shown in order to make biologically based conclusions about water quality impacts.
S-003-139	Draft EIS	General Observation	Some water quality parameters which are important to understanding the ecological impact of the project have not been presented in the DEIS. These include the dissolved forms of metals such as copper and zinc, hardness, pH, and Polyaromatic Hydrocarbons (PAHs). The toxicity of metals may also change relative to other parameters such as pH, alkalinity, hardness and the like. As stated above, these data are not provided in the DEIS.
	Draft EIS	General Observation	It is not possible to anticipate the toxicological impacts from stormwater runoff containing metals without knowing the concentrations of specific metals in their dissolved and particulate phases. Therefore, WSDOT should estimate on a per-storm basis the likely range of metals and PAH concentrations, as well as the range of concentrations in υg/L.

Table 2 (cont.)
Water Resources Comments

Section	Page or Exhibit Number	Comment
Draft EIS and Appendix T—Water Resources	General Observation	Regional studies have shown that even low concentrations of metals can have sub-lethal impacts on salmonids. A discussion of these sub-lethal effects should be included in the DEIS. Specifically, they need to address the impacts of more zinc and copper in the runoff at Portage Bay West under the 4-lane alternative, and the increase in zinc to Portage Bay East under the 6-lane alternative.
Draft EIS	General Observation	Finally, estimates of loading of PAHs and metals and other toxicants coming from cars into receiving waters, not just from a total fraction but from a dissolved phase fraction, is not provided. More information is needed to understand how these contaminants are going to partition into sediments or as dissolved particulates. As such, the way contaminants are received by the water body will dictate their relative toxicity. This is particularly relevant to the proposed BMPs that remove sediments and their associated fraction of contaminants. Although sediments will be removed through the treatment process, the DEIS does not account for the dissolved fraction of contaminants not bound in the sediments.

S-003-141

Wildlife Habitat

S-003-143

Project effects to wildlife and wildlife habitat are generally minimized in the DEIS. Construction effects of noise and activity are briefly acknowledged, but the lengthy period of construction (four to eight years) is not addressed. Pile-driving activities are identified as potentially causing fish injuries and fish kills in Appendix E. This is minimized in the DEIS text. Habitat loss and impact are noted as occurring due to the project, and Appendix E notes that wildlife will experience negative impacts as a result. The DEIS fails to mention this analysis in some sections, and minimizes it in others.

Table 3 provides a series of specific comments related to wildlife habitat, and the appropriate locations in the DEIS and Appendix E—Ecosystems.

Table 3
Wildlife Habitat Comments

	Section	Page or Exhibit Number	Comment
S-003-144	Appendix E—Ecosystems	Page 153	Wildlife use of the project area is minimized in Appendix E. Species of concern, including great blue herons, red-tailed hawks, etc. use the habitat in and around the project area more frequently than the analysis claims.
S-003-145	Draft EIS and Appendix E—Ecosystems	Page 5-45 and 5-49 in the EIS, Page 192 (Appendix E)	According to the DEIS language, many of the mitigation measures will occur "if feasible", "if practical", or "could" occur; with some other phrasing that indicates a degree of uncertainty associated with the mitigation procedures. Very few specifics on wildlife and/or fish mitigation are given in the DEIS and Appendix E, although more mitigation specifics for fish are given in Appendix E.
S-003-146	Draft EIS and Appendix E—Ecosystems	Chapter 8: Construction Effects	Neither the DEIS nor Appendix E explores the effects of shading and artificial light (nighttime during and post-construction) on salmonid behavior (feeding behavior, prey capture, schooling, migration, etc.). Yet there is a fairly robust literature that examines behavioral changes in response to different lighting regimes, indicating that migratory behavior is generally disrupted. For example, migrating juvenile salmon may move away from their shallow water migratory routes into deeper water, in order to avoid over- or in-water structures. Numerous large bridge columns are proposed to be inserted into the shallow waters of Lake Washington, yet no mention of avoidance behavior by salmonids is included. Additionally, the DEIS claims that only a negligible effect from an increase in pontoon surface area of 21.5 or 27.3 acres from a current 10.4 acres would occur. Such a conclusion is questionable. Certainly, shading and "shoreline effects" (the increase in non-native piscivorous predators, e.g.) will potentially be greater. Appendix E specifically mentions that fish often behave as if solid structures in the water are similar to shoreline areas—thus, non-native piscivores may show an increase in use of the pontoon habitat, which the DEIS fails to address.

Table 3 (cont.)
Wildlife Habitat Comments

Section	Page or Exhibit Number	Comment
Appendix E—Ecosystems	Page 132	Indirect/cumulative environmental effects of constructing the pontoons off-site and floating them to the bridge site are not addressed in the DEIS. The DEIS claims that the environmental effects are addressed in a different document. This is true, but disingenuous. The pontoons will be constructed as part of the Hood Canal project. From Appendix E: *"These would be constructed at a graving dock to be built as part of the Hood Canal Floating Bridge Project.* *A graving dock is a large, gated channel excavated next to the shoreline of a body of water. When a group of pontoons and anchors have been constructed, the graving dock is flooded to float the pontoons and anchors. For this project, flooding of the graving dock would follow a protocol developed by WSDOT, in cooperation with WDFW, NOAA Fisheries, and USFWS, for construction of the Hood Canal Bridge pontoons. Work dates at the graving dock would be limited by fish restrictions, as detailed in the Hydraulics Project Approval (HPA) for the Hood Canal Floating Bridge Project to be issued by WDFW. All applicable screening requirements would be followed during pumping operations. The graving dock gate would then be opened, and a tug would tow the pontoons and anchors out of the graving dock into the adjacent body of water. The pontoons and anchors would be towed to the Evergreen Point Bridge site in Lake Washington.* *The Hood Canal Floating Bridge Project will satisfy the ESA's requirements for construction and operation of a graving dock by obtaining Biological Opinions from USFWS and NOAA Fisheries. Continued operation of the graving dock to manufacture the pontoons and anchors for the Evergreen Point Bridge will be covered in a Biological Assessment to be submitted to NOAA Fisheries and USFWS for the SR 520 Bridge Replacement and HOV Project."* The construction and operation of the graving dock is expected to result in fish take under the ESA, requiring the issuance of Biological Opinions, and is a project directly associated with the SR 520 bridge replacement. This is not even mentioned in the DEIS. No analysis or mention occurs as to whether the use of the graving dock for constructing SR 520 bridge pontoons will result in an increase in graving dock operational activities or in an increase in negative impacts to fish. No analysis or mention of impacts occurs as to whether aquatic resources are negatively impacted as a result of towing the pontoons from the graving dock to Lake Washington.

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Table 3 (cont.)
Wildlife Habitat Comments

Section	Page or Exhibit Number	Comment
Draft EIS	Page 4-40	Analyses and effects determinations for wildlife and wildlife habitat are not adequately performed for the project-related vegetation removal and staging activities within parks and sensitive areas—between 32.13 and 47.7 acres of upland habitat are expected to be permanently removed. The DEIS notes that much of that upland habitat is relatively rare in the urban environment, but then indicates that the "effects of project development in these areas would vary according to existing habitat quality." No negative effects to wildlife utilizing such habitat are noted.
Draft EIS and Appendix J—Indirect and Cumulative Effects	9-6 and 9-7 (Draft EIS), Page 58 and 60 (Appendix J)	Appendix E identifies negative cumulative effects to wildlife habitat as occurring due to the project. A reduction in habitat value to wildlife due to wetland loss is noted, as well as a decline in wildlife abundance due to vegetation loss and general degradation of habitat. Appendix J states that "*direct habitat loss and disturbance is expected to result in reduced population abundance of sensitive wildlife species in the vicinity.*" This information is not included in the DEIS text.
Draft EIS and Appendix X—Pacific Street Interchange Options Analysis		No mention is made of additional negative impacts to wildlife under the Pacific St. Interchange Option in either the DEIS or Appendix X. However, currently contiguous habitat in the Arboretum and on Marsh Island will be fragmented by building new on- and off-ramps to the north and south. The ramps may form physical barriers to wildlife movement, and will definitely create a greater level of disturbance to wildlife than currently exists, both during construction and subsequent operation of the bridge. Additionally, higher volumes of traffic will be conducted through the Arboretum than under current conditions, as all traffic exiting or entering onto SR 520 from south of the Montlake Cut will utilize the Arboretum on- and off-ramps. The DEIS provides no analysis of how an increase in traffic activity could impact wildlife in the Arboretum, or how a localized increase in vehicle exhaust, shading by the ramps, disturbance during construction, etc. might impact sensitive plants in the Arboretum.

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S-003-150

Geology

S-003-151

The DEIS does not appear to adequately address two major issues with respect to geological hazards. The potential impacts of the project including construction on surficial processes such as hill slope stability, soil loss, excessive stream bank erosion, and stream incision is not discussed. In

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addition, there is no thorough analysis of potential risks associated with geologic hazards, such as earthquakes, and how they would influence the proposed roadway in its various potential forms.

S-003-152

Landslide Hazards

The Geology and Soils Documentation section lists slope stability studies conducted by Shannon & Wilson, Inc., however the results of their work are not presented in the Technical Appendix. This information should be compiled in a map or series of maps that display factors of safety along the road embankments. Information should also be provided about the frequency and magnitude of potential landslide triggering events including not only seismic events, but the impact of frequent use by large vehicles. For example, the exposure of the Lawton clay member and sandy layers of the Vashon till adds to the instability of the steep slopes in the vicinity of the Portage Bay Bridge. This fact is mentioned in the Appendix, but there are no detailed maps of the exposures relative to the proposed alignments and alternatives.

S-003-153

Seismic Hazards

Assessing potential seismic hazards requires detailed probabilistic mapping of the anticipated effects of ground shaking and liquefaction. The data appears to have been collected by Shannon & Wilson, Inc., but it is not presented in the Technical Appendix. Data for constructing maps of ground-shaking intensity should include measurements of intensity, ground acceleration, and ground velocity. These data should be combined with information about the type and thickness of sediments to determine the likelihood of hazards associated with liquefaction. Such information should be presented as maps along the proposed alignments within the Technical Appendices.