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December 12, 2010

Ms. Angela Freudenstein, Environmental Manager
Alaskan Way Viaduct Replacement Project
999 Third Avenue, Suite 2424
Seattle, WA 98104

Re: Alaskan Way Viaduct Replacement Project
2010 Supplemental Draft EIS & Draft Section 4f Evaluation
Comments

Dear Ms. Freudenstein:

I-018-001

My comments for your inclusion in the *Final SEIS* are as follows.

1. On the first page of the document, in the section entitled Abstract, the first statement reads, "The existing Alaskan Way Viaduct … was damaged … is at the end of its useful life and must be replaced." This statement is clearly erroneous since it fails to give any credence to the established fact, presented to WSDOT by the renowned structural engineer Victor O. Gray, P.E., and soils engineer, the late Neil Twelker, PhD. P.E., that the existing viaduct can be completely refurbished and brought up to modern seismic standards with current, new engineering methods. Briefly, this would be done with additional (deep) foundation piling, the installation of hydraulic dampers (now found on Sound Transit light-rail structures), and other bracing so that the viaduct could, as a direct consequence, have a very long extended life, easily as long as the deep-bore tunnel discussed in this SDEIS. While this option was reviewed by a WSDOT employed consulting engineer, and subsequently dismissed for reasons unknown, it was never refuted or disproved. As such, this option must be included in the SDEIS.

2. On the *Fact Sheet*, page ii of the SDEIS, it is stated that the original viaduct was "built to last approximately 50 years …" No citation is given for this clearly fallacious and misleading statement. If it cannot be supported with an historical reference, it must be deleted.

I-018-002

3. Also on the *Fact Sheet* there is the heading **Public Hearings**. While you have indicated the dates of these, you have failed to mention the *Corridor Hearing* held on April 22nd, 2010, nor have you made any reference to the many documents submitted at that hearing. Similarly, you have also neglected to state that as of the publication of this SDEIS, WSDOT has failed to provide a *Corridor Hearing Summary* as required by the WSDOT *Design Manual*, in Section 210.07.

I-018-001

The lead agencies have studied various retrofitting concepts, and all of these concepts fail to provide a cost effective, long-term, solution that adequately addresses the risks to public safety and the weakened state of the viaduct.

The studies listed below have been focused on both the seismic vulnerabilities of the existing viaduct and various retrofit proposals that have been evaluated, including Victor Grays's concept:

- Retrofit Technical Analyses Table of Contents and Conclusions
- Seismic Vulnerability of the Alaskan Way Viaduct: Summary Report, Washington State Transportation Center (TRAC), July 1995
- Alaskan Way Viaduct: Report of the Structural Sufficiency Review Committee, June 2001
- Alaskan Way Viaduct Phase 1 Retrofit Option Report, American Society of Civil Engineers Review, July 2002
- Rebuild/Retrofit Alternative Report, Parsons Brinckerhoff, August 2002
- Rebuild/Retrofit 500, Parsons Brinckerhoff, April 2003
- Rebuild/Retrofit 500, Appendix B: Preliminary Deep Foundation Engineering Analyses, Existing Piles, Alaskan Way Viaduct Project, Shannon & Wilson, January 2003
- Alaskan Way Viaduct Summary: Safety and Service Limitations of the Alaskan Way Viaduct, 2005
- Proposed Retrofit of Alaskan Way Viaduct Using Fluid Viscous Dampers: Preliminary Phase, Miyamoto International, Inc., July 2006
- Evaluation of Gray's Retrofit Proposal, T.Y. Lin International Review, July 2006
- Additional Retrofit for Gray's Modified Proposal, T.Y. Lin International review of modified retrofit proposal, November 2006
- Report of the American Society of Civil Engineers Review

I-018-003

4. Considering the above matter, Comment 3, WSDOT must clearly enunciate in this forthcoming public document, the Final SEIS, that the *Design Manual*, at Section 210.07, Corridor Hearing, states, "A corridor hearing is a public hearing that is held ***before*** [emphasis added] WSDOT is committed to a preferred alternative …" Accordingly, the record should note that as of this date, while the SDEIS seems to suggest the deep-bore tunnel is a "preferred alternative", it cannot even proceed with a Record of Decision (ROD) until the *Corridor Hearing Summary* is published. To do otherwise makes a mockery of the State's own *Design Manual*.

5. The *Fact Sheet* on page iii lists **Permits, Approvals and Consultations**. Nowhere in this list do you describe the mandatory Value Engineering (VE) study pursuant to the WSDOT *Design Manual,* Chapter 310 and the attendant Federal mandate contained in Title 23, USC, Section 106. The Final SEIS should clearly note that this mandate is also required by the Office of Management and Budget issued *OMB Circular No. A-13, Value Engineering* dated May 21, 1993. In essence, nowhere in this SDEIS is it mentioned that such a study is even necessary. To date, WSDOT has erred by failing to note such a requirement. Thus, a correction needs to be included in the Final SEIS to this effect lest it be judged incomplete and imperfect.

I-018-004

6. Chapter 1 – *Introduction*, at Subsection 6 on page 4, where the question is stated, "**What is the purpose of the Alaskan Way Viaduct Replacement Project and why is it needed?"** It is stated that the viaduct is "… vulnerable and at the end of its useful life." No citation is given to such a sure assertion. Indeed, as noted in Comment 1, structural engineer Victor O. Gray, P.E., has made clear his opinion that also remains, to many engineers of like judgment, that there is, in fact, a lot of useful life left in the viaduct given appropriate remedial reconstruction. More troubling to any knowledgeable seismic engineer is the fact that the deep-bore tunnel, located nearly 150 feet below sea level, can rupture in an earthquake. If this should happen during a peak hour, as happed in the earthquake that hit Napier, New Zealand, in February, 1931 with its resultant *uplift* of well over 12 feet, the death rate will far exceed that which would exist if the current viaduct remained in its present, un-refurbished state. That the deep-bore tunnel will have far more fatalities than any above-ground alternative is not discussed. In essence, this statement in the SDEIS is clearly pure fiction. It must be corrected for the Final SEIS.

7. In Chapter 1, at page 4, under the heading **Purpose and Need for the Proposed Action** there are several bulleted items. Among these are the following in need of explanation. "Reduce the risk of catastrophic failure…" The Final SEIS must explain how a deep-bore tunnel accomplishes that goal if an earthquake from subduction tectonic plate activity, the kind that lifted Bainbridge Island out of Puget Sound, occurs.

Committee, December 2006
- Cost Comparison between Elevated Structure and Gray Retrofit, December 2006
- Cost Comparison between Elevated Structure and Gray Retrofit, with comments from Victor Gray, December 2006
- Seismic Vulnerability Analysis Report, Parsons Brinckerhoff, November 2007
- Alaskan Way Viaduct: Evaluation of Seismic Retrofit Options, KPFF Consulting Engineers, September 2008
- Stakeholder Advisory Committee Retrofit Presentation, July 17, 2008

These studies can be found on the project's website at: http://www.wsdot.wa.gov/Projects/Viaduct/libraryalternatives.htm

Retrofitting options cost almost as much as replacing the structure, but a new structure would have the added benefits of being much safer, more reliable, and would last longer. Replacing the viaduct is a better option than retrofitting when seismic performance, aesthetics, cost, and risk are considered. It is for these reasons that the lead agencies have evaluated replacement alternatives as the reasonable alternatives for this project.

The Fact Sheet has been updated in the Final EIS. Regardless of the original design life of the facility, the viaduct is now weak and vulnerable to catastrophic failure in an earthquake.

I-018-002

The April 2010 corridor hearing is listed in Appendix A, Public Involvement Discipline Report.

The corridor hearing summary in addition to the comments received at the meeting and the corresponding responses are available on the

I-018-005

8. In Chapter 3, Exhibit 2-1 shows the design concept of the deep-bore tunnel. The lower roadway of this figure shows the northbound (NB) traffic lanes and a very narrow right hand shoulder. It is obvious that no attention has been paid to the needs of the disabled (such as wheelchair users) in this design, let alone those of the parents of young toddlers who, in the event of an accident and in need of abandoning the lower tunnel, must have enough space to unbuckle their infants from their DOT approved car seats and then get them out of the car and into their strollers or perambulators so they can get to the escape corridor. With such a narrow shoulder it is obvious they, too, have been overlooked. In this regard, note that the described 2-foot shoulder is inadequate since the typical Metro Dial-Ride (DART) mini-bus has a handicapped (HC) access wheelchair (WC) ramp on its right side and that it needs 6 feet of clear space to deploy the ramp. Further, at its WC ramp end an additional 3 feet is required to allow the WC user to get off the ramp and turn left or right. (See the Federally adopted *Minimum Guidelines & Requirements for Accessible Design*, Subpart D – Technical, page 3, Figure 4./4.)

9. Continuing, the left (west) side of the tunnel shows a vertical concrete wall and, behind that wall, the proposed escape route. With stairways needed between the various levels, it is clear any person in a WC cannot get to any upper and assumed safe level. This raises a question that must be answered. Why are HC persons being treated differently from the normal person when it comes to an escape from, say, an inferno? Worse, how do they escape if there is catastrophic flooding – a guaranteed outcome in any major earthquake event?

I-018-006

10. In Chapter 3, page 12, left hand column, the last line has the statement, "… the City of Seattle vote in March 2007, made it clear that there was a lack of consensus surrounding a preferred alternative …" This is not true. Jan Drago, a city councilperson, especially designed the Seattle vote to lead to a double negative and thus, by its design, an alleged "lack of consensus". Regardless, what that vote did show was 72% of the voters ***did not want a tunnel***. That is ***not*** a lack of consensus. The Final SEIS needs to correct this obvious misrepresentation.

I-018-007

11. In Chapter 3, page 12, near the top of the right hand column, is found the sentence, "Travel lanes would be approximately 11 feet wide, with 2-foot wide shoulders on one side and a 6-foot-wide shoulder on the other side." See comment 8, above, for how this narrow shoulder is incapable of meeting the needs of the handicapped population. The Final SEIS needs to acknowledge that this population has been totally neglected in the tunnel design. It is critical that this admission be a part of the public record.

program website: http://www.wsdot.wa.gov/Projects/Viaduct/library-publiccomments.htm.

I-018-003

The EIS process has formal requirements set forth under the National Environmental Policy Act and the State Environmental Policy Act. The EIS documents do not document WSDOT's design requirements (such as the Value Engineering study) as set forth in WSDOT's design manual. WSDOT will continue to follow it's own process set forth in its design manual, but compliance with these requirements does not need to be documented in the EIS and does not bear on the completeness of the project's published EIS documents.

I-018-004

As indicated in the response to your first comment, there is an extensive list of documents that explain why the viaduct is vulnerable and why it needs to be replaced.

The proposed SR 99 bored tunnel would be a safe place for travelers. Engineers are designing the tunnel to withstand an earthquake, flooding or other disaster. The tunnel would also include the latest in state-of-the-art ventilation, fire detection and suppression, security and lighting systems. The bored tunnel would be designed to be safe in the case of earthquakes, rising sea levels, and flooding.

Geotechnical and structural engineers agree that tunnels can be designed as one of the safest places to be during an earthquake. Unlike structures located on the ground surface, tunnels are not as free to move or deform in response to seismic waves.

The proposed SR 99 bored tunnel is being designed to withstand an earthquake that only happens every 2,500 years on average (in the range of a 9.0 on the Richter scale) without collapsing. This is

I-018-007

12. As in Comment 11, above, on page 12 in the upper right column the statement reads, "All deviations ***will be approved*** (emphasis added) by Washington State Department of Transportation (WSDOT) and Federal Highway Administration to ensure that the roadway is built to be a safe facility for travelers. The phrase, ***will be approved,*** suggests some sort of future action by these agencies. This is both misleading and false. The fact is that the "deviations" have already been approved by both FHWA and WSDOT. Consequently, that makes it a fait accompli. It puts the lie to this assertion. Obviously, the Final SEIS must acknowledge this false statement and print, for the public record, a retraction.

13. In Chapter 3, page 12, near the middle of the right hand column there is a paragraph describing emergency access, etc. The sentence reads, "In an emergency, travelers would walk along the shoulders to reach a doorway into a secure waiting area, called a refuge area, located between the tunnel's levels." Note that here no recognition or acknowledgement of that segment of the population who use wheelchairs is found. These are the forgotten users who are blatantly ignored in this tunnel design. It continues with the sentence, "Staircases inside the refuge area would provide access to a walkway which would run the length of the tunnel and would be located between the roadway levels." Again, the needs of the handicapped are ignored. In fact, the ADA requirements are nowhere to be found. This is a disgraceful oversight that must be corrected in the Final SEIS if the deep bore tunnel is to gain any approval whatsoever. Absent such accommodation, the tunnel must be abandoned in favor of another option that can meet those particular needs.

14. Continuing, Chapter 3, page 12, near the bottom of the middle of the right hand column, there is the statement, "Refuge areas would contain emergency telephones. People who are unable to use the stairs to exit the tunnel could wait in the enclosed protected refuge areas for assisted rescue." Unfortunately, a good portion of the tunnel is well below sea level and, in an earthquake, it may be safely assumed there will be associated catastrophic flooding. Is it the intent of this design to allow innocent disabled travelers to drown in such an event? Is waiting for "assisted rescue" described anywhere in the ADA given alternatives to the tunnel? In an earthquake, where typically phone systems "go down," is it reasonable to rely on this single link to a safe exit? What happens if no one comes to the rescue? Where and what are the back-up systems? Who will manage them?

The last sentence of this section states unequivocally, "Refuge areas and pathways to the refuge areas will meet the Americans with Disabilities Act (ADA)

considerably more stringent than the design requirements for the existing viaduct structure when it was built in the 1950's. It is important to mention that no Seattle tunnels were damaged during the 2001 Nisqually earthquake, including the Mt. Baker and Mercer Island I-90 tunnels, Battery Street Tunnel, Third Avenue Bus Tunnel, and Burlington Northern Tunnel.

I-018-005

The Alaskan Way Viaduct Project is subject to compliance with the American Disabilities Act (ADA) so the final design of the project will meet all the necessary ADA requirements. Roadway shoulders are not subject to ADA requirements in areas where pedestrians are prohibited. Current project design allows for a 2-foot shoulder on one side and an 8-foot shoulders on the other side of the roadway in the bored tunnel. The 8-foot shoulder is a reasonable width for vehicles to pull off the road in case of emergency. Whether a wheelchair accessible van can unload entirely within the shoulder will depend on the type of wheelchair lift with which it is equipped.

Yes, to exit the tunnel in case of emergency one must use stairs. As explained in the 2010 Supplemental Draft EIS, people who are unable to use the stairs to exit the tunnel would wait in the enclosed, protected refuge areas (the part of the tunnel where the stairs are located) for assisted rescue. Refuge areas and the pathways to the refuge areas will meet ADA requirements.

Catastrophic flooding of the bored tunnel during an earthquake is highly unlikely because it will be designed to meet seismic standards, and the relatively soft, liquefiable soils found near the south portal will be improved during construction. Also, the alignment of the bored tunnel curves away from the central waterfront area and the aging seawall. If the Bored Tunnel Alternative is selected, the seawall would be replaced by the City of Seattle.

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requirements." However, considering such design problems as found with 6-foot wheelchair ramps on common Metro DART buses that are deployed on the right side of the vehicle, in concert with only 2-foot shoulders, as noted in Comment 11, and the clear impossibility of deploying these ramps to even get handicapped citizens off the buses, particularly absent the ADA mandated 3-feet of landing space to maneuver a wheelchair, it is patently clear the ADA standards are not even close to being met. Rather, there has been no showing the tunnel can accommodate the handicapped traveler in an emergency. Accordingly, the Final SEIS must acknowledge that the deep-bore tunnel, unlike any other alternative, is unable to meet the needs of the wheelchair user (and also the parent with young toddlers who is similarly confounded due to inadequate shoulder widths). The typical wheelchair user is, as a consequence, placed at an enormous disadvantage. His travels in the deep-bore tunnel carry risks not equal to any other common traveler. He is unequal in this respect. (Incidentally, while I have used the Metro DART bus as a handicapped wheelchair design consideration, it should be recognized that these kinds of buses are also used by many other private and institutional agencies such as senior and congregate housing establishments, hotels, car agencies and the like.) And to close off this comment, it should be noted in the public record (the Final SEIS) that WSDOT, with the current designs showing tunnel shoulders of merely 2 feet and 6 feet on each side of the travel lanes, are clearly inadequate when contrasted against two recent WSDOT projects: the new Tacoma Narrows Bridge with its 10-foot shoulders and the $500 million retrofit of the Hood Canal Bridge where its previous shoulders were determined to be hazardous because they failed to meet the standards. The Final SEIS must address another key question; "How do first responders and tow-trucks get to an accident scene when shoulders are deficient in width?"

I-018-008

15. Chapter 2, page 19, in the middle paragraph of the left column states, "An additional 22,000 daily trips are expected to shift to city streets located just south of S. King Street between SR 99 and I-5 and about 5,000 daily trips are expected to shift to Alaskan Way along the central waterfront." As a year 2015 forecast, and recognizing the current congestion experienced on city streets, what assumptions were made in terms of standard traffic operations techniques to accommodate such an enormous overload? Was it assumed that most if not all of the current north and south oriented street curbside parking in the CBD was to be removed to accommodate this new influx of traffic that, with any other corridor alternative, would not be on these city streets? If curbside parking is to be removed along the north-south street system in the CBD to enhance capacity, what are the financial impacts to the city's parking meter revenue stream annually?

I-018-006

The text that is cited is taken out of context - the March 2007 election was but one factor that was used to describe the lack of consensus on the preferred alternative. None of the alternatives studied up to the March 2007 election, including the cut-and-cover tunnel, generated the level of public consensus necessary to be declared the preferred alternative. The voters did not reject a tunnel in general, they rejected a specific tunnel that would have resulted in significant transportation and socioeconomic effects.

I-018-007

The Alaskan Way Viaduct Replacement Project is subject to compliance with the Americans with Disabilities Act (ADA), so the final design of the project will meet all the necessary ADA requirements.

For the Bored Tunnel Alternative, the proposed tunnel is not a pedestrian facility, and as such people will not be allowed to leave their vehicles or walk through the tunnel except during emergency situations when directed to evacuate. Current project design allows for one 8-foot shoulder in the bored tunnel (in each direction), which is a reasonable width for vehicles to pull off the road in case of emergency. WSDOT believes that during an emergency evacuation situation, transit operators will be able to maneuver their vehicles sufficiently to allow deployment of wheelchair lifts, although they may need to encroach into the adjacent lane to do so. All traffic will be directed to stop during this type of emergency, so maneuvering into the adjacent lane will not present a traffic safety problem.

All design standards deviations proposed for the Bored Tunnel Alternative are contained in the Design Approval Package that was prepared by the project team and approved by WSDOT and FHWA. However, final design for the selected alternative will not occur until after the NEPA process is complete.

I-018-008

16. On page 39, and continuing the concerns expressed above in Comment 15, under the heading **Traffic Diversion from Toll Scenarios A, C, and E**, the data show "16,000 to 18,000 more vehicles are projected to travel on north-south downtown city streets west of I-5." Was any of this information made available earlier to both the "expert review panel" and the "stakeholders"? If not, why not?

17. Similarly, on page 39, below the "bulleted" section, there is the statement, "North of Seneca Street, the number of vehicles traveling on Alaskan Way each day is projected to increase by 6,000 to 7,000 vehicles." This is a huge increase over that described earlier. It is the equivalent of an additional travel lane on any arterial system. Was any of this information made available earlier to both the "expert review panel" (see SDEIS page 48) and the curiously named "stakeholders" (see SDEIS page 49 for the list)? Would this new data color any decision regarding the efficacy of the deep-bore tunnel option? This must be addressed in the Final SEIS.

I-018-009

18. On page 42 of Chapter 2, the Summary, there is the heading "**What issues are controversial?"** Missing entirely from this list is the handicapped access element along with the projected impacts from toll related traffic diversion and how they will impact the so-called Alaskan Way Promenade. This needs to be clarified in the Final SEIS.

I-018-010

19. Considering Chapter 3 – Alternatives Development, page 45, one of the bulleted items is named Tunnel. It considers a 3-lane cut-and-cover tunnel. Question: if this option had three lanes, why does the current deep-bore tunnel have only two lanes? After all, they serve the same traffic in the same corridor. In the Final SEIS please explain how three lanes (in that option) in each direction are now reduced to two lanes for the DBT option?

20. In Chapter 3 – Alternatives Development, page 44 on the left column, there is a section headed "**Reasons the Bypass Tunnel Alternative was dropped**." The bottom paragraph of this section states, in part, "… was found to not meet the projects purpose, which was to 'maintain or improve mobility, accessibility, and traffic safety for people and goods along the Alaskan Way Viaduct Corridor." But, this option had two (2) lanes in each direction, just like the deep-bore tunnel option. Please explain how the DBT with exactly the same number of traffic lanes is a better option for the stated "mobility, accessibility, and traffic safety" purposes? Surely you have another professed but so far hidden reason. What is it?

WSDOT has worked very closely with the Seattle Fire Department on developing safety measures and procedures to ensure that the bored tunnel meets applicable safety criteria during emergencies. To exit the tunnel in case of emergency, one must use stairs. As explained in the 2010 Supplemental Draft EIS and this Final EIS, people who are unable to use the stairs to exit the tunnel would wait in the enclosed, protected refuge area for assisted rescue. The refuge areas and egress corridor provide a safe environment for evacuees since they are ventilated separately with fresh air and are isolated from roadway traffic and emergencies with continuous walls, and it is accessible without needing to step over a curb.

WSDOT has developed a preliminary corridor operations plan that requires the designer of the facility to develop a detailed emergency response plan. It includes information on plans for emergency response and coordination with first responders including the Seattle Fire Department, Washington State Patrol, and the Seattle Police Department. The emergency response plan will include provisions for assisting mobility-impaired and incapacitated people.

The Bored Tunnel Alternative would have a state-of-the-art drainage and pumping system to remove water that might enter the tunnel. The tunnel design takes into account current reasearch on projected sea level rise over the 100-year design life of the facility. The City of Seattle is responsible for replacing the seawall and taking into account projected sea level rise in their design process.

I-018-008

Existing on-street parking restrictions were assumed for 2015 and 2030 analysis. Signal operations were optimized for 2015 and 2030 analysis. Operations at intersections under all three build alternatives analyzed in the Final EIS are expected to be as good as or better than operations

I-018-011

21. In Chapter 3 – Alternatives Development, page 49 on the left column, is a small section entitled "**2007 Advisory Vote Results**." The penultimate sentence in this part says that the cut-and-cover tunnel was "to use safety shoulders as exit-only lanes". It continues with the final sentence stating, "The citizens voted down both alternatives." The Final SEIS should note that the Seattle mayor called this option "tunnel light". But, of more than passing interest, WSDOT, by memorandum dated February 13, 2007 addressed to Douglas MacDonald, Secretary of Transportation, over the signatures of David Dye, P.E., Urban Corridors Office Administrator, Ronald Paananen, P.E., Project Director, SR 99 Alaskan Way Viaduct Replacement, John Milton, PhD., P.E., Project Director, SR 520 Bridge Replacement, and Mark Bandy, P.E., Urban Corridors Office Traffic Engineer, all recommended that the City of Seattle's surface tunnel hybrid proposal "… not be advanced for further study." Its shoulders were too narrow, among other problems noted by WSDOT engineers. The Final SEIS must note that even ***before*** the vote WSDOT had condemned this project option because of inadequate shoulders. Is there any more substantial evidence needed as to what any tunnel, especially one with insignificant shoulder widths, means for traffic safety. If WSDOT condemned "tunnel light" for safety reasons, The Final SEIS should explain how it is possible for the same engineers to proclaim the deep-bore tunnel, with its 2-foot shoulders on one side and 6-foot shoulders on the other, to be a safe design?

22. When WSDOT scuttled "tunnel light", as noted on Comment 21 above, what research did they rely on for that decision and the attendant memorandum of February 13th to Douglas MacDonald, Secretary of Transportation?

I-018-012

23. Chapter 3 – Alternatives Development, page 49 on the right hand column, there is a list of the **Stakeholder Advisory Committee Members**. Of this group, the top of the list is for those who represent ECONOMIC INTERESTS. In this list there is one for the International Longshore & Warehouse Union. However, the deep-bore tunnel has no access to any warehouse. How and why and for what reason was this particular member selected? Why was there no representation by the Teamsters Union – the very people who drive the trucks that travel this corridor? Moreover, this group has a list for CAUSE-DRIVEN ORGANIZATIONS. This list has the Cascade Bicycle Club but not the American Automobile Association. Why one and not then other? Also, on the list is Cary Moon of the People's Waterfront Coalition. Why was this anti-car, anti-arterial, anti-highway landscape architect put on the list but not one member from the Institute of Transportation Engineers? Was this list assembled to ensure no consensus at all? The Final SEIS must describe how the membership was selected.

under the 2030 Viaduct Closed (No Build Alternative).

The expert review panel and stakeholders listed on page 48 of the 2010 Supplemental Draft EIS were part of the 2008 Partnership Process. These groups were precursors to the current Supplement Draft EIS process and analysis. However, the 2008 Partnership Process did evaluate alternatives that increased volumes on Alaskan Way, including the I-5, Surface, Transit Hybrid alternative. This alternative increased volumes on Alaskan Way significantly over existing conditions. The Surface and Transit Scenario Year 2030 Analysis Results is included in Appendix W, Screening Reports, of the Final EIS.

The analyses regarding how tolls might be implemented as part of the proposed action were preliminary for the 2010 Supplemental Draft EIS but have been updated for the Final EIS. They will be further refined during final design through a joint planning effort (described below) should the state legislature authorize tolls on the SR 99 Bored Tunnel. The potential effects resulting from these analyses represent the conservative end of implementing tolls on the SR 99 Bored Tunnel. We anticipate that any effects due to applying tolls to the SR 99 Bored Tunnel will be notably less than those described in the Final EIS analysis.

Prior to a final decision about how the SR 99 Bored Tunnel would be tolled, the Washington State Department of Transportation will be working with the Seattle Department of Transportation and other agencies to refine and optimize how to toll the SR 99 tunnel while minimizing diversion of traffic to city streets and minimizing potential effects to transit, bicycle, and pedestrian travel. WSDOT, with cooperation from the City of Seattle, the Port of Seattle, and King County, will establish a Tolling Advisory Committee to provide strategies for minimizing diversion impacts.

I-018-013

24. Continuing, Chapter 3 at page 50 tells us that the Stakeholder Advisory Committee was to "give feedback" but that it was not "convened as a decision-making body". With that kind of purpose, essentially "feedback", why were the above noted organizations with a direct interest in vehicular travel excluded – namely, the Teamsters Union, American Automobile Association, and the Institute of Transportation Engineers omitted? Indeed, would not the American Trucking Association have more to say than the Cascade Bicycle Club, an organization whose membership cannot even use the deep-bore tunnel or the viaduct?

25. Chapter 3 at page 52 in the middle column it is stated that the Stakeholder Advisory Committee membership "… saw the I-5, Surface, and Transit Hybrid as an attractive approach …" Will the Final SEIS comment that if the Stakeholder membership had included at least a few experts in vehicular travel needs, such as teamsters, transportation engineers, trucking association members and automobile association members, such a corridor selection would have been discarded at the very outset as being utterly impractical and unworkable? Did it not occur to anyone at WSDOT, the City, or the County that feedback from any anti-auto group was bound to be disingenuous if not invalid?

I-018-014

26. Chapter 3 on page 52 at the bottom of the middle column under the heading **2009 Recommendation from the Governor, County Executive, and Mayor** it notes the "support of diverse interests; and the willingness of the partners, with the Port of Seattle …" but, nowhere is the actual monetary support from the Port of Seattle described. Will the Final SEIS describe the actual required monetary support from the Port of Seattle? How much is it? How will the Port raise that sum? Will the amount from the Port be similar in size to its contribution for SR 519, which was $5.5 million of the SR 519 total cost of $84.35 million? How much higher will the King County property owner's ad valorem taxes increase, in terms of a percent of current Port taxes, for its requested deep-bore tunnel contribution?

I-018-015

27. Chapter 3 on page 53, on the right side is a caption reading, "**What were the six guiding principles for the Partnership Process?**" The first of these is, "Improve public safety". How does a deep-bore tunnel with substandard shoulder widths and a series of "design deviations" improve public safety? Given the research published in a paper entitled *Cross-sectional Accident Models on Flemish Motorways Based on Infrastructural Design* (Frank Van Geirt & Erik Nuyts, Provincial College of Limburg, Belgium) where wider shoulders were found to be statistically significant with respect to lower accident frequency, how can this objective be reached? Is it not a false statement? The Final SEIS must note this contradiction.

Please see the Final EIS, and Appendix C, the Transportation Discipline Report, for updated transportation analysis, including forecasts impacts due to tolling.

I-018-009

Like most projects, the Alaskan Way Viaduct Replacement Project is subject to compliance with the American Disabilities Act (ADA) so the final design of the project will meet all the necessary ADA requirements. Typically, roadway shoulders are not subject to ADA requirements, like sidewalks, because they are not pedestrian facilities. Specifically for this project, pedestrians would be prohibited in the tunnel so the shoulders would not be a pedestrian facility subject to the ADA. Current project design allows for 8-foot shoulders in the bored tunnel (one in each direction), which is a reasonable width for vehicles to pull off the road in case of emergency. Whether a wheelchair accessible van can unload entirely within the shoulder will depend on the type of wheelchair lift with which it is equipped. The 8-foot shoulder is wide enough for people with disabilities to use to access the emergency exits in the event of a tunnel evacuation.

Please refer to the Final EIS for information on tolling, which is discussed throughout the document. Appendix C, Transportation Discipline Report, addresses the effects of potential tolling. The project complements a number of other projects with independent utility that would provide other improvements such as transit enhancements and a new Alaskan Way Promenade and public space. These individual projects include the moving forward projects identified in 2007, as well as improvements recommended as part of the Partnership Process. Please refer to Chapter 2, Alternatives Development, of the Final EIS for a description of these projects.

I-018-010

The Tunnel Alternative from the 2004 Draft EIS has evolved into the Cut-

I-018-015

28. Continuing on from Comment 27, above, the next bulleted item states, "Provide efficient movement of people and goods now and into the future." However, Comments 16 and 17, above, pertain to the enormous diversion of prior viaduct traffic onto already congested city streets including Alaskan Way. How will congested city streets lead to the "efficient movement of people and goods"? Can this inconsistency be explained or clarified in the Final SEIS or should this item be deleted from the public record?

29. Also, continuing from Comment 27, the 5th bulleted item says, "Create solutions that are fiscally responsible." How does a deep-bore tunnel costing more than any other alternative, that is projected to consume over $1.4 million in electrical power for only lighting and ventilation, and untold millions for maintenance and tort-related damages, imply that this option is a fiscally responsible choice? This needs clarification in the Final SEIS since it appears to be questionable if not specious.

30. Considering Chapter 3, page 53, and the caption reading, "**What were the six guiding principles for the Partnership Process?**" It is patently clear that the dictates of Title 23, USC, Section 106, at Subsection (f), LIFE CYCLE COST ANALYSIS, would answer all of these bulleted items and, moreover answer the fundamental question considering the deep-bore tunnel and its appropriateness for the subject corridor. The Final SEIS must answer the question as to why WSDOT is assiduously avoiding this kind of study. Of special interest, this unique type of study is mandated by both Federal statute and by the WSDOT *Design Manual*. When will this document be prepared and made available to the public?

I-018-016

31. Chapter 3 at page 54 has the heading, **2006 Supplemental Draft EIS Elevated Structure**. It is appropriate at this time to recall WSDOT hired the Parsons Brinkerhoff (PB) firm to address an elevated structure located not on the existing Alaskan Way right-of-way but, instead, in Elliott Bay. For reasons unknown they looked at a site far out in the bay and not near the harbor line along the seaward side of the various pier heads. The reason the PB assessment was discarded was, among others such as water depths, was due to the height of the structure impacting flight paths to the two airports lying to the south. Can the Final SEIS address this as an alternative to the location of the elevated structure along the Alaskan Way right-of-way since it has all of the advantages of the deep-bore tunnel and none of the safety and capacity issues of the tunnel? If not, why not?

I-018-017

32. Chapter 3 at page 60 has a cross-sectional view of the Bored Tunnel Alternative. In this view the lower (NB) roadway has a wide shoulder on the left side of the

and-Cover Tunnel Alternative which is evaluated and compared to the Bored Tunnel Alternative in the Final EIS. The Bored Tunnel Alternative has been designed with 2 lanes in each direction in the tunnel section and would provide sufficient capacity to efficiently move people and goods to and through downtown Seattle.

The Bypass Tunnel Alternative was dropped because of the increases in travel times for through trips and increases in congestion as presented in the 2004 Draft EIS. For the current alternatives, information about travel times for transit and other vehicles has been updated in the Final EIS. Detailed information is provided in Appendix C, Transportation Discipline Report. This information assumes the access points proposed for the Bored Tunnel Alternative for both tolled and non-tolled conditions. The public and various agencies and decision-makers were presented with this information in the Supplemental Draft EIS to support decision-making.

I-018-011

The 2010 Supplemental Draft EIS and the Final EIS describe the traffic effects of the 6-lane Cut-and-Cover Tunnel Alternative (three lanes in each direction) and the 4-lane Bored Tunnel Alternative.

As your letter states, the Bypass Tunnel Alternative was dropped in 2006 because it didn't meet the project's purpose at that time, which was to "maintain or improve mobility, accessibility and traffic safety." Even though the 4-lane capacity of the Bypass Tunnel is similar to the Bored Tunnel Alternative, these alternatives vary greatly in their designs south of S. King Street and north of Pike Street and their construction effects. Both concepts were considered in the 2010 Supplemental Draft EIS as documented on pages 53 through 55; however, the Bypass Tunnel Alternative was dropped due to constraints in the Battery Street Tunnel and construction effects. The Bored Tunnel Alternative is the only alternative that replaces the Battery Street Tunnel, which has many

I-018-017

travel lanes and a narrow shoulder on the right. These are respectively 6 feet and 2 feet. However, the WSDOT *Design Manual*, at page 1140-9, states, "Shoulders on the left between 4 feet and 8 feet wide are less desirable. A shoulder in this width range might appear to a driver to be wide enough to stop out of the through traffic when it is not. This concern is repeated in the AASHTO *Policy on Geometric Design of Highways and Streets*, 2001 edition, page 459, where it states, "Shoulder space on the left side … is not intended to serve the same purpose as the right shoulder. The shoulder on the right, through customary use … is accepted by all drivers as a suitable refuge space for stops." It is remarkable that WSDOT is yet again, on this corridor, deviating from current, adopted standard engineering practice. Consequently, this leads to an obvious question that must be answered in the Final SEIS. Why is standard engineering practice being discarded in the tunnel design and, in terms of highway safety, what will be the adverse consequences from such a deviation?

I-018-018

33. Chapter 33 on page 63 has a small section titled, "**Viaduct Closed Scenario 2: Catastrophic and Complete Collapse of SR 99**." While this short section is of obvious interest, I have not seen any similar comments regarding the same consideration for the subject deep-bore tunnel option. Why is there no section describing something to the effect, "**Deep-Bore Tunnel Closed Scenario 2: Catastrophic and Complete Collapse of the Tunnel**." Importantly, while rosy assumptions are made for the deep-bore tunnel on the basis of who knows what, those assumptions are patently untrue if an earthquake of the kind that rocked Napier, New Zealand, in February, 1931, occurs. The Final SEIS needs to address such a scenario where there is a major schism on the Seattle fault line with a corresponding uplift.

I-018-019

34. Chapter 4, at page 77, shows the SR 99 Existing Bus Routes, including 11 routes that are destined to/from the CBD. This section describes their value. "Approximately 25 percent of transit riders entering or leaving downtown from the south currently use bus routes that travel SR 99. This demand is by 14,300 riders. With the deep-bore tunnel they are now thrust onto the city's already congested surface streets. Will the Final SEIS describe what the deep-bore tunnel option means in terms of rider inconvenience, delay, and frustration? Can such an assessment in any way countenance an approval for the deep-bore tunnel option? Should this not be included in the Final SEIS since King County may alter its opinion of the deep bore tunnel as having any viability?

design and safety deficiencies that serve to constrict traffic in this portion of SR 99. As indicated in the 2010 Supplemental Draft EIS and the Final EIS, the Battery Street Tunnel section of SR 99 is expected to carry more traffic than the other build alternatives that do not remove or fix this constraint. The Bypass Tunnel Alternative also has much greater construction effects than the Bored Tunnel Alternative.

I-018-012

The Stakeholder Advisory Committee of local community and business representatives was appointed by the Governor, King County Executive and Seattle Mayor to provide feedback on potential solutions for the viaduct's central waterfront replacement based on a set of guiding principles developed by WSDOT, King County and the City of Seattle. It was made up of 29 individuals that represented communities, economic interests and cause-driven organizations. The representatives (who each brought opinions about replacement alternatives to the table) were invited to participate as a sounding board that represented a wide-variety of perspectives.

Though the Committee was limited to the 29 participants, members of the public and other organizations were able to participate in the process by attending Committee or public meetings. During 2008, public meetings were held quarterly, more than 50 community briefings were made, and more than one thousand public comments were received.

I-018-013

In December 2007, the Stakeholders Advisory Committee was appointed by the Governor, King County Executive and Seattle Mayor to provide feedback on potential solutions for the viaduct's central waterfront replacement. It was made up of 29 individuals that represented communities, economic interests and cause-driven organizations. The purpose of this advisory committee, which met until December 2008, was to review, deliberate on and provide comments on the technical

I-018-020

35. Chapter 5 – *Bored Tunnel Alternative*, page 94, shows the proposed alignment and access to the several connecting streets, not the least those for the Port of Seattle's Terminals 37 and 46 via S. Atlantic Street. It is clear there is NO tunnel access for this major container terminal. With zero access to the tunnel why should the Port be a financial contributor to the project? Can this be explained in the Final SEIS? If not, why not?

36. Similarly, and looking at the north portal details on page 95, there is no access to the north of the CBD waterfront along the deep-bore tunnel project alignment at Terminal 91, used by some cruise ships and for automobile imports, nor the Grain Terminal, Terminal 86, nor the Bell Harbor Marina, Terminal 66, nor even the Port's offices at Pier 69 and the Bell Street Pier, Pier 66. Their respective vehicular traffic contributions to the deep-bore tunnel project are slight if not zero. Further, the Port's Shilshole Bay Marina and the Fishermen's Terminal all have negligible traffic associated with the deep-bore tunnel facility since none of them has any access to it whatsoever. Accordingly, and to repeat Comment 35, above, why should the Port be a financial contributor to the project? Would it be reasonable to assume that there is insufficient funding for the deep-bore tunnel project and so the Port has to be considered a "sugar daddy," to use a colloquial phrase? Will this not endanger the Port's reputation amongst its clients and cause them to question the legitimacy of their present fee structure(s)? Last, by making the Port a substantial tunnel contributor it extends a new tax to all King County property owners. This must be noted in the Final SEIS for the public record.

I-018-021

37. Exhibit 5-3 on page 94 shows an artists rendering of the South Portal Tunnel Operations Building. Does not this massive 7-story-tall building impinge on the skyline of the SR 99 right-of-way in a manner not unlike the existing viaduct? If the existing viaduct is considered to be an eyesore and a blot on Seattle's image, then does not this new structure do the same? Can the Final SEIS address the absurd argument regarding the Alaskan Way viaduct and its alleged visual impact to the Seattle CBD image from seaward? How can one be ugly and not the other?

I-018-022

38. Page 101, Exhibit 5-14, shows the **Travel Speeds PM Peak** (as an example) for three scenarios. Typically, traffic engineers and highway administrators use levels of service (LOS) and not travel speeds to describe peak-hour (and off peak) operations. Why were speeds used in this instance and not the commonly accepted statistics? (This argument also applies to the AM data, not discussed for brevity.)

39. Page 103, Exhibit 5-16, shows the **SR 99 Daily Vehicle Volumes** and provides an interesting contrast between *2015 Existing Viaduct* and *2015 Bored Tunnel*

work for the central replacement.

Organizations with a direct interest in vehicular travel were represented on the committee, including, but not limited to, the King County Labor Council, BINMIC, and the Seattle Marine Business Coalition. Speculating on the outcome of the Partnership Process if the committee had included different members is not the purpose of the Final EIS.

I-018-014

According to the Port of Seattle (http://www.portseattle.org/downloads/about/2011_Budget_14_Tax_Levy.pdf), in 2010, the Port used $13 million of tax levy to fund a Transportation & Infrastructure fund (TIF). In 2011, the Port anticipates using an estimated $8 million from the TIF to make a contribution toward the Alaskan Way Viaduct Replacement Project. Port allocations of their TIF are subject to a vote by the Port Commissioners, and not the general public. For 2011, the Port's tax levy will be $73.5 million. Therefore, the money for the viaduct accounts for approximately 11 percent of the 2011 tax levy. Since the millage rate is $0.2235, the amount allocated by the Port to the project, as a millage rate, is $0.0246 (~2.5 cents per $1000 of property value). Other property taxes to fund King County transit services as well as Washington State gasoline taxes collected a the time of fuel purchase would contribute financially to the Alaskan Way Viaduct Replacement Project.

I-018-015

The shoulder widths inside the bored tunnel have been modified since the 2010 Supplemental Draft EIS. The tunnel would have a 2-foot-wide-shoulder on one side and an 8-foot-wide shoulder on the other side. Please see our responses to other similar comments in your letter. In short, we believe that it correct to say that the Bored Tunnel Alternative would improve public safety compared to the existing viaduct structure that also has many aspects that deviate from current roadway standards. For example, much of the viaduct and Battery Street Tunnel does not

I-018-022

volumes. The viaduct has an ADT of 117,000 while along the waterfront the tunnel has an ADT of 86,600. (I presume trip diversion from tunnel-tolling is absent in the latter data.) Setting diversion issues aside and ignoring city street traffic impacts from such diversion, both discussed earlier, would not an assessment based on just these two disparate traffic volumes, for the same corridor, suggest the deep-bore tunnel option is a very poor financial choice? Will the Final SEIS discuss why a lot of money should be spent for a facility that carries less traffic than any elevated alternative, especially a new one located off Alaskan Way along the pier head line, in the style addressed in the earlier PB Elliott Bay study?

I-018-023

40. Chapter 5, page 115, has Exhibit 5-34 pictorially describing the interior of the tunnel along the central waterfront. Accompanying that picture is a section titled **Bored Tunnel and the Central Waterfront**. At the bottom of the middle column it says, "Exhibit 5-34 shows what the interior of the bored tunnel could look like." However, anyone who has traveled in the filthy, dingy, poorly maintained, Battery Street Tunnel may not appreciate such a description since there is a large gap between reality and dreams. Nonetheless, Figure 5-34 does portray the proposed substandard shoulders and assuredly their inability to accommodate handicapped travelers. The left wall of the tunnel portrays diagrammatically (schematically) persons on foot running to the escape exists. But, what about those in wheel chairs? How can they get out of their vehicles? And how do they rapidly get to the escape routes? Will the Final SEIS mention that the handicapped traveler, caught in a fiery accident in the tunnel, is to be sacrificed so that the concept of Figure 5-35, ironically, pedestrians strolling along a non-traffic jammed, sunny Alaskan Way promenade, can happen? Is this an acceptable trade-off? If so, how does it comport with the mandate for engineers in RCW 18.43.010 "… to safeguard life, health, and public property, and to promote the public welfare …"?

41. Exhibit 5-47 on page 126 is the *Generalized Subsurface Profile*. This is an important figure since it shows the bottom of the deep-bore tunnel at an elevation a little below 150 feet (from sea level). A tunnel this far below sea level, in an earthquake, can be expected to fracture at many of the segmented joints that are a part of the building process. This raises the obvious question. How does a handicapped person in a wheelchair expect to escape if (1) he cannot exit his/her vehicle due to the narrow shoulders and (2) if he/she is directed to the previously described "secure waiting area" and has to wait for a rescue? Rescue by whom – a diver? This consideration makes the tunnel an unacceptable option; it clearly relies on creating a sub-class of citizen, the handicapped.

have a roadway shoulder.

Please see Chapter 5 in the Final EIS for traffic comparisons of the tolled and non-tolled build alternatives. Please also see Chapter 5, Question 37 for a discussion of how the tolled and non-tolled build alternatives provide capacity to efficiently move people and goods to and through downtown Seattle. In short, all of the tolled and non-tolled build alternatives provide two through lanes in each direction on SR 99. As you state, if the build alternatives are tolled, some traffic would divert from SR 99 to city streets to avoid paying the toll. This will slow traffic on SR 99 near the stadiums and north of Denny Way, increase congestion at intersections near the off-ramps, and increase traffic volumes on city streets. Even with this traffic diversion and related local congestion, all of the tolled alternatives provide additional capacity beyond the local street system to reliably move traffic to and through downtown. Also, the ramps from SR 99 have queue bypass lanes that will allow transit to avoid some of the congestion.

If the build alternatives are tolled, effects to I-5 are expected to be minimal because it is already at capacity and may change travel times during peak commute times by up to 2 minutes. Effects to city streets associated with tolling would be more pronounced and are discussed in Chapter 5. Effects to city streets from the tolled build alternatives are expected to be comparable. Taken together, these results support the fact that all alternatives with or without tolls provide sufficient capacity to move people and goods, but there are tradeoffs in the way traffic is accommodated.

During the Partnership Process, the evaluation under guiding principle 5, fiscal responsibility, considered the capital and operating cost estimates of the scenarios. Costs were modified to account for contingency and risk, and a construction phasing plan was developed that allowed these costs to be escalated to year-of-expenditure dollars. Funding sources

I-018-024

42. Exhibit 5-47 also provides a hint of the steep grades in the deep-bore tunnel near the south portal. Unfortunately, and possibly as an oversight, not addressed in the SDEIS are the consequences of these steep grades. Likewise, also not documented in this document, is the fact that WSDOT has already sought and received permission from FHWA for what was titled "Design Deviation Number 3, SR 99 Length of Grade". Long grades are problematical since both traffic safety and vehicular capacity are compromised. (See Highway Research Board *Special Report 87,* Figure 5.5, *Average speed of typical truck over entire length of grade on two-lane highways* as a case in point.) The maximum permitted grade for this class of highway is 5 percent for no more than 900 feet. This design standard is not apparently met from a review of this small-scale figure. The Final SEIS must make note of this fact. Fundamentally, this design deviation cannot be considered minor or insignificant; it is substantial.

43. Chapter 5, the *Bored Tunnel Alternative*, at page 128 in the 2nd column, has the bulleted statement, "Improve traffic safety". A prudent engineer should take exception to this clearly misleading statement in consideration of the following facts. The deep-bore tunnel option has a series of abrogated designs including *Design Deviation Number 1*, SR 99 Shoulder Width (Inside and Outside), *Design Deviation Number 2*, SR 99 Left Off/On-Ramps, and *Design Deviation Number 3*, SR 99 Length of Grade, a reduction in vertical clearance from 16.5 feet to 15 feet *See Design Manual*, page 720-4, a reduction in *lane width* from 12 feet to 11 feet *See Design Manual*, page 1140-16 and, last, increasing the left-shoulder of the NB lanes from 4 to 6 feet in direct contravention of the WSDOT *Design Manual* and the ASHTO *Policy on Geometric Design of Highways and Streets* Reference, page 459 of the 2001 edition. All these disparate design changes must lead to the question, "What are the "interaction effects" and "main effects" (to coin the terms used in a statistical factorial analysis) that will result from these outwardly, non-connected actions?" They remain to be seen. To date, the SDEIS is bereft of any mention of these issues. In the case of narrow shoulders the research record is clear. For example, the most recent research on tunnel accidents was published in China. It is entitled, *Characteristics of Traffic Accidents in Chinese Freeway Tunnels*, Chang'an University, China, 2008. This research looked at four tunnels ranging in length from 0.12 to 1.8 miles. In two years (2003, 2004) there were 134 accidents that included 6 fatalities, 32 injuries and 96-property damage only types. Freeway style tunnels, like the subject deep bore tunnel, are assuredly dangerous places, the data suggests, even in tunnels shorter than the proposed Alaskan Way Viaduct replacement tunnel. To be complete and accurate the Final SEIS, a public record, must include this example.

and limitations of funds both committed and potential were considered. The anticipated design life of all SR 99 and seawall replacement concepts were considered, per applicable design standards. The state's total contribution to the project has been limited to $2.8 billion, including commitments already made to the Moving Forward projects. This threshold became a major consideration when viewing the costs of the SR 99 component and the need to find additional funding sources. In the end, the costs were weighed against the degree to which other guiding principles are met.

I-018-016

Several concepts were considered that would construct a bridge over Elliott Bay as an alternative to reconstructing the viaduct in its current location. However, these concepts were screened out for several reasons:

- A bridge over Elliott Bay would restrict navigation within Elliott Bay, which would affect both the Port of Seattle's container terminal operations and the Washington State Ferry operations at Colman Dock.
- Obtaining the necessary permits for in-water bridge construction would be extremely difficult.
- The bridge concept has visual quality impacts that are not consistent with the City's existing land use and shoreline plans.

I-018-017

Chapter 5, page 94-95 of the 2010 Supplemental Draft EIS discusses this issue. As the text states, for the bored tunnel, the deviation in shoulder width is required to minimize the diameter of the bored tunnel. All deviations would be approved by WSDOT and FHWA to ensure that the roadway is safely built for travelers. The total shoulder width is divided such that the 8-foot wide shoulder is always adjacent to the side of the tunnel that houses the emergency tunnel exits, secure waiting areas, and emergency walkway.

I-018-025

44. To continue with the stated concept of this SDEIS on page 128 that the deep-bore tunnel will "Improve traffic safety" it may be appropriate to also consider more local experience. For example, when considering the substandard roadway geometry of the deep bore tunnel, geometrics that clearly fail to meet the adopted highway safety standards, it is appropriate to recall a few fatal accidents that have taken place in the first few months of this very year, 2010. They include:

- January 10th, 2010 @ 5:30 p.m., a fatal accident on SR 18 caused entirely by the narrow shoulder and a disabled Dodge Neon struck by a motorcycle:
- January 20th, 2010, an evening peak hour collision on the Alex Fraser Bridge in Vancouver B.C. involving a disabled car in the northbound curb lane struck by a flatbed commercial vehicle, which, in turn, flipped it over causing it to strike a third vehicle. The resulting fire was so intense that the driver of the third vehicle, who was killed, could not be identified. The fire was so strong that the entire bridge had to be repaired and inspected before it could open to traffic.
- March 24, 2010, an early morning accident on SR 167 involving an automobile striking the rear end of a parked semi, again due to a narrow shoulder.
- March 29, 2010, 2:00 p.m. involving an automobile striking the rear of a parked car on the shoulder of I-5 that was being refueled from a gallon can by the driver.

With four fatal accidents in three months involving disabled cars parked on narrow highway shoulders, what would have happened if any of these had occurred in the subject Alaskan Way Deep Bore tunnel? This concern needs to be clearly stated in the Final SEIS due to its importance.

45. Chapter 5, the *Bored Tunnel Alternative*, at page 128 in the 2nd column, also has the bulleted statement, "Avoid major disruption of traffic patterns due to loss of capacity on SR 99." From all of the above examples of accidents in tunnels and accidents associated with major arterial facilities that have substandard shoulders, there will be unquestionably "major disruption" to traffic in the proposed tunnel, not the least due to the inability of first responders and tow-trucks to timely reach and clear accident scenes by virtue of minimal shoulder widths. Consequently, the Final SEIS must not attempt to hide or otherwise cover-up the potential failure of the deep-bore tunnel to meet this mandate, particularly when contrasted against above ground alternatives with improved geometrics per adopted standards.

I look forward to your addressing these comments in the Final SEIS.

Sincerely,

Christopher V. Brown, P.E.

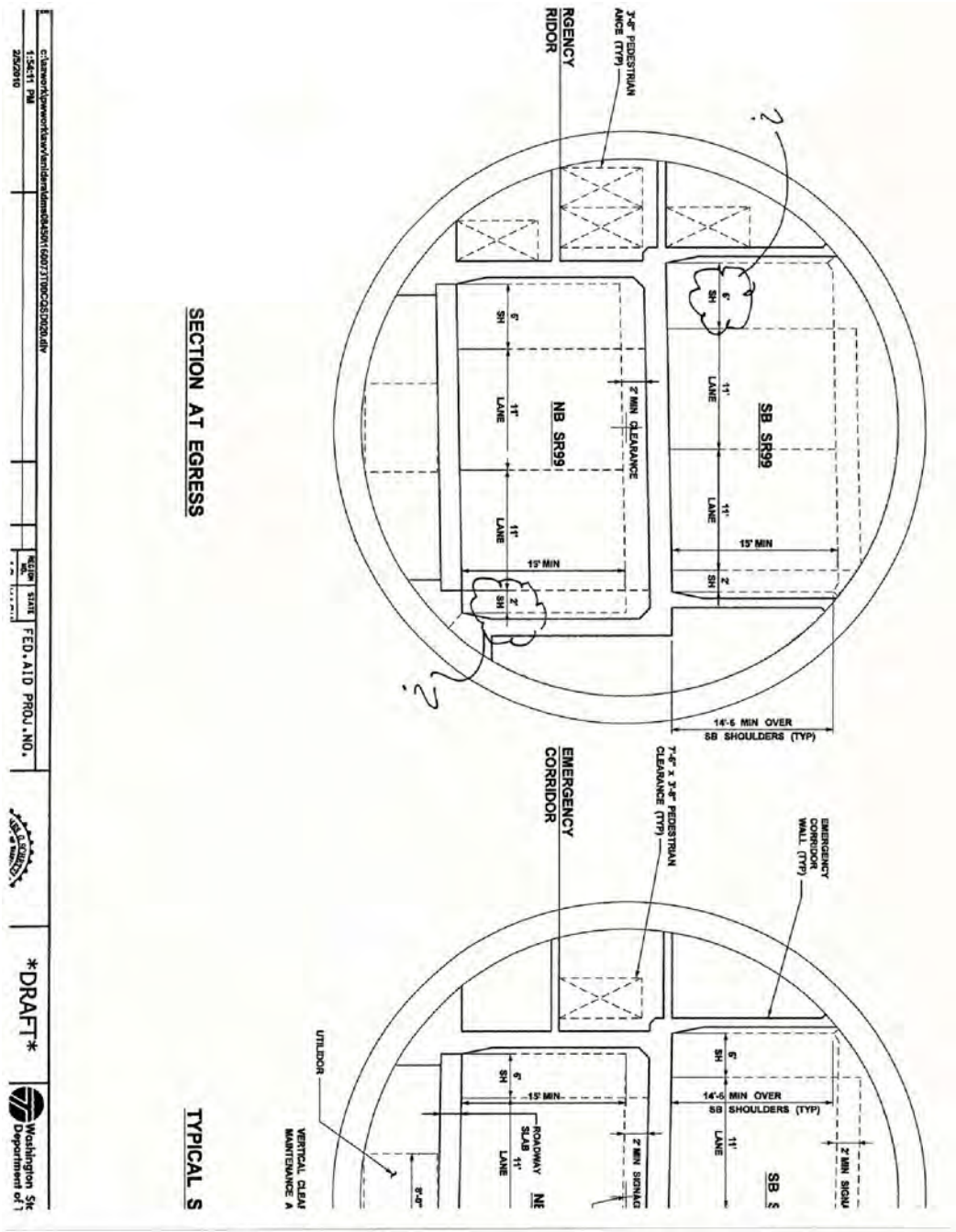
I-018-018

The suggested alternative regarding the catastrophic and complete collapse of the bored tunnel is not possible within the framework of NEPA. Since the bored tunnel has not yet been built, an alternative analysis that involves its failure is speculative. This analysis is appropriate for the existing viaduct because it has been constructed and its seismic vulnerabilities have been well documented.

The preferred Bored Tunnel Alternative is a safe alternative. Generally, structural engineers agree that tunnels are one of the safest places to be during an earthquake because the tunnel moves with the earth. No Seattle tunnels were damaged during the 2001 Nisqually earthquake, including the Mt. Baker and Mercer Island I-90 tunnels, Battery Street Tunnel, Third Avenue Bus Tunnel, and Burlington Northern Tunnel. The bored tunnel would be built to current seismic standards, which are considerably more stringent than what was in place when the viaduct was built in the early 1950s. The bored tunnel design includes improving relatively soft, liquefiable soils found near the south tunnel portal. Emergency exits would be provided every 650 feet in the tunnel. Project engineers have studied current data on global warming and possible sea level rise and concluded that the seawall provides enough room to protect the tunnel from rising sea levels. The engineers also considered the possible threat of tsunamis during the design process.

I-018-019

Pages 109 and 110 of the 2010 Supplemental Draft EIS presents information on transit ridership, transit mode share, and transit travel times, including those in the south area of the project corridor. The project would include features such as a bus-only lane in the northbound off-ramp from SR 99 in the stadium area. Also, transit speed and reliability improvements that would be implemented in the south end would support transit operations during project construction.



With the Bored Tunnel Alternative, bus routes from West Seattle and south King County would exit to downtown farther south than the current access locations at Senca and Columbia Streets. While this routing change would expand the bus service coverage, it would also increase travel times for some riders.

I-018-020

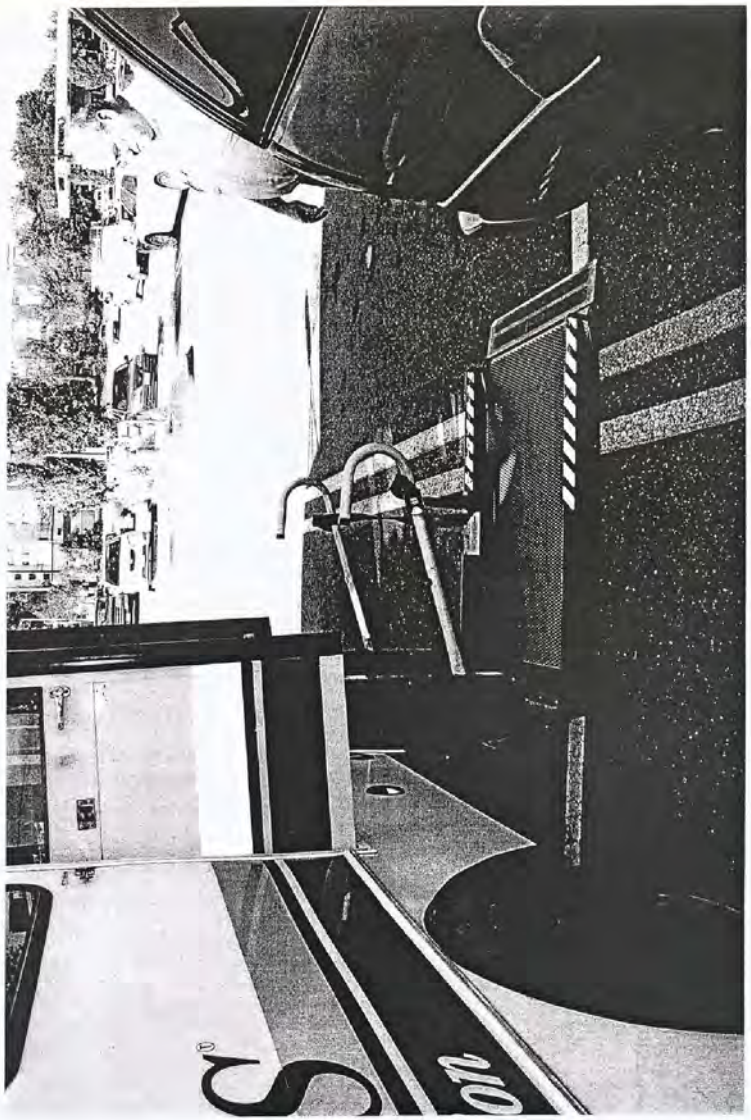
The Port of Seattle has been closely involved in project planning and is satisfied with access to the proposed bored tunnel from terminals near the south end of the project. Access to the south portal will be via the new construction as part of the S. Holgate to S. King Street Replacement Project. Freight traffic going northbound through the bored tunnel will access the south portal via eastbound S. Atlantic Street and then left on the new east frontage road.

Access from areas to the north will be provided by improvements along the Alaskan Way surface street along the central waterfront, including a new structure connecting to Elliott and Western Avenues, that are being led by the City of Seattle. A new ramp from the new overcrossing near the port entrance will allow freight a direct connection to northbound Alaskan Way.

The Port of Seattle is strongly supportive of this project as documented on their website: http://www.portseattle.org/community/development/regionaltransport.shtml

The Port is working with WSDOT, the City of Seattle, and King County to ensure that the project meets the Port's needs and can be funded. The Port Commission believes that the replacement of the Viaduct should achieve the best balance among retaining and creating jobs, sustaining regional economic vitality, and benefiting the environment.

In 2010, the Port used $13 million of tax levy to fund a Transportation &



Infrastructure fund (TIF). In 2011, the Port anticipates using an estimated $8 million from the TIF to make a contribution toward the replacement of the Alaskan Way Viaduct (SR99) project. The $8 million represents approximately 8 percent of the Port's 2011 tax levy and 0.4 percent of the total project cost. (http://www.portseattle.org/downloads/about/2011_Budget_14_Tax_Levy.pdf)

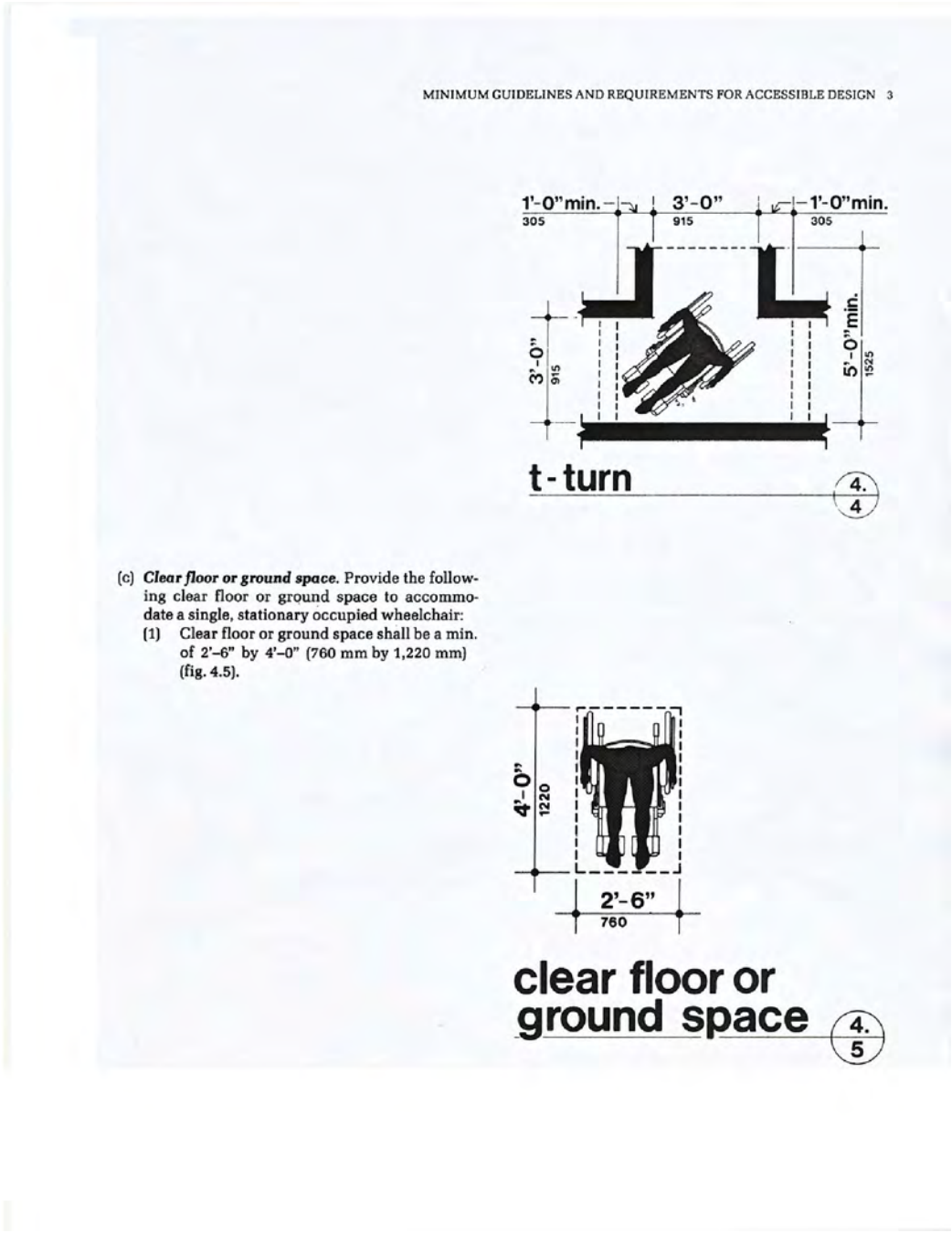
I-018-021

The south portal tunnel operations building is proposed to be constructed in a portion of Railroad Avenue South right of way under existing ramps. The building would be designed to fit into the surrounding neighborhood. Within this area, the dominant visual feature, as viewed from the sea, is Qwest Field. To compare the visual impact of a one-block building in the foreground of a large sports stadium to the visual impact of 7,600 linear feet of double-decker elevated freeway is disingenuous.

I-018-022

Level of service was analyzed and is provided in the Final EIS in addition to travel speeds. Please refer to Appendix C, Transportation Discipline Report for additional details. The differences in traffic volumes between S. King Street and just north of Seneca Street are expected to be lower with the Bored Tunnel Alternative becauseElliott and Western Avenue ramps and Columbia and Seneca street ramps would be removed. The volume difference (approximately 30,000 vehicles per day) would be expected to be absorbed on downtown city streets through the use of the exit ramps at the south and north portals. The through traffic volume on the Bored Tunnel Alternative, when compared to the through traffic volume on the existing viaduct, as represented by the traffic volume through the Battery Street Tunnel, is actually greater than the existing viaduct.

The Final EIS does not discuss the expenditure of money in relation to the capacity of the proposed facility. Refer to the Final EIS for a



discussion of the purpose of and need for the project, as well as cost information.

I-018-023

Please see the response to comment I-018-007 whcih addresses ADA compliance for the Bored Tunnel Alternative.

I-018-024

Protecting public safety is the highest priority for both FHWA and WSDOT. All build alternatives would improve traffic safety on SR 99 compared to existing conditions. All build alternatives would replace SR 99 with a facility that would improve upon existing geometrics and meet roadway design standards where feasible. For all build alternatives, there are specific areas where deviations from current roadway design standards would be needed, but all would replace SR 99 with a facility that is far closer to meeting full current roadway design standards than the existing facility. All deviations will be approved by WSDOT and FHWA to ensure that the roadway is built to be a safe facility for travelers. The deviations are carefully reviewed within these agencies by staff who are independent of the project teams.

For instance, the Bored Tunnel Alternative would replace the existing Battery Street Tunnel, which has narrow lanes, no shoulders, and abrupt curves. The Battery Street Tunnel would be replaced by the new bored tunnel, which would have two 11-foot lanes in each direction, a 2-foot-wide shoulder on one side and an 8-foot-wide shoulder on the other side, and the abrupt curves would be eliminated. These improvements would improve safety for drivers compared to existing conditions. These Battery Street Tunnel deficiencies would be only partially remedied with improvements proposed for the Cut-and-Cover Tunnel and Elevated Structure Alternatives.

The proposed grades in the bored tunnel were included in the

transportation analysis models and results indicate they are not expected to pose an impact to traffic traveling in the tunnel. Please see Chapter 5 of the Final EIS and Appendix C, Transportation Discipline Report, for the updated transportation analysis.

I-018-025

The lead agencies disagree that the roadway geometry of the bored tunnel is substandard. The Alaskan Way Viaduct Replacement Project design team used the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets, 2004*. This publication provides guidance on tunnel cross sectional geometry. The proposed bored tunnel meets the minimum cross sectional width of 30 feet between the tunnel walls. The bored tunnel would have two 11-foot travel lanes, a 8-foot west side shoulder, and a 2-foot east side shoulder.

As the 2010 Supplemental Draft EIS explains, the tunnel would be equipped with a ventilation, a fire detection and suppression system, and drainage. Video cameras would provide real-time information to the operators at WSDOT's 24-hour tunnel control center, which would allow them to respond quickly to emergencies.

Appendix C, Transportation Discipline Report, also addresses traffic safety issues.

The referenced bullet on page 128 of the 2010 Supplemental Draft EIS does not refer to the temporary loss of capacity on SR 99 due to traffic accidents. That type of loss of capacity is unavoidable for all the proposed build alternatives. Rather, the loss of capacity on SR 99 refers to what would happen should WSDOT choose to not pursue replacement of the viaduct (catastrophic failure or closed) with a new facility, in this case, the Bored Tunnel Alternative.