From: Integrity Structural Engineering [IntegritySE@att.net]
Sent: Monday, December 13, 2010 4:26 PM
To: AWV SDEIS Comments
Subject: 2010 SDEIS Comment

Importance: High

Dear WSDOT Tunnel Engineers,

I-156-001

I have reviewed your design proposals and concepts and am extremely upset. Your proposal for only two lanes of traffic in each direction and no downtown access on this major infrastructure element to our community is a complete contradiction to the fundamental purpose of your proposed action. The change from three lanes of traffic on the Viaduct each way, eliminating the traffic capacity of one lane each direction, and the elimination of four downtown access points to the heart of Seattle creates major disruption of traffic patterns on SR 99. This change also will add 20 minutes of travel time to each vehicle. That added travel time compared to direct access today, they must drive through the town and work back through the basic lights or exit SR 99 entirely and again travel through town along the basic surface streets with traffic lights, pedestrians, and all the other commercial and traffic added. This is just the tip of the design where you are not addressing the needs of this community of travelers using this facility and are proposing in fact to heavily damaging them every day for the rest of their travels on this route and burden the entire state with billions of dollars in replacement costs to do it. In the past every federally funded project I have worked on required a 20-year projection of the traffic model to demonstrate achieving the current needs now and at least 20-years into the future before valuable federal money can be spent on a proposal that will damage the individuals you owe an ethical obligation to. Yet you have impacted us greatly with this proposal and ignored the damages.

I-156-002

Now consider the huge environmental implications of your proposals where hundreds of thousands of cars are each expending more fuel for added miles of travel and 20 minutes of added travel time each way. Add to this the increase amount of vehicle emissions you WSDOT Tunnel Engineers will have created. Continue the same concept into maintenance of your facility. All that generated exhaust must now be removed from the tunnels 24 hours per day, every day, with mechanical fans that require energy cost, maintenance, and future facility repair/replacement costs (how long does a fan last?) that is required in perpetuity. This is compared to a current bridge system with $0 of these costs. The tunnel also requires lighting 24 hours per day, the bridge does not. Your proposed tunnel is below the sea water elevation and will require pumping power costs, maintenance, and facilities costs in perpetuity to keep the sea water, ground water, and rain water drained out of this lower tunnel. The Seattle area is listed as critical for tsunamis and this facility will be filled with water should one occur and it would cause months if not a year of closure of your tunnel for work to pump the water, remove the bodies, cars/trucks, and repair the facilities to this underground trap you have created. A bridge such as the replacement viaduct would likely withstand such initial water pulse without critical damage (see the hotels of the recent Pacific tsunamis, all still stood) and would be reopen to usage within days. What is the tsunami level created from the earthquake seismic level you are designing for? These are not independent conditions and with the size of seismic activity designed a tsunami would also occur.

I-156-003

You tunnel engineers and our politicians have wasted millions of dollars of our precious resources on this fools errand. False statements such as those of the governor, that the tunnel bid is under budget, (the maximum allowed is $1,090 million. Your low bid was $1,089.7 million and you say this is under budget!). Even the rehabilitation of the existing bridge provides more community benefits including downtown access points (four more than the tunnel), three traffic lanes each direction plus turn out ramp lanes at select existing access ramps, and each at cost less than the billions proposed with your tunnel. The rehabilitation of this bridge was also SPECIFICALLY considered and addressed by M.J. Nigel Priestly, PhD and Frieder Seible, PhD including Plans and Prototype geometry for the Retrofit of Double

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It is recognized that the Bored Tunnel Alternative would result in some changes to travel routes due to ramp reconfigurations and relocations. For instance, traffic using the Stadium area ramps to access downtown would disperse over several city arterials, including the improved Alaskan Way, First, Second, and Fourth Avenues. The analysis of traffic conditions did include long-range (20 year) projections of traffic flow along the corridor and on parallel arterials. Updated analysis has been included in the Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis.

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The Final EIS Chapter 1, Introduction, describes the Purpose and Need for the project and one of several purposes is to provide capacity for automobiles, freight, and transit to efficiently move people and goods to and through downtown Seattle. All of the alternatives have been evaluated based on their ability to meet the Purpose and Need. Appendix C, Transportation Discipline Report, addresses the importance of the viaduct as a transportation corridor. It also covers issues related to the travel times and vehicle miles traveled for each build alternative.

The lead agencies have identified the Bored Tunnel Alternative as the preferred alternative due to its ability to best meet the project's identified purposes and needs and the support it has received from diverse interests. Specifically, compared to the Cut-and-Cover Tunnel and Elevated Structure Alternatives, it avoids substantial closure of SR 99 during construction and it can be built in a shorter period of time than the other two alternatives. Extended closure of SR 99 would have severe adverse effects on Seattle and the Puget Sound region. Chapters 5 (Permanent Effects) and 6 (Construction Effects) in the Final EIS provides a more in-depth comparison of tradeoffs for the alternatives. The Bored Tunnel Alternative is expected to result in a slight decrease in energy consumptions when completed in 2015 because it is expected to

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Decker bridges in July 1991. See Report No. SSRP -91/93 Seismic Assessment and Retrofit of Bridges. Professor Priestley and Seible's seismic retrofit of bridge's work is on all our bridge reference shelves and if you are looking to verify their credibility and application, check these "WSDOT Tunnel Engineers" library and you will also see their copy of "Seismic Design and Retrofit of Bridges" by Priestly Seible, & Calvi on the shelf.

Please rethink and eliminate this Tunnel proposal which is society damaging and a waste of very limited resources for the rest of our lives. Thank you for the opportunity to present my concerns and the fundamental flaws of this project proposal.

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have slightly fewer vehicle miles traveled than the 2015 existing viaduct. The total energy use in 2030 is expected to increase compared to 2015 due to the expected increase in vehicle volumes. Appendix R, Energy Discipline Report, explains the methods used for assessing existing conditions and environmental effects.

Air quality is not expected to be affected by the Bored Tunnel Alternative. However, greenhouse gas emissions are predicted to increase by 2030 because of the increases in future vehicular volumes and the power needed to operate tunnel operations and lighting systems. Most greenhouse gas emissions with thee Bored Tunnel Alternative would come from vehicle emissions. Greenhouse gas effects are explained in Appendix R, Energy Discipline Report.

The 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.

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WSDOT has thoroughly investigated rebuilding or retrofitting the Alaskan Way Viaduct and determined that is not a prudent use of public monies.

Please see Chapter 2 of this Final EIS for a description of how alternatives were developed.