

Memorandum

To: DSA Board of Trustees

From: Viaduct Task Force

Date: July 17, 2006

Re: Retrofit and Peoples Waterfront Coalition Proposal Review and Recommendation

Background

On January 14, 2004 the Viaduct Task Force recommended to the DSA Board that the DSA support the Tunnel Alternative. (Six lane underground tunnel through the central waterfront with a four lane surface street.) At that time the Task Force reviewed five options considered in the Draft Environmental Impact Statement (DEIS):

- Six Lane Tunnel
- Four Lane Bypass Tunnel
- Surface Alternative
- Rebuild (Existing Footprint)
- Aerial (Larger Footprint)

After considering these options, the Alaskan Way Viaduct Task Force recommended that the DSA support the Tunnel Alternative. The Task Force reached this recommendation by judging each alternative against the "Design Principles for Replacing the Alaskan Way Viaduct", approved by the DSA Board in July 2003:

- Retain access and capacity through, to and from Downtown.
- Fix the safety risk of the Viaduct and Seawall.
- Coordinate construction with Light Rail and Monorail.
- Increase access to and use of the waterfront.
- Address parking and ferry traffic needs appropriately.

While the DSA continues to support the Tunnel as the alternative that best meets the design/policy objectives outlined above, a number of alternatives, somewhat similar to alternatives that were studied in the DEIS and discarded, have recently begun to get attention from the media and DSA members. In addition, the rebuild alternative that was studied in the DEIS and selected as the alternative choice has since been discarded by the project team and replaced by a slightly smaller version of the Aerial structure that was studied and discarded in the DEIS as the other alternative being given serious consideration. In recognition of this ongoing public debate the Viaduct Task Force has undertaken a review of these alternatives to determine if any of them are sufficiently compelling in their conception and detail to warrant further serious consideration, given the current status of the project.

There are two key issues that are providing an impetus to the public to look for alternatives to the two leading replacement alternatives: project cost and construction impact. The current cost of the option preferred by the Mayor and a majority of the City Council, the Tunnel (\$3.1 to \$3.6 billion for the core project), exceeds the available funding for the project (approximately \$2.5 billion). Additionally, as WSDOT has begun to better identify the significant construction impacts caused by this project, which will result in closure of SR-99 ranging from a 50% closure for 9 to 10 years to a complete closure for 2 to 3 years, a number of impacted groups have advanced alternatives they believe will either reduce construction impacts to the waterfront and downtown Seattle or traffic impacts to SR-99, or both. Project construction transportation and business impacts are a major concern of the DSA, and will be addressed in more detail by the Task Force in the coming months.

Aerial Alternative

The Task Force remains strongly opposed to the aerial alternative currently being proposed by WSDOT, because the task force members feel that aerial roads are fundamentally inconsistent with one of DSA's primary design objectives for this project: Increase access to and use of the waterfront. At this point the Viaduct Task Force is offering a recommendation to the Executive Committee on 2 of the alternatives raised by the public, the viaduct retrofit proposal and the People's Waterfront Coalition proposal.

Retrofit Alternative

Background

The Washington State Dept. of Transportation (WSDOT) has considered and studied the possibility of retrofitting the Alaskan Way Viaduct since the 1990s. WSDOT began studying viaduct retrofit/replacement after the 1989 San Francisco earthquake destroyed a similar structure. Following the magnitude 6.8 Nisqually Earthquake on February 28, 2001, WSDOT reviewed the condition of the Alaskan Way Viaduct and found significant structural damage in the vicinity of Pioneer Square. Temporary bracing was locally erected to support the viaduct and traffic was restricted on certain lanes. WSDOT then assembled a group of 6 internationally recognized bridge engineers, termed the Structural Sufficiency Review Panel (SSRP), to review the long-term performance of the viaduct and to advise the state on repair and replacement options. In 2001 the SSRP recommended against retrofitting the Viaduct, and supported replacing the existing viaduct with a new structure.

In 2002 local members of the American Society of Civil Engineers (ASCE) reviewed WSDOT data on the condition of the viaduct and also recommended against retrofitting. In 2002, Victor Gray and Neil Twelker, 2 local civil engineers, proposed to WSDOT that rather than rebuild the Viaduct that the viaduct could be retrofitted, using "base isolation" – placing the deck structure on rollers that allow it to move independent of the base - to better withstand seismic events. Based on the SSRC and ASCE reviews and recommendations, and the assessment of state bridge engineers, WSDOT chose not to pursue the Gray/Twelker base isolation proposal.

In May of 2006 Gray and Twelker submitted a new retrofit proposal to WSDOT, which involves base isolation, ground injection of grout to stabilize the column foundations, and lateral bracing of the structures. Gray and Twelker believe that this proposal could be implemented, with repairs to the Seawall, for approximately \$800 million. WSDOT opposes this proposal for the following reasons:

- Retrofit does not bring the structure up to current FHWA design requirements.
- Concrete and rebar within the structure are compromised by age and corrosion – retrofit does not address this problem.
- Foundations are sinking, and may compromise integrity of structure – retrofit does not address settling of structure.
- Much of the structure would have to be rebuilt – in excess of what Gray/Twelker propose, which would drive cost above \$800 million.
- Both base isolation and seismic bracing shift seismic forces from retrofitted location to other locations which may not be able to bear force in a seismic event and fail.
- Retrofitting has a life cycle of approximately 30 years – this alternative merely defers action. Comparatively, the Tunnel has a life cycle of 100 years and an elevated structure 75 to 100 years.

WSDOT has retained T.Y. Lin International to conduct a review of the Gray/Twelker retrofit proposal, and verify feasibility, cost estimates, and provide a recommendation. They believe that the T.Y. Lin report will be issued in late July.

The Options Workgroup discussed this proposal at their June 23rd, July 6th, and July 12th meetings. In considering this option the Workgroup concluded that while this option may offer a more cost effective solution (\$800 million) it is only a short-term solution (approximately 30 years), and simply defers the need for a more permanent solution. Additionally, a retrofit does not achieve one of the critical DSA design goals of increasing access to and the use of the waterfront. In fact, a retrofitted structure would exacerbate the adverse impact of the elevated structure on quality of downtown and waterfront urban environment, because of the visual impact of side and cross bracing along the waterfront and the associated loss of parking.

Consequently, the work group decided to forward a recommendation to the Task Force in the absence of a final recommendation from T.Y. Lin or WSDOT, because irrespective of feasibility and the accuracy of cost estimates, the group felt that a retrofit failed to meet DSA goals for a replacement structure.

Recommendation: Reject retrofit proposal.

People's Waterfront Coalition Option

The Surface Option is being advanced by the People's Waterfront Coalition (PWC), who believe that the viaduct can be demolished and that much of the current traffic capacity provided by the Viaduct (approximately 110,000 vehicles/day) can be replaced, on a reduced basis, through a combination of surface street, I-5, and transit improvements.

Carry Moon, of the PWC, presented to the Viaduct Task Force on June 28th, and the Workgroup reviewed her proposal at their July 6th and 12th meetings.

Proposal Cost: \$800 million (PWC) – \$2.5 Billion (WSDOT)

- Viaduct Demolition and Surface Restoration
- Downtown Street Grid Improvements
 - North End Distributor
 - South End Distributor
 - Maximize N/S Downtown Streets
- Enhanced Transit Service

How Proposal Meets Current Capacity:

- | | |
|---|-------------------------|
| • Disperse Trips to N/S Street Grid and I-5 | (25,000 – 40,000 Trips) |
| • New Alaskan Way Capacity | (15,000-20,000) |
| • New Transit Service | (20,000 – 30,000) |
| • Chose Not to Take Trip | (25,000 – 30,000) |
| Total: | (65,000 – 120,000) |

WSDOT projects that by 2030 traffic volumes on SR-99 will be approximately 137,000 vehicles per day. The PWC contends that through effective land use planning and enhanced investments in transit, Seattle could accommodate that anticipated growth. They contend that there are examples of other urban centers, such as Vancouver, BC and Zurich, Switzerland, that grew dramatically without traffic volumes increasing, because of increasing density and creating livable and walkable neighborhoods.¹

WSDOT conducted a review of a 4 Lane Alaskan Way surface option, and its conclusions painted a dire picture of the consequences of such a plan.

- Surface Alaskan Way would carry a fourfold increase in traffic along the central waterfront; between 35,000 and 56,000 vehicles per day. Heavy traffic congestion would be experienced all day.

¹ Stuart Ramsey, "Of Mice and Elephants," ITE Journal, September 2005.

- Traffic downtown and in Pioneer Square would increase 30% to 50%. The downtown street grid would not have sufficient capacity to accommodate the additional demand during peak periods, and highly congested conditions would be expected for much of the day.
- Demand on I-5 is forecast to increase by 24,000 to 33,000 vehicles per day, a 7% to 10% increase over forecast conditions with the AWV in place. This impact is in addition to a nearly 70,000 vehicle increase that is predicted due to population and commercial growth in the region by 2030. With this level of demand, severe congestion would occur all day, as capacity constraints would restrict throughput on the corridor. (This assumes downtown street exit elimination and consolidation and creation of a 3rd through-lane of I-5)
- Accessibility to downtown and between Seattle's neighborhoods would be reduced for trips that pass through the downtown area.²

After reviewing the Surface Alternative, the Workgroup concluded that while it is an intriguing proposal, it does not affirmatively address WSDOT's priority of maintaining existing corridor capacity. This reality has both physical and political consequences as WSDOT Secretary Doug McDonald in an April 6, 2006 letter to Councilmember David Della clearly cited the Surface Option and indicated that State funds would not be available for projects that did not at least duplicate existing capacity.

Moreover, while there is room to debate the potential traffic consequences of eliminating the viaduct, WSDOT's analysis indicates a substantial increase in traffic congestion on I-5, downtown streets and Alaska Way, adversely affecting quality of downtown and waterfront urban environment. In the absence of a compelling analysis to counter this argument, the Workgroup felt that supporting the Surface Alternative required too great a leap of faith.

Recommendation: Reject the Surface Alternative.

² Washington State Department of Transportation, "AWV No Replacement Concept," July 2005