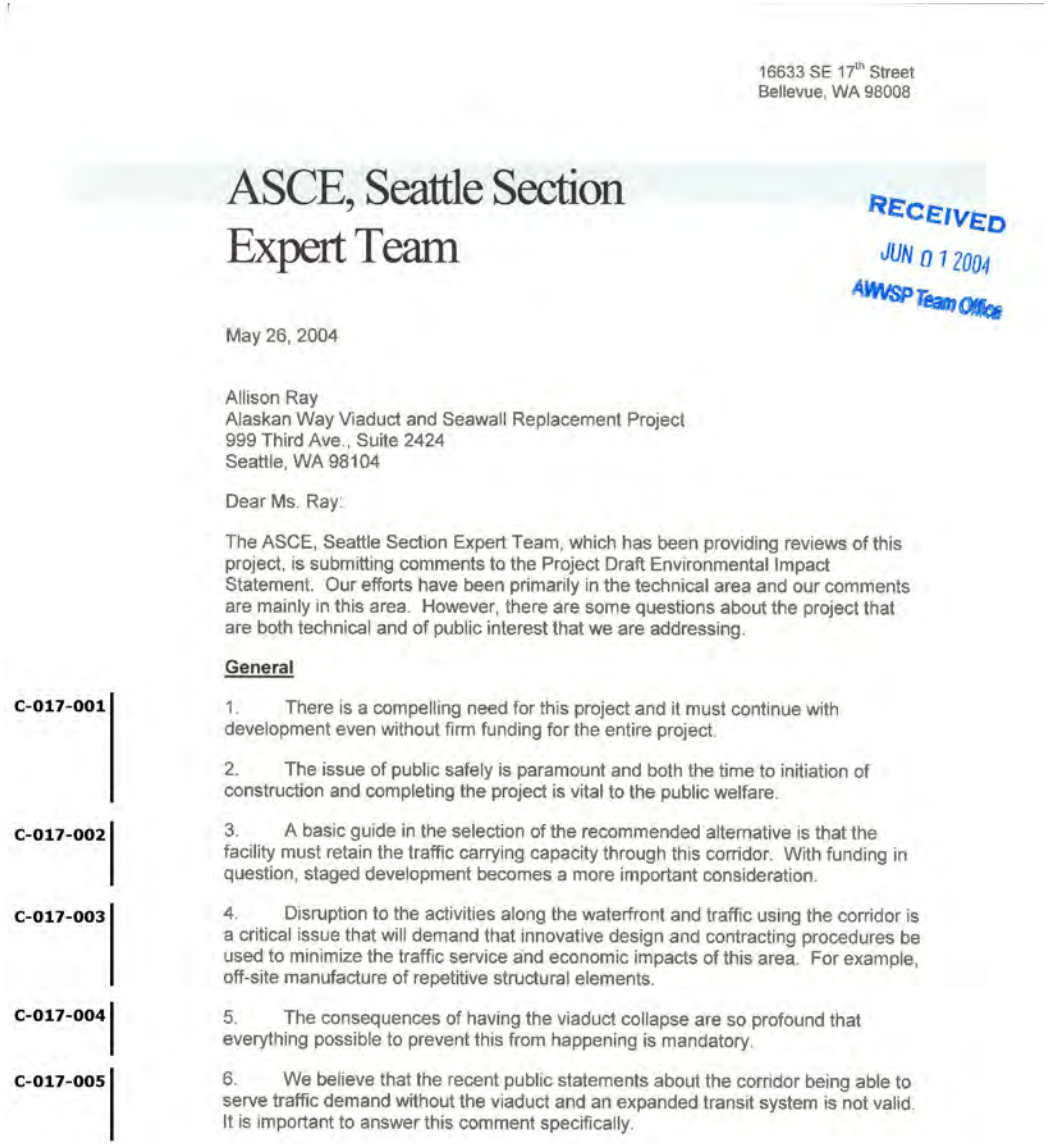

16633 SE 17th Street
Bellevue, WA 98008

ASCE, Seattle Section Expert Team

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JUN 01 2004
AWVSP Team Office

May 26, 2004

Allison Ray
Alaskan Way Viaduct and Seawall Replacement Project
999 Third Ave., Suite 2424
Seattle, WA 98104

Dear Ms. Ray:

The ASCE, Seattle Section Expert Team, which has been providing reviews of this project, is submitting comments to the Project Draft Environmental Impact Statement. Our efforts have been primarily in the technical area and our comments are mainly in this area. However, there are some questions about the project that are both technical and of public interest that we are addressing.

General

C-017-001 1. There is a compelling need for this project and it must continue with development even without firm funding for the entire project.

2. The issue of public safely is paramount and both the time to initiation of construction and completing the project is vital to the public welfare.

C-017-002 3. A basic guide in the selection of the recommended alternative is that the facility must retain the traffic carrying capacity through this corridor. With funding in question, staged development becomes a more important consideration.

C-017-003 4. Disruption to the activities along the waterfront and traffic using the corridor is a critical issue that will demand that innovative design and contracting procedures be used to minimize the traffic service and economic impacts of this area. For example, off-site manufacture of repetitive structural elements.

C-017-004 5. The consequences of having the viaduct collapse are so profound that everything possible to prevent this from happening is mandatory.

C-017-005 6. We believe that the recent public statements about the corridor being able to serve traffic demand without the viaduct and an expanded transit system is not valid. It is important to answer this comment specifically.

C-017-001

Changes to the Alaskan Way Viaduct Replacement Project since the Draft and Supplemental Draft EISs are described in Chapter 2 of the Final EIS.

FHWA, WSDOT, and the City of Seattle agree that this project is needed and vital to public safety. The purpose and need for the project is described in Chapter 1 of the Final EIS.

C-017-002

The preferred alternative will maintain the existing vehicle capacity in the corridor. Proposed construction phasing for the project is described in the Final EIS Appendix B, Alternatives Description and Construction Methods Discipline Report, and Chapter 3 of the Final EIS.

C-017-003

The Bored Tunnel Alternative minimizes disruption to the waterfront during construction because the alignment allows the existing viaduct to remain in service until the bored tunnel is brought into service. Repetitive structural elements for the bored tunnel, such as the tunnel lining segments, will be manufactured off-site at a pre-casting yard.

C-017-004

Both the necessity and the urgency of viaduct and seawall replacement is described in the Draft EIS in Chapter 1. The deterioration of both the viaduct and seawall has been well-documented by numerous engineering studies conducted by structural design and seismic experts since the mid-1990s and again following the February 2001 Nisqually earthquake, which necessitated emergency repairs to the viaduct structure. The consequences of collapse of either structure would indeed be dire for the city, and region in terms of possible injury or harm to people, loss of mobility, and associated substantial economic losses.

C-017-006

7. The Surface Alternative is not a valid option to serve the travel demand in this corridor.

C-017-007

8. It should be emphasized that tunnel construction is inherently more risky than aerial work and should be reflected in the cost estimates.

System

C-017-008

1. Cost continues to be a major issue. It seems evident that the City of Seattle and the Port receive the greatest benefit, if added capacity is obtained, as the project does little to help regional travel problems. The selected alternative should be the lowest cost alternative that has the greatest benefit to local and regional traffic.

C-017-009

2. It very interesting that only the Surface Alternative has a negative effect on I-5 and only by an increase in the future ADT of 22,000. Travel time increases may be used as a major argument, but if they are "Seattle trips" only, it is not a major regional issue. The lower cost alternatives that give the best reasonable benefits should have the highest consideration as they preserve funding for the many needed regional projects.

C-017-010

3. There will be strong local support to rid Seattle of the double deck viaduct and there is merit from a regional tourist perspective to improve the view from the city and enhance the waterfront experience, but are the increased costs justified? The Surface Alternative accomplishes the aesthetic goals, has a short construction period and is lowest cost, but does not have adequate capacity. While the Tunnel may have the greatest advantages, the cost is $1.3 Billion more that the Surface Alternative. The Bypass Tunnel has reasonable staging potential and maintains capacity, with an added cost over the Surface Alternative of $600 Million.

C-017-011

4. Is it possible to stage construct the Bypass Tunnel such that the West wall (sea wall) could be constructed in such a way that the tunnel could be added in the future? This would get a temporary "Surface Alternative" open to traffic early at a lower cost and allow the Bypass Tunnel to be built when funding becomes available.

C-017-012

5. The capacities of Highway 99 north and south of the project are a concern. Are we building a facility that has greater capacity than is needed?

Traffic

C-017-013

1. The detailed analysis in the Transportation Appendix provides a great amount of information about individual parts of the Seattle Transportation System, but the analysis does not provide a comprehensive look at the total system effects of each alternative. The information in the analysis gives the travel times from point A to B, as an example, but it does not give the a comparison of the total system travel. This total system information should be available with the traffic models being used.

2

C-017-005

Many people asked the lead agencies to consider an alternative that would remove the viaduct and replace it with a four-lane surface roadway along Alaskan Way and include transit improvements. Without a host of improvements and modifications, a four-lane Alaskan Way would create even more congestion on I-5 and downtown streets than the alternatives evaluated in the Draft and Supplemental Draft EISs. Transportation studies performed for this project indicate that replacing the viaduct with a four-lane surface street would substantially increase congestion for most of the day and part of the evening on I-5 through downtown Seattle, downtown streets, and Alaskan Way. On downtown streets, traffic would increase by 30 percent; though traffic increases to specific areas like Pioneer Square and the waterfront could exceed 30 percent. With a four-lane roadway, traffic on Alaskan Way would quadruple to 35,000 to 56,000 vehicles per day compared to about 10,000 vehicles today. This traffic increase would make Alaskan Way the busiest street downtown, carrying more traffic than Mercer Street does today. The increased traffic congestion would also make travel times worse for buses, making transit improvements along these streets largely ineffective. Finally, neighborhoods west of I-5 (Ballard, Queen Anne, Magnolia, and West Seattle) would be less accessible and would face longer commute times.

C-017-006

The Surface Alternative has been dropped from consideration, because it did not meet the project's purpose. The alternative would have reduced the roadway capacity by 40 to 50 percent, causing increased travel times and congestion.

C-017-007

Cost estimates produced for the project include a detailed risk analysis in the Cost Estimating Validation Process (CEVP). The project risk analysis recognizes risks of delay and additional cost associated with

C-017-013

Information would be available for total system delay, vehicle-miles and vehicle-hours of travel. This data would allow a better comparison of the alternatives from an operational perspective. Without this detail it is difficult to make a comparison of alternatives. Therefore, it will be hard to convince the public on which alternative is the favored plan.

C-017-014

2. The elimination of the Seneca Street off-ramp and the Columbia Street on-ramp with the tunnel alternative will have a substantial impact on a large portion of the central downtown trips. There will be increased operating costs for these commuters and will put additional traffic on the surface street system causing increased congestion and delay for the trips that are already traveling these routes.

C-017-015

3. There are concerns about the reduction in capacity and consequent increase in travel times resulting from the surface alternative. The tradeoff between loss of capacity and gain in "view" from the waterfront area is a political question. It is likely; most of the users of the north-south corridors through downtown would prefer the capacity provided by the other alternatives.

C-017-016

4. What is the comparison between the alternatives related to the Port of Seattle access? Travel time from essential port facilities to I-5 and I-90 is very important in the competitive climate of West Coast ports.

Geotechnical Issues

C-017-017

1. Being a DEIS, there is a lack of detail regarding engineering issues. We continue to be concerned that Design Team is taking too conservative an approach to the earthquake-induced deformation response of the soils and the depth and lateral extent of soil improvement requirements. The final design should consider the risks of a less conservative approach.

C-017-018

2. We have a question regarding the impact of tunnel construction and soil stabilization on the buildings to the east. Most of these buildings are pile supported and not likely to experience displacement, but the integrity of the older pile foundations is questionable. For example, the piles supporting the Compass Center at Washington Street settled and detached themselves from the superstructure at some point in the past.

C-017-019

3. With the ground improvements behind the existing seawall (assumed to be jet grouting forming a soil plug), will the improved soil act as a barrier to ground water flow from upland? Are there contaminants in the ground water; and if so are there provisions for ground water collection, pumping, treatment, and disposal?

C-017-020

4. Will the jet-grouted soil be strong enough to replace the removed sheet pile wall between S. King Street and S. Washington Street and the removed upper portion of the gravity seawall between S. Washington Street and Madison Street? Will the improved soil fracture during an earthquake, thereby affecting the strength of the soil and the seawall?

3

constructing a cut-and-cover waterfront tunnel. It's worth noting that the Elevated Structure has some unique risks, too, for example, those associated with rebuilding the structure while maintaining traffic on it.

C-017-008

Costs are clearly an important factor in selection of the preferred alternative, as are benefits to local and regional traffic. However, these are not the only considerations that enter into the selection process. The project must also be considered as an integral part of Seattle's central waterfront. Construction impacts are also a very important factor. These have all been integral to the lead agencies' decision-making process.

C-017-009

Increasing the number of vehicles on I-5 is considered a regional issue, since many I-5 users are longer-distance, regional trips. Forecasting traffic increases on I-5 is an inexact process, and the estimate of 22,000 additional daily trips (about 20 percent of current AWV users) also takes into consideration the possibility that a number of AWV trips may not shift to alternate routes, but could instead make other changes in travel behavior (different destination, change mode, eliminate trips, etc.). Should changes in travel behavior be less than implied by the forecasts, then the impacts to I-5 could be greater. Conversely, even greater changes in travel behavior could result in somewhat lesser impacts to I-5.

Travel demand model forecasts indicate that each of the three build alternatives evaluated in the Final EIS would result in less traffic on I-5 than with the No Build (Viaduct Closed Alternative) in central and south downtown. The same trend holds true near the ship canal, with the exception of the Elevated Structure Alternative, which would have 800 more vehicles daily at this location. Accordingly, each of the build alternatives would improve regional mobility in general terms compared to the No Build (Viaduct Closed Alternative).

C-017-021

5. Is the installation of sloping riprap being considered for other than just the S Washington Street to Madison Street section? The sloped riprap is desirable and adds a fish friendly habitat.

Utilities

C-017-022

1. There are two stormwater alternatives provided. The "BMP" alternative would require that the project meet current stormwater regulations, providing treatment and detention BMP's to achieve reduction in discharge of essential pollutants. The "Convey and Treat" alternative takes the stormwater and adds it to the combined sewer system for conveyance and treatment at West Point. This latter alternative goes against King County's policies.

2. The existing combined sewer facilities are already full during most storm events, so the stormwater will receive the minimal treatment (screening and disinfection) at the Denny Way facility, and be discharged to Elliott Bay. This solution would seem to add to an existing CSO problem within the City, when for minimal cost, the project could follow the current requirements and discharge treated stormwater to Elliott Bay.

We would like to reiterate that this project is vital to protect public safety, provide for the traffic demand in the corridor, and must be accomplished with minimum disruption to traffic flow and business activities. Funding must not be an excuse for delaying development. The effects of the viaduct collapsing are so profound that every effort must be made to prevent a catastrophic failure.

It is recognized the many of these comments may have been evaluated in your analysis. However, we feel that they should be fully addressed to satisfy the public record in your decision process in selecting a preferred alternative.

Our team appreciated the opportunity to provide our input into the project and hope that our work has been of assistance to the design team. Your assistance and courtesies were very helpful in our efforts.

Sincerely,

Theodore T. Bell, PE
Chair, Expert Team

4

C-017-010

The alternatives analyzed in the 2004 Draft EIS, 2006 Supplemental Draft EIS, 2010 Supplemental Draft EIS, and Final EIS include a range of viaduct repair and replacement designs, with some elements of earlier concepts combined with other design structures as the team looked at feasibility, cost and other criteria. The environmental and financial impacts and benefits were factors as the lead agencies selected the preferred alternative.

C-017-011

Please note that the Bypass Tunnel is no longer an option for this project. With respect to the Cut-and-Cover Tunnel, the wall alone would have to be stiffer and stronger when the tunnel is not there. Also, the economy of putting in both east and west walls at the same time is lost. Therefore, it is not cost effective to construct the seawall in such a way that a cut-and-cover tunnel could be built in the future.

C-017-012

When the project is built, the capacity at the north and south ends of the project is expected to match what currently exists today. The additional lanes proposed along SR 99 as part of the build alternatives are provided as auxiliary lanes to help facilitate efficient traffic flow near entrance and exit ramps, alleviating congestion and queuing issues that currently exist.

C-017-013

Several different travel routes were selected for analysis in the Draft EIS and are included in the Final EIS. The routes selected are intended to represent primary travel movements served by the SR 99 corridor. Routes analyzed represent travel times for through-trips and for trips into and out of downtown Seattle. The intent of presenting travel information in this form was to present readers with data that could be easily

comprehended and related to their everyday experiences. System-wide delay estimates are also included in the Final EIS.

C-017-014

The function of the downtown ramps at Columbia and Seneca Streets will be replaced by new ramps to Alaskan Way at King Street. Traffic analysis indicates that this arrangement will result in comparable or better overall traffic distribution and flow than is experienced with the current Columbia and Seneca Street ramps. This is because the current ramps concentrate traffic to a single, congested location in central downtown. The relocated ramps would instead allow drivers to diffuse through the street grid using many different paths.

C-017-015

The Surface Alternative has been dropped from further consideration. As explained in the 2010 Supplemental Draft EIS and the Final EIS, the Surface Alternative does not meet the project's purpose and need to provide capacity to and through downtown Seattle.

C-017-016

Considering that the Port of Seattle (POS) has facilities located between Interbay and points south of S. Spokane Street, calculating travel times from all the POS facilities and I-5 or I-90 was not feasible for this EIS. In addition, given that truck traffic can typically use all of the facilities designed for general traffic, travel times for trucks and general traffic will be very similar. Travel times for representative travel time routes have been calculated and can be found in the updated Transportation Discipline Report, Appendix C of the Final EIS.

C-017-017

Additional geotechnical investigations and engineering analyses have been conducted since the Draft EIS, as described in the Final EIS

Appendix P, Earth Discipline Report. Construction of any of the three build alternatives would include structures such as retaining walls, tunnels, foundations, excavations, and fills that would require ground improvements. All of the alternatives are designed to meet the current federal and state highway safety standards.

During the final design process, site-specific mitigation measures will be identified to address potential effects of settlement and ground improvements. Mitigation measures will be implemented in accordance with the plans and best management practices (BMPs) as described in Chapter 8 of the Final EIS.

C-017-018

The project's design team has evaluating the impact of tunnel construction on adjacent buildings and infrastructure along the corridor. Impacts include settlement that could occur adjacent to the tunnel excavation. Settlement can occur due to dewatering and excavation wall movement. For dewatering-induced settlement, design considerations—including a series of recharge wells—are being evaluated to mitigate potential lowering of the water table. For excavation-induced settlement, the wall system will be designed to be stiffer so that movements are minimized. In addition, instrumentation is proposed to monitor structures that are close to the tunnel walls. In some areas, underpinning or other structural strengthening may be required for existing structures to maintain their stability. These issues are all being reviewed during the design process.

The current alignment of the Bored Tunnel Alternative has the bored tunnel following the existing viaduct alignment until approximately the midpoint between Yesler Way and Columbia Street, avoiding sensitive structures at S Washington Street.

C-017-019

The improved ground will be a partial barrier to groundwater flow, resulting in a small amount of groundwater mounding. Groundwater buildup may be greater than 0.5 foot along the waterfront between about Pike Street and S. Washington Street, extending inland to about Fourth Avenue. Based on subsurface conditions and surface topography, a maximum groundwater buildup of approximately 3 to 4 feet could occur along the waterfront in the vicinity of Madison and Marion Streets. Within the vicinity of the seawall, potential groundwater buildup of this magnitude would be within the existing groundwater fluctuations resulting from tides in Elliott Bay that have been observed in shallow monitoring wells along the waterfront and therefore would not be a significant impact to the existing environment. It should be noted that most of the groundwater flow along the waterfront is coming from depth, not from upland. Because most of Seattle is paved, there is limited infiltration and flow of groundwater toward the waterfront in the near-surface soils. There is, however, an upward gradient of flow that flows from deeper soil layers to the ground surface.

Contamination has been detected in shallow groundwater along Alaskan Way. The contaminants typically consist of petroleum hydrocarbons and metals, and are typically at low concentrations relative to Washington State groundwater quality criteria. There is no provision to remediate shallow groundwater along Alaskan Way as part of this project. Contaminated groundwater encountered during construction would be pumped, treated, and disposed of in accordance with project permits.

C-017-020

The Final EIS describes the current project information and construction methods for the alternatives. The preferred Bored Tunnel Alternative would not replace the seawall. The Elliott Bay Seawall Replacement Project would be a separate project led by the City of Seattle.

C-017-021

If the Cut-and-Cover Tunnel Alternative or Elevated Structure Alternative is constructed, riprap would likely be replaced where the depths and location of the new seawall make it appropriate, although the project would minimize the disturbance of existing riprap. Riprap is not considered by many resource agency representatives to be “fish friendly,” although it appears to provide better habitat conditions than a flat concrete wall. Flatter slopes and finer grain substrate than riprap are desirable habitat characteristics in shoreline areas, and riprap is used primarily to protect the seawall. In addition, the replacement seawall with either alternative is expected to occur entirely landward of the existing seawall, thereby minimizing the need to alter the outside face of the existing seawall or any riprap areas.

The Final EIS describes the current project information and construction methods for the build alternatives. The preferred Bored Tunnel Alternative would not replace the seawall. The Elliott Bay Seawall Replacement Project would be a separate project led by the City of Seattle.

C-017-022

The Convey and Treat Approach has not been carried into the Final EIS. Based on detailed modeling, continued design, and coordination efforts a single approach to stormwater management is now being proposed for all of the alternatives evaluated in the Final EIS. This approach is described in Appendix O, Surface Water Discipline Report, and is most similar to the BMP Approach presented in the 2004 Draft EIS. To the extent possible, this stormwater management approach does not change sub-basin boundaries or receiving waters.