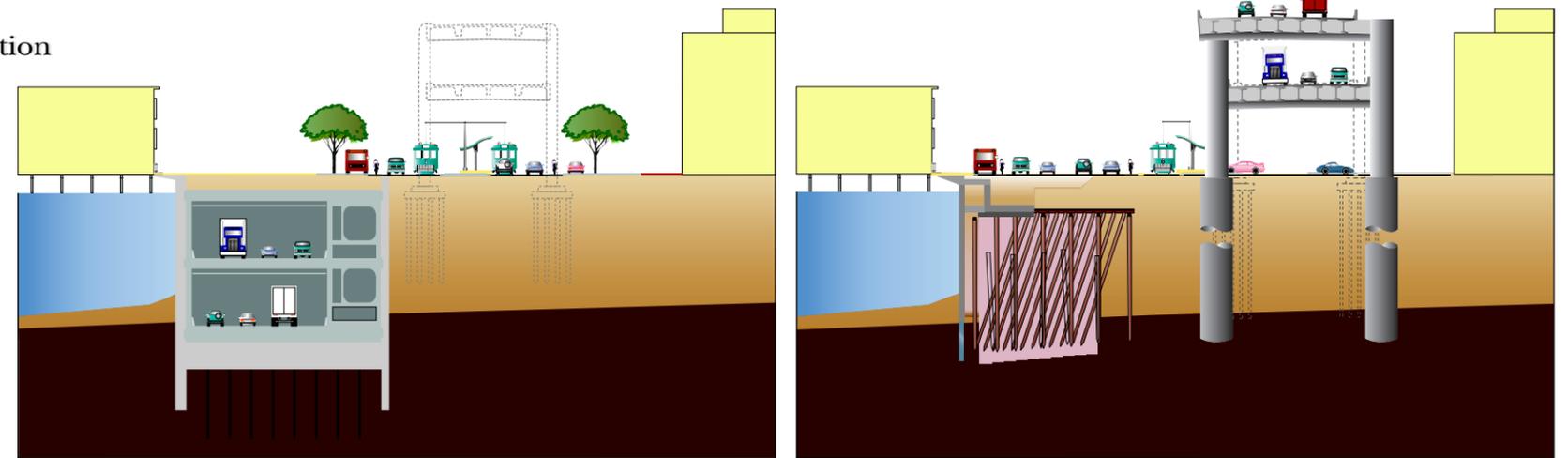


# SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation



FHWA-WA-EIS-04-01-DS

# SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

## Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation

Submitted pursuant to:

The National Environmental Policy Act (NEPA)(42 U.S.C. 4322(2)(c)) and the State Environmental Policy Act (SEPA)(Ch. 43.21 C RCW) and Section 4(f) of the Department of Transportation Act, (49 U.S.C. 303(c))

by the  
FEDERAL HIGHWAY ADMINISTRATION

and  
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

and  
CITY OF SEATTLE

### Abstract

The existing Alaskan Way Viaduct (State Route [SR] 99) and Alaskan Way Seawall were damaged in the 2001 Nisqually earthquake, are at the end of their useful life, and must be replaced. The Federal Highway Administration, Washington State Department of Transportation, and City of Seattle (in cooperation with the U.S. Army Corps of Engineers [Seattle District], King County, and Port of Seattle) plan to replace the existing facilities to provide structures capable of withstanding earthquakes and to ensure that people and goods can safely and efficiently travel within and through the project corridor. The SR 99 Corridor provides vital transportation connections in, to, and through downtown Seattle, as well as between various other regional destinations. The seawall supports Seattle's central waterfront, the Alaskan Way surface street, and numerous utilities serving downtown Seattle. The seawall also retains the land beneath the foundations of the via-

duct. Failure of either structure would create severe hardships for the city and region and could possibly cause injury or death.

The March 2004 Draft Environmental Impact Statement (EIS) analyzed five Build Alternatives for their potential effects on the human and natural environment. The five alternatives evaluated were called the Rebuild, Aerial, Tunnel, Bypass Tunnel, and Surface Alternatives. A preferred alternative was not identified.

In late 2004 the project partners reduced the number of alternatives from five to two based on information presented in the Draft EIS, public comments, and further study and design. The two remaining alternatives evaluated in this document are the Tunnel and Elevated Structure Alternatives. The Elevated Structure Alternative incorporates elements of the Rebuild and Aerial Alternatives evaluated

in the Draft EIS. In December 2004, the project partners identified the Tunnel Alternative as the Preferred Alternative.

This Supplemental Draft EIS provides additional information available since the Draft EIS was published in March 2004. This document also evaluates construction plans that would close SR 99 for 0 to 42 months and changes made to the alternatives.



Stephen Boch  
Major Project Oversight Manager  
for the Federal Highway Administration

6/23/2006

Date of Approval



Megan White  
Director of Environmental Services  
for the Washington State Department of Transportation

6/23/06

Date of Approval



Grace Crunican  
Director of Seattle Department of Transportation  
for the City of Seattle

6.22.06

Date of Approval

### Americans with Disabilities Act (ADA) Information

Materials can be provided in alternative formats: large print, Braille, cassette tape, or on computer disk for people with disabilities by contacting Molly Edmonds at 206-267-3841 / EdmondM@wsdot.wa.gov. Persons who are deaf or hard of hearing may make a request for alternative formats through the Washington Relay Service at 7-1-1.

### Title VI

WSDOT ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin, or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding WSDOT's Title VI Program, you may contact the Department's Title VI Coordinator at 360-705-7098.



# FACT SHEET

## Project Name:

**Alaskan Way Viaduct and Seawall Replacement Project**

## Project Description:

The Alaskan Way Viaduct and Seawall Replacement Project (AWV Project) proposes to improve the existing SR 99 Corridor now served by the Alaskan Way Viaduct in Seattle, Washington. The project would provide facilities with improved earthquake resistance that maintain or improve mobility for people and goods along the existing SR 99 Corridor. The project will also improve the Alaskan Way Seawall, which supports surface streets and the viaduct's foundations.

The proposed action is necessary to replace or rebuild the seawall and viaduct structures. Damage sustained by the viaduct during the February 2001 Nisqually earthquake compromised its structural integrity. Adding to these concerns, these structures were originally designed and built to last approximately 50 to 75 years, and they are now nearing the ends of their serviceable life spans. This past damage, along with the age, design, and location of the existing viaduct, makes it vulnerable to future strong earthquakes, and damage from these quakes could make the structure unusable.

The seawall structure is not structurally sound and is also vulnerable to earthquake damage. The seawall is critically important, as it supports the soils holding up both the Alaskan Way Viaduct and Alaskan Way surface street.

The SR 99 Corridor, along with Interstate 5, are the primary north-south limited access routes through downtown Seattle, making SR 99 and the Alaskan Way Viaduct a vital link in the region's highway and freight mobility system, and thus critical to the region's economy.

This Supplemental Draft EIS analyzes the improvements north of the Battery Street Tunnel, construction approaches that would close SR 99 for an extended period of time, and updates made to the Tunnel and Elevated Structure Alternatives.

## Proponents:

Washington State Department of Transportation  
Alaskan Way Viaduct Project Office (Wells Fargo Building)  
999 Third Avenue, Suite 2424  
Seattle, WA 98104-4019

City of Seattle  
700 5<sup>TH</sup> Avenue, Suite 3900  
PO Box 34996  
Seattle, WA 98124-4996

Federal Highway Administration  
Washington Division  
Evergreen Plaza  
711 S. Capitol Way, Suite 501  
Olympia, WA 98501-1284

## SEPA Lead Agency

The City of Seattle (City) and Washington State Department of Transportation (WSDOT) are co-lead agencies for SEPA, and WSDOT is designated as the nominal lead.

## Responsible SEPA Official

Megan White, Director  
Environmental Services Office  
Washington State Department of Transportation  
P.O. Box 47331  
Olympia, WA 98504

## NEPA Lead Agency

Federal Highway Administration  
Washington Division  
Evergreen Plaza  
711 S. Capitol Way, Suite 501  
Olympia, WA 98501-1284

## Comment Period

A comment period will begin on the date notice is published in the Federal Register. Notice is anticipated to take place on July 28, 2006, and the comment period is expected to run through September 22, 2006.

## Review Comments and Contact Information

You may submit your comments on the Supplemental Draft EIS by email or in writing.

**E-mail:** [awvsdeiscomments@wsdot.wa.gov](mailto:awvsdeiscomments@wsdot.wa.gov)

### In Writing:

WSDOT  
Attn: Kate Stenberg, AWV Environmental Manager  
AWV Project Office (Wells Fargo Building)  
999 Third Avenue, Suite 2424  
Seattle, WA 98104-4019

## Public Hearings

Public hearings to provide information and accept comments on the Supplemental Draft EIS will be held on:

September 7, 2006: *Downtown Seattle*  
Plymouth Congregational Church  
1217 Sixth Avenue  
Seattle, WA 98101  
4:00-7:00 p.m.

September 12, 2006: *West Seattle*  
Madison Middle School  
3429 45<sup>TH</sup> Avenue SW  
Seattle, WA 98116  
5:00-8:00 p.m.

September 13, 2006: *Ballard*  
Ballard Community Center  
6020 28<sup>TH</sup> Avenue NW  
Seattle, WA 98107  
5:00-8:00 p.m.

September 14, 2006: *Downtown Seattle*

Plymouth Congregational Church  
1217 Sixth Avenue  
Seattle, WA 98101  
4:00-7:00 p.m.

## Document Availability

The Supplemental Draft EIS is available online at:

<http://www.wsdot.wa.gov/Projects/Viaduct/>.

It is also available on CD-ROM by contacting the AWV Project Office at:

Margaret Kucharski  
Alaskan Way Viaduct Project Office (Wells Fargo Building)  
999 Third Avenue, Suite 2424  
Seattle, WA 98104-4019  
206-382-6356

Printed copies of the Supplemental Draft EIS and related appendices (technical memoranda and discipline reports) are available at City of Seattle public libraries and Neighborhood Service Centers (See the Distribution List on pages 124 and 125). These documents are also available for purchase at the:

**Alaskan Way Viaduct Project Office,  
999 Third Avenue, Suite 2424  
Seattle, WA 98104-4019**

CDs and Executive Summaries are available at no charge. Prices for printed volumes are as follows:

Supplemental Draft EIS copies (17x11 color)	\$25
Technical appendices	\$75
Complete document set	\$100

## FACT SHEET

Continued

### Permits and Approvals

#### Federal

- **U.S. Army Corps of Engineers** – Clean Water Act Section 404/River and Harbors Act, Section 10 Individual Permit
- **National Marine Fisheries Service & U.S. Fish and Wildlife Service** – Section 7 Endangered Species Act (ESA) Consultation and Marine Mammal Protection Act Consultation
- **National Marine Fisheries Service** – Magnuson-Stevens Fishery Conservation and Management Act Consultation
- **Advisory Council on Historic Preservation** – National Historic Preservation Act Consultation (Section 106)

#### State

- **Washington State Department of Archaeology and Historic Preservation** – National Historic Preservation Act, Section 106 Historic Preservation Consultation
- **Washington State Department of Ecology** – Model Toxics Control Act, Removal of Underground Storage Tanks
- **Washington State Department of Ecology** – Clean Water Act, Section 401, Water Quality Certification
- **Washington State Department of Ecology** – National Pollutant Discharge Elimination System (NPDES), Individual Construction Stormwater Permit
- **Washington State Department of Ecology** – NPDES, Individual Wastewater Discharge/State Waste Discharge Permit
- **Washington State Department of Ecology** – Coastal Zone Management Act (CZMA), Consistency Certification
- **Washington State Department of Fish and Wildlife** – Hydraulic Project Approval (HPA)
- **Washington State Department of Natural Resources** – Aquatic Lands Use Authorization or Aquatics Land Lease

#### Local

- **King County** – Discharge of Construction Dewatering Approval
- **Seattle City Light** – Clearance Permits
- **Seattle City Light** – Utility Relocation Approval
- **Seattle City Light** – Substation Modification Approval
- **Seattle Department of Planning and Development** – Master Use Permit
- **Seattle Department of Planning and Development** – Shoreline Substantial Development Permit/Conditional Use Permit and/or Variance
- **Seattle Department of Planning and Development** – Grading Permit<sup>1</sup>
- **Seattle Department of Planning and Development** – Building Permit
- **Seattle Department of Planning and Development** – Stormwater and Drainage Control Review
- **Seattle Department of Planning and Development** – Demolition Permit
- **Seattle Department of Planning and Development** – Side Sewer Permit
- **Seattle Department of Planning and Development** – Street Improvement Permit
- **Seattle Department of Planning and Development** – Street Use Permit
- **Seattle Department of Neighborhoods and Pioneer Square Preservation Board** – Pioneer Square Historic District Approval

- **Seattle Department of Neighborhoods and Pike Place Market Historic District Commission** – Pike Place Market Historic District Approval
- **Seattle Department of Neighborhoods and Landmark Preservation Board** – Landmark Building Approval
- **Seattle Department of Planning and Development and Department of Transportation** – Noise Variance
- **Seattle Department of Planning and Development and Department of Transportation** – Removal or Abandonment of Underground Storage Tanks

#### Other Seattle Permits/Approvals

- Mechanical Permit
- Electrical Permit
- Sign Permit
- Elevator Permit
- Fire Alarm Permit
- Detour Routing Approval
- Downtown Traffic Control Zone Approval
- Concrete Truck Approval
- **Other Permits/Approvals**
- **Puget Sound Clean Air Agency** – Clean Air Act, Air Quality Conformity Review
- **Puget Sound Clean Air Agency** – Prevention of Significant Deterioration
- **Puget Sound Energy (Bonneville Power Administration)** – Electrical Transmission Outage Request
- **Burlington Northern Santa Fe** – Right-of-Way Use Approval

### Authors and Principal Contributors

Please see the List of Preparers on pages 126.

### Date of Issue of Supplemental Draft EIS

July 28, 2006

### Subsequent Environmental Review

Following issuance of this Supplemental Draft EIS, there will be a comment period ending September 22, 2006. The lead agencies will respond to comments on the Draft EIS as well as this document in the Final EIS. The issuance of a Final EIS is anticipated in 2007. Following issuance of the Final EIS, a Record of Decision will be issued by the Federal Highway Administration.

<sup>1</sup>The City and WSDOT are exempt from certain permits under some conditions. Even though this grading work would be exempt, the City would still perform a project review to ensure that the project meets City requirements for grading activities.

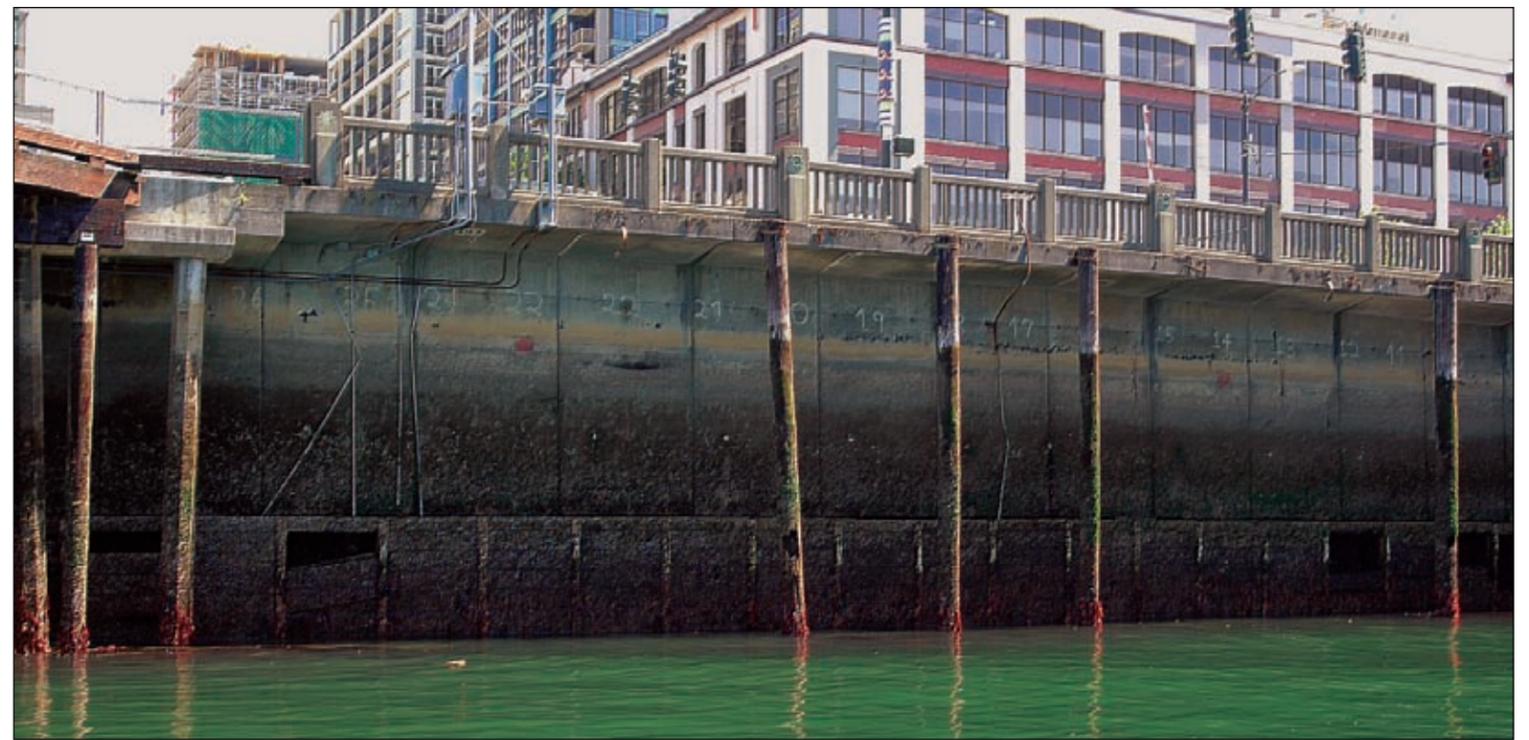
# SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

## Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation



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Top: Alaskan Way Viaduct from the south in Seattle

Above: Cracking on viaduct support beams

Above: Ekki wood damage in the seawall

## CHAPTER 1 - INTRODUCTION

### What's in Chapter 1?

Chapter 1 explains why the viaduct and seawall need to be replaced, who is leading the project, where the project is located, and why this document has been prepared. This document has been prepared to evaluate:

- New construction plans.
- Changes to the proposed alternatives.

#### 1 Why was the Alaskan Way Viaduct and Seawall Replacement Project initiated?

The Alaskan Way Viaduct section of State Route (SR) 99 has been a fixture of the downtown Seattle waterfront for over five decades. Today SR 99 is a primary north-south route through Seattle, carrying 20 to 25 percent of the traffic traveling through downtown. However, the viaduct's days are numbered. The 2001 Nisqually earthquake and wear and tear from daily traffic have taken their toll on the facility.

In response to several large earthquakes in other parts of the world, Washington State Department of Transportation (WSDOT) began to study the viaduct in the mid-1990s. These studies showed that the 1950s-era viaduct was vulnerable to earthquakes and nearing the end of its useful life. In early 2001, a team of structural design and seismic experts began work to determine what to do about the viaduct. In the midst of this investigation, the 6.8-magnitude Nisqually earthquake shook the Puget Sound region.

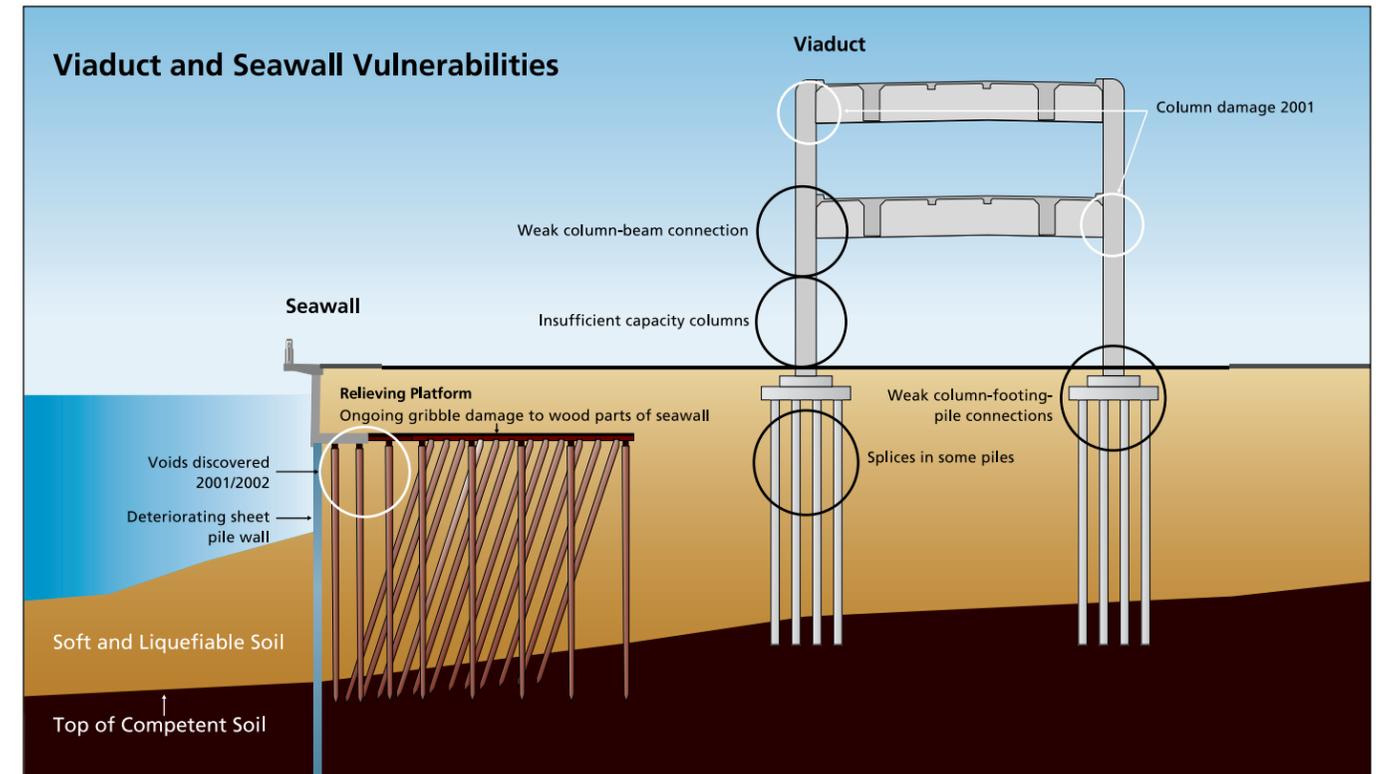
The Nisqually earthquake damaged the viaduct, forcing WSDOT to temporarily shut it down. Post-earthquake inspections of the viaduct by a team of experts revealed that the earthquake damaged the viaduct's

joints and columns, further weakening the structure and exposing its vulnerabilities, as shown in Exhibit 1-1.

Soon after the Nisqually earthquake, repairs were made to four viaduct sections in the Pioneer Square area near S. Washington Street where the damage was most severe. WSDOT also imposed roadway restrictions that remain in effect today. These restrictions are for large vehicles such as trucks and buses that weigh over 10,000 pounds. The restrictions include reduced travel speeds for large vehicles (from 50 miles per hour to 40 miles per hour) and require large vehicles to use only the right-hand lane of the viaduct.

In 2005, WSDOT commissioned outside experts to complete a study evaluating the condition of the viaduct. The study found that the viaduct's deterioration has accelerated since the Nisqually earthquake.<sup>1</sup> The earthquake imposed extreme forces on the viaduct, and these forces were well beyond those the structure was designed for in the 1950s when it was built. There are at least two consequences of the extreme forces imposed during the earthquake that continue to affect the structural integrity of the viaduct today:

- **Increasing cracks and crack widths** – Cracks in the concrete structural support members of the viaduct continue to grow. These cracks grow when the reinforcing steel embedded into concrete slips due to vehicle loads and other forces. Reinforcing steel used in roadway projects today is designed to prevent slippage and withstand much greater loads than the reinforcing steel commonly used in the 1950s.



Above : Gribble damage to boards of the seawall relieving platform



Above : Example of *L. Limnoria* or gribbles

<sup>1</sup>TY Lin International, 2005.

- **Continued settlement of the viaduct's foundations** - The earthquake caused soil underneath the viaduct to shift in some places. In some cases, these shifts are placing additional demands on the viaduct, which further weakens the structure.

According to the study, ongoing deterioration so long after an earthquake is unexpected, especially because today's traffic volumes are similar to what they were before the Nisqually earthquake and restrictions on large vehicles have been put in place to lower demand on the viaduct from pre-earthquake conditions. The accelerated deterioration of the viaduct since the earthquake can be attributed to a combination of the destructive effects of the earthquake and the viaduct's age. According to the study, these latent earthquake effects and the risk of additional damage from potential future earthquakes are what heighten the need for immediate action to replace the viaduct.

WSDOT conducts a full inspection of the viaduct every 6 months and a visual inspection every 3 months. The inspections have shown that the 1950s-era viaduct continues to settle and deteriorate in many locations. Near S. Washington Street, the viaduct has unevenly settled up to 4.5 inches since the 2001 Nisqually earthquake.

Shortly after the Nisqually earthquake, a 100-foot-long by 10-foot-wide section of the Alaskan Way surface street settled, raising concerns about the condition of the Alaskan Way Seawall. Soil held back by the seawall is prone to liquefy in earthquakes, and that's exactly what happened along this section of the waterfront. When soil liquefies, it transforms from a solid material that can support roadways and other structures to a quicksand-like material that flows like a liquid, potentially damaging roadways or structures built on it.

The viaduct's foundations are embedded in the soil held back by the seawall, and the seawall provides structural support to the Alaskan Way surface street and many utilities. If the seawall were to fail, sections of the viaduct, the Alaskan Way surface street, and adjacent structures and utilities could collapse or become unsafe, forever changing the face of Seattle's waterfront and potentially resulting in loss of life.

Seawall investigations conducted by the City of Seattle have shown that the seawall continues to deteriorate despite regular maintenance. In addition to the poor soil found along the waterfront, marine organisms called gribbles have been eating away at the timbers that support the seawall. Inspections have shown that substantial portions of the seawall's timber support structures have been weakened or destroyed by gribbles. Additionally, seawall inspections conducted in 2005 found new seawall damage from another marine organism called a shipworm. Shipworms have damaged approximately 55 percent of the wood panels that protect portions of the seawall.<sup>2</sup>

## 2 Why do we need this project?

The Alaskan Way Viaduct and the Alaskan Way Seawall need to be replaced because they were damaged in the 2001 Nisqually earthquake, both structures continue to deteriorate, and they are at risk of catastrophic failure in an earthquake.

The viaduct and seawall are crucial facilities for citizens, transit, and freight. The viaduct provides vital roadway capacity that cannot be provided elsewhere in the region if it has to be closed. The viaduct offers drivers an alternative to Interstate 5 (I-5), which is often congested through Seattle. Together, I-5 and SR 99 through Seattle carry over \$80 billion in goods each year.<sup>3</sup> For these and other reasons, the Washington State Legislature has identified the Alaskan Way Viaduct and Seawall Replacement (AWV) Project as a project of statewide significance, and the United States Congress has identified it as a project of national and regional significance.<sup>3</sup>

Drivers got a preview of life without the viaduct when it was closed for approximately 24 hours after the 2001 Nisqually earthquake. During the closure, people who use the viaduct were forced to use different routes, take transit, or stay home. Drivers, passengers, and transit riders faced substantial congestion and travel delays as thousands of people who normally travel on the viaduct each day were forced onto Seattle city streets and I-5.



Photo of column reinforcement at S. Washington Street



Above: Exposed rebar in viaduct column.

<sup>2</sup>Berger/Abam Engineers Inc. 2005.

<sup>3</sup>Larsen, Rick et al. 2005.

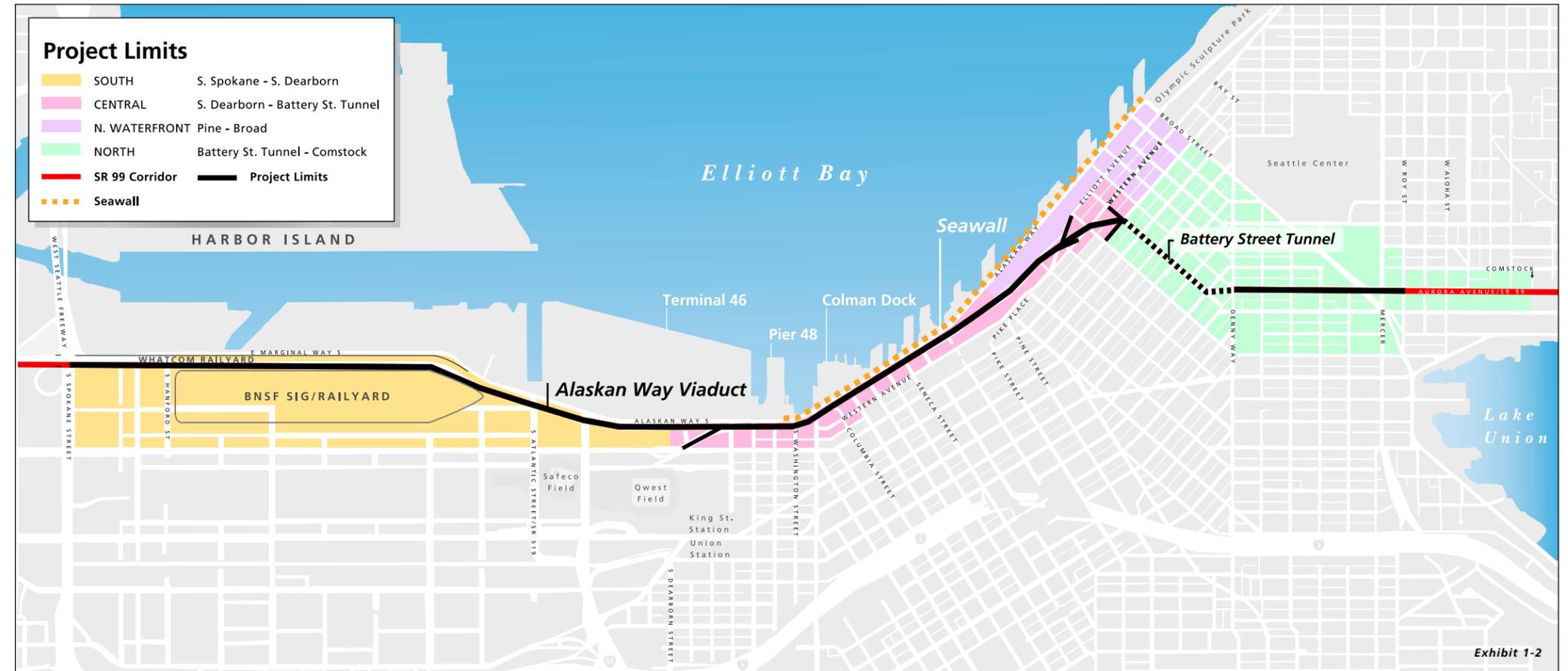
If we don't replace these facilities, the viaduct and Alaskan Way surface street would eventually be closed due to failure in an earthquake or ongoing deterioration. Without these facilities, roadway congestion in and around Seattle would substantially increase, and the region's economy could falter with workers and freight unable to move in and out of the Seattle area efficiently. Of even more concern is the possibility of losing people's lives if portions of either structure were to collapse in another earthquake.

### 3 Who is leading this project?

This project is being led by a partnership of three agencies: the Federal Highway Administration (FHWA), WSDOT, and City of Seattle (City). FHWA is the federal lead agency for this project and is responsible for ensuring that federal regulations and standards are followed. FHWA has the primary responsibility for the content and accuracy of National Environmental Policy Act (NEPA) documents and has approval authority for all expenditures of federal-aid highway funds. WSDOT is the owner of SR 99 and the viaduct and is responsible for structural inspections and major maintenance. The City is responsible for viaduct traffic operations and minor maintenance. Additionally, the City owns and maintains the seawall, the Alaskan Way surface street, the area underneath the viaduct, and many of the utilities located in the project area. WSDOT and the City also have the responsibility to evaluate the proposed alternatives under the State Environmental Policy Act (SEPA).

### 4 Where is the project located?

The Alaskan Way Viaduct and seawall are located in downtown Seattle, Washington. There are two different areas discussed in this Supplemental Draft Environmental Impact Statement (EIS): project limits and the construction area. The project limits were established by the project partners in the purpose and need statement. The project limits represent logical end points for transportation improvements and environmental review based on identified project needs. These identified needs include addressing seismic deficiencies and maintaining or improving mobility, accessibility, and traffic safety for people and goods in



the Alaskan Way Viaduct Corridor, which includes SR 99 and the Alaskan Way surface street. For the purposes of this project, these logical end points are defined as major intersections in the corridor beginning in the south at S. Spokane Street and continuing north to Roy Street. The Alaskan Way Seawall is located within these boundaries, extending from S. Washington Street to just north of Broad Street.

The project's construction area is slightly different than the project limits because it includes areas where construction activities would occur. The Supplemental Draft EIS evaluates the effects of the project's entire construction area. Physical improvements on SR 99 would extend for 4.1 miles between S. Hanford Street in the south up to Comstock Street in the north.

We have combined the project limits and the construction area and divided them into four sections, as shown in Exhibit 1-2:

- **South** – S. Spokane Street to S. Dearborn Street. The south section includes E. Marginal Way.
- **Central** – S. Dearborn Street to the Battery Street Tunnel. The central section includes the seawall and the Alaskan Way surface street.
- **North Waterfront** – Pine Street to Broad Street. The north waterfront section includes the Alaskan Way surface street and seawall from the point where the viaduct begins to veer off to the Battery Street Tunnel.
- **North** – Battery Street Tunnel to Comstock Street.

### 5 What is the purpose of the Supplemental Draft EIS?

This Supplemental Draft EIS updates the Draft EIS and provides additional information available since it

was published in March 2004. A Supplemental Draft EIS is required when changes to a project introduce additional environmental effects that have not been evaluated and disclosed to the public in earlier EISs. This Supplemental Draft EIS is being prepared to evaluate new construction plans, changes made to the Tunnel and Elevated Structure Alternatives, and to seek public input on these changes. Additionally, we are preparing this document to provide people with more current information on the project.

### Changes Made to Construction Plans

The Supplemental Draft EIS evaluates three new construction plans that would close SR 99 for 0 to 42 months. Some plans include construction detours on First Avenue S. and Broad Street. The Tunnel and Elevated Structure Alternatives could be built under any of the three construction plans.

The Draft EIS evaluated one construction plan that considered brief closures of SR 99 during construction, but otherwise assumed that at least two lanes would be provided in each direction on SR 99 or an alternate route. Many people asked the project partners to consider more than one construction plan to better understand the tradeoffs associated with closing SR 99 for years versus keeping it open for much of the construction period. Specifically, people wanted to know what would happen if SR 99 were fully closed during construction. Would closing the corridor reduce the amount of time it takes to build the project? To respond to this question, the project partners are replacing the one construction plan evaluated in the Draft EIS with three different construction plans evaluated in the Supplemental Draft EIS. In general, the time it takes to build the project decreases the longer SR 99 is closed; however, the intensity of effects to traffic increases when SR 99 is closed.

### Shorter Construction Plan

The Tunnel Alternative would take an estimated 7 years to build if this plan were selected. With this plan, SR 99 traffic would be affected for 42 months when both directions of SR 99 would be closed between S. Spokane Street and Denny Way.

The Elevated Structure Alternative would take an estimated 6.5 years to build if this plan were selected. With this plan, SR 99 traffic would be affected for 36 months when both directions of SR 99 would be closed between S. Spokane Street and Denny Way.

### Intermediate Construction Plan

The Tunnel Alternative would take an estimated 8.75 years to build if this plan were selected. With this plan, SR 99 traffic would be affected by closures or restrictions for a total of 63 months. For 27 months, both directions of SR 99 would be closed between S. Spokane Street and Denny Way. For 36 months, portions of SR 99 would be closed or restricted with lane and ramp closures.

The Elevated Structure Alternative would take an estimated 7.75 years to build if this plan were selected. With this plan, SR 99 traffic would be affected by closures or restrictions for a total of 57 months. For 18 months, both directions of SR 99 would be closed between S. Spokane Street and Denny Way. For 39 months, portions of SR 99 would be closed or restricted with lane and ramp closures.

### Longer Construction Plan

The Tunnel Alternative would take an estimated 9.5 years to build if this plan were selected. With this plan, SR 99 traffic would be affected by closures and restrictions for a total of 72 months. SR 99 would not be completely closed in both directions at any time during construction. Instead, southbound SR 99 would be closed for 30 months and northbound SR 99 would be closed for 33 months. SR 99 would have ramp closures for an additional 9 months.

For the Elevated Structure Alternative, the longer plan is similar to the plan evaluated in the Draft EIS. If this plan were selected, the Elevated Structure Alternative would take an estimated 10 years to build. With this plan, SR 99 traffic would be affected by closures or restrictions for 84 months. Both directions of SR 99 would be closed from S. Spokane Street to Denny Way for 3 months. For the remaining 81 months, portions of SR 99 would be closed or restricted with lane and ramp closures.

### Changes Common to Both Alternatives

Two alternatives are evaluated in the Supplemental Draft EIS: the Tunnel Alternative and the Elevated Structure Alternative. The Tunnel Alternative was evaluated in the Draft EIS. The Elevated Structure Alternative incorporates elements from both the Rebuild and Aerial Alternatives evaluated in the Draft EIS. Throughout 2005, the project partners refined proposed designs for the Tunnel and Elevated Structure Alternatives, as shown in Exhibit 1-3. These refinements and updates were made to better meet the transportation needs in the project area. The environmental effects of these design changes are evaluated in this Supplemental Draft EIS. Design changes that are common to both alternatives are described below.

#### South Section Roadway and Ramp Designs Modified

Two roadway designs are proposed in the south section. Both have been modified in similar ways to better meet transportation needs in the area—specifically those related to freight movement, the railyards, the stadiums, and the Port of Seattle. The new designs function similarly to those evaluated in the Draft EIS. The main difference is that two frontage roads would be built parallel to SR 99 near the new interchange proposed at S. Atlantic Street and S. Royal Brougham Way. These frontage roads take up less space than the previous design that included several ramps, but they would function similarly, allowing drivers to enter and exit SR 99 at S. Atlantic Street and S. Royal Brougham Way.

For both south section designs, SR 99 would mostly be built at-grade, though one of the designs proposes to build a portion of SR 99 over a section of railroad tracks. For both designs, the new interchange at S. Atlantic Street and S. Royal Brougham Way would be an aerial structure.

#### Additional Improvements Proposed to the Battery Street Tunnel

In the Draft EIS, the project partners proposed to improve the Battery Street Tunnel by improving fire and life safety conditions. These improvements included adding emergency exits, upgrading electrical systems, adding ventilation, upgrading the fire sup-

## How Can I Learn More About the Project and Comment on this Supplemental Draft EIS?

There are several ways you can learn more about the project and submit your comments on this document.

### Attend Public Hearings

You are invited to attend any of the hearings listed below:

#### Downtown Seattle

Thursday, September 7, 2006  
Plymouth Congregational Church  
1217 Sixth Avenue, Seattle, WA 98101  
4:00-7:00 p.m.

#### West Seattle

Tuesday, September 12, 2006  
Madison Middle School  
3429 45<sup>TH</sup> Avenue SW, Seattle, WA 98116  
5:00-8:00 p.m.

#### Ballard

Wednesday, September 13, 2006  
Ballard Community Center  
6020 28<sup>TH</sup> Avenue NW, Seattle, WA 98107  
5:00-8:00 p.m.

#### Downtown Seattle

Thursday, September 14, 2006  
Plymouth Congregational Church  
1217 Sixth Avenue, Seattle, WA 98101  
4:00-7:00 p.m.

### Submit Comments

You may submit your comments on this document by e-mail, or in writing.

#### E-mail

[awvsdeiscomments@wsdot.wa.gov](mailto:awvsdeiscomments@wsdot.wa.gov)

#### In Writing

**Kate Stenberg, AWW Environmental Manager**  
AWV Project Office  
999 Third Avenue, Suite 2424  
Seattle, WA 98104-4019

Your comments on the Supplemental Draft EIS must be received by 5 p.m. on September 22, 2006.

pression system, and improving the tunnel to meet current earthquake requirements. In addition to improvements evaluated in the Draft EIS, the project partners are now proposing to lower the roadway in the Battery Street Tunnel to increase the tunnel's vertical clearance to 16.5 feet to improve conditions for trucks, which occasionally damage the tunnel or get stuck.

**New Improvements Proposed to SR 99 North of the Battery Street Tunnel**

Two new designs are proposed north of the Battery Street Tunnel. These designs are included as part of the AWW Project because they would improve safety on and access to SR 99 from the Battery Street Tunnel north to Roy Street. They would also connect streets over the top of SR 99 to improve local street and pedestrian connections in the area.

The two designs evaluated in the north section are called Partially Lowered Aurora and Lowered Aurora. For Partially Lowered Aurora, SR 99 would be lowered to approximately Republican Street. New bridges would be built to connect two city streets over the top of SR 99. Mercer Street would continue to travel under SR 99 as it does today, but it would become a two-way street and would be widened. Access on to SR 99 would be provided at Denny Way and Roy Street, and access off SR 99 would be provided at Denny Way, Republican Street, and Roy Street. Between Thomas and Roy Street, SR 99 would be widened from its existing width of approximately 80 feet to an average width of about 130 feet. Broad Street would be closed between Fifth and Ninth Avenues N.

Lowered Aurora would lower more of SR 99 than Partially Lowered Aurora. In this case, SR 99 would be lowered nearly to Comstock Street. New bridges would be built to connect four city streets over SR 99. Mercer Street would be built over SR 99 instead of under it. As with Partially Lowered Aurora, Mercer Street would become a two-way street and would be widened. Access to and from SR 99 would be built at Denny Way, Republican Street, and Roy Street. Between Thomas and Roy Street, SR 99 would be

**Design Changes to the Alternatives**

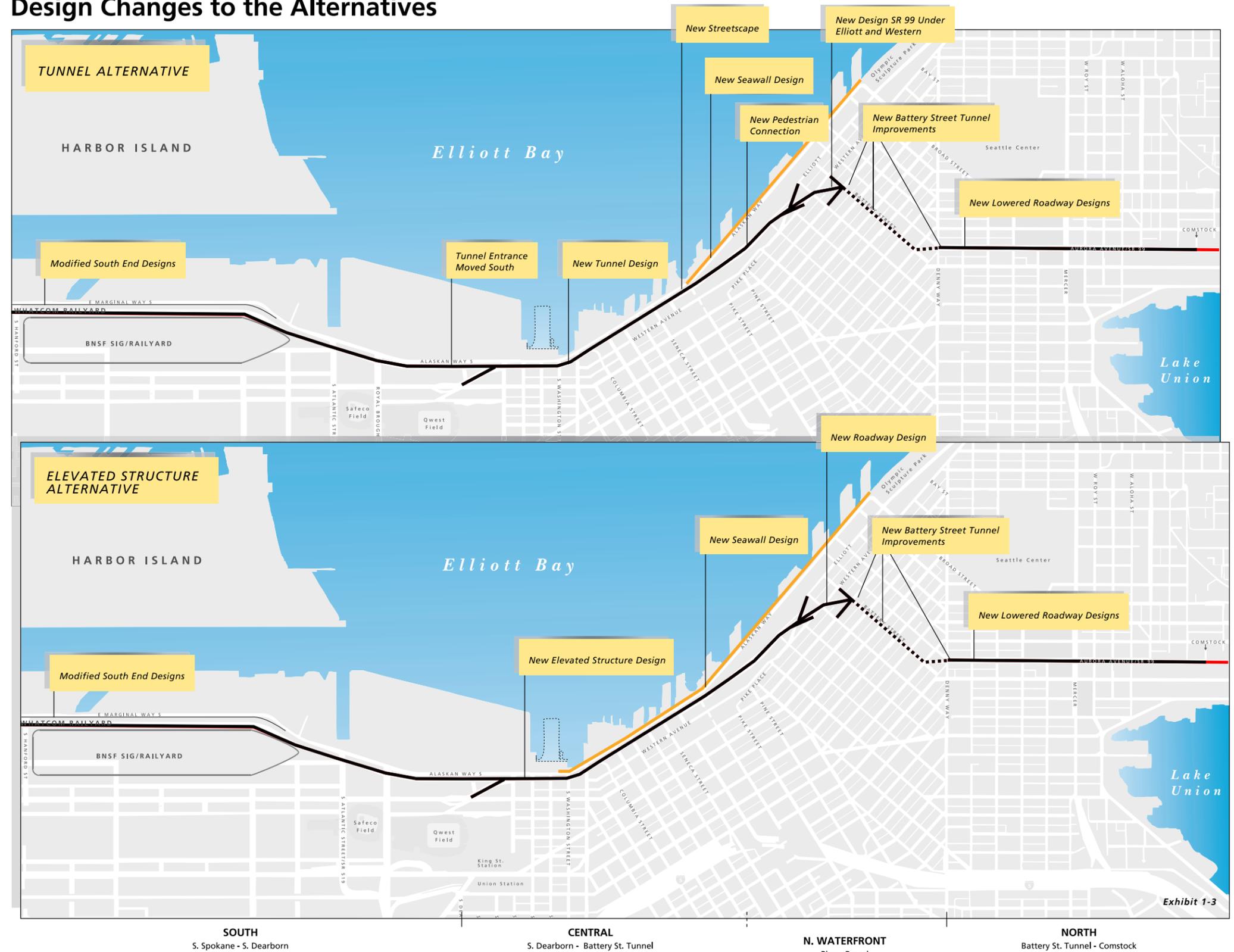


Exhibit 1-3

widened from its existing width of approximately 80 feet to an average width of 182 feet. Broad Street would be closed between Fifth and Ninth Avenues N.

Lowered Aurora would require widening the north curve of the Battery Street Tunnel. For safety reasons, it doesn't make sense to only widen one curve of the Battery Street Tunnel. For this reason, if Lowered Aurora is built, the curves on both ends of the Battery Street Tunnel would need to be widened.

### **Changes Made to the Tunnel Alternative**

Specific design changes and choices evaluated for the Tunnel Alternative are described below.

#### ***Should a stacked or a side-by-side tunnel be built along the waterfront?***

The Draft EIS evaluated the environmental effects of building a side-by-side tunnel along the central waterfront with three lanes in each direction. The Supplemental Draft EIS evaluates the environmental effects and tradeoffs of constructing a slightly deeper, stacked tunnel versus a wide, side-by-side tunnel along the central waterfront. Also, since the Draft EIS, the tunnel portal has been moved about two blocks south from near S. King Street to near S. Dearborn Street. This would enable more surface street connections to be made and improves conditions on SR 99 where it curves at S. Washington Street.

#### ***Should a lid or a walkway be built to connect the Pike Place Market area to the waterfront?***

A number of people asked the project partners to consider building some type of a lid structure that would add open space along the waterfront and connect the Pike Place Market area to the waterfront. To respond to this request, the Supplemental Draft EIS evaluates the effects of building a lid or a walkway that would connect Steinbrueck Park located at the north end of the Pike Place Market to the waterfront.

#### ***Should SR 99 be built under or over Elliott and Western Avenues?***

The Supplemental Draft EIS evaluates two designs to connect a tunnel on the waterfront to the Battery Street Tunnel. One design would connect SR 99 to

the Battery Street Tunnel on an aerial structure that would cross over Elliott and Western Avenues, similar to the way it is today. The other design being considered would connect SR 99 to the Battery Street Tunnel by lowering much of SR 99 in this area and crossing under Elliott and Western Avenues.

### **Changes Made to the Elevated Structure Alternative**

The Supplemental Draft EIS evaluates a new elevated structure design along the central waterfront that would have wider lanes and shoulders than the existing structure, improving safety and reliability for drivers. The new elevated structure would be 11.5 to 35 feet wider than the existing viaduct from south of S. Main Street up to Union Street. Near S. King Street to south of S. Main Street, the new elevated structure would be 54 to 74 feet wider than the existing viaduct as SR 99 transitions from a side-by-side at-grade roadway in the south to a new double-level elevated structure.

The extra width would provide space for three 12-foot-wide lanes and 4-foot- to 10-foot-wide shoulders on both sides of the roadway. The increased lane and shoulder widths would improve roadway system reliability by providing a safer roadway for drivers. Wider lanes give drivers adequate space between vehicles, and shoulders provide space for vehicles to safely stop along the road without blocking it in the case of an emergency. The lane and shoulder widths on the existing viaduct don't meet today's safety standards since existing lane widths are 10 feet or less and shoulder width ranges from less than 1 foot to 4 feet.

## **Additional Information**

There are 2 CDs attached to the back cover of this document. These CDs provide additional project information. One of the CDs contains the **2004 Draft EIS** and supporting technical appendices. The second CD contains the **2006 Supplemental Draft EIS** and supporting technical appendices.

### **What other ideas have been considered for improving the Battery Street Tunnel?**

Since the Draft EIS was published, we have evaluated two additional concepts; one proposed expanding the Battery Street Tunnel to three lanes in each direction (instead of two) and the other proposed to widen the curves at both ends. The concept to expand the Battery Street Tunnel to three lanes in each direction was dropped after additional traffic analysis confirmed that the existing Battery Street Tunnel (with two lanes in each direction) provides adequate capacity both now and in the future (2030). The concept to widen both curves is evaluated in this document as part of the Lowered Aurora design proposed north of the Battery Street Tunnel.

More information about the Battery Street Tunnel concepts is found in a report titled **2006 Alternatives Screening for the Battery Street Tunnel, Parametrix 2006a**.

### **How were designs developed and selected for the area north of the Battery Street Tunnel?**

We evaluated 19 possible concepts for improvements north of the Battery Street Tunnel. Two concepts met project requirements outlined in the project's purpose and need statement and screening criteria. The two concepts carried forward for analysis in this document are called Partially Lowered Aurora and Lowered Aurora. Additional details about the screening process are contained in the **2006 Alternatives Screening North of the Battery Street Tunnel, Parametrix 2006b**.