



Cracked Column in the Viaduct



Damaged Rebar in the Viaduct

## CHAPTER 1 - INTRODUCTION

### What is in Chapter 1?

Chapter 1 describes where the project is located, who is leading the project, the purpose of this document, and the purpose and need for the project.

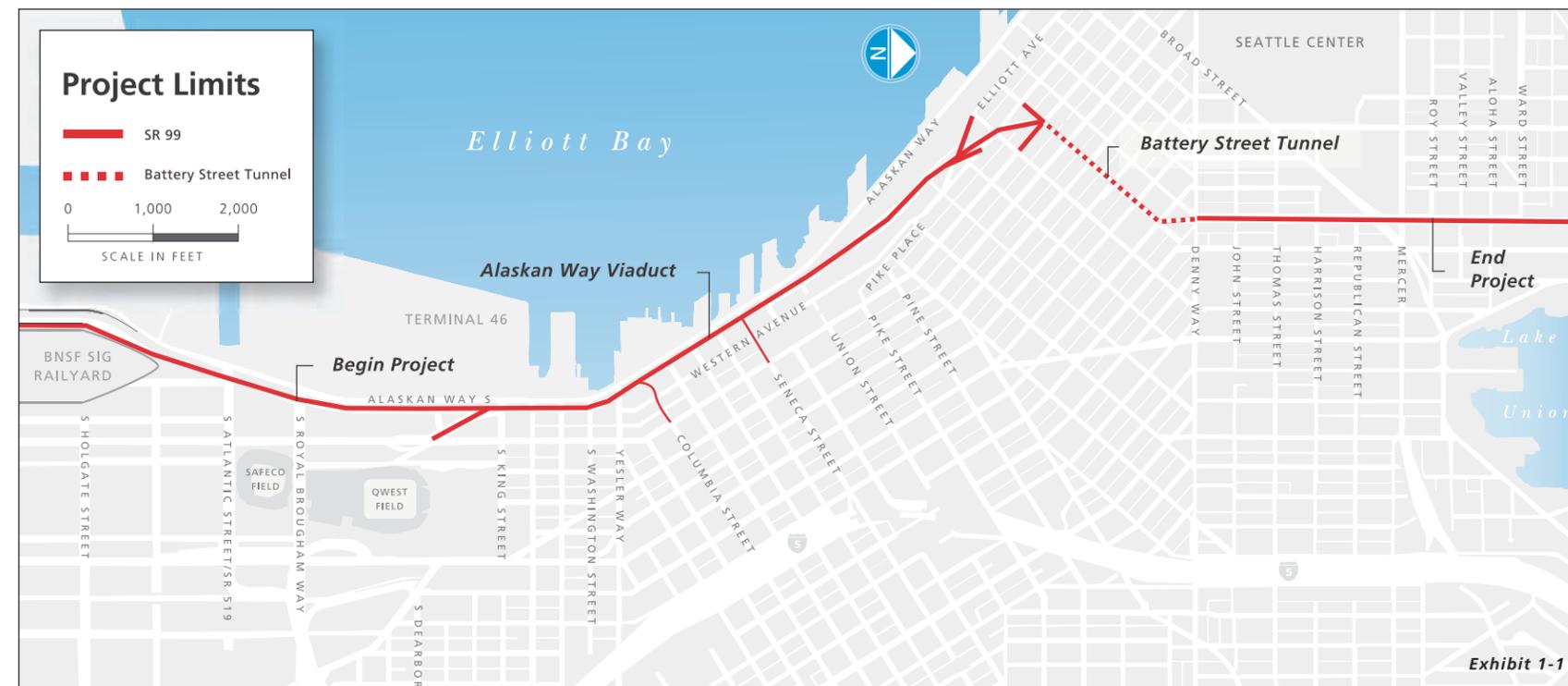
#### 1 What is the Alaskan Way Viaduct Replacement Project?

The Alaskan Way Viaduct Replacement Project (project) is located in downtown Seattle, Washington. The project would replace State Route (SR) 99 from approximately S. Royal Brougham Way to Roy Street and remove the existing viaduct (SR 99) from approximately S. King Street to the Battery Street Tunnel.

#### 2 What are the project limits and why were they selected?

The project limits begin at approximately S. Royal Brougham Way in the south and continue north to Roy Street, as shown in Exhibit 1-1. The project limits represent logical end points (termini) for transportation improvements and environmental review based on identified project needs, which include providing a facility with improved earthquake resistance. S. Royal Brougham Way provides an important link to other regional facilities, such as I-5, I-90, and SR 519, and Roy Street is where traffic exits and enters SR 99.

Between S. Royal Brougham Way and S. King Street, this project would begin and the S. Holgate Street to S. King Street Viaduct Replacement Project will end; there would be an area of transition between the two projects. The S. Holgate Street to S. King Street Viaduct Replacement Project will be built to transition into the No Build Alternative or any of the proposed build alternatives.



Elliott Bay represents the project limit to the west and I-5 is the project limit to the east, though the potentially affected area to the west and east depends on the resource.

#### Where would the construction staging sites be located?

Proposed construction staging sites for the project are located both within and outside of the project limits, as shown in Exhibit 1-2. The project area is located in a highly urban environment where space for construction staging is limited. Because of this, potential staging sites have been proposed outside of the project limits to ensure that sufficient staging areas are available. The contractor may identify additional staging sites as needed and would

be responsible for obtaining environmental approvals for those sites.

#### 3 Who is leading this project?

This project is being led by a partnership of three agencies: the Federal Highway Administration (FHWA), Washington State Department of Transportation (WSDOT), and City of Seattle (City). FHWA is the federal lead agency for this project and is responsible for ensuring that federal regulations 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

#### What is the relationship between the S. Holgate Street to S. King Street Viaduct Replacement Project and this project?

Chapter 3, Question 12 explains the relationship between the S. Holgate Street to S. King Street Viaduct Replacement project and the Alaskan Way Viaduct Replacement Project.

federal-aid highway funds. WSDOT owns 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. In addition, the City owns and maintains Alaskan Way, the area underneath the viaduct, and many of the utilities located in the project area. WSDOT has the responsibility to evaluate the proposed alternatives under the State Environmental Policy Act (SEPA) and is the SEPA lead agency for the project.

**4 Why are the lead agencies preparing this Final EIS?**

This Final Environmental Impact Statement (EIS) is being prepared to meet obligations under NEPA and SEPA. This Final EIS does the following:

- Documents changes made to the proposed build alternatives since the 2010 Supplemental Draft EIS was published
- Identifies the preferred alternative and explains why it is preferred
- Includes responses to public comments on the following environmental documents associated with replacing the Alaskan Way Viaduct:
  - 2004 Alaskan Way Viaduct and Seawall Replacement Project Draft EIS
  - 2006 Alaskan Way Viaduct and Seawall Replacement Project Supplemental Draft EIS
  - 2010 Alaskan Way Viaduct Replacement Project Supplemental Draft EIS

**5 What is the purpose of the Alaskan Way Viaduct Replacement Project and why it is needed?**

**Purpose and Need for the Proposed Action**

The Alaskan Way Viaduct is seismically vulnerable and at the end of its useful life. To protect public safety and provide essential vehicle capacity to and through downtown Seattle, the viaduct must be replaced. Because

this facility is at risk of sudden and catastrophic failure in an earthquake, FHWA, WSDOT, and the City of Seattle seek to implement a replacement as soon as possible. Moving people and goods to and through downtown Seattle is vital to maintaining local, regional, and statewide economic health. FHWA, WSDOT, and the City of Seattle have identified the following purposes and needs the project should address.

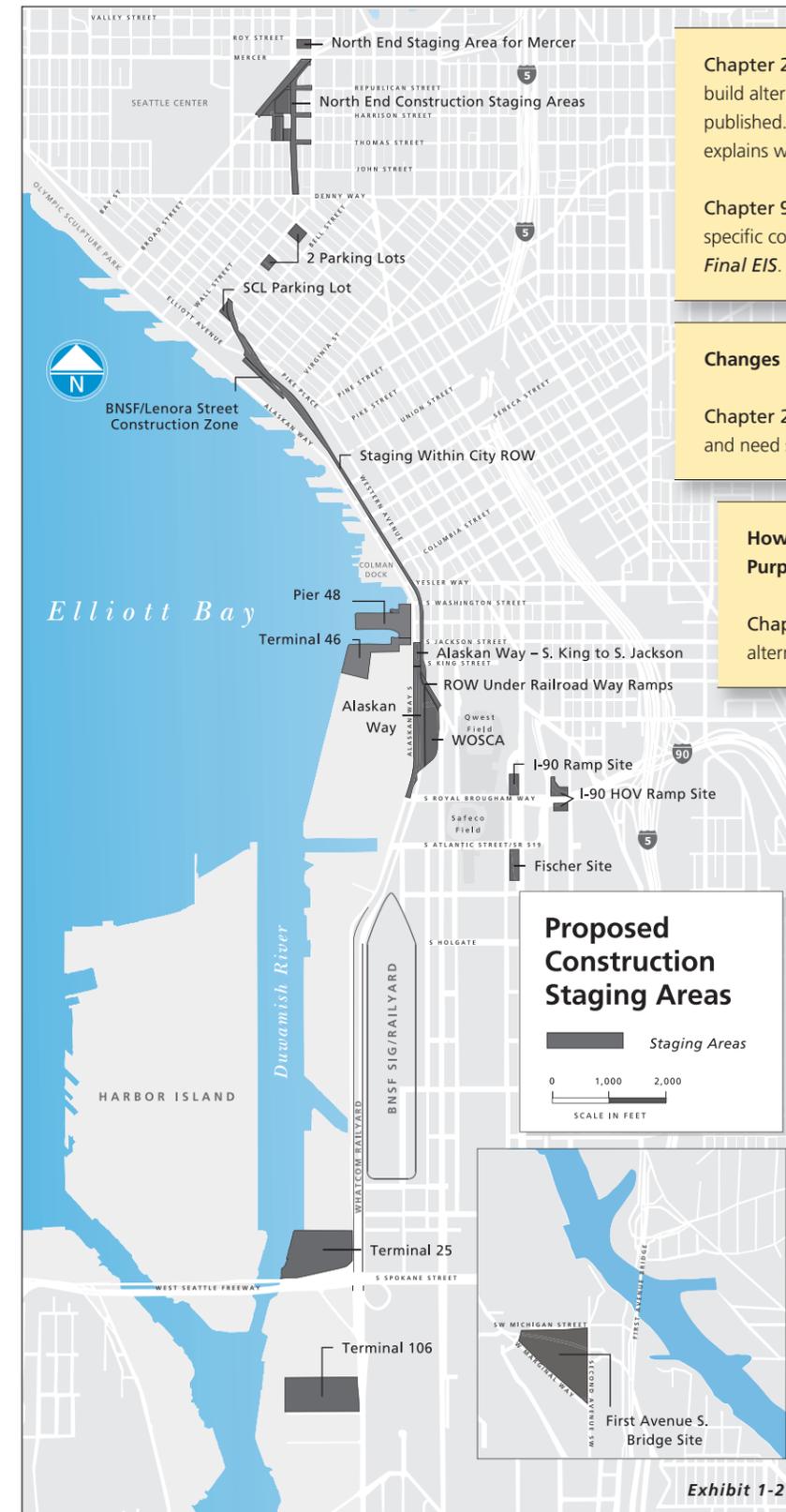
The purpose of the proposed action is to provide a replacement transportation facility that will:

- Reduce the risk of catastrophic failure in an earthquake by providing a facility that meets current seismic safety standards.
- Improve traffic safety.
- Provide capacity for automobiles, freight, and transit to efficiently move people and goods to and through downtown Seattle.
- Provide linkages to the regional transportation system and to and from downtown Seattle and the local street system.
- Avoid major disruption of traffic patterns due to loss of capacity on SR 99.
- Protect the integrity and viability of adjacent activities on the central waterfront and in downtown Seattle.

The following paragraphs provide further information regarding the needs underlying each of these project purposes that are listed above.

**Reduce Seismic Vulnerability**

Because of its seismic vulnerability, the Alaskan Way Viaduct must be removed. The viaduct is deteriorating and at risk of sudden and catastrophic failure in an earthquake because of its design, age, and location. The viaduct was constructed in the 1950s and conformed to the design



Chapter 2, Question 7 describes changes made to the proposed build alternatives since the 2010 Supplemental Draft EIS was published. This question also identifies the preferred alternative and explains why it is preferred.

Chapter 9 discusses responses to public comments. Responses to specific comments are provided in Appendices S and T of this Final EIS.

**Changes Made to the Project's Purpose and Need Statement**

Chapter 2, Question 6 discusses changes made to the purpose and need statement between 2006 and 2010.

**How do the Build Alternatives Meet the Project's Purpose and Need?**

Chapter 5, Question 37 explains how the proposed build alternatives meet the purpose and need statement.

standards of that time. The structure was designed to seismic criteria that are less than one-third as stringent as today's criteria.<sup>1</sup> The viaduct's existing foundations are embedded in liquefiable soil, and the structure is deteriorating. These factors make the structure vulnerable to earthquakes and necessitate its removal.<sup>1</sup> The replacement for SR 99 must meet current standards for earthquake resistance.

#### **Improve Traffic Safety**

The viaduct and Battery Street Tunnel do not meet current roadway design standards and have deficiencies that need to be improved.<sup>1</sup> Current design standards reflect the latest agreement among the states and FHWA on how to safely design new and upgraded highways. As now configured, the viaduct does not meet current standards for lane width, shoulder width, and stopping sight distance.<sup>1</sup> The Battery Street Tunnel does not meet current standards for lane width, shoulder width,<sup>1</sup> and stopping sight distance.<sup>2</sup> North of the Battery Street Tunnel, several streets connect directly to SR 99 without room for drivers to accelerate or decelerate without affecting traffic flow or safety. These deficiencies result in higher than average collision rates for some segments of SR 99 within the project limits compared to similar facilities.<sup>2</sup> The replacement for SR 99 should meet current standards for roadway design.

#### **Provide Capacity to Move People and Goods**

The Alaskan Way Viaduct portion of SR 99 provides essential capacity to and through downtown Seattle, carrying 20 to 25 percent of the traffic traveling through downtown. Together, I-5 and SR 99 through Seattle carry over \$80 billion in goods each year.<sup>3</sup>

The central waterfront portion of the SR 99 mainline is one of two primary north-south highway routes through Seattle. Maintaining this north-south through route is critical to supporting a robust, integrated regional transportation system and the economic vitality of the city, Puget Sound region, and state. The through capacity provided by the viaduct cannot be provided elsewhere in the region if the facility were to close. This section of

SR 99 also serves as a transit route to and from downtown for local and express bus service. For these and other reasons, the U.S. Congress has identified it as a project of national and regional significance.<sup>4</sup> The replacement for SR 99 should provide sufficient capacity for north-south trips to and through downtown.

#### **Provide Transportation System Linkages**

This portion of SR 99 provides important linkages for the regional and local transportation system. Directly south of the central waterfront section of SR 99, the highway interacts with the Port of Seattle and Seattle's Duwamish industrial area. This area is home to one of the West Coast's largest industrial ports and just over 80 percent of Seattle's designated industrial lands.<sup>5</sup> The transportation system in this area plays a crucial role in the movement of freight and goods for the entire state and the Pacific Northwest region. As such, the connection provided by SR 99 to Port facilities and industrial activities is important to the efficient movement of freight and goods to and from Seattle.

Along the central waterfront, SR 99 provides efficient through access for traffic bound for locations north and south of the downtown core. In addition to providing an efficient through connection, the existing viaduct also provides access to and from the south and downtown Seattle via the Seneca Street off-ramp and Columbia Street on-ramp. Further, this section of SR 99 provides a connection for the Interbay, Magnolia, and Ballard neighborhoods in northwest Seattle with areas south of downtown via the Elliott and Western Avenues and Railroad Way on- and off-ramps. This connection is used by many businesses and residents in northwest Seattle and is not easily duplicated by other routes.

Directly north of the central waterfront, SR 99 provides links to the local streets that serve the Seattle Center, a major regional civic center that welcomes more than 12 million visitors each year, generating \$1.15 billion in business activity.<sup>6</sup> In this area, SR 99 separates Seattle Center and the Uptown neighborhood from the South Lake Union neighborhood and provides limited

connections to these neighborhoods. Improvements to SR 99 should improve these inter-neighborhood connections as well as provide regional access to and from SR 99.

The replacement for SR 99 should provide linkages to the regional transportation system, and to and from downtown Seattle and the local street system.

#### **Avoid Major Disruption of Traffic Patterns**

The existing Alaskan Way Viaduct provides substantial capacity for north-south travel to and through downtown Seattle. The loss of substantial capacity on SR 99 for an extended period would adversely affect conditions for through traffic by increasing congestion on I-5 and the adjacent local roadway network. Since many of these adjacent facilities are already congested, extended loss of SR 99 capacity would add substantial delay for the traveling public (including transit) and would cause economic hardships for local and regional businesses. While disruption cannot be completely avoided, there is a need to replace the existing viaduct in a manner that minimizes disruption of traffic patterns by minimizing the time lapse between closure of the existing viaduct and opening of a replacement facility or facilities.

#### **Protect the Integrity and Viability of Adjacent Activities on the Central Waterfront and in Downtown Seattle**

The presence of the viaduct impedes the City's ability to implement its vision for redeveloping the central waterfront. The central waterfront section of the Alaskan Way Viaduct travels through and adjacent to downtown Seattle's urban core and the Seattle waterfront. The structure is elevated through the city, providing views of the waterfront to drivers, but substantially impairing views to and from the waterfront to the city. The high volume of traffic carried by the double-level structure contributes substantial noise that affects the adjacent downtown and waterfront areas.

Since the viaduct was constructed in the 1950s, the Seattle downtown waterfront has been transformed from its origins as a working waterfront, characterized by shipping,

<sup>1</sup> Parsons Brinckerhoff Quade & Douglas, Inc. 2002.

<sup>2</sup> Parsons Brinckerhoff Quade & Douglas, Inc. 2004.

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

<sup>4</sup> SAFETEA-LU 2005, Sec. 1301 (m).

<sup>5</sup> City of Seattle 2007.

<sup>6</sup> City of Seattle 2008.

warehouse, and industrial activities, to an important area for tourism and recreation. The central waterfront now has a mix of uses that include office, retail, hotel, residential, conference center, aquarium, museum, parks, cruise ship terminal, ferry terminal, and various types of commercial and recreational moorage. As such, the view and noise impacts caused by the existing elevated viaduct structure detract from the land uses found on the Seattle waterfront today.

Seattle's vision for the central waterfront is based on reconnecting downtown with the waterfront, enhancing the waterfront's environmental sustainability, increasing views of Elliott Bay and the landforms beyond, facilitating revitalization of Seattle's waterfront, maintaining transportation access to and through the waterfront, and increasing opportunities for the public to access and enjoy the shoreline and waterfront. Therefore, the replacement for SR 99 should support land use plans for the central Seattle waterfront and downtown as described above.