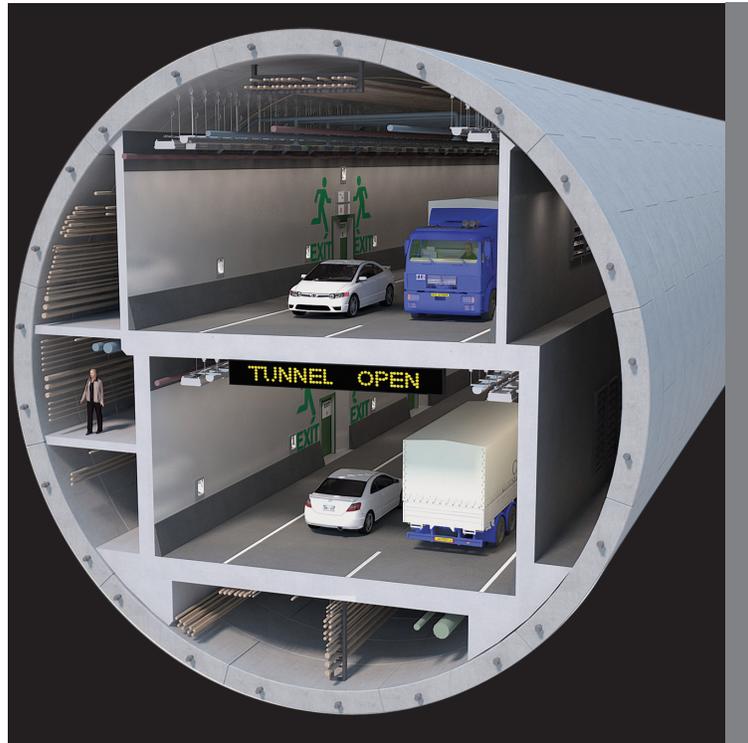


# ALASKAN WAY VIADUCT REPLACEMENT PROJECT

## 2010 Supplemental Draft Environmental Impact Statement

### APPENDIX D Visual Quality Discipline Report



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OCTOBER 2010

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# Alaskan Way Viaduct Replacement Project

## Supplemental Draft EIS

### Visual Quality Discipline Report

The Alaskan Way Viaduct Replacement Project is a joint effort between the Federal Highway Administration (FHWA), the Washington State Department of Transportation (WSDOT), and the City of Seattle. To conduct this project, WSDOT contracted with:

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- A Cumulative Effects Analysis
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## ACRONYMS AND ABBREVIATIONS

|         |  |
|---------|--|
| City    | City of Seattle  |
| DRGDD   | Design Review Guidelines for Downtown Development                  |
| DRGMC   | Design Review: Guidelines for Multifamily and Commercial Buildings |
| EIS     | Environmental Impact Statement                                     |
| FWHA    | Federal Highway Administration                                     |
| I-5     | Interstate 5   |
| I-90    | Interstate 90  |
| NEPA    | National Environmental Policy Act                                  |
| Program | Alaskan Way Viaduct and Seawall Replacement Program                |
| project | Alaskan Way Viaduct Replacement Project                            |
| SMC     | Seattle Municipal Code   |
| SR      | State Route  |
| WSDOT   | Washington State Department of Transportation                      |

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# Chapter 1 INTRODUCTION AND SUMMARY

## 1.1 Introduction

This discipline report evaluates the Bored Tunnel Alternative, the new alternative under consideration for replacing the Alaskan Way Viaduct. This report and the Alaskan Way Viaduct Replacement Project Supplemental Draft Environmental Impact Statement (EIS) that it supports are intended to provide new information and updated analyses to those presented in the March 2004 Alaskan Way Viaduct and Seawall Replacement Project Draft EIS and the July 2006 Alaskan Way Viaduct and Seawall Replacement Project Supplemental Draft EIS. The discipline reports present the detailed technical analyses of existing conditions and predicted effects of the Bored Tunnel Alternative. The results of these analyses are presented in the main volume of the Supplemental Draft EIS.

The Federal Highway Administration (FHWA) is the lead federal agency for this project, primarily responsible for compliance with the National Environmental Policy Act (NEPA) and other federal regulations, as well as distributing federal funding. As part of the NEPA process, FHWA is also responsible for selecting the preferred alternative. FHWA will base their decision on the information evaluated during the environmental review process, including information contained within the Supplemental Draft EIS and the subsequent Final EIS. FHWA can then issue their NEPA decision, called the Record of Decision (ROD).

The 2004 Draft EIS (WSDOT et al. 2004) evaluated five Build Alternatives and a No Build Alternative. In December 2004, the project proponents identified the cut-and-cover Tunnel Alternative as the preferred alternative and carried the Rebuild Alternative forward for analysis as well. The 2006 Supplemental Draft EIS (WSDOT et al. 2006) analyzed two alternatives—a refined cut-and-cover Tunnel Alternative and a modified rebuild alternative called the Elevated Structure Alternative. After continued public and agency debate, Governor Gregoire called for an advisory vote to be held in the city of Seattle. The March 2007 ballot included an elevated alternative and a surface-tunnel hybrid alternative. The citizens voted down both alternatives.

Following this election, the lead agencies committed to a collaborative process to find a solution to replace the viaduct along Seattle's central waterfront. This Partnership Process is described in Appendix S, the Project History Report. In January 2009, Governor Gregoire, King County Executive Sims, and Seattle Mayor Nickels announced that the agencies had reached a consensus and recommended replacing the aging viaduct with a bored tunnel.

The environmental review process for the Alaskan Way Viaduct Replacement Project (the project) builds on the five Build Alternatives evaluated in the 2004 Draft

EIS and the two Build Alternatives evaluated in the 2006 Supplemental Draft EIS. It also incorporates the work done during the Partnership Process. The bored tunnel was not studied as part of the previous environmental review process, and so it becomes the eighth alternative to be evaluated in detail.

The Bored Tunnel Alternative analyzed in this discipline report and in the Supplemental Draft EIS has been evaluated both quantitatively and qualitatively. The Bored Tunnel Alternative includes replacing State Route (SR) 99 with a bored tunnel and associated improvements, such as relocating utilities located on or under the viaduct, removing the viaduct, decommissioning the Battery Street Tunnel, and making improvements to the surface streets in the tunnel's south and north portal areas.

Improvements at the south portal area include full northbound and southbound access to and from SR 99 between S. Royal Brougham Way and S. King Street. Alaskan Way S. would be reconfigured with three lanes in each direction. Two options are being considered for new cross streets that would intersect with Alaskan Way S.:

- New Dearborn Intersection – Alaskan Way S. would have one new intersection and cross street at S. Dearborn Street.
- New Dearborn and Charles Intersections – Alaskan Way S. would have two new intersections and cross streets at S. Charles Street and S. Dearborn Street.

Improvements at the north portal area would include restoring Aurora Avenue and providing full northbound and southbound access to and from SR 99 near Harrison and Republican Streets. Aurora Avenue would be restored to grade level between Denny Way and John Street, and John, Thomas, and Harrison Streets would be connected as cross streets. This rebuilt section of Aurora Avenue would connect to the new SR 99 alignment via the ramps at Harrison Street. Mercer Street would be widened for two-way operation from Fifth Avenue N. to Dexter Avenue N. Broad Street would be filled and closed between Ninth Avenue N. and Taylor Avenue N. Two options are being considered for Sixth Avenue N. and the southbound on-ramp:

- The Curved Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. in a curved formation between Harrison and Mercer Streets. The new roadway would have a signalized intersection at Republican Street.
- The Straight Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. from Harrison Street to Mercer Street in a typical grid formation. The new roadway would have signalized intersections at Republican and Mercer Streets.

For these project elements, the analyses of effects and benefits have been quantified with supporting studies, and the resulting data are found in the discipline reports (Appendices A through R). These analyses focus on assessing the Bored Tunnel Alternative's potential effects for both construction and operation, and consider appropriate mitigation measures that could be employed. The Viaduct Closed (No Build Alternative) is also analyzed.

The Alaskan Way Viaduct Replacement Project is one of several independent projects that improve safety and mobility along SR 99 and the Seattle waterfront from the South of Downtown (SODO) area to Seattle Center. Collectively, these individual projects are often referred to as the Alaskan Way Viaduct and Seawall Replacement Program (the Program). This Supplemental Draft EIS evaluates the cumulative effects of all projects in the Program; however, direct and indirect environmental effects of these independent projects will be considered separately in independent environmental documents. This collection of independent projects is categorized into four groups: roadway elements, non-roadway elements, projects under construction, and completed projects.

### **Roadway Elements**

- Alaskan Way Surface Street Improvements
- Elliott/Western Connector
- Mercer West Project (Mercer Street improvements from Fifth Avenue N. to Elliott Avenue)

### **Non-Roadway Elements**

- First Avenue Streetcar Evaluation
- Transit Enhancements
- Elliott Bay Seawall Project
- Alaskan Way Promenade/Public Space

### **Projects Under Construction**

- S. Holgate Street to S. King Street Viaduct Replacement
- Transportation Improvements to Minimize Traffic Effects During Construction

### **Completed Projects**

- SR 99 Yesler Way Vicinity Foundation Stabilization (Column Safety Repairs)
- S. Massachusetts Street to Railroad Way S. Electrical Line Relocation Project (Electrical Line Relocation Along the Viaduct's South End)

## 1.2 Bored Tunnel Alternative

The Bored Tunnel Alternative would replace SR 99 between S. Royal Brougham Way and Roy Street. The tunnel would have two lanes in each direction. Beginning at S. Royal Brougham Way, SR 99 would be a side-by-side, surface roadway that would transition to a cut-and-cover tunnel. At approximately S. King Street, SR 99 would become a stacked bored tunnel, with two southbound travel lanes on the top and two northbound travel lanes on the bottom. The bored tunnel would continue under Alaskan Way S. to approximately S. Washington Street where it would curve slightly away from the waterfront and then travel under First Avenue beginning at approximately University Street. At Stewart Street, it would travel in a northern direction under Belltown. At Denny Way the bored tunnel would travel under Sixth Avenue N., where it would transition to a side-by-side surface roadway at about Harrison Street.

The Bored Tunnel Alternative would remove the existing viaduct and close and fill the Battery Street Tunnel after the new bored tunnel is completed.

There are three primary components of the Bored Tunnel Alternative: the south portal area, the bored tunnel, and the north portal area. Each of these areas is discussed in more detail below.

### 1.2.1 South Portal Area

Full northbound and southbound access to and from SR 99 would be provided in the south portal area between S. Royal Brougham Way and S. King Street. The northbound on-ramp to and southbound off-ramp from SR 99 would be built near S. Royal Brougham Way and would intersect with the East Frontage Road.

The southbound on-ramp to and northbound off-ramp from SR 99 would feed directly into a reconfigured Alaskan Way S. The northbound off-ramp would have a general-purpose lane and a peak hour transit-only lane to accommodate transit coming from south or West Seattle. The reconfigured Alaskan Way S. would have three lanes in each direction.

The reconfigured Alaskan Way S. would have a pedestrian and bike trail on the west side, called the Port Side Pedestrian/Bike Trail, and a minimum 25-foot-wide multi-use path, called the City Side Trail, on the east side. The City Side Trail would travel from S. Atlantic Street up to S. King Street and would replace the existing 15-foot-wide Waterfront Bicycle/Pedestrian Facility currently located on the east side of Alaskan Way S.

Two options are being considered for new cross streets that would be built to intersect with Alaskan Way S.:

- New Dearborn Intersection – Alaskan Way S. would have one new intersection and cross street at S. Dearborn Street. The cross street would have sidewalks on both sides.
- New Dearborn and Charles Intersections – Alaskan Way S. would have two new intersections and cross streets at S. Charles Street and S. Dearborn Street. The cross streets would have sidewalks on both sides.

The frontage road east of SR 99 would be widened slightly at S. Atlantic Street to accommodate truck turning movements. A new right-turn pocket would be added between S. Atlantic Street and S. Royal Brougham Way.

A tunnel operations building would be constructed in the block bounded by S. Dearborn Street, Alaskan Way S., and a new Railroad Way S. access road. The tunnel operations building would house electrical and mechanical equipment, including large fans and exhaust stacks to vent the tunnel, and operations and maintenance equipment. Part of the building would be constructed underground. The remaining portion of the building is expected to be approximately 60 feet tall with vent stacks extending up to 30 feet above the roof.

### 1.2.2 Bored Tunnel

The bored tunnel would have two lanes in each direction. Southbound lanes would be located on the top portion of the tunnel, and the northbound lanes would be located on the bottom. Travel lanes would be approximately 11 feet wide, with a 2-foot-wide shoulder on one side and a 6-foot-wide shoulder on the other side. The wider shoulder would provide emergency vehicle access and space for disabled vehicles to safely stop.

The wider shoulder would also provide access to emergency tunnel exits, which would be provided at least every 650 feet. Signs would direct travelers to the nearest exit. In an emergency, travelers would walk along the shoulders to reach a doorway into a secure waiting area, called a refuge area, located between the tunnel levels. Emergency telephones would be available in the refuge areas. A staircase inside the refuge area would provide access between the tunnel levels, allowing travelers to either wait in the refuge area for assistance or walk out of the tunnel.

The tunnel would be equipped with ventilation systems, a fire detection and suppression system, and drainage. Video cameras would provide real-time information to the operators at Washington State Department of Transportation's (WSDOT's) 24-hour tunnel control center and allow them to respond quickly to changing conditions and emergencies. The tunnel control center would be incorporated into one of the tunnel operations buildings at either the south or

north tunnel portal. The tunnel would have no surface features between the portals. All emergency access and ventilation facilities would be near the portals.

### 1.2.3 North Portal Area

Full northbound and southbound access to and from SR 99 would be provided near Harrison and Republican Streets. The existing on- and off-ramps provided at Denny Way would be closed and replaced with downtown access ramps to and from SR 99 that drivers would access via a new surface connection between Denny Way and Harrison Street.

Northbound access from SR 99 and southbound access to SR 99 would be provided via new ramps at Republican Street. The northbound off-ramp to Republican Street would be provided on the east side of SR 99 and routed to an intersection at Dexter Avenue N. Drivers would access the southbound on-ramp via a new connection with Sixth Avenue N. at Republican Street on the west side of SR 99.

Surface streets would be reconfigured and improved in the north portal area. The street grid between Denny Way and Harrison Street would be connected by removing the median barrier between Denny Way and Harrison Street and reconfiguring the street to allow crossing traffic at the John, Thomas, and Harrison Street intersections. The new surface Aurora Avenue would have two general-purpose lanes in each direction, a transit-only lane, and turn pockets between Denny Way and Harrison Street. Signalized intersections would be located at Denny Way and John, Thomas, and Harrison Streets.

Mercer Street would become a two-way street and would be widened from Dexter Avenue N. to Fifth Avenue N. The rebuilt Mercer Street would have three lanes in each direction with left-hand turn pockets. Broad Street would be filled and closed between Ninth Avenue N. and Taylor Avenue N.

Two options are being considered for Sixth Avenue N. and the southbound on-ramp:

- The Curved Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. in a curved formation between Harrison and Mercer Streets. The new roadway would have a signalized intersection at Republican Street.
- The Straight Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. from Harrison Street to Mercer Street in a typical grid formation. The new roadway would have signalized intersections at Republican and Mercer Streets. This alignment would pass through the Gates Foundation site at grade. It is presumed that the

Gates Foundation would build a portion of their building over the street, which would give the street a tunnel appearance for part of its alignment.

As part of the north portal, a tunnel operations building would be constructed between Thomas and Harrison Streets on the east side of Sixth Avenue N. Part of the building would be constructed underground. The remaining portion of the building is expected to be approximately 65 feet tall with vent stacks extending up to 30 feet above the roof.

### 1.3 Viaduct Closed (No Build Alternative)

Both federal and Washington State environmental regulations require agencies to evaluate a No Build Alternative to provide baseline information about existing conditions in the project area. For this project, the No Build Alternative is not a viable alternative because the existing viaduct is vulnerable to earthquakes and structural failure due to ongoing deterioration. Multiple studies of the viaduct's current structural conditions, including its foundations in liquefiable soils, have determined that retrofitting or rebuilding the existing viaduct is not a reasonable alternative. At some point in the future, the roadway will need to be closed.

The Viaduct Closed (No Build Alternative) describes what would happen if the Bored Tunnel Alternative or another build alternative is not implemented. If the existing viaduct is not replaced, it will be closed, but it is unknown when that would happen. However, it is highly unlikely that the existing structure could still be in use in 2030.

The Viaduct Closed (No Build Alternative) describes the consequences of suddenly losing the function of SR 99 along the central waterfront based on one of two scenarios:

- Scenario 1 – An unplanned closure of the viaduct for some structural deficiency, weakness, or damage due to a smaller earthquake event.
- Scenario 2 – Catastrophic failure and collapse of the viaduct.

### 1.4 Summary of Visual Effects

This report describes the character of the existing landscape and visual resources, the visual changes resulting from the project alternatives, and the extent to which the visual effects would be experienced by viewer groups within the study area. The study area includes the viewshed, or visible areas, for the Bored Tunnel Alternative and the associated Program elements, and it is based on the physical features that can be seen from the surface roadway and surrounding areas. This report also describes potential mitigation measures for adverse visual effects, including ways to avoid or minimize effects on visual quality and ways to restore and enhance visual quality.

This report refers to Appendix E, Visual Simulations. Appendix E includes visual simulations of views resulting from the alternatives to provide representative viewpoints or to show visual effects of an alternative that are particularly noteworthy.

Visual effects of the following alternatives were evaluated:

- Bored Tunnel Alternative, which would replace the SR 99 Alaskan Way Viaduct with a deep bored tunnel.
- Viaduct Closed (No Build Alternative).

In addition, the visual effects of a number of related Program elements are evaluated as reasonably foreseeable future projects in Attachment A. These elements were analyzed at a lower level of detail, similar to that used in screening-level environmental analysis. These elements will be subject to further NEPA environmental review as their planning and design progresses in parallel with or after the NEPA process for the Bored Tunnel Alternative.

The largest factor in the visual effects of the alternatives is the presence or absence of an aerial structure. The existing viaduct provides the following panoramic views from the elevated roadway for northbound drivers and passengers: to the north of downtown Seattle and to the northwest of Puget Sound, the intermediate wooded hills of Bainbridge Island and the Kitsap Peninsula, and the Olympic Mountains on clear days.

The Viaduct Closed (No Build Alternative) would have the greatest visual effect on views of the roadway from the surrounding area due to the retention of the existing structure for an undefined interim period. The interim period is assumed to be the length of time before an eventual unplanned closure due to structural damage from a smaller earthquake or a catastrophic failure and collapse of the existing viaduct. During this interim period, the viaduct would continue to visually dominate the foreground and form a visual barrier to and from the waterfront, downtown Seattle, and the Pioneer Square Historic District. The aerial structure contrasts with the character of the buildings and street corridors, presents a visual intrusion, blocks or screens views of vivid landscape features such as the Olympic Mountains and the downtown skyline, and reduces the visual coherence and compositional harmony of views. The viaduct's visual dominance is reinforced by its noise effects, which create a constant background of engine and road noise. The viaduct also creates a change in environment for pedestrians walking between the waterfront and downtown: it closes off the open street corridor, creates shadows, and precludes the provision of visual relief such as that afforded by vegetation and other amenities.

The eventual unplanned permanent closure of the viaduct due to earthquake or other safety concerns would result in a loss of views from the viaduct, as described below for the Bored Tunnel Alternative. As with the Bored Tunnel Alternative, the removal of the existing viaduct would eliminate the visual barrier that separates downtown Seattle and the Pioneer Square Historic District to the east from the central waterfront to the west.

The Bored Tunnel Alternative would result in no views from the road within the bored tunnel. Views on the surface roadway south of S. King Street would be narrowly bounded by structures or railyards on both sides. The panoramic views of Puget Sound and the Olympic Mountains from the existing viaduct would no longer be enjoyed by vehicle drivers or passengers. However, existing views of Elliott Bay and across Puget Sound between the piers would remain as today.

For views from areas other than the roadway, the removal of the existing aerial structure would eliminate the visual barrier that separates downtown Seattle and the Pioneer Square Historic District to the east from the central waterfront to the west. The visual integrity of local views of pedestrians, vehicles on surface streets, and occupants of buildings on the waterfront, in the downtown area, and in the Pioneer Square Historic District would be substantially enhanced.

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## Chapter 2 METHODOLOGY

This report evaluates the potential change in visual quality that would result from each of the project alternatives. The analysis includes three levels of study:

- The visual environment related to the design of the roadway alternatives: the experience of users of the facility, i.e., views from the road.
- The relationship of the alternatives to specific elements of the surroundings: the visual experience of persons looking at the facility, i.e., views toward the road.
- The relationship of the alternatives to the overall environmental context: the existing and planned character of the area based on plans and policies for future development.

### 2.1 Visual Assessment Methodology

The methods used to assess visual quality for this project follow FHWA's *Visual Impact Assessment for Highway Projects* (FHWA 1988). The assessment also took into account the City of Seattle's (City's) urban design goals and aesthetic regulations: (1) the City's environmental review criteria (which protect the views of specific features), (2) the *City of Seattle Comprehensive Plan: Toward a Sustainable Seattle* (Seattle 2005), (3) the City's Land Use Code (Title 23 of the Seattle Municipal Code [SMC 23]), and (4) relevant neighborhood plans. WSDOT's *Roadside Classification Plan* (WSDOT 1996) also was used to identify policies related to the design and management of the roadway.

The assessment of visual quality is concerned with both the character of the visual experience and the effect upon the viewer. For the purposes of this analysis, *visual quality* and *aesthetics* are analogous terms. The assessment of visual quality is subjective in that the person perceiving the visual environment brings personal and cultural frames of reference to the discernment and evaluation of visual information. There is, however, broad agreement in federal, state, and local regulations as well as research results that establish a general public consensus of what constitutes a desirable visual environment.

According to the FHWA guidance for visual impact assessments (FHWA 1988), the aesthetic experience includes three critical parameters:

- Visual character
- Visual quality
- Viewer response

The relationship of these parameters in the visual assessment methodology is indicated in the flowchart in Exhibit 2-1.

# The Visual Environment

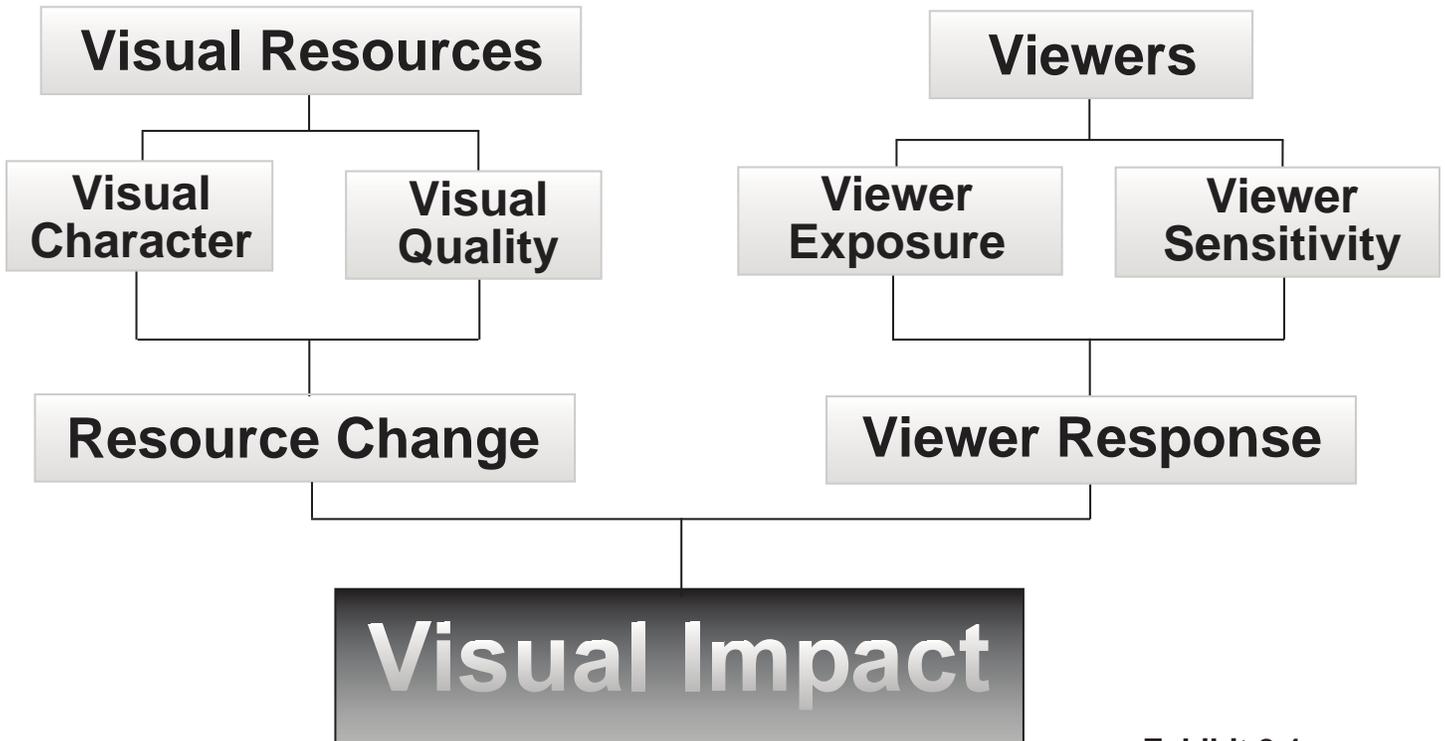


Exhibit 2-1  
Visual Assessment  
Methodology

### 2.1.1 Visual Character

*Visual character* refers to identifiable visual information. Visual character may be distinguished both at the level of specific elements and at the level of the relationships among elements. The first step in assessing visual effects is to describe visual attributes and environmental features using objective descriptors (such as form, line, color, and texture).

The City's environmental code (Seattle Municipal Code, Section 25.05.675.P [SMC 25.05.675.P]) identifies specific significant natural and human-made features, views of which are protected from specific viewpoints, parks, scenic routes, and view corridors. These specific features include Mount Rainier; the Olympic and Cascade Mountains; the downtown skyline; and major bodies of water, including Puget Sound, Elliott Bay, Lake Washington, Lake Union, and the Lake Washington Ship Canal. These features can be generalized into broader categories of land forms, water bodies, vegetation communities, land use, and development type.

Four key features are used to identify relationships between elements of the visual environment: dominance, scale, diversity, and continuity. *Dominance* refers to the position of an individual element, or its extent or contrast among all the other elements of a view. *Scale* refers to apparent size relationships between an element and the other components of its surroundings. *Diversity* is a function of the number, variety, and intermixing of elements in a view. *Continuity* refers to the maintenance of visual relationships between connected or related landscape features. The integration of these elements results in a complete description of the character of a view.

### 2.1.2 Visual Quality

*Visual quality* refers to the value of the visual experience to the public. Studies of the American public and across cultures demonstrate strong agreement about preferred qualities of the visual experience (Jacques 1980; Kaplan 1985; Real et al. 2000). This consensus is exhibited in officially designated landscapes generally agreed to have high value, such as national parks, scenic rivers, scenic highway viewpoints, and designations such as the City's designation of significant natural and human-made features.

In this analysis, visual quality is analyzed in terms of whether features are locally designated as "significant natural and human-made features" in Seattle environmental code (SMC 25.05.675.P), and whether the view includes visual relationships that include vividness, intactness, and unity. These characteristics are consistently prominent in landscapes perceived by the general public as having high visual quality. This set of measures is similar to those of other

systems that analyze human perceptions based on factors such as *complexity* (the variety or diversity in a scene as it relates to human interest), *coherence* (the extent to which the scene “hangs together” through repetition of elements, which facilitates comprehension), and *legibility* (the features that contribute to the recognition of an environment) (Kaplan and Kaplan 1982).

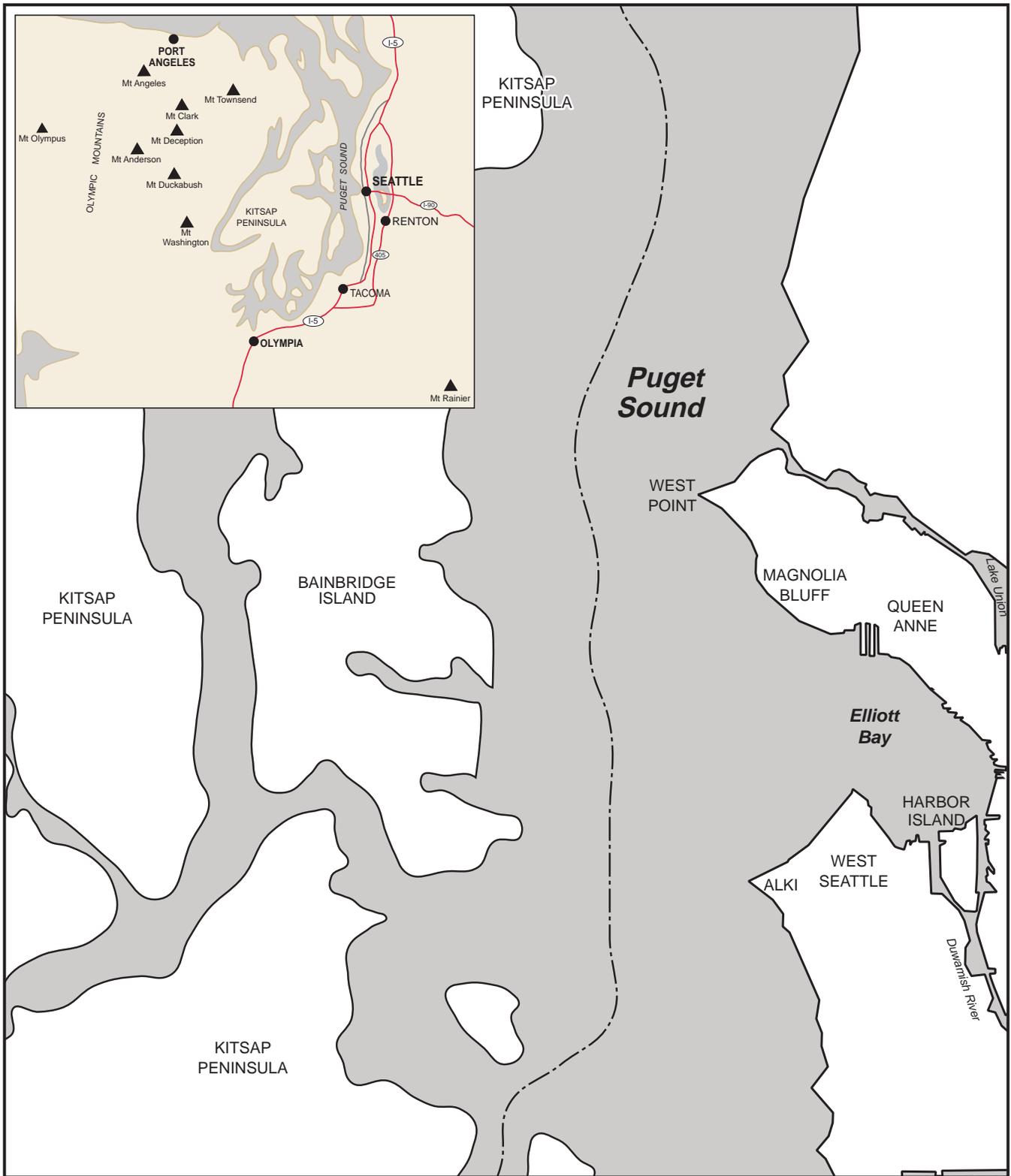
*Vividness* refers to the way landscape components combine in distinctive and memorable visual patterns. For different landscapes, various elements may contribute to vividness. This analysis incorporates certain City-designated significant features:

- Landforms, including Mount Rainier, the Olympic Mountains, and the Cascade Mountains.
- Water forms, including Puget Sound and Elliott Bay.
- Human-made forms, such as the downtown skyline, may be vivid in a particular view, as may elements such as vegetation masses and landmarks, including individual buildings.

Exhibit 2-2 shows the locations of landscape elements available in views from project area, including the water forms of Puget Sound and Elliott Bay and the landforms of Queen Anne Hill, Magnolia, the wooded hills of Bainbridge Island, the Kitsap Peninsula, and peaks of the Olympic Mountains (shown in the inset of Exhibit 2-2). In addition, southbound vehicles on the viaduct have views of Mount Rainier and the Cascades, largely in the area between Elliott Avenue and Pine Street. Human-made forms such as the downtown skyline are an element of all views from the road and views of the road from the surrounding area.

*Intactness* refers to the integrity of natural and human-built visual patterns, the extent to which the scene “hangs together.” For this project, intactness is evaluated based on the extent to which elements of the urban environment meet City of Seattle design guidelines. This includes patterns of urban form that result in a distinctive, attractive, and memorable “sense of place” through streetscape patterns, distinctive facade materials, and skyline elements (*Design Review Guidelines for Downtown Development* [DRGDD] A-1, D-3; *Design Review: Guidelines for Multifamily and Commercial Buildings* [DRGMC] C-1, D-1). The evaluation of intactness also includes the extent to which the landscape is free from encroaching elements. Encroaching elements may include a single eyesore or multiple elements.

*Unity* refers to the visual coherence and compositional harmony of the landscape considered as a whole. It refers to the fit between elements of the landscape but does not connote uniformity in design or character. In some cases, landscapes also have unity due to a common design milieu or association with historical events.



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NOT TO SCALE

**Exhibit 2-2**  
**Landscape Elements in Views**

This is the case with historic districts, such as Pioneer Square and the Pike Place Market, in which the quality of the view also is related to its historic context and the value placed on that quality by the public. That value is also reflected in local and federal historic district designation on the area.

### 2.1.3 Viewer Response

*Viewer response* is analyzed in terms of viewer exposure and viewer sensitivity. *Viewer exposure* refers to the physical location of viewer groups, the number of people exposed to a view, and the duration of their view. This includes both highway users and persons in the surrounding area. *Viewer sensitivity* refers to factors that affect the degree to which a viewer perceives elements of the environment and the extent to which those elements are important to the viewer. Viewer sensitivity is affected by factors such as the activities a viewer is engaged in; the visual context; and the values, expectations, and interests of a group of persons or a person involved in a particular activity or context.

Viewer exposure and viewer sensitivity work together for persons viewing the road from the context of other activities. Generally, persons engaged in elective activities are most sensitive to the visual environment. People who have chosen an activity for enjoyment, such as a tourist or someone engaged in a recreational activity, are often attracted to an area because of its visual features. They have ample time to stop and look at a scene in a leisurely fashion. Other elective activities, such as shopping, dining, or attending a cultural or sports event, involve varying degrees of sensitivity to visual elements, depending on the location, visible elements, available time, and mode of travel to the site.

Residents in their homes show a similar attraction to the visual amenities of an area. Residents typically are among the most sensitive groups because they have a high personal investment in the environment as well as regular exposure. They may, however, become habituated to elements of a view that might be intrusive or objectionable to those who are not exposed to it on a regular basis.

Employees at work tend to be less sensitive to the visual environment outside the work place when they are focused on work tasks. However, the surrounding environment is likely to be a factor if they have time to take a visual break and have window access to the outside environment. The visual environment may also be important during their trip to and from work and during periods when they leave the work environment such as breaks or lunch. In general, office workers are more likely to be able to include access to the visual environment in their work activities than industrial workers.

Persons involved in automobile travel, especially drivers, are likely to be less sensitive to the surrounding visual environment because of the demands of driving and the short period during which they are exposed to visual elements. Transit users

do not have the demands of driving and may be somewhat more sensitive to views of their surroundings, although their view from bus or train windows may be limited. Bicyclists and pedestrians are likely to be quite sensitive to their surroundings because they move relatively slowly, have time to integrate all elements of the view, and do not have vehicles obstructing portions of their field of vision. In the case of regular commuters using a familiar route, the daily repetition of a relatively short-duration event may, however, lead to a great deal of familiarity, and they may place high value on a scene that is experienced only in a snapshot. They also may become habituated to negative elements and focus more on positive elements.

## 2.2 Views From the Road

The physical character of the road is important both to driver function and satisfaction. The driver uses visual information from the roadside environment to assist in controlling, guiding, and navigating the vehicle. Highway alignment, roadway geometrics, landform configurations, vegetation, and structures all guide the driver. Excessive visual stimulation and complexity can distract the driver and decrease his or her control of the vehicle. Conversely, monotony from lack of visual interest can decrease driver attention and thus diminish his or her control. Difficulties related to driver perception, attention, and distraction are a primary cause of over 40 percent of traffic accidents (WSDOT 2003).

The parameters of visual character, visual quality, and visual exposure are used to assess views available to drivers and passengers. Drivers and passengers also form impressions and memories from what is seen along the roadside; therefore, roadsides are important in establishing community and state identity. Americans have repeatedly ranked pleasure driving on scenic roads as one of their favorite pastimes. Both national and state environmental policies mandate the provision of safe, healthful, productive, and aesthetically pleasing surroundings.

## 2.3 Views Toward the Road

### 2.3.1 Visual Character Units

For this assessment, key views were selected to represent the range of views in the study area. The view selection process included field reconnaissance of the study area and an evaluation of potential visual character units from which the existing highway and the project area are visible. A *visual character unit* is a geographic area in which views of the subject have a similar context as defined by features of the setting (such as topography), the location of the viewer in relation to the object being viewed, the character of the landscape (such as vegetation cover or the urban environment), and the role of the subject viewed in the landscape.

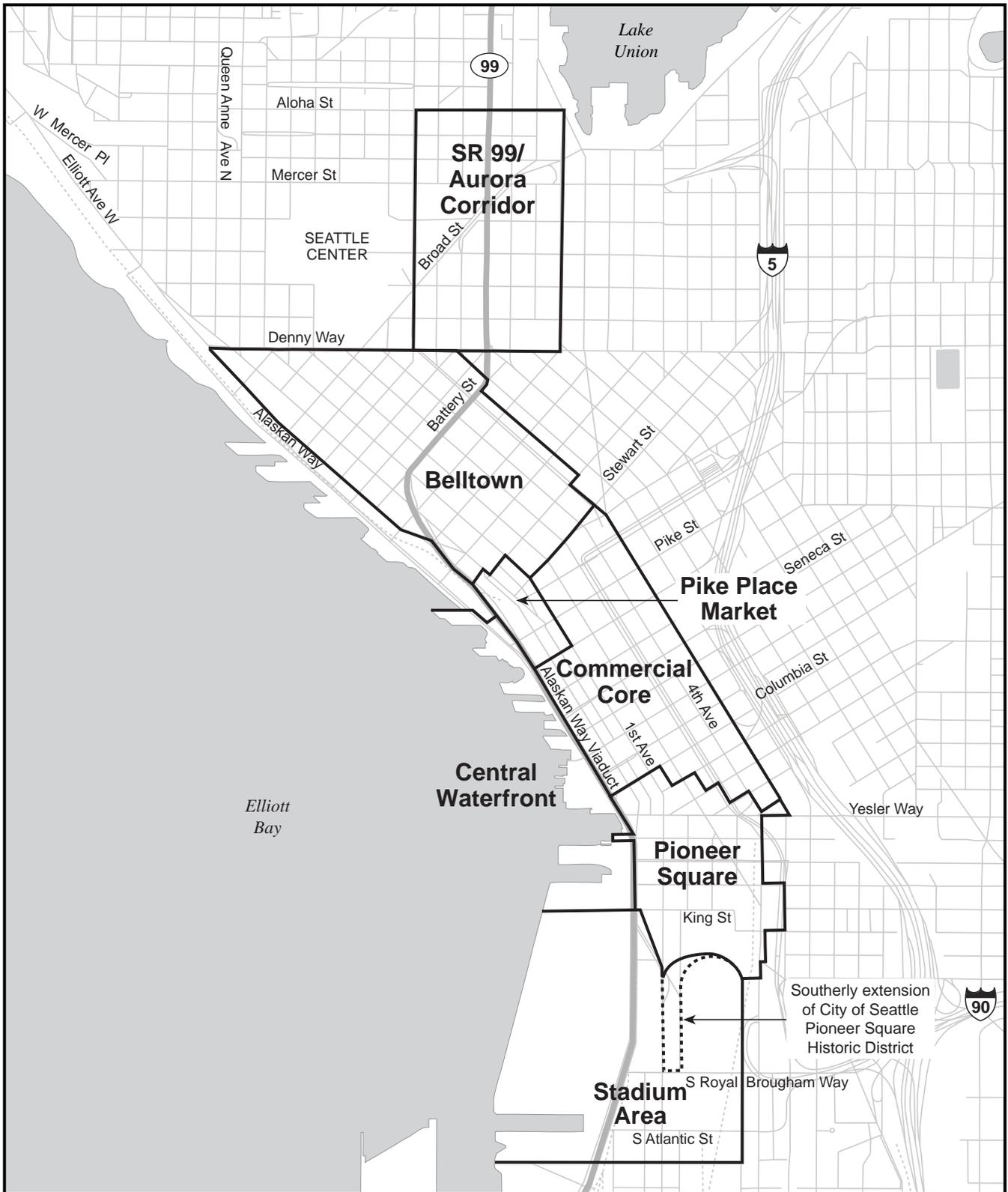
The lead agencies approved the selection of visual character units and views. Visual character units were evaluated after a review of photographs of various viewpoints and extensive consultation with WSDOT and City staff.

The selected visual character units are identified below and shown in Exhibit 2-3:

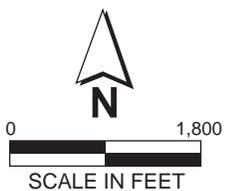
- Stadium Area: the area around the stadiums from S. Massachusetts Street to S. King Street and Terminal 46. (This includes a small portion of the City-designated historic district between First Avenue S. and Occidental Avenue S.; this area is considered part of this visual character unit because of visual rather than land use and regulatory criteria.)
- Pioneer Square Historic District: this area encompasses most of the historic district from approximately S. Dearborn Street to Columbia Street.
- Central Waterfront: the waterfront area west of the existing SR 99 from S. King Street to Pine Street, plus Pier 62/63.
- Commercial Core: the downtown commercial core, the area east of the central waterfront and the existing SR 99 from approximately Columbia Street (or a bit south) to the Pike Place Market area at Union Street and the Belltown area at Stewart Street.
- Pike Place Market: the area east of the existing SR 99 between approximately Union Street and Virginia Street.
- Belltown: the area east of the waterfront between approximately Stewart Street and Denny Way.
- SR 99/Aurora Corridor: the area extending several blocks on either side of the existing SR 99 from just north of the Battery Street Tunnel portal at Denny Way to Aloha Street.

During the initial screening process, the following visual character units were eliminated from consideration because the existing viaduct is not a prominent element of views from these areas:

- The north waterfront from Pine Street to the north has little view of the viaduct except from the viewing area on Pier 66, where the view is of very short sections between buildings.
- Beacon Hill, the area generally south of Interstate 90 (I-90), including Interstate 5 (I-5) and the area east of I-5, was eliminated because views of the viaduct are largely screened by intervening buildings. Where the viaduct is visible for short stretches near the stadiums, it is a very minor element of views and is largely indistinguishable from surrounding development.



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**Exhibit 2-3  
Visual Character Units**

- First Hill, the area east of I-5 and generally between I-90 and Union Street, was eliminated because views of the viaduct are largely screened by intervening buildings. Where the viaduct is visible from southeast-facing slopes, only short stretches are visible, and it is a very minor element of views, largely indistinguishable from surrounding development.
- Queen Anne Hill, the area north of Valley Street and west of SR 99, was eliminated because views of the viaduct are largely blocked by topography.
- The views from Washington State Ferries were excluded because the view of the existing viaduct from a distance beyond the Seattle Ferry Terminal is of little visual prominence compared to the vivid impression of the downtown skyline and the complexity of the waterfront piers in the foreground. The views from the ferries close to the dock are similar to views from the ends of piers, as discussed below.

### 2.3.2 Viewpoints

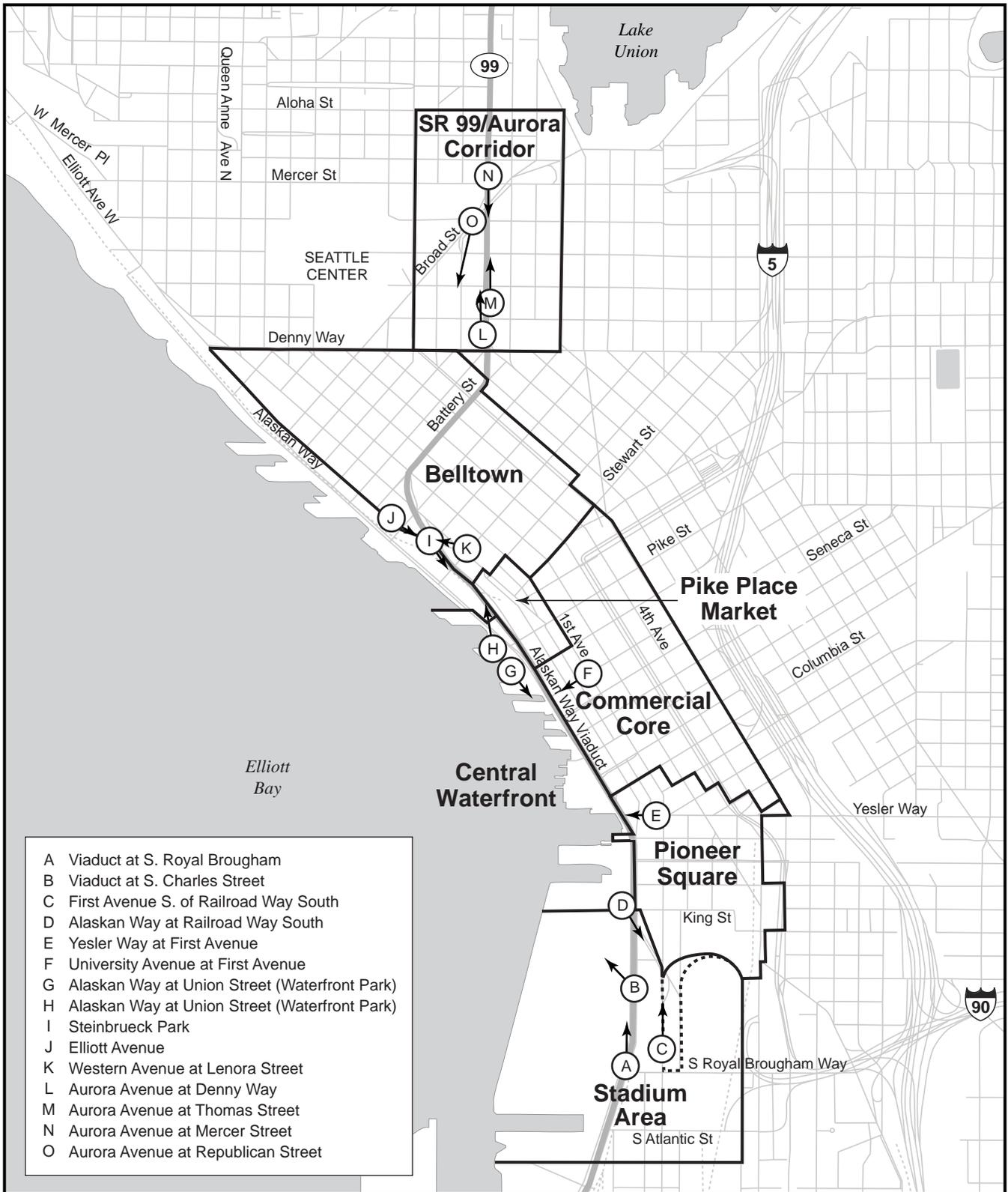
Viewpoints within each visual character unit were selected on the basis of certain characteristics:

- A substantial number of viewers.
- Views with features that are representative of the existing conditions in the study area.
- Views with high visual quality.

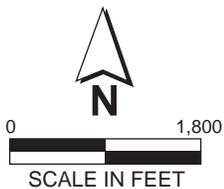
The selected viewpoints are shown in Exhibit 2-4.

### 2.3.3 Visual Simulations

Photographs were taken to reproduce the normal static field of view of humans at the scale of a standard 8.5-by-11-inch sheet of paper at normal reading distance. A photograph provides an accurate representation of the scale of a structure in relation to other objects seen from the viewpoint. It does not, however, reproduce the entire field of view perceived by a human observer. Rather than the instantaneous fixed view provided by a camera image, the human process of viewing includes rapid eye movement in a scanning motion. This scanning process establishes the context for a scene, and during repeated rescanning of the most informative parts of an image, certain elements of a scene become the focus of the visual content (Yarbus 1967). In most cases, movement of the head and the body also increase the field of vision. The lens of the human eye also has the capability of changing its optical power and focusing on a much smaller field of vision (Sekuler and Blake 1994). The process of scanning for content and the



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(A) → Location and Direction of Viewpoint

**Exhibit 2-4  
Viewpoints**

focusing mechanisms of the eye account for the common observation that photographs often do not show scenic features, such as a prominent mountain peak, as prominently as they are recalled by an observer.

To indicate the probable visual effects of the Bored Tunnel Alternative, computer-aided visual simulations were prepared. Visual simulations are used for key views that are broadly representative of views from a number of viewpoints or of visual effects of an alternative that are particularly noteworthy. These visual simulations remove elements of the existing conditions and add the features of the alternatives. The purpose of the visual simulations is to provide a comparison of visual changes. Not all potential views are reproduced or simulated. In many cases, a verbal description of existing and future views is provided. In some cases, existing and future views are represented by a single photograph of an existing scene, and probable changes in the view are described rather than shown graphically.

The visual simulations and photographs of existing conditions are included in Appendix E, Visual Simulations.

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## Chapter 3 STUDIES AND COORDINATION

The context for the visual quality analysis was established by consulting a number of existing policy documents and studies that establish the land use policies and intended character of the project area. The following plans, regulations, and studies were used in the evaluation of visual quality:

- *City of Seattle Comprehensive Plan: Toward a Sustainable Seattle* (Seattle 2005)
- Downtown Plans, 1999–2004
- *Mayor’s Recommendations: Seattle’s Central Waterfront Concept Plan* (Seattle 2006a)
- Shoreline Master Program Update and supporting studies (Seattle 2009)
- *Seattle’s Parks and Recreation 2006 Development Plan* (Seattle 2006b)
- Seattle Bicycling Guide Map (SDOT 2009)
- *Greater Duwamish Manufacturing and Industrial Center Neighborhood Plan* (Seattle 2000)
- *Downtown Urban Center Neighborhood Plan* (Seattle 1999)
- *Pioneer Square Neighborhood Plan* (Seattle 1998a)
- *Denny Triangle Neighborhood Plan* (Seattle 1998b)
- *Belltown Neighborhood Plan, Denny Regrade Urban Center Village, Draft Neighborhood Plan* (Seattle 1998c)
- *Queen Anne Neighborhood Plan* (Seattle 1998d)
- *South Lake Union Neighborhood Plan* (Seattle 1998e)
- Seattle Land Use Code (SMC 23)
- *Design Review Guidelines for Downtown Development* (Seattle DCLU 2005)
- *Design Review: Guidelines for Multifamily and Commercial Buildings* (Seattle DPD 2006)
- *Uptown Neighborhood Design Guidelines* (Seattle DPD 2009a)
- *Livable South Downtown Planning Study, Executive Recommendations* (Seattle DPD 2009b)
- Seattle Department of Design, Construction and Land Use, Director’s Rule 11-93, Design Guidelines/Implementation Process for Designated Green Streets (Seattle DCLU 1993)
- *Roadside Classification Plan* (WSDOT 1996)
- Washington Highway Beautification Act (Revised Code of Washington, Section 47.40.010)

- Washington Transportation Commission, Policy 6.3.6
- Federal Highway Beautification Act of 1965 (Code of Federal Regulations, Title 23, Part 750)
- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Transportation Enhancement Program (United States Code, Title 23, Section 101[g] 133[b])

The following local plans and policies were important in the selection of visual character units and viewpoints:

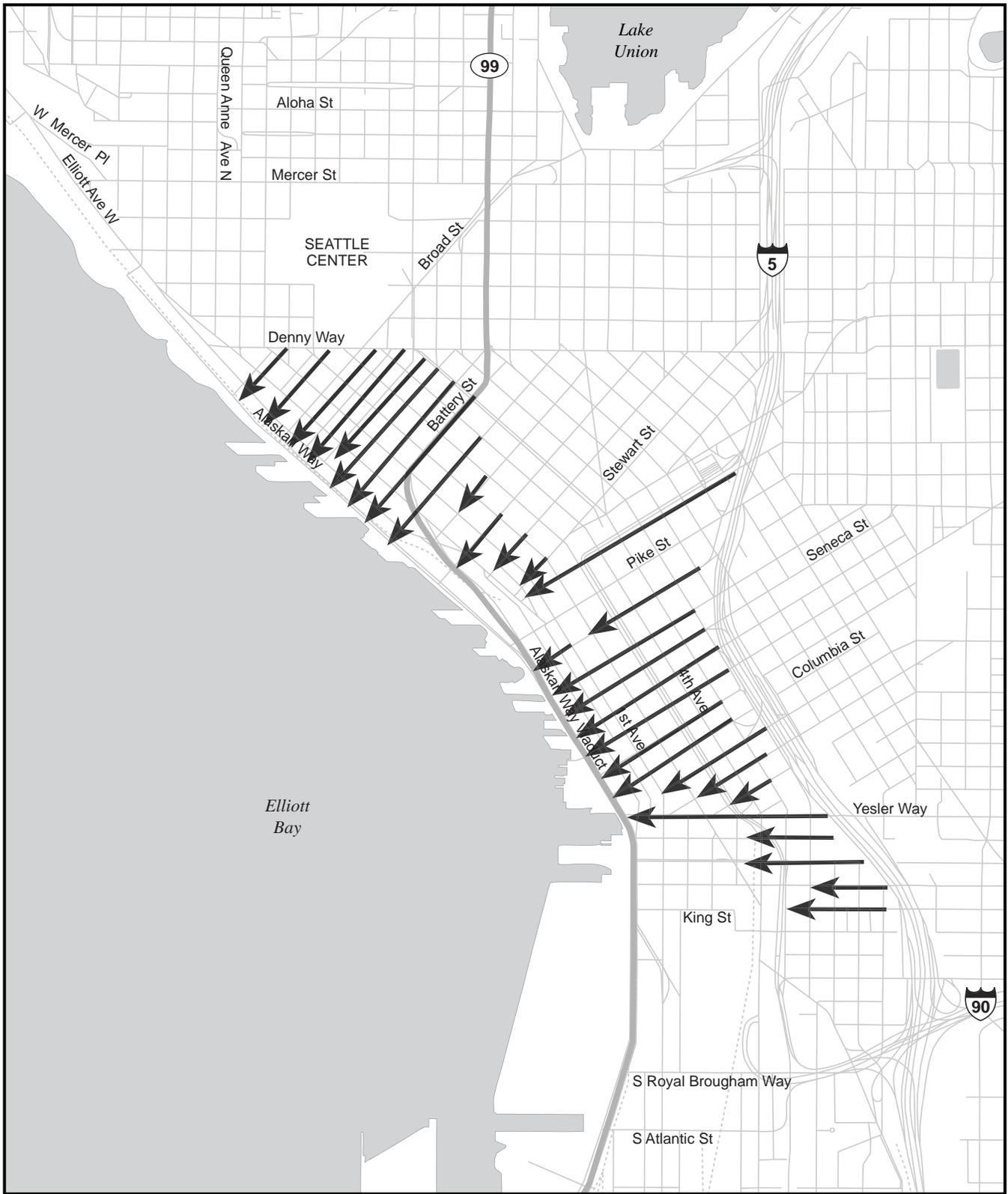
- Designation of specific significant natural and human-made features in the Seattle environmental code (SMC 25.05.675.P), including Mount Rainier; the Olympic and Cascade Mountains; the downtown skyline; and major bodies of water, including Puget Sound, Elliott Bay, Lake Washington, Lake Union, and the Lake Washington Ship Canal. The Space Needle is also a protected public view from specifically designated locations.
- City-designated view corridors, as shown in Exhibit 3-1.
- City-designated scenic view routes, as shown in Exhibit 3-2.
- City-designated Green Streets, as shown in Exhibit 3-3.
- Park and recreation facilities, as shown in Exhibits 3-4 and 3-5.

Coordination with the City and WSDOT initially focused on the selection of visual character units and viewpoints. The selection was completed according to a three-phase process. Phase I included the following activities:

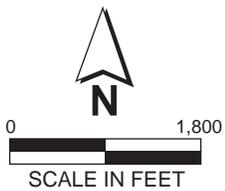
- Identification of visual character units consisting of areas from which the project area can be viewed.
- Identification of potential viewpoints.

Phase II consisted of an evaluation of potential viewpoints with similar characteristics to determine the ones that were most representative. Phase III consisted of a review by the technical personnel preparing the visual simulations to determine which, among similar views, presented the fewest technical issues and most effective use of resources.

Throughout the three-phase process of selecting visual character units and viewpoints, meetings and correspondence with representatives of WSDOT and the City took place to ensure that the interests of all participants were served and that their particular expertise was available in this critical decision-making process.

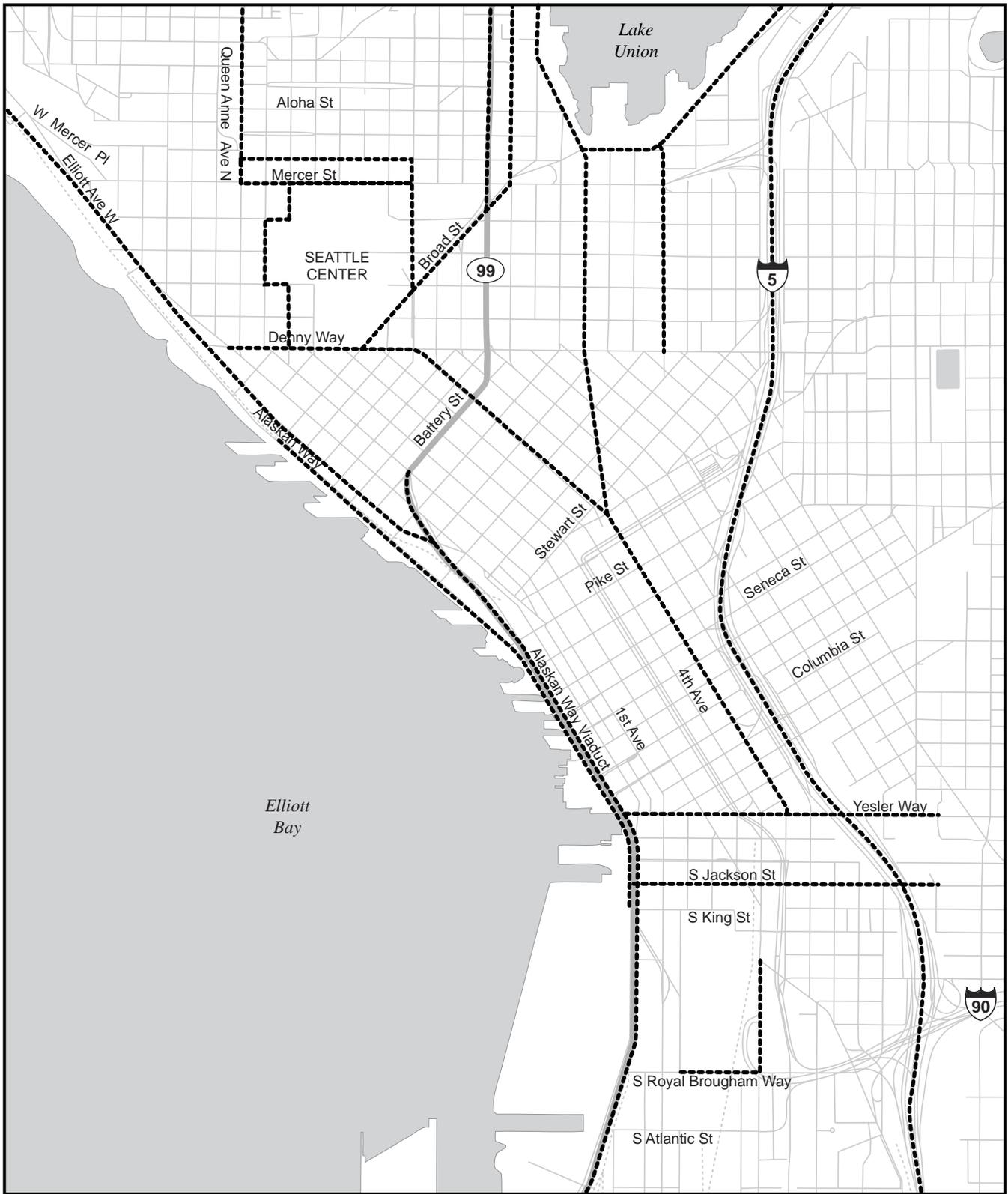


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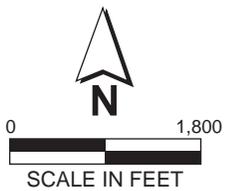


-  Extent of View Corridor
-  Direction of View

**Exhibit 3-1  
City of Seattle  
View Corridors**

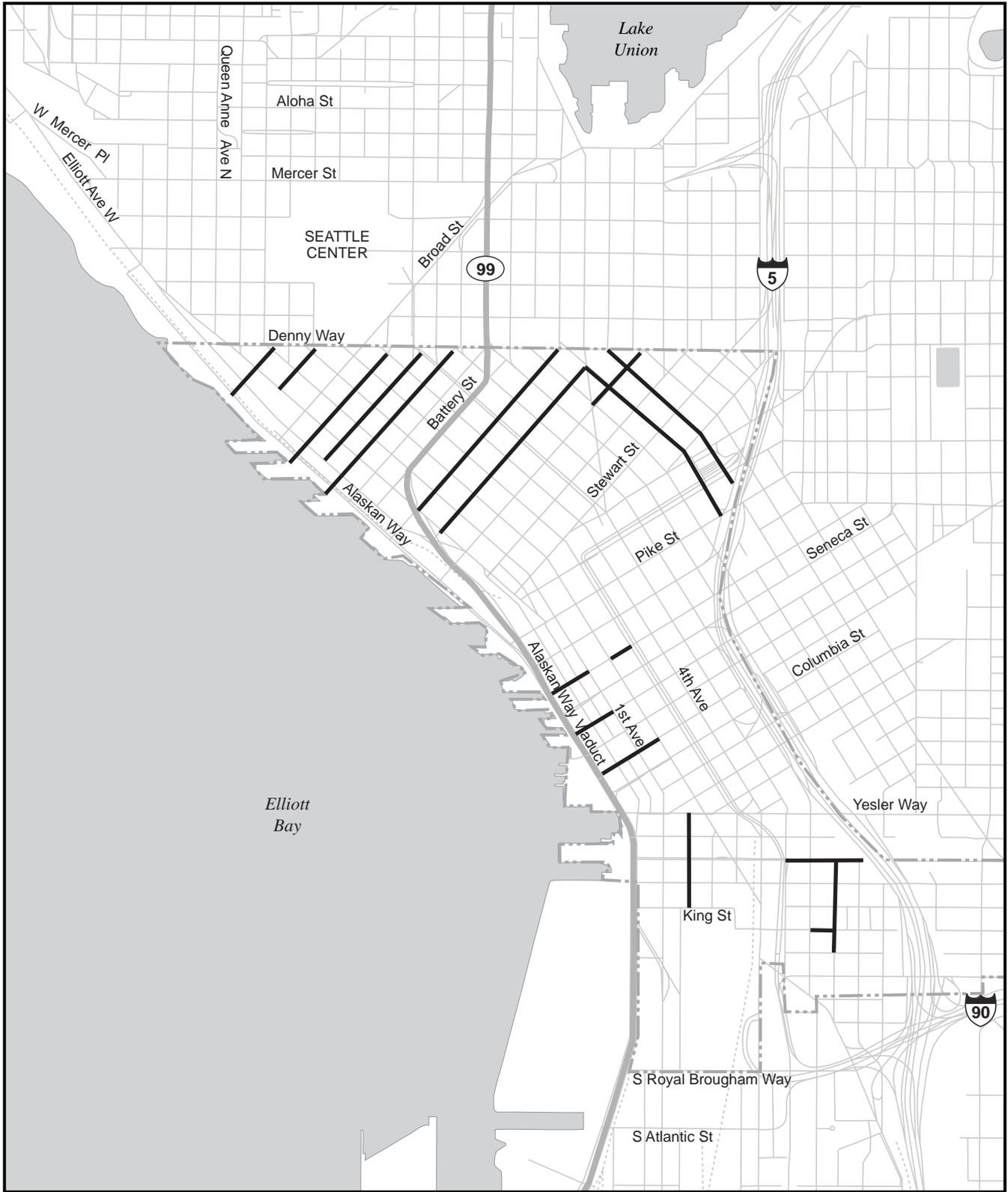


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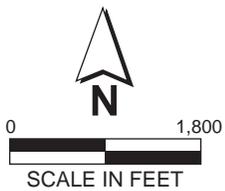


----- Scenic View Routes

**Exhibit 3-2  
City of Seattle  
Scenic View Routes**



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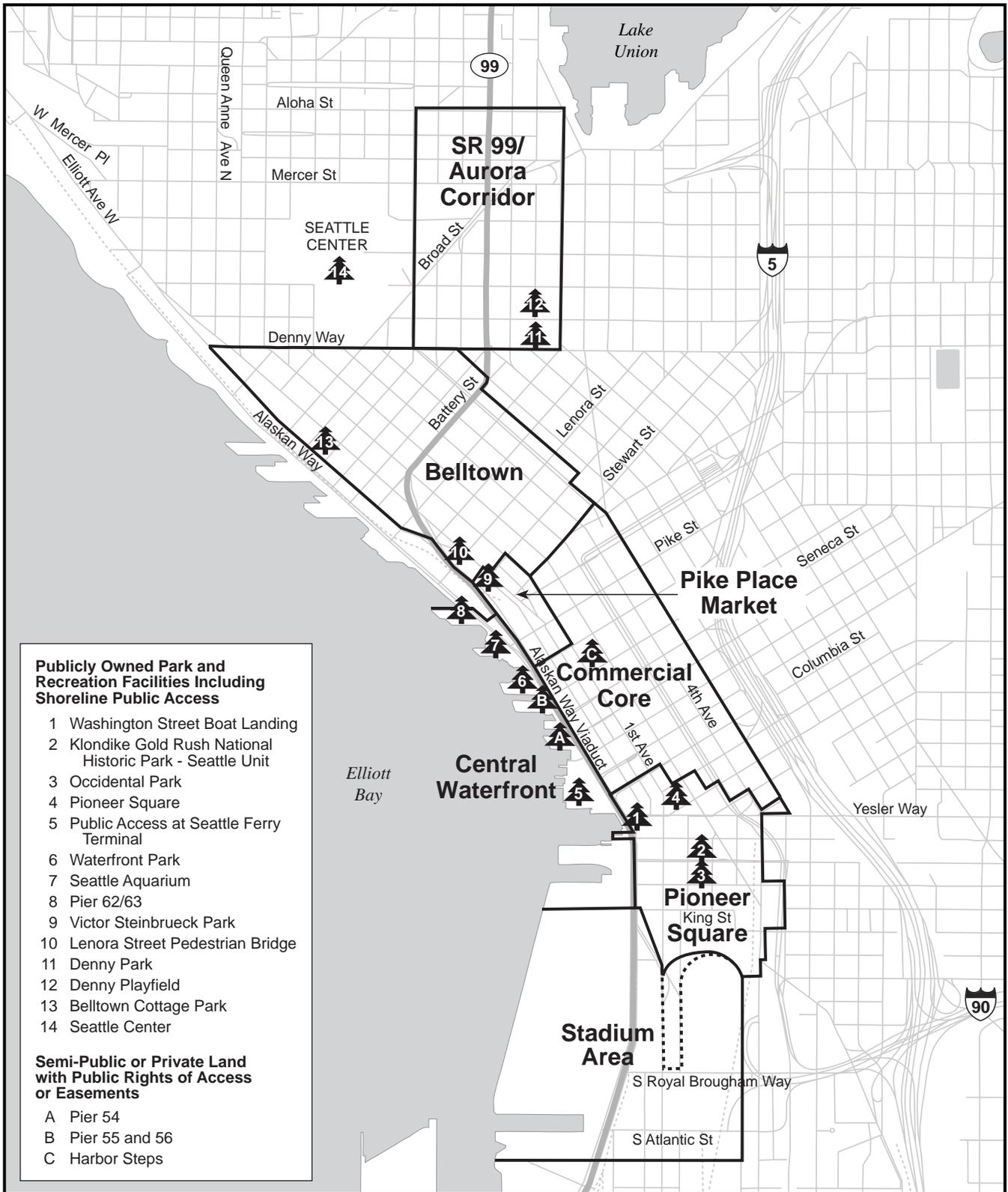


- Downtown Boundary
- Green Streets

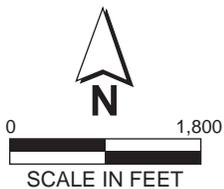
**Exhibit 3-3  
City of Seattle  
Green Streets**

### Exhibit 3-4. Park and Recreation Facilities

| Publicly Owned Park and Recreation Facilities,<br>Including Shoreline Public Access   | Semipublic or Private Land with Public Rights of<br>Access or Easements   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Washington Street Boat Landing</li> <li>2. Klondike Gold Rush National Historic Park – Seattle Unit</li> <li>3. Occidental Park</li> <li>4. Pioneer Square</li> <li>5. Public Access at Seattle Ferry Terminal</li> <li>6. Waterfront Park (Pier 58)</li> <li>7. Seattle Aquarium (Pier 59)</li> <li>8. Pier 62/63 Park</li> <li>9. Victor Steinbrueck Park</li> <li>10. Lenora Street pedestrian bridge</li> <li>11. Denny Park</li> <li>12. Denny Playfield</li> <li>13. Belltown Cottage Park</li> <li>14. Seattle Center</li> </ol> | <ol style="list-style-type: none"> <li>A. Pier 54</li> <li>B. Piers 55 and 56</li> <li>C. Harbor Steps</li> </ol> |



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**Exhibit 3-5  
 Map of Parks and  
 Recreation Facilities**

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## Chapter 4 AFFECTED ENVIRONMENT

Through the entire corridor under consideration, SR 99 is classified “Urban” in the *Roadside Classification Plan* (WSDOT 1996). A roadside classified as urban is characterized by elements that mirror the character of the adjacent land use. The urban landscape is a predominantly built environment. Vegetation is mostly non-native (ornamental) trees, shrubs, and groundcover, with remnants of native vegetation. The policies for design and management of these roadways include the following:

- Design structures to provide visual continuity and enhance the urban environment; give special attention to architectural detail.
- Structural screens/fences may be used to screen views where right-of-way is limited.
- Consider scenic views when locating signs.
- Use vegetation to enhance architectural elements.

Opportunities to apply these elements to the existing viaduct are limited because of the character of the structure, which was built in the early 1950s.

The SR 99 corridor is also a City-designated scenic view route, as is the adjacent Alaskan Way surface street from S. King Street to Broad Street (see Exhibit 3-2).

The following analysis of visual quality proceeds up the corridor from south to north and is organized by the visual character units identified in Exhibit 2-3.

### 4.1 Stadium Area

The Stadium Area visual character unit includes the area around the stadiums from S. Massachusetts Street to S. King Street. The existing Alaskan Way Viaduct aerial structure begins south of Safeco Field, the Seattle Mariners baseball park. Safeco Field extends between S. Atlantic Street and S. Royal Brougham Way from First Avenue S. to rail lines west of Fourth Avenue S. North of S. Royal Brougham Way and extending to about S. King Street is Qwest Field and the Qwest Field Event Center. These structures visually dominate the area.

#### Views From the Road

Occupants of vehicles heading northbound on the existing viaduct are likely to experience primarily views of the downtown skyline, as shown in Appendix E, Exhibit A-1. The orientation of the roadway south of S. Royal Brougham Way places the Bank of America Building in the center of the field of vision. Between S. Royal Brougham Way and Yesler Way, the existing viaduct is on a north-south

orientation. Views to the northwest and west across the container terminals are centered on the West Point/Magnolia area and include Elliott Bay in the middle distance, as shown in Appendix E, Exhibit A-3. The peaks of the northern Olympic Mountains are visible on clear days in the background (Mount Angeles and Mount Townsend are oriented about 30 degrees to the north of west; Mount Anderson and Mount Olympus are almost due west).

Although these views are readily available to passengers during the entire drive over the existing viaduct, these views require the viewer to look away from the orientation of the roadway. Most vehicles using the viaduct are occupied by only the driver, and drivers are less likely to turn their gaze from the orientation of the roadway, except for brief glimpses. However, this portion of the roadway presents few driving challenges due to maneuvering traffic and is likely to allow most drivers an opportunity to divert their attention to the westerly views for brief periods.

The S. Holgate Street to S. King Street Viaduct Replacement Project, which is proceeding with construction independently of the Alaskan Way Viaduct Replacement Project, will replace the existing double-level structure with a single-level structure with side-by-side northbound and southbound lanes. This will maintain the same general orientation toward downtown for northbound traffic, as shown in Appendix E, Exhibit A-2. The proposed h-shaped overcrossing at the approximate alignment of S. Royal Brougham Way, however, will obscure some views of the downtown skyline. Views to the northwest and west across the container terminals (see Appendix E, Exhibit A-3) will no longer include Elliott Bay because the elevation of the cars on the structure will be lower than the stacked shipping containers at Terminal 46, which will block most views.

The visual quality of the downtown skyline view is high, as shown in Appendix E, Exhibit A-1. The tallest buildings provide a vivid focus, while other buildings are similar in visual character and provide a balanced and coherent composition. Smith Tower, a City of Seattle landmark, is visible along the eastern margin of the view to the north. The Space Needle is also visible in the distance to the northeast. These two designated landmarks are moderate in scale compared to the downtown high-rise towers that dominate the view to the north. Other designated landmarks, such as the Exchange Building, are visible but nestled among taller buildings and form part of the general background of downtown buildings.

Views to the northwest from the northbound lanes of the existing viaduct can provide a vivid focus when the Olympic Mountains are visible. Without the distant view of the mountains, the view still encompasses the water areas of Elliott Bay and Puget Sound to the left and the downtown skyline to the right, which have great compositional coherence. The significance of the water and

mountain view for persons who regularly travel the route may be related to how the view is imprinted on the memory as a landmark. It likely takes very little time or distraction from driving to glance at the view and derive aesthetic pleasure from its elements. As the vehicle moves to the north, additional elements come to the viewers' attention, likely adding to their positive aesthetic experience. The entire process of driving the elevated structure from S. Holgate Street to the Battery Street Tunnel takes about 2½ to 3 minutes at 50 miles per hour. There are numerous opportunities to look at various orientations of the view during that period.

Northbound views have a high level of visual quality due to the presence of elements designated by the City as significant features that are vivid and memorable, including views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. Encroaching elements are largely below the field of view from the upper deck of the viaduct. The views of the human environment have a lower level of intactness due to the truncation of lower building levels from the view.

The views from the southbound lanes on the lower deck are more oriented to the roadway or the view to the southwest. The southwest views in this area include port and industrial facilities at Terminals 37 and 46, as well as Terminal 18 on Harbor Island across the Duwamish East Waterway. The Port of Seattle cranes are the most vivid element of these views. Views to the side require orientation away from the direction of movement and are interrupted by vertical support elements. The vertical range of views is constricted by the upper deck of the viaduct and the height of the railings on the lower deck. The view to the southeast includes industrial and loft buildings along First Avenue S. and the sports complexes to the east.

Southbound views have a moderate to low level of visual quality due to the lack of vivid features, the encroachment of the viaduct itself on the view, and truncation of natural and human-made features by the viaduct.

#### Views Toward the Road

The viewing population of the exterior of the existing viaduct is primarily composed of attendees at sports events and persons passing through the area on First Avenue S. and S. Royal Brougham Way, which each have daily volumes of about 13,000 average daily trips. Views of the viaduct from First Avenue S. were formerly blocked by a row of buildings; however, recent demolition for the S. Holgate Street to S. King Street portion of the corridor has fully exposed the structure between S. Royal Brougham Way and Railroad Way S. Where the viaduct is visible, it is an extended horizontal element. It is also visible between

existing buildings where S. Atlantic Street and S. Royal Brougham Way cross under the viaduct.

In all views from the east, the background features the Port of Seattle's Terminal 46, where multicolored stacks of shipping containers are visible under the viaduct and bright orange Port of Seattle cranes tower above it. Terminal 46 provides the visually dominant element of the views and has great visual prominence due to the variety of colors and shapes. The view to the east has a high level of diversity of elements and relatively low continuity between elements. This view has low intactness and unity because of the wide variety of elements and relatively low compositional harmony.

The existing viaduct is a minor element of the view to the west down S. Royal Brougham Way between Fourth and Occidental Avenues S., where it is a City-designated scenic view route. This street section east of Occidental Avenue S. is dominated by the bulk of Safeco Field and the Qwest Field Event Center, which tower over the street on each side. The viaduct is a visible but minor element of the view to the west because of the lack of a memorable visual focus and the lack of unity in the view of stacked shipping containers. The railroad overpass currently under construction on S. Royal Brougham Way adds additional structures in the middle of the street and adds elements that decrease intactness and unity. Pedestrian-level views from this area to the west generally have a moderate to low level of visual quality due to the lack of vivid features.

Both Safeco Field and Qwest Field have views toward the west that include the existing viaduct as a substantial element. Safeco Field is located between S. Royal Brougham Way and S. Atlantic Street (Edgar Martinez Drive S.) and fronts on First Avenue S. Pedestrian views of the viaduct from the street level are largely blocked by buildings on the west side of First Avenue S. Views from the stadium are largely limited to the open deck on the 300 level, which provides views to the west and northwest over the tops of nearby buildings. Elliott Bay and the Olympic Mountains are the primary focus of middle-ground and distant views. The viaduct is a prominent element of near views. It is below the line-of-sight to the land-water interface at Terminal 46 to the west. The viaduct tends to obscure features on the waterfront in views to the northwest, including Pier 48, Colman Dock, and Piers 54 through 59.

The Qwest Field complex consists of two parts: the Event Center, with an entrance on S. Royal Brougham Way, and Qwest Field about a block to the north. The Event Center and Qwest Field front to the west on Occidental Avenue S., which is a block east of First Avenue S. Except for a few gaps currently occupied by surface parking lots, views of the existing viaduct from the street level are blocked by a row of loft buildings that front on First Avenue S. and are part of the Pioneer Square Historic District. Most of these buildings have service entrances

on Occidental Avenue S., facing Qwest Field. The First Avenue S. on- and off-ramps occupy the majority of the Railroad Way S. right-of-way between the viaduct and First Avenue S. These ramps are the dominant feature of the view to the northwest from the western stadium entrance and tend to obscure or visually overpower the surrounding buildings. The area to the north of the field is a large parking lot. These features lead to an environment with relatively low intactness due to the limited extent to which these elements lead to a distinctive, attractive, and memorable sense of place.

The view to the north up First Avenue S. from south of Railroad Way S. is shown in Appendix E, Exhibit A-4. Views of the Flatiron Building at the northwest corner of First Avenue S. and Railroad Way S. are obscured by the ramps. This building is a City of Seattle landmark (Seattle Ordinance 106141) and is listed on the National Register of Historic Places (National Park Service 2009). The visual continuity of First Avenue S. as a street corridor is interrupted. One can't view the continuity of the corridor because the ramps obscure or truncate views of the buildings and other elements that frame it. The downtown Seattle skyline is a vivid element of the view that is designated as a significant feature by the City. However, the overall view has a moderate to low level of visual quality due to the low level of intactness and unity created by the First Avenue ramps, which truncate the views of the First Avenue streetscape to the north.

Views to the east of the existing viaduct from the Alaskan Way surface street are experienced primarily by pedestrians on the sidewalk on the west side of the street. The viaduct functions as a visual barrier between the waterfront and buildings to the east. Because of the height of the viaduct and its proximity, most views of the buildings along First Avenue S. as well as Safeco Field and Qwest Field are obscured by the structure. The view from Alaskan Way down Railroad Way S. to the east is dominated by on- and off-ramps, as shown in Appendix E, Exhibit A-6. This view has very low visual quality as viewed from the west because the presence of the viaduct obscures vivid features in the background and results in very low levels of intactness and unity due to the truncation of views of the buildings and other elements that frame the streetscape.

The portion of the viewing population that consists of attendees of sports events has a large pedestrian component. The seating capacity of Safeco Field is 47,000. The majority of Safeco Field attendees can be expected to enter and exit along First Avenue S., at the S. Royal Brougham Way and S. Atlantic Street entrances (Washington State Major League Ballpark Public Facilities District 1997). Qwest Field is designed to seat 67,000 to 73,500 people, depending on the type of event (Seattle Seahawks 2009). Both pedestrians and vehicle occupants are likely to be sensitive to the surrounding visual environment because they are involved in elective activities and have chosen the destination because of specific amenities

they plan to enjoy. Persons in some of the seats in the sports complex enjoy views of downtown, Elliott Bay, and the Olympic Mountains. The existing viaduct, however, is well below the view from these seats.

Views available to the public from the upper levels of Safeco Field and Qwest Field have a generally high level of visual quality due to the presence of vivid elements designated by the City as significant features, including views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. The viaduct is below the line-of-sight to these features and has little effect on the quality of the view.

#### Light and Glare

The lighting for the upper deck of the existing viaduct is similar to normal arterial street lighting but elevated. For most viewers in this area, light and glare are blocked by the adjacent buildings. The elevated light source is an additional source of intrusive glare for the upper windows of buildings that would not be directly affected by the lighting for surface streets.

## 4.2 Pioneer Square Historic District

The Pioneer Square Historic District visual character unit encompasses most of the historic district from approximately S. Dearborn Street to Columbia Street. This area consists predominantly of old brick buildings with a consistent style. Views of the existing viaduct are available from east-west streets that are perpendicular to the viaduct and from the area adjacent to the viaduct, where a number of buildings directly access the surface street and parking beneath the aerial structure. The topography is generally flat, although there is a gentle rise to the east along Yesler Way starting at Third Avenue.

When the viaduct was constructed in the early 1950s, the Pioneer Square area consisted predominantly of storage and warehouse uses adjacent to Alaskan Way. The area had been in economic decline for several decades as new development downtown moved farther north. Through the 1950s and early 1960s, many buildings in the area deteriorated, the upper floors were largely vacant, and the exodus of businesses continued. Businesses along Alaskan Way used the street for access to loading docks for both truck and rail traffic. Pioneer Square became a honky-tonk district of taverns, entertainment houses, and bawdy hotels. This relatively seedy atmosphere characterized Pioneer Square until the 1970s.

Faced with virtually no pressure for redevelopment, the district's remarkable stand of buildings from the late nineteenth and early twentieth centuries remained. In 1970, through the efforts of a solid grass-roots movement, Pioneer Square was designated a national historic district and Seattle's first preservation district. A special review board, the Pioneer Square Preservation Board, was

created, and guidelines were developed to preserve the area's architectural and historic character and to ensure sensitive restoration of buildings for economically viable purposes.

The visual context of the area has changed substantially since the viaduct was constructed. Alaskan Way itself has transitioned from a roadway shared primarily by railroad tracks and truck traffic related to the port and light industrial use to a corridor that carries pedestrians along the waterfront, with sidewalks, street trees, and a multipurpose trail. The Pioneer Square area has transitioned to a balanced mix of tourist, office, and residential uses and is one of the most lively pedestrian-oriented neighborhoods in Seattle. The *Pioneer Square Neighborhood Plan* (Seattle 1998a) includes policies for weaving the east-west streets to the waterfront into the fabric of the community by improving pedestrian connections, emphasizing view connections to the waterfront, and restoring the Washington Street Boat Landing as the centerpiece of the south waterfront.

#### Views From the Road

Views for vehicle occupants traveling northbound on the existing viaduct are similar to those from the sports complex discussed in Section 4.1 for the segment south of Yesler Way. Views from S. King Street to the left of the roadway are no longer dominated by the modern container port in the foreground but include the more traditional transit shed building of Pier 48 and the ferry loading headworks of the Seattle Ferry Terminal parking areas and the Colman Dock building. Also to the northwest are views of Puget Sound with the Olympic Mountains in the distance. Foreground views of the waterfront are available from the far left lane. From the right lanes, the plane of the roadway cuts off most of the foreground view of the waterfront, with only a few elements visible, such as the peaks of the roofs of transit sheds. In this area, on-ramps from First Avenue S. merge at S. King Street and require more driver attention than the section of roadway to the south.

Views to the east include the buildings in the historic district, most of which are characterized by brick construction. The view, however, includes only the upper floors of the buildings. This truncated view provides little opportunity to see the unity of the historic buildings as a whole or the milieu of the district as a whole.

The context of the view northbound from the existing viaduct changes at Yesler Way, where the roadway curves to the west about 30 degrees. The roadway orientation places views to the west more within the visual field. The view includes both the urban skyline of Seattle and the natural water and landforms of the region. The docking area of the Seattle Ferry Terminal is visible in the foreground; Elliott Bay and Puget Sound are in the middle distance, with distant views to the west of the wooded hills of Bainbridge Island, the Kitsap Peninsula, and the peaks of the Olympic Mountains. The urban skyline of the Belltown area

provides a distinctive view of human-made features. Overall, the scene has very high visual quality as a coherent view of the city in its natural setting.

A similar view continues for about 1,200 feet, or about half a minute of driving time at 50 miles per hour, until about Pike Street where the alignment veers to the northeast and begins to climb toward the Battery Street Tunnel, eliminating the line-of-sight views to the west.

The views from the southbound lanes on the lower deck are constricted by the upper deck and the height of the railings on the lower deck, and they are interrupted by columns. The southwest views in this area include stacked containers and docked ships at Terminal 46 and Pier 48. The Port of Seattle cranes are the most vivid element in the middle distance of these views, with some views of the West Seattle ridge in the background.

Northbound views from the viaduct have a high level of visual quality due to the presence of elements designated by the City as significant features that are vivid and memorable, including views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. Encroaching elements are largely below the field of view from the upper deck of the viaduct. The views of the elements of the human environment have a lower level of unity due to the truncation of lower building levels from the view. Southbound views have a moderate to low level of visual quality due to the lack of vivid features, the encroachment of the viaduct itself on the view, and truncation of natural and human-made features by the viaduct.

#### Views Toward the Road

The existing viaduct is the most prominent feature in street-level views of the Pioneer Square Historic District looking east, as shown in Appendix E, Exhibit A-6. The viaduct dominates the foreground and obstructs views of other historic structures. From viewpoints in the south, there are some distant views of high-rise buildings in the downtown area farther north; however, they are minor elements compared to the scale of the viaduct. The visual dominance of the structure is reinforced by the visual distraction of vehicles flashing by and the associated noise of vehicles, especially the thumping sound as they cross the expansion joints.

Views of the existing viaduct looking west from the Pioneer Square Historic District are most prominent from the five perpendicular streets extending from S. King Street to Yesler Way, as shown in Appendix E, Exhibit A-8. The visual context of these streets is similar. All are tightly framed by three- to eight-story brick buildings. The complexity of the framing tends to increase on the northerly streets because the building scale tends to be smaller and more complex. All the streets have buildings at the sidewalk line, street trees, and no overhead utilities.

The streets provide a unified and consistent corridor of urban development of a historic character.

The unity of architectural style, the inherent interest of the buildings, the unity of composition, and complementary elements such as street trees provide high visual quality throughout the historic district. The main focus of activity in the historic district is Pioneer Square and the area along First Avenue S. to the south, which has a landscaped median and the largest concentration of shops and restaurants. The northern portions of the corridor have generally higher visual quality that relates to the greater diversity due to the smaller scale of the buildings, the more complex interactions between the buildings and the streetscape, and the compositional harmony of the elements. The buildings to the south are generally larger and have fewer storefronts, resulting in a less diverse streetscape and less visual interest over a block face. The views to the south are less visually buffered from the viaduct by intervening buildings.

Yesler Way and S. Jackson Street are City-designated scenic view routes (see Exhibit 3-2). Both streets are oriented east-west. From the higher elevation east of the Pioneer Square area, these streets provide panoramic views to the west. The views west down S. Jackson Street east of Fifth Avenue are framed somewhat more closely by buildings than the westerly views down Yesler Way. Both streets have a moderate slope down to about Third Avenue, where the topography is almost flat. The existing viaduct is visible from east of Third Avenue in views to the west down both streets as a horizontal band that contrasts with the water of Elliott Bay. The viaduct also provides a contrast to the linear nature of the street corridor. It is not a dominant element of views because of the vivid focus provided by the water and mountain views. Near Third or Fourth Avenue, the position of the viaduct relative to an observer moves above the line of sight and is silhouetted against the sky. As one moves closer, the viaduct increases in relative scale and blocks elements of the views.

Appendix E, Exhibit A-8 shows the existing view to the west on Yesler Way at First Avenue. This view is generally representative of the views from the five streets perpendicular to Alaskan Way. The distance to the existing viaduct from First Avenue is somewhat greater at Yesler Way because the waterfront bends to the west and the viaduct is about half a block farther away.

The existing viaduct contrasts in line, materials, scale, and character with the context of this historic area. The horizontal character of the viaduct contrasts with the generally vertical character of the historic brick buildings, which are composed of pierced vertical windows with narrow piers between. The concrete structure contrasts in materials and color with the red brick that is the predominant building material in the Pioneer Square area. The horizontal levels of the viaduct bear no relation to the scale of the horizontal divisions of the

buildings into floors at about 12- to 16-foot increments. The greatest contrast in character is the presence of automobiles above grade level in an environment in which all the activities are geared to the street level. Traffic on the viaduct is both a visual and an auditory intrusion. To people on the street, vehicles appear and disappear as a stream of irregular flashes. Noise from the viaduct reinforces the visual effects with an irregular pulse as tires cross the expansion joints.

The visual effect of the viaduct differs somewhat among the perpendicular streets according to the view at the end of the street. At S. King Street, the view includes stacked shipping containers and a portion of an office building. At S. Jackson Street, the ivy-covered wall of a building presents a softer view of the same terminal. The presence of a continuous row of street trees along the Alaskan Way surface street also softens the view in the summer when the leaves in the tree canopy screen the container facility. S. Main Street terminates with the Pier 48 transit shed in the background. Although the building is newer than the transit sheds of Piers 54 through 59 to the north, the building form is similar to the urban character of the historic district. S. Washington Street terminates with the historic pergola of the Washington Street Boat Landing centered in the view. This is the view in which the existing viaduct most contrasts with the historic character of the area. Views of Elliott Bay, Puget Sound, and the Olympic Mountains are also available through and above the pergola. Yesler Way terminates at the Seattle Ferry Terminal. From the end of Yesler Way, the view is extensively blocked by the viaduct's vertical supports near the centerline of the street right-of-way and the viaduct's horizontal concrete decks. Between these vertical and horizontal structural elements are fragmented views of the entrance to the passenger ferry walkway, periodic views of car ferries pulling into the dock, the wooded ridges of the Kitsap Peninsula hills, and the Olympic Mountains in the distance.

The effects of the existing viaduct generally become greater as one moves closer. The visual effects are of an increasingly dominating scale that contrasts with the linear rhythm of the street corridor. The viaduct cuts across the street corridor with its framing elements of building fronts, sidewalks, street trees, and the roadway itself. The effects of traffic noise also contribute to the sense of domination by the viaduct. As one moves closer, the visual barrier of the viaduct is reduced somewhat by the ability to see more clearly under the viaduct to the scene beyond. However, the scene looking toward the waterfront is truncated horizontally by the traffic decks and interrupted by the vertical supports. From this distance, the visual effects of the viaduct are less imposing than the effects of the traffic noise.

Close to and underneath the existing viaduct, the change in character is even more pronounced. The viaduct is as close as 10 feet to some buildings. The open sky above the street is cut off, the influence of weather and sun is greatly reduced,

street trees and other vegetation are absent, and the temperature in the shadows under the viaduct is often lower. The visual effect of the viaduct is reinforced by the change in character of the traffic noise that not only is at higher decibel levels, but also comes from above and reverberates in the space beneath. The character of the sound includes the irregular thud of tires passing over the expansion joints, which is notably different in character from the traffic noise on surface streets.

The visual effects and the reinforcing noise effects of the existing viaduct decrease at a distance. The effects are greatest for the block between the Alaskan Way surface street and First Avenue. By Fourth Avenue, the relative size of the viaduct in relation to other elements of the streets and the attenuation of the noise effects render the viaduct only marginally intrusive, although it remains clearly visible.

Views to the east from the Alaskan Way surface street are dominated by the viaduct, which is the most prominent feature in the near distance. The existing viaduct is generally about 85 to 100 feet from the edge of the sidewalk on the west side of the street. The viaduct is about 60 feet high. A structure of such height in relation to horizontal distance dominates the views to the west. Street trees adjacent to the structure and ivy growing on the viaduct tend to soften the structural elements somewhat, but they do not change its visual dominance. The viaduct is predominantly aligned horizontally and provides a uniformity of line and color that contrasts with the variety and complexity of buildings to the east in the Pioneer Square Historic District. It interrupts the continuity of views up streets into the historic district and truncates the views of buildings such that an uninterrupted view of the full building elevation cannot be seen. In many cases, the height of the viaduct is sufficient to block the line of sight of pedestrians to the top of buildings behind. The visual dominance of the viaduct is reinforced by its traffic noise.

The viewer population in the Pioneer Square Historic District is large and is likely to be among the most sensitive to visual quality. The area has among the greatest concentrations of small shops, restaurants, and entertainment in the downtown area. The visual qualities of the historic area are one of the primary attractions. The Pioneer Square area is estimated to receive about 2.5 million tourist visitors per year. It also attracts shoppers and restaurant patrons. A high proportion of viewers are likely to be involved in elective activities, which makes them highly sensitive to the features of the environment. Current summer pedestrian volumes at Pioneer Square are about 4,000 per day, with midday volumes during the week of about 1,900 pedestrians. Spring volumes are about 3,000 pedestrians per day (DSA 2009). The viewing population is typically largest at Pioneer Square, which is the focus of activity in the area. To the south, pedestrian volumes decrease, except on days when events are scheduled in the sports complexes. There is also a large pedestrian component of commuters, who depart the passenger ferry and

walk up Yesler Way or the Marion Street pedestrian bridge to First Avenue on their way to places of employment and bus stops.

Views from private property include those available to employees and residents in buildings that face the existing viaduct and from buildings along perpendicular street corridors. The buildings east of First Avenue are unlikely to have views of the viaduct, except down street corridors. Some buildings fronting the west side of First Avenue have views of the viaduct from rear windows facing west where the intervening buildings facing the Alaskan Way surface street are lower than the viaduct. Views from buildings that are not adjacent to the viaduct are likely to be similar to views from the street corridor shown in Appendix E, Exhibit A-8, except that second- to fourth-floor offices and residences are likely to look directly at the traffic decks of the viaduct and experience a greater blockage of views.

For the buildings adjacent to the existing viaduct, the views from the ground floor are likely to be similar to the street-level views shown in Appendix E, Exhibit A-8, except that structural features such as columns will be much closer and a substantial presence. The second to fourth floors adjacent to the viaduct are likely to look out on the traffic decks. The view blockage is likely to be substantial. In addition, the presence of high-speed traffic flashing past windows can be quite visually intrusive. Several buildings adjacent to the viaduct have floors above the viaduct level. For these buildings, there are views of the waterfront, Elliott Bay, Puget Sound, West Seattle, and the Olympic Mountains that are not blocked or intruded upon by the viaduct.

Views within the Pioneer Square Historic District may be considered to generally have high visual quality at a distance from the viaduct because all the elements that contribute to the integrity and unity of the historic features are present. The lack of vivid elements such as mountains or water doesn't reduce the visual quality because the historic character is the visual focus. In areas generally west of First Avenue, the visual quality declines to a moderate to low level because of the dominance of the viaduct as an encroaching element. The viaduct is also at variance with the historic elements that provide the historic character of the area, and it reduces the integrity and unity of the views.

Views from the Alaskan Way surface street looking toward the historic district from the west have a low level of visual quality because the viaduct dominates the view as an encroaching element, interrupts the unity of the view by obscuring the rhythm of the historic street pattern, and truncates views of the buildings fronting the corridor.

#### Light and Glare

The lighting for the upper deck of the existing viaduct is similar to normal arterial street lighting. The presence of a lighted structure above grade level emphasizes

the extent to which the structure cuts across the orientation of surface streets for nighttime views and the degree to which the viaduct is an intrusive element in this historic district. The elevated light source is an additional source of intrusive glare for the upper windows of buildings that would not be directly affected by the lighting for surface streets.

### 4.3 Central Waterfront

The Central Waterfront visual character unit extends along the waterfront west of the existing SR 99 from S. King Street to approximately Pine Street.

#### Views From the Road

The view northbound from the existing viaduct from Yesler Way to Pine Street includes a panorama, with the urban skyline of Seattle on the right (east) and the natural water and landforms in the distance on the left (west) viewed over the rooflines of the transit sheds on Piers 54 through 59. Views of buildings adjacent to the viaduct to the east tend to be of the roof or a few upper floors. This truncated view lacks compositional harmony and often includes distracting elements such as unscreened mechanical equipment. Overall, however, the scene has a vivid focus to the west and moderate compositional harmony that includes a contrast between elements of the human and natural environment.

The views from the southbound lanes on the lower deck are constricted by the upper deck and the height of the railings on the lower deck, and they are interrupted by columns. To the southwest, the foreground views include the Seattle Ferry Terminal parking area and terminal building, the ferry loading headworks, and a truncated view of the upper and roof levels of the transit sheds on Piers 54 through 59. In the middle distance, the views include the stacked containers and the Port of Seattle cranes on Harbor Island as the most vivid elements. Some views of the West Seattle ridge in the background are visible.

#### Views Toward the Road

The visual analysis in this report includes the portion of the waterfront extending from S. King Street to the vicinity of Pine Street, from which the existing viaduct can be readily observed. At about Union Street, the viaduct begins to separate from the Alaskan Way surface street and continues to the east on a separate right-of-way that leads away from the central waterfront to connect with the Battery Street Tunnel. An existing five-story multifamily development north of Pine Street on Alaskan Way blocks the views of the viaduct from the waterfront.

The character of the central waterfront is currently defined to a great extent by the existing viaduct, which delineates its easterly boundary. Street trees, ivy growing on the viaduct structure, and the Waterfront Bicycle/Pedestrian Facility adjacent

to the viaduct add some softening and complexity to the structure, but they do not change its overall visual dominance.

The waterfront side of the Alaskan Way surface street is characterized by water-oriented structures. The Seattle Ferry Terminal at Colman Dock between Yesler Way and Madison Street includes a modern passenger terminal in a pier-like configuration surrounded by large deck areas for car and truck queuing. From Marion to Pike Streets, Piers 54, 55, 56, 57, and 59 evoke the maritime legacy of the waterfront, when it was the working waterfront of Seattle, pre-dating the current container shipping technology. These piers include long, low transit sheds with waterways between providing berths for ships. The transit sheds are currently occupied primarily by retail shops and restaurants. The waterways between the piers generally provide relatively unobstructed westerly views of Elliott Bay and Puget Sound, the wooded ridges of the Kitsap Peninsula, and the Olympic Mountains in the distance. The Seattle Aquarium is located at the foot of Pike Street, on Piers 59 and 60, with the Seattle Parks Department Pier 62/63 immediately to the north. The existing viaduct is visible from the waterfront to about Pine Street, where it passes behind a condominium project that blocks the views from the west.

The existing viaduct contrasts in uniformity of line and color with the variety and complexity of uses and human activities on the waterfront to the west. The view south from Waterfront Park, as shown in Appendix E, Exhibit A-12, is characterized primarily by the viaduct's two horizontal traffic decks, which continue into the distance until they curve and disappear among the rooflines of buildings. The viaduct structure bears little relationship to the downtown buildings east of the structure. The downtown area is defined by streets that divide the area into blocks. The streets have no particular signature among the uniform rhythm of the viaduct's horizontal elements and vertical supports. The streets are marked only by the presence of traffic signals and queued cars.

The greatest visual effects of the existing viaduct are experienced by pedestrians on the waterfront promenade on the west side of the Alaskan Way surface street. The viaduct functions as a semipermeable visual barrier between the waterfront and downtown. From under the viaduct, the shadows cast by the viaduct and the overlap of vertical supports obscure the view of the ground floors of buildings directly behind it. From a distance near the ends of the piers and from ferries and other vessels in Elliott Bay, the towers of downtown loom above the homogenous horizontal base of the viaduct. Views from the water and the ends of the piers do not emphasize the viaduct as a prominent feature; it is a neutral base in the foreground. The office towers are the largest scale and most vivid features of the view from the water and the ends of the piers.

For closer views, especially views from the Alaskan Way surface street, the viaduct is the prominent feature. It interrupts the continuity of views up streets into downtown and blocks views of the lower portions of buildings fronting Alaskan Way. In many cases, as shown by the views to the east in Appendix E, Exhibit A-12, the height of the viaduct is enough to block the line of sight of pedestrians to the top of buildings behind the viaduct. The view at a closer distance becomes that of the viaduct itself and the parking areas beneath. The encroachment of the viaduct structure on views from the west is softened somewhat by the line of street trees located just west of the viaduct.

The visual dominance of the existing viaduct is reinforced by its traffic noise. Viaduct traffic produces a constant background of engine and exhaust noise, with the irregular thumping sound of tires crossing the expansion joints and the occasional noise peaks from heavy trucks moving at high speeds. A pedestrian walking between the waterfront and downtown along any of the perpendicular streets is presented with a radical change in the visual environment when the viaduct is encountered; this change is reinforced by the intrusive noise levels. The area beneath the viaduct is shadowed by the viaduct and is devoid of any visually relieving vegetation or other amenities. This area provides a view of parked cars. As one passes under the viaduct, the visual environment opens, the overhead space is uncovered, street trees frame one side of the sidewalk, and buildings frame the other. The intrusion of traffic noise recedes gradually.

Looking north, at approximately Union Street, the lower deck of the existing viaduct begins a transition to a side-by-side configuration. At this point, it begins to move off the Alaskan Way surface street right-of-way to a separate alignment to the east, which climbs the hill to the Battery Street Tunnel. Where the transition to a side-by-side configuration occurs, the vertical and horizontal supports are not in the same plane, but jut out from the roadway levels. This more complex design is illustrated in Appendix E, Exhibit A-14, the view north from Waterfront Park. The location farther to the east reduces the scale somewhat for pedestrians on the waterfront promenade. The transition to a side-by-side configuration increases the width of the viaduct at the Pike Street Hillclimb pedestrian corridor. The movement to a separate corridor reduces the noise intrusion north of Pike Street. The visual effects from the waterfront are predominantly blocked by existing development north of Pine Street.

Viewer populations on the waterfront vary considerably. The waterfront is listed by the Seattle-King County Convention and Visitors Bureau as the second most visited attraction in the Seattle area, with approximately 4.2 million visits in 1999 (Seattle-King County Convention and Visitors Bureau 1999). Near Yesler Way, Columbia Street, and Marion Street, a large component of pedestrian viewers are likely to be ferry commuters. There is likely to be a component of tourists as well

as other individuals walking between the waterfront and Pioneer Square. The area between Piers 54 and 63 is likely to have the highest pedestrian volumes of elective and tourist viewers along the waterfront. These piers include retail stores and restaurants; Waterfront Park; the Seattle Aquarium; and views, activities, and other amenities. They are also connected with Pike Place Market via the Pike Street Hillclimb and with the Seattle Art Museum and Benaroya Hall along University Street and Harbor Steps.

The pedestrian volumes are highest during the summer. Pedestrian counts in 2008 at Alaskan Way and Seneca Street near Pier 56 varied between about 2,000 people per day in spring to about 5,500 per day in summer (DSA 2009). This is consistent with past trends, including counts in late May 1997 at Pier 56 of about 5,000 people in a 4-hour midday period (Seattle DCLU 1999). In September 2001, lunch-hour volumes were about 1,580 people, and daily volumes were about 3,750 people (SDOT 2001). Estimated pedestrian volumes visiting the Seattle Aquarium are about 4,000 people for a peak summer day (Seattle 1995). Summer pedestrian volumes at Alaskan Way and Union Street at Waterfront Park are about 14,400 people per day, with winter volumes of 3,350 people per day (GEHL 2008). Pedestrian volumes north of Pier 59 are lower because there are fewer pedestrian attractions. Pier 66 is connected to Elliott Avenue via a pedestrian bridge, but average daily pedestrian volumes in the area are relatively low, with summer volumes on Alaskan Way of 8,000 people and winter volumes at Bell Street of 2,680 people. Pier 66 experiences very large pedestrian volumes when cruise ships dock. Pedestrian volumes at Alaskan Way are 5,090 people per day in the summer, with winter volumes of 1,290 people per day (GEHL 2008).

Viewer sensitivity is likely to be relatively low for commuters using the Seattle Ferry Terminal and highest among tourists and others at Piers 54 through 59 and the Seattle Aquarium.

Views to the west from the central waterfront have a high level of visual quality due to the presence of elements designated by the City as significant features that are vivid and memorable, including views of the Olympic Mountains, Puget Sound, and Elliott Bay. The viaduct does not encroach on views to the west, but noise from the viaduct is an encroaching element on the overall enjoyment of the pedestrian environment. Views to the east of downtown have a moderate to low level of visual quality. Although the downtown skyline is visible as a vivid element designated by the City as a significant feature, the viaduct dominates the view as an encroaching element, interrupts the unity of the view by obscuring the rhythm of the street pattern, and truncates views of the row of buildings along Alaskan Way, which are an important component of the urban landscape. For the buildings along the viaduct, the elevated structure and associated noise and shadow impacts reinforce the visual encroachment of the highway.

### Light and Glare

The lighting for the upper deck of the existing viaduct is similar to normal arterial street lighting. The presence of a lighted structure above grade level emphasizes the extent to which the structure cuts across the orientation of surface streets for nighttime views and the degree to which the viaduct is an intrusive element. The elevated light source is an additional source of intrusive glare for the upper windows of buildings, which would not be directly affected by the lighting for surface streets.

## **4.4 Commercial Core**

The Commercial Core visual character unit includes the area east of the existing viaduct from approximately Columbia Street (or a bit south) to the Pike Place Market area at Union Street and the Belltown area at Stewart Street. The neighborhood is set apart from the adjacent neighborhoods by a change in the orientation of the street network, and it is characterized by many high-rise office buildings. The neighborhood includes the city's financial district and retail core. First-class hotels, restaurants, museums, theaters, and the symphony hall are concentrated between First and Fifth Avenues. Tens of thousands of workers commute to the Commercial Core each day.

### Views From the Road

The views from the road in the Commercial Core are the same as those discussed in Section 4.3 for the Central Waterfront visual character unit because the viaduct passes between the two visual character units, serving as their boundary.

### Views Toward the Road

Views of the existing viaduct from the Commercial Core are influenced by the distance to the viaduct, the topography, the character of existing development, and the features of the viaduct. The topography of the Commercial Core is often steep along the east-west oriented streets. Streets oriented north-south generally slope upward gently to the north. The area north of Union Street is fairly flat between First Avenue and Sixth Avenue. From Union Street north, there are no views of the viaduct east of First Avenue because the line of sight is above the aerial structure.

The area between Western Avenue and the waterfront is generally flat in this area. Between Columbia Street and Spring Street, the slope between Western and First Avenues is gentle enough to allow through vehicle traffic. North of Spring Street, the slope from First Avenue to Alaskan Way is sufficiently steep to prevent a surface connection for vehicles. The grade change between First Avenue and the waterfront varies from about three stories at Seneca Street to more than eight stories at Pike Street.

View corridors are designed to preserve the westerly views of the waterfront and natural amenities such as Elliott Bay and landforms to the west. All the perpendicular streets that intersect with Alaskan Way in the Commercial Core are designated view corridors (see Exhibit 3-1), per the Seattle Comprehensive Plan, Policies DT-UDP 8 and 9, BP-19, and LG 92 and 93 (Seattle 2005); land use regulations (SMC 23.49.024); and street vacation policies (Seattle City Council Resolution 30297). Upper-level setbacks are required on Marion, Madison, Spring, and Seneca Streets west of Third Avenue to limit the encroachment of building towers on the view corridors (SMC 23.49.024). The City's shoreline policies (LG 92 and 93) provide visual access to shorelines while preserving and enhancing the views from upland areas (SMC 23.60) (Seattle 2005).

Designated Green Streets include Marion Street from Second Avenue to Alaskan Way, Spring Street from First Avenue to Alaskan Way, and University Street from Western Avenue to Alaskan Way (see Exhibit 3-3). Green Streets are rights-of-way that are designated for a variety of treatments, such as sidewalk widening, landscaping, traffic calming, and pedestrian-oriented features that enhance pedestrian circulation and the use of open space (SMC 23.12.110). Green Street development has been implemented on the private extension of University Street through Harbor Steps and on Spring Street with sidewalk widening and landscaping.

The visual context of the existing viaduct and adjacent private development is similar in the one-block area between the Alaskan Way surface street and Western Avenue. Most of the buildings are four- to eight-story brick buildings constructed before 1930 in a loft style consistent with the area's earlier status as a manufacturing and warehousing district. Since the 1960s, use of most of these buildings has changed to office and retail. The exception is a 12-story building built in the 1980s that occupies the block between Madison and Spring Streets. In addition, parking lots are located on the north side of Columbia Street, between Spring and Seneca Streets, and on the north side of University Street.

The views down Marion, Madison, Spring, and Seneca Streets include a variety of buildings that are City-designated landmarks. Marion Street includes the Colman Building at First Avenue and the Commuter Building at Western Avenue. Madison Street includes the Globe Building at First Avenue. Spring Street features the Hotel Cecil at First Avenue and the National Building between Post Alley and Western Avenue. On Seneca Street, the Grand Pacific Hotel at First Avenue and the Olympic Cold Storage Building are obscured by the overhead ramp to Alaskan Way. The other buildings along these streets are generally consistent in scale and streetscape with the historic character of these buildings. The existing viaduct generally does not fit into the compositional coherence of the streetscapes, as discussed below in reference to specific views.

The scale and character of the existing viaduct as viewed from the perpendicular streets east of Western Avenue are similar to that shown in Appendix E, Exhibit A-10, which is the view to the west on University Street at First Avenue. The character of existing buildings on Marion and Madison Streets is similar to this example, except that University Street does not have building street-walls fronting the north side of the block between Western Avenue and Alaskan Way. Because these streets are more closely framed, they have a slightly less extensive view of the viaduct. Spring Street is similar on the south side of the block, but the entire north side of the block is currently a parking lot. In the case of Columbia and Seneca Streets, an on-ramp to and off-ramp from the viaduct add support structures within the right-of-way; these structures further obstruct views.

In all cases, views down the perpendicular streets contain elements of waterfront piers and other structures; the ridge line of West Seattle across Elliott Bay, which includes both housing and wooded greenbelts; and Duwamish Head projecting into Puget Sound. For the most part, the water areas of Elliott Bay are not visible because the angle of the view in this flat area is above the water. Distant views of the Olympic Mountains are not available from any of these perpendicular streets because of their southwest orientation. The view from Columbia Street to the Seattle Ferry Terminal is partially obstructed by the tollbooths serving that facility. The view from Marion Street includes the Colman Dock structure, ferries loading at the terminal, and West Seattle. The view from Madison Street includes Fire Station No. 5 centered in the view, with West Seattle in the distance. From Spring Street, the view down the right-of-way includes part of the Pier 54 transit shed. From Seneca Street, the view includes the tour boat dock between Piers 55 and 56, with West Seattle beyond. At University Street, as shown in Appendix E, Exhibit A-10, parts of the Pier 56 transit shed and part of the front of Pier 57 are visible beneath the traffic decks of the viaduct.

Regardless of the differences between views along various streets under and through the existing viaduct, the viaduct structure is visually dominant and displaces potential visual connections to the waterfront piers, other elements of the urban fabric, and the natural setting. It cuts across the linear orientation of the street and substantially reduces the visual coherence and visual harmony of the street corridors. It introduces a substantial area of shadowed parking lots lacking the visual relief provided by vegetation buffers or other visual amenities. The encroachment on the fabric of the street corridor is even greater where ramps are present at Columbia and Seneca Streets. At these locations, the roofing over the corridor, the interruption of the sense of framing by adjacent buildings, and the displacement of street trees is more apparent, and the noise from traffic on the ramps encroaches further into the street corridor.

The visual effects of the existing viaduct become greater as one moves closer. The visual effects are reinforced by the traffic noise. For pedestrians walking beneath the viaduct and ground floor occupants of buildings facing the viaduct, the environment is a substantial visual contrast because of the absence of street trees, landscaping, and streetscape amenities; the presence of shadows created by the viaduct; the character of the parking lot beneath the viaduct; and the high noise levels. The viaduct is set back about 20 feet from the eastern edge of the right-of-way. This area is currently used for loading and parking. There is no continuous sidewalk along the eastern side of the Alaskan Way surface street, except between Marion and Spring Streets.

The existing viaduct is prominent in views from First Avenue and Western Avenue. These views change in character as one moves north from Columbia Street because of the rising topography. At University Street, the top of the viaduct is about 16 feet below the elevation of First Avenue, as shown in Appendix E, Exhibit A-10. This allows views over the viaduct to West Seattle and framed views of Elliott Bay between the viaduct decks. The linear nature of the University Street corridor is still interrupted by the viaduct, which remains the dominant feature cutting across the view. Visibility of the waterfront piers is limited because the viaduct decks block more of the view to the west, reducing visual coherence and vividness.

Viewer populations in the Commercial Core are large due to its status as an employment center. In summer 2008, the number of pedestrians at University Street and Second Avenue was about 4,000 people per day. Pedestrian counts in 2008 between Union and Pike Streets were about 14,000 people per day in summer, with winter counts of about 5,600 people per day (GEHL 2008).

Viewer sensitivity for downtown employees engaged in elective activities when using open spaces is likely to be high and is likely to be similar to that of tourists or shoppers. However, the less homogenous and distinct visual quality of buildings in the Commercial Core, as well as their larger scale relative to the buildings in Pioneer Square, is likely to result in lower viewer sensitivity to the existing viaduct compared to the sensitivity of viewers in the Pioneer Square area.

Sensitivity is likely to be higher on designated Green Streets: Marion Street from Second Avenue to Alaskan Way, Spring Street from First Avenue to Alaskan Way, and University Street from Western Avenue to Alaskan Way. Green Streets are designed to serve as gathering places or corridors that connect activity areas and open spaces in an attractive urban setting (Seattle DCLU 1993). Elements of Green Street design include enhancing the separation of pedestrian and vehicle areas by means of street trees, landscaping, street furniture, bollards, and parking; providing weather protection for pedestrians; maximizing the amount of light and air reaching public spaces; and providing arcades, landscaping, and outdoor

cafes to create a harmonious relationship and graceful transition between private and public spaces.

The largest pedestrian populations are likely along Marion Street, where a grade-separated pedestrian bridge to the Seattle Ferry Terminal is located. It is likely that a substantial portion of the 20,000 average walk-on passengers per day use this route (SDOT 2008). High pedestrian volumes are also likely on University Street, where the Seattle Art Museum and Benaroya Hall attract visitors. These two attractions are also adjacent to the Harbor Steps pedestrian connection between First and Western Avenues. This corridor is likely to carry substantial pedestrian volumes between the Commercial Core and the waterfront. Viewer sensitivity is likely to be highest for persons attracted to the cultural resources of the museum and the pedestrian and open spaces along University Street.

Views from private property include those available to employees and residents in buildings that face the existing viaduct and from buildings along the perpendicular street corridors. Many high-rise buildings east of First Avenue look down upon the viaduct through gaps between other buildings. From lower floors at the level of the viaduct or higher, the viaduct is a substantial element of the visual environment. The viaduct becomes an increasingly smaller element of the view from higher floors. The character of the viaduct as viewed from a substantial distance above is not much different from that of typical urban streets when viewed from above.

Views of the existing viaduct from buildings east of Western Avenue are generally blocked by intervening buildings, except down street corridors or where parking lots are located. For the buildings east of Western Avenue, the visual effects on ground-floor views are likely to be similar to the effects on street-level pedestrian views. The second through fourth floors at the level of the viaduct decks would experience blocked views down the street corridor, and the upper floors would enjoy views down street corridors that look over the viaduct, allowing unobstructed distant views. Most of the buildings adjacent to the viaduct are roughly the same height as the viaduct, with views from the ground floor similar to those shown in Appendix E, Exhibit A-8. Most top floor views are at least somewhat obstructed by the viaduct, with the intrusion of nearby cars flashing by.

Views to the west have some vivid and memorable elements, including those designated by the City as significant features, such as views of Puget Sound and Elliott Bay. The visual quality of these views are largely reduced to moderate to low visual quality west of First Avenue by the viaduct, which dominates the views down east-west streets as an encroaching element that interrupts and obscures distant features with its horizontal levels. The viaduct also greatly reduces the integrity and unity of elements of the built environment, including the continuity of the streetscape and views of the historic piers along the waterfront.

### Light and Glare

The lighting for the upper deck of the existing viaduct is similar to normal arterial street lighting. The presence of a lighted structure above grade level emphasizes the extent to which the structure cuts across the orientation of surface streets for nighttime views and the degree to which the viaduct is an intrusive element. The elevated light source is an additional source of intrusive glare for the upper windows of adjacent buildings that would not be directly affected by the lighting for surface streets.

## **4.5 Pike Place Market and Belltown**

For this analysis, the Pike Place Market visual character unit is defined as Union Street to Virginia Street, and the Belltown visual character unit stretches from approximately Stewart Street to Denny Way east of the Alaskan Way corridor. This area is larger than the area encompassed by the Pike Place Market national and local historic districts. This larger area was selected for this analysis to include related development of a similar character, including the privately owned south arcade that connects to Pike Place Market and the retail shops and restaurants north of Pike Place Market on Western Avenue, which adds to the retail character of the area.

The existing viaduct leaves the alignment of Alaskan Way near Union Street and continues on a separate alignment that climbs the hill west of the Pike Place Market and connects to the Battery Street Tunnel. The viaduct transitions from a stacked configuration to a side-by-side configuration in this area. The northbound and southbound lanes are at the same level from about Pike Street.

### Views From the Road

Views for occupants of northbound vehicles on the existing viaduct include the parking structure beneath Victor Steinbrueck Park in the center of the view, with the park above and office buildings and residential towers as the skyline. Views to the east include the top of several residential buildings. Views to the west include the waterfront, Elliott Bay, and the Olympic Mountains.

The alignment of the existing viaduct shifts slightly at Victor Steinbrueck Park and the grade increases slightly, such that views to the west are largely obscured except for the tops of buildings. Where the viaduct curves near Elliott Avenue, the views include a mix of buildings in the foreground, including the Empire Laundry (the corner of which abuts the viaduct) and the Hull Building, which is briefly centered in the view as the viaduct curves to enter the Battery Street Tunnel. These buildings are City-designated landmarks. Views of buildings are present for a short time (about 10 seconds) as a vehicle moves through the area. The overall view lacks the vivid elements of the westerly views of water and

mountains farther to the south. These views of buildings also lack a high degree of unity of composition. Because of the short duration and the lack of vivid elements, this portion of the view has relatively low visual quality.

Views for occupants of southbound vehicles on the existing viaduct are similar to those from Victor Steinbrueck Park shown in Appendix E, Exhibit A-16, with the exception that the views from the roadway are directly along the alignment of the highway. The view from the southbound viaduct includes the downtown skyline and the arched trusses of Safeco Field and Qwest Field to the south. On clear days, Mount Rainier is visible in the distance for about one-third of a mile, from the curve south of the Battery Street Tunnel to the point where the southbound lanes begin the transition to the lower deck of the stacked structure. Travel time over this section is 20 to 30 seconds. Farther south at about Pike Street, the scene down the alignment of the roadway features the arched trusses of Safeco Field and Qwest Field to the south, with Mount Rainier visible behind them on clear days. The views of Elliott Bay to the southwest from both viewpoints include the port facilities and cranes of Harbor Island, with ferry and boat activity in the water. Mount Rainier, Elliott Bay, and the downtown skyline are vivid City of Seattle designated significant features that result in high visual quality.

After the southbound lanes transition to the lower deck of the structure, the views primarily feature the rooflines of the transit sheds on the piers at the waterfront. Overall, the southbound views from the short roadway section from Elliott Avenue to Pine Street have high visual quality due to vivid elements such as Mount Rainier that fit into a coherent pattern framed by the downtown skyline on one side and Elliott Bay on the other. After entering the lower level of the viaduct, the constrained views lack the vivid elements and a unity of composition, resulting in low visual quality.

#### Views Toward the Road

Pike Place Market is a substantial center for shopping, restaurants, and other uses. Because it is on the top of the hill above the existing viaduct, the road is visible only from west-facing windows of buildings, from public streets such as the Pike Street Hillclimb, and from open space such as Victor Steinbrueck Park at Western Avenue and Virginia Street. The viaduct is below the grade of Victor Steinbrueck Park but is visible as a long corridor to the south, as shown in Appendix E, Exhibit A-16. Persons looking west at the edge of the park railing also can look down on the viaduct roadway and across the roofs of buildings to the west to views of Puget Sound, West Seattle, and the Olympic Mountains. The view to the south is centered on distant views of Mount Rainier, with visual interest provided by the arched trusses of Safeco Field and Qwest Field. The view to the south is framed on the east side by the downtown skyline and on the west side by Elliott Bay. The complex of waterfront piers and activities is clearly visible. The viaduct

as seen from above is a linear feature aligned with the shoreline. The viaduct in the foreground presents the viewer with fast-moving vehicles and noise that emphasize its character as a high-speed traffic arterial. In the far distance and middle distance, the viaduct is a linear feature that becomes smaller in scale but obscures cross streets and the bottoms of adjacent buildings and generally reduces the compositional unity of the urban fabric.

The buildings in the area are largely above the existing viaduct and look down on it, with views similar to those shown in Appendix E, Exhibit A-16. Such views are available from publicly accessible portions of the north arcade of Pike Place Market, especially the Joe Desimone Bridge over Western Avenue. Existing buildings fronting Western Avenue block views of the viaduct from most of the windows of the main arcade. Views down the Pike Street Hillclimb, perpendicular to the viaduct, are very limited except those from the terrace areas below Western Avenue. The limited views result from a combination of the elevation above the waterfront, the blockage of views by the pedestrian overpass over Western Avenue with its stairway structure on the east side of Western Avenue, and the screening provided by buildings and trees. From the terrace areas below Western Avenue, the viaduct dominates the views to the west because of its proximity. The elevation of the terraces also places the viaduct traffic closer to the line of sight toward the waterfront.

Pike Place Market is rated one of the most popular tourist destinations in Seattle (Seattle Convention and Visitors Bureau 2009). It is the destination of approximately 10 million visitors per year, including local residents (Pike Place Market Public Development Authority 2009). This represents a very large potential viewing population. It is likely that Victor Steinbrueck Park is the primary viewing location because of its accessibility and the attractiveness of the panoramic views of Elliott Bay and the downtown skyline. The Pike Street Hillclimb carries high pedestrian volumes. At both locations, viewer sensitivity is likely to be high, with effects relatively higher on the Pike Street Hillclimb because of the location of the existing viaduct as a barrier to views and the necessity of walking under the structure.

Views from within the Pike Place Market buildings may be considered to have high visual quality because all the elements that contribute to the integrity and unity of the historic features are present. The lack of views of vivid elements (such as mountains, water, or the downtown skyline) from many areas doesn't reduce the visual quality because the historic character is the visual focus. In areas where views to the west are available from market structures, such as the Joe Desimone Bridge, the viaduct is below the line of sight and does not encroach on the view or reduce the visual unity. Views from Victor Steinbrueck Park to the south and west also have vivid mountain and water elements with the viaduct

out of the line of sight. At this location, however, the viaduct obscures the street rhythm and building elevations of the downtown streetscape along Alaskan Way, although views maintain a high level of visual quality because of the vivid focus provided by the downtown skyline and Mount Rainier.

Views from the Pike Street Hillclimb to the west have low visual quality because the vivid elements of the Olympic Mountains, Puget Sound, and Elliott Bay are almost completely obscured by the viaduct, which is at an elevation that cuts across most views. The viaduct also substantially reduces the integrity and unity of the streetscape.

North of Pike Place Market on both Western and Elliott Avenues in Belltown, the existing viaduct acts as a barrier to the visual continuity between the neighborhoods on each side and likely impedes pedestrian movement along these streets, as indicated in Appendix E, Exhibits A-18 and A-20. Because the travel lanes in this area are side by side and at a diagonal to the streets, the undercrossing is much wider. This results in a longer area subject to a change in visual character, shadows, and noise than elsewhere along the viaduct.

From Bell Street where Elliott Avenue turns to the southeast, the viaduct is below the line of sight of the downtown skyline, but it is an encroaching element that interrupts the unity of the view by obscuring the rhythm of the street pattern and truncating views of the buildings framing the street. The view of the downtown skyline is constrained to a narrow corridor by the buildings lining the street and consists of a few buildings with relatively undistinguished features with little vivid or memorable effect. The viaduct is the most prominent feature from this corridor. Views to the north from Western Avenue north of Virginia Street have no vivid features in the distance. From Lenora Street to the north the viaduct is the dominant feature that encroaches on the linear features of the streetscape and interrupts the unity of the view by obscuring the rhythm of the historic street pattern and truncates views of the buildings framing the street to the north.

Pedestrian volumes are not documented for this portion of the Belltown area. Pedestrian counts in September 2001 at Second Avenue and Lenora Street, several blocks away, were about 1,000 during the lunch hour and about 2,800 for the weekday total (SDOT 2001). The Belltown area is one of the fastest-growing neighborhoods in Seattle, with substantial multifamily residential development in the past decade. Retail and restaurant uses are concentrated along First and Second Avenues. There are relatively few destinations for pedestrians on Elliott and Western Avenues. The most sensitive viewer population is likely to be residents in the area north of the viaduct, and most residents are likely to experience the viaduct as a visual barrier. Residents and others to the east can avoid crossing the viaduct by circulating on First Avenue and streets to the east.

Views from Elliott Avenue to the south and Western Avenue to the north near the viaduct have low visual quality because the viaduct encroaches on and reduces the integrity and unity of the linear elements of the streetscape.

#### Light and Glare

Lighting for the elevated structure between Pike Street and Elliott Avenue is generally below the street level of Victor Steinbrueck Park and the buildings to the east. North of Elliott Avenue, the elevated light source is an additional intrusive element that emphasizes the presence of the structure cutting across the street grid. It is also a source of direct glare for the upper windows of buildings that would not be directly affected by the lighting for surface streets.

### 4.6 SR 99/Aurora Corridor

The SR 99/Aurora Corridor visual character unit is defined as the area extending several blocks on either side of the existing SR 99 from just north of the Battery Street Tunnel portal at Denny Way to Aloha Street.

Once it emerges from the Battery Street Tunnel, SR 99/Aurora Avenue continues north, and the two traffic lanes in each direction are joined by two-lane on- and off-ramps at Denny Way. These merge into three mainline lanes to the north. This section of semi-restricted-access highway has right-turn-only access from adjacent surface streets and a barrier in the center. Standard sidewalks and street trees border the roadway. Development along this corridor includes a variety of motels and other buildings from one to five stories high, predominantly built to the sidewalk line.

The character of surrounding development is similar in height and bulk and tends to be four to eight stories high. The Bill and Melinda Gates Foundation building under construction to the west of the SR 99 corridor is similar in height to newer buildings in the area but much larger in horizontal dimension. The west side of Aurora Avenue is designated as part of the Uptown Urban Center, which extends from Denny Way to Highland Drive. The east side of Aurora Avenue is designated as part of the South Lake Union Urban Center, which extends from Denny Way to Galer Street. The Seattle Mixed (SM) zoning provides for a wide range of uses to encourage development of the area into a mixed-use neighborhood, and it has height limits of 65 to 85 feet adjacent to Aurora Avenue.

#### Views From the Road

Views from the roadway for vehicle occupants and pedestrians are of a six-lane urban arterial with a center barrier, framed by three- to four-story buildings on both sides with street trees and sidewalks. Existing views are shown in Appendix E, Exhibits A-22 and A-24 (northbound) and A-26 and A-28 (southbound). The views are generally contained within the roadway corridor by

the buildings that frame each side of the corridor. Mature street trees are located adjacent to the sidewalk and provide a consistent tree canopy along this portion of the corridor. The canopy also softens the appearance of the adjacent buildings, which are predominantly built to the sidewalk. Visual character is diverse in terms of building size, design, and scale, but it is relatively unified by the consistent linear features, such as street trees and the roadway. There are, however, few vivid features in the foreground and middle ground.

Northbound views along the orientation of the road feature the wooded hillside of Queen Anne Hill to the west (left) and buildings to the east (right). There is a visually prominent roof-mounted product advertising sign at Valley Street that contrasts in shape and color with the buildings and street trees for northbound views from John to Roy Streets. There are brief views of Lake Union, a City of Seattle designated significant feature, to the northeast for northbound vehicles as the roadway crosses over the Broad Street/Mercer Street underpasses. As vehicles move past this area, the viewing window is very short. Therefore, Lake Union is unlikely to be noticed, or the view is unlikely to be retained by most viewers in vehicles. The view has a moderate visual quality due to the lack of vivid elements, although the framing of the street by buildings and street trees provides a unity and coherence of composition.

Southbound views feature the downtown skyline, a City of Seattle designated significant feature, from about Galer Street to near the Battery Street Tunnel portal. There are views to the west (right) of the upper portion of the Space Needle south of about Aloha Street that are largely screened by street tree foliage in season. There is a very brief view of most of the elevation of the Space Needle where SR 99 intersects Broad Street. The angle of these views requires the viewer to look away from the orientation of the roadway. Drivers are less likely to turn their gaze from the orientation of the roadway than passengers, except for brief glimpses. However, this portion of the roadway presents few driving challenges due to maneuvering traffic and is likely to allow most drivers an opportunity to divert their attention for brief periods.

Northbound views after leaving the Battery Street Tunnel have a moderate visual quality. There are no vivid or memorable features in the view. The view has relatively high unity as an urban streetscape, with relatively few encroaching elements. Views southbound on Aurora Avenue include portions of the downtown skyline, which is a City of Seattle designated significant feature. However, the view contains a portion of the skyline with largely mid-rise buildings that are at a distance that makes them smaller features than the buildings lining the roadway. The resulting view lacks elements that are highly vivid or memorable. The overall visual quality is moderate due to the unity of the urban streetscape and the general lack of encroaching elements.

### Views Toward the Road

For vehicle occupants or pedestrians, views from perpendicular streets are of a standard grade-level urban roadway framed by buildings, street trees, and sidewalks, but with large volumes of fast-moving traffic crossing the field of view. Views for pedestrians on sidewalks on SR 99 contain the same elements as the view for vehicle occupants described in the previous section (Views from the Road), but with fast-moving vehicles in the lanes next to the sidewalk. Pedestrian volumes and viewer sensitivity along SR 99/Aurora Avenue are very low. There are no pedestrian-oriented retail establishments or other establishments along the corridor to attract pedestrians. The pedestrian environment on the sidewalks adjacent to Aurora Avenue is very uninviting due to the proximity of high-speed traffic with no intervening buffer. Pedestrians likely choose parallel streets with lower traffic volumes whenever possible. Pedestrian volumes along the streets perpendicular to SR 99 are also small due to the mix of predominantly light-industrial and wholesale uses that continue to characterize this neighborhood in transition and provide few attractions for pedestrians. The lack of pedestrian crossings, except at Denny Way and the Broad and Mercer Street underpasses, also limits pedestrian circulation and volumes. The west side of Aurora Avenue has more retail development and likely has generally higher pedestrian volumes because of the lodging and other uses oriented to Seattle Center to the west.

Views from private property in this area are generally from buildings adjacent to the roadway or from taller buildings a block or two from the highway where the intervening buildings are shorter. Views are of a moderately wide urban arterial with large traffic volumes and high speeds. In most cases, the street is likely to be a minor element of the view because viewers would tend to look away from the street view to more interesting views of other buildings or of notable views in the distance where such views are available.

### Light and Glare

The lighting in this area is typical of urban arterials. The SR 99 corridor is little different from other downtown arterials in terms of light and glare effects on the surrounding areas.

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## Chapter 5 OPERATIONAL EFFECTS, MITIGATION, AND BENEFITS

This chapter describes the visual change that would result from the project alternatives and the extent to which the effects would be experienced as adverse or beneficial by viewers. Potential mitigation measures for adverse operational effects are described in Section 5.3.

### 5.1 Operational Effects of the Viaduct Closed (No Build Alternative)

Both federal and Washington State environmental regulations require agencies to evaluate a No Build Alternative to provide baseline information about existing conditions in the project area. For this project, the No Build Alternative is not a viable alternative because the existing viaduct is vulnerable to earthquakes and structural failure due to ongoing deterioration. Multiple studies of the viaduct's current structural conditions, including its foundations in liquefiable soils, have determined that retrofitting or rebuilding the existing viaduct is not a reasonable alternative. At some point in the future, the roadway will need to be closed.

The Viaduct Closed (No Build Alternative) describes what would happen if the Bored Tunnel Alternative or another build alternative is not implemented. If the existing viaduct is not replaced, it will be closed, but it is unknown when that would happen. However, it is highly unlikely that the existing structure could still be in use in 2030.

The Viaduct Closed (No Build Alternative) describes the consequences of suddenly losing the function of SR 99 along the central waterfront based on the two scenarios described below. All vehicles that would have used SR 99 would either navigate the Seattle surface streets to their final destination or take S. Royal Brougham Way to I-5 and continue north. The consequences would be short-term and would last until transportation and other agencies could develop and implement a new, permanent solution. The planning and development of the new solution would have its own environmental review.

Two scenarios were evaluated as part of the Viaduct Closed (No Build Alternative):

- Scenario 1 – An unplanned closure of the viaduct for some structural deficiency, weakness, or damage due to a smaller earthquake event.
- Scenario 2 – Catastrophic failure and collapse of the viaduct.

The Viaduct Closed (No Build Alternative) would involve retention of the existing Alaskan Way Viaduct for an undefined interim period before the

eventual unplanned closure due to either (1) structural damage from a smaller earthquake or other reasons or (2) a catastrophic failure and collapse of the viaduct. During this interim period, the existing visual effects discussed in Chapter 4 would continue. Once the viaduct is closed or fails, the views drivers currently experience while on the viaduct would be lost.

## 5.2 Operational Effects of the Bored Tunnel Alternative

The Bored Tunnel Alternative would remove the existing elevated viaduct structure and replace it with a bored tunnel. A new Alaskan Way surface street would be developed as a separate future project, described in Section 7.1.1.

The visual analysis matrix in Attachment B provides an overview of differences in visual effects between the alternatives. The ratings allow comparison of the vividness, intactness, and unity of views from selected viewpoints. The matrix is useful primarily as a comparison of the visual quality of the same view between different alternatives (refer to Exhibit 5-1 in the 2006 Supplemental Draft EIS Appendix D, Visual Quality Discipline Report for comparison). The photo simulations are included in Appendix E. The visual character units are shown in Exhibit 2-3.

### 5.2.1 Stadium Area

The Bored Tunnel Alternative would be integrated with the SR 99 improvements to the south constructed as part of the S. Holgate Street to S. King Street Viaduct Replacement Project, which include a single-level structure passing over S. Atlantic Street and S. Royal Brougham Way and associated ramps. The tunnel portal would be located within the Alaskan Way right-of-way about 1,000 feet south of S. King Street. The two northbound and two southbound lanes would have separate side-by-side portals that would weave underground to a double-level configuration within the bored tunnel. In addition, separate portals would be provided for the northbound on-ramp and southbound off-ramp to the east of the main portal. A six-lane surface street would be constructed above the tunnel south of S. King Street.

South of the portals, the street configuration would include the following features, from west to east:

- A pedestrian trail, the Port Side Pedestrian/Bike Trail, would run adjacent to the Port of Seattle's Terminal 46.
- A two-lane E. Marginal Way.
- A southbound on-ramp from the Alaskan Way surface street that would connect with SR 99 near S. Royal Brougham Way.

- Southbound lanes leaving and northbound lanes entering the tunnel portal.
- A northbound surface off-ramp from SR 99 to the Alaskan Way surface street, bypassing the tunnel portals.
- The northbound on-ramp and southbound off-ramp connecting from the tunnel portals to S. Royal Brougham Way.
- The City Side Trail, a pedestrian and bicycle facility on the east side of the roadway improvements between S. Royal Brougham Way and S. King Street.

The tunnel operations building would be located on the block between the existing Railroad Way S. and S. Dearborn Street in a triangular configuration. It would include a covered parking area about 40 feet wide located on the north side of the building on part of the existing Railroad Way S. right-of-way currently occupied by viaduct ramps. The tunnel operations building would house electrical and mechanical systems supporting the tunnel, including ventilation equipment, control systems, maintenance shop functions, equipment storage, and systems support. Railroad Way S. between First Avenue S. and Alaskan Way S. would be reconfigured from the current two-way street north of the existing ramps to a single one-way northbound lane connecting S. Dearborn Street to Alaskan Way S. This one-way lane would have a right-turn-only connection to Alaskan Way S. with a pedestrian plaza along First Avenue S. and pedestrian walkways on both sides of the vehicle lane.

Two options are being considered for new cross streets that would be built to intersect with Alaskan Way S.:

- New Dearborn Intersection – Alaskan Way S. would have one new intersection and cross street at S. Dearborn Street. The cross street would have sidewalks on both sides.
- New Dearborn and Charles Intersections – Alaskan Way S. would have two new intersections and cross streets at S. Charles Street and S. Dearborn Street. The cross streets would have sidewalks on both sides.

The two options differ in whether S. Charles Street would be constructed south of S. Dearborn Street to connect between First Avenue S. and E. Marginal Way S. If S. Charles Street is constructed, all portals would be immediately south of the new street.

#### Views From the Road

Occupants of northbound vehicles leaving the single-level aerial structure at S. Royal Brougham Way and transitioning to the tunnel portals or off-ramps are

likely to have views of the downtown skyline to the north along the roadway alignment that are similar to those from the existing viaduct, as shown in Appendix E, Exhibits A-2 and A-3.

Southbound vehicles leaving the bored tunnel or entering SR 99 would have views to the southwest of port and industrial facilities. The stacked shipping containers and cranes of the Port of Seattle terminals would continue to be the dominant skyline feature for southbound traffic.

The differences between the two south portal area options are not likely to substantially affect the view from the road because the primary elements would be the skyline above and the portal through which vehicles are travelling.

Northbound views for vehicle occupants prior to entering the tunnel portal would continue to have a very high level of visual quality due to the presence of elements that are vivid and memorable, including views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. The ratings of the views in Attachment B increase only slightly because of greater unity of the views of foreground buildings, which would no longer be truncated because of the elevation of the viaduct. For the 20 percent of northbound trips oriented to downtown and using the Alaskan Way surface street, similar visual quality would result because the same vivid elements would be visible to the west, although interrupted and framed by waterfront piers rather than the panoramic views observed from the upper deck of the viaduct. The overall unity of the views would increase because the downtown buildings of the Pioneer Square Historic District and the Commercial Core would be visually integrated rather than truncated by the viaduct.

Southbound views for vehicle occupants after leaving the tunnel would continue to have a moderate to low level of visual quality due to the lack of vivid features. However, views from the single-level elevated structure would increase in visual quality because of the absence of the encroachment of the columns and upper deck of the viaduct itself. For the 20 percent of southbound trips oriented to downtown and using the Alaskan Way surface street, improved visual quality would result because the views would not be constrained by the narrow field of view and the encroachment by structural elements of the viaduct. For these views, the vivid water features visible to the west would be more vivid, although interrupted and framed by waterfront piers. The overall unity of the views would increase substantially because the views of the waterfront piers and downtown buildings of the Pioneer Square Historic District and the Commercial Core would be visually integrated rather than truncated by the viaduct.

## Views Toward the Road

The majority of the viewing population would consist of attendees at stadium events and persons passing through the area on roadways. The Bored Tunnel Alternative would eliminate the ramps leaving First Avenue S. and traversing the south side of Railroad Way S. to join the existing viaduct, as shown in Appendix E, Exhibits A-5 and A-7.

For baseball fans congregating on First Avenue S. adjacent to Safeco Field, the new single-level configuration of the SR 99 elevated structure would not change the low visual intactness and unity of street-level views to the west or the skyline features of the port cranes to the west. The view to the north would feature the downtown skyline without the ramps at Railroad Way S., which would be a somewhat more integrated street corridor than the current view.

The view for attendees at baseball games from the outdoor viewing areas on the west side of the ball field at the 300 level would continue to have unobstructed westerly foreground views of the Terminal 46 buildings, stacked containers, and cranes and distant views of the wooded hills of the Kitsap Peninsula and the more distant peaks of the Olympic Mountains. Viewers looking northwest and north would see the transition from the single-level overpass to the tunnel portal. In views to the north, the downtown skyline would be the primary feature. The absence of the ramps at Railroad Way S. would result in a more integrated street corridor in the middle distance. The tunnel operations building to the west of First Avenue S. would be located south of the street and would be similar in height and bulk to other buildings in the immediate vicinity. It would be substantially shorter than the eight-story building recently constructed on the north side of Railroad Way S., as shown in Appendix E, Exhibits A-5 and A-7.

The westerly view for attendees of football games or other persons leasing the space on the Sky Deck level on the west side of the stadium would be substantially altered by the removal of the existing viaduct, allowing line-of-sight views across Terminal 46 to Elliott Bay, distant views of the wooded hills of the Kitsap Peninsula, and the peaks of the Olympic Mountains. The corridors, lounges, and lofts of the Club Level of the stadium are lower than the Sky Deck but are generally higher than the existing buildings between First Avenue S. and Occidental Avenue S. The westerly view down Railroad Way S. would be opened up by the removal of the existing ramps. However, this view corridor toward Elliott Bay would be partially obscured by the tunnel operations building.

The viewing population on First Avenue S. immediately south of Railroad Way S. would experience a northerly view on First Avenue S. that is unobscured by the existing on-ramps on each side or by the northbound ramp that passes over the street as shown in Appendix E, Exhibit A-5. Viewers would experience First Avenue S. as a continuous street corridor lined by buildings on each side.

Initially, the west side of the street would be open in the construction area, except for the tunnel operations building. In the future, however, WSDOT may release unused portions of the project area. Future redevelopment of the surplus land not used for permanent transportation facilities on the west side of First Avenue may result in construction of new buildings that meet the City's current height limit, zoning requirements, and goals in the Livable South Downtown study (Seattle DPD 2009b). Such redevelopment would provide a transition between nearby industrial uses to the south, the Pioneer Square neighborhood to the north, and the stadium and entertainment uses. It would also improve the pedestrian experience along First Avenue S. If the west side of First Avenue S. is retained by WSDOT, it would consist of a combination of open spaces surrounding roadway elements, including an elevated roadway that transitions to the tunnel and on- and off-ramps.

The new tunnel operations building would be less complex than the existing ramps. The proposed height of the building (approximately 60 feet, with ventilation stacks extending up to 30 feet above the roof) would obstruct views of the waterfront near Pier 48 but would not obstruct distant views of the wooded hills of the Kitsap Peninsula and the peaks of the Olympic Mountains. The proposed enclosed parking lot would narrow the Railroad Way S. corridor by about 40 percent and reduce the function of the street as provided for in the recommendations of the City's Livable South Downtown study for Railroad Way S., which provides for a visual and pedestrian corridor connecting Colman Dock and the stadiums (Seattle DPD 2009b). The parking lot enclosure would frame about 60 percent of the length of the corridor between the Alaskan Way surface street and First Avenue S. and not provide pedestrian interest or pedestrian-supported uses.

If the tunnel operations building is designed purely to serve its purpose of housing mechanical equipment and other tunnel-related functions, it may not incorporate all the elements in Seattle's *Design Review Guidelines for Downtown Development* (DRGDD) (Seattle DCLU 2005). Such elements include an architectural composition that reflects the urban pattern, such as windows and other features characterizing office or residential buildings (DRGDD A-1). In addition, if the building functions purely for ventilation and support functions, the ground level is unlikely to incorporate features that avoid blank walls (DRGDD C-3); promote pedestrian interaction (DRGDD C-1); are scaled to promote pedestrian comfort, safety, and orientation (DRGDD C-2, C-4); and provide a distinctive, attractive, and memorable "sense of place" (DRGDD D-3), unless specific design commitments are made. The Stadium Design District (SMC 23.74.010) also has requirements for a "pedestrian environment," including specific facade requirements, such as a minimum facade height of 25 feet and

facade setback requirements, as well as requirements for landscaping blank facades (SMC 23.50.038).

The visual quality of views up First Avenue S. from south of Railroad Way S. would improve substantially with the removal of the existing ramps, which would restore the visual continuity of the street corridor as indicated by the 75 percent rating increase compared to existing conditions (see the Visual Analysis Matrix in Attachment B). The downtown Seattle skyline would continue to be a vivid element, and the encroachment of the ramps would be eliminated. The unity of the view would increase substantially with the full elevation of buildings and other elements of the streetscape fully visible, including the historic Flatiron Building.

The visual quality of views down Railroad Way S. toward Qwest Field would improve substantially with the removal of the viaduct, which would restore the visual continuity of the street corridor as indicated by the 140 percent rating increase compared to existing conditions (see the Visual Analysis Matrix in Attachment B). The elimination of the viaduct as an encroaching feature would substantially increase the integrity and unity of the corridor, even with the presence of the proposed parking lot enclosure.

The views available to the public from the upper levels of Safeco Field and Qwest Field would retain a high level of visual quality due to the continued presence of vivid elements, including views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. The elimination of the viaduct and First Avenue S. ramps would improve the intactness and unity of near views of First Avenue S. and Railroad Way S.

#### Light and Glare

The lighting in this portion of the corridor would be on the at-grade portion of the roadway connecting to the tunnel portals and on surface streets. The lighting would be similar to existing conditions. Overall, there would be little or no change in glare effects on the surrounding areas.

### **5.2.2 Pioneer Square Historic District**

#### Views From the Road

Views for vehicle occupants traveling in the new bored tunnel would be of the interior of the bored tunnel. The visual interest of the panoramic views from the existing viaduct would not be available to through traffic. The loss of panoramic views would affect primarily the northbound daytime users of the existing viaduct, which are about one-third of the approximately 110,000 vehicles per day on this section of the viaduct.

Views from the Alaskan Way surface street would continue to be available to vehicle occupants making trips that are not directly served by the tunnel, including trips to and from downtown that previously would have used the Columbia and Seneca Street ramps, as well as local trips. The views that formerly would have been from the viaduct would be at a lower elevation and therefore less panoramic. Views from the surface street to the west also would be available only between waterfront piers. In terms of vividness, integrity, and unity, the quality of the views from the surface street would be similar to that of the westerly views of Elliott Bay and the Olympic Mountains from the existing viaduct. The easterly views of downtown would be much more integrated because entire building frontages would be visible rather than truncated upper floors. The open space within the surface street corridor is also likely to incorporate elements with much greater intactness because of greater integrity of elements of the built environment without the encroaching elements of the viaduct. The incorporation of such elements within the surface street corridor would result in greater unity due to greater visual coherence and compositional harmony of the elements of the streetscape, open space, and framing buildings.

Under the Bored Tunnel Alternative, some trips to downtown destinations that currently use the viaduct would use the Alaskan Way surface street. These trips would total about 20,000 vehicles per day. The time spent traveling through the corridor would likely be a little longer than that spent on the existing viaduct because of slower speeds and at-grade intersections. Traffic and pedestrians on the streets perpendicular to Alaskan Way also would enjoy unobstructed westerly views without the encroaching element of the viaduct.

The visual quality of northbound views along the Alaskan Way surface street would have about the same visual quality, despite the less panoramic views of the most vivid elements, such as the views of the downtown skyline, the Olympic Mountains, Puget Sound, and Elliott Bay. The overall unity of the views would increase because the downtown buildings of the Pioneer Square Historic District and the Commercial Core would be visually integrated rather than truncated by the viaduct. Southbound views along Alaskan Way would have much higher visual quality because of the absence of the encroachment of the columns and upper deck of the viaduct itself and the substantial increase in the field of view as well as the increase in integrity and unity.

#### Views Toward the Road

With the Bored Tunnel Alternative, the absence of the existing viaduct would transform the relationship between the Pioneer Square Historic District and the waterfront. All views down streets in the historic district that are perpendicular to the existing viaduct would have greater unity of composition resulting from the lack of an elevated structure at the end of the view, as shown in Appendix E,

Exhibit A-9 for Yesler Way. The views would be framed by buildings primarily of the same period with similar materials and architectural style, together with complementary elements of the streetscape, including sidewalks, street trees, and the roadway itself without the encroaching visual barrier at the end of the street and the contrast in line, color, and materials of the viaduct.

The viewer population in the Pioneer Square Historic District is likely to continue to be large and include persons engaged in activities that make them sensitive to the visual context. After the completion of the bored tunnel and the demolition of the existing viaduct, the increased visual appeal of the areas fronting on and near Alaskan Way is likely to result in a mix of uses more oriented to tourists, shoppers, and restaurant patrons, as discussed in Section 7.4, Cumulative Effects of the Project and Other Program Elements. Changes in land use resulting from the Bored Tunnel Alternative are also discussed in Appendix G, Land Use Discipline Report.

Views from private property, including those available to employees and residents in buildings that face the existing viaduct and from buildings along the perpendicular street corridors, would be similar to the views discussed above. Views from buildings on the east side of the right-of-way would have unobstructed foreground views of the waterfront; middle distance views of Elliott Bay, Puget Sound, West Seattle, Alki Point, and Magnolia; and distant views of the Kitsap Peninsula hills and the Olympic Mountains. Buildings on the perpendicular streets to the east would enjoy framed views down the streets.

Removal of the existing viaduct would provide substantial support to policies in the *Pioneer Square Neighborhood Plan* (Seattle 1998a) for weaving the east-west streets to the waterfront into the fabric of the community by improving pedestrian connections, emphasizing view connections to the waterfront, and restoring the Washington Street Boat Landing as the centerpiece of the south waterfront.

The visual quality of views from within the Pioneer Square Historic District west of First Avenue S. would improve substantially with the removal of the viaduct, which would restore the visual continuity of the street corridor as indicated by the 90 percent rating increase compared to existing conditions (see the Visual Analysis Matrix in Attachment B). The removal of the viaduct would eliminate a dominant encroaching element that is also at variance with the historic character of the area and would substantially increase the integrity and unity of the streetscape.

#### Light and Glare

The lighting associated with the existing viaduct would be replaced by lighting typical of an urban arterial. The removal of above-grade lighting for the viaduct would better match the character of the historic district and would reduce glare effects on the upper levels of buildings adjacent to the viaduct.

### 5.2.3 Central Waterfront

#### Views From the Road

Views for vehicle occupants traveling in the new bored tunnel would be the interior of the bored tunnel. Views for vehicle occupants traveling on the Alaskan Way surface street would be similar to those discussed for the Pioneer Square Historic District in Section 5.2.2. The potential visual effects of the development of a new Alaskan Way surface street and promenade are discussed in Sections 7.1.1 and 7.2.

#### Views Toward the Road

The removal of the existing viaduct would help visually integrate the waterfront with downtown. Views from the waterfront would clearly include the structure of the adjacent Commercial Core, which consists of blocks of buildings defined by street corridors. These easterly views would no longer be obstructed by an immense roadway structure with homogenous features. The structure and design unity of the city would be clearly readable, as shown in Appendix E, Exhibits A-13 and A-15. In the absence of the existing viaduct, the buildings would not be visually truncated; they would clearly have a base, middle, and top. The three- to six-story buildings that frame the Alaskan Way surface street would provide a coherent set of urban elements, starting with the elements of the streetscape, such as the roadway, sidewalks, street trees, and vegetation, and continuing with the full frontage of buildings, with the background tiers of buildings farther to the east. There would be a consistent transition up the street, without an abrupt boundary of shadow or structure cutting across the street corridor. The entire corridor would be open to the sky. The more distant elements of the downtown skyline would be the dominant and vivid elements of the view, rather than a view dominated by an elevated roadway structure cutting across the scene. The visual continuity of downtown would extend to the waterfront.

Viewer populations and the general level of activity along the waterfront are likely to increase because of the improved visual quality of the setting. The removal of the existing viaduct is also expected to provide substantial support to the *Downtown Urban Center Neighborhood Plan* policies for integrating the waterfront with downtown (Seattle 1999).

The visual quality of views from within the Central Waterfront to the east would improve substantially, as indicated by the rating increase of about 70 percent compared to existing conditions (see the Visual Analysis Matrix in Attachment B). The removal of the viaduct would eliminate a dominant encroaching element and substantially increase the integrity and unity of the views of the buildings fronting Alaskan Way and the street corridors extending into downtown.

### Light and Glare

The lighting associated with the existing viaduct would be replaced by lighting typical of an urban arterial. The removal of above-grade lighting for the viaduct would reduce glare effects on the upper levels of buildings.

## 5.2.4 Commercial Core

### Views From the Road

Views for vehicle occupants traveling in the new bored tunnel would be the interior of the bored tunnel. The visual interest of the panoramic views from the existing viaduct would not be available.

### Views Toward the Road

The Bored Tunnel Alternative would eliminate the existing viaduct structure, which would transform the relationship of the Commercial Core to the waterfront in a manner similar to the Pioneer Square Historic District, as described in Section 5.2.2. Views from the waterfront would clearly include the structure of the adjacent Commercial Core, which consists of blocks of buildings defined by street corridors. These easterly views would no longer be obstructed by an immense roadway structure with homogenous features. The structure and design unity of the city would be clearly readable. Views to the west from downtown streets would feature unobstructed scenes that include a variety of human-made and natural features, as shown in Appendix E, Exhibit A-11 for University Street. Depending on the street, the composition of the view would include a range of elements. Most of the views would have a great deal of compositional unity provided by elements that frame the streetscape, such as buildings, sidewalks, and street trees. These elements would also provide an orientation to the elements at the end of the unobstructed corridor.

The ends of these view corridors generally incorporate views of elements designated in the Seattle environmental code (SMC 25.05.675.P) as specific significant natural and human-made features, including the Olympic Mountains and major bodies of water such as Puget Sound and Elliott Bay. These view corridors would provide a coherent transition from the close views of human elements to the natural elements in the distance. Even with the diversity of the views, there would be a general unity in the visual patterns. The elimination of the existing viaduct would free the corridors of the substantial encroaching element that cuts across these corridors.

Viewer populations in the Commercial Core are likely to respond positively to the increased visual coherence of the waterfront by frequenting open spaces or establishments such as restaurants that are oriented to the unobstructed views provided.

The changes in the visual environment along the waterfront would provide substantial support for the *Downtown Urban Center Neighborhood Plan* policies for public development (Seattle 1999). These policies guide development to make a positive contribution to the downtown physical environment by enhancing the relationship of downtown to its spectacular setting of water, hills, and mountains; preserving important public views; ensuring light and air at the street level; and establishing a high-quality, pedestrian-oriented street environment.

The visual quality of views from the Commercial Core to the west would improve substantially as indicated by the rating increase of about 40 percent compared to existing conditions (see the Visual Analysis Matrix in Attachment B). The removal of the viaduct would eliminate a dominant encroaching element and substantially increase the views of vivid elements such as water bodies as well as the integrity and unity of the views of the piers along Alaskan Way and the street corridors extending to the west.

#### Light and Glare

The lighting associated with the existing viaduct would be replaced by lighting typical of an urban arterial. The removal of above-grade lighting for the viaduct would reduce glare effects on the upper levels of buildings.

### **5.2.5 Pike Place Market and Belltown**

#### Views From the Road

Views for vehicle occupants traveling in the new bored tunnel would be the interior of the bored tunnel. Views for vehicle occupants traveling on the Alaskan Way surface street would be similar to those discussed for other sections of the roadway (see the Pioneer Square Historic District discussion in Section 5.2.2). The potential visual effects of development of a new Alaskan Way surface street and promenade are discussed in Sections 7.1.1 and 7.2. The potential visual effects of development of the new Elliott/Western Connector are discussed in Section 7.1.2.

#### Views Toward the Road

The Bored Tunnel Alternative would eliminate the existing elevated viaduct. The view from perpendicular streets such as Pike and Pine Streets would no longer include an elevated structure, the absence of which would increase the compositional unity of the view. Pike Street would be framed by streetscape elements, such as buildings, sidewalks, and street trees. The vertical complexity of the corridor would not be obscured by the elevated structure. The view of the waterfront to the west would not be obscured by the viaduct and would feature the Seattle Aquarium and Elliott Bay in the middle ground, with Puget Sound and the hills of the Kitsap Peninsula in the distance.

Views looking west would include the new Alaskan Way and the Elliott/Western Connector. Viewers from the western edge of the market and Victor Steinbrueck Park would see the surface roadway, with downtown buildings fronting the new roadway on one side and the waterfront piers on the other, as shown in Appendix E, Exhibit A-17. This would provide a diverse yet coherent composition of urban forms. The potential visual effects of the new Elliott/Western Connector are discussed in Section 7.1.2.

The absence of the elevated structure at Elliott and Western Avenues would result in a downtown urban streetscape with greater compositional unity due to the removal of the visual barrier and dead space created by the existing structure, as shown in Appendix E, Exhibits A-19 and A-21. The elimination of these visual effects would allow the reestablishment of normal urban blocks with future development of buildings and other streetscape elements, such as sidewalks and street trees.

Views from within the Pike Place Market buildings would continue to have high visual quality because the viaduct doesn't affect the integrity and unity of the historic features and is below the line of sight of outward views of vivid elements such as mountains, water, or the downtown skyline.

Views from Victor Steinbrueck Park would have somewhat higher visual quality compared to existing conditions, as indicated in the Visual Analysis Matrix in Attachment B. This would be primarily due to the greater unity of building elevations of the downtown streetscape along Alaskan Way, since the existing viaduct is below the line of sight of vivid elements such as the downtown skyline, water bodies, and Mount Rainier.

Views from the Pike Street Hillclimb to the west would have substantial increases in visual quality because the elimination of the viaduct would reveal the vivid elements of the Olympic Mountains, Puget Sound, and Elliott Bay, which are currently almost completely obscured by the viaduct and also would restore the integrity and unity of the urban streetscape.

North of Pike Place Market the visual quality of views along both Western and Elliott Avenues in Belltown would be substantially improved by the removal of the elevated viaduct, as indicated by the increase in ratings from existing conditions shown in the Visual Analysis Matrix in Attachment B. The improved visual quality would be primarily due to the removal of the viaduct as a substantial encroachment that is a barrier to the visual continuity and the resulting increase in streetscape unity.

### Light and Glare

The lighting associated with the existing viaduct would be replaced by lighting typical of an urban arterial. The removal of above-grade lighting for the viaduct would reduce glare effects on the upper levels of buildings.

### 5.2.6 SR 99/Aurora Corridor

Under the Bored Tunnel Alternative, Aurora Avenue would be an at-grade roadway, the Mercer Street underpass would be widened, and Broad Street would be closed between Taylor and Ninth Avenues N. The surface roadway would extend as an urban arterial from the tunnel portal near Harrison Street to Denny Way.

Two options are being considered for Sixth Avenue N. and the southbound on-ramp:

- The Curved Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. in a curved formation between Harrison and Mercer Streets. The new roadway would have a signalized intersection at Republican Street.
- The Straight Sixth Avenue option proposes to build a new roadway that would extend Sixth Avenue N. from Harrison Street to Mercer Street in a typical grid formation. The new roadway would have signalized intersections at Republican and Mercer Streets.

### Views From the Road

Vehicle occupants traveling northbound on SR 99 after emerging from the bored tunnel would see the roadway curve to the right and pass under the on- and off-ramps that connect to the surface road to the south. In addition, the off-ramp to Republican Street would be visible on the right. The northbound lanes would be below the existing ground level until near Mercer Street. After traversing a smooth curve, the roadway would connect with the existing SR 99 north of Mercer Street. For most vehicle occupants, the views would be perceived much the same as the views on the existing highway. The small section of curves to connect to the existing alignment would be traversed very quickly, generally in about 10 seconds. The visual experience south of Mercer Street would be essentially the same as at present since the roadway configuration would not change.

Southbound vehicle occupants would experience a similar visual environment at a distance, with the roadway continuing on the same alignment as the existing roadway with the downtown skyline the most prominent feature. As vehicles approach Mercer Street, the split in the roadway would become apparent. The two right lanes would curve slightly to the west to enter the tunnel portal, and the center lanes would curve to the east in an elevated structure that passes over the

northbound lanes and becomes the Aurora Avenue surface street, as shown in Appendix E, Exhibits A-27, A-29, and A-30. The most prominent visual feature would be the center lanes that rise to cross over the northbound lanes. As the through lanes curve to the west toward the tunnel portal, they would descend to the level of the portal. In that area, the on-ramp from Sixth Avenue N. would merge from the right. The most substantial change in character in the curved section of the roadway would be the replacement of the adjacent urban buildings next to the road with retaining walls and landscaping. The overall visual experience from the southbound lanes would be typical of an urban freeway with no unexpected features, although it would be different from the alignment and urban character of the existing surface highway. The two alignment options for Sixth Avenue N. would not result in readily apparent visual differences for occupants of vehicles. The curve of the highway to the west would provide a very brief glimpse of the Space Needle for vehicle occupants.

The Aurora Avenue surface street between Denny Way and Harrison Street would consist of a typical urban six-lane street within an urban streetscape bounded by buildings on both sides. The resulting urban street would have a greater unity of composition resulting from buildings that frame the street and elements such as street trees and improved street lighting, as generally illustrated in Appendix E, Exhibits A-23 and A-25.

The visual quality of both northbound and southbound traffic on SR 99 travelling along Aurora Avenue north of the tunnel portals would vary little from existing conditions. Except for the brief transition of an s-curve over a distance of about two city blocks, the character of the roadway would essentially be the same. The experience of local traffic traversing the reconfigured three-block section of Aurora Avenue from Denny Way to Harrison Street is discussed below under “Views toward the Road.”

#### Views Toward the Road

SR 99 would continue to have semi-restricted-access north of Mercer Street with a barrier in the center. Views from the perpendicular streets would continue to be those of a standard grade-level urban roadway, but with large volumes of fast-moving traffic. The area north of the tunnel portal would likely continue to have very low levels of pedestrian activity because of the noise and sense of exposure from adjacent traffic.

Between Harrison Street and Denny Way, Aurora Avenue would be integrated with the block structure of the surrounding neighborhood, with John, Thomas, and Harrison Streets connected over SR 99. The neighborhood would no longer be divided by the existing high-speed highway, and vehicle and pedestrian circulation would be enhanced. However, these improvements would not

substantially change the visual quality of the street, either for views from the road or views toward the road. Aurora Avenue would continue to be a six-lane urban arterial, but without the below-grade portion approaching the existing tunnel portal. The major visual difference would be the addition of wider sidewalks, street trees, and a planted median and crosswalks at intersections. The slower speed of traffic and the periodic queuing of cars at intersections would reduce the sense of hazard for pedestrians. The combined effects of these elements would be an environment much more conducive to pedestrian activity. The increased pedestrian activity, as opposed to vehicle use, would also increase the sense of a human scale. The two alignments for the extension of Sixth Avenue N. would have the appearance of urban streetscapes, except that if the straight alignment through the Gates Foundation site included a building built over the street, a unique relation between the structure and the roadway would be created.

The tunnel operations building at the north portal would be located on the east side of Sixth Avenue N. between Thomas and Harrison Streets. The building would be similar in bulk to the existing buildings in the vicinity, as shown in Appendix E, Exhibits A-27, A-29, and A-30. At approximately 65 feet in height with ventilation stacks extending up to 30 feet above the roof, the tunnel operations building would be somewhat shorter than the 85-foot zoning height limit.

If the tunnel operations building is designed purely to serve its purpose to house tunnel-related functions (ventilation fans and stacks, mechanical and electrical equipment, and operations and maintenance facilities), the design would not contribute to the improvement in pedestrian activity and pedestrian-oriented use experienced from the conversion of Aurora Avenue to an urban arterial between Harrison Street and Denny Way. Such a purely functional building would not necessarily incorporate all of the elements contained in *Seattle's Design Review: Guidelines for Multifamily and Commercial Buildings* (DRGMC) (Seattle DPD 2006). Such elements increase building interest and include building modulation or articulation, windows, corner accents, rooflines, and building entries. Elements to be avoided include expansive blank walls, extensive use of metal or glass siding, and extremely large or small windows (DRGMC C-1). In addition, if the building is designed purely for operations functions, the ground level is unlikely to incorporate human-proportioned architectural features and site design elements clearly oriented to human activity (DRGMC C-2) or to provide building entries and other attractive features that contribute to the creation of lively, pedestrian-oriented open space (DRGMC D-1). A purely functional building would tend to have blank walls that are discouraged by the design guidelines. According to the guidelines, buildings should avoid large blank walls facing the street, especially near sidewalks. Where blank walls are unavoidable, they should receive design treatment to increase pedestrian comfort and interest (DRGMC D-1). Overall,

without specific design efforts, the tunnel operations building would not tend to encourage human activity on the street (DRGMC A-4).

Under the Bored Tunnel Alternative, Mercer Street would remain in an underpass below SR 99, but it would be widened from Dexter Avenue N. to Fifth Avenue N. to provide three lanes of traffic in each direction. The widening of Mercer Street is unlikely to be perceived as a substantial change in the visual environment. Most viewers on either side look over the top of the undercrossing to the surface environment in the vicinity. There are few buildings framing the existing undercrossing. Vehicle occupants and pedestrians using the undercrossing would note a wider street bounded by vertical retaining walls, similar to the existing undercrossing. The provision of wider pedestrian sidewalks would improve the visual experience for pedestrians transiting this part of the corridor, compared to the existing narrow walkways, but they would still likely perceive the environment as noisy, with low visual quality.

This area would experience a moderate improvement in visual quality compared to existing conditions, as indicated in the ratings in Attachment B. The greatest improvement in views would be for the section of Aurora Avenue converted into an urban arterial between Denny Way and Harrison Street. In this area, both pedestrians on sidewalks and vehicle occupants traversing this section of street would experience improvements in integrity and unity relating to the street grade, sidewalks, street trees, and a planted median, as well as slower traffic speed.

#### Light and Glare

The lighting of SR 99 north of the tunnel portal would continue to be typical of an urban arterial. There would be little or no change in the character of light and glare.

### **5.3 Operational Mitigation**

The bored tunnel itself may be considered mitigation through the avoidance of above-grade or at-grade transportation facilities with their associated visual characteristics. In addition, a variety of visual amenities could be incorporated into a linear transportation project such as the Bored Tunnel Alternative. Visual resource enhancement and mitigation for this project may be coordinated so that they are consistent with the City's waterfront planning process, which is currently being initiated.

Mitigation for the effects of the Bored Tunnel Alternative may include enhancement of its beneficial effects as well as mitigation for its adverse effects. Opportunities for beneficial effects include the development of a design standard for the project that includes a number of visual, design, architectural, signage, and

lighting parameters to create a consistent visual pallet and to match the character of the surrounding streetscape.

The design guidelines could include the following elements:

- A design theme for structural elements such as portals.
- Softening of the appearance of roadway areas through the use of landscape materials and street trees and the placement of trees such that they do not block view corridors.
- Signage within the corridor and adjacent to the corridor that ensures both readability for drivers and harmony with the surrounding landscape.
- Use of street lighting supports and fixtures in appropriate portions of the corridor, including the potential for recessed or shielded lighting that minimizes the effects on adjacent uses. The hue of lighting also could be coordinated as appropriate for the surrounding streets.
- For surface elements, use of sidewalk, median, and crosswalk treatments that provide visual unity and reinforce way-finding by clearly demarcating pedestrian routes and continuing the same treatments into the area on either side of the corridor.

Mitigation would be similar for the potential visual effects of the tunnel operations buildings at the south and north tunnel portals. The effects of blank walls at the pedestrian level can be mitigated by providing landscaping and screening or incorporating visually interesting graphics or art at the street level. This could reduce the starkness of wall treatments but would still result in dead space for pedestrians and likely discourage pedestrian activity.

Additional mitigation could include pedestrian-oriented uses at the ground level and incorporate building features that would meet the applicable Seattle Design Review Guidelines (Seattle DCLU 2005). Such elements include an architectural composition that reflects the urban pattern, including windows and other features similar to other office or residential buildings in the area (DRGDD A-1, DRGMC C-1). The design could also incorporate ground-level features to avoid blank walls (DRGDD C-3); promote pedestrian interaction (DRGDD C-1, DRGMC A-4); scale facades and building entries to promote pedestrian comfort, safety, and orientation (DRGDD C-2, C-4, DRGMC C-2); and provide a distinctive, attractive, and memorable sense of place (DRGDD D-3, DRGMC D-1). An additional strategy to achieve this goal could involve setting the tunnel operations building away from the street, with an intervening parcel that would be sold to private developers. This would relieve WSDOT of the need to maintain ground-level tenants and construct building features that are not directly related to mechanical functions.

The Seattle Design Commission is expected to review and provide input on the design features of buildings and features such as retaining walls, railings, and light standards at the south and north portal areas to be incorporated into the Design Guidelines for the project that will be developed.

## 5.4 Operational Benefits

The implementation of the Bored Tunnel Alternative would benefit the visual environment through the removal of the existing viaduct. Removing the viaduct would substantially help to visually integrate the waterfront with downtown.

Views from the waterfront would clearly include the structure of the adjacent Commercial Core, which consists of blocks of buildings defined by street corridors. These easterly views would no longer be obstructed by an immense roadway structure with homogenous features. The structure and design unity of the city would be clearly readable, as indicated in Appendix E, Exhibit A-13. In the absence of the existing viaduct, the buildings would clearly have a base, middle, and a top. The three- to six-story buildings that frame the Alaskan Way surface street would provide a coherent set of urban elements, starting with the elements of the streetscape, such as the roadway, sidewalks, street trees, and vegetation, and continuing with the full frontage of buildings, with the background tiers of buildings farther to the east. The buildings would not be visually truncated. There would be a consistent transition up the street, without an abrupt boundary of shadow or structure cutting across the street corridor. The entire corridor would be open to the sky. The dominant and vivid elements of the view would be the more distant elements of the downtown skyline, rather than an elevated roadway structure cutting across the scene. The visual continuity of downtown would extend to the waterfront. Viewer populations and the general level of activity along the waterfront are likely to be greater because of the greater visual quality of the setting. With the absence of the viaduct, additional sidewalk, landscaping, and open space would further improve the visual environment on Alaskan Way.

The Bored Tunnel Alternative would replace lighting associated with the existing viaduct with lighting typical of an urban arterial. The removal of above-grade lighting for the viaduct would result in a visual environment more in keeping with the character of an urban streetscape, especially for the Pioneer Square Historic District. Grade-level lighting also would reduce glare effects on upper levels of buildings adjacent to the viaduct.

Removal of the existing viaduct would benefit the visual environment in the area and the uses in buildings immediately east of the viaduct that are currently affected by noise and other proximity effects. Building frontage likely would be devoted to more street-level outdoor-oriented uses, which would contribute to the

visual interest of the area as a whole. Some buildings and undeveloped parcels adjacent to Alaskan Way may be redeveloped into pedestrian-oriented spaces providing landscaping, seating, and commercial activities such as outdoor cafes.

The portion of Aurora Avenue between Harrison Street and Denny Way would be connected with the neighborhood street system. Features such as an at-grade roadway with pedestrian crossings, wider sidewalks, street trees, and a planted median and the lack of high-speed highway traffic would result in an environment more conducive to pedestrian activity and pedestrian-oriented uses.

The improvement in visual quality resulting from elimination of the viaduct would vary by viewpoint but includes improving the vividness and memorability of some views with water, landform, and human-built elements that are currently screened or obscured by the existing viaduct; eliminating the viaduct as an encroaching element that is at variance with the patterns of building frontages and streetscapes; and increasing the unity of assemblages of urban buildings organized around the structure of urban streets and blocks. In the case of the Alaskan Way right-of-way, the elimination of the viaduct would also create urban open space, which allows patterns of vegetation and use that may provide visual relief or an assemblage of complementary spaces and activities.

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## Chapter 6 CONSTRUCTION EFFECTS AND MITIGATION

### 6.1 Construction Effects

The total duration of construction for the Bored Tunnel Alternative would be approximately 66 months. The construction effects would be temporary and related to a variety of elements common to construction activities, including staging areas, closed roadway sections, detours, heavy equipment, scaffolding, cranes, and temporary storage of materials. Refer to Appendix B, Alternatives Description and Construction Methods Discipline Report, for more detailed information regarding construction methods, timing, and staging areas. The visual effects of construction would generally not change the overall regional views. Where distant views of water features and mountains are present, they likely would remain visible.

#### 6.1.1 Tunnel Portals

The visual effects at both the south and north portals would primarily include staging areas for tunnel and road construction, with a variety of equipment in the area. The most prominent elements would likely be cranes and other equipment necessary to construct the open-trench portion of the tunnel and to place or extract the tunnel boring machine. Other prominent types of equipment could include gantries to add precast tunnel lining segments or conveyors for disposal of boring soils, which may include installations bridging city streets, especially passing over E. Marginal Way S. if barge disposal is utilized.

The south portal area is expected to have extensive staging areas for equipment and materials associated with transferring excavated materials to trucks or barges, which may include conveyor systems and stockpiles that would be visible from the adjacent streets.

The Washington-Oregon Shippers Cooperative Association (WOSCA) site lies to the west of First Avenue S. between S. Royal Brougham Way and S. King Street. Part of the site would be used for a temporary slurry separation plant, if needed. This site is likely to be the location of a temporary concrete batch plant for the construction work in the south portal area, if deemed necessary. This site would also be used for the temporary electrical substation needed to run the tunnel boring machine. The footprint for the substation would be approximately 75 feet by 125 feet, and the structure is expected to be no more than two stories high.

#### 6.1.2 Bored Tunnel

Construction of the bored tunnel would have no visual effects because the activities would occur below grade or at the portals.

### 6.1.3 Viaduct Removal

During the demolition of the existing viaduct, there would be a variety of active construction sites along the corridor at any one time, with an associated mix of equipment and stored materials. The normal streetscapes would be disrupted by fencing, equipment, vehicles, and construction activity. The most prominent elements would likely be cranes and other equipment of varying heights that may protrude above the existing structure. Views down the viaduct corridor would be interrupted by construction equipment and materials, such as vehicles and fencing.

During construction, vehicle and pedestrian detours would change the usual movement patterns of those who work or live downtown. Pedestrians and drivers would encounter surface streets obstructed by temporary signs and traffic control devices.

### 6.1.4 Decommissioning of the Battery Street Tunnel

The current proposal to fill the existing Battery Street Tunnel would result in visual effects to the extent that vehicles conveying fill and equipment used to place the fill would be present in the corridor. The decommissioning activity would also likely involve temporary closure of the street above the tunnel, or portions of it, and require vehicle and pedestrian detours that would change the usual movement patterns of those who work or live in the area. Pedestrians and drivers would encounter surface streets obstructed by temporary signs and traffic control devices.

## 6.2 Construction Mitigation

The most effective construction mitigation is to restore the construction corridor in areas where construction has been completed in intermediate stages rather than waiting until the completion of the entire project.

Local visual interest could be added to the construction sites by creating viewing areas with project-related information for pedestrians. Construction screens or barriers could be designed and placed to limit the visibility of work areas that would intrude on adjacent activities (such as pedestrians or those gathering for sports events). Construction barriers could incorporate pedestrian-oriented murals or other displays of graphic interest. The displays could be integrated with public notification of detours, areas to be closed, and the general public access plan. The designated view locations could be designed to allow visibility of key construction activities or locations that may be of interest. This would limit visual disruptions while allowing views of construction at key locations. Detours for vehicles and pedestrians could include common graphic themes for way-finding displays.

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## Chapter 7 CUMULATIVE EFFECTS

Cumulative effects are effects on the environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. The focus of the cumulative effects analysis is the combined effects of the Bored Tunnel Alternative, the other Program elements, and other past, present, and reasonably foreseeable future projects that could contribute to effects on visual quality in the study area.

This chapter discusses the following topics:

- Current trends in visual quality
- Effects of the roadway elements of the Program
- Effects of the non-roadway elements of the Program
- Cumulative effects of the the Bored Tunnel Alternative when combined with the effects of the other Program elements
- Cumulative effects of the Bored Tunnel Alternative when combined with the effects of the other Program elements and the effects of other past, present, and reasonably foreseeable future projects

A more detailed cumulative effects assessment is provided in Attachment A.

### 7.1 Current Visual Quality Trends

The visual character of the landscape has been transforming dramatically ever since the first Europeans settled in the area. The area was logged and cleared for farming and development; hills were moved; shoreline areas were filled; rivers were channelized; and other activities such as mining, shoreline development, and road building all contributed to changes in the landscape.

The urban and visual character of the project area has changed as Seattle's architecture has evolved and building materials have improved. The largely five- or six-story Victorian brick structures of the early 1900s slowly changed over time to modern high-rise buildings built of glass and steel. Many neighborhoods have taken on their own characters and have distinct visual attributes. Pioneer Square has maintained its nineteenth century architecture, and the downtown core is dense with high-rise buildings. The waterfront piers and warehouses have been retained, with some context-sensitive modernization such as the Port of Seattle's Bell Harbor and Pier 66 office headquarters.

The preservation of public open spaces and the addition of street landscaping and public art throughout Seattle have improved the aesthetics of the area. Even though development has obscured some views of the landscape, Seattle is blessed

with natural features such as Mount Rainier, Puget Sound, and the Olympic and Cascade Mountains that are so dominant they can still be seen from many points. These features contribute to the high visual quality of the area.

It is expected that the visual landscape will continue to change over time as development continues, although not as dramatically as in the past. The movement within the architecture and planning fields is toward the use of newer design methods such as natural, green, context-sensitive, and energy-efficient designs for new structures and facilities. These methods have resulted in visually varied structures that are often aesthetically pleasing. The one certainty is that the visual landscape will continue to change and evolve over time.

## 7.2 Effects From Other Roadway Elements of the Program

### 7.2.1 Alaskan Way Surface Street Improvements – S. King to Pike Streets

The new Alaskan Way surface street would be six lanes wide between S. King and Columbia Streets (not including turn lanes) and transition to four lanes between Marion and Pike Streets. Generally, the new Alaskan Way would be located on the east side of the right-of-way where the viaduct is located today. The new street would include new sidewalks, bicycle lanes, parking/loading zones, and signalized pedestrian crossings at cross streets, as shown in Appendix E, Exhibits A-13 and A-15.

#### Views From the Road

Views from the Alaskan Way surface street would continue to be available to vehicle occupants making through trips to and from the northwest (including Ballard) that are not directly served by the bored tunnel. However, these views would be at a lower elevation than the views from the existing viaduct and would therefore be less panoramic. Westerly views of Elliott Bay and the Olympic Mountains also would be available, framed by the waterfront piers. In terms of vividness, intactness, and unity, the quality of the views to the west from the surface street would be similar to the views available from the existing viaduct. Easterly views of downtown would be unobscured by the viaduct and would reflect the urban texture of the streetscape and buildings without being truncated by the elevated structure. The time spent traveling through the corridor would likely be a little longer than that spent on the existing viaduct because of slower speeds and at-grade intersections.

#### Views Toward the Road

The view of the surface street would include some street elements and open space. The design has not been developed yet; however, in all the views, the

framing elements of downtown buildings and waterfront piers would define the views, rather than the existing elevated viaduct.

### 7.2.2 Elliott/Western Connector – Pike Street to Battery Street

The new roadway connecting Alaskan Way to Elliott and Western Avenues (in the area between Pike and Battery Streets) would be four lanes wide and would provide a grade-separated crossing of the BNSF mainline railroad tracks. The new roadway would include bicycle and pedestrian facilities. The Lenora Street pedestrian bridge would become an at-grade pedestrian crossing of the Elliott/Western Connector arterial, rather than the grade-separated crossing it is today.

#### Views From the Road

Views for vehicle occupants traveling on the new Elliott/Western Connector would be similar to those from the existing viaduct, except that the new structure would be lower in elevation, which would limit views to the west. At the terminus at the surface intersections at Elliott and Western Avenues, the streets would have the character of downtown urban streets.

#### Views Toward the Road

The views of the new Elliott/Western Connector from Alaskan Way near Waterfront Park would be of a surface street that would slope to the north, as shown in Appendix E, Exhibit A-15. There would be no views of the new structure from Pine Street to Lenora Street because the existing multi-unit development fronting Alaskan Way would block the line of sight. There would be a narrow corridor in which the new structure would be visible along Lenora Street. The visual appearance of the structure would be similar to the existing viaduct, but somewhat shorter with fewer support structures due to the longer spans employed by the new structure. The existing Lenora Street pedestrian bridge would also obscure some elements of the new structure as seen from the Alaskan Way surface street to the west. No views of the structure would be available north of Lenora Street, including from the Pier 66 viewing area, because the existing Marriott Hotel and World Trade Center would block all views of the shorter structure.

The visual quality of views from the west would substantially improve because the Elliott/Western Connector would be much lower than the existing viaduct and would appear as a surface street south of Pine Street. The streetscape integrity and unity would increase due to its appearance as an at-grade street, rather than an elevated structure. Middle distance views would include exposed building facades. The exposed building facades north of Pine Street would be parking garages at the edge of the hill. These building frontages would have limited

visual coherence and lack integration with the character of Pike Place Market to the east farther up the hill.

The gradually increasing retaining wall supporting the roadway between Pike and Pine Streets would be visible only from a very narrow corridor between the roadway and the ground level of the existing buildings west of the new roadway. The structure supporting the viaduct north of Pine Street would be visible only from the ground level of the existing parking structure.

Views from the Pike Place Market area would look down upon the roadway and be similar to those of the existing viaduct, except that the new structure would be lower in elevation and no higher than Elliott and Western Avenues. The visual character of the foreground views to the south from Victor Steinbrueck Park would not change substantially compared to existing conditions, as shown in Appendix E, Exhibit A-17.

The middle distance views from Victor Steinbrueck Park and other viewpoints would include the roadway and downtown buildings fronting on one side exposed by the absence of the viaduct and the waterfront piers on the other. This would provide a coherent composition of urban forms associated with an at-grade street that is diverse, yet has a unity of common elements.

### **7.2.3 Mercer West Project – Fifth Avenue N. to Elliott Avenue**

Mercer Street would be restriped and resignalized between Fifth Avenue N. and Second Avenue W. to create a two-way street with turn pockets. These improvements also include the restriping and resignalization necessary to convert Roy Street to two-way operations from Fifth Avenue N. to Queen Anne Avenue N. This project would have few visual effects.

## **7.3 Effects From Non-Roadway Elements of the Program**

The Elliott Bay Seawall Project, enhanced transit service, and First Avenue streetcar are likely to have few visual effects after their completion.

The options for widening the pedestrian promenade along Alaskan Way are likely to have few visual effects. The major change in the area would be the elimination of the existing viaduct. The removal of that encroaching feature would leave the very urbanized landscape to the east and the more natural landscape of Elliott Bay as the major features of the area. The design features of the promenade could add visual interest and activities, but they are likely to have little effect on the overall visual quality of the area.

## 7.4 Cumulative Effects of the Project and Other Program Elements

Construction of the Bored Tunnel Alternative and the related demolition of the existing viaduct along with the development of the new Alaskan Way surface street and promenade/public space would benefit the visual quality of the environment in the waterfront area and the adjacent Pioneer Square, Commercial Core, and Pike Place Market neighborhoods.

## 7.5 Cumulative Effects of the Project, Other Program Elements, and Other Actions

The project team considered 39 projects (shown in the cumulative effects matrix in Attachment A) for potential activities that could have a cumulative effect on the visual quality of the study area. However, most of these projects either are not within the area affected by the Bored Tunnel Alternative and will not contribute to cumulative visual effects, or will not change the visual context in such a way as to change the visual effects of the Bored Tunnel Alternative.

The removal of the existing viaduct along with the development of a new Alaskan Way surface street and promenade/public space would benefit the visual quality of the environment in the waterfront area and may spur other development.

The removal of the existing viaduct would substantially change the visual context of the westerly facing buildings on Alaskan Way north of S. King Street. The ground floors of these buildings would have visual access to Alaskan Way as a corridor with views of the waterfront and Elliott Bay. The open space area that would be developed on the Alaskan Way right-of-way would be a visual amenity. Additional sidewalk, landscaping, and exterior uses would further improve the visual environment on Alaskan Way. The area north of Madison Street also has opportunities for public movement along the waterfront promenade that provides for visual enjoyment of Elliott Bay and provides the visual interest of the historic piers and transit sheds of Piers 54 through 59. These amenities are likely to provide an impetus to develop ground-level pedestrian-oriented uses such as open air seating for restaurants. Patrons of existing restaurants and retail uses on the piers are also likely to enjoy the open space along the Alaskan Way right-of-way and the lack of noise intrusion from traffic on the viaduct. Further discussion of the potential changes in land use in this area is provided in Appendix G, Land Use Discipline Report.

The portion of the waterfront extending south from Madison Street provides less visual interest than the northerly portions of the waterfront because of the adjacent waterside uses. Approximately three blocks of the waterfront are devoted to the Seattle Ferry Terminal at Colman Dock, with views predominantly of parked cars. The block from south of Pier 50 at Yesler Way to the small park at S. Washington

Street, however, has visual access to the water from the waterfront promenade and the additional visual focus of the Washington Street Boat Landing. From S. Washington Street to the south, the adjacent Pier 48 provides a view of a parking lot with the pier behind. Between S. Jackson and S. King Streets a parking lot with the blank masonry wall of a building are featured. South of S. King Street, Terminal 46 provides a view dominated by parking and stacked containers.

South of S. Dearborn Street, no open space is proposed along the Alaskan Way S./E. Marginal Way S. right-of-way where transportation facilities will occupy an area about 300 feet wide inland of Terminal 46. Port activities at the water's edge, such as the loading and unloading of ships, are not visible from public streets and will not provide visual interest in this area. These areas provide few opportunities for additional water-oriented development, including uses that allow opportunities for the public to enjoy the physical and aesthetic qualities of the shoreline. In this southerly portion, the development of open space along the Alaskan Way S. right-of-way north of S. King Street is likely to be an attraction for pedestrians and provide visual interest. The lower level of orientation to the water may result in redevelopment of western-facing buildings that incorporate pedestrian-related uses related to open space amenities and the historic features of the Pioneer Square area.

The area around Aurora Avenue to the south of Harrison Street would be positively affected by the conversion to a surface street with at-grade signalized intersections. These modifications would reduce noise levels and the sense of exposure to fast-moving traffic for pedestrians. The corridor would be integrated with the block structure of the surrounding neighborhood, with John, Thomas, and Harrison Streets. The addition of wider sidewalks, street trees, and a planted median and crosswalks at intersections would result in an environment much more conducive to pedestrian activity and may spur pedestrian-oriented development.

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**ATTACHMENT A**

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**Cumulative Effects Analysis**

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# CUMULATIVE EFFECTS ANALYSIS

This cumulative effects analysis follows *Guidance on Preparing Cumulative Impact Analyses*, published by Washington State Department of Transportation (WSDOT) in February 2008. The guidance document was developed jointly by WSDOT, Federal Highway Administration (FHWA) – Washington Division, and U.S. Environmental Protection Agency – Region 10. The guidance can be used for FHWA’s National Environmental Policy Act (NEPA) compliance (Code of Federal Regulations, Title 23, Section 771) and fulfillment of Washington State Environmental Policy Act (SEPA) requirements for evaluation of cumulative effects (Washington Administrative Code, Section 197-11-792).

The approach provided in the WSDOT guidance calls for early consideration of cumulative impacts while direct and indirect effects are being identified, preferably as part of the scoping process. For analysis, the guidance recommends the use of environmental documents such as discipline reports, as well as other relevant information such as local comprehensive plans, zoning, recent building permits, and interviews with local government. The guidance also advocates a partnership approach among agencies that includes early collaboration and integrated planning activities.

The guidance established eight steps to serve as guidelines for identifying and assessing cumulative impacts. These eight steps have been used in the following cumulative effects evaluation for the Bored Tunnel Alternative of the Alaskan Way Viaduct Replacement Project (the project). A matrix that identifies projects with the potential for cumulative effects with this project and an assessment of likely contributions to cumulative effects is also included.

## **Step 1. Identify the resource that may have cumulative impacts to consider in the analysis**

Visual quality

### **Step 2. Define the study area and timeframe for the affected resource**

- The study area for the visual quality analysis includes the area from which major elements of the proposed project would be visible and could affect the visual context of the area.
- During construction, the area of immediate effect is essentially the same as that for operational impacts.
- The timeframe for the cumulative effects analysis is 1850 to 2030. The timeframe for the affected environment discussion is the present. The timeframe for construction-related (temporary) impacts is the approximately 5.5-year construction duration for the Bored Tunnel Alternative (2011 through 2017). The timeframe for operational effects is at the completion of all proposed physical elements of the project construction, approximately 2017.

### **Step 3. Describe the current health and historical context for each affected resource**

Historically, the project area was characterized by large tracts of old-growth forest, as the indigenous population had little effect on the land. European settlement changed the visual character of the landscape by logging, mining, land clearing, earth movement, farming, road building, and urban development. The natural environment was replaced over time with an urban environment.

For this study, visual character units and key views were selected to represent the range of views in the study area. A visual character unit is a geographic area in which views of the subject have a similar context as defined by features of the setting (such as topography), the location of the viewer in relation to the object being viewed, the character of the landscape (such as vegetation cover or the character of the urban environment), and the role of the subject viewed in the landscape.

The visual character units that were evaluated are identified below and shown on Exhibit 2-3 of the discipline report:

- Stadium Area: the area around the stadiums from S. Massachusetts Street to S. King Street.
- Pioneer Square Historic District: this area encompasses most of the historic district from approximately S. Dearborn Street to Columbia Street.
- Central Waterfront: the waterfront area west of the existing SR 99 from S. King Street to Pine Street, plus Pier 62/63.
- Commercial Core: the downtown commercial core, the area east of the existing SR 99 from approximately Columbia Street (or a bit south) to Stewart Street.
- Pike Place Market: the area east of the existing SR 99 between approximately Union Street and Virginia Street.
- Belltown: the area east of the waterfront between approximately Stewart Street and Denny Way.
- SR 99/Aurora Corridor: the area extending several blocks on either side of the existing SR 99 from just north of the Battery Street Tunnel to Aloha Street.

### **Step 4. Identify the direct and indirect impacts that may contribute to a cumulative impact**

Visual quality is related to the physical changes in the environment. The Bored Tunnel Alternative would improve the visual quality of the study area by removing the Alaskan Way Viaduct. The removal of that encroaching feature would leave the very urbanized landscape to the east and the more natural landscape of Elliott Bay as the major features of the area.

Removal of the existing viaduct would benefit the visual environment in the area and may spur other development. Privately owned buildings and undeveloped parcels adjacent to Alaskan Way generally have building frontages devoted to service entrances and loading docks,

reflecting the past industrial character of the area and the visual, noise, and shadow effects of the existing viaduct. After removal of the viaduct, the visual context of the westerly facing buildings on Alaskan Way would change substantially. The ground floors of these buildings would have visual access to Alaskan Way as a corridor with views of the waterfront and downtown. This may lead to the redevelopment of current loading and parking areas into pedestrian-oriented spaces providing landscaping, seating, and commercial activities such as outdoor cafes. Additional sidewalk, landscaping, and exterior uses would further improve the visual environment on Alaskan Way. Additional discussion is contained in Appendix G, Land Use Discipline Report.

**Step 5. Identify other historic, current, or reasonably foreseeable actions that may affect resources**

The project team considered 39 projects (shown in the matrix at the end of this attachment) for potential activities that could have a cumulative effect on the visual quality of the study area. However, most of these projects either are not within the area affected by the Bored Tunnel Alternative and will not contribute to cumulative visual effects, or will not change the visual context in such a way as to change the visual effects of the Bored Tunnel Alternative. A number of projects, such as utility improvements, will not result in permanent aboveground facilities that affect visual resources.

Three of the Program elements could produce minor visual benefits in the area and may help spur additional development along the waterfront:

- **A1.** Alaskan Way Surface Street Improvements – S. King Street to Pike Street
- **B2.** Alaskan Way Promenade/Public Space
- **H6.** Washington State Ferries Seattle Terminal Improvements

Linear street projects and projects such as streetcars will not substantially change the existing character of urban streets and will have little effect on visual resources. They will not contribute to cumulative visual effects and will not change the visual context in such a way as to change the visual effects of the Bored Tunnel Alternative.

Planned urban development projects that involve permanent buildings will add features that contribute to cumulative changes in the visual context of the areas in which they are visible. The following projects will add to the visual context but will have only minor cumulative effects on the overall visual quality of the areas affected because the buildings will generally be consistent with the bulk and design features of other urban development in the area.

- **E1.** Gull Industries on First Avenue S.
- **E2.** North Parking Lot Development at Qwest Field
- **E3.** Seattle Center Master Plan (EIS) (Century 21 Master Plan)
- **E4.** Bill and Melinda Gates Foundation Campus Master Plan

- E5. South Lake Union Redevelopment
- E6. U.S. Coast Guard Integrated Support Command
- E7. Seattle Aquarium and Waterfront Park

These changes to the visual context will not be of a character or magnitude to change the visual effects of the Bored Tunnel Alternative.

**Step 6. Assess potential cumulative impacts to the resource; determine the magnitude and significance**

The removal of the existing viaduct, along with the development of a new Alaskan Way surface street and promenade/public space, would benefit the visual quality of Seattle's waterfront area and may spur other development.

The removal of the existing viaduct structure would substantially change the visual context of the western-facing buildings on Alaskan Way north of S. King Street. These buildings would have visual access to Alaskan Way as a corridor allowing clearer views of the waterfront and Elliott Bay. The open space area that would be developed on the Alaskan Way right-of-way would be a visual amenity. Additional sidewalk, landscaping, and other street amenities would further improve the visual environment on Alaskan Way.

The area north of Madison Street would also have views for pedestrians traveling along the waterfront promenade, allowing the visual enjoyment of Elliott Bay along with the visual interest provided by the historic piers and transit sheds of Piers 54 through 59. These amenities are likely to provide an impetus to develop ground-level pedestrian-oriented uses such as open-air seating for restaurants. Patrons of existing restaurants and retail uses on the piers are also likely to enjoy the open space along the Alaskan Way right-of-way and the absence of noise intrusion from traffic on the viaduct. Further discussion of the potential changes and effects on land use in this area is provided in Appendix G, Land Use Discipline Report.

Approximately three blocks of the waterfront are devoted to the Seattle Ferry Terminal at Colman Dock, and this area would not be affected by the Bored Tunnel Alternative. South of Pier 50 at Yesler Way to the small park at S. Washington Street would retain views of the water from the waterfront promenade and the additional visual focus of the Washington Street Boat Landing. South of S. King Street, Terminal 46 provides the visual interest and color of a working container terminal.

South of S. Dearborn Street, no open space is proposed along the Alaskan Way S./E. Marginal Way S. right-of-way, where transportation facilities will occupy an area about 300 feet wide inland of Terminal 46. In this southerly stretch of waterfront, the development of open space along the Alaskan Way S. right-of-way north of S. King Street is likely to attract pedestrians and provide visual interest. This area could see the redevelopment of western-facing buildings that incorporate pedestrian-related uses associated with open space amenities and the historic features of the Pioneer Square area.

The area around Aurora Avenue south of Harrison Street would benefit from the conversion to a surface street with at-grade signalized intersections. These modifications would reduce noise levels and a pedestrian's sense of exposure to fast-moving traffic. The corridor would be integrated with the surrounding neighborhood, with John, Thomas, and Harrison Streets crossing SR 99. The addition of wider sidewalks, street trees, and a planted median and crosswalks at intersections would result in an environment much more conducive to pedestrian activity and may spur pedestrian-oriented development.

Cumulative construction effects of the projects on visual quality would include the following temporary effects:

- During demolition of the existing viaduct there would be a variety of active construction sites along the corridor at any one time, with associated equipment and stored materials, and a general disruption of normal streetscapes with fencing, equipment, vehicles, and activity. The most prominent elements likely would be cranes and other equipment that may protrude above the existing structure. Views down the viaduct corridor would be interrupted by construction equipment and materials, including fencing and vehicles.
- Construction of other projects would include additional active construction sites with associated equipment and stored materials, and a general disruption of normal streetscapes with fencing, equipment, vehicles, and construction activity.

The cumulative construction effects of the projects on visual quality would be relatively short in duration and would not affect the long-term visual character of the area or be of a character or magnitude to change the visual effects of the Bored Tunnel Alternative.

### **Step 7. Report the results**

The projects considered will have highly localized effects around the area of immediate impact during construction but overall will not have a significant cumulative effect on the views that are most prominent and contribute to the identity of the area. These views include the City of Seattle's designated significant features, which have been incorporated into the analysis:

- Landforms – Mount Rainier, the Olympic and Cascade Mountains
- Water forms – Puget Sound and Elliott Bay (Lake Washington, Lake Union, and the Ship Canal are not components of views of this project)
- Human-made forms, such as the downtown skyline, may be vivid in a particular view, as may elements such as vegetation masses and landmarks, including individual buildings.

Overall, the projects considered in this cumulative effects analysis would have a beneficial effect, opening up the city's views along the waterfront corridor with the removal of the viaduct and allowing the development of more public use of the waterfront with the waterfront public space and promenade.

**Step 8. Assess and discuss potential mitigation issues for all adverse impacts**

The projects considered will result in minor cumulative effects on visual quality when considered in association with the Bored Tunnel Alternative. As a result, no mitigation measures are proposed.

The following matrix identifies project-specific potential cumulative effects.

## PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX

| PROJECT  | POTENTIAL CUMULATIVE EFFECTS  |
|--|---|
| <i>A. Roadway Elements</i>   |   |
| <b>A1.</b> Alaskan Way Surface Street Improvements – S. King Street to Pike Street   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. The effects of removing the existing viaduct are substantial and beneficial. Options for the surface street promenade along Alaskan Way are likely to have few visual effects because of the low visual prominence of improvements compared to the existing elevated viaduct. This project will not substantially affect the visual benefits resulting from removal of the existing viaduct structure.   |
| <b>A2.</b> Elliott/Western Connector – Pike Street to Battery Street   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. The design and visual effects of the aerial structure on the Pike Place Market and the Belltown area will be similar to those currently experienced from the existing viaduct, except that the structure would be lower in elevation and would not be elevated above Elliott and Western Avenues. The visual character of foreground views to the south from Steinbrueck Park would not change substantially compared to existing conditions. Views from the west near Pier 59 would be dominated by a parking garage at the edge of the hill and be low in visual coherence and integration with the character of the Pike Place Market to the east. This project will not substantially affect the visual benefits resulting from removal of the existing viaduct. |
| <b>A3.</b> Mercer West Project – Mercer Street from Fifth Avenue N. to Elliott Avenue and Roy Street from Aurora Avenue to Queen Anne Avenue N. become two-way | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Mercer and Roy Streets will be restriped and resignalized to create two-way streets with turn pockets. Visual effects would be minor.  |
| <i>B. Non-Roadway Elements</i>   |   |
| <b>B1.</b> Elliott Bay Seawall Project   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer. This project will not change the visual context of the Bored Tunnel Alternative's changes to SR 99, particularly benefits of removal of the existing viaduct.  |
| <b>B2.</b> Alaskan Way Promenade/Public Space  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. The cumulative effect is minor and beneficial. Options for widening the pedestrian promenade along Alaskan Way are likely to have few visual effects. The major change in the area is the elimination of the existing viaduct as part of the Bored Tunnel Alternative. The design features of the promenade could add visual interest and activities, but this project is likely to have little effect on the overall improved visual quality of the area.   |

## PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

| PROJECT  | POTENTIAL CUMULATIVE EFFECTS   |
|--|--|
| <b>B3.</b> Transit Enhancements –<br>1) Delridge RapidRide<br>2) Additional service hours on West Seattle and Ballard RapidRide lines<br>3) Peak hour express routes added to South Lake Union and Uptown<br>4) Local bus changes to several West Seattle and northwest Seattle routes<br>5) Transit priority on S. Main and/or S. Washington Streets between Alaskan Way and Third Avenue<br>6) Simplification of the electric trolley system | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer, and this project will not substantially change the visual context of the Bored Tunnel Alternative.  |
| <b>B4.</b> First Avenue Streetcar Evaluation   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer. The streetcar will be visible as it passes but will integrate with normal expected elements of an urban landscape. This project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.  |
| <i>C. Projects Under Construction</i>  |  |
| <b>C1.</b> S. Holgate Street to S. King Street Viaduct Replacement Project   | This project will have minor cumulative effects when considered together with the adjacent Bored Tunnel Alternative. Visual impacts will be beneficial. This project replaces the existing viaduct with a lower but wider single-level structure. Effects on visual quality will be largely positive because of the lower height and less visual prominence. This change in visual context was considered during evaluation of visual effects of the Bored Tunnel Alternative. |
| <b>C2.</b> Transportation Improvements to Minimize Traffic Effects During Construction   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer, and this project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.   |
| <i>D. Completed Projects</i>   |  |
| <b>D1.</b> SR 99 Yesler Way Vicinity Foundation Stabilization (Column Safety Repairs)  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer, and this project will not change the visual context of the Bored Tunnel Alternative.  |
| <b>D2.</b> S. Massachusetts Street Railroad Way S. Electrical Line Relocation Project (Electrical Line Relocation Along the Viaduct's South End)   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer, and this project will not change the visual context of the Bored Tunnel Alternative's changes to SR 99.   |
| <i>E. Seattle Planned Urban Development</i>  |  |
| <b>E1.</b> Gull Industries on First Avenue S.  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other urban development in the area, and this project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.  |

## PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

| PROJECT  | POTENTIAL CUMULATIVE EFFECTS   |
|--|--|
| <b>E2.</b> North Parking Lot Development at Qwest Field              | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other urban development in the area, and this project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.  |
| <b>E3.</b> Seattle Center Master Plan (EIS) (Century 21 Master Plan) | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other elements of Seattle Center. This project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.   |
| <b>E4.</b> Bill and Melinda Gates Foundation Campus Master Plan      | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other urban development in the area. This project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.  |
| <b>E5.</b> South Lake Union Redevelopment                            | These projects will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other urban development in the area. These projects will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.  |
| <b>E6.</b> U.S. Coast Guard Integrated Support Command               | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Buildings will generally be consistent with bulk and design features of other urban development in the area. This project is south of the Bored Tunnel Alternative and will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.               |
| <b>E7.</b> Seattle Aquarium and Waterfront Park                      | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Facilities will generally be consistent with bulk and design features of other urban development in the area and will not substantially change the visual context of the Bored Tunnel Alternative's changes to the visual environment, including removal of the Alaskan Way Viaduct.      |
| <b>E8.</b> Seattle Combined Sewer System Upgrades                    | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. These underground improvements will result in no appreciable change to physical features that will be noted by the average viewer. This project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.                                      |
| <i>F. Local Roadway Improvements</i>                                 |  |
| <b>F1.</b> Bridging the Gap Projects                                 | These projects will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to the range of characteristics of urban streets will be noted by the average viewer. These projects will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.   |
| <b>F2.</b> S. Spokane Street Viaduct Widening                        | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This widened structure will be similar in bulk and design features to the existing structure. It will fit the industrial character of the area. This project is well south of the Bored Tunnel Alternative and will not be viewed together with features of the Bored Tunnel Alternative. |

## PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

| PROJECT  | POTENTIAL CUMULATIVE EFFECTS   |
|--|--|
| <b>F3.</b> SR 99/East Marginal Way Grade Separation                | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This structure will fit the industrial character of the area. This project is south of the Bored Tunnel Alternative and will be within the same viewshed as some views of the project, but will not appreciably change the visual context or effects of the Bored Tunnel Alternative.   |
| <b>F4.</b> Mercer East Project from Dexter Avenue N. to I-5        | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to the range of characteristics of urban streets will be noted by the average viewer, and this project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99.   |
| <i>G. Regional Roadway Improvements</i>                            |  |
| <b>G1.</b> I-5 Improvements  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer. This project is at a distance from the Bored Tunnel Alternative and will generally not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>G2.</b> SR 520 Bridge Replacement and HOV Program               | This program will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This program is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>G3.</b> I-405 Corridor Program                                  | This program will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This program is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>G4.</b> I-90 Two-Way Transit and HOV Operations, Stages 1 and 2 | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <i>H. Transit Improvements</i>                                     |  |
| <b>H1.</b> First Hill Streetcar                                    | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer. The streetcar will be visible as it passes, but it will integrate with normal expected elements of an urban landscape. It is also at such a distance from the Bored Tunnel Alternative that it will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative. |
| <b>H2.</b> Sound Transit University Link Light Rail Project        | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>H3.</b> RapidRide   | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will generally not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>H4.</b> Sound Transit North Link Light Rail                     | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |

## PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

| PROJECT  | POTENTIAL CUMULATIVE EFFECTS   |
|--|--|
| <b>H5.</b> Sound Transit East Link Light Rail  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will generally not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>H6.</b> Washington State Ferries Seattle Terminal Improvements                          | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. The proposed improvements would be consistent with existing structures in terms of size and mass and project changes may include measures to improve the visual quality of the site.  |
| <i>I. Transportation Network Assumptions</i>   |  |
| <b>I1.</b> HOV Definition Changes to 3+ Throughout the Puget Sound Region                  | This change will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Operational changes include no appreciable change to physical features that will be noted by the average viewer. This change will not substantially change the visual context of the Bored Tunnel Alternative.   |
| <b>I2.</b> Sound Transit Phases 1 and 2  | This program will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Operational changes include no appreciable change to physical features that will be noted by the average viewer and will not substantially change the visual context of the Bored Tunnel Alternative.   |
| <b>I3.</b> Other Transit Improvements  | These improvements will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Operational changes include no appreciable change to physical features that will be noted by the average viewer and will not substantially change the visual context of the Bored Tunnel Alternative.   |
| <i>J. Completed but Relevant Projects</i>  |  |
| <b>J1.</b> Sound Transit Central Link Light Rail (including the Sea-Tac Airport extension) | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. This project is at a distance from the Bored Tunnel Alternative and will not be viewed in conjunction with the visual effects of the Bored Tunnel Alternative.  |
| <b>J2.</b> South Lake Union Streetcar  | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. No appreciable change to physical features will be noted by the average viewer. The streetcar will be visible as it passes, but will integrate with normal expected elements of an urban landscape. This project will not substantially change the visual context of the Bored Tunnel Alternative's changes to SR 99. |
| <b>J3.</b> SR 519 Intermodal Access Project, Phase 2                                       | This project will not contribute to cumulative adverse visual effects of the Bored Tunnel Alternative. Structures fit the character of the area. This project is south of the Bored Tunnel Alternative and will be within the same viewshed as some views of the project, but it will not appreciably change the visual context of effects of the Bored Tunnel Alternative.  |

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**ATTACHMENT B**

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**Visual Analysis Matrix**

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## ATTACHMENT B

**Exhibit B-1. Visual Analysis Matrix**

| Viewpoint Location          |                | Roadway Northbound at S. Dearborn Street | Roadway Northbound at S. Dearborn Street | First Avenue S. south of Railroad Way S. | First Avenue S. south of Railroad Way S. | Alaskan Way S. at Railroad Way S. | Alaskan Way S. at Railroad Way S. |
|-----------------------------|----------------|--|--|--|--|-----------------------------------|-----------------------------------|
| Alternative                 |                | Existing                                 | Bored Tunnel                             | Existing                                 | Bored Tunnel                             | Existing                          | Bored Tunnel                      |
| Photo Simulation            |                | A-1, A-3                                 | A-2, A-3                                 | A-4                                      | A-5                                      | A-6                               | A-7                               |
| Visual Character Unit       |                | Stadium Area                             | Stadium Area                             | Stadium/Pioneer Square                   | Stadium/Pioneer Square                   | Stadium/Pioneer Square            | Stadium/Pioneer Square            |
| View Orientation            |                | North & Northwest                        | North & Northwest                        | North                                    | North                                    | Southeast                         | Southeast                         |
| View Distance               | Foreground     | 1,000 feet                               | 1,000 feet                               | 100 feet                                 | 100 feet                                 | 300 feet                          | 300 feet                          |
|                             | Middle Ground  | 3,000 feet                               | 3,000 feet                               | 1,000 feet                               | 1,000 feet                               | 1,000 feet                        | 1,000 feet                        |
|                             | Background     | 2-60 miles                               | 2-60 miles                               | 2 miles                                  | 2 miles                                  | 1/2 mile                          | 1/2 mile                          |
| Viewer Position             | Inferior       |  |  | X  |  | X                                 |                                   |
|                             | Level          |  | X  |  | X  |                                   | X                                 |
|                             | Superior       | X  |  |  |  |                                   |                                   |
| Vividness                   | Landforms      | 9  | 8  | 2  | 2  | 2                                 | 2                                 |
|                             | Water forms    | 9  | 6  | 0  | 0  | 0                                 | 0                                 |
|                             | Vegetation     | 2  | 2  | 2  | 3  | 1                                 | 3                                 |
|                             | Human-made     | 9  | 9  | 4  | 6  | 4                                 | 7                                 |
|                             | <b>Average</b> | <b>7.25</b>                              | <b>6.25</b>                              | <b>2</b>                                 | <b>2.75</b>                              | <b>1.75</b>                       | <b>3</b>                          |
| Intactness                  | Development    | 9  | 9  | 5  | 7  | 2                                 | 7                                 |
|                             | Encroachment   | 7  | 9  | 3  | 8  | 1                                 | 6                                 |
|                             | <b>Average</b> | <b>8</b>                                 | <b>9</b>                                 | <b>4</b>                                 | <b>7.5</b>                               | <b>1.5</b>                        | <b>6.5</b>                        |
| <b>Unity</b>                | <b>Overall</b> | <b>7</b>                                 | <b>8</b>                                 | <b>4</b>                                 | <b>7</b>                                 | <b>4</b>                          | <b>8</b>                          |
| <b>Total Visual Quality</b> |                | <b>7.4</b>                               | <b>7.8</b>                               | <b>3.3</b>                               | <b>5.8</b>                               | <b>2.4</b>                        | <b>5.8</b>                        |

| Visual Quality Assessment Rating Scale |                 |         |                 |                              |                 |                         |                 |
|--|-----------------|---------|-----------------|------------------------------|-----------------|-------------------------|-----------------|
| Vividness                              |                 | Unity   |                 | Intactness Human Environment |                 | Intactness Encroachment |                 |
| 10                                     | Very High       | 10      | Very High       | 10                           | Very High       | 10                      | Very High       |
| 9                                      | High            | 9       | High            | 9                            | High            | 9                       | High            |
| 7, 8                                   | Moderately High | 7, 8    | Moderately High | 7, 8                         | Moderately High | 7, 8                    | Moderately High |
| 4, 5, 6                                | Average         | 4, 5, 6 | Average         | 4, 5, 6                      | Average         | 4, 5, 6                 | Average         |
| 2, 3                                   | Moderately Low  | 2, 3    | Moderately Low  | 2, 3                         | Moderately Low  | 2, 3                    | Moderately Low  |
| 1                                      | Low             | 1       | Low             | 1                            | Low             | 1                       | Low             |
| 0                                      | Very Low        | 0       | Very Low        | 0                            | Very Low        | 0                       | Very Low        |

**Exhibit B-1. Visual Analysis Matrix (continued)**

| Viewpoint Location          |                | Yesler Way at First Avenue | Yesler Way at First Avenue | University Street at First Avenue | University Street at First Avenue | Alaskan Way at Union Street | Alaskan Way at Union Street |
|-----------------------------|----------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|-----------------------------|-----------------------------|
| Alternative                 |                | Existing                   | Bored Tunnel               | Existing                          | Bored Tunnel                      | Existing                    | Bored Tunnel                |
| Photo Simulation            |                | A-8                        | A-9                        | A-10                              | A-11                              | A-12                        | A-13                        |
| Visual Character Unit       |                | Pioneer Square District    | Pioneer Square District    | Commercial Core                   | Commercial Core                   | Central Waterfront          | Central Waterfront          |
| View Orientation            |                | West                       | West                       | West                              | West                              | South                       | South                       |
| View Distance               | Foreground     | 300 feet                   | 300 feet                   | 500 feet                          | 500 feet                          | 500 feet                    | 500 feet                    |
|                             | Middle Ground  | 1,000 feet                 | 1,000 feet                 | 1,000 feet                        | 1,000 feet                        | 1,000 feet                  | 1,000 feet                  |
|                             | Background     | 2-5 miles                  | 2-5 miles                  | 2-30 miles                        | 2-30 miles                        | 2-3 miles                   | 2-3 miles                   |
| Viewer Position             | Inferior       | X                          |                            |                                   |                                   | X                           |                             |
|                             | Level          |                            | X                          |                                   |                                   |                             | X                           |
|                             | Superior       |                            |                            | X                                 | X                                 |                             |                             |
| Vividness                   | Landforms      | 4                          | 8                          | 6                                 | 8                                 | 6                           | 9                           |
|                             | Water forms    | 4                          | 7                          | 7                                 | 9                                 | 7                           | 8                           |
|                             | Vegetation     | 4                          | 5                          | 4                                 | 6                                 | 4                           | 6                           |
|                             | Human-made     | 7                          | 8                          | 6                                 | 8                                 | 4                           | 8                           |
|                             | <b>Average</b> | <b>4.75</b>                | <b>7</b>                   | <b>5.75</b>                       | <b>7.75</b>                       | <b>5.25</b>                 | <b>7.75</b>                 |
| Intactness                  | Development    | 3                          | 7                          | 4                                 | 7                                 | 5                           | 7                           |
|                             | Encroachment   | 3                          | 8                          | 2                                 | 8                                 | 2                           | 8                           |
|                             | <b>Average</b> | <b>3</b>                   | <b>7.5</b>                 | <b>3</b>                          | <b>7.5</b>                        | <b>3.5</b>                  | <b>7.5</b>                  |
| <b>Unity</b>                | <b>Overall</b> | <b>4</b>                   | <b>8</b>                   | <b>4</b>                          | <b>8</b>                          | <b>5</b>                    | <b>8</b>                    |
| <b>Total Visual Quality</b> |                | <b>3.9</b>                 | <b>7.5</b>                 | <b>4.3</b>                        | <b>7.8</b>                        | <b>4.6</b>                  | <b>7.8</b>                  |

| Visual Quality Assessment Rating Scale |                 |         |                 |                              |                 |                         |                 |
|--|-----------------|---------|-----------------|------------------------------|-----------------|-------------------------|-----------------|
| Vividness                              |                 | Unity   |                 | Intactness Human Environment |                 | Intactness Encroachment |                 |
| 10                                     | Very High       | 10      | Very High       | 10                           | Very High       | 10                      | Very High       |
| 9                                      | High            | 9       | High            | 9                            | High            | 9                       | High            |
| 7, 8                                   | Moderately High | 7, 8    | Moderately High | 7, 8                         | Moderately High | 7, 8                    | Moderately High |
| 4, 5, 6                                | Average         | 4, 5, 6 | Average         | 4, 5, 6                      | Average         | 4, 5, 6                 | Average         |
| 2, 3                                   | Moderately Low  | 2, 3    | Moderately Low  | 2, 3                         | Moderately Low  | 2, 3                    | Moderately Low  |
| 1                                      | Low             | 1       | Low             | 1                            | Low             | 1                       | Low             |
| 0                                      | Very Low        | 0       | Very Low        | 0                            | Very Low        | 0                       | Very Low        |

**Exhibit B-1. Visual Analysis Matrix (continued)**

| Viewpoint Location          |                | Alaskan Way at Union Street | Alaskan Way at Union Street | Victor Steinbrueck Park | Victor Steinbrueck Park | Elliott Avenue at Bell Street | Elliott Avenue at Bell Street |
|-----------------------------|----------------|-----------------------------|-----------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Alternative                 |                | Existing                    | Bored Tunnel                | Existing                | Bored Tunnel            | Existing                      | Bored Tunnel                  |
| Photo Simulation            |                | A-14                        | A-15                        | A-16                    | A-17                    | A-18                          | A-19                          |
| Visual Character Unit       |                | Central Waterfront          | Central Waterfront          | Pike Place Market       | Pike Place Market       | Belltown                      | Belltown                      |
| View Orientation            |                | North                       | North                       | South                   | South                   | North                         | North                         |
| View Distance               | Foreground     | 500 feet                    | 500 feet                    | 1,000 feet              | 1,000 feet              | 300 feet                      | 300 feet                      |
|                             | Middle Ground  | 1,000 feet                  | 1,000 feet                  | 3,000 feet              | 3,000 feet              | 1,000 feet                    | 1,000 feet                    |
|                             | Background     | 2,500 feet                  | 2,500 feet                  | 2-60 miles              | 2-60 miles              | 1/2 mile                      | 1/2 mile                      |
| Viewer Position             | Inferior       | X                           |                             |                         |                         | X                             |                               |
|                             | Level          |                             | X                           |                         |                         |                               | X                             |
|                             | Superior       |                             |                             | X                       | X                       |                               |                               |
| Vividness                   | Landforms      | 6                           | 7                           | 6                       | 6                       | 2                             | 2                             |
|                             | Water forms    | 0                           | 0                           | 8                       | 8                       | 0                             | 0                             |
|                             | Vegetation     | 3                           | 6                           | 2                       | 4                       | 1                             | 3                             |
|                             | Human-made     | 3                           | 4                           | 6                       | 6                       | 4                             | 7                             |
|                             | <b>Average</b> | <b>3</b>                    | <b>4.25</b>                 | <b>5.5</b>              | <b>6</b>                | <b>1.75</b>                   | <b>3</b>                      |
| Intactness                  | Development    | 4                           | 7                           | 5                       | 7                       | 2                             | 7                             |
|                             | Encroachment   | 3                           | 6                           | 3                       | 6                       | 1                             | 6                             |
|                             | <b>Average</b> | <b>3.5</b>                  | <b>6.5</b>                  | <b>4</b>                | <b>6.5</b>              | <b>1.5</b>                    | <b>6.5</b>                    |
| Unity                       | Overall        | 4                           | 7                           | 4                       | 7                       | 4                             | 8                             |
| <b>Total Visual Quality</b> |                | <b>3.5</b>                  | <b>5.9</b>                  | <b>4.5</b>              | <b>6.5</b>              | <b>2.4</b>                    | <b>5.8</b>                    |

| Visual Quality Assessment Rating Scale |                 |         |                 |                              |                 |                         |                 |
|--|-----------------|---------|-----------------|------------------------------|-----------------|-------------------------|-----------------|
| Vividness                              |                 | Unity   |                 | Intactness Human Environment |                 | Intactness Encroachment |                 |
| 10                                     | Very High       | 10      | Very High       | 10                           | Very High       | 10                      | Very High       |
| 9                                      | High            | 9       | High            | 9                            | High            | 9                       | High            |
| 7, 8                                   | Moderately High | 7, 8    | Moderately High | 7, 8                         | Moderately High | 7, 8                    | Moderately High |
| 4, 5, 6                                | Average         | 4, 5, 6 | Average         | 4, 5, 6                      | Average         | 4, 5, 6                 | Average         |
| 2, 3                                   | Moderately Low  | 2, 3    | Moderately Low  | 2, 3                         | Moderately Low  | 2, 3                    | Moderately Low  |
| 1                                      | Low             | 1       | Low             | 1                            | Low             | 1                       | Low             |
| 0                                      | Very Low        | 0       | Very Low        | 0                            | Very Low        | 0                       | Very Low        |

**Exhibit B-1. Visual Analysis Matrix (continued)**

| Viewpoint Location          |                | Western Avenue at Bell Street | Western Avenue at Bell Street | Aurora Avenue at Denny Way | Aurora Avenue at Denny Way | Aurora Avenue at Mercer Street | Aurora Avenue at Mercer Street |
|-----------------------------|----------------|-------------------------------|-------------------------------|----------------------------|----------------------------|--------------------------------|--------------------------------|
| Alternative                 |                | Existing                      | Bored Tunnel                  | Existing                   | Bored Tunnel               | Existing                       | Bored Tunnel                   |
| Photo Simulation            |                | A-20                          | A-21                          | A-22                       | A-23                       | A-26                           | A-27                           |
| Visual Character Unit       |                | Belltown                      | Belltown                      | SR 99/ Aurora Corridor     | SR 99/ Aurora Corridor     | SR 99/ Aurora Corridor         | SR 99/ Aurora Corridor         |
| View Orientation            |                | North                         | North                         | North                      | North                      | South                          | South                          |
| View Distance               | Foreground     | 300 feet                      | 300 feet                      | 1,000 feet                 | 1,000 feet                 | 1,000 feet                     | 1,000 feet                     |
|                             | Middle Ground  | 1,000 feet                    | 1,000 feet                    | 3,000 feet                 | 3,000 feet                 | 3,000 feet                     | 3,000 feet                     |
|                             | Background     | 1/2 mile                      | 1/2 mile                      | 2 miles                    | 2 miles                    | 2 miles                        | 2 miles                        |
| Viewer Position             | Inferior       | X                             |                               |                            |                            |                                |                                |
|                             | Level          |                               | X                             |                            | X                          |                                | X                              |
|                             | Superior       |                               |                               | X                          |                            | X                              |                                |
| Vividness                   | Landforms      | 2                             | 2                             | 6                          | 6                          | 2                              | 2                              |
|                             | Water forms    | 0                             | 0                             | 0                          | 0                          | 0                              | 0                              |
|                             | Vegetation     | 1                             | 3                             | 4                          | 5                          | 3                              | 3                              |
|                             | Human-made     | 4                             | 7                             | 5                          | 6                          | 6                              | 6                              |
|                             | <b>Average</b> | <b>1.75</b>                   | <b>3</b>                      | <b>3.75</b>                | <b>4.25</b>                | <b>2.75</b>                    | <b>2.75</b>                    |
| Intactness                  | Development    | 2                             | 7                             | 4                          | 4                          | 4                              | 4                              |
|                             | Encroachment   | 1                             | 6                             | 6                          | 6                          | 6                              | 6                              |
|                             | <b>Average</b> | <b>1.5</b>                    | <b>6.5</b>                    | <b>5</b>                   | <b>5</b>                   | <b>5</b>                       | <b>5</b>                       |
| <b>Unity</b>                | <b>Overall</b> | <b>4</b>                      | <b>8</b>                      | <b>6</b>                   | <b>7</b>                   | <b>6</b>                       | <b>6</b>                       |
| <b>Total Visual Quality</b> |                | <b>2.4</b>                    | <b>5.8</b>                    | <b>4.9</b>                 | <b>5.4</b>                 | <b>4.6</b>                     | <b>4.6</b>                     |

| Visual Quality Assessment Rating Scale |                 |         |                 |                              |                 |                         |                 |
|--|-----------------|---------|-----------------|------------------------------|-----------------|-------------------------|-----------------|
| Vividness                              |                 | Unity   |                 | Intactness Human Environment |                 | Intactness Encroachment |                 |
| 10                                     | Very High       | 10      | Very High       | 10                           | Very High       | 10                      | Very High       |
| 9                                      | High            | 9       | High            | 9                            | High            | 9                       | High            |
| 7, 8                                   | Moderately High | 7, 8    | Moderately High | 7, 8                         | Moderately High | 7, 8                    | Moderately High |
| 4, 5, 6                                | Average         | 4, 5, 6 | Average         | 4, 5, 6                      | Average         | 4, 5, 6                 | Average         |
| 2, 3                                   | Moderately Low  | 2, 3    | Moderately Low  | 2, 3                         | Moderately Low  | 2, 3                    | Moderately Low  |
| 1                                      | Low             | 1       | Low             | 1                            | Low             | 1                       | Low             |
| 0                                      | Very Low        | 0       | Very Low        | 0                            | Very Low        | 0                       | Very Low        |