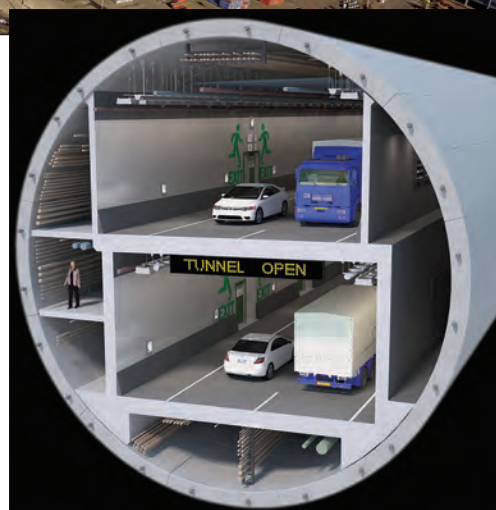
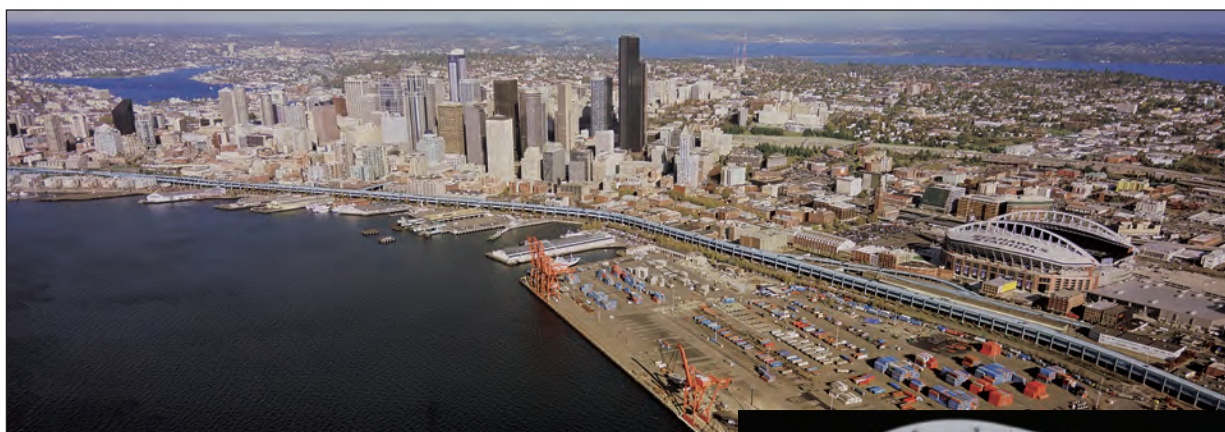
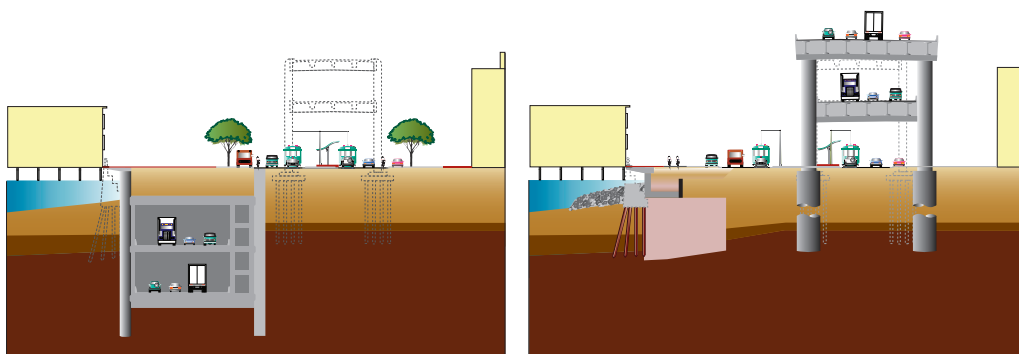


ALASKAN WAY VIADUCT REPLACEMENT PROJECT

Final Environmental Impact Statement

APPENDIX G Land Use Discipline Report



Submitted by:
PARSONS BRINCKERHOFF

Prepared by:
PARSONS BRINCKERHOFF



JULY 2011

Alaskan Way Viaduct Replacement Project

Final EIS

Land Use 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:

Parsons Brinckerhoff

999 Third Avenue, Suite 3200
Seattle, WA 98104

In association with:

Coughlin Porter Lundeen, Inc.
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GHD, Inc.
HDR Engineering, Inc.
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Magnusson Klemencic Associates, Inc.
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ACRONYMS AND ABBREVIATIONS

CBD	Central Business District
City	City of Seattle
CZM	Coastal Zone Management
DH	Downtown Harborfront
DMR/R	Downtown Mixed Residential/Residential
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
GMA	Washington State Growth Management Act
I-5	Interstate 5
I-90	Interstate 90
IC	Industrial Commercial
IG	Industrial General
MIC	Manufacturing and Industrial Center
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge and Elimination System
Program	Alaskan Way Viaduct and Seawall Replacement Program
project	Alaskan Way Viaduct Replacement Project
PSRC	Puget Sound Regional Council
SDOT	Seattle Department of Transportation
SEPA	State Environmental Policy Act
SM	Seattle Mixed
SMC	Seattle Municipal Code
SODO	South of Downtown
SR	State Route
TBM	tunnel boring machine
UH	Urban Harborfront
UI	Urban Industrial
WOSCA	Washington-Oregon Shippers Cooperative Association
WSDOT	Washington State Department of Transportation

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Chapter 1 INTRODUCTION AND SUMMARY

1.1 Introduction

This discipline report was prepared in support of the Final Environmental Impact Statement (EIS) for the Alaskan Way Viaduct Replacement Project (project). The Final EIS and all of the supporting discipline reports evaluate the Viaduct Closed (No Build Alternative) in addition to the three build alternatives: the Bored Tunnel Alternative (preferred), the Cut-and-Cover Tunnel Alternative, and the Elevated Structure Alternative. The designs for both the Cut-and-Cover Tunnel and the Elevated Structure Alternatives have been updated since the 2006 Supplemental Draft EIS to reflect that the section of the viaduct between S. Holgate Street and S. King Street is being replaced by a separate project and the alignment at S. Washington Street is no longer in Elliott Bay. All three build alternatives are evaluated with tolls and without tolls.

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. Per the NEPA process, FHWA was responsible for selecting the preferred alternative. FHWA has based its decision on the information evaluated during the environmental review process, including information contained in the 2010 Supplemental Draft EIS (WSDOT et al. 2010) and previous evaluations in 2004 and 2006. After issuance of the Final EIS, FHWA will issue its 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 Seattle. The March 2007 ballot included an elevated structure alternative (differing in design from the current Elevated Structure Alternative) and a surface-tunnel hybrid alternative. The citizens voted down both alternatives.

After the 2007 election, the lead agencies committed to a collaborative process (referred to as the Partnership Process) to find a solution to replace the viaduct along Seattle's central waterfront. 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, which is being evaluated in this Final EIS as the preferred alternative.

1.2 Build Alternatives Overview

The Alaskan Way Viaduct Replacement Project is one of several independent projects developed to improve safety and mobility along State Route (SR) 99 and the Seattle waterfront from the South of Downtown (SODO) area to Seattle Center. Collectively, these individual projects are referred to as the Alaskan Way Viaduct and Seawall Replacement Program (the Program). See Exhibit 1-1.

Exhibit 1-1. Other Projects Included in the Alaskan Way Viaduct and Seawall Replacement Program

Project	Bored Tunnel Alternative	Cut-and-Cover Tunnel Alternative	Elevated Structure Alternative
Independent Projects That Complement the Bored Tunnel Alternative			
Elliott Bay Seawall Project	X	Included in alternative	Included in alternative
Alaskan Way Surface Street Improvements	X	Included in alternative	Included in alternative
Alaskan Way Promenade/Public Space	X	Included in alternative	Included in alternative
First Avenue Streetcar Evaluation	X	Included in alternative	Included in alternative
Elliott/Western Connector	X	Function provided ¹	Function provided ¹
Transit enhancements	X	Not proposed ²	Not proposed ²
Projects That Complement All Build Alternatives			
S. Holgate Street to S. King Street Viaduct Replacement Project	X	X	X
Mercer West Project	X	X	X
Transportation Improvements to Minimize Traffic Effects During Construction	X	X	X
SR 99 Yesler Way Vicinity Foundation Stabilization	X	X	X
S. Massachusetts Street to Railroad Way S. Electrical Line Relocation Project	X	X	X

¹ These specific improvements are not proposed with the Cut-and-Cover Tunnel and Elevated Structure Alternatives; however, these alternatives provide a functionally similar connection with ramps to and from SR 99 at Elliott and Western Avenues.

² Similar improvements included with the Bored Tunnel Alternative could be proposed with this alternative.

This Final EIS evaluates the cumulative effects of all the build alternatives; however, direct and indirect environmental effects of these independent projects within the Program will be considered separately in independent environmental documents.

The S. Holgate Street to S. King Street Viaduct Replacement Project, currently under construction as a separate project, was designed to be compatible with any of the three viaduct replacement alternatives analyzed in this Final EIS.

1.2.1 Bored Tunnel Overview

The Bored Tunnel Alternative (preferred alternative) includes replacing 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.

The Bored Tunnel Alternative would replace SR 99 between S. Royal Brougham Way and Roy Street with two lanes in each direction.

Beginning at S. Royal Brougham Way, SR 99 would be a side-by-side surface roadway that would descend to a cut-and-cover tunnel. At approximately S. King Street, SR 99 would then 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 extend north 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.

Access and exit ramps in the south would include a southbound on-ramp to and northbound off-ramp from SR 99 that would be built in retained cuts and feed directly into a reconfigured Alaskan Way S. with three lanes in each direction. Alaskan Way S. would have one new intersection, with the new east-west cross street at S. Dearborn Street.

The Bored Tunnel Alternative also includes reconstructing a portion of the east-west S. King Street, and would widen the East Frontage Road from S. Atlantic Street to S. Royal Brougham Way to accommodate truck turning movements. Railroad Way S. would be replaced by a new one-lane roadway on which northbound traffic could travel between S. Dearborn Street and Alaskan Way S.

Access from northbound SR 99 and access to southbound 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. on the west side of SR 99.

Surface streets in the north portal area would be reconfigured and improved. The street grid between Denny Way and Harrison Street would be connected by restoring a section of Aurora Avenue just north of the existing Battery Street Tunnel portal. John, Thomas, and Harrison Streets would be connected as cross streets.

1.2.2 Cut-and-Cover Tunnel Alternative Overview

A six-lane stacked tunnel would replace the existing viaduct between S. Dearborn Street and Pine Street. At Pine Street, SR 99 transitions out of the tunnel near the Pike Place Hillclimb and would cross over the BNSF rail tracks on a side-by-side aerial roadway. Near Lenora Street, SR 99 would transition to a retained cut extending up to the Battery Street Tunnel portal. SR 99 would travel under Elliott and Western Avenues. The southbound on-ramp from Elliott Avenue and the northbound on-ramp at Western Avenue would be rebuilt. The northbound on-ramp from Bell Street and the southbound off-ramp at Battery Street and Western Avenue would be closed and used for maintenance and emergency access only.

The Battery Street Tunnel would be retrofitted for improved seismic safety. The existing tunnel safety systems would be updated. Improvements would include a widening of the south portal, new fire suppression system, updated ventilation, and new emergency egress structures near Second, Fourth, and Sixth Avenues.

From the north portal of the Battery Street Tunnel, SR 99 would be lowered in a retained cut to about Mercer Street, with improvements and widening north to Aloha Street. Broad Street would be closed between Fifth and Ninth Avenues N., allowing the street grid to be connected. Mercer Street would continue to cross under SR 99 as it does today. However, it would be widened and converted from a one-way to a two-way street, with three lanes each way and a center turn lane.

Access to and from SR 99 would be provided at Denny Way and Roy Street. In the northbound direction, drivers could exit at Republican Street.

The Cut-and-Cover Tunnel Alternative would replace the existing seawall with the west wall of the tunnel. Alaskan Way would be rebuilt with this alternative.

1.2.3 Elevated Structure Alternative Overview

The Elevated Structure Alternative would replace the existing viaduct mostly within the existing right-of-way. The Elevated Structure Alternative would replace the seawall between S. Jackson and Broad Streets.

In the central section of Seattle's downtown, the Elevated Structure Alternative would replace the existing viaduct with a stacked aerial structure along the central waterfront. The SR 99 roadway would have three lanes in each direction with wider lanes and shoulders than the existing viaduct.

The existing ramps at Columbia and Seneca Streets would be rebuilt and connected to a new drop lane. This extra lane would improve safety for drivers accessing downtown Seattle on the midtown ramps.

The existing SR 99 roadway would be retrofitted, starting between Virginia and Lenora Streets up to the Battery Street Tunnel's south portal. SR 99 would travel over Elliott and Western Avenues to connect to the Battery Street Tunnel. This aerial structure would transition to two lanes as it enters the Battery Street Tunnel by dropping a northbound lane to Western Avenue. The Battery Street Tunnel would be upgraded with new safety improvements, which include a fire suppression system, seismic retrofitting, and access and egress structures. The vertical clearance would be increased to about 16.5 feet throughout the length of the tunnel.

However, unlike the Battery Street Tunnel improvements with the Cut-and-Cover Tunnel Alternative, the roadway at the south portal would not be widened.

The Elliott and Western Avenue ramps would be rebuilt, and the existing southbound off-ramp at Battery Street and Western Avenue and the northbound on-ramp from Bell Street would be closed and used for maintenance and emergency access only. The southbound on-ramp from Elliott Avenue and the northbound on-ramp at Western Avenue would be rebuilt.

The Alaskan Way surface street would be rebuilt as part of the Elevated Structure Alternative. The southbound lanes would be built in a similar location as the existing roadway, and the northbound lanes would be constructed underneath the viaduct.

Aurora Avenue would be modified from the north portal of the Battery Street Tunnel from Denny Way to Aloha Street. Aurora Avenue would be lowered in a side-by-side retained cut roadway from the north portal of the Battery Street Tunnel to about Mercer Street and would be at-grade between Mercer and Aloha Streets. Ramps to and from Denny Way would provide access to and from SR 99 similar to today. The street grid would be connected over Aurora Avenue at Thomas and Harrison Streets. Mercer Street would be widened and converted

to a two-way street with three lanes in each direction and a center turn lane. It would continue to cross under Aurora Avenue as it does today.

1.3 Summary

This report and the Alaskan Way Viaduct Replacement Project Final EIS that it supports are intended to provide new and updated information with detailed technical analyses of existing conditions and predicted effects of the three build alternatives. The results of these analyses are presented in the main volume of the Final EIS.

The build alternatives analyzed in this discipline report and in the Final EIS have been evaluated both quantitatively and qualitatively. The build alternatives include replacing SR 99 with a bored tunnel, a cut-and-cover tunnel, or a new elevated structure. Also included are associated improvements, such as relocating utilities located on or under the viaduct, removing the viaduct, decommissioning or reinforcing and upgrading the Battery Street Tunnel, and making improvements to the surface streets in the south and north sections of the project area.

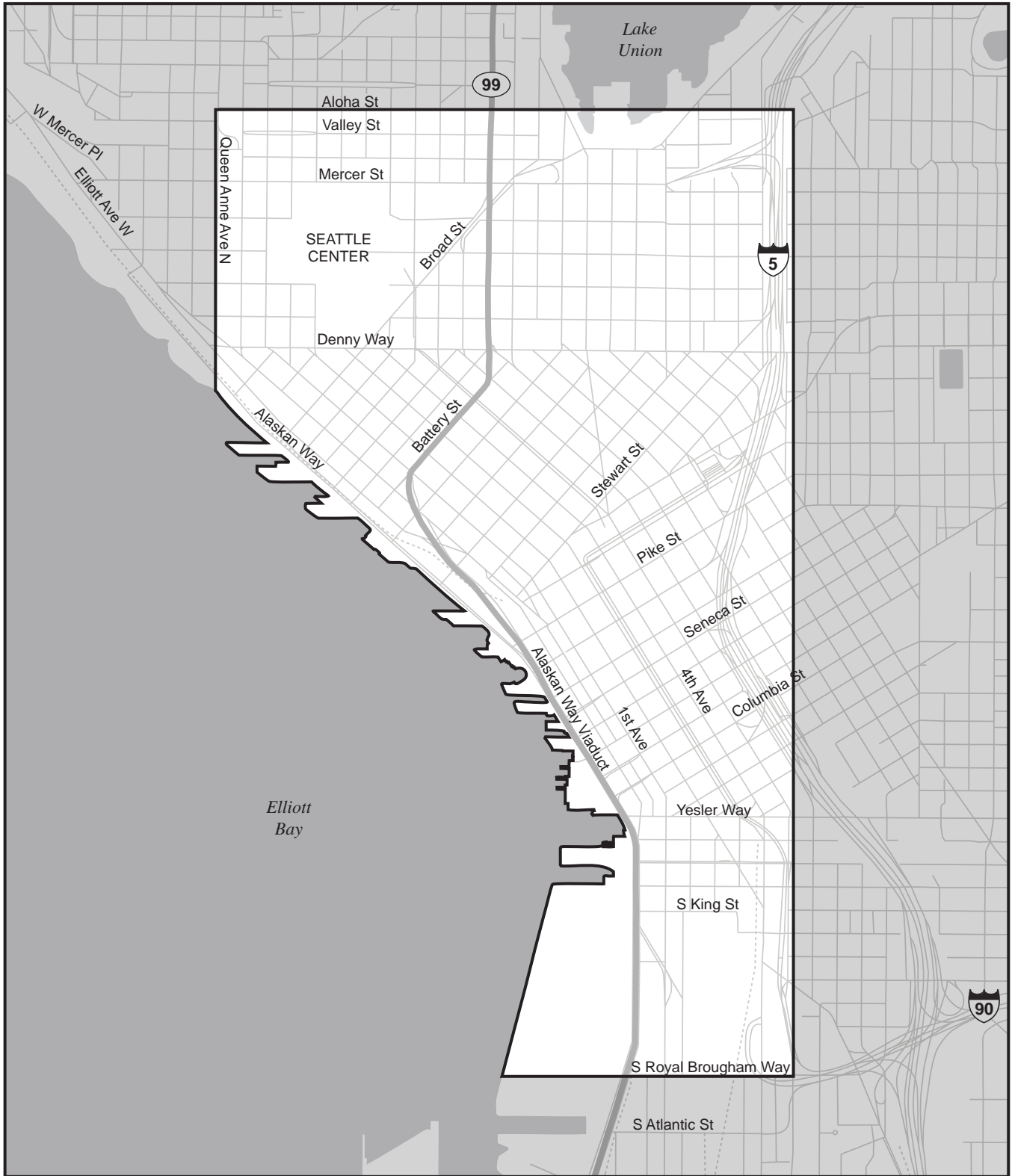
The analyses of effects and benefits for each of the build alternatives have been quantified with supporting studies, and the resulting data are provided in the discipline reports (Appendices A through R). These analyses focus on assessing the potential construction and operational effects of each build alternative and the appropriate mitigation measures that could be implemented. The Viaduct Closed (No Build Alternative) is also analyzed.

1.3.1 Study Area

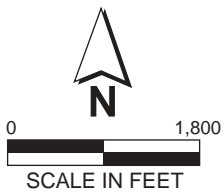
The study area for the analysis of land use comprises the urban environment of downtown Seattle that is generally bounded by Interstate 5 (I-5) to the east and Elliott Bay to the west. The southern boundary is S. Royal Brougham Way, and the northern boundary is Aloha Street, as shown on Exhibit 1-2. The study area includes the proposed construction zones surrounding the project area for the build alternatives. Although the staging areas at Terminals 25 and 106 are south of the study area, they have been considered fully in the land use analysis.

1.3.2 Existing Land Use Characteristics

The study area includes a variety of land uses and zones. The primary land use types encountered in the southern portion of the study area are terminal/warehouse, retail, office, and recreation/entertainment; primary uses in the central portion of the study area are office, retail, and residential; and primary uses in the northern portion of the study area are office, retail, utility, and residential. The terminal/warehouse land uses in the south include cargo and passenger terminals.



1/20/11



**Exhibit 1-2
Study Area**

The study area is generally located in portions of eight Seattle planning areas:

- South – Greater Duwamish Manufacturing and Industrial Center (MIC) and Pioneer Square neighborhoods
- Central – Commercial Core, Downtown Urban Center, and Belltown
- North – Denny Triangle, Uptown (Queen Anne), and South Lake Union

Land and neighborhood uses are regulated and influenced by several state, regional, and local plans and policies. The following plans and policies for the study area are considered in this report:

- Washington State Growth Management Act (GMA)
- Washington Transportation Plan 2007–2026
- Coastal Zone Management (CZM) Program and Shoreline Management Act
- Puget Sound Regional Council (PSRC) *VISION 2040* and *Transportation 2040*
- *City of Seattle Comprehensive Plan: Toward a Sustainable Seattle*
- Local neighborhood plans for the Greater Duwamish MIC, Pioneer Square, Commercial Core, Downtown Urban Center, Belltown, Denny Triangle, Uptown (Queen Anne), and South Lake Union areas
- *Seattle's Transportation Strategic Plan*
- Seattle Municipal Code and Director's Rules including zoning and development regulations; Shoreline Master Program; State Environmental Policy Act (SEPA) regulations; Environmentally Critical Areas Ordinance; Stormwater, Grading, and Drainage Control Code; design review regulations; and neighborhood-specific design review guidelines, where applicable, including downtown and Uptown areas
- *Mayor's Recommendations: Seattle's Central Waterfront Concept Plan*
- *Seattle Center Century 21 Master Plan*

Development activity and overall land use characteristics in the study area continue to evolve from primarily employment-related uses to a major center for tourism, retail shopping, meeting and convention activities, and entertainment. Continuing long-term trends, downtown Seattle's land use character is a relatively dense and growing Urban Center, the largest in the Pacific Northwest. The downtown area has continued to evolve from a predominantly commercial office and retail center to a more diverse-use character that includes numerous residential uses, shopping, convention and meeting facilities, tourism, and

entertainment-oriented uses. The Port of Seattle continues to expand and improve the facilities on Seattle's waterfront, such as Terminals 25, 30, and 46; the Seattle Ferry Terminal; and Colman Dock.

The area south of the Commercial Core includes Pioneer Square, the Stadium Transition Area Overlay District, and the Greater Duwamish MIC. Land uses in Pioneer Square are primarily tourist, services, and residential. The Stadium Transition Area Overlay District and the First Avenue S. corridor have a mix of industrial and commercial uses, consistent with City of Seattle (City) policies. This area may trend toward increased diversity with the presence of commercial uses mixed with warehouse and industrial uses.

Planned development south of the Commercial Core includes an office and residential mixed-use project on Qwest Field's north parking lot, as well as other mixed-use residential and office developments.

In the north, much of the development continues to focus on residential and office uses. A major development project under way in this area is the Bill and Melinda Gates Foundation Campus. The South Lake Union neighborhood has seen substantial redevelopment in the last decade, with a number of biotechnology and other high-technology research and development companies locating in this area. The most recent additions include UW Medicine South Lake Union Branch and Amazon.com.

1.3.3 Operational Effects, Mitigation, and Benefits

The build alternatives would maintain local and regional mobility by replacing the existing viaduct with a facility that would provide an alternate route to I-5 and Seattle's surface streets. Local connections in the south and north portions of the project area would improve mobility for motorists, pedestrians, and bicyclists, with enhanced surface street connections compared to existing conditions. However, the Elevated Structure Alternative would not change access noticeably, as compared to existing conditions. The structure would be larger than the existing viaduct, creating an even greater psychological barrier between the downtown core and the Seattle waterfront. Improved accessibility may benefit land uses in the area.

Permanent effects on land uses resulting from each of the three build alternatives are summarized in Exhibit 1-3, in terms of full and partial property acquisitions and relocations. The locations of these property acquisitions are shown in Attachment B. The Bored Tunnel Alternative will require subsurface property acquisitions and permanent tieback easements for subsurface wall-shoring systems (see Section 5.2.2).

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
766620 6966	1201 Building LLC, Pyramid Alehouse	Terminal/Warehouse (Pyramid Alehouse parking lot)	Industrial Commercial	Partial acquisition, 11,400 square feet	Partial acquisition, 11,400 square feet	Partial acquisition, 11,400 square feet
766620 7012 and 766620 7025	Seattle Hometown Fans, LLC Warehouse	Terminal/Warehouse (includes vacant lot)	Industrial Commercial	Partial acquisition, 6,500 square feet and potential business relocation	Partial acquisition, 6,500 square feet and potential business relocation	Partial acquisition, 6,500 square feet and potential business relocation
766620 6955	MSI Triangle, LLC	Terminal/Warehouse (Gerry Sportswear Building)	Industrial Commercial	Full acquisition, 37,000 square feet	N/A	N/A
766620 6950	WOSCA site, MSI Railroad, LLC	Terminal/Warehouse (vacant land)	Industrial Commercial	Full acquisition, 136,000 square feet	N/A	N/A
0654000280	Oregon Apartments LLC	Multi-Family/ Other Housing (vacant)	Downtown Mixed Residential	N/A	Partial acquisition, 1,922 square feet	Partial acquisition, 671 square feet
7666202381	Pumpkin & Big Man LLC	Office	Downtown Harborfront 1	N/A	Full acquisition, 3,598 square feet and business relocation	N/A
0654000230	Seattle City Light	Parking (vacant)	Downtown Mixed Residential/ Commercial	N/A	Full acquisition, 7,200 square feet	Full acquisition, 7,200 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
1976200297	City of Seattle	Office (vacant)	Pike Market Mixed	N/A	Full acquisition, 945 square feet	N/A
7666202410	Bradly Holdings LTD	Terminal/Warehouse	Pike Market Mixed	N/A	Partial acquisition, 400 square feet	N/A
7666202405	GRE Market Square LLC	Office	Pike Market Mixed	N/A	Partial acquisition, 600 square feet	N/A
1976200300	Inter CO-OP USA No. 7	Office	Pike Market Mixed	N/A	Partial acquisition, 1,100 square feet	N/A
257028000	Not applicable	Mixed Use	Pike Market Mixed	N/A	Partial acquisition, 1,600 square feet	N/A
7666202380	Whetzel, Jonathan F.	Parking	Downtown Harborfront 2	N/A	Full acquisition, 13,249 square feet	Full acquisition, 13,249 square feet
0655000043	CCAS Property and Construction	Church	Downtown Mixed Residential	N/A	Full acquisition, 5,169 square feet and social service location	Full acquisition, 5,169 square feet and social service relocation
0655000045	2331 LLC	Retail/Service	Downtown Mixed Residential	N/A	Partial acquisition, 900 square feet	N/A
0656000480	Martin Selig	Office	Downtown Mixed Residential	N/A	Partial acquisition, 350 square feet	Partial acquisition, 350 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
0696000160	City of Seattle	Government Service	Downtown Mixed Commercial	N/A	Partial acquisition, 350 square feet	Partial acquisition, 350 square feet
0697000064	Sabey Corporation	Multi-Family/Other Housing	Downtown Mixed Commercial	N/A	Partial acquisition, 150 square feet	Partial acquisition, 150 square feet
0697000340	Clise Properties Inc.	Parking	Downtown Mixed Commercial	N/A	Partial acquisition, 250 square feet	Partial acquisition, 250 square feet
0656000255	223 Taylor Corporation	Office	Downtown Mixed Residential	N/A	Partial acquisition, 350 square feet	Partial acquisition, 350 square feet
0697000325	Clise Properties Inc.	Retail/Service (car wash)	Downtown Mixed Commercial	N/A	Partial acquisition, 350 square feet	Partial acquisition, 350 square feet
5247800201	Merrill Place LLC	Parking	Pioneer Square Mixed	N/A	N/A	Full acquisition, 25,978 square feet and business relocation
5247800203	Cedarstrand Rentals LLC	Office	Pioneer Square Mixed	N/A	N/A	Full acquisition, 10,572 square feet and business relocation
1991200815	ARE Seattle No. 19 LLC	Retail/Service/Vacant	Seattle Mixed	Full acquisition, 18,175 square feet	Full acquisition, 18,175 square feet	Full acquisition, 18,175 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
199120 0845	Cedarstrand Properties LLC	Office	Seattle Mixed	Full acquisition, 38,880 square feet and business relocation	N/A	N/A
198820 1090	City of Seattle maintenance yard	Vacant	Seattle Mixed	Full acquisition, 73,400 square feet	Full acquisition, 73,407 square feet	Full acquisition, 73,407 square feet
198820 1175	Parkey Properties Inc.	Vacant	Seattle Mixed	Full acquisition, 1,000 square feet	Full acquisition, 1,051 square feet	Full acquisition, 1,051 square feet
198820 1155	Iris Holdings LLC (Gates Foundation Campus)	Office	Neighborhood Commercial 3	Partial acquisition, 15,570 square feet	Partial acquisition, 80,500 square feet	Partial acquisition, 80,500 square feet
1988201285	Interstate Brands Corp.	Industrial	Seattle Mixed	Partial acquisition, 48 square feet	Partial acquisition, 51 square feet	Partial acquisition, 51 square feet
1988201245	City Investors XX LLC	Office	Seattle Mixed	Partial acquisition, 200 square feet	N/A	N/A
2249000190	Seattle Department of Transportation	Vacant (maintenance yard with equipment storage)	Commercial 1	N/A	Full acquisition, 6,599 square feet	Full acquisition, 6,599 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
2249000150	PFHC-Investments LLC	Retail/Service	Commercial 1	N/A	Full acquisition, 25,920 square feet and business relocation	Full acquisition, 25,920 square feet and business relocation
1991200800	SRI Enterprise LLC	Retail/Service	Seattle Mixed	N/A	Full acquisition, 19,007 square feet and business relocation	Full acquisition, 19,007 square feet and business relocation
1991200730	Quality Inn & Suites	Retail/Service	Seattle Mixed	N/A	Full acquisition, 33,214 square feet and business relocation	Full acquisition, 33,214 square feet and business relocation
516550000	Owner not listed	Multi-Family/Other Housing	Seattle Mixed	N/A	Full acquisition, 22,768 square feet and residential relocation (approximately 132 units)	Full acquisition, 22,768 square feet and residential relocation (approximately 132 units)
1991201050	City Investors XV LLC	Parking	Seattle Mixed	N/A	Partial acquisition, 4,915 square feet	Partial acquisition, 4,915 square feet
2249000120	Seattle Department of Transportation	Terminal/Warehouse	Seattle Mixed	N/A	Full acquisition, 24,192 square feet	Full acquisition, 24,192 square feet
2249000370	Sebco Inc.	Vacant	Seattle Mixed	N/A	Partial acquisition, 1,100 square feet	Partial acquisition, 1,100 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
2249000245	702 Aurora North Joint Venture	Office	Seattle Mixed	N/A	Partial acquisition, 2,500 square feet	Partial acquisition, 2,500 square feet
2249000265	Bauer Brent A.	Office	Seattle Mixed	N/A	Full acquisition, 12,152 square feet and business relocation	Full acquisition, 12,152 square feet and business relocation
1991200685	Lankri Zion	Retail/Service	Seattle Mixed	N/A	Full acquisition, 12,423 square feet and business relocation	Full acquisition, 12,423 square feet and business relocation
2249000220	Pagliacci Pizza	Mixed Use	Commercial 1	N/A	Partial acquisition, 600 square feet	Partial acquisition, 600 square feet
2249000195	Prince Chubby LLC	Vacant	Commercial 1	N/A	Partial acquisition, 600 square feet	Partial acquisition, 600 square feet
1988200705	City of Seattle/KCTS Channel 9	Utility	Neighborhood Commercial 3	N/A	Partial acquisition, 2,200 square feet	Partial acquisition, 2,200 square feet
2249000200	Prince Chubby LLC	Vacant	Commercial 1	N/A	Partial acquisition, 600 square feet	Partial acquisition, 600 square feet

Exhibit 1-3. Summary of Full and Partial Property Acquisitions and Relocations for Each Build Alternative (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Build Alternatives		
				Bored Tunnel	Cut-and-Cover Tunnel	Elevated Structure
Totals by alternative	<p>Bored Tunnel Alternative 6 full acquisitions: 304,455 square feet (approximately 6.98 acres) 6 partial acquisitions: 33,710 square feet (approximately 0.77 acre) 3 business relocations</p> <p>Cut-and-Cover Tunnel Alternative 16 full acquisitions: 279,069 square feet (approximately 6.40 acres) 24 partial acquisitions: 119,288 square feet (approximately 2.74 acres) 1 residential condominium building (approximately 132 units) 1 social resource 7 business relocations</p> <p>Elevated Structure Alternative 16 full acquisitions: 311,076 square feet (approximately 7.14 acres) 19 partial acquisitions: 113,437 square feet (approximately 2.61 acres) 1 residential condominium building (approximately 132 units) 1 social resource 8 business relocations</p>					

N/A = not applicable

WOSCA = Washington-Oregon Shippers Cooperative Association

¹Existing land uses and zoning (City of Seattle 2009).

Viaduct Closed (No Build Alternative)

The Viaduct Closed (No Build Alternative) assumes that one of two scenarios would occur: (1) an unplanned closure of the viaduct for some structural deficiency, weakness, or smaller earthquake event; or (2) a catastrophic and complete collapse of the viaduct. Any collapse, whether partial or complete, would result in a sudden disruption to traffic flow, which would affect adjacent residences and businesses that rely on the viaduct for access. Disruption of traffic flow would also include industrial traffic using the viaduct for access to cargo transfer areas in the study area and industrial areas to the south, as well as north-south traffic. Any collapse could also result in existing land uses near the viaduct being struck by debris.

Under a complete collapse, disruptions to traffic flow would likely affect an area larger than that of nearby residences and businesses, and the disruptions would last for a longer period. Except for a complete collapse, it is expected that effects on land uses would last a relatively short time, until the damaged area or impaired use could be replaced and full access restored.

Bored Tunnel Alternative

The Bored Tunnel Alternative would convert only a few land uses in the south and north portal areas from primarily office, retail, service, and commercial uses to transportation uses due to right-of-way acquisitions. Replacement of the aerial viaduct structure with an underground tunnel would also provide enhanced opportunities for improved connections, both physically and visually, between the waterfront and downtown. Twelve properties have been identified to acquire in full or in part to accommodate the Bored Tunnel Alternative. However, no change in zoning or amendment to existing land use plans would be required. Full and partial property acquisitions are discussed in Sections 5.1.2 and 5.2.2.

Subsurface property acquisitions of 55 parcels would be required for the proposed 56-foot-diameter bored tunnel (see Attachment A). The subsurface property acquisitions would consist of a three-dimensional corridor below the surface of the ground for the tunnel, and they would not affect existing land uses on the surface. Future development would need to consider the boundaries of the subsurface property that would be acquired for the tunnel. A net loss of approximately 390 on- and 250 off-street parking spaces is expected. The removal of off-street parking spaces would not result in any land use nonconformities with respect to accessory parking requirements.

Unlike the existing viaduct, the Bored Tunnel Alternative would not provide downtown access ramps to and from SR 99 at Columbia and Seneca Streets or at Elliott and Western Avenues. New ramps would be built from northbound SR 99

to Alaskan Way S. and from Alaskan Way S. to southbound SR 99 near S. Royal Brougham Way. Less direct and less convenient access due to removal of the downtown access ramps may result in some degree of inconvenience for travelers, and businesses in the central downtown area could experience disruptions in the flow of customers and employees and in the delivery or shipment of materials and supplies.

Businesses along the east side of SR 99, between Harrison and Mercer Streets, would no longer have direct access to and from SR 99. However, these businesses would have other access points on Harrison and Republican Streets, as well as access via the alleyway between SR 99 and Dexter Avenue N. Less direct and less convenient access for these businesses could affect their operations. The Bored Tunnel Alternative would be consistent with the City's policies to coordinate transportation and development in a manner that concentrates and intensifies urban development. It would provide mobility and access options that could accommodate higher densities and reduce land consumption. Because the Bored Tunnel Alternative would be compatible with state, regional, and local plans, policies, and implementing regulations, no mitigation would be required for compliance.

The overall effects of the Bored Tunnel Alternative on land use would be beneficial. Where property acquisition and relocation are unavoidable, the Washington State Department of Transportation (WSDOT) would follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Improvements in the south and north portal areas would increase east-west connectivity between neighborhoods and enhance accessibility to existing land uses in the area. Future development in both areas would also benefit from the increased accessibility.

Cut-and-Cover Tunnel Alternative

The Cut-and-Cover Tunnel Alternative would convert several land uses from primarily office, retail, service, and parking uses to transportation uses due to right-of-way acquisitions. Most of these conversions would occur in the central and north sections of the project area. A total of 40 properties have been identified to acquire in full or in part to accommodate the Cut-and-Cover Tunnel Alternative. No changes in zoning or amendments to existing land use plans would be required. Full and partial property acquisitions are discussed in Section 5.3.1.

Similar to the Bored Tunnel Alternative, replacing the aerial viaduct structure with a cut-and-cover tunnel would also provide enhanced visual connections between the waterfront and downtown. However, future development in this

area would likely occur in the form of modest extensions to buildings on the east side of Alaskan Way or buildings that might extend slightly into the Alaskan Way right-of-way from parcels on the east.

A net loss of approximately 690 on- and 500 off-street parking spaces is expected, resulting in increased competition for the remaining parking.

The Cut-and-Cover Tunnel Alternative would not include downtown access ramps from and to SR 99 (current ramps are a southbound off-ramp and a northbound on-ramp at First Avenue S., a southbound on-ramp from Columbia Street, and a northbound off-ramp at Seneca Street). New ramps would be built in the north and south portal areas, as well as near the existing Battery Street Tunnel south portal. Less direct and less convenient access due to the removal of the downtown access ramps may result in some degree of inconvenience for travelers, and businesses in the central downtown area could experience disruptions in the flow of customers and employees and in the delivery or shipment of materials and supplies.

Where property acquisitions and relocations are unavoidable, WSDOT would follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Elevated Structure Alternative

The Elevated Structure Alternative would convert several land uses from primarily office, retail, service, and parking uses to transportation uses due to right-of-way acquisitions. Most of these conversions would occur in the central and north sections of the project area. A total of 35 parcels have been identified to acquire in full or in part to accommodate the Elevated Structure Alternative. No change in zoning or amendment to existing land use plans would be required. Full and partial property acquisitions are discussed in Section 5.4.1.

Unlike the other two build alternatives, the Elevated Structure Alternative would not provide many opportunities for redevelopment along the project alignment, because the new elevated structure would use the same waterfront right-of-way without creating new areas of open space in which future development could occur. The new elevated structure would be wider than the existing structure; therefore, the “barrier effect” created by the large aerial structure between the waterfront and downtown would be greater.

One existing use that would be affected throughout construction and beyond is the parking under and around the viaduct. Under the current project plans, existing parking areas beneath the viaduct would be closed and/or removed during the initial construction stages in each specific area in which work is to

occur. Both on-street parking spaces and off-street parking (garages and surface lots) may be affected.

The Elevated Structure Alternative is expected to result in a net loss of approximately 1,380 parking spaces in the project area. Since the current demand for much of the available parking downtown is high, this net loss is likely to result in greater competition for the remaining parking spaces.

Where property acquisition and relocation are unavoidable, WSDOT would follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

1.3.4 Indirect Effects

The build alternatives would represent only one of numerous ongoing improvements in Seattle. Overall, many factors influence decisions about land use, including economic conditions, zoning, and land supply. Because the build alternatives would replace an existing facility to satisfy safety requirements and projected traffic demands, they are not likely to have large, if any, influences on these factors. Their potential for inducing growth would be minor.

With the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative, future development along a new Alaskan Way would likely occur in the form of modest expansions of existing buildings on the east side of the roadway. In addition, substantial changes would occur in the relationship between the waterfront and upland properties leading to the downtown core. With either of these alternatives, new development on vacant or under-used property or redevelopment may take place around the new Alaskan Way surface street. As with the existing viaduct, the Elevated Structure Alternative would be perceived as a barrier to waterfront uses.

The SR 99 corridor has an influence on areas beyond the immediate neighborhoods through which it passes. Many of the daily commuters now using this route live in neighborhoods north and south of downtown, such as Ballard, Fremont, Greenwood, West Seattle, White Center, and Georgetown. For these commuters, the viaduct offers a convenient route either to downtown or around the city without using I-5. The Bored Tunnel Alternative may have an influence on growth in neighborhoods where the area's desirability is in part facilitated by the ease of access to downtown Seattle, including commute, retail, and residential trips.

The loss of on- and off-street parking with the build alternatives would result in less convenient access to businesses by patrons and, therefore, would represent an adverse effect.

1.3.5 Construction Effects and Mitigation

Construction-related detours, closures, and traffic congestion would cause changes in mobility on streets in the project area. Temporary roadway closures are expected to result in a redistribution of traffic. Traffic congestion could be a temporary inconvenience for those traveling to and from the Seattle Ferry Terminal at Colman Dock and businesses along the waterfront. In addition, transit service could be adversely affected by construction-related detours.

Throughout the duration of construction, on-street parking spaces in the south and north sections of the study area would be temporarily unavailable. Pedestrian and vehicle access, including freight deliveries to buildings in these areas, may be affected for the entire construction period. The loss of parking, especially on-street, short-term parking, could reduce the convenience of access to land uses, especially in the south area. The greatest changes in mobility would occur in the north section of the study area, where traffic would be diverted along the west side of SR 99.

Under the Bored Tunnel Alternative, construction is estimated to take up to 65 months. Potential impacts experienced by adjacent land uses from construction-related activities would be of much shorter duration than those of the Cut-and-Cover Tunnel Alternative (105 months) and the Elevated Structure Alternative (120 months). With all of the build alternatives, the existing viaduct would be removed. Utilities located on and, where necessary, under the viaduct would be relocated. The economic effect of construction on businesses is discussed in Appendix L, Economics Discipline Report.

During demolition of the existing viaduct and ramps, businesses and residents would experience noise, vibration, reduced access and parking, and traffic congestion. These effects would primarily apply to buildings along Alaskan Way, between S. Jackson and Columbia Streets and near the ramps on Columbia and Seneca Streets.

It is anticipated that the existing viaduct structure would be taken apart piece by piece, and the vibration associated with demolition and removal is not expected to be substantial. Businesses and residents would be able to continually occupy the buildings but may be affected by noise, dust, and limited access. Businesses on the central waterfront piers may also be affected by noise, dust, and limited access, but to a lesser extent. Demolition of the viaduct would require various surface street closures at several locations during the 9-month removal period. During the viaduct demolition, pedestrians would be rerouted from the work zone to alternate routes in the area from S. King Street to Battery Street.

Under the Bored Tunnel Alternative, the decommissioning of the Battery Street Tunnel is not expected to result in any effects on land uses. Land uses at both

ends of this structure would be served by new roadway connections that would improve accessibility to SR 99 and the surrounding roadway network.

Construction associated with the Bored Tunnel Alternative would require 4 temporary tieback easements and 32 temporary construction easements. The construction easements for this alternative would include the L&B Property Investments property (Western Building on parcel 7666202570). The Western Building is used by 118 tenants who use the spaces as studios. Building stabilization activities would require the relocation of the 118 tenants while the building is reinforced to reduce the risk of damage during tunneling.

The Cut-and-Cover Tunnel Alternative and the Elevated Structure Alternative would require 27 and 24 temporary tieback easements for the Battery Street Tunnel, respectively. The Cut-and-Cover Tunnel Alternative would also require three temporary construction easements, and the Elevated Structure Alternative would require six temporary construction easements. Some of the affected properties are privately owned parking lots that are open to the public. The temporary construction easements would remove some of the parking spaces in these lots from use during the 9-month viaduct demolition period.

Where right-of-way is needed, the property acquisition and potential relocations would occur before construction begins. The owners of the acquired property will be compensated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Washington Relocation Assistance—Real Property Acquisition Policy Act of 1970, as amended.

Mitigation measures for potential effects on land use during construction activities would include providing advance notice to property owners in the project area regarding demolition and construction activities, utility disruptions, and detours. Major special events at the sports stadiums and operations at the Pier 66 cruise ship terminal could limit construction activities.

1.3.6 Tolling

All three build alternatives may be subject to tolling, which represents an additional source of project funding. It would allow the state to sell bonds to fund a portion of the construction. The bonds would be paid back through the collection of tolls over the operational life of the project. The SR 99 route would continue to be used by residents, business owners, and business employees to access various land uses in the study area. Since tolls would place a direct financial cost on motorists who use the facility, they may choose to avoid them and take alternate routes to their destinations.

Although tolling may benefit motorists directly through reduced congestion on SR 99, it may also result in a shift of traffic and congestion problems to other

routes and areas. The long-term indirect effects of tolling on land use may include residents and business owners deciding to relocate because of traffic congestion. However, tolling any of the build alternatives would not have direct effects on land uses or land use patterns in the study area. Appendix C, Transportation Discipline Report, discusses the potential traffic diversions and changes in traffic patterns and traffic volumes on the Seattle street network that would result from tolling the build alternatives.

Congestion that results from tolling would be especially prevalent in Pioneer Square. Depending on the level of congestion, motorists would face difficulty in accessing residences and businesses, including Port of Seattle facilities and the sports stadiums. Visitors to other neighborhoods in the study area might find it more difficult and more time consuming to access residences, workplaces, goods, and services, as well as recreational amenities. Businesses and service providers in the study area might experience greater difficulty in retaining customers and employees from outside the downtown area, in addition to difficulty in accessing inventory and controlling delivery costs. Additional information regarding potential effects on businesses is provided in Appendix L, Economics Discipline Report.

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Chapter 2 METHODOLOGY

The project team used maps, plans, and development regulations from the City to identify the existing land uses, zoning, and shoreline environment and critical areas designations in the study area. Field visits were conducted, and photographs were used to confirm existing land uses.

2.1 Regulatory Overview

The analyses of land use effects and relocations address the following laws, regulations, and guidance:

- WSDOT *Environmental Procedures Manual* (WSDOT 2010)
- City environmental policies and procedures (Seattle Municipal Code, Chapter 25.05 [SMC 25.05]) for implementing SEPA
- City regulations for environmentally critical areas (SMC 25.09)
- City Shoreline Master Program (SMC 23.60)
- Federal Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended

2.2 Study Area

The study area for this analysis encompasses the SR 99 corridor in the project vicinity. It comprises the urban environment of downtown Seattle that is generally bounded by I-5 to the east and Elliott Bay to the west. The southern boundary is S. Royal Brougham Way, and the northern boundary is Aloha Street (Exhibit 1-2). It includes the areas that would likely be affected by activities associated with the project, such as the proposed construction areas and demolition of the existing Alaskan Way Viaduct. The study area also includes other roadway and non-roadway elements of the Alaskan Way Viaduct and Seawall Replacement Program (Program).

For construction of the Bored Tunnel Alternative, the assumed area of immediate effect is one city block around all sides of the portal construction areas (south and north), all access ramps, all surface street modifications, and one block to either side of the existing viaduct alignment.

2.3 Analysis of Environmental Effects

The build alternatives were compared with land use maps to identify effects on land use, including the amounts of land and the uses of land required for new right-of-way, temporary effects during demolition and construction, and the types of land uses that would be displaced by property acquisitions.

Direct effects are described in terms of full and partial property acquisitions, changes in land use, changes in existing pedestrian or vehicle access to properties, potential relocations, and temporary disturbance to adjacent businesses and properties during demolition and construction. If a right-of-way need for the project would result in land use nonconformities (e.g., lot size, lot coverage, setbacks, parking, or removal of access), the acquisition is considered a full property acquisition. Acquisitions are presented in terms of acres of effect for each parcel. The parcel information includes existing land use and zoning. Permanent and temporary easements are also identified.

Indirect effects are described in terms of changes in land and shoreline use that may occur as a result of increases or decreases in accessibility or mobility; right-of-way disposal; or changes in noise, air quality, or visual quality. Other discipline reports are referenced for more information on each subject area.

Potential residential and business relocations resulting from property acquisitions include an estimate of the number of households or businesses to be displaced, the availability of similar housing or suitable business locations, and any anticipated relocation issues. Resident characteristics such as occupancy type (owner/tenant) are identified. Business relocation characteristics rely on information provided in Appendix L, Economics Discipline Report, and include the number, types, and sizes of businesses and the approximate number of employees. Housing characteristics are addressed in Appendix H, Social Discipline Report.

Consistency with applicable state, regional, and local land use plans and regulations is evaluated by assessing whether the Viaduct Closed (No Build Alternative) and each build alternative would support the type of growth and meet the needs of the community outlined in the plans and regulations.

2.4 Determination of Mitigation Measures

Mitigation measures are proposed to avoid or minimize effects on adjacent properties. The proposed mitigation measures address direct and indirect effects of the project on land use and relocation, including any effects that result from full or partial property acquisitions, disturbances during construction, and changes in existing access. The acquisition of property, including displacements and relocations, will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Chapter 3 STUDIES AND COORDINATION

The following information from the Seattle Department of Planning and Development and the Seattle Department of Transportation (SDOT) has been used to prepare this discipline report:

- Relevant land use and transportation plans, policies, and regulations
- Existing land uses and zoning
- Future land uses as identified in Seattle's Comprehensive Plan
- Planned development projects that are under construction or in permit/design review with the City
- Future development trends
- Property characteristics and population immediately adjacent to the project area
- Critical area designations
- Shoreline environments and designations

City maps and data from the Seattle and King County Assessors' records and field visits were used to identify parcel locations and characteristics. The conceptual plan drawings for each of the build alternative were reviewed to determine where parcels would be affected and where building relocations might be needed. Acquisitions were considered necessary where the alignment would cross existing parcels. The WSDOT *Environmental Procedures Manual* and FHWA NEPA guidelines provide guidance on addressing relocation issues of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Seattle Municipal Code also provides guidance regarding the prevention of unfair housing practices (SMC 14.08).

Information on the PSRC website, along with regional and state sources, was reviewed for background on land use characteristics, development trends, and land use and transportation plans and policies.

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Chapter 4 AFFECTED ENVIRONMENT

The SR 99 corridor passes through a variety of land use zones and types. The corridor lies entirely within the urban environment of downtown Seattle, with I-5 to the east and Elliott Bay to the west. The existing land uses and zoning for staging areas and construction work zones are discussed in Chapter 6, Construction Effects and Mitigation.

4.1 Existing Land Uses and Zoning

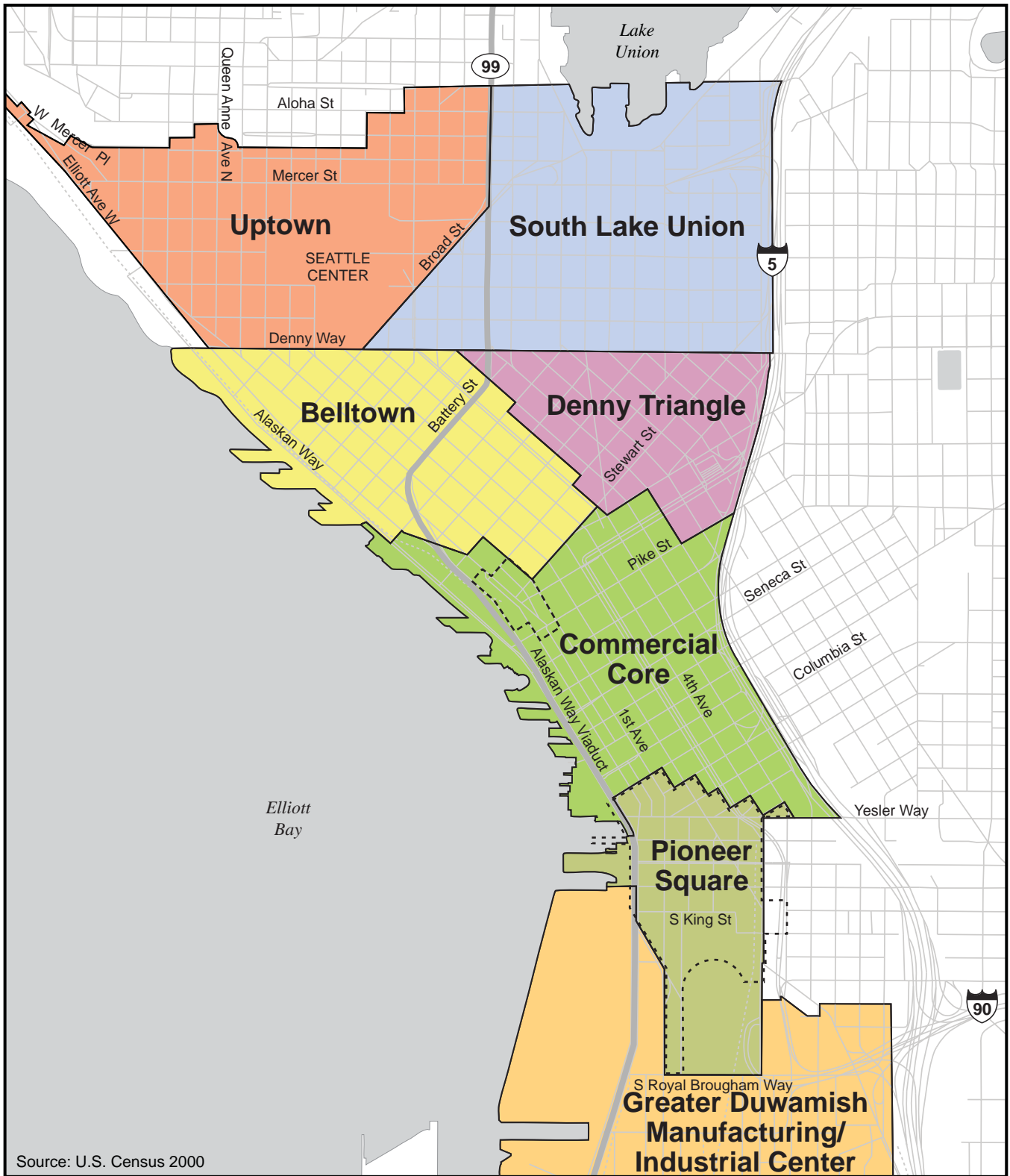
4.1.1 South

The southern portion of the study area includes portions of two Seattle neighborhood planning areas: the Greater Duwamish MIC and the Pioneer Square neighborhood. Exhibit 4-1 shows the neighborhood planning areas, including those in the southern portion of the study area. Land use types in the southern portion of the study area are shown on Exhibit 4-2.

Land use types in the Greater Duwamish MIC include primarily waterfront terminal/warehouse, retail, office, and recreation/entertainment uses. Some of the specific land uses that typify this area include the Starbucks office building, Safeco Field, the Bemis mixed-use building, and the new Stadium Technology Center currently under construction on Utah Avenue S. The Port of Seattle's Terminal 46 shipping container terminal is also located in this portion of the study area.

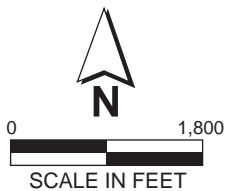
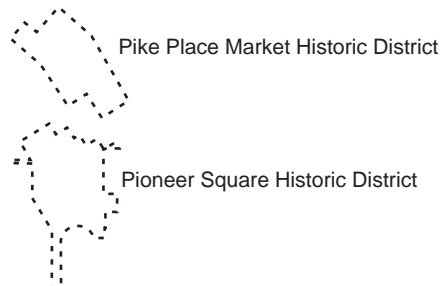
Land use types in the Pioneer Square portion of the study area include retail, office, terminal/warehouse, residential, parking, and recreation/entertainment uses. As one of the oldest neighborhoods in Seattle, most of the Pioneer Square area has been designated a historic district and is a focal point for many tourist and entertainment activities. Some of the specific land uses that typify this area include the following:

- Silver Cloud Inn
- Bites Restaurant
- Artists' Gallery of Seattle
- Worldwide Marble & Granite
- Palmer Building
- Squire Center
- Coastal Environmental Systems Inc.
- Fix Designs
- Elysian Fields Restaurant
- Sluggers Bar & Grill
- American Slate Company
- Azuma Gallery
- Picture Perfect
- Art Exchange Gallery
- Seattle's Historic Triangle Pub
- Florentine Condominiums
- Starbucks office building
- Qwest Field



Source: U.S. Census 2000

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**Exhibit 4-1
Neighborhood
Planning Areas**



4/14/11

Source: City of Seattle, 2009

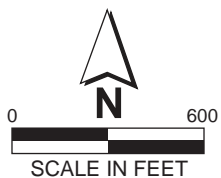


Exhibit 4-2
Existing Land Use Types - South

4.1.2 Central

The central portion of the study area includes portions of the Commercial Core, Belltown, and Denny Triangle neighborhood planning areas as well as the Pike Place Market Historic District. Exhibit 4-1 shows the neighborhood planning areas, including those in the central portion of the study area.

Land use types in the Commercial Core area are primarily retail, office, and parking, along with some residential uses. The primary land uses in the Belltown neighborhood are residential, office, and retail uses. Similarly, portions of the Denny Triangle neighborhood in the study area include office and residential uses. The Pike Place Market Historic District includes residential, office, retail, and parking uses. Land use types in the central portion of the study area are shown on Exhibit 4-3.

North of Yesler Way, the area begins to transition from Pioneer Square to the Central Business District (CBD) and the Pike Place Market in the Commercial Core neighborhood. In this area, land uses along the waterfront and adjacent to the viaduct on the west include the following:

- Seattle Ferry Terminal at Pier 52
- Fire Station No. 5 at Pier 53
- Ivar's Seafood and Ye Olde Curiosity Shop at Pier 54
- Red Robin restaurant at Pier 55
- Argosy Cruises and Elliott's Restaurant at Pier 56
- Bay Pavilion shops at Pier 57
- Seattle Aquarium at Pier 59

On the east side of the viaduct, buildings in this area include the Polson Building, Colman Parking Garage, Commuter Center Building, Maritime Building, Waterfront Place One, 1201 Western Building, Immunex Building, Seattle Steam Plant, Shurgard Mini Storage, Market Square Office Building, Hillclimb Court, and Market Place North Office Building.

4.1.3 North

The northern portion of the study area includes portions of four Seattle neighborhood planning areas: Belltown, Denny Triangle, South Lake Union, and Uptown. Exhibit 4-1 shows the neighborhood planning areas, including those in the northern portion of the study area.



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Source: City of Seattle, 2009

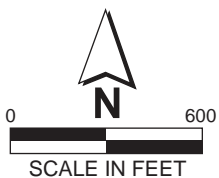


Exhibit 4-3
Existing Land Use Types - Central

As the SR 99 corridor turns northeast toward Lake Union, land use types are primarily a mix of office, retail, utility, parking, and residential. Land use types in the northern portion of the study area are shown on Exhibit 4-4.

Beginning at Denny Way and extending north to Mercer Street, specific land uses along Aurora Avenue N. on the west include a Shell service station, Starbucks Coffee, a residential condominium building, Quality Inn & Suites, Seattle Pacific Hotel, and a City of Seattle maintenance yard. On the east side of Aurora Avenue N., uses include a parking lot, Holiday Inn, King Broadcasting Company, Clark Construction, Hostess Cake Continental Bakery, and the School of Visual Arts. Land uses farther west on Sixth Avenue N. include residential apartment buildings, Walgreen's Drugstore, Seattle Housing Authority, Travelodge, office buildings, City Light substation, and the Bill and Melinda Gates Foundation site, which is currently under construction. Seattle Center is located west of the Gates Foundation site on Fifth Avenue N.

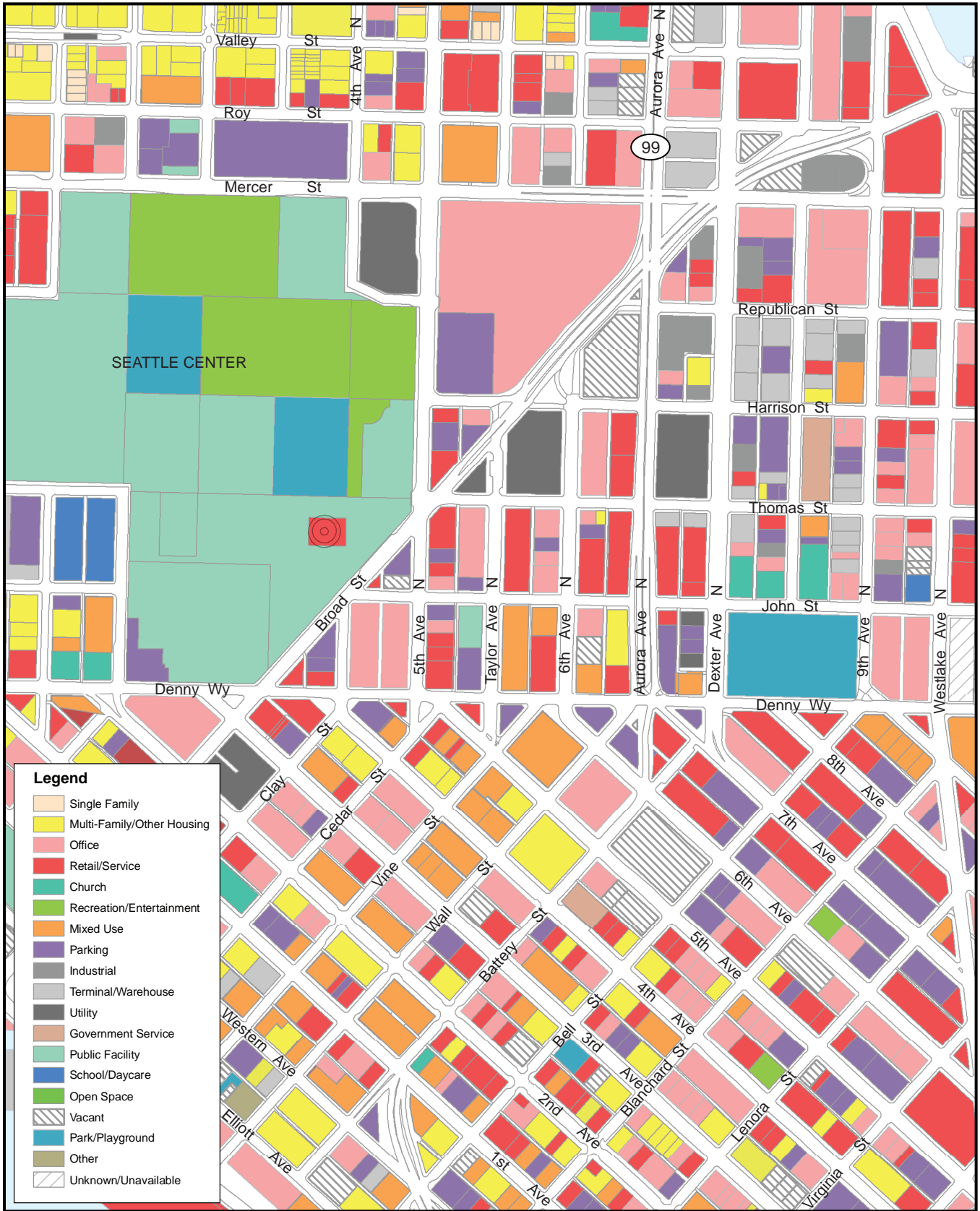
4.1.4 Zoning

The study area is subject to a number of zoning classifications, which generally allow for a variety of potential uses at different densities. The City's code specifies allowable uses; standards for parking; and building size, shape, and location within each zone. Development in the study area is consistent with height and density regulations in the existing zoning classifications, which are shown on Exhibits 4-5, 4-6, and 4-7. The zoning classification descriptions that apply to the study area are summarized below (Seattle Land Use Code [SMC Title 23]):

C1—Commercial 1: An automobile-oriented, primarily retail/service commercial area that serves surrounding neighborhoods as well as citywide or regional clientele; typical uses include large supermarkets, building supplies and household goods, and automobile sales and repairs. Building types include a variety of commercial structures, typically multistory office or mixed-use buildings, typically with parking.

DH1—Downtown Harborfront 1: Applies the Urban Harborfront Shoreline Environment designation to waterfront lots and the adjacent harborfront area within the boundaries of downtown.

DH2—Downtown Harborfront 2: Provides for commercial activities in support of shoreline goals and related office, commercial, and residential uses, where the intended scale of development is moderate and an orientation toward the water exists. It is intended to provide a transition in scale and character between the waterfront and downtown.



Legend

- Single Family
- Multi-Family/Other Housing
- Office
- Retail/Service
- Church
- Recreation/Entertainment
- Mixed Use
- Parking
- Industrial
- Terminal/Warehouse
- Utility
- Government Service
- Public Facility
- School/Daycare
- Open Space
- Vacant
- Park/Playground
- Other
- Unknown/Unavailable

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Source: City of Seattle, 2009

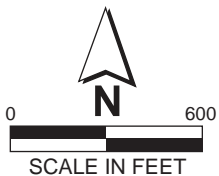
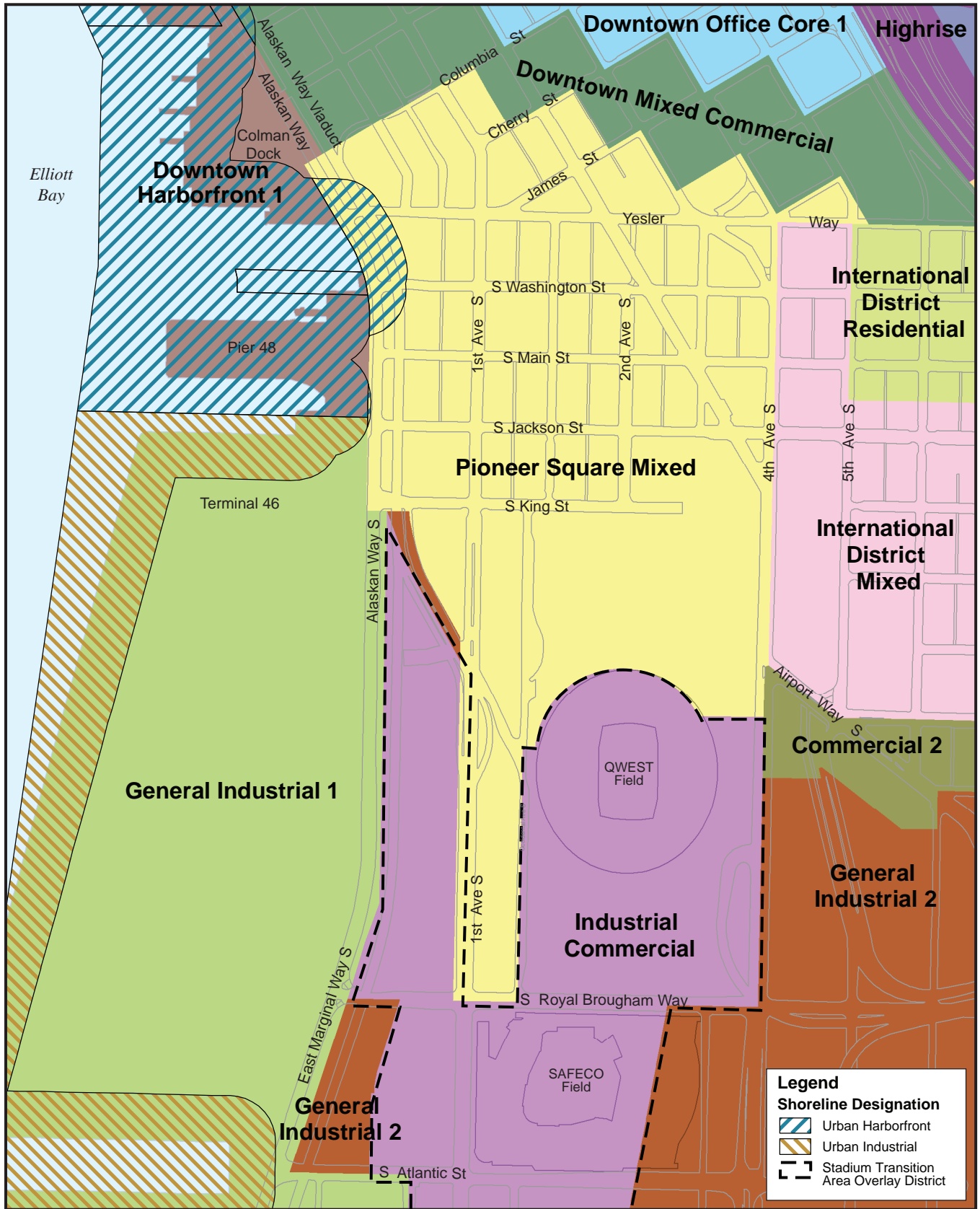


Exhibit 4-4
Existing Land Use Types - North



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Source: City of Seattle, 2009

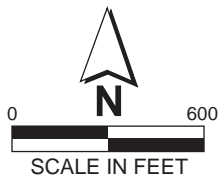
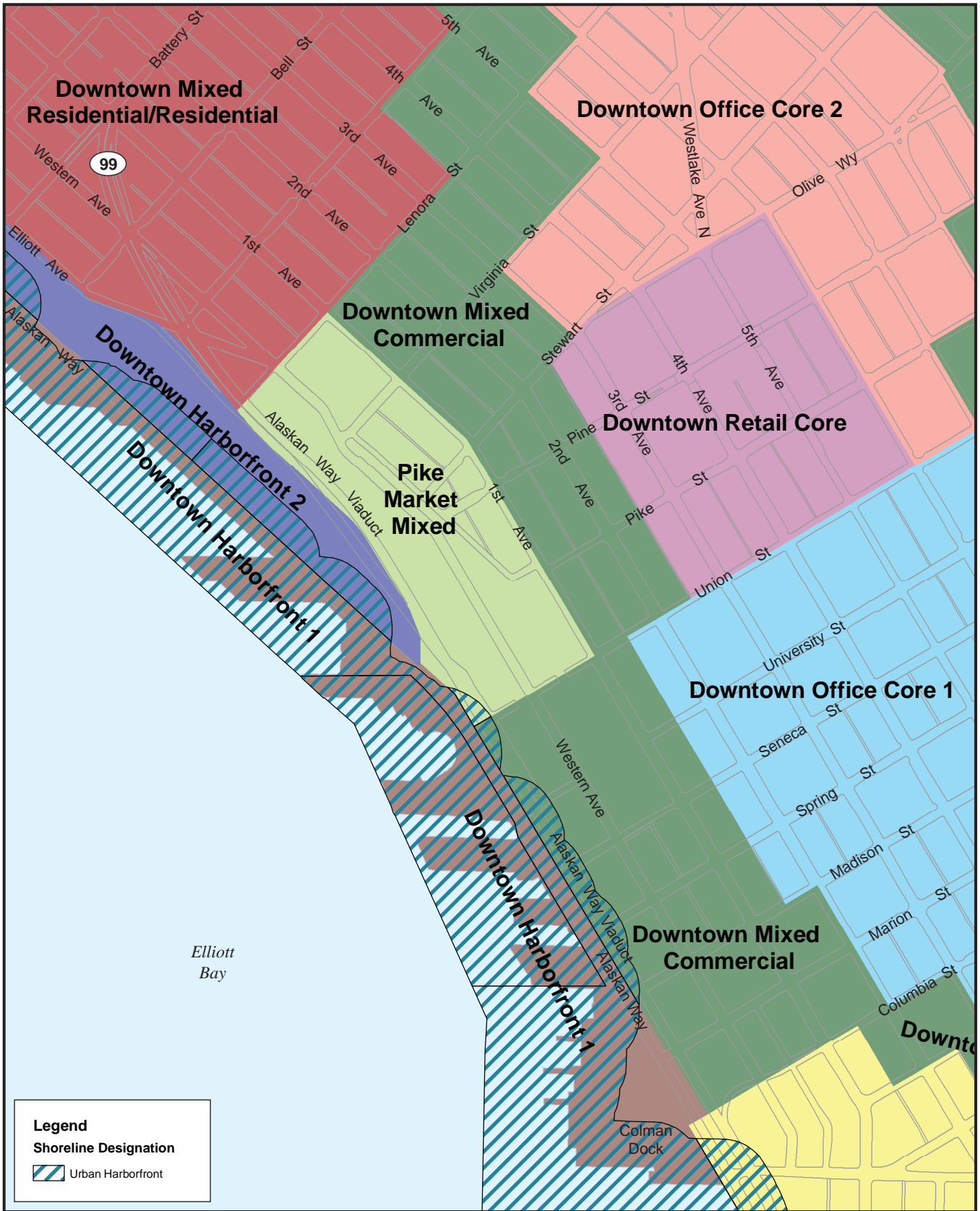
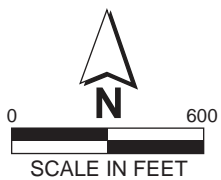


Exhibit 4-5
Zoning and Shoreline Environment
Designation Map - South

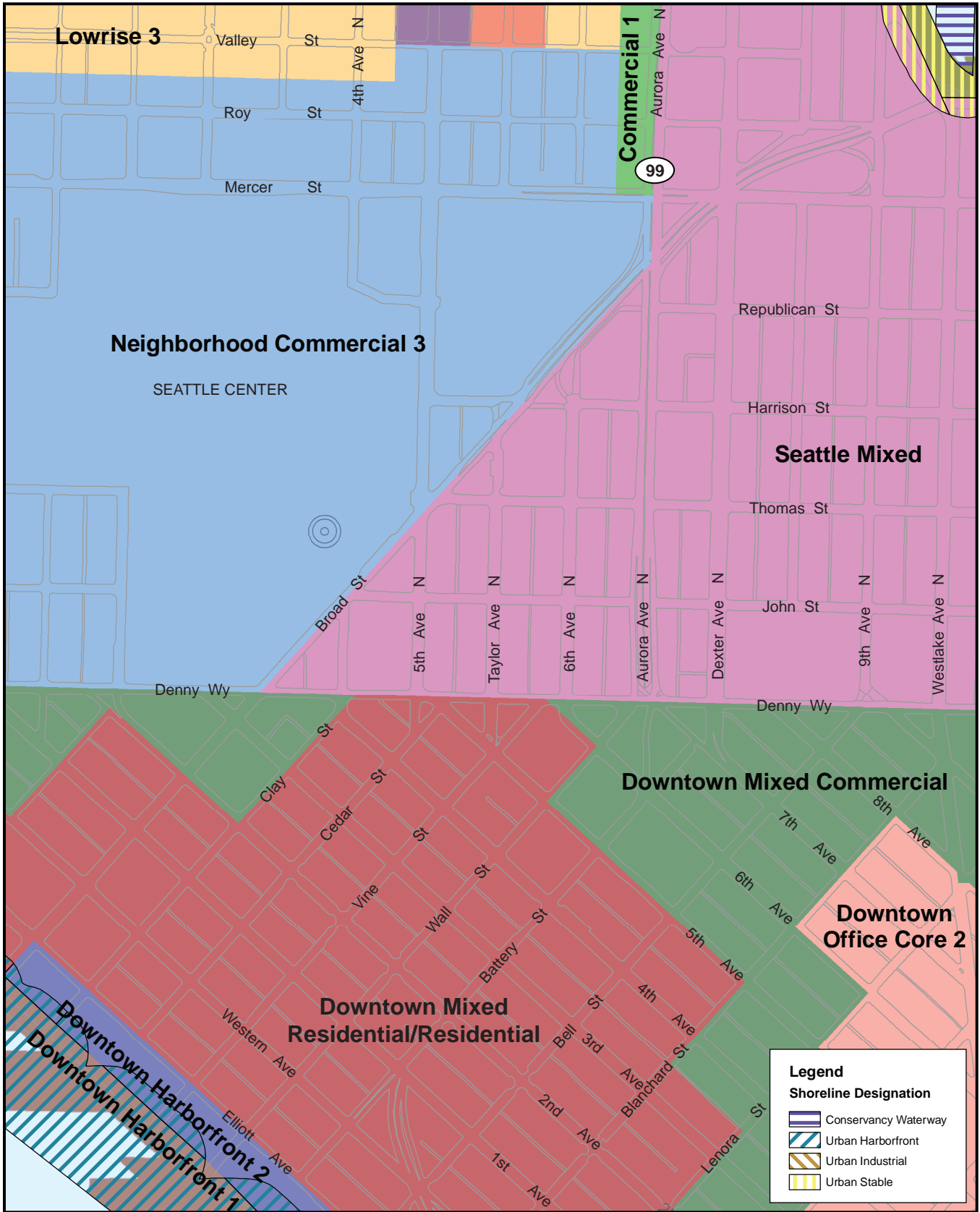


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Source: City of Seattle, 2009



**Exhibit 4-6
Zoning and Shoreline Environment
Designation Map - Central**



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Source: City of Seattle, 2009

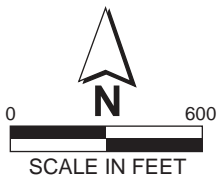


Exhibit 4-7
Zoning and Shoreline Environment
Designation Map - North

DOC1—Downtown Office Core 1: Provides for high-density office and commercial activities with related support services and retail shopping. The density of office activity should be greater than in any other part of downtown, with the greatest concentration of large buildings of primarily office and commercial use.

DOC2—Downtown Office Core 2: Provides for a range of high-density office and commercial activities with retail shopping and support services closely related to the primary office core. The density of development is not as great as in the DOC1 zone. Large-scale office buildings are appropriate when they do not adversely affect the pedestrian environment or existing development determined desirable for preservation.

DMC—Downtown Mixed Commercial: Historically a warehouse and commercial district serving the waterfront, this area currently serves as a transition between the Pike Place Market, the waterfront, Pioneer Square, and the office core. The transition area between the Pike Place Market and the retail core contains several commercial, office, and residential buildings. Land uses transition from the higher-density office buildings in the DOC1 to older office/warehouse-style buildings near the waterfront and Pioneer Square that have historical character. However, newer residential complexes (such as Harbor Steps) and institutional uses (such as the old Federal Office Building) are also present.

DMR—Downtown Mixed Residential: Provides a mixed-use community where housing and associated services and amenities predominate. Office, retail, and other commercial uses are compatibly integrated with the predominant residential character at low to moderate densities.

DRC—Downtown Retail Core: Provides highly concentrated, regional retail shopping activity in the core of downtown. Retail shopping, entertainment, and consumer services predominate at street level, with related and supporting uses in the upper floors of buildings. Office and other commercial uses may also be present, but at a density and scale of development that does not conflict with the primary retail function or make the street environment less conducive to shopping.

IC—Industrial Commercial: This zone is intended to promote development of businesses that incorporate a mix of industrial and commercial activities, such as light manufacturing and research and development facilities, while allowing for a wide range of other employment activities. Residential uses are prohibited in this zone.

IG1—Industrial General 1: Protects marine and rail-related industrial areas from an inappropriate level of unrelated retail, residential, and commercial uses by

limiting these uses to a density or size limit lower than that allowed for heavy industrial uses. This zone also provides for ongoing, improved, redeveloped, and new water-dependent marine industrial land uses and activities. Full and partial acquisitions may lead to changes in land use due to reduced parcel size.

IG2—Industrial General 2: Allows for a broad range of uses where the industrial function of an area is less established than in IG1 zones and where additional commercial activity could improve employment opportunities and the physical condition of the area without conflicting with industrial activity.

NC3—Neighborhood Commercial 3: A larger pedestrian-oriented shopping district serving the surrounding neighborhood and a larger community, citywide, or regional clientele, allowing comparison shopping among a range of retail businesses. Land uses include supermarkets, restaurants, offices, hotels, clothing shops, business support services, and residences that are compatible with the area's mixed-use character. Building types are single-purpose commercial, multistory mixed-use, and residential structures.

Pioneer Square Mixed: The Pioneer Square Mixed zone applies to those areas that lie within the Pioneer Square Preservation District, north of those areas predominantly in manufacturing and industrial use and not contained within the International Special Review District.

PMM—Pike Market Mixed: Provides for less intensive uses than the surrounding zonings, in keeping with the Pike Place Market Historic District designation.

Stadium Transition Area Overlay District: The intent of this district is to improve the pedestrian environment of the area while also protecting the surrounding industrial uses and encouraging uses that are complementary to the stadiums. Land located within the Stadium Transition Area Overlay District is subject to the regulations of the underlying zone. In the event of a conflict between the provisions for the overlay and the underlying zone, the more restrictive provisions apply.

SM—Seattle Mixed: A zone that provides for a wide range of uses to encourage development of a mixed-use neighborhood.

4.1.5 Special Districts

The study area includes the Pioneer Square and Pike Place Market Historic Districts, where specific development policies apply (Exhibit 4-1). In the south portal area, the Stadium Transition Area Overlay District is intended to promote uses that are compatible with two major sports stadiums (Exhibit 4-5). This district supports pedestrian-friendly uses, including connections to the downtown

core, and it seeks to reduce potential conflicts with nearby industrial and commercial uses.

4.2 State, Regional, and Local Land Use and Transportation Plans and Implementing Regulations

Several state, regional, and local land use and transportation plans and implementing regulations are likely to apply to the project.

4.2.1 Washington State Plans and Regulations

Growth Management Act

Adopted in 1990, the GMA (Revised Code of Washington, Chapter 36.70A) requires state and local governments to manage statewide growth by identifying urban growth areas and preparing comprehensive plans, capital improvement programs, and development regulations. The GMA also requires the identification of transportation projects. The Alaskan Way Viaduct is considered an essential public facility under the GMA.

Washington Transportation Plan 2007–2026

The *Washington Transportation Plan 2007–2026* provides a framework and strategies to guide decisions and investments needed to develop Washington’s transportation system so that it serves the needs of its citizens, communities, and economy, while safeguarding the environment. The core principle of the investment guidelines is that the existing transportation system should not be allowed to deteriorate (Washington State Transportation Commission and WSDOT 2006).

Coastal Zone Management Program and Shoreline Management Act

Under the requirements of the CZM Act of 1972, of federal agency activities that affect coastal zone land uses, water uses, or natural resources must be consistent with the state’s CZM Program. The CZM Program is the State’s primary implementing mechanism to comply with CZM requirements. King County is one of 15 counties in the state’s coastal zone. The City of Seattle has its own Shoreline Master Program, which serves to implement the policy and provisions of the Shoreline Management Act, as well as the Shoreline Goals and Policies of the *City of Seattle Comprehensive Plan* (City of Seattle 2009), by regulating development of Seattle’s shorelines. The City’s Shoreline Master Program is being amended.

4.2.2 Regional Plans

VISION 2040/Transportation 2040

VISION 2040 provides a regional framework for long-range transportation planning that integrates freight, ferries, highways, local roads, transit, bicycling, and walking (PSRC 2009). The regional perspective for transportation recognizes the critical link between transportation and land use planning, economic development, and the environment. The focus of *VISION 2040* is to contain growth, concentrate new employment into urban centers, and link the centers with a high-quality multimodal transportation system. *VISION 2040* also provides the basis for the more detailed planning and investment strategies in the Metropolitan Transportation Plan (*Transportation 2040*) (PSRC 2010).

Transportation 2040 is an action plan for transportation in the central Puget Sound region for the next 30 years (PSRC 2010). This regional transportation planning document serves as the basis for state and federal transportation expenditures within the region. The transportation-related plans of the cities, counties, transit agencies, and the region form the basis of *Transportation 2040*.

Comprehensive Plan for Public Transportation

The *Comprehensive Plan for Public Transportation* sets the policy basis for the King County Department of Transportation, Metro Transit Division (Metro Transit) (King County 2007). It identifies goals, objectives, and high-level policies to guide the management and development of public transportation services. The plan was originally developed in 1993 as the Long Range Planning Framework, and it was updated and renamed *Comprehensive Plan for Public Transportation* in 2007. The update involved the addition of new policies to address locally developed transit services and transit-oriented development and to incorporate the Transit Now program.

Strategic Plan for Public Transportation, 2007–2016

The *Strategic Plan for Public Transportation, 2007–2016* was developed to provide the framework for transit service and capital investments through 2016 (King County 2009). Adopted in November 2007, the Strategic Plan replaced and updated the 2002–2007 *Six-Year Transit Development Plan* (King County 2004), with plans for transit, paratransit, and rideshare services and the associated supporting capital facilities in King County. The Strategic Plan also guides annual operating and capital program decisions that define King County Metro services. It also incorporates the voter-approved Transit Now program and includes new strategies to address transit-oriented development and locally developed transit.

The plan was amended in 2009 to reflect economic circumstances that have changed since 2007 and to align with the Metro 2010–2011 biennial budget.

4.2.3 Local Plans and Implementing Regulations

Seattle's Comprehensive Plan

The *City of Seattle Comprehensive Plan: Toward a Sustainable Seattle* (2004–2024) is a 20-year plan to guide growth and development in Seattle; it articulates basic policy choices and provides a flexible framework for adapting to real conditions over time. The plan can be amended annually to address changes in specific goals and policies (City of Seattle 2009).

Goals and policies established in all of the neighborhood plans within the study area were reviewed, and key policies within each plan were adopted into the overall Comprehensive Plan. Although the neighborhood plans in their entirety were not adopted by the City, goals and policies within these plans provide community direction intended to guide future activities within individual neighborhoods.

Engrossed Substitute House Bill 1959 was passed and signed into law in July 2009. It requires the City of Seattle to include a container port element in its Comprehensive Plan. When the container port element is developed and adopted into the plan, it will accomplish the following:

- Establish policies and programs that define and protect the core areas of port and port-related industrial uses in Seattle
- Provide reasonably efficient access to the core area through freight corridors within the city limits
- Identify and resolve key land use conflicts along the edge of the core area
- Minimize and mitigate incompatible uses along the edge of the core area to the extent practicable

Neighborhood Plans

A few of the neighborhood plans within the study area are in the preliminary stages of being updated and have gone through a recent review process. Status reports have been prepared for each of these neighborhoods to describe aspects such as population, development, housing affordability, transportation, parks, and neighborhood plan implementation. These reports will contribute to future policy decisions, including decisions about whether or how to update these neighborhood plans. All other neighborhoods in the study area have been the subject of recent extensive planning initiatives and are not included as part of the current review and update process.

The Livable South Downtown planning process addresses growth and planning issues specific to the neighborhoods of Pioneer Square, Chinatown/International District, and the northernmost edges of the Greater Duwamish MIC (City of Seattle 2006a). Specific goals include stimulating housing and jobs through zoning and land use decisions, promoting an integrated mix of uses, and supporting quality connections between neighborhoods and the downtown as a whole. The livable South Downtown planning/zoning process is expected to be completed by 2012. A summary of the goals and policies for each neighborhood plan within the study area is provided below.

Greater Duwamish Manufacturing and Industrial Center Plan (1999)

This plan provides goals and policies that are intended to ensure the vitality and expansion of manufacturing and industrial activity in the Greater Duwamish MIC. The plan presents the following primary objectives for this area:

- Restrict incompatible or competing land uses within the MIC
- Encourage manufacturing and industrial job retention and growth
- Establish a growth target of 10,680 new family-wage industrial jobs
- Retain and improve access to and transportation within the MIC
- Retain existing businesses and encourage new manufacturing and industrial development within the MIC

The plan designated the Greater Duwamish MIC as an industrial area, with a focus on providing family-wage, industrial-type jobs and limiting incompatible uses, such as residences and gathering places for the public. Retaining the manufacturing and industrial base as an important economic asset is the primary overall goal of the plan. Recent planning initiatives related to the Industrial Jobs Work Program have been associated with this neighborhood planning area (City of Seattle 1999a).

Pioneer Square Neighborhood Plan (1998)

This plan provides an update to the 1991 plan for the Pioneer Square Historic District. The 1991 plan provided proposals for capital improvements, identified sites where development should be encouraged, and recommended design guidelines for public space. The updated 1998 plan provides recommendations to achieve goals and policies of the former plan and includes goals for improving public spaces; increasing the range of housing stock; strengthening the economic base; and improving parking, transportation, and utility infrastructure (City of Seattle 1998). Recent South Downtown planning efforts have involved the Pioneer Square neighborhood.

Commercial Core Neighborhood Plan (1999)

This plan contains goals and policies for the Commercial Core area, the city's largest and most developed downtown neighborhood. The downtown Commercial Core includes Seattle's retail core, the financial center/office core, City and King County government centers, the central waterfront, and the Pike Place Market Historic District. The *Commercial Core Neighborhood Plan* presents the area's goals and policies for implementing the overall goal of Seattle's Comprehensive Plan to concentrate future growth in urban centers throughout the city. Two primary goals are identified: (1) create a major center for employment, tourism and conventions, shopping, and a residential neighborhood, resulting in a regional hub of cultural and entertainment activities; and (2) promote a unique neighborhood identity for the Commercial Core (City of Seattle 1999b). Recent planning efforts in this neighborhood have included the 2006 downtown zoning work.

Downtown Urban Center Neighborhood Plan (1999)

The 1999 neighborhood plan is an update of the 1985 *Downtown Land Use and Transportation Plan*. It includes goals and policies for five urban center villages within the Downtown Urban Center. As such, it provides a compilation of the more specific goals and policies included in the downtown urban village neighborhood plans.

The plan is discussed in the context of policies for land use, housing, transportation, human services, economic development, and capital facilities that may influence the Downtown Urban Center (City of Seattle 1999c).

Belltown Neighborhood Plan (1999)

Belltown lies within the Denny Regrade Urban Center Village. This plan includes elements for housing, commercial land use, transportation, pedestrian environment, public safety, and community enrichment. The plan outlines key strategies for achieving its goals. These strategies are to provide for the Green Streets and open space strategy within the neighborhood, sustain the overall character of Belltown, and sustain adequate parking in the neighborhood. Recommendations are made for each strategy, followed by individual goals and policies for each of the elements identified above (City of Seattle 1999d).

Denny Triangle Plan (1999)

This plan provides goals and policies intended to create a separate identity and future for the Denny Triangle area, distinct from downtown or the larger Denny Regrade area. It presents key integrated activities and identifies goals and policies for housing, land use, urban form, and transportation. Recent planning

initiatives in this neighborhood include the 2006 downtown zoning work (City of Seattle 1999e).

Uptown/Queen Anne Neighborhood Plan (1999)

The Uptown neighborhood (also known as Lower Queen Anne) is envisioned as a thriving and active mixed-use urban center village. The neighborhood plan recommends several actions that should be taken to fulfill its goal of making this location into a unique urban neighborhood. The plan calls for establishing a new conservation district to preserve historic and affordable apartment buildings, improving selected intersections, enhancing crossroads traffic flow, reducing heavy truck traffic to reduce pedestrian conflicts and promote safety, and establishing a neighborhood park (City of Seattle 1999f).

South Lake Union Neighborhood Plan (1999)

This plan focuses on three components for improving the South Lake Union area: neighborhood character, parks and open space, and transportation. The key recommendations for each of these elements are intended to establish long-range goals for future development in the area. The plan emphasizes the desire for mixed-use opportunities to provide work and recreation in the area, while maintaining and expanding commercial opportunities. Concerns about housing, environmental, transportation, and open space are also addressed (City of Seattle 1999g).

South Lake Union has continued to undergo significant changes. The neighborhood is expected to see much higher growth than it had planned for in the 1990s. Seattle's 2004 Comprehensive Plan update designated South Lake Union as an urban center anticipating the expected growth. The updated 2007 neighborhood plan includes large-scale redevelopment of the neighborhood and major public investments. Neighborhood planning activity in this area is ongoing.

Past planning initiatives for this neighborhood included the South Lake Union Transportation Study (SDOT and WSDOT 2004). The study calls for a number of transit, pedestrian, and bicycle improvements that, taken together, would result in significant benefits to South Lake Union and the surrounding neighborhoods. Such benefits include reconnecting the growing neighborhood to the city, untangling streets, improving mobility for surrounding neighborhoods, promoting transit, and continuing a smooth flow of freight and people through the corridor.

Seattle's Transportation Strategic Plan (2005)

The *Transportation Strategic Plan* (City of Seattle 2005) describes the actions SDOT will take to accomplish the goals and policies in the Comprehensive Plan over the next 20 years. The plan helps to define key transportation issues raised by the City Council about the long-term and day-to-day operations of Seattle's transportation system and to initiate change within SDOT. The plan strategies are consistent with the direction of Seattle's Comprehensive Plan and PSRC's *Transportation 2040* plan. Key themes of the strategic plan include improving safety, preserving and maintaining transportation infrastructure, supporting the urban village land-use strategy, and providing mobility and access through transportation choices.

Seattle Land Use Code

The purpose of the Seattle Land Use Code (SMC Title 23) is to protect and promote public health, safety, and general welfare through a set of regulations and procedures that are consistent with and implement the Seattle's Comprehensive Plan. The Land Use Code classifies land within the city into various zones and overlay districts that regulate the use and development standards; height and size restrictions for buildings and structures; and setback, parking, landscaping, and view requirements.

The provisions are designed to provide adequate light, air, access, and open space; conserve the natural environment and historic resources; maintain a compatible scale within an area; minimize traffic congestion; separate incompatible land uses; and enhance the streetscape and pedestrian environment. They seek to achieve an efficient use of the land without major disruption of the natural environment and to direct development to sites with adequate services and amenities.

Environmentally Critical Areas

The City designates environmentally critical areas where existing conditions warrant specification of potential hazards or protection of critical areas. The shoreline area along the harborfront has been identified as a potential seismic liquefaction zone. This designation refers to the potential instability of soils during an earthquake, given that much of the study area is underlain by old fill material. Critical areas maps also identify several steep slope areas scattered near the waterfront. Steep slope areas may be subject to slide conditions if overburdened by extensive development. Refer to Appendix P, Earth Discipline Report, for more detail.

Shoreline Master Program

The Shoreline Master Program constitutes the policies and regulations governing development and uses on and adjacent to marine and freshwater shorelines. These include Elliott Bay along with other waters of Puget Sound and Lake Washington, Lake Union, Lake Washington Ship Canal, Duwamish River, Green Lake, and associated wetlands and floodplains.

The City's current Shoreline Master Program defines shoreline environments, which are subject to development standards that must be met in addition to zoning requirements. Additional requirements for shoreline areas establish the types of land uses permitted and development regulations governing building size and other standards. The location of the shoreline environment designations relative to the southern, central, and northern portions of the study area are shown on Exhibits 4-5, 4-6, and 4-7. Two shoreline environments are designated in the study area:

UI-Urban Industrial: The purpose of the UI shoreline environment is to provide for efficient use of industrial shorelines by cargo and passenger terminals and other water-dependent and water-related industrial uses. Views must be secondary to industrial development, and public access must be provided mainly on public lands or in conformance with an area-wide public access plan.

UH-Urban Harborfront: The purpose of the UH shoreline environment is to encourage economically viable water-dependent uses to meet the needs of waterborne commerce, and facilitate the revitalization of downtown Seattle's waterfront. It also provides opportunities for public access and recreational enjoyment of the shoreline, preserves and enhances elements of historic and cultural significance, and preserves views of Elliott Bay and the land forms beyond.

Seattle's Central Waterfront Concept Plan (2006)

Mayor's Recommendations: Seattle's Central Waterfront Concept Plan addresses the downtown waterfront area extending approximately from Myrtle Edwards Park in the north to S. Atlantic Street in the south and from First Avenue in the east to the Elliott Bay shoreline in the west (City of Seattle 2006b). The plan describes the existing conditions and presents conceptual plans and policies for the central waterfront area. An overall principle guiding these efforts stresses the need to balance and integrate multiple uses, and in some cases competing uses, for the waterfront area. The plan was developed in anticipation of the removal of the Alaskan Way Viaduct. The concept plan includes specific recommendations for the Colman Dock/South Waterfront, Central Waterfront, and North Waterfront. The plan also proposes the creation of a Historic Piers District for Piers 54 through

59, which may include local or national historic designation for this area (City of Seattle 2006b).

The Central Waterfront Concept Plan includes a number of recommendations intended to form a design program for the planning area, including the following goals:

- Acknowledge the past, present, and future theme within the plan
- Develop a visual sequence of icons and public spaces along the length of the waterfront
- Incorporate green design in the redevelopment of the waterfront
- Enhance habitat in shallow shoreline areas and integrate habitat into the seawall design
- Create public spaces and integrate them with shoreline habitat along the seawall
- Reinforce existing east-west connections between the waterfront and Center City for pedestrians and vehicles
- Develop east-west connections that improve pedestrian movement between Center City and waterfront destinations
- Manage the flow of traffic on the Alaskan Way surface street for pedestrian, freight, and vehicle movement through the corridor
- Adjust regulations to allow building entrances and facades along the east edge of Alaskan Way
- Maintain Terminal 46 as a container facility

A design and project management/engineering team for Seattle's Central Waterfront project was selected in 2010. A preliminary schedule for design began in October 2010 and is expected to run until 2015; construction is scheduled to start in 2016 and to be complete in 2018. Throughout the design process, the Central Waterfront Partnerships Committee will meet on an ongoing basis and facilitate a process to engage the public in designing new public spaces.

Seattle Center Century 21 Master Plan (2008)

The *Seattle Center Century 21 Master Plan* (City of Seattle 2008) lays out a vision for the future of the campus over a 20-year period. The focus of the plan is to unify the open space at the heart of Seattle Center and create connections between the buildings on the periphery, the open spaces at the center, and the growing neighborhoods on the edges of the campus. The master plan calls for increasing the mode and frequency of transit, improving pedestrian connections to and through the campus, and making it easier and safer to access Seattle Center from

a vehicle, by bicycle, or on foot. The following future transportation-related projects are called for in the plan:

- A new underground multimodal transportation center and parking garage at the Memorial Stadium site that provides direct bus and truck loading to Seattle Center venues and patron parking
- Improved access with new emphasis on pedestrian safety, with better connections to and through the site, especially from transit stops
- A proposed bus stop on the west side of Seattle Center on First Avenue N. and Republican Street as part of the new RapidRide line between north downtown and Ballard
- Expansion of the South Lake Union streetcar to Seattle Center along the Central Line route

4.3 Development Activity and Trends

Development activity and overall land use characteristics in the study area continue to evolve from primarily employment-related uses to a major center for tourism, retail shopping, meeting and convention activities, and entertainment. Continuing long-term trends, downtown Seattle's land use character is a relatively dense and growing urban center, the largest in the Pacific Northwest. The downtown area has continued to evolve from a predominantly commercial office and retail center to a more diverse character that includes residential uses, shopping, convention and meeting facilities, tourism, and entertainment.

There has been an increased emphasis within the study area on providing more residential opportunities and better livability, placing residents close to jobs and amenities. In 2010, several residential development projects were under or scheduled to begin construction (Downtown Seattle Association 2010). Exhibit 4-8 shows the locations of recent development activity in the study area. Projects are divided into three categories: planned, currently under construction, and recently completed (Exhibit 4-9). Only a few projects scattered throughout the study area are planned for future development.

The area south of Seattle's Commercial Core includes Pioneer Square, the Stadium Transition Area Overlay District, and the Greater Duwamish MIC. Land uses in Pioneer Square are primarily tourist, services, and residential. The Stadium Transition Area Overlay District and the First Avenue S. corridor are a mix of industrial and commercial uses, consistent with City policies. This area generally trends toward increased diversity, with the presence of commercial uses mixed with warehouse and industry-oriented uses.

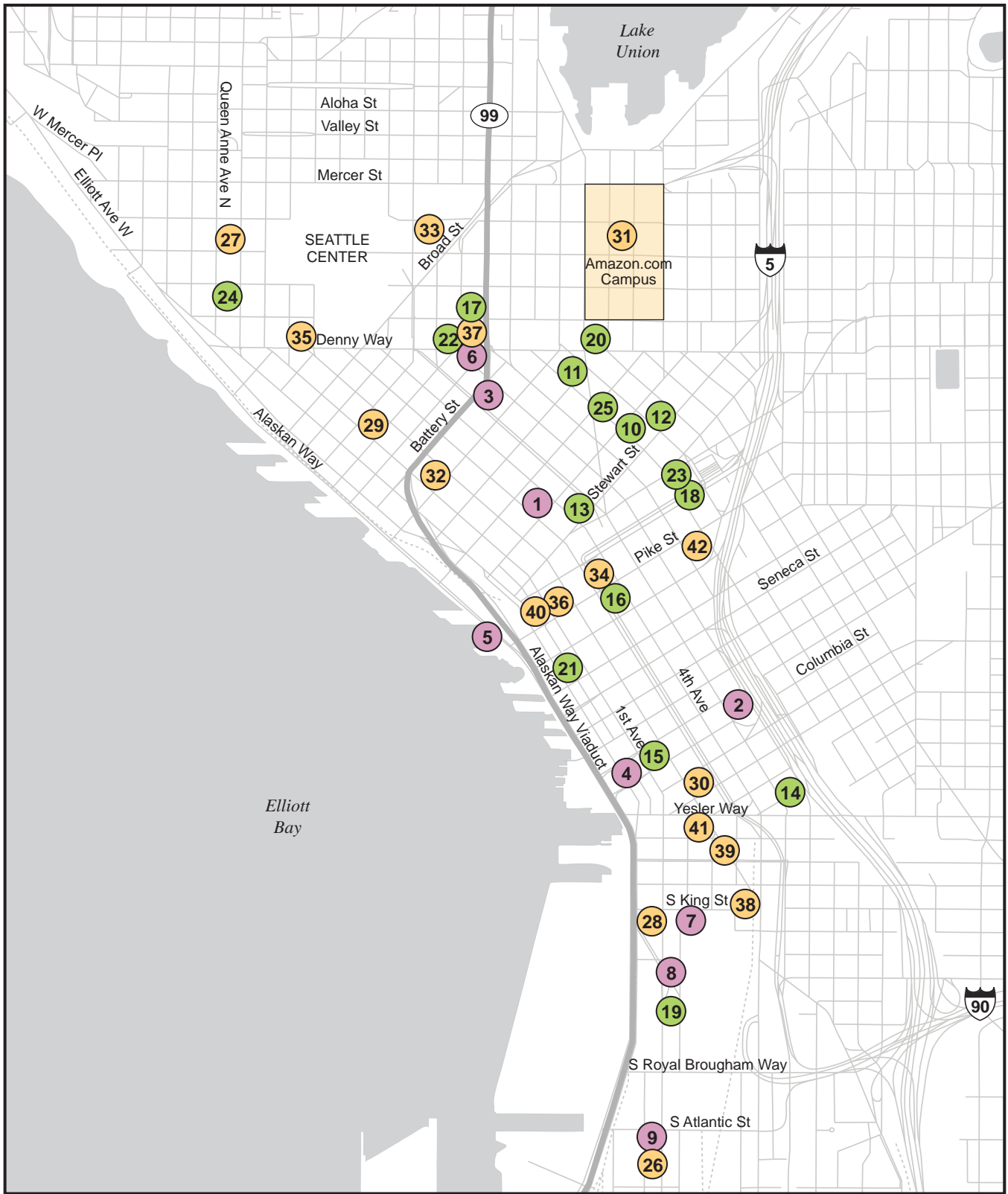
Infill and redevelopment trends in the past few years are mostly related to office and residential high-rise development in Belltown and the Denny Triangle. Residential densities in Belltown have increased, with a general pattern of office core infill and outward growth of the downtown office core. Similarly, infill development has occurred in the Pioneer Square neighborhood as part of an overall downtown growth trend. South of the Commercial Core, the trend has included occasional development projects that involve filling in available vacant parcels and remodeling existing buildings in Pioneer Square and along the First Avenue S. corridor. However, recent economic conditions have brought most short-term development prospects to a halt. The Port of Seattle continues to improve and redevelop existing marine cargo facilities in the UI and IG1 environments, particularly marine industrial locations west of East Marginal Way S. and Alaskan Way S., including Terminals 25, 30, and 46.

The Livable South Downtown planning and zoning process has identified City land use actions that may result in a more livable community by encouraging residential and job-related development in appropriate ways and by balancing local and regional uses while respecting the rich culture and history of the area.

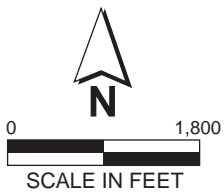
The Livable South Downtown legislation proposed by the Seattle Department of Planning and Development to the City Council would create new zoning classifications, modify development regulations, enact and amend affordable housing incentive programs, height and density bonuses, transfer of capacity provisions, and rezone areas within South Downtown. The bill is intended to stimulate the creation of housing and jobs through changes to land use regulations, while respecting neighborhood plans and neighborhood character. It also intends to promote an integrated mix of uses and support connections between neighborhoods.

Recent development activity in the south and north sections of the study area has primarily been a mix of residential and office-use developments, with more office and research/development uses in the north slightly farther away in South Lake Union.

A major development project currently underway in the north section of the study area is the Bill and Melinda Gates Foundation Campus. Located just east of Seattle Center, the foundation's global headquarters will include three 6-story office buildings with a combined 900,000 square feet of office space, visitors center, parking garage, and open space. The first two buildings will be completed by 2011 and the third will likely be completed by 2014 to 2017. Roadway access to the complex is expected to be provided along Fifth Avenue N., Harrison Street, and Mercer Street.



4/18/11



- Planned Projects
- Projects Recently Completed
- Projects Currently Under Construction

Note: Numbers correspond to Exhibit 4-9

Exhibit 4-8 Development Activity

Exhibit 4-9. Development Activity in the Study Area

	Name	Land Use ¹
Planned Projects		
1	2000 Third Avenue Apartments	Hotel/Residential
2	Fifth and Columbia Tower	Office
3	Insignia	Residential
4	Colman Residential	Residential/Mixed Use
5	Seattle Aquarium	Commercial
6	600 Wall Street	Residential/Commercial
7	Qwest Field North Lot	Residential/Office/Retail
8	Stadium Lofts	Residential/Commercial
9	Gull Industries	Office/Retail
Projects Recently Completed		
10	1918 Eighth	Office
11	2201 Westlake/Enso	Office/Residential
12	Aspira	Office
13	Escala	Residential
14	Fifth and Yesler Office Building	Office
15	Henry M. Jackson Federal Building (Renovation)	Government
16	Joshua Green Building (Renovation)	Office
17	Marselle	Residential
18	Olive 8	Hotel/Residential
19	Palmer Court Building	Office
20	Rollin Street Flats	Residential
21	Seattle Steam Company	Industrial
22	Taylor 28 and Denny Way Apartments	Residential
23	The Olivian	Residential
24	View 222	Residential
25	West 8 th	Office
Projects Currently Under Construction		
26	1531 Utah Avenue S.	Industrial
27	420 Queen Avenue N.	Residential
28	505 First Avenue South	Office
29	A.L. Humphrey House	Residential
30	Alaska Building-Marriott	Hotel/Residential
31	Amazon.com Campus	Office
32	Bakhita Gardens	Residential
33	Bill and Melinda Gates Foundation Campus	Office
34	Century Square (Renovation)	Retail
35	First United Methodist Church and Community Center	Cultural
36	Hard Rock Café	Retail

Exhibit 4-9. Development Activity in the Study Area (continued)

	Name	Land Use ¹
37	Hyatt Place Seattle/Sixth and Denny Apartments	Hotel/Residential
38	King Street Station Restoration	Transportation
39	Pacific Commercial Building	Office
40	Pike Place Market Renovation	Retail
41	The Metropole Building (Renovation)	Retail
42	Washington State Convention Center (Expansion)	Cultural

¹. Existing land uses (City of Seattle 2009).

The South Lake Union neighborhood in the north section of the study area has experienced substantial redevelopment in the last decade, with an increasing number of biotechnology and high technology companies. The most recent addition is the UW Medicine South Lake Union branch. In addition, Amazon.com has moved its global headquarters to a new 11-building campus in the South Lake Union neighborhood with full occupancy in 2011. The new campus is located south of Mercer Street, along Terry Avenue N. and the South Lake Union streetcar line. Each of the proposed campus buildings will include office space and street-level retail space; about 100,000 square feet of retail space is planned. In addition, the campus will include courtyard plazas and pockets of open green space. Redevelopment along the Mercer corridor has also begun in the last few years, and economic development efforts will continue, with several redevelopment projects along this corridor toward the South Lake Union neighborhood. The South Lake Union Height and Density Alternatives EIS (City of Seattle 2011) is evaluating how potential increases in height and density in the South Lake Union Urban Center would advance the goals of the City’s Comprehensive Plan and the recently adopted South Lake Union Urban Center Plan.

Chapter 5 OPERATIONAL EFFECTS, MITIGATION, AND BENEFITS

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

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 a build alternative were not implemented. If the existing viaduct were 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 use the Seattle surface streets to get to their final destination or take S. Royal Brougham Way to I-5. The consequences 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.

The Viaduct Closed (No Build Alternative) assumes that one of two scenarios would occur: (1) an unplanned closure of the viaduct for some structural deficiency, weakness, or smaller earthquake event; or (2) a catastrophic and complete collapse of the viaduct. Any collapse, whether partial or complete, would cause a sudden disruption to traffic flow, which would affect adjacent residences and businesses that rely on the viaduct for access. Disruption of traffic flow would also include industrial traffic using the viaduct for access to cargo transfer areas in the study area and industrial areas to the south, as well as north-south traffic. Any collapse could also result in the existing land uses near the viaduct being struck by debris.

Under the scenario of an unplanned closure due to structural weakness, effects on land uses would last a relatively short time, until the damaged area or impaired use could be repaired or replaced and full access restored. With a complete collapse, disruptions to traffic flow would likely affect an area larger than that of

nearby residences and businesses, and the disruptions would last for a longer period.

5.2 Operational Effects of the Bored Tunnel Alternative

The Bored Tunnel Alternative would begin at about S. Royal Brougham Way as a surface roadway that would transition to a cut-and-cover tunnel. SR 99 would be in a stacked tunnel, with two southbound travel lanes on the top and two northbound travel lanes on the bottom. The 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. At Stewart Street, it would travel in a northerly direction under the Belltown neighborhood. At Denny Way, the tunnel would travel under Sixth Avenue N., where SR 99 would transition to a side-by-side surface roadway at about Harrison Street. The Bored Tunnel Alternative would provide increased access to nearby land uses in the south and north portal areas.

5.2.1 Permanent Effects on Land Use

Only a few land uses in the south and north portal areas would be permanently changed by acquiring rights-of-way. The primary changes would be from office, retail, and commercial land uses to transportation uses. This conversion of land use is not expected to influence development activity or trends in those areas. In addition, land use under the Bored Tunnel Alternative would be consistent and compatible with existing land use plans.

The tunnel operations buildings at the north and south portals would provide maintenance and ventilation functions. Major portions of these structures would likely be several stories high and may not conform to the requirements of the existing zoning and land use code. Height restrictions and the urban context would be considered in the design of these buildings.

Unlike the existing viaduct, the Bored Tunnel Alternative would not provide the four existing ramps to and from SR 99 (on-ramp from Columbia Street, off-ramp at Seneca Street, on-ramp from Western Avenue, and off-ramp at Elliott Avenue). New ramps would be built from northbound SR 99 to Alaskan Way S. and from Alaskan Way S. to southbound SR 99 near S. Royal Brougham Way. New northbound on- and southbound off-ramps also would be constructed in this area. Less direct and less convenient access to nearby land uses would occur due to the removal of the ramps. As a result, businesses in the central downtown area could experience disruptions in the flow of customers and employees and in the delivery or shipment of materials and supplies.

Local traffic access to downtown land uses would be provided via an improved Alaskan Way (and northbound Western Avenue); a more in-depth discussion

about these improvements is included in Appendix C, Transportation Discipline Report.

The Bored Tunnel Alternative would result in the permanent loss of on- and off-street parking in the south and north portal areas. A net loss of approximately 390 on- and 250 off-street parking spaces is expected, resulting in increased competition for the remaining parking spaces. The S. Holgate Street to S. King Street Viaduct Replacement Project will remove 200 off-street parking spaces on the Washington-Oregon Shippers Cooperative Association (WOSCA) property; therefore, the absence of these parking spaces is considered an existing condition for the purpose of this land use analysis. The loss of parking would result in less convenient patron access to businesses and some residences. However, the removal of off-street parking spaces would not result in any land use nonconformities with respect to accessory parking requirements. Parking effects and mitigation are discussed in Appendix C, Transportation Discipline Report.

South Portal

With the Bored Tunnel Alternative, the northbound on-ramp to and southbound off-ramp from SR 99 would be located near S. Royal Brougham Way and would intersect with the East Frontage Road. In the south portal area, full north- and southbound access to and from SR 99 would be provided at S. Dearborn Street.

The reconfigured Alaskan Way S. would have a pedestrian and bicycle trail on the west side, called the Port Side Pedestrian/Bike Trail, built as part of the separate S. Holgate to S. King Street Viaduct Replacement Project. The City Side Trail would be realigned between S. Atlantic Street to S. King Street as part of this project. The City Side Trail would replace the existing 15-foot-wide Waterfront Bicycle/Pedestrian Facility currently located on the east side of Alaskan Way S. These improvements would benefit adjacent land uses by improving accessibility for employees, customers, and residents.

S. Dearborn Street would be extended to intersect with Alaskan Way S., which would increase east-west connectivity between the historic Pioneer Square and Greater Duwamish MIC neighborhoods and enhance the accessibility to existing land uses such as the sports stadiums, ferry terminal, and waterfront businesses. Potential future development, such as the Qwest Field north lot, also would benefit. The City Side Trail and Port Side Pedestrian/Bike Trail would benefit nearby land uses through improved accessibility.

The south portal area also would define new blocks of property that would be available for future development under the City's existing Industrial Commercial land use zone. This zone is intended to promote development of businesses that incorporate a mix of industrial and commercial activities, such as light manufacturing and research and development facilities, while also allowing for a

wide range of other employment activities. The availability of this land for development is not expected to influence development activity or trends in the Pioneer Square or Greater Duwamish MIC neighborhoods. Future development of this property would be required to be consistent and compatible with existing land use plans and any future changes to the City's Land Use Code that may be adopted, such as those being considered in the South Downtown neighborhoods.

The south portal would include a tunnel operations building south of Railroad Way S. and west of First Avenue S. to provide tunnel ventilation and maintenance functions. Part of the building would be constructed underground. The remaining portion of the building is expected to be approximately 65 feet tall, with ventilation stacks extending up to 30 feet above the roof. The ventilation stacks would be exempt from zoning height restrictions.

The tunnel operations building could be designed to meet the requirements of the existing Industrial Commercial zone, Stadium Transition Area Overlay District, and other applicable land use regulations.

North Portal

In the north portal area, full north- and southbound access to and from SR 99 would be provided near Republican Street. Drivers would access the southbound on-ramp via a new connection with Sixth Avenue N. on the west side of SR 99.

A two-way Mercer Street would be constructed between Dexter Avenue N. and Fifth Avenue N. Sixth Avenue N. would be extended from Harrison Street to Mercer Street. Broad Street would be closed and filled between Ninth Avenue N. and Taylor Avenue N. Although the removal of Broad Street would change pedestrian, bicycle, and vehicle circulation patterns, it would not decrease accessibility to adjacent land uses.

Surface streets would be reconfigured and improved in the north portal area. Improvements would include connecting John, Thomas, and Harrison Streets so that they intersect with Aurora Avenue and provide pedestrians and vehicles access across this street. The connections would extend from Sixth Avenue N. to Dexter Avenue N. Pedestrian sidewalks would be maintained along both sides of Aurora Avenue.

The Bored Tunnel Alternative would require the acquisition of limited-access control rights from businesses along the east side of SR 99 between Harrison and Mercer Streets that would no longer have direct access to and from SR 99. However, these businesses would have other access points on Harrison and Republican Streets, including the alleyway between SR 99 and Dexter Avenue N. The less direct, less convenient access for these businesses could affect their operations.

A new Sixth Avenue N. and southbound on-ramp to SR 99 would be constructed at Republican Street. The Sixth Avenue N. extension would increase east-west connectivity between the South Lake Union and Uptown neighborhoods and enhance the accessibility to existing land uses and potential future development, such as the South Lake Union area and the Bill and Melinda Gates Foundation Campus.

The north portal would include a tunnel operations building between Thomas and Harrison Streets on the east side of Sixth Avenue N. to provide tunnel ventilation and maintenance functions. Part of the building would be constructed underground, and the remaining portion is expected to be approximately 60 feet tall, with ventilation stacks extending up to 35 feet above the roof. The ventilation stacks would be exempt from zoning height restrictions.

The tunnel operations buildings could be designed to meet requirements of the Seattle Mixed 85 zone and other applicable land use regulations.

5.2.2 Land Acquisitions and Relocations

Permanent effects on land use are described below in terms of full and partial property acquisitions. Subsurface property acquisitions and permanent tieback easements for subsurface wall-shoring systems are also identified.

The subsurface property acquisitions would consist of a three-dimensional space along the alignment below the ground surface for the tunnel. The subsurface property acquisitions would not affect land uses on the surface, because the limits would be outside of the practical building requirements for typical building foundations and zoning requirements. Future development would need to consider the boundaries of the subsurface property that would be acquired for the tunnel. Subsurface property acquisitions are listed in Attachment A, and compensation requirements for all property acquisitions are discussed in Section 5.6.

Tieback easements allow the use of a property below the surface for a shoring system to stabilize a permanent wall. Temporary construction-related easements are described in Chapter 6, Construction Effects and Mitigation. A total of 12 properties have been identified as required for acquisition, in full or in part, to accommodate the Bored Tunnel Alternative.

In the south portal area, full acquisitions would include about 173,000 square feet (3.97 acres) of land zoned for Industrial Commercial use. Partial acquisitions would include about 17,900 square feet (0.41 acre) of land zoned for Industrial Commercial use. No permanent tieback easements would be required in the south portal area. The Industrial Commercial zone is intended to promote development of businesses that incorporate a mix of industrial and commercial activities, such as light manufacturing and research and development facilities,

while also allowing for a wide range of other employment activities. The Pioneer Square Mixed zone is intended to preserve, protect, and enhance the historic character of the Pioneer Square area and incorporates a mix of commercial and residential uses.

In the north portal area, full acquisitions would include about 131,455 square feet (approximately 3.02 acres) of property; partial acquisitions would include about 15,818 square feet (approximately 0.36 acre). All of the property acquisitions in the north portal area would be zoned as Seattle Mixed. The Seattle Mixed zone provides for a wide range of uses to encourage development of a mixed-use neighborhood.

A review of Seattle real estate listings indicates a variety of warehouse-type properties available for sale or lease in the south Seattle and Greater Duwamish areas. Several office/commercial properties in the South Lake Union area are also available. These are the general categories of land uses that would be fully displaced. Online listings (Coldwell Banker Commercial, LoopNet, Showcase, Cityfeet, and Colliers International) were consulted to confirm the availability of replacement property. Residential properties were not reviewed because no residential displacements have been identified.

The sizes of available properties vary greatly, as do prices and lease rates. The current market has slowed because of the downturn in economic conditions. This has resulted in higher vacancy rates than those experienced at the end of the 1990s and in the early 2000s, when the economy was stronger. It is difficult to predict how long the current economic environment will last; however, as the economy improves, the demand for all property types downtown is expected to be relatively high, based on recent activity. The permanent effects of land acquisitions are described below.

South Portal

Implementation of the Bored Tunnel Alternative south portal area would require 3 full and 3 partial property acquisitions (see Exhibit 5-1 and Attachment B). A portion of Terminal 46 would also be used for staging through a long-term lease with the Port of Seattle. One building at Terminal 46 would be permanently removed to accommodate staging. The amount of land acquired and converted to transportation use would be relatively small compared to the amount of similar land currently available in the area. One of the two buildings on property to be partially acquired may be altered or demolished, (Seattle Hometown Fans site) shown in Exhibit 5-1. The other building would not be altered, and its use and access would not be adversely affected. Some on- and off-street parking spaces on privately owned property also would be removed. Refer to Appendix C, Transportation Discipline Report, for a discussion of parking changes.

Exhibit 5-1. Bored Tunnel Alternative–South Portal Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
766620 6966	1201 Building LLC, Pyramid Alehouse	Terminal/Warehouse (Pyramid Alehouse parking lot)	Industrial Commercial	Partial acquisition, 11,400 square feet	The realignment of the City Side Trail would require partial acquisition of this property.	No. However, approximately 50 off-street parking spaces would be removed.
766620 7012 and 766620 7025	Seattle Hometown Fans, LLC Warehouse	Terminal/Warehouse (includes vacant lot)	Industrial Commercial	Partial acquisition, 6,500 square feet	A portion of this property would be acquired to widen the frontage road.	No. A determination of the need for altering or demolishing the warehouse building has not yet been made and will be considered during the final design process. If the warehouse building is demolished, an estimated 25 jobs would be displaced.
766620 6955	MSI Triangle, LLC	Terminal/Warehouse (Gerry Sportswear Building)	Industrial Commercial	Full acquisition, 37,000 square feet	The entire property would be needed for the unbraiding of the southbound and northbound decks of the tunnel.	No. The building is currently being used for WSDOT construction offices, and this use would be accommodated in another location.
766620 6950	WOSCA site, MSI Railroad, LLC	Terminal/Warehouse (vacant land)	Industrial Commercial	Full acquisition, 136,000 square feet	The eastern portion would be acquired for the unbraiding of the southbound and northbound decks of the tunnel.	No. All buildings on the WOSCA site have been demolished, and the site is vacant.
Totals for south portal	Full acquisitions: 173,000 square feet (approximately 3.97 acres) Partial acquisitions: 17,900 square feet (approximately 0.41 acre)					

WOSCA = Washington-Oregon Shippers Cooperative Association

WSDOT = Washington State Department of Transportation

¹Existing land uses and zoning (City of Seattle 2009).

Exhibit 5-2. Bored Tunnel Alternative – North Portal Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
1991200815	ARE Seattle No. 19 LLC	Vacant	Seattle Mixed	Full acquisition, 18,175 square feet	This property is required for the construction of the north portal and once the tunnel operations building is completed, parking for WSDOT operations personnel.	No
199120 0845	Cedarstrand Properties LLC	Office	Seattle Mixed	Full acquisition, 38,880 square feet	The southbound and northbound mainline SR 99 out of the tunnel would unbraid through this area. It is also the proposed site of the tunnel operations building for the north portal.	Yes. The existing office building would be demolished and an estimated 119 jobs would be affected.
1988201090	Seattle Department of Transportation	Vacant (maintenance yard with equipment storage)	Seattle Mixed	Full acquisition, 73,400 square feet	The full acquisition would accommodate a temporary detour into the Battery Street Tunnel during construction of the bored tunnel, the new southbound on-ramp and acceleration lane, and the southbound mainline lanes into the bored tunnel; and the property would serve as a construction staging area.	Yes. The existing modular building on this site is not in use but would be demolished. The equipment storage capacity would be relocated.
198820 1175	Parkey Properties Inc.	Vacant	Seattle Mixed	Full acquisition, 1,000 square feet	This small triangular parcel would be a full acquisition to accommodate the southbound SR 99 mainline lanes. It would also be used for a temporary detour route.	No. However, the billboard would be removed.

Exhibit 5-2. Bored Tunnel Alternative–North Portal Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
198820 1155	Iris Holdings LLC (Gates Foundation Campus)	Office	Neighborhood Commercial 3	Partial acquisition, 15,570 square feet	To accommodate the southbound SR 99 mainline and Sixth Avenue N. connection.	No
1988201285	Interstate Brands Corp.	Industrial	Seattle Mixed	Partial acquisition, 48 square feet	This partial acquisition would be necessary to accommodate a larger curve radius for the Republican off-ramp.	No
1988201245	City Investors XX LLC	Office	Seattle Mixed	Partial acquisition, 200 square feet	This partial acquisition would be necessary to accommodate a larger curve radius for the Republican off-ramp.	No
Totals for north portal	Full acquisitions: 131,455 square feet (approximately 3.02 acres) Partial acquisitions: 15,818 square feet (approximately 0.36 acre)					

SR = State Route

¹ Existing land uses and zoning (City of Seattle 2009).

Subsurface property acquisitions would be required where tunnel rights are needed and soils improvement methods may need to be implemented to protect building stability. The subsurface property acquisitions are listed in Attachment A, and their locations are shown in Attachment B. The *SR 99 Bored Tunnel Alternative Right-of-Way Needs and Boundaries Summary* (Parsons Brinckerhoff 2009) provides additional information on the right-of-way needs for the Bored Tunnel Alternative. The subsurface property acquisitions would not affect existing land uses on the surface. Future development would need to consider the boundaries of the subsurface property that would be acquired for the tunnel.

North Portal

Building the facilities needed in the north portal area would require 4 full and 3 partial property acquisitions (see Exhibit 5-2 and Attachment B). The amount of land acquired and converted to transportation use would be relatively small compared to the amount of similar land that is currently available in the area. The use of and access to the planned buildings on the Bill and Melinda Gates Foundation Campus would not be affected by the partial acquisition of this property. Some on- and off-street parking spaces on privately owned property would also be removed. Refer to Appendix C, Transportation Discipline Report, for a discussion of parking changes.

5.2.3 Zoning

No changes in zoning or amendments to existing land use plans would be required for the Bored Tunnel Alternative. Current City zoning for the south tunnel operations building site is IC-65, and it is within the Stadium Transition Area Overlay District. Land within this district is subject to the regulations of the underlying Industrial Commercial zone. Although the intended uses of the tunnel operations building are not listed among those permitted outright, they are also not explicitly identifiable in the list of prohibited uses. Typical land uses allowed within this zone include light and general manufacturing, commercial uses, transportation facilities, and utilities. The range of allowed uses in IC-65 appears to be consistent with the architectural program developed for the tunnel operations building for the south portal.

Current City zoning for the north tunnel operations building site is SM-85. A broad variety of mixed land uses is permitted within this zone. The range of allowed uses in the SM-85 zone appears to be consistent with the architectural program developed for the tunnel operations building for the north portal.

The Seattle Design Commission is expected to review and provide input on the design features of structures and buildings, retaining walls, railings, and light standards in the south and north portal areas.

5.2.4 Indirect Effects on Land Use

The Bored Tunnel Alternative would represent only one of numerous ongoing improvements occurring in Seattle. Overall, many factors influence land use decisions, including economic conditions, zoning, and land supply. Because the Bored Tunnel Alternative would replace an existing facility to meet safety requirements and the projected growth in traffic demand, it is not likely to have much influence on these factors. The potential to induce growth would be minor.

The Bored Tunnel Alternative is not expected to be a major catalyst for future growth. Large-scale redevelopment, as a direct or indirect result, is not likely, but the alternative would support planned future growth as identified in Seattle's Comprehensive Plan. Planning efforts for the neighborhood areas will also help to determine the direction of future growth and land uses in the study area.

The south portal area would have new blocks of property that would be available for future development under the City's existing Industrial Commercial land use zone. Some of the properties used for staging and other construction activities may be sold at a future date. The future development of this property would be required to be consistent and compatible with existing land use plans and is not expected to influence development activity or trends in the Pioneer Square or Greater Duwamish MIC neighborhoods.

The existing viaduct between S. King Street and the Battery Street Tunnel would be removed in 2016. It is expected that future development within this area would likely occur in the form of modest expansions of existing buildings on the east side of Alaskan Way. In addition, substantial changes would occur in the relationship between the waterfront and upland properties leading to the downtown core. To the extent that the existing viaduct has been perceived as a barrier to waterfront uses, new development on vacant or under-used property or redevelopment may take place around the new Alaskan Way surface street. No development within the existing viaduct right-of-way is proposed as part of the Bored Tunnel Alternative.

The elimination of the existing viaduct would increase the potential for pedestrian traffic between downtown and the waterfront. Where enhanced pedestrian access could be provided, the connection between the waterfront and commercial, office, retail, and service uses downtown would be improved. Effects related to demolition of the viaduct would also occur (see Section 6.1.2).

The SR 99 corridor has an influence on areas beyond the immediate neighborhoods through which it passes. Many of the daily commuters now using this route live in neighborhoods north and south of downtown, such as Ballard, Fremont, Greenwood, West Seattle, White Center, and Georgetown. For these commuters, the viaduct offers a convenient route either to downtown or around the city without using I-5. The Bored Tunnel Alternative may have an influence on growth in neighborhoods where the area's desirability is in part facilitated by the ease of access to downtown Seattle, including commute, retail, and residential trips.

5.2.5 Operational Benefits

The Bored Tunnel Alternative would provide continued access to the waterfront through improvements in the south portal area. It would also improve the connection between the waterfront and downtown, Pike Place Market, and Pioneer Square. This alternative would benefit the traveling public by providing improved accessibility for employees, customers, and residents in the portal areas. Improved accessibility may benefit these land uses.

In addition, both tunnel portal areas would experience substantial improvements that would benefit motorists, pedestrians, and bicyclists. In the south portal area, a new cross street extension at S. Dearborn Street would increase east-west connectivity between the historic Pioneer Square and the Greater Duwamish MIC neighborhoods and enhance the accessibility to existing land uses, such as the sports stadiums, ferry terminal, and waterfront businesses. Potential future development, such as the Qwest Field north lot, would benefit from the improved accessibility. The City Side Trail and the Port Side Pedestrian/Bike Trail would also benefit from the improved accessibility. In the north portal area, neighborhoods east and west of Aurora Avenue N. would be reconnected by connecting John, Thomas, and Harrison Streets with Aurora Avenue N.

5.3 Operational Effects of the Cut-and-Cover Tunnel Alternative

The Cut-and-Cover Tunnel Alternative would include demolition of the existing viaduct structure from S. King Street to Pike Street. SR 99 would extend above grade between Union and Pike Streets and transition back to a cut-and-cover tunnel through the Battery Street Tunnel. A pedestrian lid structure would begin over the southbound tunnel lanes at Pike Street and connect to Victor Steinbrueck Park. Pedestrian access would also be provided across SR 99 at Lenora Street via the replaced Lenora Street pedestrian bridge.

The operational effects of the Cut-and-Cover Tunnel Alternative are considered for the sections listed below and viaduct removal:

- South section – S. Royal Brougham Way to S. King Street
- Central section – S. King Street through Battery Street Tunnel
- North section – Denny Way to Aloha Street
- Viaduct removal

5.3.1 Permanent Effects on Land Use

Conversion of land to transportation use would result in a reduction in the overall amount of developable industrial and commercial property, which may have some localized effects on uses. However, it is not expected to greatly influence development in the project area. The existing viaduct structure would be removed, and new open space would be created between S. King Street and the Battery Street Tunnel. Construction staging areas and the right-of-way above the proposed tunnel could have some redevelopment potential.

Tunnel support structures would be constructed in several locations for maintenance and ventilation. At the south portal, the tunnel portal building would be near the intersection of S. Dearborn Street and Alaskan Way S. Additional buildings would include a north portal building near Pine Street. The maintenance and ventilation buildings for the Battery Street Tunnel would be built at Second Avenue and Sixth Avenue. These buildings would likely vary in height from approximately 15 to 40 feet, with ventilation stacks 15 feet in height, and they are not expected to exceed the zoning height limitations. It is expected that if potential conflicts with zoning regulations occur, they would be addressed by conditional use permit requirements.

Most of the land to be acquired is located in the central and north sections of the project area. After the removal of the existing viaduct, a portion of the land area that currently contains the structures support columns may become available for other uses.

Current waterfront planning activities are expected to help determine future land uses in the central section. *Seattle's Central Waterfront Concept Plan* identifies a few existing opportunities for waterfront development, as well as sites near the project area that have development potential but may require partnerships between private developers and public agencies (City of Seattle 2006b). The elimination of the viaduct may attract new interest in these sites and could increase the likelihood of new development partnerships in the future. The economic conditions will also influence whether such development occurs.

Where the existing structure forms a barrier to access between the waterfront and the adjacent land uses, the Cut-and-Cover Tunnel Alternative could facilitate

pedestrian traffic between downtown and the waterfront. This alternative could greatly improve public views of the waterfront and downtown areas (see Appendix D, Visual Quality Discipline Report). Enhanced pedestrian access would also improve connections among business, retail, and service uses downtown and along the waterfront.

The Cut-and-Cover Tunnel Alternative would result in the permanent loss of existing parking spaces in the project area. A net loss of approximately 690 on- and 500 off-street parking spaces would be expected, resulting in increased competition for the remaining parking areas.

South Section – S. Royal Brougham Way to S. King Street

In the south, SR 99 would transition from at-grade to the cut-and-cover tunnel between S. Royal Brougham Way and S. Dearborn Street. Dearborn Street would be constructed over SR 99 just north of the northbound and southbound tunnel portals.

Downtown connections from SR 99 would be very similar to those provided by the Bored Tunnel Alternative, with both the southbound on-ramp to and northbound off-ramp from SR 99 feeding directly into a reconfigured Alaskan Way S. The northbound off-ramp to S. Dearborn Street and the southbound off-ramp at S. Royal Brougham Way would provide a new travel option for the Pioneer Square and stadium area.

Central Section – S. King Street Through Battery Street Tunnel

With the Cut-and-Cover Tunnel Alternative, the downtown access ramps would no longer include a southbound SR 99 on-ramp from Columbia Street and a northbound SR 99 off-ramp at Seneca Street. New ramps would be built at the north and south portals.

The new ramps in the north and south areas would provide less direct access to the central and north sections of downtown from the south, so those motorists destined for midtown areas would have to travel somewhat farther on arterial streets to access the midtown area. Motorists destined to the south end of downtown would find the ramps in the south easier to access. The new ramps would also offer an advantage by distributing traffic to the surface street grid (off Alaskan Way) in downtown, rather than to or from a single intersection at Columbia Street or Seneca Street.

Compared with existing conditions, the Cut-and-Cover Tunnel Alternative would not provide midtown access for downtown employees, customers, and residents. The southbound on-ramp from Elliott Avenue and the northbound on-ramp to Western Avenue would be rebuilt. Near the Battery Street Tunnel south portal, a

northbound on-ramp from Bell Street and southbound off-ramp to Western Avenue for emergency and maintenance vehicle use only would be built.

North Section – Denny Way to Aloha Street

Through the north section of the project area for the Cut-and-Cover Tunnel Alternative, SR 99 would be below grade in a side-by-side retained cut between the north portal of the Battery Street Tunnel and Mercer Street. New overcrossings at Thomas and Harrison Streets would extend across the lowered Aurora Avenue. Mercer Street would also be widened between Fifth Avenue N. and Dexter Avenue N. The northbound roadway would rise to cross over Mercer Street and then return to existing grade near Roy Street. Portions of Sixth and Taylor Avenues N. and Harrison, Thomas, and Roy Streets would be reconstructed. The number of lanes would vary, starting with four lanes from Denny Way to Mercer Street, increasing to seven lanes from Mercer Street to Aloha Street, and ending with six lanes north of Aloha Street.

A northbound on-ramp and southbound off-ramp would be provided to and from Denny Way. New right-on and right-off access to and from SR 99 would be provided at the following intersections:

- Northbound and southbound SR 99: on- and off-ramps at Denny Way
- Northbound SR 99: right-turn lanes to Republican Street and Roy Street
- Roy Street: right-turn onto northbound SR 99 into an acceleration lane
- Southbound SR 99: right-turn lane to Roy Street
- Roy Street: right-turn lane onto southbound onto SR 99

The following city street improvements and revisions would be provided by the Cut-and-Cover Tunnel Alternative:

- Broad Street would be closed and backfilled from Fifth Avenue N. to Ninth Avenue, and Harrison Street would be rebuilt across the Broad Street right-of-way.
- New Taylor Avenue would be rebuilt across the Broad Street right-of-way to connect to Harrison Street.
- Mercer Street would be widened and rebuilt from about Fourth Avenue to Dexter Avenue.
- New Sixth Avenue N. would be extended between Harrison Street and Roy Street.

With these city street improvements and revisions, SR 99 undercrossing would be provided at Thomas Street and Harrison Street and the existing SR 99 overcrossing at Mercer Street would be widened, lengthened, and rebuilt.

Viaduct Removal

The existing viaduct would be demolished as part of the Cut-and-Cover Tunnel Alternative. The Battery Street Tunnel would be closed and decommissioned after the bored tunnel is opened to traffic. The cross streets above the tunnel and the utilities would be maintained.

5.3.2 Land Acquisitions and Relocations

Permanent effects on land use are described below in terms of full and partial property acquisitions. Subsurface property acquisitions and permanent tieback easements for subsurface wall-shoring systems are also identified. For the Cut-and-Cover Tunnel Alternative, as many as 40 parcels (approximately 9.14 acres) would be acquired for right-of-way. This would include full acquisition of 16 parcels and partial acquisition of 24 parcels. Nine buildings would be displaced on the acquired parcels, and an estimated 122 employees could be affected. The nine buildings include three retail buildings, two office buildings, one church, two hotel/motel buildings, and one condominium. Some of the acquired parcels would be used for a tunnel portal building and two ventilation structures that would be constructed along the tunnel alignment. These structures are planned for parcels near the Alaskan Way Viaduct intersections with S. King Street, Pine Street, the corner of Western Avenue and Battery Street, and Denny Way.

A review of Seattle real estate listings indicates a variety of residential, office/commercial properties south of downtown, in central downtown, and in the South Lake Union area. In general, these categories of land uses would be displaced fully. Online listings (Coldwell Banker Commercial, LoopNet, Showcase, Cityfeet, and Colliers International) were consulted to confirm the availability of replacement property.

The sizes of available properties vary greatly, as do prices and lease rates. The current market has slowed because of the downturn in economic conditions. This has resulted in higher vacancy rates than those experienced at the end of the 1990s and in the early 2000s, when the economy was stronger. It is difficult to predict how long the current economic environment will last. However, as the economy improves, the demand for all property types downtown is expected to be relatively high, based on activity during the recent past. The permanent effects of land acquisitions are described below.

Exhibit 5-3. Cut-and-Cover Tunnel Alternative – South: S. Royal Brougham Way to S. King Street Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
766620 7012 and 766620 7025	Seattle Hometown Fans, LLC Warehouse	Terminal/Warehouse (includes vacant lot)	Industrial Commercial	Partial acquisition, 6,500 square feet	A portion of this property would be acquired to widen the frontage road.	No. A determination of the need for altering or demolishing the warehouse building has not yet been made and will be considered during the final design process. If the warehouse building were demolished, an estimated 25 jobs would be displaced.
7666206966	1201 Building LLC	Terminal/Warehouse (Pyramid Alehouse)	General Industrial 1	Partial acquisition, 11,400 square feet	The realignment of the City Side Trail would require partial acquisition of this property.	No. However, 50 off-street parking spaces would be removed.
Totals for south section	Full acquisitions: 0 square feet (0 acre) Partial acquisitions: 17,900 square feet (approximately 0.41 acre)					

¹Existing land uses and zoning (City of Seattle 2009).

South Section – S. Royal Brougham Way to S. King Street

As shown in Exhibit 5-3, two partial acquisitions would be needed in the south section (see also Attachment B). The amount of land acquired and converted to transportation use would be very small compared to the amount of similar land currently available in the area. Some on- and off-street parking spaces on privately owned property would also be removed. Refer to Appendix C, Transportation Discipline Report, for a discussion of parking changes.

Central Section – S. King Street through Battery Street Tunnel

As shown in Exhibit 5-4, property acquisitions would occur on 17 parcels in the central section: 5 full and 12 partial acquisitions. One office building and one church building would be displaced. The acquisition locations are shown in Attachment B, and the effects of relocated or displaced businesses and workers are described in Appendix L, Economics Discipline Report.

North Section – Denny Way to Aloha Street

As shown in Exhibit 5-5, property acquisitions would occur on 20 parcels: 11 full and 9 partial acquisitions. These would include the displacement of two hotel/motel buildings, two office buildings, one condominium building, and two retail buildings. The condominium building includes 132 units, fewer than half of which are occupied. Similar residential condominium units are available in the Uptown/South Lake Union neighborhoods. The acquisition locations are shown in Attachment B. The effect of relocated or displaced businesses and workers is described in Appendix L, Economics Discipline Report.

5.3.3 Zoning

City zoning for the tunnel operations building sites includes various designations. The site for the tunnel maintenance building is within the Stadium Transition Area Overlay District, and development within this overlay is subject to the regulations of the underlying Industrial Commercial zone.

Current city zoning for the tunnel maintenance building at S. Dearborn Street between Railroad Way S. and Alaskan Way S. is IC-65. Typical land uses allowed within this zone include light and general manufacturing, commercial uses, transportation facilities, and utilities. The range of allowed uses in IC-65 appears to be consistent with the architectural program developed for the tunnel operations building for the south portal.

Current city zoning for the maintenance building at the north portal of the cut-and-cover tunnel and the south Battery Street ventilation and maintenance

Exhibit 5-4. Cut-and-Cover Tunnel Alternative – Central: S. King Street Through Battery Street Tunnel Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
0654000280	Oregon Apartments LLC	Multi-Family/Other Housing (vacant)	Downtown Mixed Residential	Partial acquisition, 1,922 square feet	The northbound maintenance access would require partial acquisition of this parcel.	No
7666202381	Pumpkin & Big Man LLC	Office	Downtown Harborfront 1	Full acquisition, 3,598 square feet	The Pine Street access would require full acquisition of this parcel.	Yes. The office building located on this parcel would be demolished, and an estimated 15 jobs would be affected.
0654000230	Seattle City Light	Parking (vacant)	Downtown Mixed Residential/ Commercial	Full acquisition, 7,200 square feet	The southbound maintenance access to the tunnel would require full acquisition of this parcel.	No. However, approximately 17 off-street parking spaces would be removed.
1976200297	City of Seattle	Office (vacant)	Pike Market Mixed	Full acquisition, 945 square feet	The Pike Street Hillclimb would require full acquisition of this parcel.	No
7666202410	Bradly Holdings Ltd.	Terminal/ Warehouse	Pike Market Mixed	Partial acquisition, 400 square feet	Due to the reconfiguration of SR 99 from an elevated to a cut-and-cover tunnel, the existing access to these buildings would be cut off. The construction of a new road and access would require partial acquisition of this parcel. This would also allow for a fire lane to the building.	No

Exhibit 5-4. Cut-and-Cover Tunnel Alternative—Central: S. King Street Through Battery Street Tunnel Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
7666202405	GRE Market Square LLC	Office	Pike Market Mixed	Partial acquisition, 600 square feet	Due to the reconfiguration of SR 99 from an elevated to a cut-and-cover tunnel, the existing access to these buildings would be cut off. The construction of a new road and access would require partial acquisition of this parcel. This would also allow for a fire lane to the building.	No
1976200300	Inter CO-OP USA No. 7	Office	Pike Market Mixed	Partial acquisition, 1,100 square feet	Due to the reconfiguration of SR 99 from an elevated to a cut-and-cover tunnel, the existing access to these buildings would be cut off. The construction of a new road and access would require partial acquisition of this parcel. This would also allow for a fire lane to the building.	No

Exhibit 5-4. Cut-and-Cover Tunnel Alternative—Central: S. King Street Through Battery Street Tunnel Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
257028000	Not applicable	Mixed Use	Pike Market Mixed	Partial acquisition, 1,600 square feet	Due to the reconfiguration of SR 99 from an elevated to a cut-and-cover tunnel, the existing access to these buildings would be cut off. The construction of a new road and access would require partial acquisition of this parcel. This would also allow for a fire lane to the building.	No
7666202380	Whetzel, Jonathan F.	Parking	Downtown Harborfront 2	Full acquisition, 13,249 square feet	The Cut-and-Cover Tunnel Alternative for SR 99 would require full acquisition of this parcel.	No. However, one job would be affected, and approximately 65 off-street parking spaces would be removed.
0655000043	CCAS Property and Construction	Church	Downtown Mixed Residential	Full acquisition, 5,169 square feet	The northbound maintenance access to the tunnel would require full acquisition of this parcel.	Yes. The church located on this parcel would be demolished, and an estimated eight jobs would be affected.
0655000045	2331 LLC	Retail/Service	Downtown Mixed Residential	Partial acquisition, 900 square feet	The northbound maintenance access to the tunnel would require partial acquisition of this parcel.	No
0656000480	Martin Selig	Office	Downtown Mixed Residential	Partial acquisition, 350 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No

Exhibit 5-4. Cut-and-Cover Tunnel Alternative—Central: S. King Street Through Battery Street Tunnel Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
0696000160	City of Seattle	Government Service	Downtown Mixed Commercial	Partial acquisition, 350 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0697000064	Sabey Corporation	Multi-Family/Other Housing	Downtown Mixed Commercial	Partial acquisition 150 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0697000340	Clise Properties Inc.	Parking	Downtown Mixed Commercial	Partial acquisition, 250 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0656000255	223 Taylor Corporation	Office	Downtown Mixed Residential	Partial acquisition, 350 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No. However, approximately two off-street parking spaces would be removed.
0697000325	Clise Properties Inc.	Retail/Service (car wash)	Downtown Mixed Commercial	Partial acquisition, 350 square feet	Emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
Totals for central section	Full acquisitions: 30,161 square feet (approximately 0.69 acre) Partial acquisitions: 8,322 square feet (approximately 0.19 acre)					

SR = State Route

¹Existing land uses and zoning (City of Seattle 2009).

Exhibit 5-5. Cut-and-Cover Tunnel Alternative – North: Denny Way to Aloha Street Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
2249000190	Seattle Department of Transportation	Vacant (maintenance yard with equipment storage)	Commercial 1	Full acquisition, 6,599 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The existing modular building on this site is not in use but would be demolished. The equipment storage capacity would be relocated.
2249000150	PFHC-Investments LLC	Retail/Service	Commercial 1	Full acquisition, 25,920 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The building located on this parcel would be demolished, and an estimated four jobs would be affected.
1988201155	Iris Holdings LLC (Gates Foundation Campus)	Office	Neighborhood Commercial 3	Partial acquisition, 80,500 square feet	Sixth Avenue N. and Mercer Street widening would require partial acquisition of this parcel.	No
1988201175	Parkey Properties Inc.	Vacant	Seattle Mixed	Full acquisition, 1,051 square feet	The widening of SR 99 would require full acquisition of this parcel.	No
1988201090	Seattle Department of Transportation	Vacant (maintenance yard)	Seattle Mixed	Full acquisition, 73,407 square feet	The widening of SR 99 would require full acquisition of this parcel.	No

Exhibit 5-5. Cut-and-Cover Tunnel Alternative—North: Denny Way to Aloha Street Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
1991200800	SRI Enterprise LLC	Retail/Service	Seattle Mixed	Full acquisition, 19,007 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The hotel building located on this parcel would be demolished, and an estimated 14 jobs would be affected.
1991200815	ARE Seattle No. 19 LLC	Retail/Service/vacant	Seattle Mixed	Full acquisition, 18,175 square feet	The widening of SR 99 would require full acquisition of this parcel.	No. However, the vacant building located on this parcel would be demolished.
1991200730	Quality Inn & Suites	Retail/Service	Seattle Mixed	Full acquisition, 33,214 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The hotel located on this parcel would be demolished, and an estimated 55 jobs would be affected.
516550000	Owner not listed	Multi-Family/Other Housing	Seattle Mixed	Full acquisition, 22,768 square feet	The widening of SR 99 and southbound off-ramp to Denny would require full acquisition of this parcel.	Yes. The condominium building with 132 units would be demolished, and an estimated 177 residents and one job would be affected.
1991201050	City Investors XV LLC	Parking	Seattle Mixed	Partial acquisition, 4,915 square feet	The widening of northbound on-ramp from Denny would require partial acquisition of this parcel.	No. However, approximately 32 off-street parking spaces would be removed.

Exhibit 5-5. Cut-and-Cover Tunnel Alternative—North: Denny Way to Aloha Street Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
2249000120	Seattle Department of Transportation	Terminal/Warehouse	Seattle Mixed	Full acquisition, 24,192 square feet	The northbound off-ramp to Roy Street would require full acquisition of this parcel.	No. However, two vacant buildings located on this parcel would be demolished.
2249000370	Sebco Inc.	Vacant	Seattle Mixed	Partial acquisition, 1,100 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
2249000245	702 Aurora North Joint Venture	Office	Seattle Mixed	Partial acquisition, 2,500 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
2249000265	Bauer, Brent A.	Office	Seattle Mixed	Full acquisition, 12,152 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. One office building located on this parcel would be demolished, and an estimated 20 jobs would be affected.
1991200685	Lankri Zion	Retail/Service	Seattle Mixed	Full acquisition, 12,423 square feet	The widening of southbound off-ramp to Denny would require full acquisition of this parcel.	Yes. One retail building located on this parcel would be demolished, and an estimated four jobs would be affected.
2249000220	Pagliacci Pizza	Mixed Use	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
2249000195	Prince Chubby LLC	Vacant	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No

Exhibit 5-5. Cut-and-Cover Tunnel Alternative—North: Denny Way to Aloha Street Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
1988200705	City of Seattle/KCTS Channel 9	Utility	Neighborhood Commercial 3	Partial acquisition, 2,200 square feet	The widening of Mercer Street would require partial acquisition of this parcel.	No
2249000200	Prince Chubby LLC	Vacant	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
1988201285	Interstate Brands Corp.	Industrial	Seattle Mixed	Partial acquisition, 51 square feet	The exit to Republican Street would require partial acquisition of this parcel.	No
Totals for north section	Full acquisitions: 248,908 square feet (approximately 5.71 acres) Partial acquisitions: 93,066 square feet (approximately 2.14 acres)					

SR = State Route

¹Existing land uses and zoning (City of Seattle 2009).

building sites are DH2/55 and DMR/R 85/65, respectively. A broad variety of public facility is permitted within this zone.

The site for the north Battery Street Tunnel ventilation and maintenance building would be located in an area currently zoned as SM-85. A broad variety of mixed land uses is permitted within this zone. The range of allowed uses in the SM-85 zone appears to be consistent with the architectural program developed for the tunnel maintenance building for the north portal.

Although the intended uses of the tunnel portal buildings are not listed among those permitted outright in zoning for their respective sites, they are also not explicitly identifiable in the list of prohibited uses.

No changes in zoning or amendments to existing land use plans would be required for the Cut-and-Cover Tunnel Alternative. The Seattle Design Commission is expected to review and provide input on the design features of structures and buildings, retaining walls, railings, and light standards in the south and north portal areas.

5.3.4 Indirect Effects on Land Use

The indirect effects of the Cut-and-Cover Tunnel Alternative on land use would be similar to the Bored Tunnel Alternative. As with the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would represent only one of numerous ongoing improvements occurring in the Seattle area. Overall, many factors influence land use decisions, including economic conditions, zoning, and land supply. As with the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would replace an existing facility to meet safety requirements and the projected growth in traffic demand, but it is not likely to have large, if any, influences on these factors. The potential to induce growth would be minor.

The Cut-and-Cover Tunnel Alternative is not expected to be a major catalyst for future growth. Large-scale redevelopment, as a direct or indirect result, is not likely, but the alternative would support planned future growth as identified in Seattle's Comprehensive Plan. Planning efforts for the neighborhood areas will also help to determine the direction of future growth and land uses in the study area.

The existing viaduct between S. King Street and the Battery Street Tunnel would be removed in 2016. It is expected that future development within this area would likely occur in the form of modest expansions of existing buildings on the east side of Alaskan Way. In addition, substantial changes would occur in the relationship between the waterfront and upland properties leading to the downtown core. To the extent that the existing viaduct has been perceived as a barrier to waterfront uses, new development on vacant or under-used property or

redevelopment may take place around the new Alaskan Way surface street. The walkway lid structure over SR 99 would provide a connection between the Pike Place Market area and the central waterfront, while also creating opportunities for a variety of landscaping and open space options. The walkway lid structure in conjunction with the sloping triangle park area between Pike and Pine Streets and a potential direct connection with the Lenora Street pedestrian bridge has the potential to create a system of open spaces along the entire waterfront. These improvements are expected to increase the desirability and use of the area. No other development within the existing viaduct right-of-way is proposed as part of the Cut-and-Cover Tunnel Alternative.

The elimination of the existing viaduct would increase the potential for pedestrian traffic between downtown and the waterfront. Where enhanced pedestrian access could be provided, the connection between the waterfront and commercial, office, retail, and service uses downtown would be improved. Effects related to demolition of the viaduct would also occur (see Section 6.1.2).

The SR 99 corridor has an influence on areas beyond the immediate neighborhoods through which it passes. Many of the daily commuters now using this route live in neighborhoods north and south of downtown, such as Ballard, Fremont, Greenwood, West Seattle, White Center, and Georgetown. For these commuters, the viaduct offers a convenient route either to downtown or around the city without using I-5. The Cut-and-Cover Tunnel Alternative may have an influence on growth in neighborhoods where the area's desirability is in part facilitated by the ease of access to downtown Seattle, including commute, retail, and residential trips.

5.3.5 Operational Benefits

The Cut-and-Cover Tunnel Alternative would include demolition of the viaduct structure from S. King Street to the Battery Street Tunnel. Currently, the viaduct is a psychological barrier between the Seattle waterfront and downtown. The pedestrian environment beneath the viaduct is not welcoming, and the structure casts large shadows. Removal of the viaduct would allow the City to improve Alaskan Way and the central waterfront. It would also enhance pedestrian connections between the central waterfront and downtown.

5.4 Operational Effects of the Elevated Structure Alternative

Operational effects of the Elevated Structure Alternative are considered for three sections and viaduct removal:

- South section – S. Royal Brougham Way to S. King Street
- Central section – S. King Street through Battery Street Tunnel

- North section – Denny Way to Aloha Street
- Viaduct removal

Operational effects of the Elevated Structure Alternative would be the same the Cut-and-Cover Tunnel Alternative in the Battery Street Tunnel area (First Avenue to Denny Way) and the north section (Denny Way to Aloha Street).

5.4.1 Permanent Effects on Land Use

Conversion of parcels to transportation use would result in a minor reduction in the overall amount of developable industrial and commercial property, which may have some localized effect on uses. However, it is not expected to greatly influence development activity in the project area. Most of the land to be acquired is located in the central and north sections.

The Elevated Structure Alternative would not result in opportunities for redevelopment in the project area, because it would not relocate the existing viaduct structure. The new structure would continue to occupy existing right-of-way without creating new areas of open space where future development could occur. A potential opportunity for redevelopment would occur at the various construction staging locations after the project is completed. Because the new elevated structure would be wider than the existing viaduct, the “barrier effect” between the waterfront and downtown would be reinforced. This barrier has been considered a hindrance to improving the connection between the downtown core and the land uses along the waterfront. This alternative would not influence land use patterns, and it is less likely than the other build alternatives to result in a noticeable change in the connection between the waterfront and downtown.

Current waterfront planning activities are expected to help determine future land uses in the central section. *Seattle’s Central Waterfront Concept Plan* identifies a few existing waterfront development opportunities and sites near the project area that have development potential but may require partnerships between private developers and public agencies (City of Seattle 2006b). Economic conditions will also influence whether such development occurs.

With the Elevated Structure Alternative, existing parking areas beneath the viaduct would be closed and/or removed during the initial construction stages in each specific area where work is to occur. Both on-street parking spaces and off-street parking (garages and surface lots) may be affected. New on-street parking would be provided within the project area; however, overall parking may decrease. The Elevated Structure Alternative is expected to result in a net loss of approximately 1,380 parking spaces in the project area. Since the current demand for much of the available downtown parking is high, this net loss is likely to result in greater competition for the remaining parking spaces downtown.

Some businesses could become nonconforming uses with respect to the parking requirements of the Land Use Code because of effects related to parking displacement. If such effects occur, the lead agencies would assist affected business owners in identifying potential parking to be covenanted and other parking options to make up the required parking or, if necessary, identify the property as potentially displaced. If relocation becomes necessary, the lead agencies would provide assistance to affected businesses under the provisions of the federal Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, as amended.

South Section – S. Royal Brougham Way to S. King Street

In the south section, north- and southbound access to and from SR 99 would be provided between S. Royal Brougham Way and S. Dearborn Street. The northbound and southbound off-ramps would go to S. Dearborn Street. There would be two southbound on-ramps, one from S. Alaskan Way and another from S. Dearborn Street. A northbound on-ramp would be provided from S. Royal Brougham Way. SR 99 would consist of six lanes, three northbound and three southbound, and it would generally be rebuilt within the existing SR 99 right-of-way. These improvements would provide improved accessibility for employers, customers, and residents. Improved accessibility may benefit land uses in the area.

Central Section – S. King Street Through Battery Street Tunnel

The Elevated Structure Alternative would reconstruct SR 99 as a six-lane elevated, stacked bridge structure, similar to the existing viaduct structure. An auxiliary lane would be provided in each direction between S. Royal Brougham Way and the midtown on- and off-ramps. The north- and southbound travel lanes would have 10-foot right-hand shoulders, 12-foot travel lanes, and 4-foot left-hand shoulders.

From Virginia Street to the south portal of the Battery Street Tunnel, SR 99 would be retrofitted with a six-lane aerial structure with a southbound add lane at Elliott Avenue and a northbound drop lane at Western Avenue with four lanes into the Battery Street Tunnel. The existing southbound off-ramp to Battery Street and northbound on-ramp from Western Avenue would be maintained for emergency access only.

Connections to businesses and residences downtown from SR 99 via the Columbia Street and Seneca Street on- and off-ramps would be provided in their existing locations. The operational effects in the Battery Street Tunnel area (First Avenue to Denny Way) would be the same as those for the Cut-and-Cover Tunnel Alternative.

North Section – Denny Way to Aloha Street

The operational effects in the north section (Denny Way to Aloha Street) would be the same as those for the Cut-and-Cover Tunnel Alternative. On- and off-ramps at Denny Way would provide access to and from businesses and residences in downtown that is comparable to the access provided today.

Viaduct Removal

The viaduct will be removed as part of the Elevated Structure Alternative. The operational effects of the new elevated structure were described in the three sections above.

5.4.2 Land Acquisitions and Relocations

The Elevated Structure Alternative would require the acquisition of 35 parcels: 16 full and 19 partial acquisitions would occur. One parking garage, two office buildings, one church, two hotels, three retail buildings, and one condominium building would be displaced. Under this alternative, approximately 168 employees could be affected by potential displacements.

A review of Seattle real estate listings indicates a variety of residential, office, and commercial properties south of downtown, in central downtown, and in the South Lake Union area. These general categories of land uses would be displaced fully. Online listings (Coldwell Banker Commercial, LoopNet, Showcase, Cityfeet, and Colliers International) were consulted to confirm the availability of replacement property.

The sizes of available properties vary greatly, as do prices and lease rates. The current market has slowed due to the downturn in economic conditions. This has resulted in higher vacancy rates than those experienced at the end of the 1990s and in the early 2000s, when the economy was stronger. It is difficult to predict how long the current economic environment will last; however, as the economy improves, the demand for all property types downtown is expected to be relatively high, based on recent activity. The permanent effects of land acquisitions are described below.

Compared with the central section of the project area for the Cut-and-Cover Tunnel Alternative, six fewer parcels would be affected by acquisitions under the Elevated Structure Alternative. Acquisitions in the south and north sections for the Elevated Structure Alternative would be the same as those for the Cut-and-Cover Tunnel Alternative.

South Section – S. Royal Brougham Way to S. King Street

Acquisitions in the south section would be the same as those for the Cut-and-Cover Tunnel Alternative. As shown in Exhibit 5-6, two partial acquisitions would be required. The amount of land acquired and converted to transportation use would be very small compared to the amount of similar land currently available in the

area. The acquisition locations are shown in Attachment B. Some on- and off-street parking spaces on privately owned property would also be removed. Refer to Appendix C, Transportation Discipline Report, for a discussion of parking changes.

Central Section – S. King Street Through Battery Street Tunnel

As shown in Exhibit 5-7, property acquisitions would occur on up to 12 parcels in the central section: 5 full and 7 partial acquisitions. One parking garage, one office building, and one church building would be displaced (see Attachment B).

North Section – Denny Way to Aloha Street

Acquisitions in the north section would be the same as those for the Cut-and-Cover Tunnel Alternative. As shown in Exhibit 5-8, acquisitions would include 20 parcels: 11 full and 9 partial acquisitions. These would include the displacement of two hotel/motel buildings, two office buildings, one condominium building, and two retail buildings. The condominium building includes 132 units, fewer than half of which are occupied. Similar residential condominium units are available in the Uptown/South Lake Union neighborhoods. The acquisition locations are shown in Attachment B. The effect of relocated or displaced businesses and workers is described in Appendix L, Economics Discipline Report.

5.4.3 Zoning

Current City zoning allows for replacement of the existing viaduct with an elevated structure within the following study area zones: Downtown Mixed Commercial, Downtown Harborfront 1 and 2, and Downtown Mixed Residential/Residential. All the above zones permit essential public facilities, which could include the replacement of the existing viaduct. However, the Pike Market Mixed zone prohibits the use of transportation facilities. The zoning and allowed uses for the Battery Street Tunnel operations buildings would be the same as those described for the Cut-and-Cover Tunnel Alternative (see Section 5.3.1).

Exhibit 5-6. Elevated Structure Alternative – South: S. Royal Brougham Way to S. King Street Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
766620 7012 and 766620 7025	Seattle Hometown Fans, LLC Warehouse	Terminal/Warehouse (includes vacant lot)	Industrial Commercial	Partial acquisition, 6,500 square feet	A portion of this property would be acquired to widen the frontage road.	No
7666206966	1201 Building LLC	Terminal/Warehouse (Pyramid Alehouse)	General Industrial 1	Partial acquisition, 11,400 square feet	The realignment of the City Side Trail would require partial acquisition of this property.	No. However, approximately 50 off-street parking spaces would be removed.
Totals for south section	Full acquisitions: 0 square feet (0 acre) Partial acquisitions: 17,900 square feet (approximately 0.41 acre)					

¹Existing land uses and zoning (City of Seattle 2009).

Exhibit 5-7. Elevated Structure Alternative – Central: S. King Street Through Battery Street Tunnel Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
5247800201	Merrill Place LLC	Parking	Pioneer Square Mixed	Full acquisition, 25,978 square feet	The aerial structure is within the building footprint, and it would require full acquisition of this parcel.	Yes. The parking garage with approximately 130 parking spaces would be demolished, and an estimated one job would be affected.
5247800203	Cedarstrand Rentals LLC	Office	Pioneer Square Mixed	Full acquisition, 10,572 square feet	The aerial structure is within the building footprint, and it would require full acquisition of this parcel.	Yes. The office building on this parcel would be demolished, and an estimated 60 jobs would be affected.
0654000280	Oregon Apartments LLC	Multi-Family/Other Housing (vacant)	Downtown Mixed Residential	Partial acquisition, 671 square feet	The northbound maintenance access to the tunnel would require partial acquisition of this parcel.	No
0654000230	Seattle City Light	Parking (vacant)	Downtown Mixed Residential/ Commercial	Full acquisition, 7,200 square feet	The southbound maintenance access to the tunnel would require full acquisition of this parcel.	No. However, 17 off-street parking spaces would be affected.
0655000043	CCAS Property and Construction	Church	Downtown Mixed Residential	Full acquisition, 5,169 square feet	The northbound maintenance access to the tunnel would require full acquisition of this parcel.	Yes. The church building located on this parcel would be demolished, and an estimated eight jobs would be affected.

Exhibit 5-7. Elevated Structure Alternative—Central: S. King Street Through Battery Street Tunnel Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
0656000480	Martin Selig	Office	Downtown Mixed Commercial	Partial acquisition, 350 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0656000255	223 Taylor Corporation	Office	Downtown Mixed Residential	Partial acquisition, 350 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0696000160	City of Seattle	Government Service	Downtown Mixed Commercial	Partial acquisition, 350 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0697000325	Clise Properties Inc.	Retail/Service (car wash)	Downtown Mixed Commercial	Partial acquisition, 350 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0697000340	Clise Properties Inc.	Parking	Downtown Mixed Commercial	Partial acquisition, 250 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No
0697000064	Sabey Corporation	Multi-Family/Other Housing	Downtown Mixed Commercial	Partial acquisition 150 square feet	The emergency access to the Battery Street Tunnel would require partial acquisition of this parcel.	No

Exhibit 5-7. Elevated Structure Alternative—Central: S. King Street Through Battery Street Tunnel Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
7666202380	Whetzel, Jonathan F.	Parking	Downtown Harborfront 2	Full acquisition, 13,249 square feet	The Elevated Structure Alternative for SR 99 would require full acquisition of this parcel for right-of-way.	No. However, one job would be affected, and approximately 65 off-street parking spaces would be removed.
Totals for central section	Full acquisitions: 62,168 square feet (approximately 1.43 acres) Partial acquisitions: 2,471 square feet (approximately 0.06 acre)					

SR = State Route

¹Existing land uses and zoning (City of Seattle 2009).

Exhibit 5-8. Elevated Structure Alternative – North: Denny Way to Aloha Street Property Acquisitions

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
2249000190	Seattle Department of Transportation	Vacant (maintenance yard with equipment storage)	Commercial 1	Full acquisition, 6,599 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The existing modular building on this site is not in use but would be demolished. The equipment storage capacity would be relocated.
2249000150	PFHC-Investments LLC	Retail/Service	Commercial 1	Full acquisition, 25,920 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The retail building located on this parcel would be demolished, and an estimated four jobs would be affected.
1988201155	Iris Holdings LLC (Gates Foundation Campus)	Office	Neighborhood Commercial 3	Partial acquisition, 80,500 square feet	Sixth Avenue N. and Mercer Street widening would require partial acquisition of this parcel.	No
1988201175	Parkey Properties Inc.	Vacant	Seattle Mixed	Full acquisition, 1,051 square feet	The widening of SR 99 would require full acquisition of this parcel.	No
1988201090	Seattle Department of Transportation	Vacant (maintenance yard)	Seattle Mixed	Full acquisition, 73,407 square feet	The widening of SR 99 would require full acquisition of this parcel.	No
1991200800	SRI Enterprise LLC	Retail/Service	Seattle Mixed	Full acquisition, 19,007 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The hotel building located on this parcel would be demolished, and an estimated 14 jobs would be affected.

Exhibit 5-8. Elevated Structure Alternative—North: Denny Way to Aloha Street Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
1991200815	ARE Seattle No. 19 LLC	Retail/Service/vacant	Seattle Mixed	Full acquisition, 18,175 square feet	The widening of SR 99 would require full acquisition of this parcel.	No. However, the retail building located on this parcel would be demolished.
1991200730	Quality Inn & Suites	Retail/Service	Seattle Mixed	Full acquisition, 33,214 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The hotel building located on this parcel would be demolished, and an estimated 55 jobs would be affected.
5165500000	Owner not listed	Multi-Family/Other Housing	Seattle Mixed	Full acquisition, 22,768 square feet	The widening of SR 99 and the southbound off-ramp to Denny would require full acquisition of this parcel.	Yes. The condominium building with 132 units would be demolished, and an estimated 177 residents and one job would be affected.
1991201050	City Investors XV LLC	Parking	Seattle Mixed	Partial acquisition, 4,915 square feet	The widening northbound on-ramp from Denny would require partial acquisition of this parcel.	No. However, approximately 32 off-street parking spaces would be removed.
2249000120	Seattle Department of Transportation	Terminal/Warehouse	Seattle Mixed	Full acquisition, 24,192 square feet	The northbound off-ramp to Roy Street would require full acquisition of this parcel.	No. However, two vacant buildings would be demolished.
2249000370	Sebco Inc.	Vacant	Seattle Mixed	Partial acquisition, 1,100 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
2249000245	702 Aurora North Joint Venture	Office	Seattle Mixed	Partial acquisition, 2,500 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No

Exhibit 5-8. Elevated Structure Alternative—North: Denny Way to Aloha Street Property Acquisitions (continued)

Parcel ID	Existing Ownership	Existing Land Use ¹	Existing Zoning ¹	Approximate Size of Property Acquisition	Reason for Acquisition	Relocation
2249000265	Bauer, Brent A.	Office	Seattle Mixed	Full acquisition, 12,152 square feet	The widening of SR 99 would require full acquisition of this parcel.	Yes. The office building would be demolished, and an estimated 20 jobs would be affected.
1991200685	Lankri Zion	Retail/Service	Seattle Mixed	Full acquisition, 12,423 square feet	The widening of the southbound off-ramp to Denny would require full acquisition of this parcel.	Yes. The retail building would be demolished, and an estimated four jobs would be affected.
2249000220	Pagliacci Pizza	Mixed Use	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
2249000195	Prince Chubby LLC	Vacant	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
1988200705	City of Seattle/KCTS Channel 9	Utility	Neighborhood Commercial 3	Partial acquisition, 2,200 square feet	The widening of Mercer Street would require partial acquisition of this parcel.	No
2249000200	Prince Chubby LLC	Vacant	Commercial 1	Partial acquisition, 600 square feet	The widening of SR 99 would require partial acquisition of this parcel.	No
1988201285	Interstate Brands Corp.	Industrial	Seattle Mixed	Partial acquisition, 51 square feet	The exit to Republican Street would require partial acquisition of this parcel.	No
Totals for north section	Full acquisitions: 248,908 square feet (approximately 5.71 acres) Partial acquisitions: 93,066 square feet (approximately 2.14 acres)					

SR = State Route

¹Existing land uses and zoning (City of Seattle 2009).

No changes in zoning or amendments to existing land use plans would be required for the Elevated Structure Alternative. The Seattle Design Commission is expected to review and provide input on the design features of the structure, including any retaining walls, railings, and light standards.

5.4.4 Indirect Effects on Land Use

The indirect effects on land use would be similar to those of the other build alternatives. The Elevated Structure Alternative would represent only one of numerous ongoing improvements occurring in the downtown area of Seattle. Overall, many factors influence land use decisions, including economic conditions, zoning, and land supply. Because the Elevated Structure Alternative would replace an existing facility to meet safety requirements and the projected growth in traffic demand, it is not likely to have large, if any, influences on these factors. The potential to induce growth would be minor.

The Elevated Structure Alternative is not expected to be a major catalyst for future growth. Large-scale redevelopment as a direct or indirect result is not likely, but the alternative would support planned future growth as identified in Seattle's Comprehensive Plan. Planning efforts for the neighborhood areas will also help to determine the direction of future growth and land uses in the study area.

Substantial changes in the relationship between the waterfront and upland properties leading to the downtown core that would occur for the Bored Tunnel and Cut-and-Cover Tunnel Alternatives would not occur for the Elevated Structure Alternative. In addition, the Elevated Structure Alternative may not be consistent with current City planning efforts for redevelopment of the central waterfront. As with the existing viaduct, the Elevated Structure Alternative would continue to be perceived as a barrier between downtown and the waterfront.

The SR 99 corridor has an influence on areas beyond the immediate neighborhoods through which it passes. Many of the daily commuters now using this route live in neighborhoods north and south of downtown, such as Ballard, Fremont, Greenwood, West Seattle, White Center, and Georgetown. For these commuters, the viaduct offers a convenient route either to downtown or around the city without using I-5. The Elevated Structure Alternative may have an influence on growth in neighborhoods where the area's desirability is in part facilitated by the ease of access to downtown Seattle, including commute, retail, and residential trips.

5.4.5 Operational Benefits

With the Elevated Structure Alternative, the new viaduct structure would be larger than the existing viaduct, creating an even greater psychological barrier

between the downtown core and the Seattle waterfront. However, as with the other build alternatives, it would maintain local and regional mobility by replacing the existing viaduct with a facility that would provide an alternate route to I-5 and Seattle's surface streets. Local connections in the south and north sections would improve mobility for motorists, pedestrians, and bicyclists, with enhanced surface street connections.

The Elevated Structure Alternative would maintain on-ramps at Columbia Street and Elliott Avenue and off-ramps at Seneca Street and Western Avenue similar to existing conditions, except that Elliott Avenue and Western Avenue would be emergency access only. This would allow travelers who use these ramps now to maintain their existing routes, which would be especially beneficial for trucks. Similar to existing conditions, trucks hauling hazardous materials would use the Elliott and Western on- and off-ramps to access SR 99, rather than having to avoid a larger segment of the freeway as they would be necessary under the Bored Tunnel and Cut-and-Cover Tunnel Alternatives.

The Elevated Structure Alternative would improve safety on SR 99. Similar to the other build alternatives, the elevated structure would comply with current seismic standards and other design standards to withstand an earthquake, flooding, or other disaster. Also similar to the bored and cut-and-cover tunnels, the elevated structure would be designed with safety improvements and congestion-reducing measures that would have a net beneficial economic benefit.

5.5 Consistency With State, Regional, and Local Land Use and Transportation Plans and Implementing Regulations

As described in Chapter 4, Affected Environment, many plans and regulations are applicable to the project. Plans and regulations, such as *VISION 2040*, *Transportation 2040*, City of Seattle Comprehensive Plan, and the *Transportation Strategic Plan* focus on the efficient movement of freight, people, and goods, as well as on safety for all travel modes.

The State Shoreline Management Act and Seattle Shoreline Master Program were also considered in this land use analysis, because project elements are proposed within the Shoreline District. The proposed project elements are allowed and consistent with the City's land use and shorelines codes. They would not affect the ecological functions of the shoreline. Guidance from the regulations for environmentally critical areas will be followed (see Appendix P, Earth Discipline Report).

The viaduct is considered "upland" in Seattle's Comprehensive Plan and Shoreline Master Program, and demolition of the viaduct and its replacement with a surface street, an elevated structure, or a tunnel would be allowed.

The build alternatives, private development projects, and other elements of the transportation Program (for the Bored Tunnel Alternative, see Chapter 7 of the Final EIS for an analysis of cumulative effects) would be consistent with the City's policies for coordinating transportation and development to concentrate and intensify urban development. Because these projects would be in accordance with state, regional, and local plans, policies, and implementing regulations, they would provide mobility and access options that could accommodate higher densities and reduce land consumption. In addition, no mitigation would be required for compliance for any of the build alternatives.

5.5.1 Washington State

The GMA provides overview guidelines for comprehensive planning in the state and specifies important goals for designating areas where urban growth will be encouraged and where new facilities and infrastructure will be directed. The project area for the build alternatives lies within an urban area and is consistent with the GMA requirement to direct infrastructure improvements to such areas. The Alaskan Way Viaduct is considered an essential public facility under the GMA. The build alternatives would replace a deteriorated transportation facility, consistent with the principal investment guideline identified in the *Washington Transportation Plan 2007–2026*.

5.5.2 Regional Plans

The build alternatives are consistent with the regional transportation strategies and policies of *VISION 2040* and *Transportation 2040*. They have been designed to be compatible with several existing and planned regional and local transportation facilities, including SR 519 improvements, light rail, transit, and the Washington State Ferries service, along with consideration of future high-occupancy vehicle (HOV) and pedestrian/bicycle facilities. The build alternatives would also comply with the need to ensure continuance of urban-level facilities. In so doing, they would be consistent with long-range goals to direct high-density growth to locations that are already urbanized.

The build alternatives would rebuild an existing urban transportation corridor to maximize the performance of the transportation system and to provide increased mobility and traffic circulation through the city. They would also increase accessibility and east-west connectivity at the south and north ends of the project area, which would support potential future infill and development. The new east-west connectivity across SR 99 at the north end of the project area, such as at John, Thomas, and Harrison Streets with the Bored Tunnel Alternative, and Thomas and Harrison Streets with the other build alternatives, would aid in the

redevelopment of a low-density, automobile-dominated neighborhood into a high-density urban center.

Relevant policies in *VISION 2040* and *Transportation 2040* related to the build alternatives include those discussed below:

RF-3: Strategically locate public facilities and amenities in a manner that adequately considers alternatives to new facilities, implements regional growth planning objectives, maximizes public benefit, and minimizes and mitigates adverse impacts.

RT-8: Develop a transportation system that emphasizes accessibility, includes a variety of mobility options, and enables the efficient movement of people, goods and freight, and information.

RT-8.34: Support the development of roadways when they are needed to provide more efficient connections for comprehensive roadway network to move people and goods when such roadways will not cause the region to exceed air quality standards.

RT-8.36: Transportation investments in major facilities and services should maximize transportation system continuity and be phased to support regional economic development and growth management objectives.

The build alternatives would generally be consistent with the policies described above. Replacement of the viaduct is necessary, as it serves as a vital local and regional transportation link to or around the downtown area from the north and south. Replacement of the viaduct would maintain essential conditions for freight mobility and improve the functionality of the highway.

5.5.3 Local Plans and Implementing Regulations

The build alternatives are consistent with Seattle's Comprehensive Plan, because they would improve travel conditions within and through the city for drivers, and conditions at the south and north ends of the project area for drivers, pedestrians, and bicyclists. They would also support higher densities of development and reduce land consumption, which includes development planned north of Qwest Field in the south and the Bill and Melinda Gates Foundation Campus in the north, which opened in Spring 2011. Seattle's Comprehensive Plan also allows for relocation or demolition of the existing Alaskan Way Viaduct.

The designs for the build alternatives were developed in accordance with the neighborhood plans and the following urban design objectives:

- Enhance the integration of the proposed improvements with the urban fabric and activities in the surrounding area

- Provide adequate space and linkages for pedestrians and bicycles
- Encourage the creation of a walkable, pedestrian-oriented environment and support transit service
- Create opportunities for infill development and enhance the environment for existing uses
- Create opportunities for landscaping and expansion of the urban forest.
- Further the legibility, clarity, and understanding of the movement systems within the city
- Maintain and enhance the visual experience of the surrounding area and the city
- Enhance existing open space and create new opportunities for open space and recreational activities
- Enhance sociability and pride of place, minimizing leftover spaces that provide opportunities for antisocial behavior

These urban design objectives were determined through a partnership between WSDOT and the City. Overall, they are consistent with local neighborhood planning in the study area. Developing the street characteristics further would be required to realize the environmental and aesthetic potential of the surface circulation design related to aesthetic differences in the build alternatives.

At the neighborhood level, the build alternatives would offer consistency with individual plans but may contribute to cumulative changes that could influence future land uses in some locations. Cumulative effects are discussed Chapter 7 of the Final EIS.

In many instances, the City adopted some neighborhood goals and policies within its Comprehensive Plan, but not all of them. Whether or not they are part of formal City policy, each neighborhood plan provides a clear preference or intent for future development and may help guide land use actions in those areas.

The *Seattle Central Waterfront Concept Plan* (2006) sets out a vision and development program that can be realized over time, relying on partnerships for funding and future cooperative management.

In January 2011, the City Council adopted a resolution (Seattle Resolution 31264) concerning public spaces on the Central Waterfront, setting forth some guiding principles for the development of the Central Waterfront under the Seattle Central Waterfront Concept Plan. The guiding principles, which follow below, are intended to set forth broad objectives for designing, developing and managing a series of “premier public spaces” on the Central Waterfront as well as the

connections necessary to reconnect the Central Waterfront to the city (City of Seattle 2011).

Create a waterfront for all

The Central Waterfront should engage the entire city. It is a public asset and should remain focused on public use and activities that attract people from all walks of life. It should be a place for locals and visitors alike – a place where everything comes together and co-mingles effortlessly. The process for developing a waterfront design should, in fact must, draw on the talents and dreams of the entire city. The resulting public spaces and surrounding development will engage us through a range of activities throughout the day and year.

Put the shoreline and innovative, sustainable design at the forefront

To succeed, the waterfront must bring people to the water's edge – allowing them to experience the water itself and the unique geography and ecology of Elliott Bay. At the same time, we must take bold steps to improve the natural shoreline ecology while also preserving and enhancing the maritime activities that remain central to the Central Waterfront. The waterfront should, in its design, construction, and operation, reflect Seattle's commitment to sustainability, innovation, and responding to climate change.

Reconnect the city to its waterfront

The waterfront should provide a front door to the downtown neighborhoods and the City. It will build a network of green connections and public spaces that connect visually and physically to the water, to vital civic and commercial destinations, nearby neighborhoods, and the larger fabric of downtown, city and regional open spaces. This will require a phased approach that is implemented over a longer horizon, but the full picture needs to be in view from the beginning.

Embrace and celebrate Seattle's past, present and future

The waterfront is a lens through which to understand Seattle's past, present and future – from its rich geologic and natural history and early Native American settlements, to the founding of the region's maritime and resource economy, to maritime, industrial, commercial, and recreational activities today. The waterfront is and should continue to support these activities, to provide essential connections and access to the waterfront and to surrounding neighborhoods. New waterfront public spaces should tell these stories in ways that are authentic and bring them to life for people today and preserve these connections into the future.

Improve access and mobility

The waterfront is and will remain a crossroads. Waterfront users rely on safe and efficient access to the piers both from water and land, thousands of commuters

use Colman Dock each day, and Alaskan Way will continue to provide an important connection for moving people and goods between the south and north of downtown. At the same time, the waterfront will be an increasingly attractive place for walkers, bicyclists, joggers, recreational boaters, and others. The future waterfront should accommodate safe, comfortable, and efficient travel by pedestrians, bicyclists, vehicles, and freight. The interactions among these many parties must be designed carefully for safety, comfort, and efficiency for all.

Create a bold vision that is adaptable over time

The waterfront will come together over time, with many complex infrastructure and engineering projects that must be completed before permanent public improvements can be made. The vision developed now should clearly define an overall framework for how the water front will take shape, what the key elements will be, and define their essential character. At the same time, the vision must be flexible enough to adapt as conditions inevitable change.

The removal of the existing viaduct, an integral element of the Bored Tunnel and the Cut-and-Cover Tunnel Alternatives, is a key component in achieving the goals included in the Waterfront Plan, and the guiding principles for the design and development of the Central Waterfront. The Elevated Structure Alternative would not support the overall vision. However, to the extent that the tolled build alternatives could increase vehicle volumes on Alaskan Way, they could make the goals of the Central Waterfront Project, and the objectives of the guiding principles of the Central Waterfront Concept Plan more difficult to achieve.

Transportation

The project team reviewed the relevant goals and policies for land use, transportation, and economic development and specific objectives for the City's neighborhood planning areas. Comments on the relevant goals and policies are included below:

T1: Design transportation infrastructure in urban villages to support land use goals for compact, accessible, walkable neighborhoods.

T3: Encourage and provide opportunities for public involvement in planning and designing of City transportation facilities, programs, and services, and encourage other agencies to do the same.

TG6: Promote efficient freight and goods movement.

TG19: Preserve and improve mobility and access for the transport of goods and services.

TG21: Promote healthy neighborhoods with a transportation system that protects and improves environmental quality.

T54: Identify, evaluate, and mitigate environmental impacts of transportation investments and operating decisions (including impacts on air and water quality, noise, environmentally critical areas, and endangered species). Pursue transportation projects, programs, and investment strategies consistent with noise reduction, air quality improvement, vehicle trip reduction, protection of critical areas and endangered species, and objectives for water quality improvement.

T58: Coordinate with regional, state, and federal agencies, local governments, and transit providers when planning and operating transportation facilities and services in order to promote regional mobility for people and goods and the urban center approach to growth management.

TG25: Promote the safe and efficient operation of Seattle's transportation system.

T62: In operating the transportation system, balance the following priorities: safety, mobility, accessibility, infrastructure preservation, and citizen satisfaction.

In summary, the build alternatives would be consistent with and supportive of these transportation policies. As the existing Alaskan Way Viaduct nears the end of its useful life, the stability of the structure and the safety of its users are a major concern. The build alternatives would create a seismically safe replacement for the existing viaduct. They would provide increased capacity in the transportation system, more travel choices, and improved access and mobility to and through downtown by investing in transit and city streets. The build alternatives would also maintain the economic strength of the region by maintaining essential conditions for freight mobility and minimizing construction effects on businesses and the traveling public by creating jobs.

Pedestrians would benefit from increased access throughout the north project area, including from John, Thomas, and Harrison Streets with the Bored Tunnel Alternative, and Thomas and Harrison Streets with the other build alternatives. These changes would connect the streets over SR 99, linking South Lake Union and the Uptown Urban Center neighborhoods in the north and. The new extension of S. Dearborn Street in the south would link First Avenue S. to Alaskan Way S. along the waterfront. Other improvements that would increase connectivity among neighborhoods include the extension of Sixth Avenue N., closure of the existing Broad Street right-of-way, and reconstruction of the Mercer Street corridor, which would facilitate freight movement between the Ballard Interbay Northend MIC and I-5.

Where improved connections to the downtown core and the waterfront may facilitate commute trips from surrounding neighborhoods, some development activity may increase because of the desirability of this connection.

The subsurface tunnel structure of the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative would have substantially fewer visual and noise effects along the central waterfront than the Elevated Structure Alternative, existing conditions, or the Viaduct Closed (No Build Alternative). In addition, air pollution and dust would be reduced with the bored and cut-and-cover tunnels. These effects would increase the viability and desirability of land uses in the central waterfront.

Neighborhood Planning

DT-G9: Support transportation improvements that complement and reinforce desired land use patterns. Strive to accommodate growth in peak hour travel primarily by transit, and encourage transit and pedestrian travel as the primary means of internal circulation. Discourage vehicle traffic passing through downtown surface streets with a destination elsewhere. Recognize the importance of the automobile as a means of access to downtown for non-work trips.

The build alternatives would be consistent with these urban design objectives and would support downtown neighborhood goal (DT-G9):

- Enhance the integration of the proposed improvements with the urban fabric and activities of the surrounding area
- Provide space and linkages for pedestrians, bicycles, and vehicles
- Encourage the creation of a walkable, pedestrian-oriented environment and supporting transit service
- Create opportunities for infill development and enhancement of the environment for existing uses
- Further the understanding of the movement systems within the city

According to *Seattle's Central Waterfront Concept Plan* (City of Seattle 2006b), new development provides the opportunity to create public space and other amenities that complement the public realm. For the reasons listed above, the Bored Tunnel and the Cut-and-Cover Tunnel Alternatives likely would provide a substantially higher degree of investment opportunity along the central waterfront than the Elevated Structure Alternative or the Viaduct Closed (No Build Alternative).

GD-G9: A high level of general mobility and access is attained within the Greater Duwamish MIC.

GD-G10: The transportation network in the Greater Duwamish MIC makes appropriate connections and minimizes conflicts between different travel modes.

GD-G12: The transportation network in the Greater Duwamish MIC emphasizes the mobility of freight and goods.

GD-G15: Sufficient transportation infrastructure, particularly in the northern portion of the Greater Duwamish MIC, minimizes the transportation impacts of special events on industrial users.

GD-P35: Strive to minimize disruptions to freight mobility caused by construction (including construction of transportation facilities) in the Greater Duwamish MIC.

With all the build alternatives, improvements in the south would be consistent with and support the goals and policies listed above for the Greater Duwamish MIC neighborhood. The build alternatives would include the construction of ramps providing northbound on, northbound off, southbound on, and southbound off movements to and from SR 99. The Bored Tunnel Alternative would provide additional mobility in the area, as new surface streets would be constructed to connect First Avenue S. and Alaskan Way S. between S. Royal Brougham Way and S. King Street. The improved roadway infrastructure and increased roadway connections should facilitate greater mobility in and around this area.

SLU-P22: Explore transportation improvements to link South Lake Union with its surrounding neighborhoods.

SLU-P23: Seek to provide improved access to and connections across Aurora Avenue N. that could result in a more integrated and efficient transportation system for multiple transportation modes.

In summary, under all build alternatives, improvements in the north would be consistent with and supportive of the goals and policies listed above for the South Lake Union neighborhood. General improvements in the north related to all the build alternatives include construction of a two-way Mercer Street from Dexter Avenue N. to Fifth Avenue N., an extension of Sixth Avenue N., removal of a portion of Broad Street, and access to and from SR 99. These improvements would improve circulation of traffic and provide better access across SR 99 to the South Lake Union neighborhood and its surrounding neighborhoods. Greater connectivity in the north area may also facilitate increased efficiencies for transit service.

5.5.4 Shoreline Master Program

The Department of Planning and Development is in the process of comprehensively updating Seattle's Shoreline Master Program for the first time since 1987. The requirement to update the Shoreline Master Program is a state mandate under the State of Washington's Shoreline Management Act. This act

establishes policy goals for the management of shorelines, and the Shoreline Master Program guidelines establish the requirements for how to achieve the policy goals, with flexibility to acknowledge local concerns and conditions. The three major policy goals established by the Shoreline Management Act for the Shoreline Master Program are related to preferred shoreline uses, environmental protection, and public access:

Preferred Shoreline Uses: The Shoreline Management Act establishes a preference for uses that are water-oriented and that are appropriate for the environmental context (e.g., port facilities, shoreline recreational uses, and water-dependent businesses).

Environmental Protection: The Shoreline Management Act requires protection for shoreline natural resources to ensure no net loss of ecological function.

Public Access: The Shoreline Management Act promotes public access to shorelines by mandating inclusion of a public access element in the Shoreline Master Program and requiring provisions to ensure that new development maintains public access features.

In summary, the build alternatives would be consistent with the three major policy goals listed above. Uses along the current shoreline designations affected by the build alternatives would remain unchanged. However, removal of the existing viaduct under the Bored Tunnel and Cut-and-Cover Tunnel Alternatives would allow for greater water-oriented use of the shoreline area along the central waterfront.

The build alternatives would provide a long-term benefit to the traveling public by providing improved accessibility for employees and customers of businesses along the waterfront. In the case of the Bored Tunnel Alternative, the tunnel would not be located directly on the waterfront; it would be in an upland underground location and would provide access to existing shoreline uses at the tunnel portals. Construction activities for all the build alternatives would include best management practices and site-specific mitigation measures that are intended to protect fragile shoreline areas.

The relevant shoreline goals and policies in the Land Use element of Seattle's Comprehensive Plan include the following:

LUG44: Provide for the optimum amount of public access—both physical and visual—to the shorelines of Seattle.

LUG46: Develop a transportation network that supports and enhances use of and access to the shorelines.

LUG47: Relocate or demolish transportation facilities that are functionally or aesthetically disruptive to the shoreline, such as the aerial portion of the Alaskan Way Viaduct on the central waterfront between S. King Street and Union Street.

In summary, connections to upland areas and downtown are expected to continue, and access to the shoreline may improve. Because the Bored Tunnel and Cut-and-Cover Tunnel Alternatives would remove the existing viaduct, they would offer greater opportunities for enhancement of shoreline views. This change may also make the waterfront more appealing to more people, which would better support the goal of increasing opportunities to enjoy this area of the city.

LU241: (1) Streets, highways, freeways, and railroads should be located away from the shoreline in order to maximize the area of waterfront lots and minimize the area of upland lots. Streets, highways, freeways, and railroads not needed to access the shoreline lots should be discouraged in the Shoreline District. A replacement for the Alaskan Way Viaduct may be located in the Shoreline District because it represents a critical link in the transportation network. (2) To facilitate expeditious construction in an environmentally and fiscally responsible manner, standards for major state and regional transportation projects should be considered that will allow flexibility in construction staging, utility relocation, and construction-related mitigation and uses, provided that the projects result in no net loss of ecological function. (3) Prohibit aerial transportation structures over 35 feet high, such as bridges and viaducts, on the central waterfront in the shoreline environments between S. King Street and Union Street, except for aerial pedestrian walkways associated with Colman Dock, in order to facilitate the revitalization of downtown's waterfront, provide opportunities for public access to the central waterfront shoreline, and preserve views of Elliott Bay and the land forms beyond.

Of the three build alternatives, only the Bored Tunnel Alternative would be implemented in an area away from the shoreline, with the existing viaduct remaining open during the construction of the bored tunnel, thereby minimizing disruptions to land uses. The Bored Tunnel and the Cut-and-Cover Tunnel Alternatives would also offer enhanced connections to downtown through transportation improvements in the portal areas and removal of the existing viaduct. In addition, removing the viaduct would meet the goal of relocating aesthetically disruptive uses. Two staging and spoils removal areas (south of Terminal 25 and Pier 46), would require short-term, construction-related activities in shoreline locations.

5.6 Operational Mitigation

For the build alternatives, the overall operational effects on land use would be beneficial, and the operational mitigation would not be necessary. Property acquisitions and relocations would be the major differentiating factors among the build alternatives. Where acquisition and relocation are unavoidable, WSDOT would follow the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Owners of private property have federal and state constitutional guarantees that their property will not be taken or damaged for public use unless they first receive just compensation.

5.6.1 Compensation

Compensation will be provided for parcel acquisitions, including buildings and structures, at fair market value and in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. These regulations also provide for relocation services for businesses and residences and include measures for providing assistance in locating suitable replacement housing and business sites. The Bored Tunnel Alternative would not directly affect any residential properties. Both the Cut-and-Cover Tunnel and the Elevated Structure Alternatives would displace one multi-family residential property in the north section of the project area. Relocation assistance will be provided to all displaced businesses, persons, and organizations. The term “displaced person” refers to any person who is required to move from real property or to move his or her personal property from the real property. Mitigation measures related to displacements are identified below.

5.6.2 Residential Relocation Assistance

State and federal laws require that no person be required to move from a residence unless comparable replacement property is available within that person’s financial means. The laws also stipulate that no displaced person, business, or organization be required to move from any dwelling or business facility without being given written assurance of relocation entitlements at least 90 days before the earliest date they would be required to move. Relocation services will be provided to all affected property owners and tenants without discrimination. Relocation assistance for affected residents will be provided by qualified personnel and will include moving payments, replacement housing payments, and relocation advisory services. Relocation advisory services include the following:

- Determination of any special needs and requirements
- Explanation of relocation benefits

- Individual assistance
- Assurance of the availability of a comparable property in advance of a residential displacement
- Inspection of houses for decent, safe, and sanitary conditions for a residence
- Provision of counseling services to minimize hardships associated with the need to relocate

5.6.3 Business Relocations

WSDOT staff would work directly with affected business owners to determine relocation needs and the best assistance measures for each affected business. For all displaced businesses, every effort would be made to assist the owners in finding suitable replacement locations. Where businesses would be required to relocate, lead agency staff would work with owners to ensure that the moves could be made in a timely manner, thereby reducing overall expenses, inconveniences, and the amount of time a business must remain closed during the move.

Assistance available to business owners includes reimbursement associated with moving costs. Actual moving costs and related expenses would be covered or, in some instances, a fixed payment would be provided. The types of costs that would be covered include disconnecting, dismantling, removing, packing, transporting, unpacking, reassembling, and reinstalling personal property. Additional covered expenses under moving costs include reestablishment expenses of up to \$50,000; losses of personal property, storage, and insurance; planning and supervising expenses; replacement of stationery and business cards; and costs associated with installation of telephone system networks and call forwarding.

Advisory assistance would also be provided, which includes information on the availability, purchase price, and rental costs of suitable replacement properties. WSDOT staff would also work with businesses to help them become established in their new location and to minimize any hardships encountered in moving by providing advice regarding additional sources of assistance.

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Chapter 6 CONSTRUCTION EFFECTS AND MITIGATION

Potential effects experienced by adjacent land uses due to construction-related activities for the Bored Tunnel Alternative are estimated to occur for up to 65 months, which is much shorter than the duration for the Cut-and-Cover Tunnel Alternative (105 months) and the Elevated Structure Alternative (120 months). Overall, however, because of the construction durations, many of the construction effects of the build alternatives are expected to be the same.

6.1 Construction Effects Common to All Build Alternatives

6.1.1 Construction Effects

Construction effects are described below in terms of temporary disturbances to adjacent businesses and properties during construction and demolition, which includes temporary easements and staging areas. Any major construction project, public or private, inconveniences or disturbs the residents, businesses, and business customers adjacent to that construction project. Construction-related effects can and would vary considerably over time and in their geographic coverage. Furthermore, effects can also vary according to the methods used for staging and construction. Temporary construction effects would include the following:

- The presence of construction workers, heavy construction equipment, and materials, within the construction area and along haul routes
- An increase in traffic congestion around the work zones
- Temporary road closures, traffic diversions, and alterations to property access (see Appendix C, Transportation Discipline Report)
- Loss of parking, especially on-street short-term parking (see Appendix C, Transportation Discipline Report)
- Airborne dust (see Appendix M, Air Discipline Report)
- Noise and vibration from construction equipment (including tunnel boring equipment) and vehicles (see Appendix F, Noise Discipline Report)
- Decreased visibility and alterations of access to residences and businesses
- Rerouted pedestrian walk-up and transit access to residences and businesses

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and- Cover Tunnel Alternative	Elevated Structure Alternative
Terminal 106 (7666700390)	14.3	Terminal/ warehouse	General Industrial 1	<ul style="list-style-type: none"> Storage of construction materials and equipment Fabrication of materials (outside of 200-foot shoreline buffer) Equipment servicing Holding area for spoils Loading and unloading of material and supplies 	X	X	X
Terminal 25 (7666207905)	10	Terminal/ warehouse	General Industrial 1	<ul style="list-style-type: none"> Storage of construction materials and equipment Fabrication of materials (outside of 200-foot shoreline buffer) Equipment servicing Loading and unloading of materials and supplies 	X	X	X
WOSCA site (7666206950)	7	Vacant	Industrial Commercial	<ul style="list-style-type: none"> Location of permanent roadway connecting the tunnel to the new SR 99 and the tunnel operations building Staging area for construction Temporary power substation for tunnel boring machine Potential concrete batch plant 	X	X	X

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones (continued)

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and- Cover Tunnel Alternative	Elevated Structure Alternative
Pier 48 (7666202630)	1.2	Parking	Downtown Harborfront 1	<ul style="list-style-type: none"> • Parking for construction workers • Storage of construction materials and equipment 	X	X	X
Pier 46, north apron of Terminal 46 (7666207695)	9.2	Terminal/ warehouse	General Industrial 1	<ul style="list-style-type: none"> • Bored tunnel: erection of conveyors or pipes for transfer of materials onto barges • Bored tunnel: trucking in and out of the site for support and maintenance of the conveyor system • Storage of construction material and equipment 	X	X	X
I-90 HOV ramp site	0.4	Roadway	General Industrial 2	<ul style="list-style-type: none"> • Storage of construction materials and equipment • Loading and unloading of material and supplies 	X	X	X
Alaskan Way, S. King Street to S. Jackson Street	1	Roadway	Pioneer Square Mixed	<ul style="list-style-type: none"> • Bored tunnel: location of rail-mounted gantry crane for lowering equipment and materials into the tunnel portal • Bored tunnel: construction of south portal and launching of the tunnel boring machine • Storage of construction materials and equipment • Equipment servicing 	X	X	X

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones (continued)

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and-Cover Tunnel Alternative	Elevated Structure Alternative
Railroad Way S. right-of-way	1	Roadway	General Industrial 2	<ul style="list-style-type: none"> Storage of construction materials Access to the WOSCA work area 	X	X	X
Alaskan Way, S. Royal Brougham Way to S. King Street	6	Roadway	General Industrial 1	<ul style="list-style-type: none"> Location of permanent roadway connecting the tunnel to new SR 99 Permanent cut-and-cover tunnel Staging area for construction 	X	X	X
First Avenue S. Bridge site (7643400010, 7643400005, 5367202520, and 3024049182)	4	Terminal/warehouse	General Industrial 1	<ul style="list-style-type: none"> Storage of construction materials and equipment Loading and unloading of material and supplies 	X	X	X
Fischer site, Fourth Avenue S., SR 519 project staging site (7666204950)	1	Terminal/warehouse	General Industrial 2	<ul style="list-style-type: none"> Storage of construction materials and equipment Fabrication of materials 	X	X	X
I-90 westbound off-ramp area	0.3	Roadway	Industrial Commercial	<ul style="list-style-type: none"> Storage of construction materials 	X	X	X
Broad Street right-of-way	1	Roadway	Seattle Mixed	<ul style="list-style-type: none"> Access into north portal and north access work area Construction staging and storage 	X	X	X

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones (continued)

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and-Cover Tunnel Alternative	Elevated Structure Alternative
Construction zone within City right-of-way	0.1	Roadway	Downtown Harborfront 1, Downtown Harborfront 2, Downtown Mixed Residential/ Residential	<ul style="list-style-type: none"> • Construction zone right-of-way • Demolition and removal of the viaduct structure 	X	X	X
Pike Place and Pine Street (7666202380)	0.3	Parking	Downtown Harborfront 2	<ul style="list-style-type: none"> • Staging area for construction • Storage of construction materials 	X	X	X
Seattle City Light parking lot south of the Battery Street Tunnel (0654000230)	0.1	Parking	Downtown Mixed Residential/ Residential	<ul style="list-style-type: none"> • Storage of construction materials 	X	X	X
Fourth Avenue and Battery Street (0656000590)	0.15	Parking	Seattle Mixed	<ul style="list-style-type: none"> • Construction staging retrofit of Battery Street Tunnel • Storage of construction materials 		X	X
Sixth Avenue and Battery Street (0697000105)	0.39	Parking	Seattle Mixed	<ul style="list-style-type: none"> • Construction staging retrofit of Battery Street Tunnel • Storage of construction materials 		X	X
Aurora Avenue N. and Denny Way (1991201050)	0.51	Parking	Seattle Mixed	<ul style="list-style-type: none"> • Widening of SR 99 • Staging area for construction • Storage of construction materials 		X	X

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones (continued)

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and- Cover Tunnel Alternative	Elevated Structure Alternative
Shell gas station and market (1991200685)	0.29	Retail	Seattle Mixed	<ul style="list-style-type: none"> • Widening of SR 99 • Staging area for construction • Storage of construction materials 		X	X
Marselle Condominiums (5165500000)	0.52	Condominium	Seattle Mixed	<ul style="list-style-type: none"> • Widening of SR 99 • Staging area for construction • Storage of construction materials 		X	X
Quality Inn and Suites (1991200730)	0.76	Hotel/Motel	Seattle Mixed	<ul style="list-style-type: none"> • Widening of SR 99 • Staging area for construction • Storage of construction materials 		X	X
Seattle Pacific Hotel (1991200800)	0.44	Hotel/Motel	Seattle Mixed	<ul style="list-style-type: none"> • Widening of SR 99 • Staging area for construction • Storage of construction materials 		X	X
City of Seattle maintenance yard (1988201090)	2	Vacant	Seattle Mixed	<ul style="list-style-type: none"> • Location of permanent roadway connecting the tunnel to new SR 99 • Staging area for construction 	X	X	X
Sixth Avenue N. site, Thomas Street to Harrison Street	0.5	Roadway	Seattle Mixed	<ul style="list-style-type: none"> • Storage of construction materials 	X	X	X
Thomas Street site	0.5	Roadway	Seattle Mixed	<ul style="list-style-type: none"> • Parking for construction workers • Storage of construction materials and equipment • Temporary contractor office 	X	X	X

Exhibit 6-1. Proposed Construction Staging Areas and Construction Work Zones (continued)

Location (Parcel ID)	Size (acres)	Existing Land Use ¹	Existing Zoning ¹	Potential Uses	Bored Tunnel Alternative	Cut-and-Cover Tunnel Alternative	Elevated Structure Alternative
Republican Street site (1988201175)	0.07	Vacant	Seattle Mixed	<ul style="list-style-type: none"> Storage of construction materials SR 99 alignment 	X	X	X
Harrison Street site (1991200845)	1.4	Office	Seattle Mixed	<ul style="list-style-type: none"> Location of permanent cut-and-cover tunnel, including the tunnel operations building Staging area for construction 	X		
Aurora Avenue N. and Thomas Street (1991200815)	0.42	Vacant	Seattle Mixed	<ul style="list-style-type: none"> Cut-and-cover tunnel and elevated structure: staging area for construction and required for SR 99 widening Bored tunnel: staging area for construction and upon completion of tunnel parking lot for operations personnel 	X	X	X
Right-of-way required for street widening		Roadway	Seattle Mixed, Neighborhood Commercial 3	<ul style="list-style-type: none"> Right-of-way for street widening 	X	X	X
BNSF/Lenora Street construction zone	0.3	Utility	Downtown Harborfront 2	<ul style="list-style-type: none"> Storage of construction materials 	X	X	X
Closed Broad Street		Roadway	Seattle Mixed	<ul style="list-style-type: none"> Right-of-way for street widening 	X	X	X

HOV = high-occupancy vehicle

I-90 = Interstate 90

SR = State Route

WOSCA = Washington-Oregon Shippers Cooperative Association

¹ Existing land uses and zoning (City of Seattle 2009).

The proposed staging areas for the build alternatives are listed in Exhibit 6-1. Effects from the use of these facilities for construction staging and demolition would result primarily from the movement of materials, equipment, and personnel between the staging areas and construction zones. This movement could result in traffic disruptions and increase the noise, dust, and vibration effects on residences and businesses in the study area. No changes in land use due to construction activities would be permanent.

Under all three of the build alternatives, increased traffic and congestion in the vicinity of First Avenue S. and Alaskan Way would reduce access to Pioneer Square and eliminate some on-street parking, which could result in economic effects on business and building owners in Pioneer Square. However, the effects would be localized enough (at the southwest edge of the district) that they could be minimized and are not considered adverse (see Appendix C, Transportation Discipline Report). Furthermore, WSDOT will develop a communications plan to inform the Pioneer Square business community and residents of the potential temporary modifications.

Disruptions to land uses could be caused by utility relocations before viaduct demolition, loss of use of loading areas under the viaduct, and loss of private parking areas under the viaduct.

6.1.2 Viaduct Removal

Under all three build alternatives, the existing viaduct would be removed. Utilities located on and, where necessary, under the viaduct would be relocated.

During the demolition of the viaduct and ramps, businesses and residents would experience noise, vibration, reduced access and parking, and traffic congestion. The effects would apply primarily to buildings along Alaskan Way between S. Jackson and Columbia Streets and near the ramps on Columbia and Seneca Streets.

It is anticipated that the viaduct structure would be taken apart piece by piece, and the vibration associated with demolition and removal is not expected to be substantial. Businesses and residents would be able to continue to occupy the buildings, but they may be affected by noise, dust, and limited access. Businesses on the central waterfront piers may also be affected by noise, dust, and limited access but to a lesser extent.

Viaduct demolition would also affect parking under the viaduct and along Alaskan Way. Approximately 560 on-street parking spaces under the viaduct and ramps from S. King Street to the south portal of the Battery Street Tunnel would be affected during viaduct demolition.

With the Bored Tunnel Alternative, these on-street parking spaces would remain in use until the final stage of construction. Alternatively, parking under the viaduct would be unavailable from the start of construction for the Cut-and-Cover Tunnel and Elevated Structure Alternatives. The removal of parking in could inconvenience the businesses that rely on these parking areas. Directly after viaduct demolition, the City expects to begin work on the waterfront promenade and the new Alaskan Way surface street. Construction associated with these projects is also likely to affect parking availability until the projects are completed. These projects are separate from the Alaskan Way Viaduct Replacement Project and are discussed in more detail in Chapter 7 of the Final EIS. Refer to Appendix C, Transportation Discipline Report, for more information on parking issues.

Demolition of the existing viaduct would require closure of various surface streets at several locations during the 9-month viaduct removal period. During demolition, pedestrians would be rerouted from the work zone to alternate routes in the area from S. King Street to Battery Street.

Some private parking and loading areas along Alaskan Way would experience disruptions to access while the viaduct is being demolished and the utilities that are currently on the viaduct are being relocated. These parking and loading areas are primarily narrow strips of land about 8 to 10 feet wide. Parking and loading in these areas would be temporarily unavailable periodically as demolition progresses along the corridor. Most of these properties also have access along Western Avenue.

6.1.3 Mitigation of Construction Effects

The mitigation measures for construction effects would be the same for the three build alternatives. Mitigation for potential effects on land use during construction activities would include providing advance notice to property owners in the project area regarding demolition and construction activities, utility disruptions, and detours. In addition, a construction website with a 24-hour project information line would be established and updated regularly. Construction traffic, dust, and noise would be mitigated to the extent possible, as described in Appendix C, Transportation Discipline Report; Appendix M, Air Discipline Report; and Appendix F, Noise Discipline Report.

Major special events at the sports stadiums and operations at the Pier 66 cruise ship terminal could limit construction activities. Construction activities could be managed to avoid and minimize impediments to vehicle access to the marine cargo area of Terminal 46 and Colman Dock.

The Bored Tunnel Alternative would require relocation of the 118 tenants that occupy the L&B Property Investments property (Western Building on parcel 7666202570) for a construction easement. Right-of-way acquisition and potential relocations would occur before construction. Property acquisitions will be compensated by measures identified in Section 5.6. Additional mitigation measures related to business and community effects are described in Appendix L, Economics Discipline Report, and Appendix H, Social Discipline Report.

6.2 Construction Effects of the Bored Tunnel Alternative

Construction of the Bored Tunnel Alternative is estimated to take up to 65 months to complete. Potential effects experienced by adjacent land uses due to construction-related activities for the Bored Tunnel Alternative would last for a shorter period than the effects of the Cut-and-Cover Tunnel Alternative (105 months) and the Elevated Structure Alternative (120 months). Many impacts of the build alternatives would be the same, but they would vary by the length of time for construction. For example, the construction effects for the Elevated Structure Alternative would last almost twice as long as for the Bored Tunnel Alternative. Some properties would be used for staging areas during construction, as shown in Exhibit 6-1.

With the Bored Tunnel Alternative, soil subsidence may occur as the tunnel boring machine (TBM) moves from Alaskan Way to First Avenue, going beneath buildings at the northwest corner of the Pioneer Square Historic District and buildings north of the historic district. Other vulnerable buildings along the bored tunnel alignment also may be subjected to slight damage due to settlement as the TBM bores beneath or close to them. Settlement could result in utility disruption or damage to streets or sidewalks. Such effects, if they occur, would most likely be repaired quickly.

Temporary tieback easements would be needed on one property in the south portal area and three properties in the north portal area. A temporary tieback easement allows the temporary use of a property below the surface for a wall-shoring system that would be used to build a permanent wall and may be abandoned after the permanent wall is constructed. The tiebacks in the temporary easement areas would be removed after construction is completed. Exhibit 6-2 lists the properties where temporary tieback easements would be needed and the approximate easement areas that would be required.

To facilitate construction of the Bored Tunnel Alternative, temporary construction easements would be needed on several properties along the tunnel alignment, at the south and north portals and adjacent to the viaduct. These easements allow the temporary use of a property to facilitate construction and may include the purchase of existing improvements. Temporary construction easements also may

be used for implementing the settlement mitigation measures in or under the buildings (e.g., building modifications and grouting).

Exhibit 6-2. Temporary Tieback Easements in the Portal Areas – Bored Tunnel Alternative

Parcel ID	Property Owners ¹	Approximate Easement Area (square feet)
South Portal Area		
7666207695	Port of Seattle, Terminal 46	147,000
North Portal Area		
1991200790/T55	Office	520
1991200405	Seattle City Light substation	17,500
1991200800	Seattle Pacific Hotel	19,100
Total	184,120 square feet (approximately 4.23 acres)	

¹Existing land uses (City of Seattle 2009).

Exhibit 6-3 lists the 32 properties where temporary construction easements would be required. Twenty-one of these properties are in the approximate area between Western Avenue and First Avenue, and Yesler Way and Union Street. The other 10 properties are in the north portal area. The six affected properties that are parking lots are privately owned pay parking lots between Yesler Way and Marion Street, with one other parking lot between Spring Street and Seneca Street. Some or all of the parking would be removed during the 9-month viaduct demolition period. As a result, businesses and residents that rely on these parking areas may be temporarily inconvenienced.

Construction easements for this alternative would include the L&B Property Investments property (Western Building on parcel 7666202570). The Western Building houses 118 tenants primarily occupied by artists who use the spaces as studios. These artists would require relocation while the building is reinforced to reduce the risk of damage during tunneling.

Construction-related detours, closures, and traffic congestion would change mobility on streets in the project area. Residents would experience some degree of inconvenience, and businesses would experience disruptions in the flow of customers and employees and in the delivery or shipment of materials and supplies. In addition, transit service could be adversely affected by construction-related detours. The economic effect of construction on businesses is discussed in Appendix L, Economics Discipline Report.

Exhibit 6-3. Temporary Construction Easements in the Bored Tunnel Area – Bored Tunnel Alternative

Parcel ID	Existing Land Use ¹	Approximate Easement Area (square feet)
7666202594	Office	3,792
7666202566	Parking	840
7666202575	Parking	7,732
7666202570	Retail/Service	15,000 (includes 18 artist studios)
7666202570/T252	Terminal/Warehouse	14,926
7666202565/T251	Office	17,864
7666202560/A161	Parking	5,269
7666202561	Parking	614
7666202545/A159	Office/Parking Garage	26,989
7666202540	Parking	23,751
7666202525	Office	35,951
7666202530/T243	Office	59,239
7666202515/T234	Office	24,011
1974600035/T237	Retail/Service	13,316
1974600025/T235 & T236	Retail/Service	13,316
9197200000/T231	Multi-Family/Other Housing	13,316
7666202510	Parking	25,565
1697500000/T230	Mixed Use	16,780
1976200076/T222 & T223	Mixed Use	50,220
1976200075/T216	Mixed Use	14,295
1976200060/T215	Retail/Service	4,440
1975700600/T184	Retail/Service	12,536
0696000160/T086	Government Services	19,447
0696000175/T090	Office	12,965
0696000250/A114	Multi-Family/Other Housing	55,832
0697000064/T77	Office	50,414
0697000025/A110 & A167	Multi-Family/Other Housing	55,810
1991200580/A108	Retail/Service	26,009
1991200600/A166	Office	12,997
1991200520/A106	Office	12,504
1991200765/T057	Retail/Service	25,928
1991200790/T55	Office	4,081
Total		675,749 square feet (about 15.51 acres)

¹Existing land uses (City of Seattle 2009).

The loss of parking, especially on-street short-term parking, could reduce the convenience of access to land uses. Throughout the duration of construction, on-street parking spaces in the south and north portal areas would be temporarily unavailable. Pedestrian and vehicle access, including freight deliveries to buildings in these areas, may be affected for the entire construction period.

Temporary roadway closures are expected to result in a redistribution of traffic to nearby streets throughout the study area. The effects would vary during each stage of construction. The greatest changes in access to adjacent land uses would occur in the north portal area when traffic would be diverted along the west side of SR 99 to the Battery Street Tunnel. For some parcels, the effects would occur only during construction activities at a given location. Other parcels that depend on existing vehicle circulation patterns and access, including public transit, could be affected during the entire construction period. Access to the Seattle Ferry Terminal would be maintained throughout the construction period. However, only a single lane of Alaskan Way would be available for ferry traffic southbound. To alleviate potential queuing backups on Alaskan Way (particularly during peak ferry travel periods), a second northbound lane between Yesler Way and Spring Street would be added. Construction would include the removal of the Waterfront Streetcar tracks, signal modifications, and the demolition of the elevated streetcar platform south of Spring Street.

Spoils from the bored tunnel and portal excavations are proposed to be transported by barge to the Mats Mats Quarry, near Port Ludlow, Washington, for disposal.

6.2.1 South Portal

Construction of the south portal for the Bored Tunnel Alternative would include the construction of a tunnel operations building and ramps providing northbound on and southbound off movements to and from SR 99. During the 1-week closure for the WOSCA detour connection, the Elliott/Western ramps and midtown ramps would still be in operation; Alaskan Way S. would continue to operate on the East Frontage Road detour route between S. King Street and S. Royal Brougham Way. The 1-week closure would have temporary effects on the street network as well as access to residences and businesses in the area, including the sports stadiums.

North- and southbound SR 99 traffic would travel on the WOSCA detour constructed for the S. Holgate Street to S. King Street Viaduct Replacement Project. The WOSCA detour would route traffic to the WOSCA property at S. Royal Brougham Way and connect back to SR 99 using the existing ramp structure along Railroad Way S. The northbound on-ramp and southbound off-ramp would remain on the temporary ramps. First Avenue S. would still convey

two lanes of traffic in each direction between S. King Street and S. Royal Brougham Way.

Access to and from the Seattle Ferry Terminal at Colman Dock may be disrupted as a result of reduced lanes during viaduct demolition and construction of the north and south end surface improvements. Access to the ferry and marine terminals may be rerouted at times but will be maintained during construction. Also, pedestrian access to and from Colman Dock, although maintained throughout construction, may be rerouted at times.

For the cruise ship terminal at Pier 66, pedestrian access would be maintained, and vehicle access on the Alaskan Way surface street would be maintained with at least one lane in each direction. Locations for pedestrian access and bus and taxi cab pickups would likely vary throughout construction to accommodate construction activities. Operations at the cruise ship terminal could limit construction activities.

The delivery of oversized loads, such as the TBM, could cause significant spot disruptions along principal streets, which may require short-term closures of lanes or streets. However, work would be planned to minimize any lane closures from south of S. King Street to just south of S. Royal Brougham Way during special events. Increased congestion on SR 99, Alaskan Way S., and First Avenue S. would likely disrupt transit services along these routes.

Trucks accessing streets affected by construction would be subject to the same traffic delays as general-purpose vehicles. During construction, public parking would not be available on either side of the affected street throughout the designated construction zone, thereby prohibiting unrestricted use of curbside lanes for truck parking and loading or off-loading. Alternatively, trucks would have to park on nearby side streets, two blocks or more from the construction zones. Access to businesses for customers, freight, and deliveries is important, and a program to identify and address these issues would be developed.

The conversion of existing on-street parking lanes into peak-period vehicle travel lanes in the vicinity of each portal would preclude public parking in these construction zones. This would increase demand for the limited on-street parking spaces available up- and downstream of these construction zones and neighboring streets.

The combined effect of sequencing utility diversions, ground improvement, and installation of shoring walls for each access point would temporarily eliminate on-street parking for consecutive blocks throughout the duration of construction. This problem would be less severe after the excavations are decked over.

It is currently planned that construction workers would park at Terminal 25, Terminal 106, and Pier 48. Pier 48 is adjacent to Terminal 46 to the west of Alaskan Way and the existing Alaskan Way Viaduct. Workers would be transported by shuttle vans or buses to construction zones or work areas, so any minor congestion effects would be limited to early morning and mid-afternoon. Other construction shifts would be for evening or weekend work.

Terminal 25 is part of the Port of Seattle operations and is currently used to store trucking and shipping containers. Operations on the property may need to be reconfigured to accommodate the transfer of excavated material from trucks to barges. Increased truck traffic along the East Marginal Way S. haul route could result in travel delays for north-south traffic and could result in traffic congestion at vehicle access points for the marine cargo area of Terminal 46 and Colman Dock. Use of East Marginal Way S. as a haul route also could affect other marine, industrial, and water-dependent uses west of East Marginal Way S., including Terminals 25 and 30. In addition, access to the U.S. Coast Guard facility at Pier 36 and existing business locations between Pier 36 and Terminal 30 could be affected.

The staging and laydown of construction materials in the south portal area would occur primarily at Terminal 106, northwest of the East Marginal Way S./S. Nevada Street intersection. Terminal 106 currently includes several warehouses along the Duwamish waterway and is used to store shipping containers. Terminal 106 is part of the industrial area that includes several large warehouses and facilities. The Ash Grove Cement plant is immediately north of Terminal 106. Increased traffic along East Marginal Way S. would be noticeable throughout the day when construction vehicles enter and exit the Terminal 106 site. Increased truck traffic in this area could also disrupt the flow of customers and employees and the delivery or shipment of materials and supplies at nearby businesses.

A conveyor system could be used to transport excavated materials from the south tunnel portal, above roadways and the adjacent railroad tracks, to barges docked along Pier 46 (on the north end of Terminal 46). One building on the northeast corner of Terminal 46 would need to be demolished to accommodate the conveyor system and the handling of excavated materials. This building contains four separate operations that provide container terminal support services. The design and construction of the conveyor system would be determined by the design-builder. The excavated materials would be barged to an off-site location for disposal, such as the Mats Mats Quarry, near Port Ludlow in Jefferson County, Washington. Excavated materials could be transported by truck along East Marginal Way S. to Terminal 25, which is northwest of the Alaskan Way Viaduct/S. Spokane Street interchange.

WSDOT is also coordinating with the Port of Seattle to address any potential effects that may result from the use of Terminal 46 for construction staging to ensure that the project-related modifications and construction activities would not compromise the safety, access, security, or Port terminal operations.

6.2.2 Bored Tunnel

A project work site would be established on the WOSCA property to support construction of the bored tunnel. The facilities would include laydown areas for materials, a potential concrete batch plant, maintenance workshops, storage areas for excavated spoils and precast concrete segments, and parking and field offices for on-site personnel. A temporary substation would be constructed at this location, and electrical systems in the area would be extended to the substation to provide power to the TBM. Construction-related detours, closures, and traffic congestion would result in changes to mobility, primarily on Alaskan Way S., East Marginal Way S., and First Avenue S. Residents in the Pioneer Square neighborhood would also experience some degree of inconvenience, and businesses would experience disruptions in the flow of customers and employees and the delivery or shipment of materials and supplies.

The tunnel boring may affect land uses and specific buildings within the settlement trough of the bored tunnel. To identify and prepare for potential building and area settlement, a structural building inventory was prepared and baseline conditions were assessed in advance of construction (Parsons Brinckerhoff 2010). Before the boring begins, monitoring instrumentation would be installed to detect any settlement under sensitive buildings and structures during or after the boring.

Approximate areas and buildings likely to experience settlement are as follows:

- Alaskan Way S. between S. King and Main Streets
- Alaskan Way at Yesler Way
- Western Building
- Polson Building, Commuter Center Building, Federal Office Building, and Harbor Steps

In these areas and for these specific buildings, jet grouting and compensation grouting could be used to mitigate settlement (described in more detail in Appendix B, Alternatives Description and Construction Methods Discipline Report). Both of these grouting techniques stabilize or stiffen the soil using either a cementitious or chemical grout that displaces air and water. Compensation grouting would be performed at a pressure low enough to prevent fracture of the soil formation and excessive motion (heave). To reduce the potential for

settlement of overlying land and buildings in the settlement trough, the tunnel face would be grouted in advance of the cutterhead during the tunnel boring process, and the tail would be grouted to fill void space between the formation and the tunnel lining.

Use of these mitigation measures would require the acquisition of temporary property rights from property owners. Any acquisitions would be completed according to the federal regulations discussed in Chapter 5.

It is possible that the settlement risks for a specific building cannot be mitigated using jet or compensation grouting, or that a building not previously identified as being at risk for settlement would later be determined to have sustained structural damage. In such cases, compensation to the building owners and tenants could include repair without temporary relocation, repair with temporary relocation, repair with permanent relocation, or condemnation of the building. Displaced businesses would be relocated as discussed in Chapter 5 for permanent relocation related to full acquisitions.

6.2.3 North Portal

Tunnel boring operations would end just north of Thomas Street, where the TBM would be dismantled and extracted. A recovery shaft would be excavated to remove the TBM. The decked roadway would begin to unbraid at the end of the tunnel and transition into a cut-and-cover tunnel. The cut-and-cover access structure would then transition into an open trench before transitioning again into the at-grade surface roadway.

Businesses adjacent to project construction would experience increased noise, dust, and vibration associated with the tunnel evacuation and street improvements. Vehicle, transit, and pedestrian access to businesses adjacent to construction would require rerouting (discussed in detail in Appendix C, Transportation Discipline Report).

Periodic, short-term lane closures would be required on Sixth Avenue N., Taylor Avenue N., Broad Street, and Harrison Street for the construction of the north portal. SR 99 traffic would be rerouted onto a detour roadway for approximately 24 months during the construction of the north portal ramp connections.

Similar to the south portal, trucks accessing streets affected by construction would be subject to the same traffic delays as general-purpose vehicles. During construction, public parking would not be available on either side of the affected street throughout the designated construction zone, thereby prohibiting unrestricted use of curbside lanes for truck parking and loading or off-loading at businesses. Alternately, trucks would have to park on nearby side streets. Access

to businesses for freight and deliveries is important, and these issues would be identified and addressed during the final design phase.

The combined effect of sequencing utility diversions, ground improvement, and installation of shoring walls for each access point would temporarily eliminate on-street parking and could adversely affect transit access for consecutive blocks for the duration of construction. The loss of parking, especially on-street, short-term parking, could affect access to adjacent businesses. In addition, transit service could be adversely affected by construction related detours. The economic effect of construction on businesses is discussed in Appendix L, Economics Discipline Report.

6.2.4 Decommissioning of the Battery Street Tunnel

After the new SR 99 bored tunnel is completed and the viaduct has been removed, the Battery Street Tunnel would be decommissioned.

Decommissioning would likely entail filling the tunnel approximately two-thirds full with crushed rubble recycled from the existing viaduct and then pumping in a low-strength concrete slurry to fill the remaining clearance space and solidify the rubble. Trucks would be the likely method of transporting the fill material to the Battery Street Tunnel site. While the tunnel is being filled, truck traffic into and out of the Battery Street Tunnel would increase, resulting in increased noise and dust, primarily around the south portal of the Battery Street Tunnel. The increased truck traffic, noise, and dust effects on residences and businesses at the portal and above the tunnel would be temporary, and buildings would be monitored for vibration effects and stability.

6.3 Construction Effects of the Cut-and-Cover Tunnel Alternative

Construction of the Cut-and-Cover Tunnel Alternative is estimated to take up to 105 months to complete. Potential effects experienced by adjacent land uses due to construction-related activities would last much longer than those due to the Bored Tunnel Alternative (65 months) and slightly shorter than those due to the Elevated Structure Alternative (120 months). Major construction activity would occur for 75 months. During this period, SR 99 would be limited to one direction only for 27 months. The route would be closed completely for 27 months. The effects would vary over that period, depending on the work being performed and its location. However, construction and traffic disruption would continue throughout the entire construction period, especially on the central waterfront.

Temporary construction effects would be experienced throughout the 8.75-year construction period. However, they would be most notable to the surrounding businesses and neighborhoods along the alignment between S. Spokane Street and Denny Way due to the 2.25-year complete closure of SR 99 and the Alaskan

Way surface street to vehicle traffic. Although access to the waterfront businesses would be provided throughout construction, businesses and residences along the waterfront would experience noise, dust, and altered traffic patterns. The potential also exists for business disruptions due to prolonged reductions in access or other construction effects. During construction, property would be used for construction staging areas, as show in Exhibit 6-1.

To facilitate the construction associated with the Cut-and-Cover Tunnel Alternative, temporary construction easements would be needed. Exhibit 6-4 lists the properties where temporary construction easements would be required. Two of the affected properties are currently used for parking. The temporary construction easements would allow for temporary use of the properties to facilitate construction and may include the purchase of existing improvements. Most of the parcels affected by construction activities are among those already expected to be acquired for roadway use or project right-of-way, and they are included in the land areas discussed in this report.

Exhibit 6-4. Temporary Construction Easements – Cut-and-Cover Tunnel Alternative

Parcel ID	Existing Land Use ¹	Approximate Easement Area (square feet)
1991201050	Parking	22,028
0656000590	Parking	6,480
0697000150	Commercial	17,000
Total		45,508 (about 1.04 acres)

¹Existing land uses (City of Seattle 2009).

Changes in mobility on streets due to construction-related detours, closures, and traffic congestion would affect travel to and from land uses adjacent to the project area. Roadway closures are expected to result in a redistribution of traffic to nearby streets throughout the project area. The effects would vary during each stage of construction. The greatest changes in access to these land uses are likely during the middle stages, when SR 99 and Alaskan Way could be closed completely.

The duration of effects on access may vary. For some parcels, the effects would occur only during construction activities at a given location, especially where direct access is provided. For other parcels that are dependent on SR 99, travel through the project area would likely be affected for the duration of construction. Temporary pedestrian bridges would be constructed between Piers 54 and 55 and between Piers 56 and 57 to maintain access to businesses.

On- and off-street parking may be eliminated during construction. Although some temporary parking may be provided, it is likely that most of the displaced parking demand would be absorbed by existing nearby lots and garages. Recent parking inventory data indicate that parking facilities are rarely fully occupied. Therefore, while a decrease in local parking availability may occur, sufficient parking capacity is expected during construction.

The loss of some existing parking spaces beneath the viaduct would occur at the onset of construction and may affect local businesses and land uses. It is likely that parking on city streets, including First, Second, and Fourth Avenues, would also be unavailable. More details regarding parking changes are provided in Appendix C, Transportation Discipline Report.

Spoils from the cut-and-cover tunnel excavations are proposed to be transported by barge to the Mats Mats Quarry, near Port Ludlow, Washington, for disposal.

6.3.1 South Section – S. Royal Brougham Way to S. Dearborn Street

Access disruptions and disturbances related to proximity effects, such as construction noise and dust, could affect adjacent land uses in the south area. The SR 519 connections, railroad track removals, and relocation of ferry traffic may also cause congestion on streets that provide access to surrounding properties.

The Alaskan Way surface street in the south section would be completely closed for approximately 4 years and then reduced to one lane in each direction for the rest of the construction duration. The closure of the Alaskan Way surface street to through-traffic, together with the presence of construction materials, equipment, and activities, would make access to businesses and residences along the corridor difficult and would inhibit pedestrian use of the Alaskan Way surface street.

WSDOT, King County, and the City would implement transportation improvements to keep people and goods moving during the construction period. As a result, the effects on land uses would be reduced. Details regarding traffic changes are provided in Appendix C, Transportation Discipline Report.

6.3.2 Central Section – S. Dearborn Street Through Battery Street Tunnel

Construction activities for the Cut-and-Cover Tunnel Alternative are likely to affect the central section throughout much of the construction duration. Activities such as noise, dust, utility disruptions, and detours, would likely affect adjacent properties. Although these activities would not result in substantial permanent land use changes, some businesses and other uses may choose to move out of the area.

A temporary overwater access bridge to the ferries would be built between Pier 48 and Colman Dock (between S. Washington Street and Yesler Way). The

temporary ferry access bridge would maintain access and egress for ferry operations. The temporary bridge would not interfere with the Washington State Ferries' planned reconstruction of Colman Dock, it would accommodate a range of potential ferry expansion plans while not requiring any of these plans to be constructed before the seawall construction. This overwater crossing would connect to a relocated ferry holding area east of SR 99.

Ingress to the relocated ferry holding area would be from Yesler Way, and egress would be provided at Yesler Way and Marion Street. Pedestrian access would be maintained during construction. The pedestrian bridge from the Seattle Ferry Terminal at Colman Dock to downtown Seattle would be reconstructed at Marion Street. It is expected that the access road to the ferry holding area would be constructed as part of the preliminary site preparation activities, before to any major seawall construction.

Motorists traveling to and from Colman Dock may experience delays due to reduced lanes. Pedestrian access may be rerouted at times; however, pedestrian access to and from Colman Dock would always be maintained throughout construction.

Alaskan Way would be closed during the middle stages of construction, although local access to businesses and residences would be provided. Reduced mobility on nearby local streets would be expected, resulting in slower travel times to and from nearby land uses. Additional information regarding effects on businesses and individual properties is provided in the Appendix L, Economics Discipline Report.

Construction activities in the area of the Battery Street Tunnel would generally result in the same effects as those previously described for the central section. Noise, dust, and utility disruptions may occur at times during construction. These activities should not greatly impede the existing land uses, and substantial effects on land use are not expected. Travel to and from this area would be impeded, with the greatest reduction in mobility likely occurring during the middle stages of construction when the Battery Street Tunnel improvements would be made.

Temporary tieback easements would be needed on 24 properties between First Avenue and Denny Way. In addition, the Cut-and-Cover Tunnel Alternative would require temporary tieback easements on three more properties between SR 99 and Western Avenue. Temporary tieback easements allow for the temporary use of a property below the surface for a wall-shoring system that would be used to build a permanent wall and may be abandoned or removed after the permanent wall is constructed. The tiebacks in the temporary easement areas would be removed after construction is completed.

Exhibit 6-5 lists the properties where temporary tieback easements would be needed and the approximate easement areas that would be required.

Exhibit 6-5. Temporary Tieback Easements for the Battery Street Tunnel – Cut-and-Cover Tunnel Alternative

Parcel ID	Existing Land Use ¹	Approximate Easement Area (square feet)
1977200280	Office	27,500
1977200245	Office	25,000
9292600000	Multi-Family/Other Housing	2,500
0657000000	Mixed Use	5,625
0656000250	Office	25,000
0656000585	Office	6,480
0697000105	Vacant	25,000
0697000265	Retail/Service	3,750
0656000180	Multi-Family/Other Housing	12,000
0656000215	Bank	12,000
0655000045	Retail/Service	6,480
0656000255	Office	12,000
0656000480	Office	12,000
0696000160	Government Service	12,000
0656000550	Mixed Use	6,480
0697000064	Office	21,000
0697000340	Parking	13,000
0697000355	Parking	477
0697000325	Retail/Service	18,965
0656000470	Retail/Service	12,000
0696000250	Multi-Family/Other Housing	6,480
0699000000	Mixed Use	24,000
0655000050	Multi-Family/Other Housing	6,480
0656000245	Retail/Service	6,480
0656000590	Parking	6,480
0656000596	Retail/Service	6,480
0696000175	Office	12,000
Total		327,657 square feet (about 7.52 acres)

¹. Existing land uses (City of Seattle 2009).

6.3.3 North Section – Denny Way to Aloha Street

Construction activities in the north section would result in traffic congestion and disturbances similar to those described for the central section. During construction, a detour route on Broad Street would be used to divert traffic around the Battery Street Tunnel. This would result in temporary changes in access to adjacent land uses. Temporary at-grade roadway connections would be provided to help maintain local access. Although some travel delays to and from local land uses may result during this time, no long-term effects are expected to occur as a result of the detour route.

6.4 Construction Effects of the Elevated Structure Alternative

Construction of the Elevated Structure Alternative is estimated to take up to 120 months to complete. Potential effects experienced by adjacent land uses due to construction-related activities would last much longer than those due to the Bored Tunnel Alternative (65 months) and slightly longer than those due to the Cut-and-Cover Tunnel Alternative (105 months). Major construction activity would occur for 90 months. For 72 of the 90 months, SR 99 would be reduced to two lanes in each direction. The route would be completely closed for two periods for a total of 2 to 4 months. A detour structure would be in place on Broad Street for 51 months. A detour route on First Avenue S. would be in use for 7.3 years. The effects would vary over that period, depending on the work being performed and its location. However, construction and traffic disruption would continue throughout the entire construction period, especially on the central waterfront. The period of time during which heavy traffic would be using First Avenue/First Avenue S. through Pioneer Square may be less what it would be with the Cut-and-Cover Tunnel Alternative. During construction, property would be used for construction staging areas, as shown in Exhibit 6-1.

The Broad Street detour would carry southbound SR 99 traffic from Aurora Avenue near Republican Street down Broad Street to the Alaskan Way surface street. A bridge would be built over the railroad tracks and Elliott Avenue, rounding the sharp curve at the end of Broad Street next to the Old Spaghetti Factory. Businesses and residences along this route would experience noise, dust, and altered traffic patterns. The potential also exists for business disruptions due to prolonged reductions in access or other construction effects. Diverting southbound SR 99 traffic onto Broad Street could also lead to increased congestion that would potentially limit access to the Seattle Center.

Exhibit 6-6 lists the properties where temporary construction easements would be required. Some of the affected properties are privately-owned pay parking lots that are open to the public. The temporary construction easements would remove

some of the parking spaces in these lots from use during the 9-month viaduct demolition period. As a result, businesses and residents that rely on these parking areas may be inconvenienced. Most of the parcels affected by construction activities are among those expected to be acquired for roadway use or project right-of-way and are included in the land areas discussed in this report.

Exhibit 6-6. Temporary Construction Easements – Elevated Structure Alternative

Parcel ID	Existing Land Use ¹	Approximate Easement Area (square feet)
1977200330	Parking	30,956
Piers 62 and 63	Government Services	82,355
7666202380	Parking	13,249
1991201050	Parking	22,028
0656000590	Parking	6,480
0697000150	Commercial	17,000
Total		172,068 square feet (about 3.95 acres)

¹Existing land uses (City of Seattle 2009).

Temporary street closures and detours would be needed to accommodate construction equipment and vehicles. Construction activities would likely affect adjacent businesses and property owners for the duration of construction. This could result in the loss of existing access points or entryways to adjacent uses in the project area, or the need for substantial detours to reach remaining properties. Proximity effects, such as increases in noise levels or dust from construction activities, would also occur.

Economic effects on local businesses and tourism are discussed in Appendix L, Economics Discipline Report.

6.4.1 South Section – S. Royal Brougham Way to S. Dearborn Street

Construction of the elevated structure in the south section is expected to result in effects such as noise, dust, congestion, and utility disruptions throughout the construction duration. The viaduct and Alaskan Way would be closed (for 2 to 4 months) during the middle stages of construction. Mobility limitations related to traffic congestion are expected to be greatest during this time. Temporary construction effects would be similar to those described for the south portal area for the Bored Tunnel Alternative. The WOSCA detour would be used throughout the construction period. The Alaskan Way surface street in the south segment, however, would be reduced to one lane in each direction throughout the construction period.

6.4.2 Central Section – S. Dearborn Street Through Battery Street Tunnel

Construction in the central section is expected to result in effects such as noise, dust, congestion, and utility disruptions throughout the construction duration. However, these effects would be greatest during the middle stages of construction. The viaduct and the Seneca Street and Columbia Street ramps would be closed at this time. Alaskan Way would also be closed, although access to local residences and businesses would be provided. Similar to the other build alternatives, some businesses and residents not directly displaced by the project may choose to move from this area because of the potential length of construction activities.

As with the Cut-and-Cover Tunnel Alternative, a temporary overwater ferry access bridge would be built between Pier 48 and Colman Dock (between S. Washington Street and Yesler Way) during construction of the Elevated Structure Alternative. The bridge would maintain ingress and egress for ferry operations. It would not interfere with the Washington State Ferries' planned expansion of Colman Dock; it would accommodate a range of potential ferry expansion plans while not requiring any of these plans to be constructed before the viaduct and seawall construction. This overwater crossing would connect to a relocated ferry holding area east of SR 99.

Ingress to the relocated ferry holding area would be from Yesler Way, and egress would be provided at Yesler Way and Marion Street. Pedestrian access would be maintained during construction. The pedestrian bridge from the Seattle Ferry Terminal at Colman Dock to downtown Seattle would be reconstructed at Marion Street. It is expected that the access road to the ferry holding area would be constructed as part of the preliminary site preparation activities, before any major viaduct and seawall construction.

Motorists traveling to and from Colman Dock may experience delays due to reduced lanes. Pedestrian access may be rerouted at times; however, pedestrian access to and from Colman Dock would always be maintained throughout construction.

Construction activities and effects in the area of the Battery Street Tunnel (First Avenue to Denny Way) would be the same as those for the Cut-and-Cover Tunnel Alternative. Exhibit 6-7 lists the 24 properties where temporary tieback easements would be needed and the approximate easement areas that would be required. The Elevated Structure Alternative would require approximately 1.26 acres less in temporary tieback easements than the Cut-and-Cover Tunnel Alternative.

Exhibit 6-7. Temporary Tieback Easements for the Battery Street Tunnel – Elevated Structure Alternative

Parcel ID	Existing Land Use ¹	Approximate Easement Area (square feet)
0657000000	Mixed Use	5,625
0656000250	Office	25,000
0656000585	Office	6,480
0697000105	Vacant	25,000
0697000265	Retail/Service	3,750
0656000180	Multi-Family/Other Housing	12,000
0656000215	Bank	12,000
0655000045	Retail/Service	6,480
0656000255	Office	12,000
0656000480	Office	12,000
0696000160	Government Service	12,000
0656000550	Mixed Use	6,480
0697000064	Office	21,000
0697000340	Parking	13,000
0697000355	Parking	477
0697000325	Retail/Service	18,965
0656000470	Retail/Service	12,000
0696000250	Multi-Family/Other Housing	6,480
0699000000	Mixed Use	24,000
0655000050	Multi-Family/Other Housing	6,480
0656000245	Retail/Service	6,480
0656000590	Parking	6,480
0656000596	Retail/Service	6,480
0696000175	Office	12,000
Total		272,657 square feet (about 6.26 acres)

¹Existing land uses (City of Seattle 2009).

6.4.3 North Section – Denny Way to Aloha Street

Construction activities and effects in the north section of the Elevated Structure Alternative would be the same as those for the Cut-and-Cover Tunnel Alternative.

6.5 Concurrent Construction Effects

The construction period for the Bored Tunnel Alternative is estimated to extend from the latter part of 2011 through 2017, with use of the new SR 99 tunnel starting at the end of 2015. The construction periods for the Cut-and-Cover Tunnel Alternative and the Elevated Structure Alternative are estimated to extend from 2011 through 2019 and from 2011 through 2022, respectively.

The potential overlap of construction activities associated with more than one major project would exacerbate the adverse effects on residences and businesses, including the daily life of downtown residents, commuters who work downtown, and visitors and tourists. Construction related to several additional projects would overlap the construction timeframe for each of the build alternatives. The construction of the S. Holgate Street to S. King Street Viaduct Replacement Project is underway and planned for completion in early 2014. The construction associated with some of the Program's elements, such as the Alaskan Way Surface Street Improvements, the Elliott Bay Seawall Project, and the Alaskan Way Promenade/Public Space is also expected to overlap with the construction period of the build alternatives. As a result, the adverse construction effects of these other projects would exacerbate construction-related noise, dust, and traffic delays in the study area.

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Chapter 7 TOLLING

7.1 General Description of Tolling

All three build alternatives may be subject to tolling, which represents an additional source of project funding. It would allow the state to sell bonds to fund a portion of the construction. The bonds would be paid back through the collection of tolls over the operational life of the project. The SR 99 route would continue to be used by residents, business owners, and business employees to access various land uses in the study area. Since tolls would place a direct financial cost on motorists who use the facility, they may choose to avoid them and take alternate routes to their destinations.

Although tolling may benefit directly motorists through reduced congestion on SR 99, it may also result in traffic and congestion problems shifting to other routes and areas. The long-term indirect effects of tolling on land use may include residents and business owners deciding to relocate because of the unattractiveness of certain locations due to traffic congestion. However, tolling any of the build alternatives would not have direct effects on land uses or land use patterns in the study area. Appendix C, Transportation Discipline Report, discusses the potential traffic diversions and changes in traffic patterns and traffic volumes on the Seattle street network that would result from tolling the build alternatives.

Congestion would be especially prevalent in Pioneer Square. Depending on the level of congestion, motorists would face difficulty in accessing residences and businesses, including Port of Seattle facilities and the sports stadiums. Visitors to neighborhoods in the project area might find it more difficult and more time consuming to access residences, workplaces, goods and services, as well as recreational amenities. Businesses and service providers in the project area might experience greater difficulty in retaining customers and employees from outside the downtown area, in addition to accessing inventory and controlling delivery costs. Additional information regarding potential effects on businesses is provided in Appendix L, Economics Discipline Report.

7.2 Bored Tunnel Alternative

With the Bored Tunnel Alternative, motorists may find it more difficult and time consuming to exit SR 99 and use local streets to reconnect to SR 99 to avoid the toll. Motorists who live closer to the Seattle area and previously used the Alaskan Way Viaduct to reach land uses in the south and north portal areas may choose to use the local street network instead of the bored tunnel. The local street network

would be more congested with traffic, and access to land uses may be less convenient.

As presented in Appendix C, Transportation Discipline Report, the Bored Tunnel Alternative is expected to result in a 39 percent tolling diversion. This means that approximately 39 percent of motorists who are expected to use the bored tunnel in 2030 would instead exit SR 99 before they reach the north and south portals. They would alternately use Seattle's street network to reach land uses in the north and the south or to reconnect to the non-tolled portions of SR 99. The increase of motorists on local streets would add to traffic congestion. Increased traffic and congestion on local streets would make access to residences and businesses less convenient and adversely affect the delivery of goods.

7.3 Cut-and-Cover Tunnel Alternative

The effects of the Cut-and-Cover Tunnel Alternative would be similar to those described for the Bored Tunnel Alternative. As presented in Appendix C, Transportation Discipline Report, the Cut-and-Cover Tunnel Alternative is expected to result in a 52 percent tolling diversion in 2030. Under the Cut-and-Cover Tunnel Alternative, the number of motorists who would choose to use the local street network to access land uses in the north and the south would be approximately 14 percent higher than for the Bored Tunnel Alternative. This increase may occur because the tolled section of the Cut-and-Cover Tunnel Alternative would be slightly shorter than that of the Bored Tunnel Alternative. Motorists may perceive that avoiding the toll would require traveling a shorter distance on local routes. Increased traffic and congestion on local streets would adversely affect access to residences and businesses and the delivery of goods.

7.4 Elevated Structure Alternative

Unlike the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative, the Elevated Structure Alternative would provide on and off access to SR 99 from central downtown by a southbound on-ramp on Columbia Street and a northbound off-ramp on Seneca Street. With the Elevated Structure Alternative, motorists traveling to land uses in the north would have the option of exiting SR 99 at Seneca Street and reentering from Denny Way. Those traveling to land uses in the south could exit SR 99 at Denny Way and reenter from Columbia Street. Both the north- and the southbound option would allow motorists to use local streets more easily to avoid paying a toll.

As presented in Appendix C, Transportation Discipline Report, the Elevated Structure Alternative is expected to result in a 65 percent tolling diversion in 2030. The number of motorists who would choose to use the local street network to access land uses in the north and the south would be approximately 26 percent higher than for the Bored Tunnel Alternative and 13 percent higher than for the Cut-and-Cover Tunnel Alternative. When compared to the other tolled build alternatives, the Elevated Structure Alternative would add substantially more traffic congestion to the local streets. Increased traffic and congestion would adversely affect access to residences and businesses and the delivery of goods.

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Chapter 8 PERMITS AND APPROVALS

The build alternatives would require a number of permits and approvals from federal, state, and local agencies. Many of these permits and approvals would not specifically involve right-of-way acquisitions; however, a few may be related to parcel and land use considerations. Federal, state, and local permits and approvals that may be required include the following:

- CZM Act consistency determination
- Endangered Species Act Section 7 consultation
- National Pollutant Discharge and Elimination System (NPDES) Permit
- Section 106 (National Historic Preservation Act) consultation on historic/archaeological resources
- U.S. Army Corps of Engineers Section 10 and Section 404 (Clean Water Act) Permits
- Underground Storage Tank Removal Permit
- Washington Department of Fish and Wildlife Hydraulic Project Approval
- Washington State Department of Ecology Section 401 Water Quality Certification
- King County Industrial Wastewater Discharge Permit or authorization
- Noise variance
- Pioneer Square Historic District Certificate of Approval
- Seattle Demolition Permit
- Seattle Street Use Permit
- Shoreline Substantial Development Permit

Conditions attached to these permits and approvals may affect the removal or relocation of existing buildings and structures.

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WSDOT, City of Seattle, and U.S. Department of Transportation, Federal Highway Administration. 2010. SR 99: Alaskan Way Viaduct Replacement Project Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation. Washington State Department of Transportation, Urban Corridors Office, Seattle, Washington.

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ATTACHMENT A

Subsurface Property Acquisitions for the Bored Tunnel Alternative

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ATTACHMENT A

SUBSURFACE PROPERTY ACQUISITIONS FOR THE BORED TUNNEL ALTERNATIVE

Subsurface property acquisitions required for the Bored Tunnel Alternative are indicated on Exhibit A-1. Attachment B shows the locations of these properties. This information is based on current plans for the bored tunnel.

The dimensions of the subsurface parcel acquisition for the following parcels would be modified from the 56-foot vertical subsurface boundary, and the project would be modified to accommodate the existing land uses and potential future development under current zoning: 7666202575, 7666202570, 7666202565, 7666202560, 7666202566, 7666202545, 7666202540, and 1991200790. These parcels are generally bounded by Alaskan Way and Western Avenue between Yesler Way and University Street.

The subsurface property acquisitions would not affect existing land uses on the surface and the project is being designed to accommodate the highest and best use under existing zoning. Future development would need to consider the boundaries of the subsurface property that would be acquired for the tunnel.

Exhibit A-1. Subsurface Property Acquisitions for the Bored Tunnel Alternative

Tax Parcel No.	Building Name
1977200960	Subsurface Parking Lot
7666202575	Trust Parking Lot
7666202566	Parking (RR right-of-way)
7666202570	Western Building
7666202565	Polson Building
7666202545	Commuter Center Building and Garage
7666202561	Vacant Land
7666202540	Colman Towers Parking Lot
7666202530	Federal Office Building
7666202560	Vacant (Parking)
7666202515	National Building
1974600025	Arlington North/South
1974600035	Alexis
9197200000	Watermark Tower
1697500000	Colonial/Grand Pacific Building
1976200075	Harbor Steps (Northeast Tower)
1976200076	Harbor Steps Plaza/Harbor Steps (Southeast Tower)
1976200060	Lusty Lady
6094670000	Four Seasons Hotel

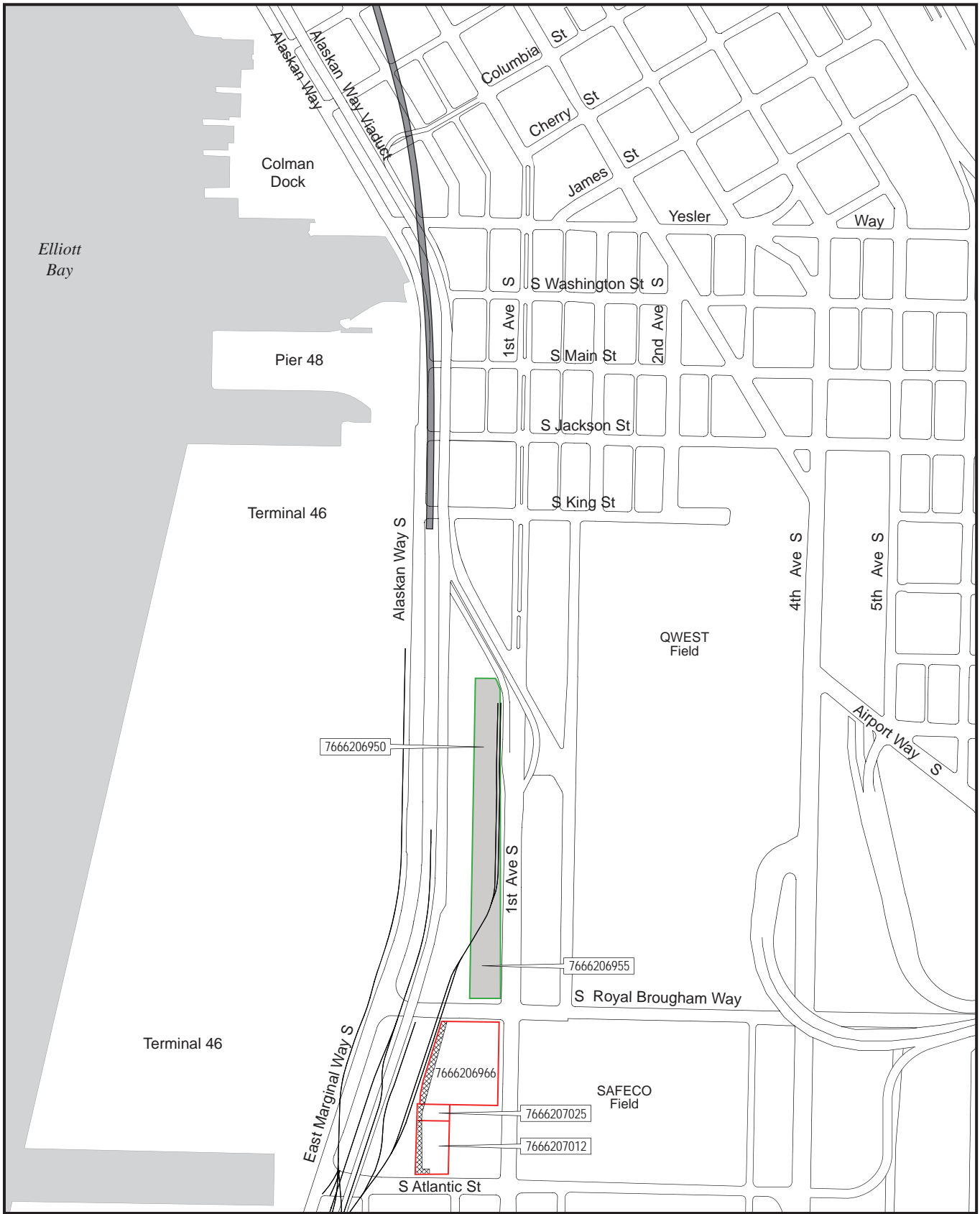
**Exhibit A-1. Subsurface Property Acquisitions for the Bored Tunnel Alternative
(continued)**

Tax Parcel No.	Building Name
6094680000	Four Seasons Hotel
1977200955	Subsurface Parking Lot
1977200940	Oxford Apartments
1977200935	1924 1 st Avenue
1977200920	Terminal Sales Office Building
6391350000	One Pacific Towers Condominium
1977200900	Parking
1977200885	Vacant (Commercial)
1843050000	Cristalla Condominium
1977201200	Parking (DNR)
1977201181	Belltown Center
1977201165	Saito's Japanese Café and Bar
1977201160	DWW Associates LLC
1977201145	Castle Apartments
1977201170	City of Seattle (Apartments-Subsidized)
1977201155	Langdon & Anne Simons Senior Apartments
1977201150	Markham Building
2867400000	Grandview Condominium
0694000090	Parking
0694000100	Parking
0694000105	PBJS
0694000110	Kelly's Restaurant and Mom's Teriyaki
0694000115	Security House
0656000615	314 Bell
0656000605	Two Bells Tavern
0696000155	Retail Store
0696000160	Seattle City of FFD
0696000175	5 th and Bell Building
0696000250	Fountain Court Apartments
0697000064	6 th and Wall Building
0697000025	Archstone Belltown Apartments
0697000025	Archstone Belltown Apartments (Garage)
1991200580	Retail/Service
1991200600	BRE Apartments
1991200785	Parking
1991200790	Law Office/Lakeside Deli

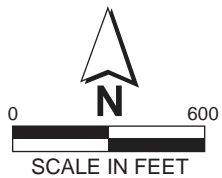
ATTACHMENT B

Locations of Property Acquisitions for the Build Alternatives

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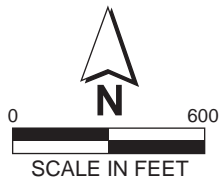


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Bored Tunnel
- Parcel Numbers

**Exhibit B-1
Bored Tunnel Alternative
South Portal Property
Acquisition Locations**

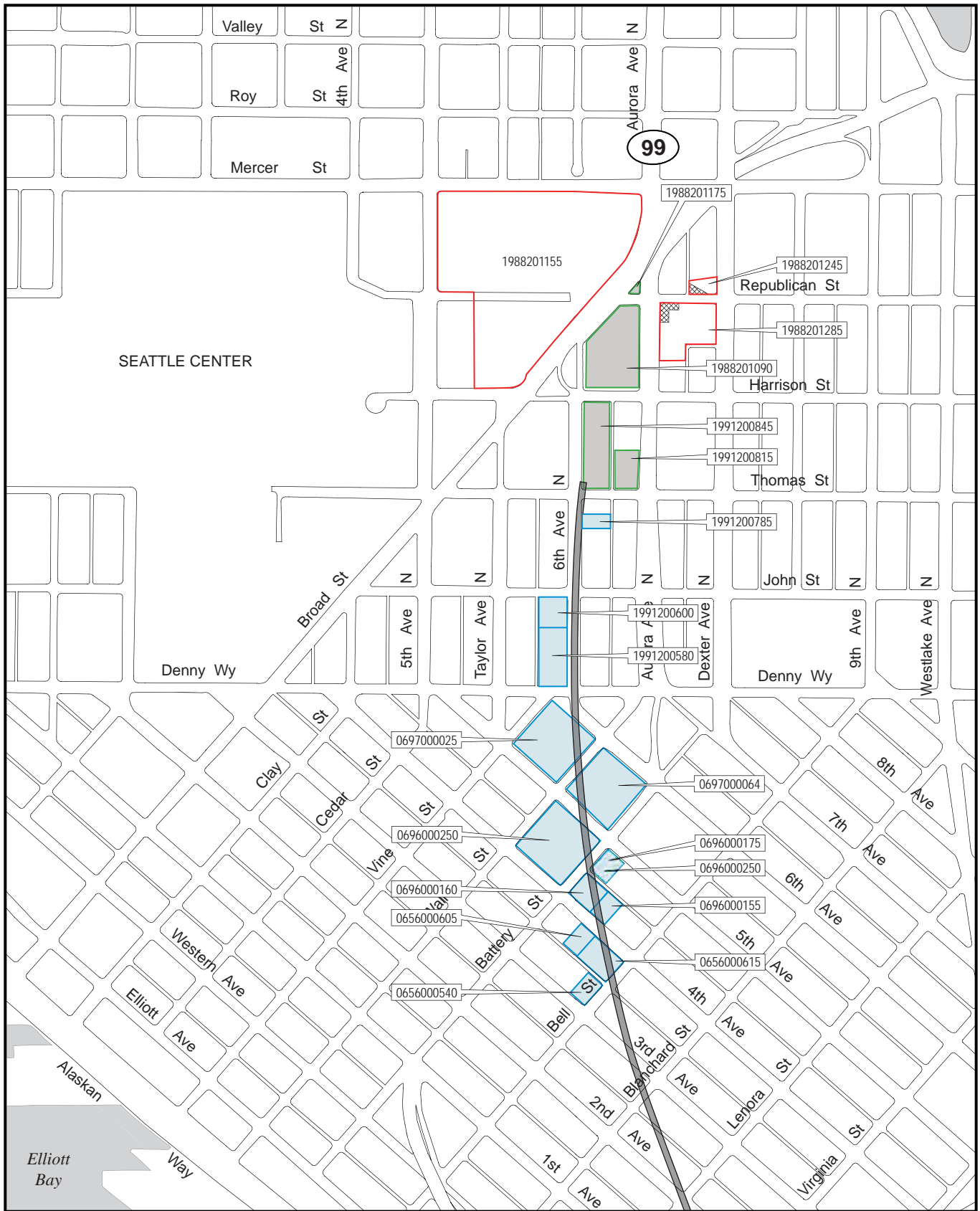


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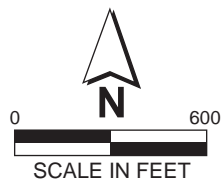


- Parcels for Subsurface Acquisition
- Bored Tunnel
- Parcel Numbers

**Exhibit B-2
Bored Tunnel Alternative
Central Portal Property
Acquisition Locations**

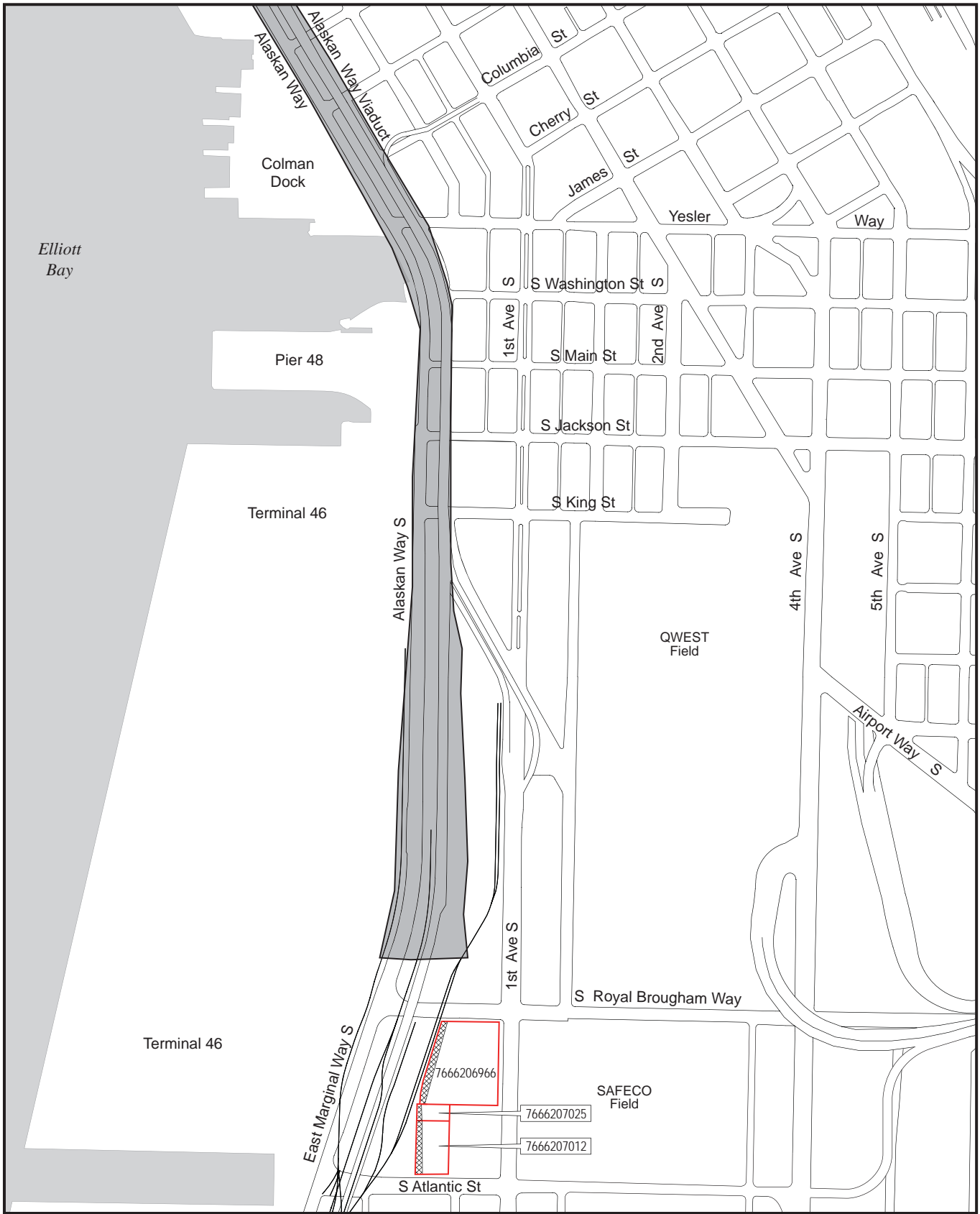


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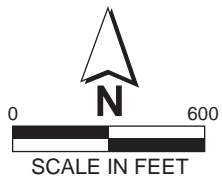


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Parcels for Subsurface Acquisition
- Bored Tunnel
- Parcel Numbers

**Exhibit B-3
Bored Tunnel Alternative
North Portal Property
Acquisition Locations**

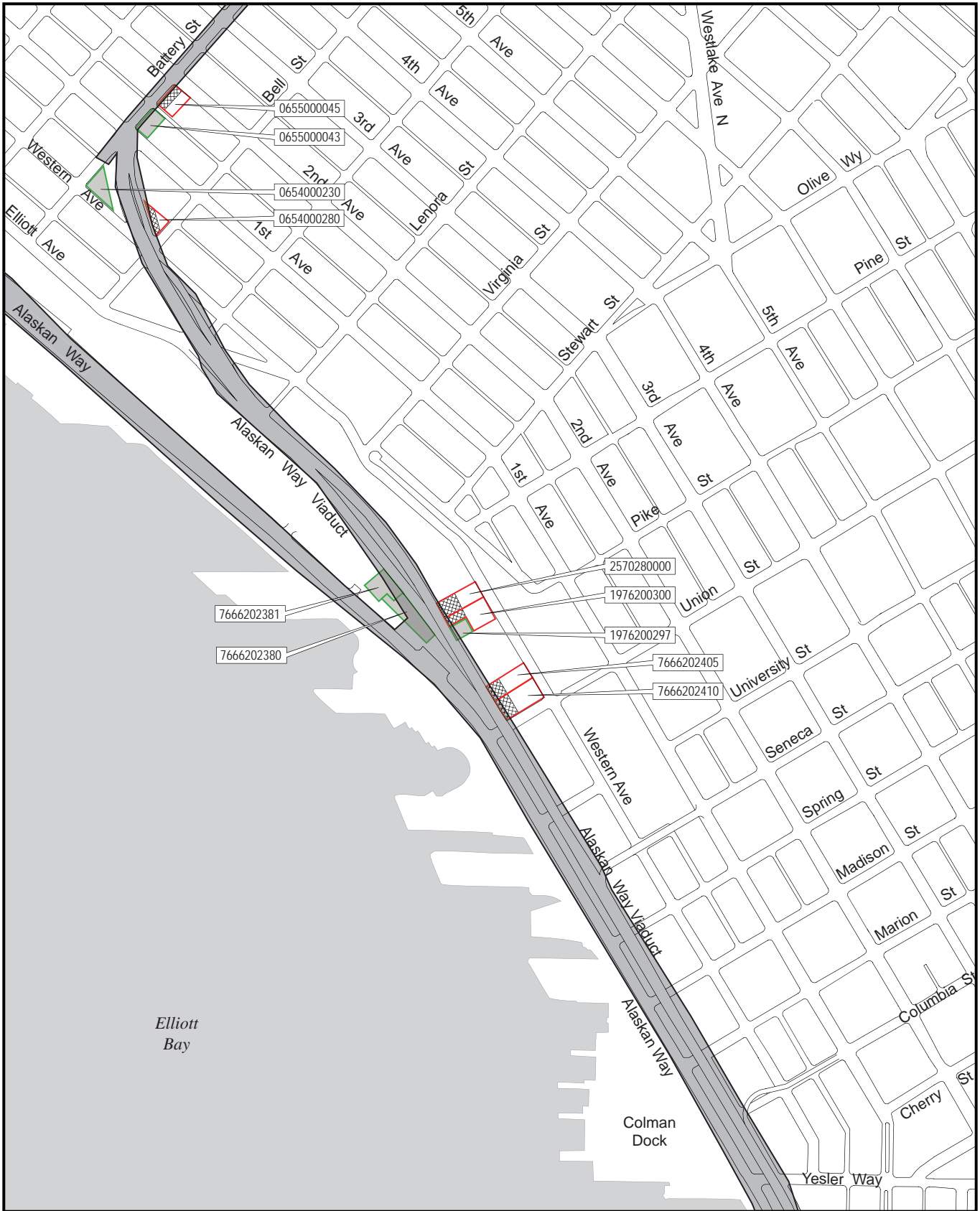


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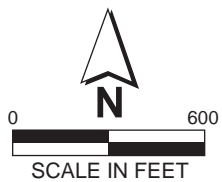


- Parcels for Partial Acquisition
- Cut-and-Cover Tunnel Alternative
- Parcel Numbers

**Exhibit B-4
Cut-and-Cover Tunnel
Alternative South Portal
Property Acquisition
Locations**

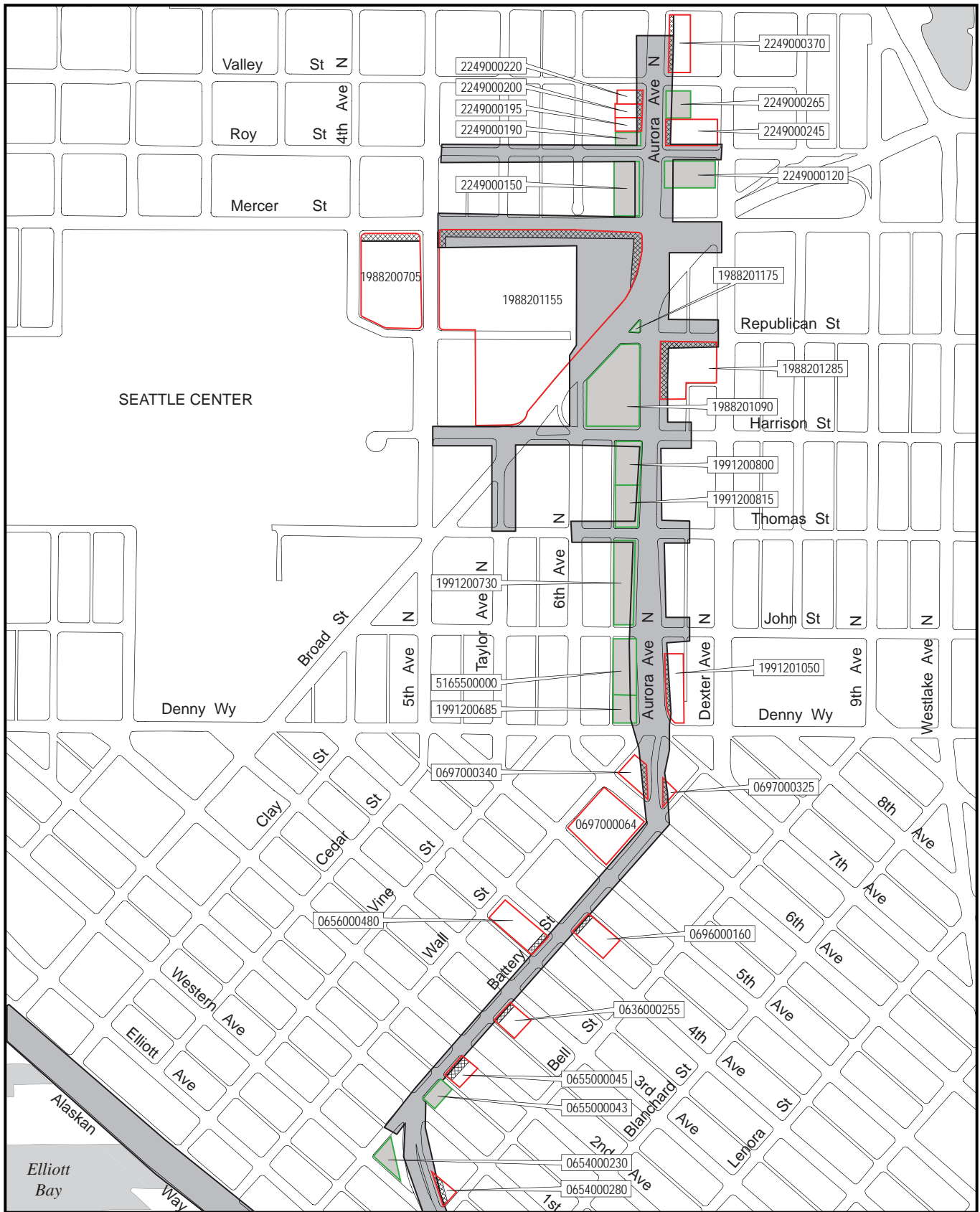


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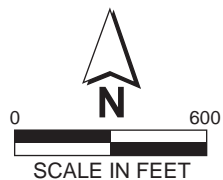


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Cut-and-Cover Tunnel Alternative
- Parcel Numbers

**Exhibit B-5
Cut-and-Cover Tunnel
Alternative Central
Property Acquisition
Locations**

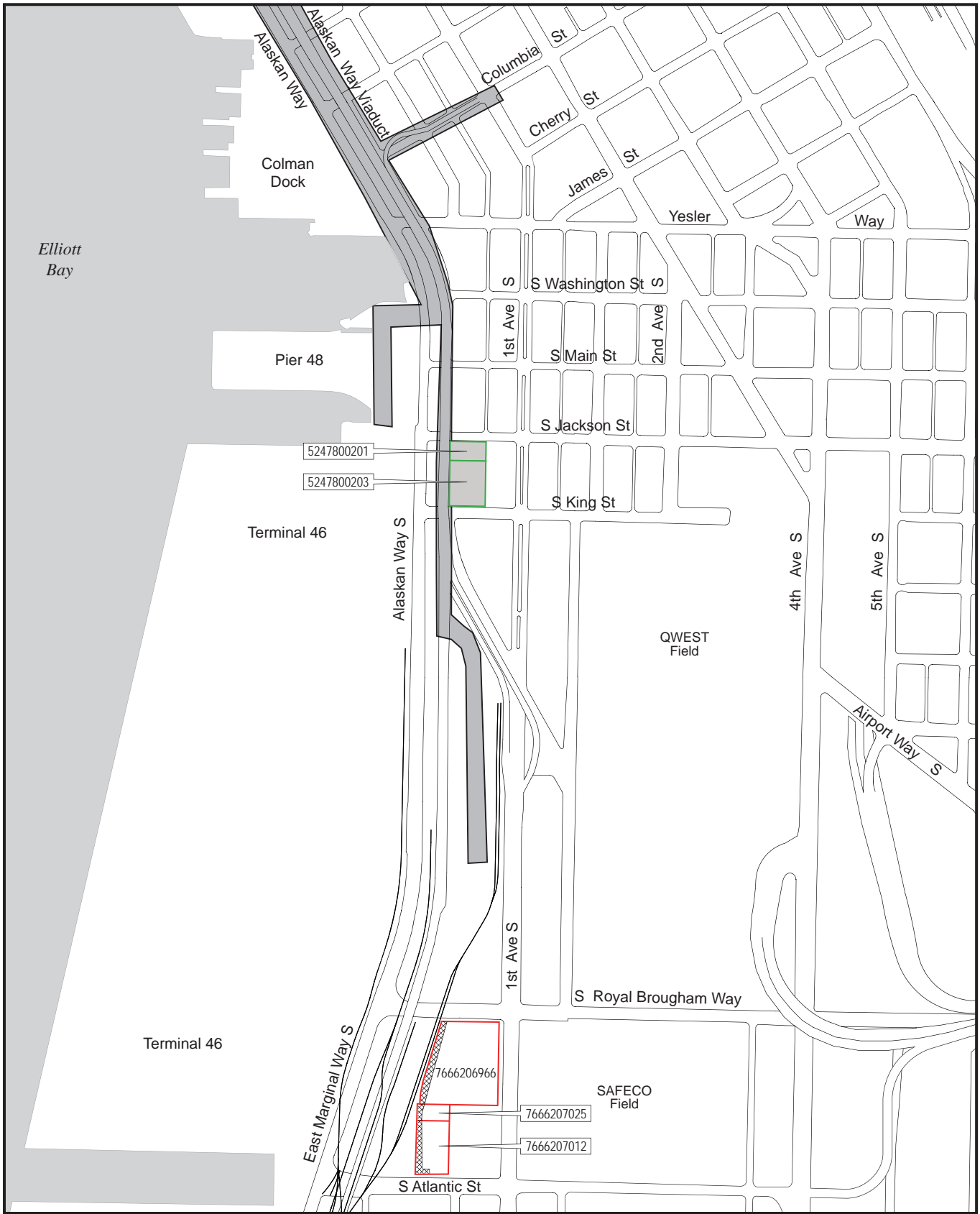


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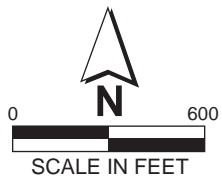


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Cut-and-Cover Tunnel Alternative
- Parcel Numbers

Exhibit B-6 Cut-and-Cover Tunnel Alternative North Portal Property Acquisition Locations



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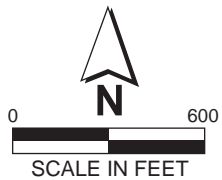


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Elevated Structure Alternative
- Parcel Numbers

**Exhibit B-7
Elevated Structure
Alternative South Property
Acquisition Locations**

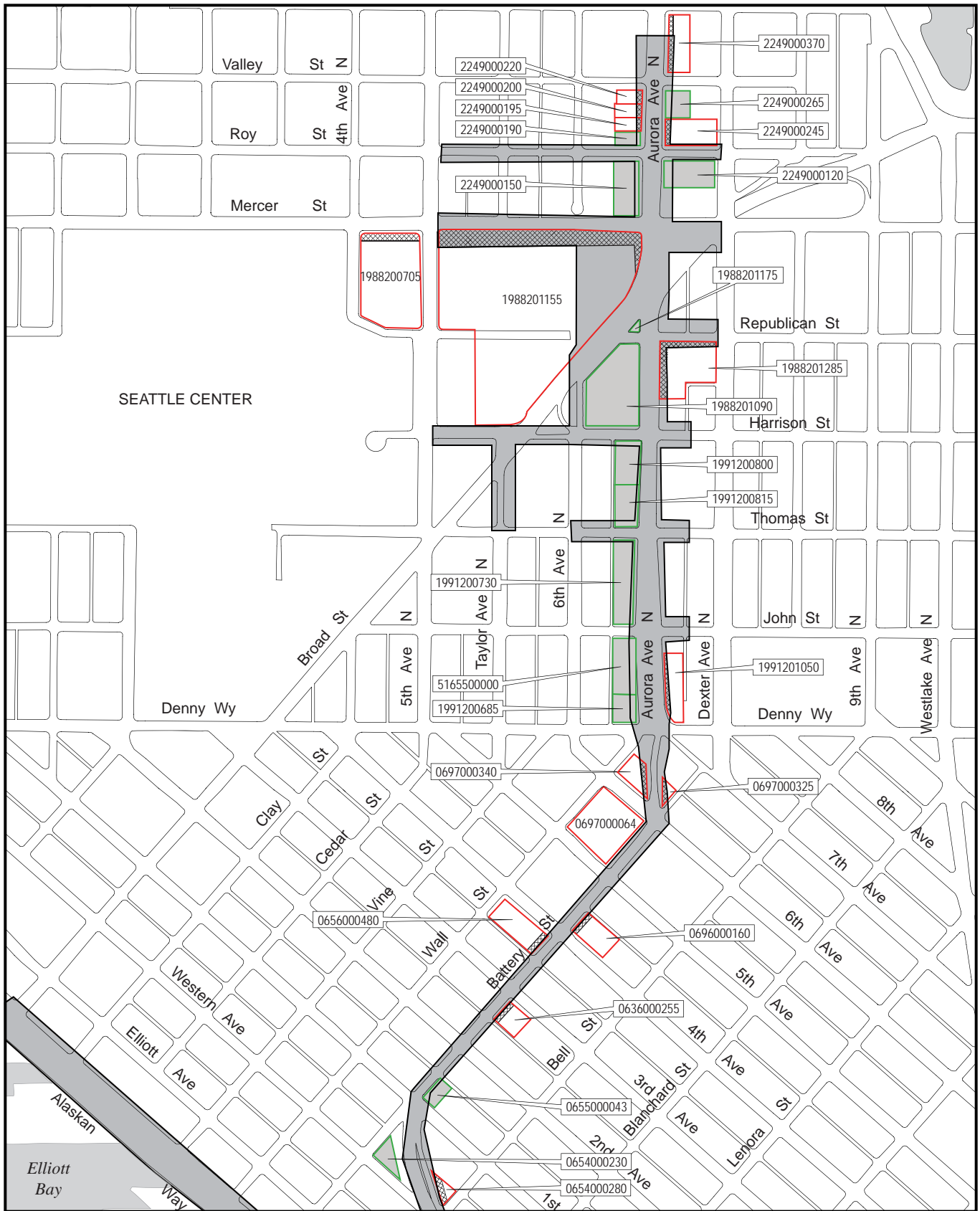


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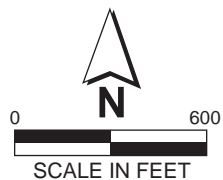


- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Elevated Structure Alternative
- Parcel Numbers

**Exhibit B-8
Elevated Structure
Alternative Central Property
Acquisition Locations**



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- Parcels for Full Acquisition
- Parcels for Partial Acquisition
- Elevated Structure Alternative
- Parcel Numbers

**Exhibit B-9
Elevated Structure
Alternative North Property
Acquisition Locations**

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