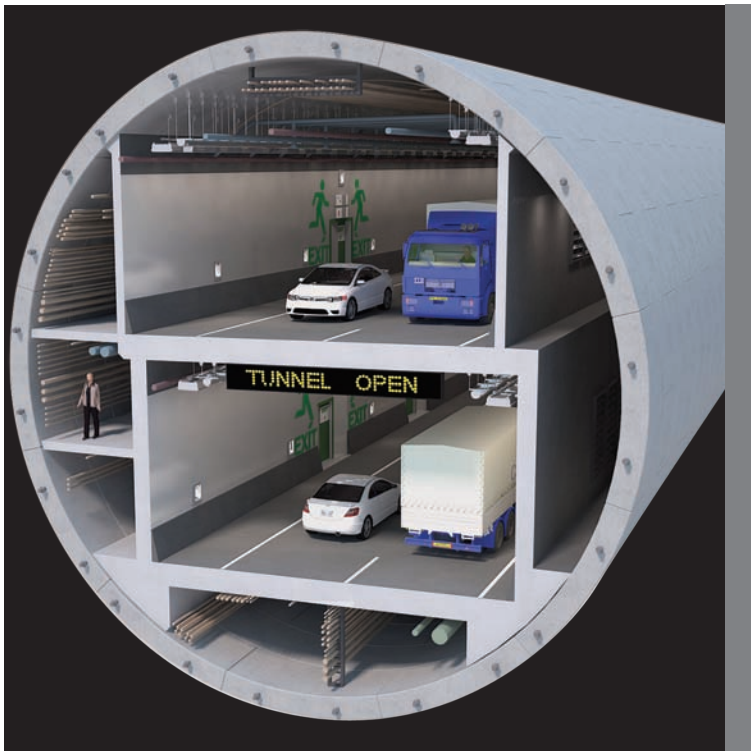
ALASKAN WAY VIADUCT REPLACEMENT PROJECT

2010 Supplemental Draft Environmental Impact Statement

APPENDIX H Social Discipline Report



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City of Seattle

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Alaskan Way Viaduct Replacement Project
Supplemental Draft EIS
Social Discipline Report

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

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
City	City of Seattle
CFR	Code of Federal Regulations
DSHS	Department of Social and Health Services
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FR	Federal Register
I-5	Interstate 5
I-90	Interstate 90
NEPA	National Environmental Policy Act
Program	Alaskan Way Viaduct and Seawall Replacement Program
project	Alaskan Way Viaduct Replacement Project
PSRC	Puget Sound Regional Council
RCW	Revised Code of Washington
Sea-Tac	Seattle-Tacoma International (Airport)
SEPA	(Washington) State Environmental Policy Act
SIG	Seattle International Gateway
SR	State Route
USC	United States Code
WAC	Washington Administrative Code
WOSCA	Washington-Oregon Shippers Cooperative Association
WSDOT	Washington State Department of Transportation

GLOSSARY

Block Group	A subdivision of a census tract, a block group is the smallest geographic unit for which the U.S. Census Bureau tabulates sample data.
Census	The census of population and housing is taken by the U.S. Census Bureau in years ending in zero. The census form includes a short form (100 percent survey) and a long form (sample survey of one in six households).
Census Tract	This is a small, relatively permanent statistical subdivision used to present data. Census tract boundaries normally follow visible features but may follow governmental unit boundaries or other non-visible features. Census tracts average about 4,000 inhabitants.
Disability	Disability means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment.
Disproportionately High Adverse Effects	Federal Executive Order 12898 defines disproportionately high and and adverse effects as "...an adverse effect that (a) is predominantly borne by a minority population and/or low-income populations, or (b) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."
Environmental Justice	The term environmental justice refers to the process of identifying and addressing, as appropriate, disproportionately high and adverse human health and/or environmental effects on minority and/or low-income populations.
Hispanic/Latino	A self-designated classification for people whose origins are from Spain, the Spanish-speaking countries of Central or South America, the Caribbean, or those identifying themselves generally as Spanish or Spanish-American. Origin can be ancestry, nationality, or country of birth of the person or person's parents or ancestors. Hispanic/Latino persons may be of any race, White or non-White.
Neighborhood Cohesion	The ability of people to communicate and interact with each other in ways that lead to a sense of community, reflecting the neighborhood's ability to function and be recognized as a singular unit.

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Chapter 1 INTRODUCTION AND SUMMARY

1.1 Introduction

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

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

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

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

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

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

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

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

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

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

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

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

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

Roadway Elements

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

Non-Roadway Elements

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

Projects Under Construction

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

Completed Projects

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

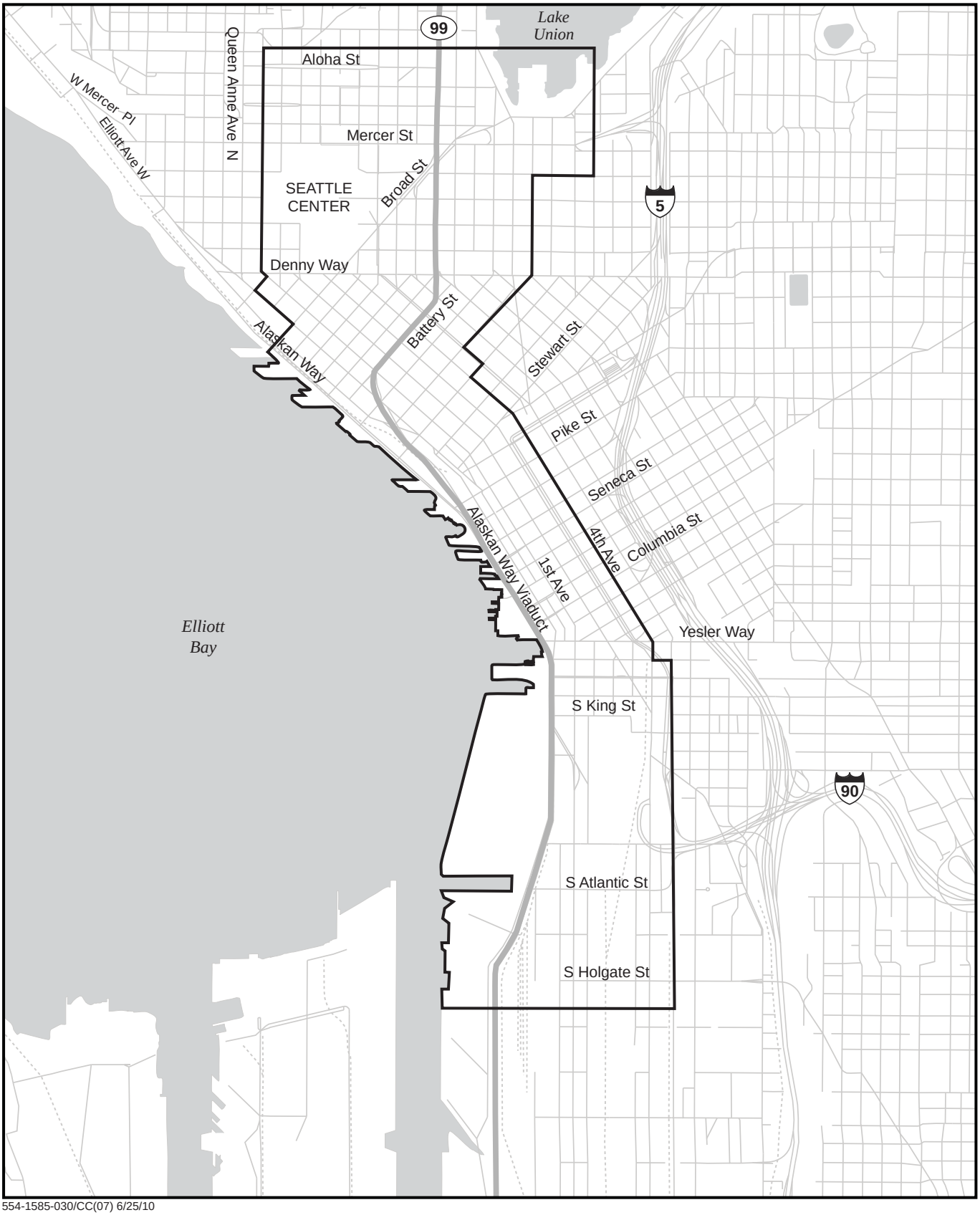
1.2 Summary

This discipline report describes the existing conditions, potential adverse effects and benefits, and recommended mitigation for the construction and operational effects of the Bored Tunnel Alternative on social resources. Topics discussed include the study area neighborhoods; population and demographics; housing; community facilities; parks, recreation, and public access facilities; religious institutions and cemeteries; social and employment services; cultural and social institutions; government institutions and national defense installations; and neighborhood cohesion. Related topics are discussed in separate reports, including Appendix G, Land Use Discipline Report; Appendix K, Public Services and Utilities Discipline Report; and Appendix L, Economics Discipline Report. The analysis presented in this report is consistent with the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual*, Chapter 457, Section 4(f) Evaluation; and Chapter 458, Social and Economic (WSDOT 2010).

1.2.1 Study Area Character and Public Involvement

As shown on Exhibit 1-1, the study area for social resources extends approximately five city blocks around the proposed alignment of the Bored Tunnel Alternative. It generally extends along Seattle's downtown waterfront from approximately S. Holgate Street north to about Pine Street and continues northerly, encompassing the Battery Street Tunnel and Aurora Avenue north to Ward Street. Several neighborhood planning areas designated by the City of Seattle (City) are crossed by or adjacent to the study area, including the Pioneer Square, Commercial Core, Belltown, Denny Triangle, Uptown, and South Lake Union neighborhoods. The study area is not a single cohesive urban core; it encompasses portions of several neighborhoods, each with its own character. Neighborhood character is defined by the mix of land uses, building size and scale, predominant building age, architectural style, mix of residents, and typical social interaction. The study area includes industrial and port facilities, the Pioneer Square and Pike Place Market Historic Districts, office and retail areas, and mixed-use medium-density residential neighborhoods.

The population of the study area consists of residents, employers, employees, visitors, and others. The residents may or may not work in the study area. Visitors who shop or attend cultural or sports events in the study area may reside in other Seattle neighborhoods, other cities or towns in the metropolitan area, or outside the region. Residents are primarily single-person households; very few are families with children. Residents live in downtown condominiums and apartments, converted old hotels, subsidized residential buildings, and shelters for homeless persons. Some residents have disabilities and/or transportation mobility limitations, and many rely on social services and public transportation.



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SCALE IN FEET

Exhibit 1-1
Study Area

According to the 2000 census, minorities make up 28 percent of the study area population, while low-income persons account for about 23 percent. Compared to the city's demographic characteristics, the study area includes a higher proportion of Hispanic/Latino, Black, and/or American Indians, mostly in the Commercial Core and Pioneer Square areas. The highest concentrations of low-income persons also are located in these same areas. As part of the environmental justice analysis for the project, public outreach and involvement have been ongoing, and special efforts have been made to include minority and low-income populations throughout the study area. In addition, WSDOT has initiated consultation with the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Suquamish Tribe, the Tulalip Tribes, the Confederated Tribes and Bands of the Yakama Nation, and the Duwamish Tribe (a non-federally recognized tribe).

1.2.2 Operational Effects, Mitigation, and Benefits

The Bored Tunnel Alternative would have few long-term adverse social effects on study area neighborhoods, residents, community facilities, parks, or the metropolitan region. Of the 11 parcels that would be acquired in full or in part to accommodate the Bored Tunnel Alternative, none include social resources.

The Bored Tunnel Alternative would provide substantial operational benefits, improving quality of life and cohesion for most of the study area neighborhoods. Removing the existing viaduct structure would reduce traffic, noise, and shadows in some neighborhoods but would change access and could increase congestion in other neighborhoods. New and improved access within and between the study area neighborhoods would generally improve linkages to community facilities and social services, particularly in the stadium area of the Pioneer Square neighborhood and near the proposed north portal in the Uptown/South Lake Union neighborhoods. The extension of neighborhood streets with sidewalks and bicycle paths near the south and north portals would encourage more pedestrian and bicycle travel. This would create more opportunities for informal interaction between neighborhood residents, employees of local businesses, and visitors from suburban cities or communities outside of the metropolitan region.

1.2.3 Construction Effects and Mitigation

Construction effects of the Bored Tunnel Alternative would mostly be limited to the south and north portal areas. The majority of the bored tunnel construction activities would occur underground at depths up to 200 feet below grade, causing no disruptions to social resources. Residents and nonresidential social resources located within approximately two blocks of the construction zones would be most affected by construction-related traffic, noise and vibration, light and glare, and dust and smoke. Nighttime construction would particularly affect residential land uses.

Demolition of the existing viaduct structure along the central waterfront also would create disturbances affecting social resources. Although demolition would extend over 20 city blocks, it would occur in small sections two to four blocks in length. As a result, adverse effects would be limited to the immediate area where demolition is occurring for approximately 4 to 8 weeks at any location. Social resources would be temporarily affected for relatively short periods by increased levels of noise, vibration, light and glare, dust and smoke, and truck traffic associated with the demolition activities.

Recommended mitigation measures during construction include public meetings and publications. In addition, telephone information lines, websites, and media news releases would inform the public of planned construction activities, such as road closures, traffic detours, and changes in pedestrian walkways. Additional mitigation measures affecting quality of life related to transportation, noise, air quality, and visual effects are also proposed and are discussed in detail in other discipline reports.

1.2.4 Indirect Effects

Following the construction of the Bored Tunnel Alternative, the development of vacant parcels and redevelopment of existing land uses would be consistent with adopted land use plans and zoning. However, because of the project, the desirability of certain neighborhoods, the perceived value of individual properties, the aesthetic qualities of new and existing buildings, and the rate of redevelopment in certain neighborhoods could change. Demolition of the viaduct along the central waterfront would likely increase the desirability of existing properties immediately adjacent to the existing elevated structure. The elimination of the Western Avenue and Battery Street SR 99 ramps and the decommissioning of the Battery Street Tunnel would likely increase the perceived quality of life and desirability of surrounding Belltown properties.

1.2.5 Cumulative Effects

The cumulative effects of the Program would have a combined beneficial effect on social resources. The Program's various projects would improve access to jobs, community facilities, and social services. The effects would not substantially alter population, demographic, or land use characteristics. Community life and neighborhood identity would be preserved, if not strengthened. The projects would also improve pedestrian and bicycle mobility within and between downtown neighborhoods. Interaction between people would increase. The projects would provide the transportation infrastructure to support future community economic and population growth.

The potential overlap of construction activities associated with more than one major project—transportation or non-transportation projects—would exacerbate the adverse effects on the daily life of downtown residents, workers, and visitors. Construction related to other projects could be located close to the construction zone for the Bored Tunnel Alternative and could overlap with the planned construction period for the Bored Tunnel Alternative, particularly in the Pioneer Square and Uptown/South Lake Union neighborhoods. None of these projects would displace population, businesses, or land uses in the area, but the construction would result in temporary adverse effects on community life, transportation routes, linkages to community facilities and services, and interaction between people. Careful coordination could minimize the adverse effects.

In the long term, the cumulative effects of planned transportation improvements and urban development projects would help to implement the City's vision for a more sustainable downtown. Increased office space for regional economic growth would support the development of both market-rate and affordable downtown housing, improved local and regional transit services, and practicality of alternative modes of transportation. Major transportation corridors would provide access to, from, and through downtown but would no longer form actual or perceived barriers that isolate parts of downtown neighborhoods.

1.2.6 Environmental Justice Determination

Through extensive public involvement and numerous outreach efforts focused on minority and low-income groups, the project has worked to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. These outreach efforts will continue, and the project will continue to reach out to minority and low-income populations and respond to their concerns regarding the operational and construction effects of the Bored Tunnel Alternative.

From the analysis in the environmental documentation process for the Bored Tunnel Alternative, indications are that disproportionately high and adverse effects on environmental justice populations could be avoided or reduced through careful planning and design. Continued outreach to minority and low-income populations, to the employees of the displaced businesses, and others will identify additional mitigation measures to support this determination.

Chapter 2 METHODOLOGY

This chapter summarizes the methods used to conduct the analysis presented in this report. Topics addressed include a review of pertinent government regulations and guidelines, definitions of special terms, sources of data and information, and specific information guiding the use and analysis of census data. Section 2.5 describes how project social effects were assessed.

2.1 Regulatory Overview

The analysis of potential social effects from the proposed project followed federal, state, and city laws, regulations, and guidelines, including the following:

- National Environmental Policy Act of 1969 (NEPA)
- Title VI of the Civil Rights Act of 1964
- Age Discrimination Act of 1975
- Americans with Disabilities Act of 1990
- Title 49 of the Code of Federal Regulations (CFR) Part 21, Nondiscrimination in Federally Assisted Programs of the Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964
- FHWA regulation, Section 4(f) 23 CFR 774
- Presidential Executive Order 12898 – Federal Actions to Address Environmental Justice to Minority Populations and Low-Income Populations (59 Federal Register [FR] 7629)
- Presidential Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency (65 FR 50121)
- Title 23 of the United States Code (USC) Section 109(h), FHWA Effectuation of Title VI of the Civil Rights Act of 1964
- Title 42 USC Section 4601, Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended
- U.S. Department of Transportation Order 5610.2 – Order to Address Environmental Justice in Minority Populations and Low-Income Populations
- Washington Relocation Assistance – Real Property Acquisition Policy Act of 1971, as amended (Revised Code of Washington [RCW] 8.26 and Washington Administrative Code [WAC] 468-100)

- Governor's Executive Order 93-07, Affirming Commitment to Diversity and Equity in the Service Delivery and in the Communities of the State
- Washington State Environmental Policy Act (SEPA)
- FHWA NEPA regulation (23 CFR 771)
- FHWA Technical Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents
- FHWA Order 6640.23 – Implementing Order for Environmental Justice
- FHWA's Community Impact Assessment: A Quick Reference for Transportation
- WSDOT *Environmental Procedures Manual*, Chapter 457, Section 4(f) Evaluation, and Chapter 458, Social and Economic (February 2010)

2.2 Use of Terms

To avoid misunderstanding and confusion, several key terms used in the analysis are defined below. A general glossary and list of acronyms follows the Table of Contents at the beginning of this report. Additional terms are as follows:

Project Corridor. The project corridor encompasses the alignments and rights-of-way of the existing roadway and the proposed Bored Tunnel Alternative. The area generally extends along SR 99 from S. Atlantic Street, through the downtown waterfront area, the Battery Street Tunnel, and north along Aurora Avenue to Roy Street.

Study Area. The area for the analysis of potential operational effects on social resources extends approximately 0.5 mile, or about five blocks, on each side of the project corridor (see Exhibit 1-1). However, the analysis of park and recreation resources, covered the area approximately three to five blocks from the proposed project corridor. Operational effects are expected to occur in these areas. In addition, much of the analysis used census tract block groups that approximate the study area.

Effect Area. The area for analysis of potential construction effects on social resources extends approximately two blocks from construction activities that are nearly at-grade, at-grade, or elevated. This area encompasses the major effect area for construction noise, vibration, light, and glare that could affect businesses and residents. Because construction of a large portion of the project would be at substantial depths underground, the analysis of construction effects focuses on the two blocks surrounding the south and north portal construction zones and the city blocks affected by the viaduct demolition and Battery Street Tunnel decommissioning.

Street maps of the study area are provided in Attachment A. These maps can be used to determine the proximity of social resources to the alignment of the Bored Tunnel Alternative and anticipated construction activities.

2.3 Data and Information

The project team collected data from a variety of federal, state, and local sources. A major portion of the descriptive analysis relies on 2000 statistics published by the U.S. Census Bureau (see Attachment B). Information was also obtained from local government agency websites. A database was obtained from The Crisis Clinic in 2009 to update the inventory of low-income and special needs housing as well as social and employment services in the study area. This list of social resources also was shared with the public involvement team to assist with environmental justice outreach. In addition, the Yahoo! Yellow Pages (2009) was used to identify community facilities and social institutions.

Generally, the project team did not conduct a field survey for every block within the study area. When published data conflicted or information was not available, the project team conducted a focused field survey. In particular, the team completed a focused field survey to confirm information concerning land uses within two blocks of the project corridor. This two-block area is expected to incur most of the air, noise, vibration, light, and glare construction effects.

Community issues were identified through a review of the *City of Seattle Comprehensive Plan* (Seattle 2005b), in particular, the adopted goals and policies for the City-designated neighborhoods traversed by the project corridor. These include the Pioneer Square, Commercial Core, Belltown, Denny Triangle, Uptown, and South Lake Union neighborhoods.

A number of City documents were consulted for the investigation into park and recreation lands, including the following:

- Comprehensive plans and neighborhood plans
- Shoreline Master Program
- Functional plans for various park and recreation amenities
- Implementation plans
- Urban planning studies
- Permit records granting public shoreline access

The project team reviewed public comments on the project, including those submitted at the scoping meetings and the many public information meetings. Additional information was obtained from meeting notes documenting the public outreach activities, particularly to social service organizations serving minority

and low-income populations. The public involvement activities are summarized in Section 3.3 and Attachment C. Appendix A, Public Involvement Discipline Report, describes in detail the public involvement activities that have taken place since the issuance of the 2006 Supplemental Draft EIS.

Additional information used in the analysis of potential social effects was obtained from other discipline reports prepared for the project, as shown in Section 3.1. In particular, the findings from a field survey of the types and sizes of businesses adjacent to the project corridor were reviewed to help assess potential effects on neighborhood cohesion. The detailed analysis of this information is contained in Appendix L, Economics Discipline Report.

2.4 Census Data Analysis

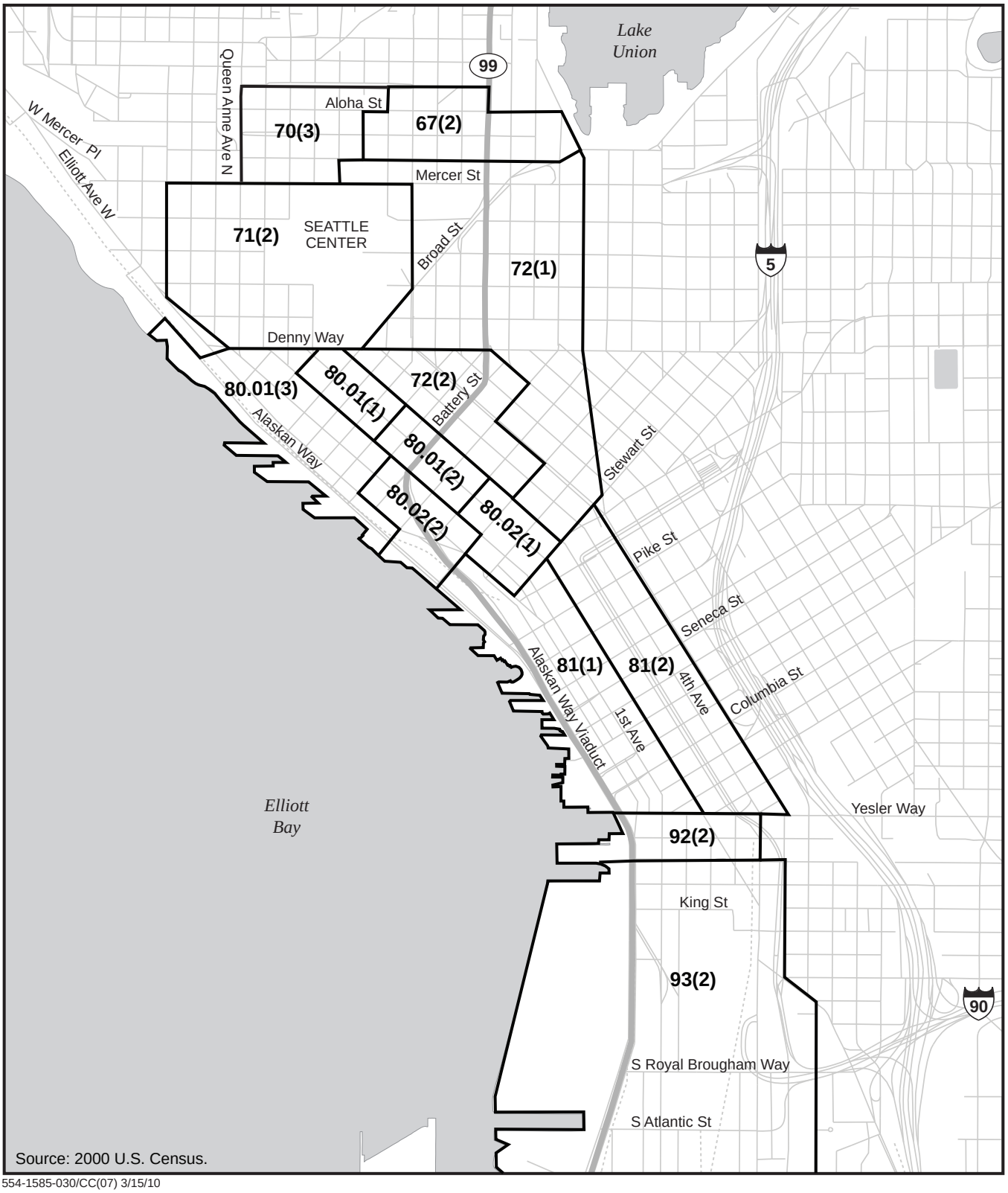
A substantial portion of the analysis relies on statistics from the 2000 census. These statistics were used to describe study area characteristics and to assess potential operational and construction effects by comparing study area data to city of Seattle data. Section 2.4.4 describes how the project team updated the 2000 demographic information.

2.4.1 Study Area Boundaries

The project team assessed potential long-term operational effects on social resources within an area extending approximately 0.5 mile from the project corridor. Census tract block groups that approximate the study area were used to help determine study area demographics. Because of the size of some block groups, however, small portions of the study area were not included. Likewise, small areas outside of the study area were included. Exhibit 2-1 shows the 14 block groups that were selected to represent the study area. Only the summary tables are presented in the main body of the report. Detailed tables of demographic statistics are contained in Attachment B.

2.4.2 Comparison to Seattle Census Data

The project team used census demographic statistics for the city of Seattle to evaluate how the characteristics of the study area are similar to or different from those describing the entire city. The 2000 census statistics for the study area and the city of Seattle are compared and contrasted in Section 4.2. Attachment B compares census tract block group statistics for the study area and the city.



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93(2) Census Tract (Block Group)

Exhibit 2-1
Census Block Groups in the Study Area

2.4.3 Census Data Used for Public Involvement Activities

The project team's analysis of demographic characteristics was used to help develop the public involvement outreach activities (see Section 3.3). In particular, this analysis helped to determine the appropriate languages that should be used to translate published materials, to determine the types of translators to attend public meetings, and to identify non-English newspapers that should be used for advertising public meetings.

2.4.4 Update to 2000 Census Data

The published census data from April 2000 are more than 10 years old, and directly comparable data will not be available until mid-2011 or later. More recent demographic data, however, are available at the city level for 2008 through the U.S. Census Bureau's American Community Survey (U.S. Census Bureau 2008). These data were compared to the city-level data from 2000 to indicate potential changes in the demographic characteristics of the study area.

2.5 Analysis of Potential Effects

The following sections provide an overview of the analysis methods used to assess potential construction and operational effects on social resources, including park and recreation facilities and minority and low-income populations (environmental justice).

2.5.1 Overview

This report evaluates potential effects on social resources as required by federal and state environmental regulations. Potential social resource effects include effects on the population and its demographic characteristics, environmental justice, city neighborhoods, housing, and community facilities and services. Effects on community centers, educational facilities, cultural and social institutions, park and recreation lands, religious institutions, social service agencies, and government institutions are discussed. An assessment of potential effects on neighborhood cohesion is also included. Recommended mitigation measures are presented, and the analysis concludes with an environmental justice determination.

Other topics often included as part of the analysis of effects on social resources as defined in Chapter 458 of the WSDOT *Environmental Procedures Manual* (WSDOT 2010) are discussed in separate discipline reports. In particular, Appendix K addresses public services and utilities, and Appendix L discusses potential economic effects. The analysis of these and other environmental effects is also incorporated into this discipline report.

Potential effects on social resources can be adverse, beneficial, or a mixture of the two and are primarily related to property acquisition and land use displacement. The effects are defined by criteria to ensure like comparison. Potential adverse effects could include substantial changes in the following:

- Purchase of right-of-way property (land or buildings) that is actively used by community facilities, religious institutions, social and employment services, park and recreation lands, cultural and social institutions, or government institutions, including national defense installations.
- Positive or negative changes in population or demographics that occur within a short period due to displacement of residential land uses.
- Reduced availability of housing or increased cost of housing within a short period due to displacement.
- Reduction in number of jobs that occur within a short period due to displacement of commercial and industrial land uses.
- Increased difficulty in pedestrian, vehicle, or transit access to community facilities, park and recreation lands, religious institutions, social or employment services, cultural or social institutions, or government offices.
- Addition of neighborhood obstructions, deterioration in infrastructure, changes in linkages between community facilities, loss of neighborhood commercial businesses and services, loss of unique community identity, or other negative changes in the perceived quality of life that define neighborhood cohesion.

In contrast, beneficial social effects include substantial changes in the following:

- Future land use development consistent with local government comprehensive plans and zoning regulations supporting the routine needs of neighborhood residents and businesses.
- Increased pedestrian, vehicle, or transit access resulting in improved linkages between residences, facilities, and services within neighborhoods and in improved neighborhood cohesion.
- Increased pedestrian, vehicle, or transit access resulting in improved connectivity between neighborhoods and communities outside of the study area and benefiting people working and shopping within the study area.
- Reduced traffic congestion resulting in improved air quality, reduced noise levels, improved pedestrian safety, and generally improved human environment and quality of life in neighborhoods.

In contrast, construction effects are more limited in geographic area and are expected to be confined primarily to properties close to the construction zone. These effects are largely associated with construction equipment noise, which would extend approximately two blocks from the construction zone. Construction traffic detours, however, could affect social resources some distance from the study area. Comparing all of these issues provides quantifiable data related to construction effects.

2.5.2 Assessment of Effects on Businesses, Employment, and Parking

The project team obtained information to assess the context of long-term displacement of businesses, employment, and parking spaces and the effect on neighborhood cohesion.

Business and Employment

The analysis of potential effects on neighborhood cohesion considered the displacement of businesses and employees. The displacement of businesses and employees is analyzed in Appendix L, Economics Discipline Report. The analysis is based on inventories of businesses. The smallest geographic area addressed in published data on businesses and employment is the ZIP code. The U.S. Census Bureau publishes annual data on the total number of businesses and employees located within ZIP codes. The most recently published data are from 2007 (U.S. Census Bureau 2009). The 2007 data were for the following Seattle ZIP codes: 98101, 98104, 98109, and 98121. Together, these ZIP codes encompass an area somewhat larger than the study area, as shown on Exhibit 2-2 and compared to Exhibit 1-1.

Exhibit 2-3 lists the 2007 total number of businesses and employment for each ZIP code area. This information was used to assess the significance of the displacement of businesses and employees and the effects on community cohesion.

Parking

The analysis of effects on neighborhood cohesion also considered the long-term effects of displaced parking spaces. Parking spaces that would be displaced by the project are analyzed in detail in Appendix C, Transportation Discipline Report.

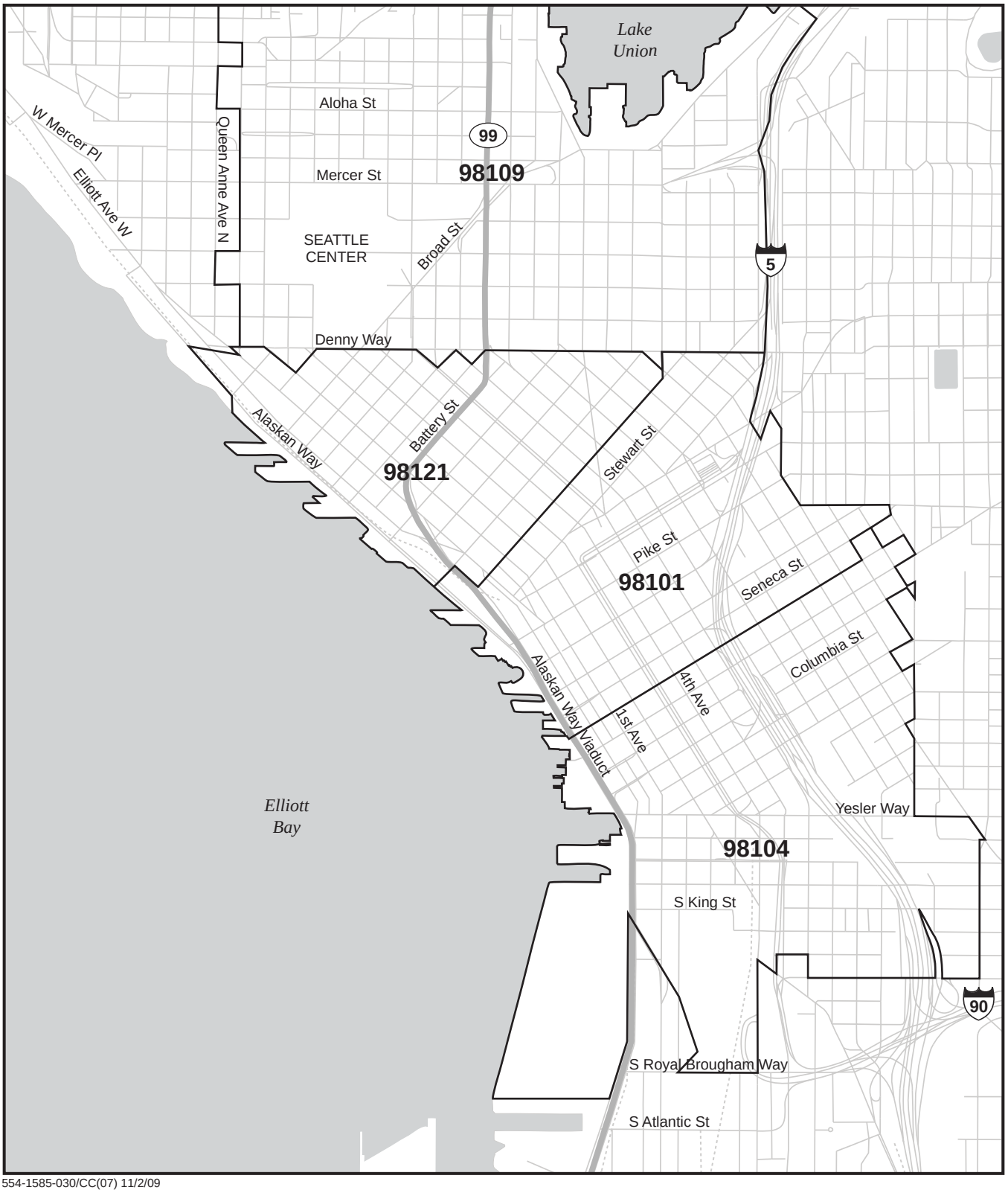

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Exhibit 2-2
ZIP Codes in the Study Area

Exhibit 2-3. Total Business and Employment, 2007

Neighborhoods	ZIP Code	Businesses	Employment
Pioneer Square & South Commercial Core	98101	3,006	67,051
North Commercial Core & East Denny Triangle	98104	2,220	40,583
South Lake Union & East Uptown	98109	1,570	36,035
Belltown & West Denny Triangle	98121	1,202	24,757
Total		**7,998**	**168,426**

Source: U.S. Census Bureau 2009.

The Puget Sound Regional Council (PSRC) periodically conducts inventories of downtown parking spaces and their utilization. The most recent data are from 2006 (PSRC 2006). The inventory examines only nonresidential off-street parking, which accounts for approximately 80 percent of all downtown parking (Heffron Transportation 2002). One or more parking zones were selected to best represent the study area neighborhoods, primarily the Pioneer Square and Uptown/South Lake Union neighborhoods where the tunnel portals would be located. Where zone boundaries did not approximate neighborhood boundaries, an estimate of a portion of the zone included in the neighborhood was used, assuming the parking spaces are distributed equally across the zone.

Exhibit 2-4 shows available parking and utilization by study area neighborhood. This information was used to assess the context and significance of parking displacement that would result from construction and long-term operation of the Bored Tunnel Alternative.

Exhibit 2-4. Available Off-Street Parking, 2006

Neighborhood	Parking Zones[1]	Parking Spaces	Average Daily Utilization[2]
Pioneer Square	1, 3	6,023	51%
Commercial Core	4, 5, 6, 7, 8pt	23,437	71%
Denny Triangle	8pt, 12pt, 13	11,489	67%
Belltown	9, 10, 11, 12pt	8,801	63%
South Lake Union	17, 18	11,933	40%
Uptown	19	6,631	48%
TOTAL		68,313	63%

Source: PSRC 2006.

[1] A parking zone notated with "pt" indicates that only part of the parking zone lies within the boundaries of the designated neighborhood. In each case, approximately half of the area of each zone lies within adjacent neighborhoods.

[2] Average daily utilization percentages have been rounded.

2.5.3 Assessment of Effects on Park and Recreation Lands

The project team identified effects on park and recreation resources by studying the displacement or anticipated change in use of park, recreation, public access,

and public art facilities and installations. Existing and planned resources and use patterns were compared with the likely character of the facility during construction and later operation. In addition, potential construction and operational effects on public access to public and dedicated shoreline were evaluated.

Overall, the operational effects of the project were assessed based on one or more of the following parameters:

- Total or partial acquisition of property for right-of-way that would displace some or all facilities or functions.
- Partial acquisition that would change the relationship between facilities.
- Permanently altered access.
- Changed parking supply off site, which would affect access and use of the facility.
- Interrupted connections between facilities.
- Relocation of trails or provision of alternative facilities that would change amenities and interest.
- Changes in views from park and recreation facilities that would change amenities and interest.
- Introduction of proximity effects (e.g., noise, additional traffic) that would substantially impair the recreational functions and values of the facility.

Construction effects generally include the same parameters listed above, but they were evaluated for the degree and duration of the effect.

2.5.4 Assessment of Environmental Justice Compliance

To comply with Title VI of the Civil Rights Act and Executive Order 13898 and Washington State code (RCW 49.60.030, freedom from discrimination—declaration of civil rights), detailed analysis was conducted to assess environmental justice compliance. For this analysis, the following steps were taken to analyze effects on minority and low-income populations:

- Examined the population demographic characteristics of the study area using census tract block group data to identify study area minority and low-income populations.
- Provided the public involvement staff with general information about the study area demographics to help ensure that (1) public involvement activities are planned using appropriate meeting places, languages, and approaches that encourage minority and low-income populations to become involved; and (2) outreach is planned with social service agencies that may serve minority and low-income populations who are least likely

to become involved in the public decision-making process (e.g., the homeless).

- Studied in detail the demographic characteristics of the study area, the community facilities and social service organizations that support these people, and comments obtained from these groups and organizations.
- Provided project engineers during preliminary design with input concerning potential effects on minority and low-income populations. This allowed design revisions to avoid, reduce, and minimize potential effects on these populations.
- Assessed the potential adverse and beneficial effects on minority and low-income populations. Considered a broad range of potential environmental effects (e.g., acquisition and relocation, social, noise, air, transportation, economics, and public services). Evaluated whether these potential effects would be disproportionately adverse on study area minority and low-income populations, considering all proposed mitigation measures.

Ongoing public outreach efforts will continue to provide information on potential project effects and help determine appropriate and effective mitigation measures. To be consistent with the underlying federal principles of NEPA, Executive Order 12898, and Title VI of the Civil Rights Act, this outreach to and involvement of these populations will continue through final design and construction.

Chapter 3 STUDIES AND COORDINATION

The analysis contained in this report also is based on other studies and reports prepared for the project, as well as coordination with local and state government agencies, nonprofit organizations, and members of the public. The following sections describe the studies, coordination efforts, and public involvement activities that contributed to the preparation of this report.

3.1 Studies

Because of the interdisciplinary context of the assessment of social effects, other discipline reports developed for this project were consulted in the preparation of this report. These reports are all based on the February 2010 conceptual engineering design for the Bored Tunnel Alternative. In particular, the following project reports were reviewed:

- Appendix A, Public Involvement Discipline Report
- Appendix B, Alternatives Description and Construction Methods Discipline Report
- Appendix C, Transportation Discipline Report
- Appendix D, Visual Quality Discipline Report
- Appendix F, Noise Discipline Report
- Appendix G, Land Use Discipline Report
- Appendix I, Section 106: Historic, Cultural, and Archaeological Resources Discipline Report
- Appendix K, Public Services and Utilities Discipline Report
- Appendix L, Economics Discipline Report
- Appendix M, Air Discipline Report

A complete list of references used to prepare this document is provided in Chapter 9.

3.2 Agency Coordination

The project team contacted a variety of local government organizations and nonprofit agencies for information. The City of Seattle Department of Neighborhoods, Office of Housing, and the Seattle Housing Authority were contacted for information on housing, including low-income, emergency, and transitional housing. These agencies provided databases with the name, address,

number of units, and type of housing for individual buildings. The Archdiocesan Housing Authority and the Plymouth Housing Group were contacted about existing and proposed low-income housing in Seattle. In addition, the Seattle/King County Coalition on Homelessness was contacted regarding recent annual counts of homeless persons in downtown Seattle. Together, this information was used to assess potential effects on low-income persons.

The project team also purchased a database of social service providers in the study area from a nonprofit organization called The Crisis Clinic (2009). The database included government and nonprofit services. Child Care Resources and the Seattle School District were contacted regarding childcare facilities and programs available in the study area.

3.3 Public Involvement

3.3.1 Public Involvement Activities

The environmental justice evaluation for this discipline report is based on public outreach conducted for the Program. Specifically, public outreach activities for the project are ongoing, and special efforts have been made on an ongoing basis to include minority and low-income populations throughout the study area. Outreach has been conducted to ensure that the study area's diverse populations, including populations with limited English proficiency, are involved in the decision-making process. These activities included the following:

- Publishing notices for public outreach activities in newspapers of general circulation in the region, as well as publications serving non-English-speaking populations residing in the study area.
- Holding dozens of community briefings to inform interested organizations and their constituents about the project.
- Holding three public scoping meetings to discuss the Bored Tunnel Alternative. These meetings used an open house format, some with presentations, so the public could talk with members of the project team. Translated handouts were available in four languages: Spanish, Traditional Chinese, Vietnamese, and Tagalog.
- Creating a general project folio and Bored Tunnel Alternative folio for the Program. This information was distributed at interviews, cultural and community fairs and festivals, and other public meetings. The folios were translated into Spanish, Traditional Chinese, Vietnamese, and Tagalog, based on the U.S. Department of Transportation and U.S. Department of Justice guidance for populations with limited English proficiency.

- Setting up informational booths at 22 fairs and festivals throughout the Seattle area.
- Providing information to the public through newsletters and email.
- Creating and updating the Program website to maximize public access to timely information and quick, easy interaction with WSDOT. Information posted on the website was provided in Spanish, Traditional Chinese, Tagalog, and Vietnamese.
- Providing a project telephone information line to give information about upcoming events, including location, time, date, and transit routes close to the event.
- Inviting local disadvantaged business enterprises to five meetings that informed contractors of opportunities to work on the project.

Outreach efforts for the project are summarized in Attachment C, Summary of Public Involvement Activities. Detailed information can be found in Appendix A, Public Involvement Discipline Report.

3.3.2 Outreach to Social Service Providers

A project challenge has been to involve the study area's substantial number of low-income residents, including homeless persons. In downtown Seattle, these people often are immigrants, have limited education and/or English proficiency, may have mental illnesses, and may move frequently or stay in local emergency shelters. To learn about likely concerns of these residents, interviews with social service providers who serve these residents have been conducted since the beginning of the project's public outreach program. Since the publication of the 2006 Supplemental Draft EIS, more than 40 contacts have been made with study area social services providers.

3.3.3 Project Incorporation of Public Comments

Feedback from the outreach and public involvement efforts has been incorporated into the analysis and is highlighted in this report. A good example of this feedback, as noted above, is the information gathered from social service and housing providers that enabled accurate mapping and informed the refinement of project designs. Public input and outreach to social service organizations have been invaluable in refining the public involvement program. Such input has been used to determine the extent of translated materials, the locations for public meetings, and new organizations and groups with whom further coordination was appropriate.

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Chapter 4 AFFECTED ENVIRONMENT

This chapter describes the affected environment for social resources. Topics include study area neighborhoods, population and demographics, disadvantaged populations, housing, community facilities and services, park and recreation lands, social and employment services, cultural and social institutions, government institutions, and neighborhood cohesion. Related topics are discussed in other reports, including Appendix C, Transportation Discipline Report; Appendix G, Land Use Discipline Report; Appendix K, Public Services and Utilities Discipline Report; and Appendix L, Economics Discipline Report.

4.1 Overview of the Study Area and Its Neighborhoods

SR 99 is one of two major regional north-south transportation corridors that connect downtown Seattle to Tacoma in Pierce County and Everett in Snohomish County. Many of those who use SR 99 live outside the study area and either work in the downtown core, visit for shopping, or attend cultural performances. The roadway also serves truck traffic between the Duwamish and Interbay industrial areas located to the south and north of downtown Seattle, respectively. People who live northwest or southwest of downtown Seattle also use SR 99 for travel through the downtown area, and in particular, to and from West Seattle and the Seattle-Tacoma International (Sea-Tac) Airport.

The social resources study area extends north along Seattle's waterfront from S. Holgate Street, south of the downtown area, to Broad Street along the central waterfront. Continuing northerly, it encompasses the Battery Street Tunnel and Aurora Avenue north to Ward Street. The boundaries encompass five blocks to either side of the proposed alignment of the Bored Tunnel Alternative.

The study area traverses several neighborhood planning areas designated by the City (Seattle 2005b). From south to north, these are the Pioneer Square, Commercial Core, Belltown, Denny Triangle, Uptown, and South Lake Union neighborhoods, as shown on Exhibit 4-1. These neighborhoods are distinct and have their own characteristics. They encompass the following: (1) the Pioneer Square and Pike Place Market Historic Districts; (2) the city's financial, government, retail, and cultural centers; (3) an older residential neighborhood experiencing substantial redevelopment and in-fill of new housing; (4) part of the city's old light industrial core south of Lake Union that is rapidly transitioning into a major new office and residential mixed-use community; and (5) a vibrant mixed-use community surrounding one of the city's major arts and entertainment districts, Seattle Center. The social resources for each of the study area neighborhoods are shown on Exhibits 4-2 through 4-4 and discussed in more detail in the following sections.

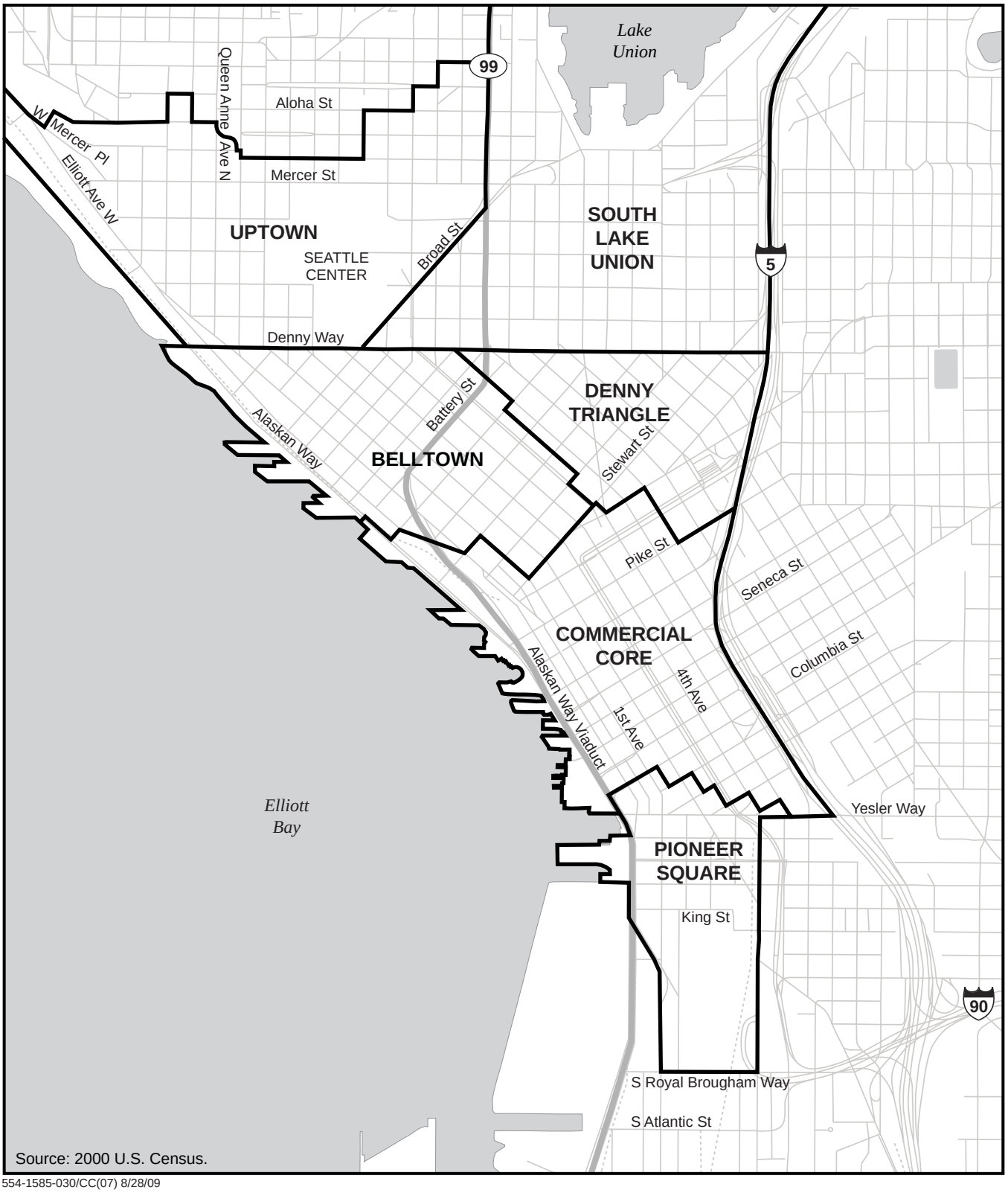

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Exhibit 4-1
Map of Study Area Neighborhoods

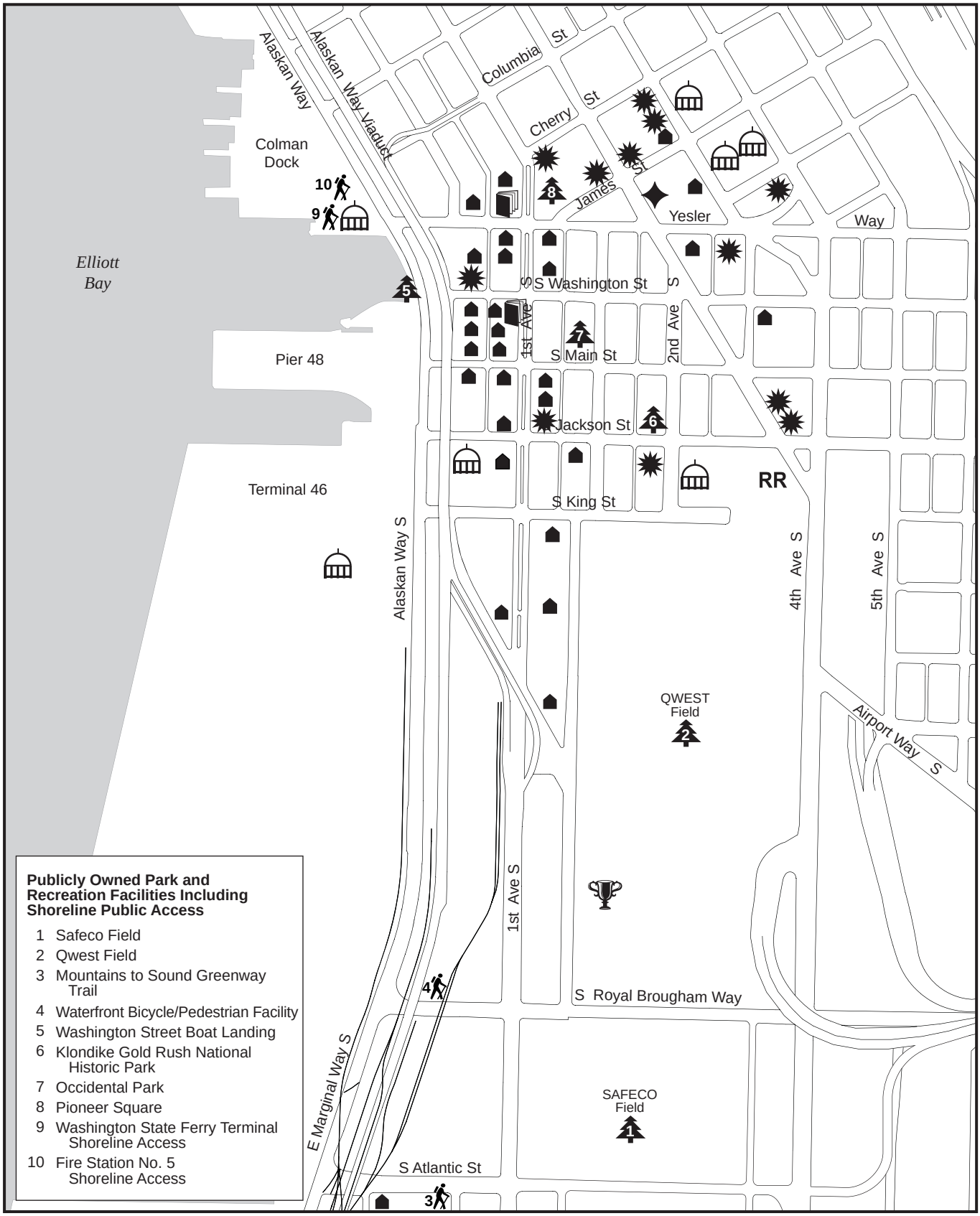
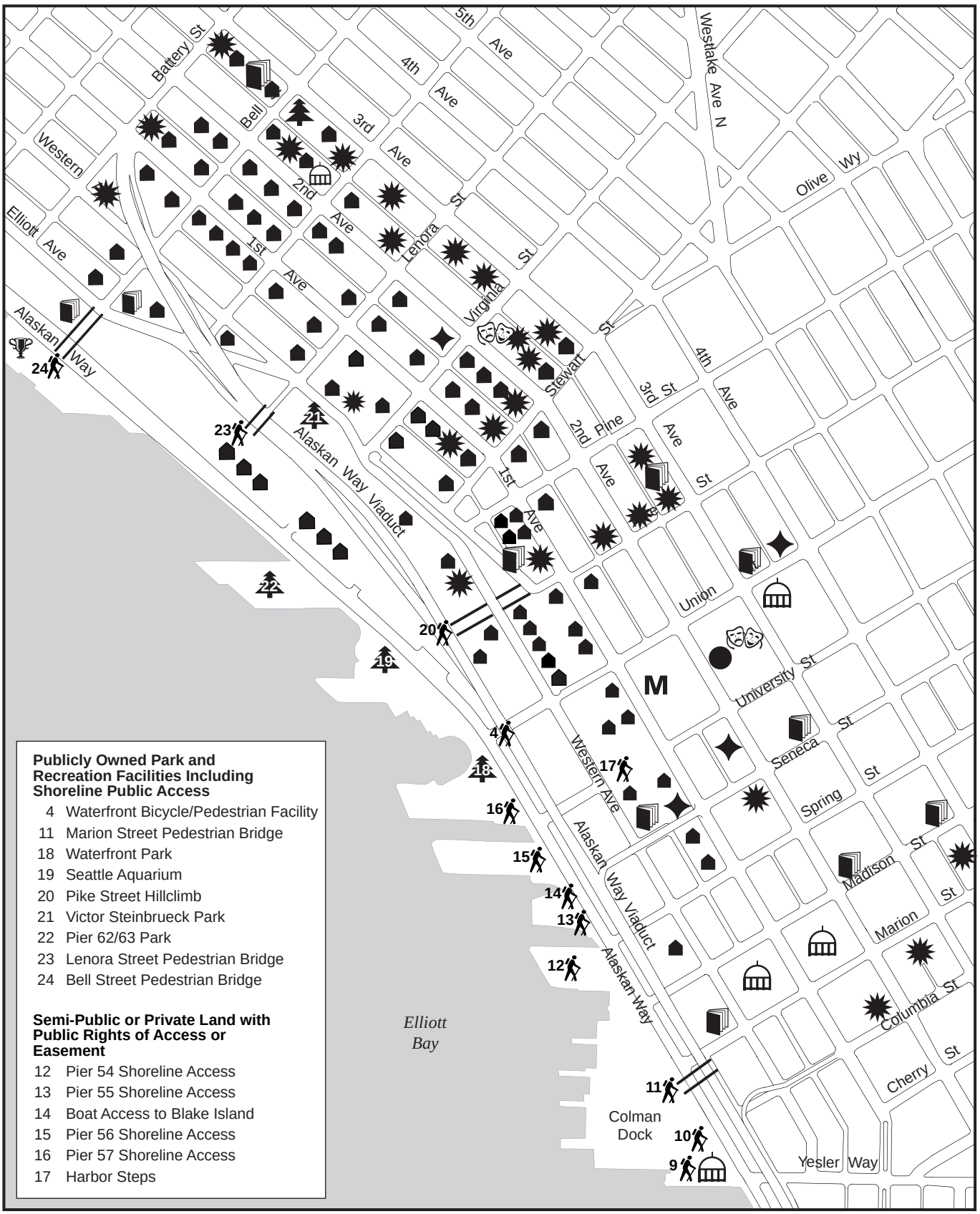


Exhibit 4-2
Map of Social Resources: Stadium Area



Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

- 4 Waterfront Bicycle/Pedestrian Facility
- 11 Marion Street Pedestrian Bridge
- 18 Waterfront Park
- 19 Seattle Aquarium
- 20 Pike Street Hillclimb
- 21 Victor Steinbrueck Park
- 22 Pier 62/63 Park
- 23 Lenora Street Pedestrian Bridge
- 24 Bell Street Pedestrian Bridge

Semi-Public or Private Land with Public Rights of Access or Easement

- 12 Pier 54 Shoreline Access
- 13 Pier 55 Shoreline Access
- 14 Boat Access to Blake Island
- 15 Pier 56 Shoreline Access
- 16 Pier 57 Shoreline Access
- 17 Harbor Steps

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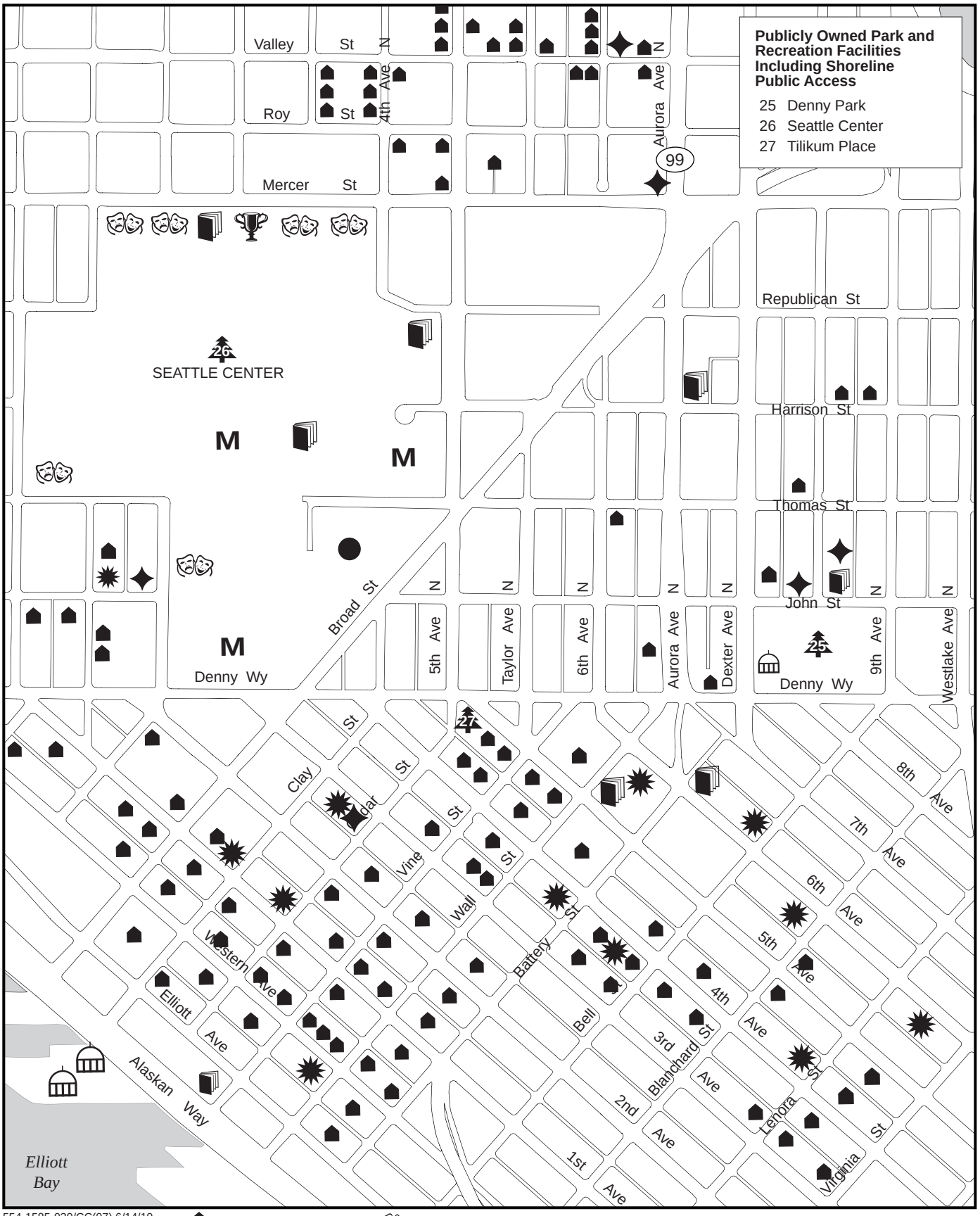
- Housing
- Government Institution
- Religious Institution
- Educational Institution
- Exhibition Hall
- Landmark
- M Museum
- Cultural/Social Institutions
- Social/Employment Services
- Park/Recreation
- Pedestrian Bridge
- RR Railroad Station
- Trail

Exhibit 4-3
Map of Social Resources: Downtown Area



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- Housing
- Government Institution
- Religious Institution
- Educational Institution
- Exhibition Hall
- Landmark
- M Museum
- Cultural/Social Institutions
- Social/Employment Services
- Park/Recreation
- Pedestrian Bridge
- RR Railroad Station
- Trail

Exhibit 4-4
Map of Social Resources:
Uptown and South Lake Union Area

4.1.1 Pioneer Square

The historic Pioneer Square neighborhood, formerly the city center of Seattle, is generally located between S. Royal Brougham Way and Columbia Street. Residents are likely to be racial minorities, Hispanic/Latinos, persons with disabilities, or persons with household incomes at or below the poverty level (U.S. Census Bureau 2000). The neighborhood was established in the late 1800s and is immediately east of the city's busy port facilities on Terminal 46.

The boundaries of the Pioneer Square neighborhood also encompass the National Register historic district and the slightly larger City-designated historic district. Here, the city blocks are relatively small, and the tree-lined streets are narrow. The historic district is characterized by smaller-scale, two- and four-story brick buildings, many with unique architecture, and several large public squares.

Walking through the neighborhood and visiting local shops, restaurants, and the Seattle Underground Tour are popular tourist attractions. The interiors of old brick warehouse buildings have been remodeled into artists' lofts and office buildings. Neighborhood residents live in the many older apartment buildings, the new condominium buildings, the low-income housing buildings, and several emergency homeless shelters (Seattle 2007). The main commercial street through the neighborhood is First Avenue S., which has large sycamore trees in the street median. To the south and east of the neighborhood's commercial district, land uses include residential, and retail, wholesale, warehouse, and industrial businesses. Terminal 46 is a major container cargo port facility located west of the commercial district along the waterfront.

Several residential and office buildings have been built in the neighborhood over the past decade, including the King County government office complex on S. Jefferson Street. Seattle's main railroad station, King Street Station, is located in the neighborhood. The nearby historic Union Station was restored and is now used as the headquarters offices of Sound Transit. Safeco Field (professional baseball) and Qwest Field (professional football and soccer) are located in or adjacent to this neighborhood and are regional attractions for thousands of sports fans.

4.1.2 Commercial Core

The Commercial Core is Seattle's major downtown area and generally extends along the waterfront between Columbia Street and Stewart Street. The neighborhood is set apart from adjacent neighborhoods by a change in the orientation of the street network to the north and south of the neighborhood. It is characterized by many high-rise office buildings and includes the city's financial district and retail core. First-class hotels, restaurants, museums, theaters, and the

symphony hall are concentrated between First and Fifth Avenues. Tens of thousands of workers commute to the Commercial Core each day.

The Seattle Ferry Terminal at Colman Dock and the Seattle Aquarium are located on the waterfront, along with many tourist shops and other visitor attractions. The Pike Place Market Historic District is located just up the hill from the aquarium. A number of social service agencies are clustered near the Pike Place Market (Crisis Clinic 2009). Government office buildings, including the Federal Office Building, the King County Administrative Center, and the Downtown Neighborhood Service Center ("mini–city hall") are found in this part of Seattle. In the past 10 to 15 years, a number of high-rise luxury condominiums also have been constructed in the city's Commercial Core.

4.1.3 Belltown

The Belltown neighborhood is located immediately north of the city's downtown area and generally extends from Stewart Street north to Denny Way. It encompasses the waterfront area and extends east to approximately Fifth Avenue, immediately north of the Commercial Core neighborhood. The neighborhood is characterized by medium-density business, commercial, and residential land uses (Seattle 2006e).

This neighborhood has undergone substantial redevelopment over the past 10 to 15 years. Expensive mid-rise condominiums have been constructed along the waterfront. High-rise condominiums and apartment buildings have also been built up the hill overlooking Elliott Bay. Land uses near the Battery Street Tunnel are characterized by old and new residential buildings, retail shops and restaurants, and low- to mid-rise office buildings. The neighborhood includes many of the city's historic hotels and apartment buildings, many of which have been converted to subsidized housing (Seattle 2003). The neighborhood continues to have a residential character with shade trees lining many streets. A substantial number of social service agencies are located in the neighborhood (Crisis Clinic 2009). The shops, restaurants, coffee houses, and bars in the neighborhood cater to a diverse local clientele.

In addition, this neighborhood encompasses some of the city's tourist- and visitor-oriented waterfront attractions, including the Bell Harbor International Conference Center and the Bell Street Pier Cruise Terminal (both on Pier 66). Over the past 10 to 15 years, a substantial number of expensive residential condominiums have been constructed in Belltown (Seattle 2007). Local residents, downtown workers, visitors, and others mingle along the waterfront sidewalks and pedestrian trails.

4.1.4 Denny Triangle

The Denny Triangle lies north of the Commercial Core and east of Belltown. This neighborhood encompasses only the very northern portion of the Battery Street Tunnel. It is a mixture of apartment, retail, commercial, and mid-rise office buildings. With its proximity to the freeway, a number of local streets carry traffic to or from highway on- and off-ramps. The neighborhood is in transition, with downtown high-rise office development expanding into the neighborhood.

4.1.5 Uptown

The mixed-use Uptown neighborhood lies north of Belltown. It generally extends from Denny Way north to Mercer Street and north along Aurora Avenue. The focal point of this neighborhood is the 74-acre Seattle Center, site of the 1962 World's Fair. Today, Seattle Center is home to several theaters and museums, Marion Oliver McCaw Hall (opera and ballet), the Pacific Science Center, Key Arena (sports and events center), Seattle Children's Theatre, the Space Needle, Seattle Public Schools' Memorial Stadium (sports and events stadium), and an amusement park. Seattle Center hosts over 5,000 sporting, educational, and cultural events annually and attracts over 12 million visitors each year (Seattle 2006f).

Restaurants and shops patronized by residents and those attending Seattle Center events are located on First Avenue N. and Queen Anne Avenue N. The surrounding area is characterized by two- to four-story office buildings and older apartment buildings. On the west side of Aurora Avenue near Roy Street, land use is largely residential—single-family residences, duplexes, multifamily apartment buildings, and condominium complexes. Very few subsidized or special needs housing or social service agencies are located in the neighborhood (Crisis Clinic 2009).

4.1.6 South Lake Union

The historically industrial South Lake Union neighborhood lies north of Denny Way and east of Aurora Avenue. The neighborhood is characterized by a mixture of commercial, wholesale, and light industrial uses (Seattle 2006e). Automobile-oriented retail, commercial, multifamily residential, office, and light industrial land uses are located on the city blocks from Broad Street east to Westlake Avenue N. Offices, retail uses, and marine-oriented businesses line the shore of Lake Union.

The neighborhood is traversed east-west by Mercer Street, which handles heavy traffic flows from the Uptown neighborhood and Seattle Center to the Interstate 5 (I-5) on-ramps. This major arterial separates land uses along the lakeshore and the southern portion of the neighborhood. Vacant or underused parcels and buildings are scattered around the neighborhood. Several unused railroad spur

lines crisscross the area. Many streets lack curbs, gutters, and sidewalks. The land uses along the lakefront include marinas, a conference and event center, South Lake Union Park (12 acres), boat building and repair facilities, and maritime materials and supply businesses.

Restaurants, hotels, apartments, condominiums, and biotech research offices have recently been built in the neighborhood, especially along Westlake and Terry Avenues N. and the lakefront. The area has only a few retail and commercial establishments to meet the needs of the growing residential population. Very few social resources are located in the neighborhood. Residents here are more likely to have a higher income than residents of the Pioneer Square or Belltown neighborhoods (U.S. Census Bureau 2000). Vulcan, Inc., is a major property owner and developer of residential (market-rate and subsidized), retail, and biotech projects. A number of these projects have been completed in the past 8 to 10 years, and others are currently under construction. These trends indicate that the neighborhood will continue to experience major redevelopment in the coming 10 to 15 years.

4.2 Population and Demographics

The study area population demographic characteristics are similar to and different from those of the city of Seattle. The analysis below is based on the 2000 census, which is the most up-to-date and comprehensive source of demographic information available. Summary statistics are presented in the tables, and detailed statistics by census tract block group are included in Attachment B. The text also includes a discussion of anticipated changes in demographic characteristics.

4.2.1 Population and Minority Characteristics

Although located in the densely developed downtown area, the study area population is only a small portion of the total population of Seattle. In 2000, the population of the study area was approximately 17,336 people, as shown in Exhibit 4-5. This was less than 3 percent of the city's total population and reflects the industrial and commercial character of much of the study area.

The racial characteristics of the study area residents are similar to those of the city, although the study area residents are somewhat less racially diverse (see Exhibit 4-5). In 2000, approximately 75 percent of the population residing in the study area were White and 25 percent were non-White. Black/African Americans and Asian/Pacific Islanders composed approximately 9 and 7 percent of the population, respectively. Seven percent of the study area population were Hispanic/Latino. The Black/African American, Asian/Pacific Islander, and Hispanic/Latino groups were the largest minority groups in the study area.

Exhibit 4-5. Minority Characteristics, 2000

Area	Total Population	Total Minority	Race					Ethnicity[1]
			White	Black/ African Am	Am Ind & AK Native	Asian & Pacific Islander	Other	Hispanic/ Latino
Study Area	17,336	4,810 (28%)	13,023 (75%)	1,567 (9%)	383 (2%)	1,281 (7%)	379 (2%)	1,244 (7%)
City of Seattle	563,374	180,842 (32%)	394,889 (70%)	47,541 (8%)	5,659 (1%)	76,714 (14%)	38,571 (7%)	29,719 (5%)

Source: U.S. Census Bureau 2000.

1. The Hispanic/Latino category is not a racial group, but an ethnic identity; Hispanic/Latino persons may be of any race. Racial statistics for Hispanic/Latino people are included in the race categories in the table columns.

4.2.2 Income Characteristics

Generally, the residents of the study area are less well off than residents of the city. In 2000, the median household income in the study area was considerably less than the median income of households in Seattle, as shown in Exhibit 4-6. However, the per capita income of households in the study area exceeded the per capita income of Seattle households. This dichotomy suggests that the study area likely includes some very high-income as well as low-income households with nearly double the city's proportion of single-person households (see Exhibit 4-6).

Exhibit 4-6. Income Characteristics, 2000

Area	Households	Median Household Income	Per Capita Income	Households With Public Assistance	Population At or Below the Poverty Level
Study Area	11,063	$36,130	$41,408	435 (4%)	3,871 (23%)
City of Seattle	258,499	$45,736	$30,306	7,638 (3%)	64,068 (12%)

Source: U.S. Census Bureau 2000.
Note: Income statistics for the 2000 census are for year 1999.

In addition, a substantial number of low-income persons reside in the study area. In 2000, approximately 4 percent of study area households received public assistance, and 23 percent lived at or below the poverty level. In contrast, only 12 percent of the city's population are at or below the poverty level.

4.2.3 Study Area Environmental Justice Populations

The study area contains environmental justice (minority and low-income) populations. Exhibits 4-7 and 4-8 show detailed minority characteristics and

income information for the census tract block groups in the study area, and Exhibit 4-7 summarizes this information.

Exhibit 4-7. Minority and Low-Income Populations in the Study Area, 2000

Area	Total Population	Minority Populations	Low-Income Populations
Study Area	17,336	4,810 (28%)	3,871 (23%)
City of Seattle	563,374	180,842 (32%)	64,068 (12%)

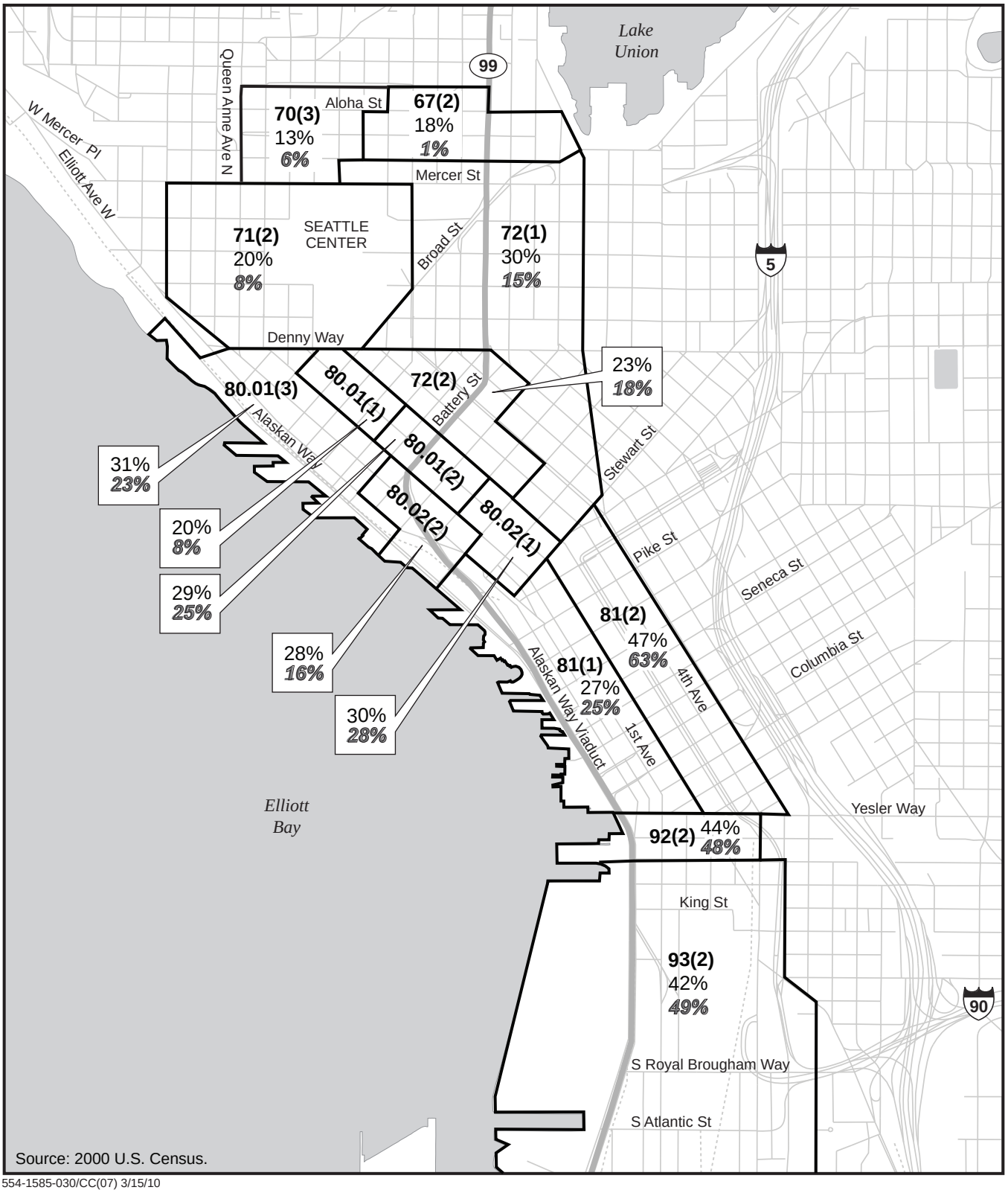
Source: U.S. Census Bureau 2000.
Note: Income statistics for the 2000 census are for year 1999.

For environmental justice analysis, minority populations are defined as individuals considering themselves to be non-White (Black or African American, American Indian and Alaskan Native, Asian, Pacific Islander, or other race) or an ethnic group. The U.S. Census publishes data on the ethnic Hispanic/Latino population (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race). In 2000, the percentage of minority populations in the study area was slightly less than the percentage of minority populations in the city of Seattle. The study area has several census tract block groups in which the percentage of minorities is substantially higher than that for the city (32 percent minority). These block groups are located in the Pioneer Square and Commercial Core neighborhoods, as shown on Exhibit 4-8.

Minority populations include Native Americans. Even though the project corridor does not cross or directly affect Indian reservation lands, WSDOT is consulting with the following tribes: the Confederated Tribes and Bands of the Yakama Nation, the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Suquamish Tribe, the Tulalip Tribes, and the Duwamish Tribe (as an interested party, non-federally recognized tribe). The lead agencies are also consulting with the Muckleshoot Indian Tribe and the Suquamish Tribe on potential effects on tribal fishing rights. Appendix I, Section 106: Historic, Cultural, and Archaeological Resources Discipline Report, documents this tribal consultation.

Informal observation and interviews during December 2003 found several persons of Asian or Pacific Island heritage fishing for squid at several piers along the study area waterfront. All fishing was for personal consumption or distribution to family members, and none of those interviewed lived in the study area.

A number of factors are used to identify low-income populations (defined as persons living at or below the federally designated poverty level). These factors include household size, age, and the presence of children. For example, in 1999 a typical household of four (two adults and two children) would need a household income at or



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N

0 1,800

SCALE IN FEET

93(2) Census Tract (Block Group)
42% Minority
49% Low-Income

Exhibit 4-8
Minority and Low-Income Populations in the Study Area

below $16,895 to qualify as low-income. For more information on poverty thresholds applicable to the 2000 census, see Attachment D. Although 23 percent of the population in the study area are considered low income based on the 2000 census, rates exceeding 48 percent were reported for the Pioneer Square and Commercial Core neighborhoods (see Exhibit 4-8).

4.2.4 Limited English Proficiency

The 2000 census provided statistics that indicated a substantial number of study area residents had limited English proficiency. This information was used to determine the need for and types of translation services to communicate project information to study area residents.

As shown in Exhibit 4-9, census statistics on linguistically isolated households identified the number of households in which all members 14 years and older have at least some difficulty with English. General language categories were reported for households, including Spanish, Asian and Pacific Islander, and Other Languages. In addition, the census data identified the number of households that were linguistically isolated from the community due to the lack of any adult member who had a good command of the English language. In 2000, 5 percent of the study area households were linguistically isolated (see Exhibit 4-9). The estimated population in households speaking Spanish was about one-third of the Hispanic/Latino population (see Exhibit 4-5). In contrast, approximately three-quarters of the population of Asian and Pacific Islander races spoke a non-English language at home. Many of the census tract block groups in the study area with up to 9 percent of households speaking either Spanish or an Asian or Pacific Islander language at home also were characterized by a high proportion of linguistically isolated households (up 12 percent).

The U.S. Department of Justice guidance indicates that translations are required if populations with limited English proficiency constitute 5 percent of the affected population or 1,000 or more persons, whichever is less. To estimate the size of non-Spanish-speaking populations, the project team reviewed census data on the country of origin of foreign-born residents (see Attachment B). This information helped to determine which Asian or Pacific Islander language should be used for translations. Discussions with social service providers confirmed that study area households with limited English proficiency were mostly of Asian ancestry, primarily Chinese, Tagalog, and Vietnamese. Based on this analysis and consultation with local social service agencies, project outreach efforts have been using and will continue to use these three Asian languages and Spanish. This approach for outreach to populations with limited English proficiency will continue through project construction.

Exhibit 4-9. Household Language Characteristics, 2000

Area	Households Predicted	English Only	Spanish	Asian & Pacific Islander	Other Languages	Linguistically Isolated
CT 67, BG 2	414	359 (87%)	10 (2%)	7 (2%)	38 (9%)	0 (0%)
CT 70, BG 3	1,054	863 (82%)	23 (2%)	64 (4%)	104 (10%)	9 (1%)
CT 71, BG 2	689	616 (89%)	28 (4%)	10 (1%)	35 (5%)	25 (4%)
CT 72, BG 1	328	298 (91%)	5 (2%)	7 (2%)	18 (5%)	7 (2%)
CT 72, BG 2	1,734	1,371 (79%)	85 (5%)	142 (8%)	136 (8%)	100 (6%)
CT 80.01, BG 1	478	420 (88%)	33 (7%)	17 (4%)	8 (2%)	33 (7%)
CT 80.01, BG 2	1,181	985 (83%)	24 (2%)	72 (6%)	100 (8%)	29 (2%)
CT 80.01, BG 3	752	669 (89%)	0 (0%)	51 (7%)	32 (4%)	47 (6%)
CT 80.02 BG 1	1,004	925 (92%)	11 (1%)	38 (4%)	30 (3%)	30 (3%)
CT 80.02, BG 2	859	688 (80%)	19 (2%)	74 (9%)	78 (9%)	52 (6%)
CT 81, BG 1	1,404	925 (92%)	78 (6%)	87 (6%)	130 (9%)	66 (5%)
CT 81, BG 2	552	688 (80%)	19 (3%)	0 (0%)	60 (11%)	55 (10%)
CT 92, BG 2	441	340 (77%)	26 (6%)	28 (6%)	47 (11%)	54 (12%)
CT 93, BG 2	120	115 (96%)	0 (0%)	0 (0%)	5 (4%)	0 (0%)
Study Area	11,010	9,222 (84%)	264 (2%)	597 (5%)	821 (7%)	507 (5%)
City of Seattle	258,635	205,381 (79%)	11,636 (4%)	23,047 (9%)	18,571 (7%)	13,590 (5%)

Source: U.S. Census Bureau 2000.

Note: A linguistically isolated household is one in which no member 14 years old or older speaks only English or speaks a non-English language and speaks English "very well." These statistics are based on a sample survey, not the 100 percent census; therefore, the number of households is predicted and not the actual number of households. Percentages may not sum to 100 due to excluded data.

BG = block group

CT = census tract

4.2.5 Age Characteristics

The age characteristics of the study area population are distinct from those of the city of Seattle. As shown in Exhibit 4-10, study area residents have had a lower

proportion of children compared to all Seattle residents. In 2000, children under the age of 18 composed approximately 3 percent of the total population of the study area, compared to over 16 percent for Seattle. The study area had a similar percentage (11 percent) of elderly residents as that of the city in 2000.

Exhibit 4-10. Age Characteristics, 2000

Area	Total Population	0–4 Years	5–17 years	18–64 Years	65 Years and Older
Study Area	17,336	228 (1%)	313 (2%)	14,936 (86%)	1,857 (11%)
City of Seattle	563,374	26,215 (5%)	61,612 (11%)	407,740 (72%)	67,807 (12%)

Source: U.S. Census Bureau 2000.
Note: Percentages may not sum to 100 due to rounding.

4.2.6 Household Characteristics

Considering that the population of the study area in 2000 had a smaller proportion of children but a larger proportion of adults 16 to 64 years of age, it is logical that the household characteristics of the study area are distinct from those of the city of Seattle. As shown in Exhibit 4-11, in 2000, the U.S. Census Bureau reported that approximately 73 percent of households in the study area were one-person households, and only 3 percent of households were families with children. In contrast, Seattle households were 41 percent one-person households and 19 percent families with children. The proportion of elderly households in the study area (13 percent) was less than the proportion for the city (17 percent).

Exhibit 4-11. Household Characteristics, 2000

Area	Households	One-Person Households	Family Households	Families With Children	Single-Parent Families With Children	Elderly Households
Study Area	11,063	8,038 (73%)	1,760 (16%)	286 (3%)	151 (1%)	1,383 (13%)
City of Seattle	258,499	105,542 (41%)	113,400 (44%)	50,083 (19%)	16,366 (6%)	45,017 (17%)

Source: U.S. Census Bureau 2000.
Note: Families are households with more than one person related by blood or marriage or adoption. Families with children are households with one or more child less than 18 years of age residing in the home. Elderly households have at least one member 65 years or older.

4.2.7 Persons With Disabilities

Residents of the study area appear to have slightly higher rates of disabilities related to mobility compared to all Seattle residents. The U.S. Department of Justice defines disability, with respect to an individual, as a physical or mental

impairment that substantially limits one or more of the major life activities of the individual. In addition, individuals are considered to have a disability if there is a record of impairment or if the individual is regarded as having an impairment. As such, persons can have a mobility limitation due to physical impairment, or persons can have a cognitive disability that affects processing and decision-making skills, which in turn can limit their mobility.

The U.S. Census Bureau published statistics on persons with disabilities residing in small geographic areas in 2000. The census short form asked respondents if they had any of the following long-term conditions: (1) blindness, deafness, or a severe vision or hearing impairment (sensory disability) or (2) a condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying (physical disability). In addition, respondents were asked if they had a physical, mental, or emotional condition that made it difficult to perform certain activities. These included (a) learning, remembering, or concentrating (mental disability); (b) dressing, bathing, or getting around inside the home (self-care disability); (c) going outside the home alone to shop or visit a doctor's office (go-outside-the-home disability); and (d) working at a job or business (employment disability).

Respondents reporting more than one type of disability can result in double counting of individuals, and some disabilities do not affect mobility. Moreover, children 5 to 15 years old generally have family members or guardians who assist them. It is therefore not appropriate to report 2000 census totals for persons with disabilities as representative of persons with mobility limitations.

The best statistic to describe persons with mobility limitations is the number of persons 16 years or older who have a disability that affects their ability to leave the home alone. Exhibit 4-12 presents these statistics for the study area and the city of Seattle. In 2000, approximately 1,500 persons, or approximately 9 percent of the study area population, had mobility limitations. This proportion was somewhat higher than that for the city (6 percent).

Persons with mobility disabilities are likely to be more susceptible than other residents to changes in transit services, use of sidewalks, accessibility to supporting social services, or other changes in the neighborhood that may create unfamiliar situations.

Exhibit 4-12. Persons With Mobility Limitations, 2000

Area	Population	Population 16 Years or Older With Mobility Disability	Percentage of Total Population
Study Area	17,336	1,500	9%
City of Seattle	563,374	32,051	6%

Source: U.S. Census Bureau 2000.

4.2.8 Transit Dependency

Because the study area is located in downtown Seattle, the analysis must consider potential adverse effects on transit-dependent persons in particular. The 2000 census reported the number of vehicles available for personal use (as opposed to vehicles available only for business or work). A large proportion of study area households had no vehicle available for personal use, as shown in Exhibit 4-13. In fact, approximately 45 percent of households in the study area had no access to a private vehicle. This demographic characteristic sharply contrasts with an estimated 16 percent of all Seattle households with no access to a vehicle for personal use. These residents with no access to a vehicle must rely on walking, bicycling, and public transit (trains, light rail, monorail, buses, and taxis) for their transportation needs. For more detailed information about transit services in the study area, see Appendix C, Transportation Discipline Report.

Exhibit 4-13. Transit-Dependent Households, 2000

Area	Dwellings	Occupied	No Vehicles Available	Percentage
Study Area	12,656	11,063	4,943	45%
City of Seattle	270,524	258,499	42,180	16%

Source: U.S. Census Bureau 2000.

4.2.9 Updated Demographic Characteristics

The discussion of study area demographic characteristics is based on U.S. Census Bureau data collected in 2000, which is now over 10 years old and may not reflect current demographics. The 2010 census data will not be available until mid-2011. However, demographic data at the city level are available for 2008 through the U.S. Census Bureau's American Community Survey (U.S. Census Bureau 2008). These recent data were compared to the city-level census data from 2000 and were used to indicate potential changes in study area demographic characteristics since 2000.

The 2008 American Community Survey estimated the city's total population to be 582,490, which reflects an increase of 3 percent since 2000 (U.S. Census Bureau 2008). Based on this information, the population of the study area may have increased slightly.

Demographically, Seattle's non-White population decreased from 30 percent in 2000 to 27 percent in 2008 (U.S. Census Bureau 2000, 2008). The Hispanic/Latino population was reported to compose 5 percent of the total population in 2000 (U.S. Census Bureau 2000) and had not changed based on the 2008 American Community Survey. The total minority population in 2000 was reported to be about 32 percent and had decreased slightly to 30 percent in 2008. Based on this

analysis, the racial, Hispanic/Latino ethnicity, and total minority composition of the study area population is likely to be similar to the demographic characteristics reported in the 2000 census (i.e., 25 percent non-White, 7 percent Hispanic/Latino, and 28 percent total minority).

Similarly, the percentage of persons living at or below the poverty level in the city of Seattle has remained the same between 2000 and 2008. In both of these years, 12 percent of the population were living at or below the poverty level (U.S. Census Bureau 2000, 2008). On the basis of the stable city data, it is assumed that the proportion of the population living at or below the poverty level and residing in the study area has not changed substantially and remains approximately 23 percent.

4.2.10 Long-Term Population and Demographic Changes Expected

Through 2015, the study area population and demographics are expected to change as a result of forecasted urban development. The following paragraphs describe anticipated development projects in the study area. A more detailed discussion can be found in Appendix G, Land Use Discipline Report.

In recent years, a moderate number of development projects have started construction in the Pioneer Square neighborhood. Development is severely limited due to the lack of vacant land, so most future development projects are expected to involve renovations or redevelopment of existing properties. Projects under construction currently include a mix of residential, office, and commercial land uses. Although none of the recent projects has been of substantial size, there is one proposal on the horizon that could dramatically alter the character of the Pioneer Square neighborhood. In July 2009, the Seattle City Council approved rezoning of the 3.85-acre property that is currently a parking lot north of Qwest Field. Construction could break ground as early as mid-2011 for a proposed mixed-use development consisting of up to 480,000 square feet of office space, 19,000 square feet of retail space, and over 640 condominiums or apartments. The project is also expected to include up to 100 low-income units. Completion of this major new mixed-use development project would almost double the population of the neighborhood. The substantial increase of market-rate housing compared to low-income and emergency shelter housing would decrease the proportion of low-income persons residing in the neighborhood.

The rate of development of office/research space and residential complexes in the South Lake Union area also is expected to continue to change the historically light industrial, nonresidential character of the neighborhood. The proposed Bill and Melinda Gates Foundation Campus (900,000-square-foot office space) at 500 Fifth Avenue N. that is currently under construction will move about 700 employees from the existing Eastlake Avenue N. campus to the new campus in spring 2011. Additional large office buildings are proposed for the Bill and Melinda Gates

Foundation Campus. Together, this expansion of office space in the South Lake Union neighborhood is expected to increase the demand for housing in nearby neighborhoods. New residential complexes are expected to include condominium, apartment, and low-income residential projects. Considering the very small population historically living in the South Lake Union neighborhood, planned residential projects will substantially increase the population and diversity of neighborhood residents.

Anticipated development projects in most other study area neighborhoods generally are not expected to dramatically change neighborhood demographic characteristics. However, development in the Commercial Core and Denny Triangle neighborhoods is expected to continue to include both large office buildings and condominium/apartment complexes. New large and small residential projects also are expected to continue to characterize development projects in the Belltown and Uptown neighborhoods.

4.3 Housing

Although located in downtown Seattle, the study area has a considerable amount and variety of housing. Most of it is located in the north portion of the corridor in the Belltown, Uptown, and South Lake Union neighborhoods (Seattle 2007). The following sections describe recent residential development trends and the diversity of housing available to study area residents.

4.3.1 General Characteristics

Downtown Seattle has many high-rise and large residential buildings, particularly in the Belltown, Uptown, and Commercial Core neighborhoods. Compared to Seattle, a higher percentage of study area residents rented in 2000 rather than owned their dwellings, as shown in Exhibit 4-14. This would generally be expected due to the high cost of real estate in the downtown area and lower median household income.

Exhibit 4-14. Housing Characteristics, 2000

Area	Total Dwellings	Vacant	Occupied	Own	Rent	Other Non-Institutional Group Housing
Study Area	12,656	1,593 (13%)	11,063 (87%)	2,298 (21%)	8,765 (79%)	2,282
City of Seattle	270,524	12,025 (4%)	258,499 (96%)	125,165 (48%)	133,334 (52%)	8,921

Source: U.S. Census Bureau 2000.
Note: Other non-institutional group housing includes college dormitories, military quarters, and other group quarters, such as emergency shelters.

In contrast to many metropolitan cities across the nation, a substantial number of new residential dwelling units have been constructed in downtown Seattle over the past 15 to 20 years. This development has considerably increased and diversified the types of housing available in downtown neighborhoods. Between 1990 and 2000, census data reported that the total number of dwellings in the study area increased dramatically, from approximately 8,800 to 12,600 dwellings (44 percent increase). The relatively high vacancy rates reported in the 2000 census, in part, reflected the recent completion of new residential buildings.

Although estimates are not available for the specific census block groups that compose the study area, PSRC has published dwelling unit estimates for census tracts that encompass the study area. Exhibit 4-15 lists the number of new dwelling units that have been permitted by the City between 2000 and 2008, the most recent data available. More than 5,800 dwelling units have been added. The data show that almost 80 percent of this new housing was built in the Belltown, Uptown, and South Lake Union neighborhoods. Other residential complexes, which serve a range of household incomes, are in the planning stages or under construction in these neighborhoods.

Exhibit 4-15. New Housing Generally Located in the Study Area

Census Tract	Neighborhood	Housing Units in 2000	New Housing	Estimated Housing Units in 2008
67.00	Uptown	3,434	676	4,110
70.00	Uptown	5,165	105	5,270
71.00	Uptown	1,544	592	2,136
72.00	Uptown/ South Lake Union	2,534	734	3,268
80.01	Belltown	2,608	2,065	4,673
80.02	Belltown	2,159	382	2,541
81.00	Commercial Core	2,345	682	3,027
92.00	Pioneer Square	1,233	543	1,776
93.00	Duwamish	1,038	23	1,061
Total		22,060	5,802	27,862

Source: PSRC 2008.

Note: The study area consists of the following 2000 census tract block groups: 67 (2), 70 (2, 3, & 5), 71 (1 & 2), 72 (1 & 2), 80.01 (1, 2, & 3), 80.02 (1 & 2), 81 (1 & 2), 92 (2), and 93 (2). The geographic area encompassed by the census tracts included in the table above is larger than the study area.

One of the important changes in study area housing characteristics has been the near doubling of homeownership, which is now about 21 percent. Homeownership rates, however, still lag substantially behind those for the city.

This increase in homeownership is in part because much of the new housing in the Belltown, Uptown, and Commercial Core neighborhoods has been condominiums, which generally cost less than Seattle's typical single-family residences. However, the prices of some condominiums in downtown Seattle are very high, especially for those with views of the downtown cityscape, Puget Sound, and the mountains.

4.3.2 Subsidized, Transitional, and Emergency Housing

The study area, particularly the Pioneer Square and Belltown neighborhoods, also includes much of Seattle's subsidized, special needs, and emergency housing. Special needs housing includes low-cost and low-income housing, senior housing, transitional and long-term residential services, emergency temporary housing, and shelters. In fact, the study area houses approximately one-quarter of the entire city's population living in non-institutional group housing, including transitional housing and emergency shelters. This is markedly disproportionate considering that the study area population is less than 4 percent of the city's total population. Exhibit 4-16 lists the 3,995 subsidized rental housing units within approximately five blocks of the proposed Bored Tunnel Alternative alignment.

The Archdiocesan Housing Authority and the Plymouth Housing Group, two large nonprofit housing agencies, and the Seattle Housing Authority operate the majority of these subsidized housing facilities (Seattle 2003). These buildings, however, do not include scattered Section 8 dwelling units. This federal program allows low-income persons to select housing of their choice and use Section 8 vouchers to pay a portion of their rental housing costs.

The number of available low-income dwellings also is not static. For some subsidized housing complexes, the number of units set aside for low-income households may change over time because of expiring restrictions associated with building financing. Special funding continues to be available to develop low-income housing as part of historic building renovations. The Committee to End Homelessness in King County also has been actively raising funds to support the development of about 4,500 new affordable units between 2006 and 2014, and most of this housing would likely be located in downtown Seattle (Committee to End Homelessness in King County 2005). As a result, the number of subsidized units will fluctuate in the coming years, but the total number is expected to continue to increase in the study area.

Exhibit 4-16. Subsidized Housing in the Study Area

Subsidized Housing	Units
A. L. Humphrey House (under construction)	84
Adams	22
Apex Belltown Co-op	21
Bay View Tower	100
Bell Tower	119
Belltown Senior Apartments	25
Boston Hotel	3
Bremer	49
Cedars I	31
Cedars II	29
Denny Park Apartments	50
Devonshire	62
Donald	14
Dorothy Day House	41
Ellis Court	58
Fleming	36
Frye Apartments	234
Gatewood Hotel	96
Gilmore	65
Glen Hotel	38
Guiry/Schillstad	28
Haddon Hall	54
Heritage House	62
John Carney	27
Josephinum	228
The Karlstrom	23
Kasota	49
Langdon and Anne Simons Senior Apartments	92
LaSalle Cliff House	64
LeRoy Helms Building	11
Lewiston Apartments	50
Lexington/Concord Apartments	59
Livingston Baker	96
Lowman Building	89
Market House	51
Merrill Gardens at Queen Anne	194
New Pacific	42
OK Hotel	44
Oregon Hotel	83
Oxford	49
The Pacific Hotel	109
Plymouth on Stewart (formerly St. Regis)	87
Quintessa Apartments	132
Ross Manor	100
Sanitary Market	22
Scargo Hotel	46
Second & Pine Building	42
Security House	107
St. Charles	64
Stewart House	87
Sunset House	82
Tashiro Kaplan Artists Lofts	50
Valley House	8
Vermont Inn	177
Vincent House	60
Vine Court	55
The William Tell	50
YWCA Opportunity House	145
TOTAL	**3,995**

Sources: Seattle 2003, 2007; Crisis Clinic 2009.

In addition to low-income housing, the study area also has a number of special needs and emergency housing facilities. Exhibit 4-17 lists the special needs and emergency housing within the study area. Together, these facilities have a capacity to serve over 1,300 people, including battered women and their children, persons with developmental disabilities and mental health issues, and chronically homeless and transient persons. Several local government buildings and existing homeless shelters also provide additional emergency shelter during severe cold winter weather.

Exhibit 4-17. Special Needs and Emergency Housing in the Study Area

Special Needs Housing
Transitional Housing and Residential Treatment Services
Community Psychiatric Clinic – El Rey Treatment Facility (60 cap.)
Compass Housing Alliance (formerly the Compass Center) (23 cap.)
Rose of Lima House AHA (13 cap.)
Sacred Heart Shelter AHA (6 single + 6 families cap.)
Seattle's Union Gospel Mission (209 cap. + 50 additional in severe weather)
Second Chance – Reynolds Work Release Program (99 cap.)
St. Martins at Westlake AHA (53 cap.)
Traugott Terrace AHA (50 cap.)
YMCA – Young Adults in Transition (20 cap.)
Emergency Housing and Homeless Facilities
Bread of Life Mission (50 cap. + 24 additional in severe weather)
Chief Seattle Club (day use)
City of Seattle Survival Services Severe Weather Shelter (600 Fourth Avenue)
City of Seattle Survival Services Severe Weather Shelter (223 Yesler Way)
Compass Center First Church Men's Emergency Shelter (79 cap.)
Compass Center Hammond House Women's Shelter (40 cap.)
Denny Youth Place Shelter (6 cap.)
Downtown Emergency Service Center – Lyon Building (64 cap.)
Downtown Emergency Service Center – The Morrison (190 cap.)
Downtown Emergency Service Center – Union Hotel (52 cap.)
King County Winter Response Men's Shelter (500 Fourth Avenue)
Noel House AHA (60 cap.)
St. Martin de Porres Shelter AHA (212 cap. + 34 additional in winter cold weather)
YWCA Angeline's Center for Homeless Women (35 cap.)

Source: Crisis Clinic 2009.
AHA = Archdiocesan Housing Authority
cap. = capacity

4.3.3 The Unsheltered Homeless Population

Some individuals in downtown Seattle use building overhangs, porticos, elevated walkways, and roadways for protection from weather when sleeping. These homeless persons are almost certainly low-income. Such overnight camping is considered trespassing and is illegal.

In the study area, much of the space under the Alaskan Way Viaduct structure is used for parking or roadways. Because these areas provide shelter, small groups of people sleep under them. The hillside underneath the viaduct between the Pike Place Hillclimb and Battery Street Tunnel could be used for overnight camping, although no obvious or substantial campsites have been observed.

The Seattle/King County Coalition on Homelessness reports that approximately 8,900 people lacked permanent housing in King County in 2009 (Eisinger 2009). The vast majority of these people obtained shelter in the county's homeless shelters, most of which are located in downtown Seattle. However, more than 1,900 individuals reportedly lived on the streets in Seattle in 2009 (Seattle/King County Coalition on Homelessness 2009a). Information from the 2009 One Night Count indicates that the number of homeless people living on the streets has remained nearly constant over the past several years (King County 2009), but the numbers of persons found in the smaller cities of south King County have dramatically increased (Seattle/King County Coalition on Homelessness 2009b). The published preliminary 2010 One Night Count data show similar trends (Seattle/King County Coalition on Homelessness 2010).

The 2009 annual One Night Count (King County 2009) also reported demographic data for King County's homeless population residing in emergency and transitional housing. The survey reported that approximately 54 percent of this population included families with children, and 33 percent were single men. A total of 69 percent of this population were non-White or Hispanic/Latino. Nearly 13 percent were immigrants or refugees, and about 10 percent had limited English proficiency. Although similar demographic data were not collected for people living on the streets, this information is indicative of the general demographic characteristics of the homeless population.

Homeless people also have many health problems. The Seattle/King County Coalition on Homelessness reports that nationally, 25 to 40 percent of the homeless population need supportive services for drug and alcohol abuse and 20 to 25 percent have some form of mental illness. Moreover, because they are homeless, these people suffer from acute and chronic health problems as a result of poor nutrition, exposure to the elements, fatigue, and stress. Study area social service providers reported that many homeless people have difficulty adapting to changed conditions and can be easily confused.

In part because approximately 80 percent of the county's emergency and homeless housing facilities and many social services are located in downtown Seattle, an estimated 70 percent of the county's unsheltered homeless people live on the streets in downtown Seattle. Based on the 2009 One Night Count, approximately 23 percent were found to be located in or under structures or roadways. An additional 26 percent were found sleeping in their cars or trucks, including many who were likely located under the Alaskan Way Viaduct (Seattle/King County Coalition on Homelessness 2009a). Although no data provide details about how many homeless people sleep under the viaduct, it is clear that a substantial number of people may spend the night under or near the viaduct.

Moreover, the number of homeless people living on the streets in Seattle appears to be increasing, despite concerted efforts by the Seattle/King County Coalition on Homelessness and others that are trying to end homelessness in King County (Committee to End Homelessness in King County 2005). From 2007 through 2010, the annual One Night Count reported 1,589, 1,976, 1,977, and 1,986 homeless persons in Seattle, respectively (Seattle/King County Coalition on Homelessness 2007, 2008, 2009a, and 2010). Between 2007 and 2009, the proportion of homeless people found in or under structures or roadways also increased from about 16 to over 23 percent. The number of people sleeping in their cars has ranged from 26 to 32 percent. The One Night Count, however, only surveys the homeless population on one particular night in January. The homeless population is likely substantially larger during warm summer months when large numbers of people can be seen sleeping at City Hall Park on Third Avenue, across the street from the Downtown Emergency Services Center men's homeless shelter.

4.4 Community Facilities

This section describes study area community centers and educational facilities.

4.4.1 Community Centers

Seattle has a number of community centers and late-night recreational program centers; however, no community centers are located in the study area. The newly opened Yesler Community Center, at 917 E. Yesler Way, is the closest, but it is more than five blocks from the study area boundary. This community center hosts events, sponsors after-school and senior programs, and has a computer laboratory.

4.4.2 Educational Facilities

Although only a few public schools are located in the study area, there are a number of childcare facilities, private academic schools, colleges, universities, and professional and technical training schools. Exhibit 4-18 lists these institutions.

Exhibit 4-18. Educational Facilities in the Study Area

Educational Facilities
Childcare Centers and Family Childcare
Beginnings II (40 cap., no subsidies)
Bright Horizons (112 cap., subsidies)
Little Eagles Childcare Center (87 cap., subsidies)
Paideia Academy (80 cap., subsidies)
Pike Market Child Care Center (50 cap., subsidies)
Whole Child Learning Center (12 cap., no subsidies)
Young Child Academy (129 cap., no subsidies)
YWCA Infant/Toddler Center (23 cap., subsidies)
Schools
The Center School
Morningside Academy
Seattle Public Schools' Memorial Field
GED Instruction
Washington State Employment Security – WorkSource
Colleges or Universities
Antioch University
Argosy University
Professional/Technical Schools
Academy of Languages Translation & Interpretation Services
Floral Design Institute
Pacific Maritime Institute (Pier 36)
Pacific Northwest Ballet School
School of Visual Concepts
The Art Institute of Seattle (North Campus)
The Art Institute of Seattle (South Campus)
The Pottery School

cap. = capacity

Many private childcare facilities are located in downtown Seattle. Of particular interest are the childcare facilities that serve low-income residents. All of these facilities are licensed by the state and, as licensed facilities, the operators can choose to accept government subsidy payments from families. Such subsidies include the federally funded Head Start Program, the state-funded Early Childhood Education and Assistance Program, and other special programs offered by state agencies. The Washington State Department of Social and Health Services (DSHS) administers all these programs. The City also has a separate program for city residents who are not eligible for the DSHS-administered programs. In total, eight childcare facilities are located within the study area (see Exhibit 4-18). Together, these facilities provide

services for over 500 children between 1 month and 6 years of age. Five of these facilities provide services to low-income families.

The Seattle School District has only one school in the downtown area, the Center School, located within the Center House Building at Seattle Center. The school is a small arts and preparatory high school for grades 9 through 12 that draws its 300 students from neighborhoods across the city. Also located at Seattle Center is Seattle Public Schools' Memorial Field, a large sports stadium on the east side of Seattle Center that is accessed from Fifth Avenue N., just north of Broad Street. This field is used for citywide high school sport team events, such as football and soccer, as well as events such as concerts.

The Morningside Academy, located on Westlake Avenue N., is a very small private elementary and middle school for less than 100 students. It offers a specialized curriculum and individual assistance to help students with learning disabilities catch up and excel at their grade level. The school also provides laboratory training for special education teachers.

In addition, a number of private secondary education and professional training institutions are located in the study area (see Exhibit 4-18). Several major institutions are concentrated in the northern portion of the study area:

- Antioch University enrolls approximately 1,000 students and offers undergraduate bachelor of arts and graduate degrees in education, psychology, and several other programs.
- The Pacific Northwest Ballet School is a nationally distinguished ballet school that provides beginning level classes through professional ballet training for over 900 students annually.
- The Art Institute of Seattle annually enrolls more than 2,000 students and offers nationally accredited vocational degree programs in visual arts, photography, culinary skills, fashion, interior design, and computer graphics.
- The School of Visual Concepts enrolls more than 300 students each quarter and offers a certificate program in commercial art, graphic design, website design, and advertising.

4.5 Parks, Recreation, and Public Access Facilities

4.5.1 Overview

Parks, designated public shoreline access points, Green Streets, and public art installations are located in the study area. The parks and designated public accesses within the study area are described in detail in Attachment E, Detailed Inventory of Parks, Recreation, and Public Access Amenities. The locations of these resources are

shown in Exhibits 4-2, 4-3, and 4-4. The properties are owned by the Seattle Parks and Recreation Department, Seattle Department of Transportation (Waterfront Bicycle/Pedestrian Facility), Port of Seattle, and National Park Service.

The City has designated a number of Green Streets within the study area. The purpose of a Green Street, as defined in the *Seattle Right-of-Way Improvements Manual* (Seattle 2009), is as follows:

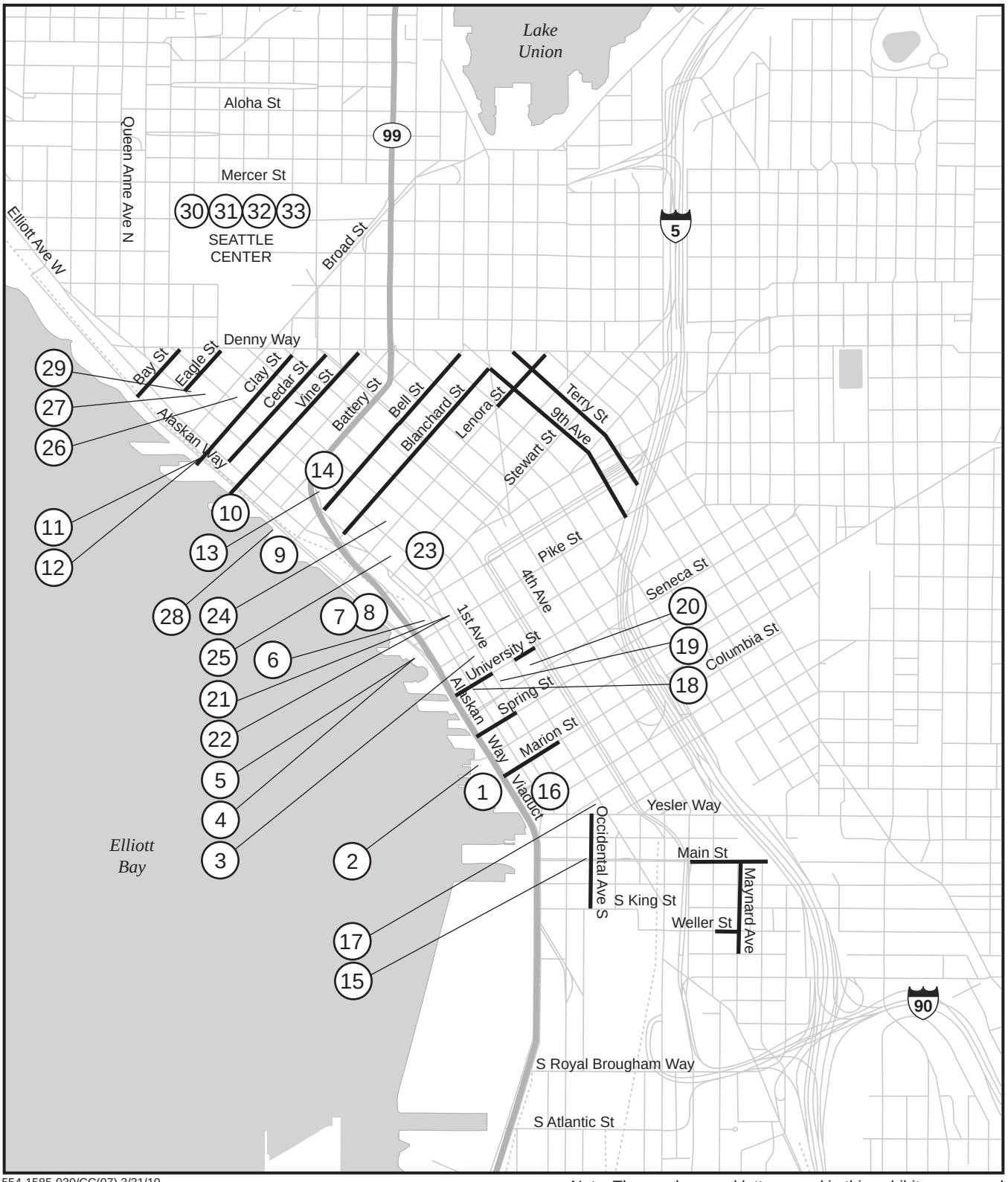
- Enhance pedestrian circulation and create open space opportunities in medium- to high-density residential areas lacking adequate public open space.
- Create a vibrant pedestrian environment in the street right-of-way that attracts pedestrians.
- Strengthen connections between residential enclaves and other downtown amenities by improving the streetscape for pedestrians, bicycles, and transit patrons.
- Support economic activity in downtown neighborhoods by creating an attractive and welcoming "front door" for pedestrians.
- Maximize opportunities for trees and other landscaping to create a high-quality open space.

In fact, the *Seattle Parks and Recreation 2006 Development Plan* (Seattle 2006e) recognizes the open space function of boulevard trails and Green Streets in meeting the needs for open space. The locations of Green Streets and public art installations in the study area are shown on Exhibit 4-19. Details of public art installations are provided in Exhibit 4-20.

Descriptions of specific park and recreation facilities are provided in the following sections for the south portal, central waterfront, and north portal areas. Within each area, facilities west of the existing viaduct along the waterfront are described first, followed by facilities to the east. Exhibit 4-21 lists the primary facilities available at these park and recreation facilities and their uses.

4.5.2 South Portal Area

Exhibit 4-2 shows the locations of the parks, recreation facilities, and public shoreline access points near the south portal. The locations, primary uses, and facilities are listed in Exhibit 4-21. Attachment E provides a more detailed description of these amenities.



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Note: The numbers and letters used in this exhibit correspond to park and recreation resources listed in Exhibit 4-20.

N

0 1,800

SCALE IN FEET

Green Streets

Exhibit 4-19
Map of City of Seattle Green Streets and Public Art Installations

Exhibit 4-20. Public Art Installations

	Title	Artist	Owner
1	Joshua Green Fountain	George Tsutakawa	Washington State Ferries
2	Ivar Feeding the Gulls	Richard Beyer	Seattle Arts Commission
3	Waterfront Gate	Robert Graham	Seattle Arts Commission
4	Christopher Columbus	Bennett Douglas	Seattle Arts Commission
5	Waterfront Fountain	James FitzGerald and Margaret Tomkins	Seattle Arts Commission
6	Breaching Orca	Tony Angell	Seattle Arts Commission
7	Piers 62/63	Barbara Kruger and Others	Seattle Arts Commission
8	Welcoming Spirit	Melvin Schuler	Condominium Owners
9	Light Tower	Ron Fisher	Port of Seattle
10	Danza del Cerchio	Ann Gardner	Port of Seattle
11	Growing Vine Street 1 & 2	Buster Simpson	Seattle Arts Commission
12	Growing Vine Street 3 Beaconing Cistern	Buster Simpson	Seattle Arts Commission
13	Wave Rave Cave	Dan Corson	Seattle City Light
14	First Avenue Project	Jack Mackie, Lewis "Buster" Simpson, and Deborah & Paul Rinehart	Seattle Arts Commission
15	Firemen		Seattle Arts Commission
16	Chief Seattle Fountain	James When	Seattle Arts Commission
17	Day/Night	Edgar Havichi Heap of Birds	Seattle Arts Commission
18	Moment	Buster Simpson	EQR-Harbor Steps LLC
19	Hammering Man	Jonathan Borofsky	Seattle Arts Commission
20	Untitled Mural	Tom Holder	Seattle Arts Commission
21	Rachel (Market's mascot pig)	Georgia Gerber	Pike Place Market, Gift of Fratelli's Ice Cream Company
22	Song of the Earth	Aki Sogabe	Unknown
23	Farmer's Pole	James Bender and Victor Steinbrueck	Seattle Arts Commission
24	Untitled Fence	Victor Steinbrueck and Ramon Torres	Seattle Parks and Recreation Department

Exhibit 4-20. Public Art Installations (continued)

	Title	Artist	Owner
25	Untitled Totem Pole	James Bender and Marvin Oliver	Seattle Arts Commission
26	Solar Fountain	Kay Kirkpatrick	Unknown
27	Untitled Ceramic Tile Mural	Kevin Spitzer and Jonathan Barnett	Unknown
28	Paige Miller Fountain	Hewitt Architects	Port of Seattle
29	Multiple Installations Olympic Sculpture Park	Multiple Artists	Seattle Art Museum
30	Black Lightning	Ronald Bladens	Seattle Center
31	Olympic Iliad	Alexander Liberman	Seattle Center
32	Moon Gates	Doris Chase	Seattle Center
33	Moses	Tony Smith	Seattle Center
34	Seattle Mural	Paul Horiuchi	Seattle Center

Note: The numbers in column 1 indicate the location of these resources on Exhibit 4-19.

Exhibit 4-21. Facilities and Primary Uses at Study Area Parks, Recreation Facilities

Facility Name	Location	Owner	Primary Facilities	Primary Uses
Publicly Owned Park and Recreation Facilities, Including Shoreline Public Access				
South Portal Area				
R-1. Safeco Field	First Avenue S. and S. Atlantic Street	Washington State Major League Baseball Stadium Public Facilities District	• Professional sports facility	Professional baseball
R-2. Qwest Field	Occidental Avenue S. and S. King Street	Washington State Public Stadium Authority	• Professional sports facility	Professional football and soccer
R-3. Mountains to Sound Greenway Trail	S. Atlantic Street at Alaskan Way S.	City of Seattle	• Trail	View enjoyment, walking, jogging, bicycling, and skating
R-4. Waterfront Bicycle/ Pedestrian Facility	Alaskan Way from S. Royal Brougham Way to Bay Street	City of Seattle	• Trail	View enjoyment, walking, jogging, bicycling, skating, waterfront views, and urban views
Central Waterfront				
R-5. Washington Street Boat Landing	S. Washington Street at Alaskan Way	City of Seattle	• Hard surfaces • Seating	View enjoyment, relaxation, fishing
R-6. Klondike Gold Rush National Historic Park – Seattle Unit	319 Second Avenue S.	National Park Service	• Historic exhibits	Historic interpretation
R-7. Occidental Square	Occidental Avenue S. between S. Washington and S. Main Streets	City of Seattle	• Hard surfaces • Seating • Picnic tables/shelters	Relaxation, picnicking , and people watching
R-8. Pioneer Square	Yesler Way and First Avenue	City of Seattle	• Totem pole • Hard surfaces • Seating	Relaxation, picnicking, and people watching
R-9. Washington State Ferry Terminal, Shoreline Access	Piers 50 and 52 Alaskan Way between Yesler Way and Madison Street	Washington State Department of Transportation	• Public viewing areas • Hard surfaces • Seating • Water feature	View enjoyment and relaxation

Exhibit 4-21. Facilities and Primary Uses at Study Area Parks, Recreation Facilities, and Art Installations (continued)

Facility Name	Location	Owner	Primary Facilities	Primary Uses
R-10. Fire Station No. 5, Shoreline Access	Alaskan Way at Madison Street	City of Seattle	• Hard surfaces • Seating	View enjoyment and relaxation
R-11. Marion Street Pedestrian Bridge	Marion Street between First Avenue and Colman Dock	City of Seattle	• Hard surfaces	View enjoyment and walking
R-12. Pier 54, Shoreline Access	Alaskan Way between Madison and Spring Streets	Private	• Hard surfaces • Seating	View enjoyment and relaxation
R-13. Pier 55, Shoreline Access	Alaskan Way at Seneca Street	Private	• Hard surfaces • Seating • Picnic tables	View enjoyment, relaxation, picnicking, and people watching
R-14. Boat Access to Blake Island	Pier 55 Alaskan Way and Seneca Street	Private ferry service to public park and private concession Tillicum Village	NA	Boat access to Blake Island State Park
R-15. Pier 56, Shoreline Access	Alaskan Way at Seneca Street	Private	• Hard surfaces • Seating • Picnic tables	View enjoyment, relaxation, picnicking, and people watching
R-16. Pier 57, Shoreline Access	Alaskan Way at University Street	Private	• Hard surfaces • Seating • Picnic tables	View enjoyment, relaxation, picnicking, and people watching
R-17. Harbor Steps	University Street between First and Western Avenues	Private	• Hard surfaces • Seating • Picnic tables	View enjoyment, relaxation, picnicking, and people watching
R-18. Waterfront Park	Alaskan Way between University and Pike Streets	City of Seattle	• Hard surfaces • Seating • Picnic tables • Restrooms	View enjoyment, relaxation, picnicking, people watching, and fishing
R-19. Seattle Aquarium	Pier 59 Alaskan Way at Pike Street	City of Seattle	• Interpretive displays • Research facilities	Interpretive displays and education research
R-20. Pike Street Hillclimb	Pike Street, between Pike Place Market and Alaskan Way	City of Seattle	• Hard surfaces • Seating	View enjoyment, relaxation, people watching

Exhibit 4-21. Facilities and Primary Uses at Study Area Parks, Recreation Facilities, and Art Installations (continued)

Facility Name	Location	Owner	Primary Facilities	Primary Uses
R-21. Victor Steinbrueck Park	Western Avenue at Virginia Street	City of Seattle	• Hard surfaces • Soft surfaces • Seating • Picnic tables	View enjoyment, relaxation, picnicking, people watching
R-22. Pier 62/63 Park	Alaskan Way at Pine Street	City of Seattle	• Hard surfaces • Performance facilities	Relaxation, summer concert series, view enjoyment, picnicking
R-23. Lenora Street Pedestrian Bridge, Public Viewpoint	Lenora Street between the Alaskan Way Viaduct and Alaskan Way	Port of Seattle	• Hard surfaces • Seating	View enjoyment, relaxation
R-24. Bell Street Skybridge	Bell Street between Elliott Avenue and the Bell Street Pier (Pier 66)	Port of Seattle	• Hard surfaces	View enjoyment, relaxation
North Portal Area				
R-25. Denny Park	Between Dexter Avenue N. and Ninth Avenue N. and Denny Way and John Street	City of Seattle	• Hard surfaces • Soft surfaces • Seating • Active use facilities • Passive use facilities • Restrooms	Relaxation, picnicking, people watching, walking, jogging, bicycling, and informal sports

Exhibit 4-21. Facilities and Primary Uses at Study Area Parks, Recreation Facilities, and Art Installations (continued)

Facility Name	Location	Owner	Primary Facilities	Primary Uses
R-26. Seattle Center	Between Broad Street and Mercer Street and First Avenue N. and Fifth Avenue N.	City of Seattle	• Hard surfaces • Soft surfaces • Seating • Picnic tables or shelters • Children's play area • Art display • Active use facilities • Passive use facilities • Performance facilities • Sport arenas • Museums • Restaurants • Restrooms • Parking • School	View enjoyment, relaxation, picnicking, people watching, walking, jogging, bicycling, skating, informal sports, professional sports, and cultural activities
R-27. Tilikum Place	Fifth Avenue and Denny Way	City of Seattle	• Hard surfaces • Seating • Art display • Passive use facilities	Relaxation, picnicking, people watching

Note: The numbers used to identify park and recreation lands in this table are also used on Exhibits 4-2, 4-3, and 4-4.

The south portal area has four major park and recreation facilities. The Waterfront Bicycle/Pedestrian Facility starts near S. Royal Brougham Way and extends to Bay Street. The Mountains to Sound Greenway Trail currently runs along S. Atlantic Street and is proposed to connect to the City Side Trail along the east side of Alaskan Way.

Safeco and Qwest Fields, the city's professional baseball and soccer/football stadiums, respectively, are located east of Occidental Avenue S., between S. Royal Brougham Way and S. King Street.

Several public art installations are located at Safeco and Qwest Fields. These are not enumerated, however, because they are located several blocks east of the proposed construction for the Bored Tunnel Alternative and are not expected to be adversely affected.

4.5.3 Central Waterfront

Exhibit 4-3 shows the locations of the parks, recreation facilities, and public shoreline access points along the central waterfront area. The locations and primary facilities and uses are listed in Exhibit 4-21. A detailed description of these amenities is provided in Attachment E.

Many park and recreational amenities are located along the city's central waterfront. Occidental Square and Pioneer Square are two small urban parks located in the historic Pioneer Square neighborhood. The Klondike Gold Rush National Historic Park is located nearby. The Waterfront Bicycle/Pedestrian Facility continues north along the waterfront, adjacent to the existing viaduct. An extra-wide sidewalk, referred to as the waterfront promenade, is located on the west side of Alaskan Way. Other pedestrian links along the waterfront include pedestrian bridges at Marion, Lenora, and Bell Streets. The Pike Street Hillclimb provides direct access from Alaskan Way to the Pike Place Market and Victor Steinbrueck Park.

Waterfront parks of various sizes are located on the piers. The historic Washington Street Boat Landing is located just north of Pier 48. Parklands and shoreline access are located on Pier 52 (Seattle Ferry Terminal at Colman Dock), Pier 54, Pier 55/56, and Pier 57. Argosy Cruise Line at Pier 55 ferries passengers to Blake Island State Park about 5 miles offshore. The Seattle Aquarium, Waterfront Park, and Pier 62/63 Park anchor the north end of the central waterfront recreational amenities.

Marion and University Streets are designated Green Streets that connect the waterfront with the city's Commercial Core neighborhood. In particular, University Street connects the Harbor Steps between First and Western Avenues,

the Seattle Art Museum plaza, and the Benaroya Hall plaza. Victor Steinbrueck Park, located north of the Pike Place Market, offers expansive views of Elliott Bay.

A number of public art installations are scattered along the central waterfront. These include sculptures, statues, fountains, and a gateway. Several of these installations are quite contemporary and others display Native American art work.

4.5.4 North Portal Area

Exhibit 4-4 shows the locations of the parks, recreation facilities, and public shoreline access points in the north portal area. The primary facilities and uses are listed in Exhibit 4-21. A detailed description of these amenities is provided in Attachment E.

The city's prize downtown park is Seattle Center in the Uptown neighborhood. This 74-acre site, owned by the City, hosts a variety of cultural and recreational events, as well as trade shows, job fairs, and public and private meetings. It was initially the site of the 1927 Civic Complex and was expanded for the 1962 World's Fair. Seattle Center has open space around a centrally located large fountain, smaller lawn and plaza areas, a skateboard park, McCaw Hall, exhibition and meeting halls, the multiuse Center House, and two sports arenas. The Broad Street Green located in the area generally between the Space Needle and Broad Street contains four large public art works. Seattle Center hosts a number of private and nonprofit facilities, including the Space Needle, Experience Music Project and Science Fiction Museum and Hall of Fame, Seattle Children's Museum, Northwest Craft Center, Pacific Northwest Ballet, and Pacific Science Center. The nonsport use of the Seattle School District's Memorial Stadium is coordinated with Seattle Center activities. Key Arena is home to the Seattle Storm professional women's basketball team and hosts many large events, with attendance of up to 15,000 persons. The Space Needle attracts approximately 4.2 million tourist visits per year. Seattle Center is also the venue for various cultural activities and festivals. The largest are the Northwest Folklife Festival and Bumbershoot, which each attract about 220,000 people over the 3-day Memorial Day and Labor Day weekends.

The Seattle Center Century 21 Master Plan was adopted by the Seattle City Council in August 2008. The $570-million, 20-year plan calls for substantial, long-term investment in Seattle Center. It allows for an innovative mix of commercial and community spaces, as well as improved opportunities for retail and dining amenities (Seattle Center 2008).

Denny Park is a neighborhood park located just two blocks east of Aurora Avenue in the South Lake Union neighborhood. The park known as the Denny Playfield, located immediately east of Denny Park, is private property that is planned to be developed.

Public art in the north portal area is focused at Seattle Center. Broad Street Green, an open space near the Space Needle, contains four large public art works: *Black Lightning* by Ronald Bladens, *Olympic Iliad* by Alexander Liberman, *Moon Gates* by Doris Chase, and *Moses* by Tony Smith. *Seattle Mural*, a large mosaic work by Paul Horiuchi commissioned for the 1962 World's Fair, serves as the backdrop for the Mural Amphitheatre just south of the Center House.

4.6 Religious Institutions and Cemeteries

For the purposes of this study, religious institutions are defined as places of worship, meditation, or gathering places for members. Exhibit 4-22 lists the 11 religious institutions located in the study area, which include Christian churches, Christian Science reading rooms, and other institutions. These institutions are dispersed across the study area; those with large congregations are concentrated in the Belltown and Uptown neighborhoods. Several are located either among or within office high-rises in the Commercial Core neighborhood. The First United Methodist Church of Seattle recently completed construction of a large new church building at Denny Way and Second Avenue N. Members of the religious institutions may live in nearby residential areas or may live quite a distance from their place of worship or gathering. No cemeteries are located in the study area.

Exhibit 4-22. Religious Institutions in the Study Area

Religious Institutions
Christian Science Practitioner (two locations)
Christian Science Reading Room
Church of Mary Magdalene
Church of Scientology
City Church
Denny Park Lutheran Church
Emmaus Road Church
First United Methodist Church of Seattle
Horizon Church/Horizon Korean Church
Sacred Heart Church
Seattle Unity Church

4.7 Social and Employment Services

Exhibit 4-23 lists public and nonprofit social service providers located within the study area. These social service organizations focus on serving the many low-income and homeless persons living in the study area. They provide hot meals, food bank services, drop-in hygiene facilities, clothing, employment and mental health counseling, legal services, and referrals for other social services and

employment. Because many of the providers offer a number of services at one location, it is difficult to place individual providers into a single category.

Exhibit 4-23. Social and Employment Service Providers in the Study Area

Social and Employment Services
Birthright of Seattle
CARE Planning Associates
Catholic Seamen's Club AHA
City of Seattle – Human Services Department
Community Psychiatric Clinic – Community Support Services, Belltown
Department of Corrections, Division of Community Corrections – Offenders Rehabilitation Services
Downtown Emergency Service Center – Clinical and Mental Health Services
Downtown Emergency Service Center – Connections
Downtown Emergency Service Center – Something Old, Something New
Family & Adult Services Center
Fare Start Job Training and Restaurant
Girl Scouts of Western Washington
Giving Tree AHA
International Longshoremen's and Warehousemen's Union – Local 19
International Rescue Committee
Job Corps – Dynamic Educational Systems, Inc. (DESI)
King County Bar Association Neighborhood Clinic –Bilingual Spanish and Immigration Legal Clinic, Debt Clinic, Elder Law Clinic
King County Bar Association Neighborhood Clinic – Civil Rights Clinic, Downtown Legal Clinic
King County Department of Community and Human Services – Veterans Program
King County Labor Council, AFL-CIO Worker Center, Reemployment Support Center
Lazarus Center AHA
Matt Talbot New Hope Recovery Center AHA
Millionair Club Charity
National Asian Pacific Center on Aging (employment, training, and job placement)
New Horizons Ministries
Northwest Immigrant Rights Project (legal services for immigrants and refugees)
Northwest Justice Project (legal advice for low-income people)
Pike Market Senior Center – Downtown Food Bank
Pike Market Senior Center – Senior Center
Pioneer Human Services – Medical Clinic
Pioneer Square Clinic
Public Health – Seattle and King County – Downtown Clinic, Refugee Health Program
Public Health – Seattle and King County – Downtown Needle Exchange Site
Puget Sound Labor Agency – King County Offices
Recovery Cafe

Exhibit 4-23. Social and Employment Service Providers in the Study Area (continued)

Social and Employment Services
Sacred Heart Church – Sack Lunch Program
Salvation Army – Thrift Store
Salvation Army – Adult Rehabilitation Center
Seattle Department of Neighborhoods – Downtown Neighborhood Service Center
Seattle Donated Dental Services
Seattle Job Initiative
Senior Services of Seattle/King County
SHARE – WHEEL – Women's Education Classes at Antioch University
Unemployment Law Project (unemployment compensation counseling)
Washington Adult Day Services Association
Washington State Dental Association Outreach Program
Wellspring Family Services – Downtown Seattle Counseling
Women's Referral Center AHA (at Angeline's)
Women's Referral Center AHA (at Noel House)
Women's Wellness Center AHA
WorkSource – Downtown Seattle Learning Center, Job Placement, Dislocated Worker Program
YMCA – Family Services and Mental Health Program
YWCA – Angeline's Women's Day Refuge YWCA – Opportunity Place (day drop-in center services)

Source: Crisis Clinic 2009.
AHA = Archdiocesan Housing Authority

As shown in Exhibit 4-23, different types of public, private, and nonprofit organizations provide social services in the study area. Social services operated by different organizations may also be colocated. Interviews with social service providers in the study area revealed that some providers, especially those that provide referral services, typically work closely with other downtown social service providers. As a result, the many social service agencies and organizations in the study area form a network that supports the daily lives of many downtown residents.

4.8 Cultural and Social Institutions

Many cultural and social institutions are located in the study area, as listed in Exhibit 4-24. These include exhibition centers, community landmarks, museums, performing arts institutions, and stadiums. They attract residents from the Puget Sound region, as well as business visitors, tourists, and others. Hundreds to tens of thousands of people may attend individual events at these cultural or social institutions, with events occurring during the daytime and evening hours on weekdays, as well as on Saturdays and Sundays. Individual events may last from several hours to several days. Several museums in the study area are open daily, and exhibits change periodically.

Exhibit 4-24. Cultural and Social Institutions in the Study Area

Cultural and Social Institutions
Exhibition Centers
Bell Harbor International Conference Center (Pier 66)
Maritime Event Center (Pier 66)
Seattle Center Exhibition Hall
Qwest Field Event Center
Landmarks
Garden of Remembrance (veterans memorial)
Occidental Square
Pioneer Place
Seattle Center (Site of 1962 World's Fair)
Seattle Center Monorail (Fifth Avenue from Broad Street to Pine Street)
Space Needle (Seattle Center)
Washington Street Boat Landing
Museums
Coast Guard Museum of the Northwest (Pier 36)
Experience Music Project/Science Fiction Museum
Klondike Gold Rush National Historic Park
Olympic Sculpture Park
Pacific Science Center
Seattle Aquarium (Pier 59)
Seattle Art Museum
Seattle Center Children's Museum
Performing Arts
911 Media Arts Center (film)
Benaroya Hall (symphony)
Intiman Playhouse
Marion Oliver McCaw Hall (ballet & opera)
Mercer Arts Arena (currently closed)
Moore Theatre
Seattle Children's Theatre
Seattle Repertory Theatre
Professional Sports Facilities
Key Arena (basketball)
Safeco Field (baseball)
Qwest Field (football & soccer)
Seattle Festivals and Special Events (select list)
Bite of Seattle (weekend in July at Seattle Center)
Bumbershoot (Labor Day weekend at Seattle Center)
Giant Magnet (formerly Seattle International Children's Festival) (May at Seattle Center)
Northwest Folklife Festival (Memorial Day weekend at Seattle Center)

Exhibit 4-24. Cultural and Social Institutions in the Study Area (continued)

Cultural and Social Institutions
Seafair Torchlight Run and Parade (early August charity run and community celebration on Fourth Avenue)
Seattle Marathon (starts at Seattle Center)(late November)
Seattle Center Winterfest (late November – January 1 at Seattle Center)
St. Patrick's Day Dash (from Seattle Center to Qwest Field via Alaskan Way Viaduct) (March)
Susan B. Komen Race for the Cure (September charity run from Qwest Field along Alaskan Way Viaduct back to Qwest Field)

Several concentrations of cultural and social institutions are found in the study area. One large concentration is found in the historic Pioneer Square neighborhood, in the southern portion of the study area. It contains the Klondike Gold Rush National Historic Park, the nation's smallest national park, which celebrates the early days of Seattle and commemorates the starting place for the many people who traveled to the Klondike region at the turn of the twentieth century in search of gold. Occidental Square is the focal point of the First Thursday Art Walks among neighborhood art galleries. The area also has other historic landmarks, museums, and two large professional sports team stadiums (Qwest Field and Safeco Field) that attract local residents and visitors alike.

Several other cultural and social institutions are located in the Commercial Core neighborhood. The Seattle Art Museum, Garden of Remembrance veterans memorial, and Benaroya Hall are clustered near Second Avenue and Union Street. The Seattle Aquarium, Maritime Event Center, and Bell Harbor International Conference Center are located along the waterfront. The new Seattle Art Museum Olympic Sculpture Park opened in January 2007 on Broad Street.

The largest concentration, however, comprises the many auditoriums, theaters, stadiums, and arts and entertainment facilities at the 74-acre Seattle Center, near the intersection of Mercer Street and Fifth Avenue N. Seattle Center is the site of numerous regional annual arts and entertainment events, which are hosted almost daily and certainly every weekend. The Northwest Folklife Festival is held over Memorial Day weekend; the Bite of Seattle is held over a weekend in July; and Bumbershoot takes place over Labor Day weekend. In addition, Seattle Center hosts regional and national trade and business events throughout the year.

4.9 Government Institutions and National Defense Installations

Exhibit 4-25 lists the many government offices located within or near the study area, including city, county, state, and federal administrative offices, libraries, post offices, and judicial offices and courts. Most of these are located in the Commercial Core neighborhood, in high-rise buildings entirely occupied by government agencies and in office buildings scattered among other businesses.

Other important government institutions also are located in the Commercial Core but outside of the study area boundaries. A number of Port of Seattle facilities are located along the waterfront. These Port properties are discussed in more detail in Appendix L, Economics Discipline Report.

Exhibit 4-25. Key Government Institutions in the Study Area

Government Institutions
City
Seattle Central Library
Seattle City Hall
Seattle Parks and Recreation Department
County
King County Administrative Center
King County Courthouse
King County King Street Center
Special District
Port of Seattle Headquarters at Pier 69
State
Seattle Ferry Terminal at Colman Dock (Pier 52)
Federal
Federal Office Building
Henry M. Jackson Federal Building
U.S. Coast Guard offices (Pier 36)
U.S. Post Office – Main Office
U.S. Post Office – Pioneer Square Office

Most of the government office buildings are located in the central and south areas of the Commercial Core. Office buildings entirely occupied by federal agencies are the Henry M. Jackson Federal Building and the Federal Office Building. Other key federal government buildings in the study area include the U.S. Post Office Main Office and the Pioneer Square Post Office.

The state of Washington has many agency offices in downtown Seattle, although most of them are scattered among the city's many office buildings, and most are located outside the study area. The Seattle Ferry Terminal at Colman Dock, located at Pier 52, is the only major state facility in the study area.

The Port of Seattle is a special government district that has its headquarters at Pier 69, at the far north end of the Seattle waterfront. The Port owns, operates, and leases waterfront facilities, including cargo shipping and cruise and passenger vessel operations terminals.

Several city and county office buildings are clustered in the six-block area between Third and Sixth Avenues and Cherry and Jefferson Streets. The Seattle Central Library is on Fourth Avenue between Madison and Spring Streets. The Seattle Parks and Recreation Department is located at Denny Park, just off Denny Way.

4.10 Neighborhood Cohesion

The study area lies at the center of the Seattle metropolitan area and encompasses a number of diverse neighborhoods. Land uses, population characteristics, public facilities, community services, and special landmarks all help to define these neighborhoods. Transportation services and infrastructure define accessibility within and between the neighborhoods. The neighborhood cohesion, however, defines the "glue" that gives each its own unique identity. The following sections describe the various elements of cohesion in the study area neighborhoods:

- Community life and neighborhood identity
- Land uses, gathering places, and affordable housing
- Population characteristics, patterns, and relationships
- Transportation facilities, services, and automobile dependency
- Linkages to community facilities and social services
- Isolation or separation
- Interaction between people

4.10.1 Community Life and Neighborhood Identity

Each of the several study area neighborhoods has its own identity. The Pioneer Square area is an important symbol of the city and its historic early days as the shipping off point for thousands of miners heading for the Klondike Gold Rush in Alaska. In particular, the totem pole and pergola at the square and the Smith Tower are representative elements of the surrounding historic district. The very large cargo loading cranes that tower above nearby buildings to the south now symbolize the region's international trade links to the Pacific Rim.

Along the central waterfront, the old piers and ferries are unique symbols of Seattle. The turn-of-the-century piers broadly represent the community's historic ties to the waterfront and the fishing industry. The piers were originally used to store and transfer cargo in the days before the shipping industry was modernized. The several ferry routes transport residents, goods, and visitors across Puget Sound and link King County and Kitsap County. The waterfront also has major tourist attractions, such as the Seattle Aquarium, Bell Street Pier Cruise Terminal, and Maritime Event Center, that continue to link Seattle to its maritime past.

The Commercial Core represents the predominant economic core the study area and the city itself. High-rise office buildings dominate the skyline. Buses and pedestrians create a bustle of activity on weekdays, but evenings and weekends are typically more quiet. In contrast, street-level activity increases on weekends in the downtown retail and hotel district focused around Westlake Center. It is a place to shop, eat, attend large traveling Broadway shows, and congregate. The area is popular for downtown and suburban residents, tourists, and convention visitors.

The Pike Place Market, Seattle Center, and the Space Needle are key elements of neighborhood identity in downtown Seattle. The Pike Place Market is one of the oldest continuously operating farmer's markets in the country, attracting thousands of downtown workers, visitors, and residents annually. At more than 600 feet tall, the Space Needle represented the futuristic space-age theme of the 1962 World's Fair held at Seattle Center. On a clear day, the observation deck offers territorial views of Puget Sound, the San Juan Islands, and the Olympic and Cascade Mountains. The Seattle Monorail, also a product of the 1962 World's Fair, carries passengers between the Space Needle and Westlake Center. Tourists tend to congregate near the Pike Place Market and Space Needle.

In contrast, the community lives of the Belltown, Denny Triangle, and South Lake Union neighborhoods are in transition. Many large residential complexes and office buildings have been built in these neighborhoods in the past 10 years. Belltown still retains much of its early twentieth century residential character, with tree-lined streets, pocket parks, corner grocery stores, taverns, and small restaurants. However, many of the older buildings have been replaced by buildings with modern designs. The new office buildings in the Denny Triangle have extended the downtown office district north towards Lake Union. Some new buildings are residential, but the local streets are quiet in the evenings and on weekends. Once the city's old light industrial area, the South Lake Union neighborhood is rapidly becoming a truly mixed land use neighborhood. It has luxury and affordable housing, old warehouses, and offices for biotechnology and high-technology companies. Of late, community life in the South Lake Union neighborhood is tied to the city's new streetcar line and the upcoming opening of the Bill and Melinda Gates Foundation Campus.

4.10.2 Land Uses, Gathering Places, and Affordable Housing

Residential, retail commercial, office, and industrial land uses may be located in adjacent buildings on the same block or even in the same buildings in the study area. Local taverns and restaurants may be located down the street from renowned metropolitan cultural icons such as the opera house or major tourist attractions such as the Space Needle. Many social service organizations scattered

throughout the study area provide support services and basic necessities for people living in downtown subsidized and emergency shelter housing.

The types of gathering places differ from neighborhood to neighborhood in the study area. In the Pioneer Square area, the gathering places tend to be public places such as sidewalks, parks, and neighborhood restaurants and taverns. Gathering places for the homeless include several emergency shelters and day-use facilities such as the Chief Seattle Club and the Lazarus Center (Crisis Clinic 2009). Along the central waterfront, people gather at the many restaurants and waterfront outdoor cafes. In the Commercial Core, there are public plazas, restaurants, cultural institutions, shopping centers such as Westlake Center and Pacific Place, and lunchtime food courts for the many downtown office workers. In the more residential neighborhoods of Belltown, Uptown, and South Lake Union, the gathering places for area residents include neighborhood restaurants, taverns, small parks, and Seattle Center. Some of the very large new apartment and condominium complexes also have large courtyards, exercise rooms, or common rooms available for residents' large parties.

Although there are no community centers located within the study area, most of the neighborhoods have community councils with regular meetings, websites advertising activities and volunteer opportunities, and one neighborhood has its own Internet blog. In addition, the City's "mini–city hall," the Downtown Neighborhood Service Center, is located on Yesler Way. The Pioneer Square neighborhood also sponsors a community art walk on the first Thursday of each month. Each of these organizations and activities provide informal and formal opportunities for neighborhood residents to gather and interact.

4.10.3 Population Characteristics, Patterns, and Relationships

Different populations characterize the various neighborhoods in the study area on different days of the week and at various times of the day. At the south end of the project corridor, employees at industrial and warehouse businesses, the container port facilities on Terminal 46, and the intermodal transportation at the BNSF Seattle International Gateway (SIG) railyard can be present around the clock. Near Pioneer Square, the population includes workers, residents, and visitors during weekday business hours. Considerable numbers of homeless persons also walk the streets, as many of the city's homeless shelters are concentrated near Yesler Way and Third Avenue. In the Commercial Core, office and business employees, residents (including homeless persons), visitors, and others mingle. A portion of this mixed population is present at all times of the day, any day of the week. The proportion of one population compared to the others changes between weekdays and weekends and between business and evening hours. Special events at the stadiums and exhibition halls attract suburban residents and visitors.

Along the waterfront, the population is predominantly weekday office workers and visitors. The exception is the large number of residents from Vashon Island and Kitsap County who use the ferries to travel between their residences and jobs in downtown Seattle and elsewhere in King County. Others ride the ferries to and from vacation and second home destinations in the counties west of Seattle. Increasingly, however, residents of downtown apartments and condominiums are a part of the mix of people found in the Commercial Core neighborhood.

The population characteristics of the Belltown and Uptown neighborhoods are somewhat similar to those of the Pioneer Square neighborhood in that these neighborhoods are predominantly residential. Many apartment buildings and condominiums are located here, including a large concentration of low-income, subsidized, transitional, and women and family emergency housing (Seattle 2007). Because of the relatively large residential population, the neighborhood is typically active all week and for many hours of the day. Residents patronize neighborhood retail shops and restaurants. Visitors are concentrated around the Seattle Center area. The many performing arts, entertainment, and special events held at Seattle Center also attract large evening and weekend crowds from throughout the metropolitan area.

The active redevelopment of properties in the South Lake Union neighborhood is changing the population characteristics by adding many more weekday office workers and residents to the existing workforce at local light industrial businesses. The construction of high-end luxury units and affordable housing in this neighborhood will continue to define a diverse local residential population mingling with daytime workers in the neighborhood.

4.10.4 Transportation Facilities, Services, and Automobile Dependency

SR 99 is one of two major highways that provide direct access to downtown Seattle. It provides through access for traffic traveling from northwest and southwest Seattle to destinations south and north of downtown, including Sea-Tac Airport. In addition, commercial trucks use SR 99 to travel back and forth from the Duwamish Manufacturing and Industrial Center south of downtown to the Ballard Interbay Northend Manufacturing and Industrial Center located south of Salmon Bay Waterway and between Magnolia and Queen Anne Hill.

SR 99 is a primary north-south arterial located west of I-5. It follows the city waterfront, travels in a tunnel under the Belltown neighborhood, and continues at-grade to neighborhoods north of the Lake Washington Ship Canal. High volumes of traffic (including passenger vehicles, commercial vans, large freight and delivery trucks, taxis, and buses) use the highway daily. Appendix C, Transportation Discipline Report, provides a detailed description of this facility and its function in the regional transportation network.

The configuration of the SR 99 roadway affects the use of local streets. In the south and central portions of the study area, SR 99 is elevated and generally has few intersections or interchanges with other streets. Along the downtown waterfront, the existing local street grid continues nearly uninterrupted underneath the elevated viaduct.

As northbound traffic emerges from the Battery Street Tunnel, the local street grid is disrupted by the below-grade elevation of SR 99 and adjacent local streets. Gradually, the highway regains its travel northward at-grade. The six lanes of traffic, high volume of traffic, and presence of concrete barriers between the two directions of traffic greatly restrict vehicle, pedestrian, and bicycle crossings. Between Denny Way and Aloha Street, only Mercer and Broad Streets allow traffic to cross under the highway. For all other streets, traffic is only allowed to make right turns off SR 99 to local streets, and local street traffic is only permitted to make right turns to merge with traffic on SR 99. As a result, the highway interrupts the local street network.

Most of the study area is accessible by public transit from outside of the downtown area. Seattle's iconic ferries provide connections to Bainbridge Island, Bremerton, and Vashon Island. Buses, taxis, and the monorail provide reliable transportation throughout the study area. The new South Lake Union line of the Seattle Streetcar also provides frequent service between Westlake Center and the South Lake Union neighborhood. In addition, there is no charge to use buses serving the Central Business District from 6:00 a.m. to 7:00 p.m. This free service is critical to downtown residents, especially those who are low-income, homeless, or reliant on transit.

Although much of the corridor provides good sidewalks for pedestrians, there are portions of the study area where travel by foot is more difficult. South of S. Atlantic Street, pedestrian travel under the viaduct is prohibited because of the railroad tracks. Between S. Dearborn and S. Massachusetts Streets, east-west pedestrian access under the elevated viaduct is very limited. The street grid blocks in this area are two to three times larger than city blocks elsewhere in the study area. The 20-foot-wide waterfront promenade on the west side of Alaskan Way and the Waterfront Bicycle/Pedestrian Facility on the east side of Alaskan Way provide good access for pedestrians and bicyclists along the busy surface street. The Alaskan Way surface street ends at Broad Street and the Olympic Sculpture Garden, from which point pedestrian and bicycle access is limited between Belltown and the waterfront by the railroad tracks and Myrtle Edwards Park. However, a continuous bicycle and walking trail provides north-south connections along the waterfront.

4.10.5 Linkages to Community Facilities and Social Services

Many study area residents, particularly low-income residents, have few linkages with the many community facilities in the area. There are no community centers in the study area and only a few preschool and higher educational institutions. The number of religious institutions is small, considering that the population of the study area is well over 15,000. However, the several theaters, performing arts centers, art museum, and sports stadiums attract people from all over the region and beyond. As a result, the linkages between the many community facilities in the study area and a large proportion of its residents are weak. For others, one of the strong attractions of living in downtown Seattle is the easy access to these many community amenities.

In contrast, the many social services that operate in the study area provide much-needed emergency housing, counseling, hot meals, food banks, health clinics, employment referrals, and other services for a large number of downtown residents (Crisis Clinic 2009). Some of these services provide assistance to people residing outside of the immediate area. The vast majority of these services, however, help support the substantial low-income and homeless population residing in the study area. Moreover, a substantial portion of study area residents depend on these linkages to social services for their survival.

4.10.6 Isolation or Separation

Along the project corridor, neighborhoods are bounded by SR 99, and different types of land uses are separated or split by SR 99. At the south end of the study area, the Port of Seattle container cargo transshipment facility is located west of the roadway at Terminal 46. The roadway splits the Whatcom Railyard and the BNSF SIG Railyard. Consequently, shipping containers are unloaded on Terminal 46 and transferred for loading on nearby railcars or long distance transport via freight trucks. The transportation linkages between these Port facilities and the railyards and highway system located east of the Alaskan Way surface street are essential for operations. However, train-building traffic on the rail lines extending out of the SIG Railyard sometimes blocks east-west pedestrian and bicycle movements in the area. Moreover, elevated portions of the roadway separate these industrial land uses from the mixed residential and retail land uses near Safeco and Qwest Fields. Here, the elevated Alaskan Way Viaduct traverses the western portion of the Pioneer Square neighborhood. However, due to vastly different land uses and grade separation, the highway does not prevent vehicles, pedestrians, or bicyclists from traveling between the retail shops along First Avenue S. and the waterfront.

In the central portion of the study area, the elevated Alaskan Way Viaduct lies immediately adjacent to and east of the Alaskan Way surface street. The Seattle

Ferry Terminal, popular restaurants, tourist-oriented retail shops, the Seattle Aquarium, a small marina, and the Bell Harbor International Conference Center at Pier 66 are located west of the Alaskan Way surface street and the viaduct. Mixed land uses, including high-rise offices, restaurants, retail shops, and residential buildings, extend along the east side of the viaduct. Therefore, the land uses on each side of the viaduct are more similar than those in the south end. Although the elevated roadway forms a physical and visual obstruction between the waterfront and upland mixed uses, it conveys a steady stream of traffic between these two areas of the Commercial Core neighborhood. The loud noise from the overhead traffic, however, makes walking under the viaduct an unpleasant experience.

At the north end of the study area, land uses are more typically lower-density residential buildings and smaller-scale business and office buildings on both sides of the highway. Through the Belltown neighborhood, however, the roadway is in the Battery Street Tunnel. Therefore, the highway does not divide the neighborhood either physically or visually. North of Denny Way, however, vehicles on SR 99 leave the Battery Street Tunnel below grade. The difference in elevation, width of the highway, and lack of intersections cause the roadway to act as a physical obstruction that divides the Uptown and South Lake Union neighborhoods. Local traffic, bicyclists, and pedestrians must travel a considerable distance to get to the other side of the busy six-lane arterial. Since SR 99 is below-grade or at-grade, however, the roadway is not a visual obstruction as it is along the central waterfront.

4.10.7 Interaction Between People

Because the study area is located in downtown Seattle, there are numerous opportunities for people to interact. Downtown residents, homeless people, workers, suburban visitors, and tourists can be found mixing on local sidewalks, buses, parks, restaurants, coffee houses, and neighborhood taverns.

Interaction between people in the Pioneer Square neighborhood is primarily in public spaces such as sidewalks and Occidental Square. The central waterfront is typically the domain of tourists, with downtown workers crossing from the ferries to downtown offices in the Commercial Core during commute hours. On warmer days, downtown workers may exercise along the waterfront or eat lunch at one of the many outdoor restaurants on the waterfront piers. On weekends from May through October, thousands of cruise line passengers embark and disembark at the Bell Street Pier Cruise Terminal (Pier 66). The interaction between people in the office district of the Commercial Core is more limited due to the relatively small number of residential complexes, activity centers, and open restaurants during evening hours and on weekends. Interaction between people is plentiful at the Pike Place Market and Westlake Center, in part due to

restaurants, shops, hotels, large theaters, and the frequent presence of street performers.

Seattle Center is a popular attraction for tourists and residents of the metropolitan area and downtown Seattle due to its many and varied venues. The nearby Uptown commercial district is a popular place for local residents, especially young people, as well as people grabbing a quick meal before a show at one of the Seattle Center theatres. Interaction between people in the Belltown, Denny Triangle, and South Lake Union neighborhoods is more limited due to the changing character of these neighborhoods, limited number of gathering places, and ongoing substantial street-level disruption due to numerous construction activities.

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Chapter 5 OPERATIONAL EFFECTS, MITIGATION, AND BENEFITS

This chapter describes anticipated long-term operational effects on social resources that would occur under the Viaduct Closed (No Build Alternative) and the Bored Tunnel Alternative. These alternatives are described in detail in Appendix B, Alternatives Description and Construction Methods Discipline Report. The adverse and beneficial social effects discussed in this chapter address the potential effects related to property acquisition, housing and population, community facilities, parks and recreation, religious institutions, social and employment services, cultural and social institutions, government institutions and national defense installations, and neighborhood cohesion. In addition, potential environmental justice effects are described for the operation of the proposed roadway improvements. Section 5.4, Operational Mitigation, discusses the recommended operational mitigation measures.

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

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

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

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

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

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

The long-term effects of these scenarios on social resources are described below.

5.1.1 Scenario 1: Sudden Unplanned Loss of the Viaduct Without Major Collapse

Scenario 1 of the Viaduct Closed (No Build Alternative) assumes that operation and maintenance of the viaduct would continue, but that a minor or moderately strong earthquake or some other event would occur that would lead to sudden unplanned damage to or weakness in the viaduct.

This closure of the viaduct would immediately result in temporary road closures, minor or major repairs of structures, possible damage to buildings or piers, potential relocation of businesses or residents, temporary traffic detours, and other related disruptions in the community. The damage to the viaduct could affect adjacent social resources, including market-rate and low-income housing, community facilities, park and recreation amenities, educational institutions, social services, and cultural and social institutions. The temporary or permanent loss of one or more of these resources could affect a number of residents in the community, including minority and low-income populations and homeless persons. In addition, vehicle, transit, and pedestrian access within the downtown and outlying areas would be disrupted for some time. Access to community facilities, cultural and social institutions, and social services would be temporarily disrupted, as would existing neighborhood cohesion.

Under this scenario, the resulting traffic disruption, increased congestion, and loss of accessibility would have substantial effects on most of the environmental justice populations in the study area. As local residents with more limited resources and oftentimes limited transportation options, they would have little or no way to avoid the area affected by the damage to the viaduct, nor would they have options to obtain needed social services that may have been affected by the sudden unplanned loss of the Alaskan Way Viaduct.

5.1.2 Scenario 2: Catastrophic Failure and Collapse of the Viaduct

Scenario 2 assumes that operation and maintenance of the existing viaduct would continue for the time being, but that a major earthquake would occur at some time in the near future. Such an event could cause extensive damage to or total destruction of the viaduct, the Battery Street Tunnel, and associated infrastructure. Buildings and roadways adjacent to the viaduct would also be damaged.

Potential damage to social and community resources and the immediate interruption of the delivery of social services could be severe, although emergency management agencies would be prepared to provide services following a major earthquake. The immediate effects of Scenario 2 would be more severe and more extensive than the effects described for Scenario 1. Adverse effects on the community would be substantial. The temporary disruptions to the community would be much longer in duration, lasting potentially many years.

Sudden loss of facilities and services due to a catastrophic failure of the viaduct would have similar effects on environmental justice populations as those described under Scenario 1; however, these effects would be substantially greater in magnitude and duration. If homeless or other persons were under the structure at the time of an earthquake, they would likely be severely injured or killed. Some social service providers could suffer a permanent loss of their resources and facilities, a disruption of public access to their facilities, and/or a disruption in the ability to provide services to the public.

5.2 Operational Effects of the Bored Tunnel Alternative

The Bored Tunnel Alternative would have few long-term adverse social effects on the study area neighborhoods and the metropolitan region. The alternative would change how people in the region access the downtown area for entertainment or business activities. Changes in vehicle, transit, and pedestrian movement within and between downtown neighborhoods would occur. Some travel routes may become circuitous and travel times may increase slightly, while others would become shorter and quicker. In some neighborhoods, levels of traffic congestion and associated noise would change—higher and lower in different neighborhoods. The amount of on-street and off-street parking would change somewhat. All of these changes would affect the interaction, behavior, routine, and daily patterns of people.

Individually, or in combination, these changes in transportation infrastructure would generally lead to long-term beneficial effects on social resources (see Section 5.5, Operational Benefits). Circulation to and from neighborhoods would increase, and circulation within neighborhoods, particularly in the north end of the study area, would improve for all modes of travel. The linkages between community resources would generally improve. In turn, some neighborhoods would be more desirable for some individuals and types of households. Cohesion would improve particularly in the Belltown, Uptown, and South Lake Union neighborhoods.

5.2.1 Acquisition Effects

Largely because the alignment needed for the Bored Tunnel Alternative would be underground, right-of-way acquisition effects are minimal. The full and partial acquisitions are focused around the south and north portals of the tunnel. Near the south portal, two full and three partial parcel acquisitions are expected. The two properties that would be acquired are either owned by WSDOT or vacant. Near the north portal, three full and three partial parcel acquisitions would be needed. The acquired properties would result in the displacement of one office building. Of the 11 parcels that would be affected by right-of-way acquisition, no social resource would be affected.

Only a few commercial properties would be acquired, and only a small number of jobs would be displaced. At the south portal, two buildings with approximately 50 employees would be displaced. At the north portal, one building with approximately 119 employees would be displaced. With almost 2,200 businesses and 41,000 jobs near the south portal (i.e., in ZIP code 98104) and almost 1,600 businesses and over 36,000 jobs around the north portal (i.e., in ZIP code 98109), these neighborhood changes would not be substantial (see Section 2.5.2, Assessment of Effects on Businesses, Employment, and Parking) (U.S. Census Bureau 2009).

No private property would be acquired for either option for the proposed new local streets near the south portal. However, near the north portal, WSDOT would acquire an undeveloped portion of a large parcel currently owned by the Bill and Melinda Gates Foundation for the extension of Sixth Avenue N. (under both options).

Additional subsurface property acquisitions would be required for construction of the bored tunnel through downtown (refer to Appendix G, Land Use Discipline Report, Attachment A). These rights-of-way would be acquired from properties with the following land uses: office buildings with social service organization tenants, government office buildings, and low-income and market-rate housing. Due to the depth of the tunnel, these permanent rights-of-way would not affect the long-term use of these properties.

5.2.2 Housing and Population

The construction of the Bored Tunnel Alternative would not require the acquisition of residential properties. The general demographic characteristics of the study area neighborhoods would not be affected in the long term.

Operation of the new transportation facility would require workers to repair and maintain the infrastructure. The number of workers would be small, and they would most likely already be employed by WSDOT, the Seattle Department of

Transportation, Seattle Public Utilities, Seattle City Light, or other private utility organizations. Operation of the new transportation facility is not expected to attract workers from outside of the region; therefore, no increase in regional population or demand for housing is anticipated.

With the removal of the Alaskan Way Viaduct downtown ramps, access to housing in the study area neighborhoods would change. The new highway interchange at S. Royal Brougham Way would provide more direct access for residents who may work outside of the downtown area or persons visiting friends residing in the Pioneer Square neighborhood. However, the new interchange would also result in slightly increased congestion levels locally, particularly during commute periods. This could adversely affect turning movements on local streets.

Access to housing in the Commercial Core would be more circuitous, because motorists and transit would need to exit at either the south or north portals of the bored tunnel and then travel via local streets. Peak-hour traffic congestion would be reduced on Columbia and Seneca Streets and Elliott and Western Avenues with the elimination of the existing downtown on- and off-ramps to SR 99. This may cause travel times to increase slightly; however, these changes would not be substantial.

Access to residential complexes in the Belltown, Uptown, and South Lake Union neighborhoods would change only slightly due to the decommissioning of the Battery Street Tunnel and elimination of the on- and off-ramps on Western Avenue and Battery Street. Turning movements near the bored tunnel's north portal should be improved relative to existing conditions. More importantly, reconnection of local streets over Aurora Avenue would greatly increase circulation in the area. For more discussion, see Section 5.5, Operational Benefits.

5.2.3 Community Facilities

The acquisition of property for needed right-of-way would not affect community facilities in the study area neighborhoods. For people who work at downtown community facilities or for those seeking services at study area community facilities, primarily educational institutions, access would change slightly. Transit access from outside of downtown to some portions of downtown, especially near the tunnel portal areas, would likely improve. For residents of the study area neighborhoods, access would not change. However, for those traveling from outside of the downtown area, there would be no downtown on- or off-ramps in the Commercial Core neighborhood for motorists or transit. Routes might be slightly more circuitous, and travel times may be somewhat longer to some destinations. For transit-dependent persons, travel by public buses downtown to access community facilities could involve slightly longer travel times.

5.2.4 Parks and Recreation

The Bored Tunnel Alternative would benefit park and recreation resources by providing more effective access and linkage between facilities. The change in the context would allow elements of the park and recreation system to be woven more closely into the fabric of Seattle's downtown neighborhoods, rather than being separated by the existing aerial structure. A description of effects and benefits to specific park and recreation facilities is provided below. Facilities are discussed from south to north, as listed in Exhibit 4-21.

South Portal Area

The Bored Tunnel Alternative would substantially change the configuration of SR 99 and nearby streets near the south portal. Improvements in the south portal area would provide improved connections to park and recreation facilities.

Park and Recreation Facilities

Sports Stadiums: The Bored Tunnel Alternative would improve access to the stadiums by providing southbound traffic on SR 99 more direct access to both facilities. New surface street connections would also improve access for all traffic.

City Side Trail: The Bored Tunnel Alternative would replace the current Waterfront Bicycle/Pedestrian Facility on the east side of the Alaskan Way surface street with the City Side Trail. The design and configuration of the new trail is under consideration as an element of the City's waterfront planning process.

Port Side Pedestrian/Bike Trail: The Port Side Pedestrian/Bike Trail is proposed for the west side of Alaskan Way.

Mountains to Sound Greenway Trail: This trail would connect to its planned destination, Puget Sound, after completion of the viaduct replacement. It is currently planned to connect with the City Side Trail on the east side of the Alaskan Way surface street.

Public Art

The public art installations at Safeco Field and Qwest Field are several blocks away from the main construction corridor and would not be affected by the Bored Tunnel Alternative.

Central Waterfront

Along the central waterfront, the bored tunnel would be located deep below ground level; therefore, no parks or recreation facilities would be directly affected by its operation. One temporary public art installation (the *Wave Rave Cave*) would be displaced as discussed below. However, the removal of the existing viaduct would provide opportunities to improve the integration of park and recreation uses along the waterfront and increase opportunities for developing

new open space along the waterfront. These opportunities would occur several years after the removal of the viaduct and are, therefore, discussed in Section 5.3, Indirect Effects of the Bored Tunnel Alternative.

Public Art

The *Wave Rave Cave* located beneath the existing viaduct at Western Avenue was designed as a long-term temporary public art installation, recognizing that future construction to replace the viaduct would eliminate its current site. Prior to construction, a decision will be made to remove or relocate the installation. A relocation site has not been identified at this time.

North Portal Area

The Bored Tunnel Alternative would substantially change the configuration of SR 99 and nearby streets near the north portal. The new configuration would include three new surface street connections across Aurora Avenue. In addition, the below-grade portion of Broad Street would be closed and filled, and the Mercer Street underpass would be widened and changed to two-way traffic. Affected park and recreation facilities and public art are discussed below.

Park and Recreation Facilities

Denny Park: Providing new connections across Aurora Avenue would improve circulation near Denny Park, which would provide increased opportunities for park access.

Seattle Center: The reconfiguration of Aurora Avenue to the north of the Battery Street Tunnel would affect access to Seattle Center due to changed traffic circulation patterns. The Bored Tunnel Alternative would construct new on- and off-ramps to SR 99/Aurora Avenue, close the Broad Street underpass, widen Mercer Street to accommodate two-way traffic, and provide new at-grade connections over SR 99. These changes would improve the circulation of local traffic accessing Seattle Center. This would not affect the physical configuration of park and recreation facilities within the complex nor the number and types of events or use of the many facilities at Seattle Center.

Tilikum Place: The operation of the Bored Tunnel Alternative would not affect this plaza.

Public Art

The Broad Street Green at Seattle Center would be unaffected by operation of the Bored Tunnel Alternative. Changes in nearby traffic volumes may result in changes in noise levels (see Appendix F, Noise Discipline Report).

5.2.5 Religious Institutions

The acquisition of property for needed right-of-way would not adversely affect religious institutions in the study area neighborhoods. Local residents and others would still have access to these institutions; however, access for some parishioners may require a minor change in travel route or a slight increase in travel time. Access to religious institutions by parishioners living in other Seattle neighborhoods or suburban communities would change most due to the elimination of downtown on- and off-ramps. These changes, however, would not be substantial.

5.2.6 Social and Employment Services

The acquisition of property for needed right-of-way would not require the purchase of property owned by social and employment service organizations, but the purchase of one of the buildings that would be acquired would result in the displacement of one nonprofit tenant, the Seattle Job Initiative. However, this community-based administrative organization has no direct contact with job seekers or members of any environmental justice population; it coordinates with other community-based organizations, such as the community colleges and other training programs.

The city's downtown low-income and homeless residents would continue to have good transit and pedestrian access to these important service providers. Access to these organizations for workers living outside of downtown Seattle would change somewhat. Some travel routes could be longer and more time-consuming, while others would be shorter and more direct.

5.2.7 Cultural and Social Institutions

The acquisition of property needed for the Bored Tunnel Alternative would not adversely affect cultural or social institutions. Residents of local neighborhoods, the metropolitan area, and elsewhere would still have access to all existing exhibition centers, landmarks, museums, performing arts venues, and professional sports venues. Some travel routes would change, and travel times could increase slightly, especially to Commercial Core neighborhood venues due to the closure of the downtown on- and off-ramps and required use of new exits either north or south of the neighborhood. Such changes are not expected to be substantial.

The new south portal access to SR 99 would substantially improve access to and from the sports arenas, exhibit hall, and events center at Safeco and Qwest Fields.

The removal of the elevated Alaskan Way Viaduct along the central waterfront would affect the route of regional charity races, which currently start at Safeco Field and incorporate portions of the existing elevated roadway. Participants

would no longer be able to walk or run on the viaduct. However, other routes could be developed to attract similar numbers of participants.

Connecting the local street grid over Aurora Avenue and the north portal should generally reduce congestion and improve access to the many cultural venues at Seattle Center.

5.2.8 Government Institutions and National Defense Installations

Construction of the Bored Tunnel Alternative would not require the acquisition of property currently owned or occupied by major local, state, or federal government offices. Travel routes and times to downtown government offices would change for some travelers. Depending on commute patterns, travelers would need to exit in the Uptown/South Lake Union or Pioneer Square neighborhoods for access to the many government offices in the Commercial Core neighborhood. As such, access would change. For some it would be more circuitous, for others more direct. Travel times may also increase somewhat for some workers. These changes are not expected to be substantial.

5.2.9 Neighborhood Cohesion

The predominant effects of the Bored Tunnel Alternative on neighborhood cohesion would be beneficial, as discussed in Section 5.5, Operational Benefits. The Bored Tunnel Alternative would place SR 99 underground through most of the study area and would not result in substantial adverse effects on neighborhood cohesion. Effects on neighborhood cohesion in the study area are described below.

With the Bored Tunnel Alternative, adverse effects on community life and neighborhood identity are not expected. Neighborhood characteristics and special attributes would not substantially change. Daily community life activities are not expected to deteriorate. Unique neighborhood identities, historic buildings, character, tourist attractions, and identity would remain. However, the new tunnel operations buildings at the south and north portals of the bored tunnel would be new in the community. The buildings' height would generally be no more than about 65 feet, which is similar to the heights of the surrounding buildings. Recommended mitigation would help to ensure that these new buildings blend into the existing character of the Pioneer Square and Uptown/South Lake Union neighborhoods (see Appendix D, Visual Quality Discipline Report).

Because very few properties are needed for right-of-way acquisition, there would be no substantial changes in the neighborhood land uses (see Section 2.5.2, Assessment of Effects on Businesses, Employment, and Parking; and Section 5.2.1, Acquisition Effects).

Existing community facilities, park and recreation lands, religious institutions, social services, cultural and social institutions, and government institutions would remain. There would be no changes to existing gathering places or low-income housing.

With no substantial changes to land uses and no displacement of residential buildings, the existing population characteristics, patterns, and relationships are expected to remain relatively unchanged in the study area neighborhoods.

In terms of neighborhood cohesion, the most substantial adverse change in the study area neighborhoods would be a result of the changes in the transportation facilities compared to existing conditions. The Bored Tunnel Alternative includes no tunnel on- and off-ramps in the Commercial Core or Belltown neighborhoods. These changes would mostly affect residents of outlying Seattle neighborhoods and suburban communities. The new highway on- and off-ramps would change how travelers get to downtown community facilities, educational institutions, exhibition centers, park and recreation lands, landmarks, museums, performing arts venues, and government offices.

The change in access to downtown would affect motorists and transit riders alike. For some, travel routes would be slightly more circuitous, and travel times would increase. Vehicles and transit routes would need to travel through one or more downtown neighborhoods to arrive at desired destinations.

Both the Pioneer Square and Uptown/South Lake Union neighborhoods would experience an increase in traffic congestion. Motorists who previously used the downtown on- and off-ramps would need to access SR 99 south or north of downtown. This is comparable to the Viaduct Closed (No Build Alternative), which assumes that the downtown ramps would no longer be operational. This change is not expected to substantially disrupt neighborhood cohesion or increase isolation or separation, because traffic through downtown would be dispersed. For additional information, please see Appendix C, Transportation Discipline Report.

New local streets would help to improve transportation circulation near both the south and north portals. Near the south portal, two options are being considered for new cross streets that would intersect Alaskan Way S. The New Dearborn Intersection option would add one new cross street at S. Dearborn Street. The New Dearborn and Charles Intersections option would provide two new cross streets—one each at S. Charles Street and S. Dearborn Street. For a detailed description of these options, refer to Appendix B, Alternatives Description and Construction Methods Discipline Report. Both options would increase neighborhood mobility, particularly for pedestrians and bicyclists.

Near the north portal, John, Thomas, and Harrison Streets would be connected at grade level across Aurora Avenue, which would be restored to grade level between Denny Way and John Street. Mercer Street would be widened for two-way operation from Fifth Avenue N. to Dexter Avenue N. The rebuilt Mercer Street would have three lanes in each direction with left-hand turn pockets. These changes would substantially improve access between the Uptown and South Lake Union neighborhoods.

Two options are being considered for the extension of Sixth Avenue N. (see Appendix B, Alternatives Description and Construction Methods Discipline Report). The Curved Sixth Avenue option would extend Sixth Avenue N. in a curved alignment between Harrison and Mercer Streets. Sixth Avenue N. would intersect Mercer Street very close to Aurora Avenue. The new roadway would have two lanes in each direction, a signalized intersection at Republic Street only, and right-turn-only restrictions at the Mercer Street intersection. Due to sight distance restrictions, the intersection at Mercer Street would not be signalized and, therefore, would not allow pedestrians and bicyclists to cross Mercer Street. This option would improve mobility, increase opportunities for interaction, and improve neighborhood cohesion, but not to the same extent as the Straight Sixth Avenue option due to limitations in access for all three modes of travel at Mercer Street.

The Straight Sixth Avenue option would extend Sixth Avenue N. north from Harrison Street to Mercer Street in a typical grid formation. A signalized intersection at Mercer Street would allow pedestrians and bicyclists to cross Mercer Street. The new roadway would have two lanes in each direction, and vehicles would be able to turn right and left at Mercer Street. This option would improve mobility for vehicles, pedestrians, and bicyclists and would increase opportunities for interaction and improve neighborhood cohesion.

The Bored Tunnel Alternative would displace on- and off-street parking near the south and north portals. Near the south portal, about 110 on-street and 250 off-street parking spaces would be eliminated. Considering that there are more than 6,000 off-street parking spaces in the Pioneer Square neighborhood, this loss of parking would not be substantial (see Section 2.5.2). Similarly, near the north portal, approximately 210 on-street parking spaces would be eliminated. This, too, would not be a substantial reduction, as there are over 7,000 off-street parking spaces located between Denny Way and Roy Street and between about Westlake Avenue N. and Fifth Avenue N (see Section 2.5.2). Please refer to Appendix C, Transportation Discipline Report, for more information on parking issues.

5.2.10 Environmental Justice

With the exception of the effects on homeless people described below, study area minority and low-income populations would experience the same effects and

benefits described above and in Section 5.5, Operational Benefits. None of the resources affected by the operation of the Bored Tunnel Alternative, including the land use displacements, would be resources particularly important to minority or low-income populations. This section presents the findings specific to economics, transportation, and homeless persons.

Economic Effects

Construction of the Bored Tunnel Alternative would result in beneficial regional and state economic effects, which would be potentially beneficial to minority and low-income populations but not necessarily disproportionately. Construction expenditures would occur over a number of years, directly creating new demand for construction materials and labor. These direct effects would then lead to indirect or secondary effects, as the production of output by firms in other industries increases to supply the demand for inputs to the construction industry. This increase in employment typically leads to induced effects as the additional wages and salaries paid to workers generally foster increased consumer spending. The estimated average number of jobs related to construction of the Bored Tunnel Alternative would be 480 person-year jobs per year, representing about $64.9 million per year in wages and benefits. The number of new jobs directly associated with the Bored Tunnel Alternative that are the result of new money entering the Puget Sound regional economy would be 1,700 person-year jobs. The number of construction-related jobs created would be nearly 10 times the number of displaced jobs, which are described in Section 5.2.1.

Transportation Effects

As discussed elsewhere in this report and in Appendix C, Transportation Discipline Report, the Bored Tunnel Alternative would improve circulation to and from neighborhoods in the study area, and circulation within these neighborhoods, particularly in the north end of the study area, would improve for all modes of travel. The north end of the study area includes a substantial number of social services and shelters. The Bored Tunnel Alternative would also improve pedestrian access to transit, with improvements such as street and sidewalk crossings of Aurora Avenue. The linkages between community resources would generally improve.

Under the Bored Tunnel Alternative, transit access for bus routes operating between south King County/West Seattle and downtown Seattle would no longer be available at the Columbia and Seneca Street ramps. Transit routes would likely access downtown to and from the stadium area ramps at Alaskan Way S. The northbound off-ramp would have a general-purpose lane and a transit-only lane to accommodate buses coming from West Seattle and south King County. As a result, transit service would improve for areas in south downtown such as

Pioneer Square. U.S. Census Bureau data show generally higher percentages of minorities and low-income persons in this area than elsewhere downtown.

For transit-dependent persons, travel downtown by public buses to access community facilities could involve slightly longer travel times, but the changes are not expected to be substantial. The city's downtown low-income and homeless residents would continue to have good transit and pedestrian access to important service providers in the corridor. Access to these organizations for workers living outside of downtown Seattle would change. Some travel routes could be more circuitous and time-consuming, while others would be shorter and more direct. As reported in Appendix C, Transportation Discipline Report, the changes to transit travel times would be minimal. Additionally, the slight increase in transit travel times would be less than that for general-purpose automobile lanes, as transit vehicles would use the queue bypass lanes at each portal.

Concerns for minority and low-income populations are changes in pedestrian routes, transit services, and other transportation facilities and services that could affect access to jobs. These effects, however, are likely to be short-term as people and service providers adjust to changes in transportation infrastructure and transit services. It is important to consider the sensitive aspects of some minority and low-income populations, including disabilities that affect mobility, economic disadvantages, and language and cultural barriers. Minority and low-income populations may have more difficulty adapting to transportation system changes. These populations may also have fewer options than non-minority and non-low-income populations. The Bored Tunnel Alternative will meet Americans with Disabilities Act (ADA) requirements. Continued community outreach and communication may identify other effects and mitigation measures for minimizing adverse effects.

Effects on Homeless Persons

Homeless people who live in their cars and take shelter under the viaduct are not expected to experience long-term effects from the Bored Tunnel Alternative. Taking shelter underneath the viaduct is illegal, and the areas under the viaduct that are used for shelter are not recognized as legal residences. Therefore, such effects cannot be addressed under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Regardless of the legality of the situation, however, the project's potential effects on the homeless population should still be considered. The project team has considered ways to coordinate with social service providers to notify and ensure the safety of homeless individuals who may be using areas within the study area for shelter. Please refer to Section 3.3.1 for a discussion of some of the agency responses to this issue.

5.3 Indirect Effects of the Bored Tunnel Alternative

Indirect effects are generally removed in time and distance from the proposed project. In this case, they may follow several years after the completion of all construction associated with the Bored Tunnel Alternative, and they may occur outside of the immediate study area. The following sections discuss long-term indirect operational effects.

5.3.1 Neighborhood Cohesion

As the proposed construction of the Bored Tunnel Alternative would affect only 11 properties, indirect operational effects would not include substantial changes due to right-of-way acquisition. Minor incidental changes in individual properties are expected to occur over time as indirect effects of the Bored Tunnel Alternative. The development of vacant parcels or redevelopment of existing land uses would be consistent with the adopted land use code. The general mix of land uses, balance of residents and workers, and general land use character are not expected to change. Residential population and demographics would not change. Neighborhood cohesion also would not likely change.

In the longer term, these changes could alter the desirability of certain neighborhoods, the perceived value of individual properties, the aesthetic qualities of new and existing buildings, or the rate of redevelopment in certain neighborhoods. In particular, development pressures for certain land uses could shift either away from or closer to the new south and north tunnel portals due to changed access and circulation in the Commercial Core neighborhood compared to the Pioneer Square and Uptown/South Lake Union neighborhoods.

The demolition of the viaduct along the central waterfront would increase the desirability of existing properties or redevelopment pressures on parcels immediately adjacent to the existing elevated structure due to increased visibility, new views of the waterfront, and reduced noise.

In a similar manner, the Bored Tunnel Alternative includes options for one or two city streets intersecting First Avenue S. and Alaskan Way S., elimination of the Western Avenue and Battery Street Tunnel SR 99 ramps, and decommissioning of the Battery Street Tunnel. Together with the demolition of the viaduct, these elements would substantially increase the perceived quality of life for residents in the immediate areas and the desirability of the surrounding Pioneer Square and Belltown properties. In the Uptown/South Lake Union neighborhoods, the closure and filling of Broad Street and connection of the local street grid should be a strong influence on the desirability of the neighborhoods, especially the properties immediately east of Aurora Avenue.

All of these changes would result in positive indirect effects on neighborhood cohesion. For additional discussion, refer to Appendix D, Visual Quality Discipline Report, and Appendix G, Land Use Discipline Report.

5.3.2 Park and Recreation Facilities

The additional open space opportunities provided by removal of the existing viaduct structure would generally enhance active and passive recreation activities throughout the central waterfront area. The opportunities for enhancement of the corridor through landscaping and interpretive displays would add to visual interest. Proximity effects, such as noise and shadows, would be substantially reduced by removal of the viaduct. The removal of the visual intrusion of the aerial structure would add the urban context of downtown Seattle as an additional focus of visual interest. The benefits would be experienced in a similar manner by all park and recreation facilities along this portion of the corridor.

5.4 Operational Mitigation

Property acquisition would have no adverse effects on social resources in the study area. This demonstrates the substantial effort expended during conceptual engineering to reduce, avoid, and minimize all potential displacement effects of the Bored Tunnel Alternative. The operational mitigation for the Bored Tunnel Alternative would be limited to minimizing the effects of long-term changes, particularly downtown access, immediately following the completion of project construction.

As such, the most important mitigation measures to avoid, minimize, or reduce these adverse effects are community outreach and communication during the initial months following the opening of the new transportation facilities. Changes in the transportation network could cause people to become confused, anxious, or frustrated. These types of reactions would be typical for drivers in traffic, transit passengers, bicyclists, and pedestrians. Moreover, repeated bad experiences could change future choices. The following list identifies community outreach and communication activities that should occur prior to the opening of the new bored tunnel to educate and prepare the public for changes in their community.

Communicate

- Coordinate the opening of the facilities with other modes of transportation—bus, ferry, taxi, water taxi, tour buses, light rail, trains, tourist industry, commercial trucking, railroads, and the airport. Public and private transportation providers would need to know how to change their operations and communicate these changes to their customers, clients, and users. The public and business communities need to have a

clear understanding that the integrated multimodal public transportation system will meet their transportation needs.

- Develop a coordinated outreach program to communicate news about the new roadway facilities to disadvantaged populations, including persons with limited English proficiency and mobility disabilities, the elderly, and the transit-dependent. Such outreach should use non-English languages to accommodate the area's diverse population. See Appendix A, Public Involvement Discipline Report, for an overview of the entire outreach program.
- Develop a coordinated outreach program to communicate new transit operations to disadvantaged populations, including persons with limited English proficiency and mobility disabilities, the elderly, and the transit-dependent. Such outreach should use non-English languages to accommodate the area's diverse population. This program will be developed in coordination with mass transit agencies.
- Develop a coordinated outreach program to communicate news about the new roadway facilities to owners and operators of community facilities, park and recreation facilities, religious and cultural institutions, social and employment services, and government agencies. Provide specialized assistance to meet individual organization or agency needs.
- Use newsletters, websites, posters, newspaper inserts, television and radio announcements, special neighborhood public meetings, and other methods of communication to announce to the general public the upcoming opening of the new roadway facilities. Publish these messages in non-English languages to accommodate the area's diverse population.
- Provide extra outreach to communicate changes in roadway operations for traffic associated with large sports events, cultural performances, and charity races. Many of the attendees at these events live outside the downtown area and may not routinely use the new road facilities.

Facilitate

- Install a substantial network of temporary signs, posters, or reader boards to guide vehicle and transit traffic the first several weeks or months after the opening of the new roadway facilities. Consider using a special opening-event logo or theme so signs are easily recognizable.
- Establish an interactive website that allows members of the public to map their trip using the new transportation facilities. Locations of public on-street parking and off-street parking lots and garages should be shown, as these amenities would change after construction of the project.

- Use special signage to alert pedestrians to changes in Alaskan Way surface street pedestrian bridges and structures, including (1) the Marion Street pedestrian bridge to the Seattle Ferry Terminal, (2) the Pike Street Hillclimb stairs to the Pike Place Market, (3) the Lenora Street pedestrian bridge, and (4) the Bell Street Skybridge.

Monitor

- Provide the public with opportunities to submit feedback on ineffective or confusing communication or signage related to the opening and use of the new transportation facilities. Monitor this feedback and make changes, as necessary, to improve effectiveness.

Community outreach and communication would also be a crucial part of minimizing the potential adverse effects on minority and low-income populations due to changes in transportation infrastructure. The following list identifies environmental justice measures to help avoid, minimize, and mitigate adverse operational effects of the project on these special disadvantaged populations.

- Encourage mass transit agencies to conduct special outreach activities to communicate new transit operations to persons who are low-income and likely transit-dependent. Coordination efforts should be extended to social and employment service agencies that work with these minority and low-income populations, homeless persons, and those living on the street.
- Work with housing authorities and social service providers to identify new access routes and parking for low-income and minority clients, deliveries, and emergency vehicle access. Here, low-income persons include self-sufficient persons, homeless persons, and those living on the streets or in their vehicles. This effort includes working with service providers to disseminate information about transit route and service changes and options for minority and low-income populations.
- Coordinate with social service providers and homeless people to learn how people who seek shelter under or near transportation facilities or live out of vehicles may change their behavior after the opening of the new transportation facilities. The purpose of this coordination is to monitor this issue during the first several months of project operation and to ensure that other mitigation measures are effective.

5.5 Operational Benefits

The Bored Tunnel Alternative would substantially improve neighborhood quality of life and cohesion for most of the study area neighborhoods, as described below.

5.5.1 Community Life and Neighborhood Identity

Community life and neighborhood identity would be improved in some of the study area neighborhoods. The Pioneer Square neighborhood would no longer be exposed to the traffic noise and shadows from the overhead viaduct. This would substantially improve the pedestrian and bicyclist experience for those traveling between the neighborhood and the waterfront or along the waterfront.

Similarly, the removal of the elevated viaduct along the central waterfront would substantially improve the pedestrian experience to, from, and along the waterfront. The elimination of the existing on- and off-ramps downtown would reduce congestion and noise for the city blocks east of the viaduct at Columbia and Seneca Streets. The removal of the structure would reduce noise and shadows for commuters walking to and from the Seattle Ferry Terminal at Colman Dock and downtown office buildings, as well as workers and tourists walking from downtown to the restaurants and tourist attractions along the central waterfront. Views from downtown offices to the waterfront, ferries, and Olympic Mountains and views of downtown from the ferries would no longer be obstructed.

The demolition of the elevated viaduct structure through the Belltown neighborhood would improve the local quality of life and internal integrity of the neighborhood. There would be no noisy elevated roadway structure casting shadows on adjacent residential buildings.

5.5.2 Transportation Facilities, Services, and Automobile Dependency

The Bored Tunnel Alternative would result in the construction of several new local streets, including the following:

- Near the south portal in the Pioneer Square neighborhood, two options are proposed for city streets that would intersect First Avenue S. and Alaskan Way S. S. Dearborn Street would be constructed under both options; the second option would also include S. Charles Street.
- Several local streets near the north portal in the Uptown/South Lake Union neighborhoods would be connected, including John, Thomas, and Harrison Streets at-grade across SR 99 and Sixth Avenue N. between Harrison and Mercer Streets.

These new streets would improve neighborhood access and mobility in both the Pioneer Square and the Uptown/South Lake Union neighborhoods. Near the south portal, the one or two new cross streets would improve east-west surface street connections, reducing travel time and distance for vehicles, pedestrians, and bicyclists in the Pioneer Square neighborhood. Near the north portal, the

construction of the four new local streets would substantially improve access and mobility in the Uptown/South Lake Union neighborhoods.

The below-grade alignment of the bored tunnel south of Thomas Street would eliminate the traffic traveling through the adjacent neighborhoods under existing conditions. This would improve neighborhood cohesion, especially when added to the beneficial effects of connecting John, Thomas, and Harrison Streets. Moreover, pedestrians, bicyclists, and transit riders would have increased access to both neighborhoods with the new surface street connections. Automobile dependency in the study area neighborhoods could decrease.

5.5.3 Linkages to Community Facilities and Social Services

The Bored Tunnel Alternative, including the new local streets and improved access within and between the study area neighborhoods, would generally improve linkages to community facilities and social services. The new local streets in the Pioneer Square neighborhood would improve pedestrian and bicycle circulation between the neighborhood and the waterfront. Similarly, roadway improvements to Aurora Avenue and adjacent streets would provide local residents and visitors with improved access to the many cultural venues at Seattle Center and the new South Lake Union Park.

5.5.4 Isolation or Separation

The Bored Tunnel Alternative would connect a number of local streets, which would also eliminate isolation or separation, particularly in the north end of the corridor. The current partially below-grade alignment and configuration of Aurora Avenue is a barrier between the Uptown and South Lake Union neighborhoods. There are only two vehicle and three pedestrian crossings of Aurora Avenue between Denny Way and the Lake Washington Ship Canal—a distance of approximately 2 miles. Under the Bored Tunnel Alternative, three local street crossings would be added, and the existing Mercer Street crossing would be widened. These street improvements would have sidewalks and bicycle facilities. This would be a substantial improvement relative to the existing conditions. Similarly, Broad Street, which is currently aligned below grade in a trench, would be closed and filled between Taylor and Ninth Avenues N. This would allow Sixth Avenue N. to be connected between Harrison Street and Mercer Street to provide a much needed north-south local street between Aurora Avenue and Seattle Center.

5.5.5 Interaction Between People

The Bored Tunnel Alternative would increase interaction between people in the study area. Elimination of the existing viaduct would likely encourage more pedestrian and bicycle travel between the financial and retail districts and the

waterfront, and along the waterfront. The extension of neighborhood streets with sidewalks and bicycle paths would provide increased opportunities for informal interaction. Such interaction could occur between neighborhood residents, commuters working at businesses in the study area neighborhoods, and visitors from suburban cities or communities outside of the metropolitan region.

5.5.6 Environmental Justice

The operational benefits would benefit minority and low-income populations. Benefits of the Bored Tunnel Alternative would accrue to the public as a whole, and minority or low-income populations would similarly benefit.

Chapter 6 CONSTRUCTION EFFECTS AND MITIGATION

This chapter discusses construction effects of the Bored Tunnel Alternative. Topics addressed include the adverse effects of construction equipment, light and glare, noise, and air quality on the local population and housing, neighborhood social resources, park and recreation lands, neighborhood cohesion, and environmental justice. Also discussed are the anticipated effects of construction-related traffic congestion, construction staging areas, and truck haul routes. Recommended mitigation measures are presented at the end of the chapter.

6.1 Construction Effects of the Bored Tunnel Alternative

6.1.1 Population and Housing

Workers and Demand for Housing

For the Bored Tunnel Alternative, the demand for construction workers would not cause construction workers from outside of the region to move to the metropolitan area for employment opportunities. Based on data in Appendix L, Economics Discipline Report, construction of the Bored Tunnel Alternative would require less than 500 person-year construction jobs. This is a small share of the 114,600 construction jobs forecast for 2012 for King, Snohomish, and Pierce Counties (OFM 2009). The regional workforce should be able to meet this demand for construction workers.

A small number of workers with specialty skills would work on the project, many of whom would not live in the region. Because of their specialty skills, it is anticipated that these workers would be employed for relatively short periods, so neither they nor their families would move to the region. Typically, these workers would rent motel rooms or apartments. This small number of workers would not affect the general availability or cost of housing in the region.

Temporary Residential Displacements

Construction of the Bored Tunnel Alternative would not require any temporary residential displacements. People living near the planned construction activities would be expected to remain in their abode, whether the housing is permanent (owned or rented) or temporary.

Residences Close to Construction Activities

It is anticipated that residents living within the effect area (approximately two blocks surrounding the construction zone) would be most affected by construction activities. These residents would feel the full effects of construction-related traffic, noise and vibration, light and glare, dust, and smoke daily.

Isolation of construction activities to ensure public safety would require fencing, temporary road closures, and short-term traffic diversions. Construction vehicles would enter and exit the construction zone at gates in the perimeter fencing. Pedestrian and vehicle use of some streets and sidewalks may be temporarily limited. For short periods, direct access to some buildings may be restricted, although not eliminated. Construction noise would occur up to 24 hours per day and up to 7 days per week, while construction is ongoing in a particular location. Light and glare during nighttime hours would affect residents with direct line-of-sight views of construction zones and staging areas.

Approximately 9,500 dwelling units and over 15,000 residents live within two blocks of the proposed construction activities for the Bored Tunnel Alternative (Exhibit 6-1). This is nearly three-quarters of the total study area population. As described in Chapter 4, a substantial number of low-income residential buildings are located along the corridor, especially in the Pioneer Square and Belltown neighborhoods. Analysis of the locations of low-income housing showed that almost 21 percent of the dwelling units and 24 percent of the population within the effect area might be low-income.

Exhibit 6-1. Housing and Population Within Two Blocks of Construction Activities

	South Portal	Bored Tunnel	North Portal	Viaduct Removal	Battery Street Tunnel Decommission	Entire Corridor Area[1]
Total Dwelling Units[2]	554	NA	1,716	5,735	5,316	9,531
Total Population[3]	1,291	NA	2,738	9,477	8,426	15,501
Low-Income Dwelling Units[4]	74 (13%)	NA	202 (12%)	1,506 (26%)	1,020 (19%)	2,045 (21%)
Low-Income Population[3]	533 (41%)	NA	319 (12%)	2,795 (29%)	1,612 (19%)	3,647 (24%)

[1] The entire corridor area is the total for the two-block area on each side of the project corridor; it is not the sum of the component parts, due to an overlap of project corridor sections.

[2] Dwelling units are those that would be located within approximately two blocks of the construction area. The term "dwelling" does not include stays in hotels, motels, or shelters. Buildings that house homeless shelters are counted as one dwelling unit, no matter how many beds are provided at the facility.

[3] Population is calculated using the Seattle average household size—1.58 persons per household (2000 census)—plus the total capacity of the shelters.

[4] Low-income housing includes subsidized housing, special needs housing, and emergency housing such as shelters. It does not include occasional emergency winter housing.

The concentration of residents and proportion of low-income individuals differ along the corridor. The smallest number of dwelling units is located within two blocks of the proposed construction activities near the south portal and the associated staging area located south of the heart of the Pioneer Square

neighborhood. These include older and new market-rate housing. About 550 dwelling units, or 1,300 persons, are located within two blocks of the proposed construction activities. The residents would be exposed to ongoing disruptions for nearly the entire 66-month construction period. The south portal would also be the staging area for moving equipment and supplies in and out of the bored tunnel during construction. It would be the site of construction offices, a planned concrete batch plant, and the area for loading excavated materials into trucks or a conveyor system for off-site disposal. Due to the large number of subsidized, emergency, and transitional housing units in this neighborhood, a disproportionate number, more than 40 percent, of these residents are low-income. The Palm Court and Florentine Condominium complexes are located on First Avenue S. and mostly across the street from the south portal and associated staging area.

The second smallest number of residents would be those located within two blocks of the north portal and the proposed connection of local streets in the Uptown/South Lake Union neighborhoods. Here, about 2,700 residents (about 12 percent of whom are low-income) would be within the two-block area. Several new market-rate residential buildings, including the Marcelle Condominiums, Archstone Belltown, Borealis Apartments, and Taylor 28, are located across from the construction zone. In this area, construction would be active for about half of the 66-month construction period.

A large number of residents are located within two blocks of the construction zone for the Battery Street Tunnel decommissioning. Over 8,400 residents, including over 1,600 low-income residents, are located near this construction area. The nearby residential buildings include mostly older apartment buildings. Most of the construction work, however, would occur below ground, so this population would not likely experience substantial adverse effects.

The largest number of residents near a single element of the construction activities would be those living near the existing viaduct, primarily in the Pike Place Market and Pioneer Square areas. Almost 9,500 residents live within two blocks of the viaduct. About 29 percent of these residents, or almost 2,800, are low-income. However, this population extends along more than 20 city blocks between S. Royal Brougham Way and Battery Street. Moreover, demolition of the viaduct structure would occur in small segments—two to four blocks at a time—to minimize adverse effects over the planned 9 months of viaduct demolition.

Section 6.1.5, Neighborhood Cohesion, discusses the types and durations of construction effects that residents would experience.

6.1.2 Neighborhood Social Resources

Nonresidential neighborhood social resources would also be located near the proposed construction activities. These resources would be affected by construction noise, vibration, light and glare, dust and smoke, and truck traffic. Exhibit 6-2 lists the social resources within approximately two blocks of construction activities for each of the major elements of the Bored Tunnel Alternative. The following sections describe the anticipated effects on these nearby social resources.

South Portal Area

Near the south portal, about 13 resources are located within two blocks of planned construction activities. These include social and employment services, cultural institutions, and government services. Vehicle and transit access to these types of social resources could be compromised for nearly the entire 66-month construction period. The south portal area would be used to stage equipment and materials used for the tunnel boring, and excavated materials would be transported southward in the tunnel to the staging area for disposal via trucks or a conveyor facility to barges moored at Pier 46 (the north apron of Terminal 46). Construction activities near the south portal area would generally occur 6 days a week with two shifts per day. Construction, however, could occur up to 24 hours per day and 7 days per week. Access to buildings may change for short-term periods but would be maintained throughout the construction period. Except for the professional sports stadiums, these land uses are generally more active during daytime hours when people generally have higher thresholds for loud noises, vibration, light, and glare. Therefore, it would not appear that social resources near the south portal would sustain substantial adverse effects.

Bored Tunnel

Except for the construction activities in the south and north portal areas, construction of the bored tunnel would be underground. This construction would occur at depths up to 200 feet below grade. Truck traffic, light and glare, and dust and smoke from construction would not affect nearby land uses. Moreover, operators, employees, visitors, and clients of social resources located over the bored tunnel alignment would not be adversely affected by noise or vibration. (For additional information about vibration issues, see Appendix F, Noise Discipline Report).

Exhibit 6-2. Social Resources Within Two Blocks of Construction Activities

Social Resource	South Portal	Bored Tunnel	North Portal	Viaduct Removal	Battery Street Tunnel Decommission
Educational Facilities	• Pacific Maritime Institute (Pier 36)	NA	• Beginnings II Child Care • Young Child Academy • Antioch University • School of Visual Concepts	• Kidcentre Child Care • Paideia Academy Child Care • Pike Market Child Care • Art Institute of Seattle • The Pottery School • Academy of Languages • Floral Design Institute	• Cornish College of the Arts dormitories (2)
Religious Institutions	None	NA	• Church of Scientology • Denny Park Lutheran Church • Seattle Unity Church	• Christian Science Practitioner	None
Social and Employment Services	• International Rescue Committee • Lazarus Center • Northwest Justice Project • Washington Adult Day Services	NA	• Girl Scouts of Western Washington • Church of Mary Magdalene – Mary's Place Day Center • Seattle Job Initiative	• Pike Market Senior Center • Downtown Food Bank • Pike Market Medical Clinic	• Catholic Seamen's Club • Community Psychiatric Clinic – Belltown Clean Start • King County Bar Association Neighborhood Clinic • Matt Talbot New Hope Recovery Center • El Rey Psychiatric Residential Center • Millionair Club Charity • Recovery Café • Seattle Donated Dental Services • Senior Services of Seattle/King County • SHARE/WHEEL • Women's Referral Center

Exhibit 6-2. Neighborhood Social Resources within Two Blocks of Construction Activities (continued)

Social Resource	South Portal	Bored Tunnel	North Portal	Viaduct Removal	Battery Street Tunnel Decommission
Cultural and Social Institutions	• Coast Guard Museum of the Northwest (Pier 36) • Stadium Exhibition Center • Safeco Field • Qwest Field • Klondike Gold Rush National Historic Park	NA	• Seattle Center	• Occidental Square • Pioneer Place • Washington Street Boat Landing • Maritime Event Center • Seattle Aquarium • Seattle Art Museum • Bell Harbor International Conference Center • Experience Music Project	None
Government and National Defense	• Port – Hanjin Shipping Terminal (Terminal 46) • U.S. Coast Guard offices (Pier 36) • U.S. Post Office – Pioneer Square	NA	• Seattle Parks & Recreation Department offices	• Seattle Ferry Terminal (Pier 52) • Port of Seattle Headquarters and *Victoria Clipper* Passenger Terminal (Pier 69) • Federal Office Building	None
TOTAL	13	NA	12	22	12

Note: The social resources included in this list are those that are located within approximately two blocks of proposed construction activities. If a social resource is located within two blocks of two project construction elements, then the resource is listed where potential adverse effects would be more severe.

Moreover, the transport of the equipment, materials, and removal of excavated materials required for tunnel construction would not occur along the alignment; it would be staged from the portals. The proposed construction approach assumes the supply of equipment and materials for tunnel construction would generally enter the tunnel south portal, and most of the excavated materials from tunnel construction would be transported southward through the tunnel to the south portal for disposal. Therefore, social resources located along the bored tunnel alignment would not be adversely affected by construction-related truck traffic.

North Portal Area

An estimated 12 social resources are located within approximately two blocks of proposed construction activities near the north portal. These include four educational institutions, three churches, three social services, a cultural institution, and Seattle Parks and Recreation Department offices. All of these resources are generally used during daytime hours. Access to and from these resources would be provided throughout the construction period.

The nearby religious institutions may have special concerns regarding construction noise and vibration. Most services include periods of quiet time for prayer and contemplation, which could be disturbed by construction noise. Construction in the north portal area would generally occur 6 days a week with two shifts per day. However, construction could occur up to 24 hours per day and 7 days per week. Consequently, disruptions may occur at times not normally expected and when noise levels are generally lower in downtown Seattle. The City's noise ordinance, however, recognizes the periods of typically lower noise levels and is more restrictive on Sundays. As a result, construction could be perceived to have adverse effects. Refer to Appendix F, Noise Discipline Report, for a more detailed discussion.

Similarly, operators of the two childcare facilities near the north portal may be concerned about potential construction noise levels. Depending on the hours of facility operation and the construction activities, noise levels could disrupt nap time for young children. In contrast, adults attending daytime or nighttime classes at Antioch University and the School of Visual Concepts would be expected to have higher thresholds for construction noise.

Viaduct Removal

The removal of the existing viaduct would create disturbances affecting a number of social resources located in the immediate area of demolition. Portions of the structure would be demolished in two- to four-block segments, and demolition would continue from 4 to 8 weeks in any one location along the corridor. Extending over 20 city blocks, approximately 22 social resources could be affected by noise, vibration, light, glare, dust and smoke, and truck traffic associated with

the demolition activities. Appendix B, Alternatives Description and Construction Methods Discipline Report, more fully describes the proposed construction activities.

Social resources that would be affected by the removal of the viaduct include seven childcare or educational facilities, one religious institution, three social service agencies, eight cultural institutions, and three government offices or other facilities. Most of these social resources are visited during daytime or early evening hours by members of the public, persons conducting business with government agencies or attending conferences, and delivery trucks carrying food and supplies.

As people have higher thresholds for construction-related disturbances during daytime hours, these effects would not likely be substantial. Appendix F, Noise Discipline Report, provides additional discussion of potential construction-related noise and vibration effects and recommended mitigation measures. Potential economic impacts are discussed in Appendix L, Economics Discipline Report. Vehicle and transit access and temporary changes in access to buildings, particularly west of the Alaskan Way surface street, are anticipated to be major concerns of the operators of these social resources. For additional information about this issue, please see Appendix C, Transportation Discipline Report.

Operators of the three childcare facilities and the one religious institution, however, could be concerned about potential disruptions from noise and vibration. Children's nap time or religious contemplation may be disrupted.

Battery Street Tunnel Decommissioning

Twelve social resources are located within about two city blocks of the Battery Street Tunnel. These resources include 11 social services providers plus dormitories for Cornish College of the Arts. Clients would be expected to visit the social services during daytime or early evening hours, when people have higher thresholds for disruptions due to noise, vibration, light, glare, and truck traffic. Vehicle and transit access to and from these community resources, as well as access in and out of the buildings, is not expected to change, as most of the work would occur underground.

Three social services providers may have special concerns related to increased noise levels during late evening hours. The Community Psychiatric Clinic's Belltown Clean Start facility and the Matt Talbot New Hope Recovery Center provide outpatient treatment for drug and alcohol addiction. The El Rey Psychiatric Residential Center is a residential facility for homeless persons with chronic mental illness. As a group quarters, the El Rey Psychiatric Residential Center would be a sensitive land use for increased noise levels. However, work related to the decommissioning of the Battery Street Tunnel is expected to occur

only during daytime hours, and likely up to 5 days a week. Therefore, substantial adverse effects are not anticipated for these social service agencies.

6.1.3 Park and Recreation Lands

The effects of construction depend on the duration of the activities undertaken. The particular activities determine the character and intensity of effects such as access to facilities and proximity effects such as noise and the public perception that the construction area should be avoided because it is an unfriendly environment for recreation. Over time, the duration of the activities influence the severity of the effect; it is most severe for fee-supported facilities such as the Seattle Aquarium and various venues at Seattle Center.

Construction effects on park and recreation lands are most commonly experienced in two ways:

- Construction would disrupt access to facilities. The existing local streets and sidewalks would be closed for construction, disrupting access to specific sites.
- Parking would be substantially reduced during construction, potentially reducing visits by those who normally would visit the area by automobile.

Specific discussions of each affected resource follow below.

South Portal Area

Sports Complexes: Access to Safeco Field and Qwest Field would be affected during construction. Congestion may lead some fans to use different routes or different modes of transportation. The overall effect on attendance at the sport fields is likely to be minor, because the existing viaduct on- and off-ramps at First Avenue S. provide access only to and from the north. Access from the east, especially since the completion of the SR 519 connection to I-5 and Interstate 90 (I-90), would be a likely route for most attendees. In addition, people are likely to identify alternative routes and modes of access because they would have sufficient time to plan. The public art installations in Safeco Field and Qwest Field are not likely to be affected by the project, as they are several blocks distant from the main construction corridor.

Mountains to Sound Greenway Trail: During construction, this proposed trail connection to the waterfront would likely be rerouted onto the Port Side Pedestrian/Bike Trail along the west side of Alaskan Way adjacent to the Port of Seattle facilities.

Waterfront Bicycle/Pedestrian Facility: The existing Waterfront Bicycle/ Pedestrian Facility would be moved during construction. However, the basic function of the facility would be maintained throughout the construction period

using temporary detours through adjacent rights-of-way. The Port Side Pedestrian/Bike Trail along the west side of Alaskan Way S. is proposed for completion by the end of 2011 and should be available during bored tunnel construction. Later, the City Side Trail on the east side of SR 99 will become available for use.

The Lenora Street pedestrian bridge is expected to remain as it is today, except that where the bridge terminates on its east side, modifications would be made to provide an at-grade pedestrian crossing on Elliott Avenue.

Bored Tunnel

Construction of the bored tunnel beneath downtown Seattle is not expected to result in any adverse effects on park and recreation resources on the surface.

North Portal Area

Denny Park: Denny Park would not be physically affected by north portal construction, although noise from construction could affect the experience of visitors to the park.

Seattle Center: The variety of cultural and recreational facilities on this 74-acre site would be affected by changes in access patterns and potential increased noise levels during construction, loss of parking, and proximity effects of increased traffic. (For more information about noise levels, please see Appendix F, Noise Discipline Report.)

Widening the Mercer Street underpass and closing Broad Street would temporarily disrupt traffic patterns, potentially including lane closures on Aurora Avenue. Construction to widen Mercer Street would temporarily affect the number of travel lanes on Mercer Street and would lead to a shifting of traffic patterns. Other elements of the surrounding road network may change to accommodate activities in different planned stages of construction. The major effect may be uncertainty about access routes and delays, which may lead attendees at sporting and cultural events to avoid the area during construction.

The Broad Street Green at Seattle Center would not be displaced but may be affected by additional noise during construction (see Appendix F, Noise Discipline Report).

Tilikum Place: Tilikum Place would not be affected during construction.

Viaduct Removal

Waterfront Promenade; Piers 54, 55, 56, and 57; Access to Blake Island, Waterfront Park, Seattle Aquarium, and Pier 62/63 Park: Viaduct removal is expected to occur in short segments. So at any time, access to the existing waterfront promenade and other waterfront facilities would be disrupted near the segment

being removed. Consequently, minor access changes would occur on a short-term basis.

Waterfront Bicycle/Pedestrian Facility: Pedestrian and bicycle access during construction would be maintained on the Port Side Pedestrian/Bike Trail along the west edge of the study area that runs adjacent to the Port of Seattle facilities. The Port Side Pedestrian/Bike Trail would extend from S. Atlantic Street to S. King Street and would connect to existing facilities on either end with minimal to no out-of-direction travel. North of S. King Street, the short segments of the Waterfront Bicycle/Pedestrian Facility adjacent to active viaduct removal would be temporarily closed, but elsewhere the facility would remain open.

Travel on First Avenue S. would be reduced during Traffic Stage 8. Bicyclists would have the option of continuing to use First Avenue S. or using the Port Side Pedestrian/Bike Trail.

Depending on the origin or destination of cyclists, they may choose to travel on Fourth Avenue S., sharing the roadway with other vehicles. The existing in-street bicycle lanes on Second and Fourth Avenues through downtown would be maintained throughout the construction period.

Marion Street Green Street: Due to the presence of construction barriers during viaduct removal near Marion Street, pedestrians would likely be temporarily unable to use Marion Street to access the waterfront and would need to find an alternative route.

Marion Street Pedestrian Bridge and Colman Dock: Access to the Seattle Ferry Terminal at Colman Dock would be maintained throughout the viaduct removal. However, the Marion Street pedestrian bridge would be replaced, so pedestrian access would need to occur at street level while the replacement bridge is constructed.

Fire Station No. 5: Access to the public shoreline adjacent to the fire station would be disrupted during viaduct removal. This minor open space would be accessible after viaduct removal. It is too small to warrant special access consideration during viaduct removal. See Appendix K, Public Services and Utilities Discipline Report, for a discussion of effects on emergency services.

Seattle Art Museum University Street Plaza, Benaroya Hall Plaza, Pioneer Square, Klondike Park, and Occidental Square: The public access areas on these sites are located several blocks from the existing viaduct. Effects on these sites during viaduct removal are expected to be minor.

Harbor Steps, University Street Green Street: This east-west connection with gathering places on the steps of vacated University Street would likely experience temporarily lower levels of use during viaduct removal near University Street.

Pike Street Hillclimb: The public plaza, stairs, terraces, and landscaped areas between Western Avenue and Alaskan Way are likely to experience temporarily lower levels of use during viaduct removal near Pike Street.

Victor Steinbrueck Park: This park overlooking the existing viaduct is not likely to be adversely affected by construction. Removal of the viaduct between Union Street and the Battery Street Tunnel would create noise, but at levels not much greater than the existing noise levels from traffic. The location of construction adjacent to the park may provide an additional interest for some viewers.

Lenora Street Pedestrian Bridge: This pedestrian corridor connecting Belltown to the waterfront is expected to experience disruption during viaduct removal near Lenora Street. The bridge would not be altered during construction, but use of the bridge would likely be prohibited during adjacent construction activities.

Various Public Art Installations: Construction activities would not affect art installations that are not attached to the viaduct or those that are located some distance from the viaduct. These works of art include *Rachel* and the *Song of the Earth* at the Pike Place Market and the art installations at Victor Steinbrueck Park.

Battery Street Tunnel Decommissioning

Decommissioning of the Battery Street Tunnel is not expected to result in adverse effects on park and recreation resources.

6.1.4 Staging Areas, Truck Haul Routes, and Traffic Congestion

Social resources, particularly neighborhood residents, could be affected by the construction staging areas and truck haul routes. The staging areas would be busy during the two regular shifts of construction, but some staging areas may also be busy during nighttime periods.

Construction Staging Areas

WSDOT has identified a number of construction staging areas for the proposed Bored Tunnel Alternative. A map of all sites under consideration for staging areas is contained in Appendix B, Alternatives Description and Construction Methods Discipline Report.

A major staging area would be established at the south end of the project corridor for the duration of the construction period. It would be located west of First Avenue S., between S. Royal Brougham Way and S. King Street, on the former Washington-Oregon Shippers Cooperative Association (WOSCA) site, which is now owned by WSDOT. General construction equipment and materials would be stored on the site. It would serve as a laydown area for equipment and materials to be transported into and out of the bored tunnel. It would be used for assembly of the tunnel boring machine and potentially the temporary installation of a

power substation and a concrete batch plant. Part of the site may be used for a slurry separation plant, if needed. A temporary bypass roadway would be constructed on the site to facilitate traffic circulation. Towards the middle of the construction period, a tunnel operations building would be constructed on this property.

Other potential construction staging areas have been identified primarily in the industrial lands south of the project corridor. Along the waterfront, Terminal 106, south of S. Spokane Street, would be used for equipment staging and materials laydown. Terminal 25, near S. Spokane Street, may be used for storing construction equipment and materials. Excavated sediments and muck may be transported from the south portal construction area to Pier 46 (on the north end of Terminal 46, west of S. King and S. Jackson Streets), where the material would be loaded onto barges for off-site disposal (see Appendix B, Alternatives Description and Construction Methods). Pier 48, west of S. Main Street, would be used for project construction offices and construction employee parking. Additional sites in the south that may be used as construction staging areas include the Fischer site (located at Fourth Avenue S.), the I-90 westbound off-ramp area, the I-90 busway off-ramp, and a portion of Railroad Way S.

In the north portal area, potential staging areas are primarily located south of Broad Street and west of SR 99. These sites are mostly associated with the required construction right-of-way. Several sites may be used for equipment and material storage and construction worker parking. Once the bored tunnel is completed, retrieval of the tunnel boring machine would likely occur in an area just south of Harrison Street. The City Maintenance Yard bounded by Harrison and Republican Streets and Sixth Avenue N. and SR 99 also may be used for construction staging.

Effects of the Staging Areas

Many of the proposed construction staging and laydown areas are located along Seattle's busy waterfront, particularly in the south end of the project corridor. Terminal 106 and Terminal 25 are located in the heart of the industrial Duwamish area. The WOSCA site, Pier 46, and Pier 48 are located west of the Pioneer Square neighborhood. These staging areas could be active up to 24 hours per day, 7 days per week.

Generally, construction-related effects of the south portal staging areas would occur in an area that already has substantial nighttime noise, light and glare, and truck traffic. Some of the Port of Seattle's largest cargo cranes are located at Terminal 46 and currently operate 24 hours a day, 7 days a week. Consequently, the proposed barging activities on Pier 46 would be similar to the existing cargo loading/unloading activities. A large warehouse and parking lot currently

occupy Pier 48. Therefore, the proposed construction worker parking at this location would not be substantially different from the existing activities. The existing volume of truck traffic on Alaskan Way S. is high, especially around these active terminals and piers. Warehouses also are located on the proposed site for the main construction staging area (WOSCA site), although there has been little activity in recent years. In addition, noise and light levels are high because the elevated northbound on-ramp to SR 99 is located just at the north end of the proposed main construction staging area. Consequently, the construction-related effects of the staging areas near the south portal would be similar to the existing levels of noise, dust, light, and traffic but slightly higher than background levels.

Three relatively small-scale residential buildings are located on First Avenue S., north of the proposed new S. Charles Street. Others are located in the several blocks east of Alaskan Way S. opposite Pier 46 and Pier 48. Residents in these buildings would be exposed to substantial increases in light, glare, and noise levels, particularly during nighttime hours. They would also be most affected by traffic congestion associated with the south portal staging areas. Abatement plans would be developed to avoid, reduce, and minimize potential adverse effects. For additional information, please see Appendix C, Transportation Discipline Report; Appendix D, Visual Quality Discipline Report; Appendix F, Noise Discipline Report; Appendix M, Air Discipline Report; and Appendix P, Earth Discipline Report.

In contrast, construction staging activities near the north portal would be different from the existing mixed commercial and residential land uses. Approximately 380 residential units, two religious institutions, a youth emergency shelter, an educational institution, and a portion of Denny Park are within two blocks of the proposed staging area at the City Maintenance Yard. The proposed staging area is located adjacent to Aurora Avenue, which is a busy arterial roadway. Existing noise, light and glare, and dust levels are already elevated in the immediate area. Recommended mitigation measures, as warranted, are presented in Appendix C, Transportation Discipline Report; Appendix D, Visual Quality Discipline Report; Appendix F, Noise Discipline Report; and Appendix M, Air Discipline Report. These types of temporary construction effects are not expected to adversely affect neighborhood cohesion because of the existing barrier effect of Aurora Avenue and the disruptions caused by the multiple ongoing redevelopment projects in the neighborhood.

Truck Haul Routes

Trucks would be the primary means to transport workers and materials to and from the construction zone. Large shipments of materials may also be transported by rail. Trucks could also be used to transport excavation or demolition spoils or.

During construction of the Bored Tunnel Alternative, City-designated truck routes would be used for transporting construction materials, over-sized equipment, and spoils into and out of the construction zones. In the south portal area, the primary construction access to the work area (on the WOSCA site) would be from S. Atlantic Street. Construction vehicles would enter the work area via a temporary construction road that would cross the southbound off-ramp from SR 99. A temporary traffic signal would facilitate crossing the off-ramp. Trucks leaving the construction zone would merge with traffic on the southbound off-ramp from SR 99 and turn eastbound on S. Atlantic Street. Inbound and outbound trucks would use Edgar Martinez Drive S. (the east extension of S. Atlantic Street) to access I-5 north and south and I-90 east and west. Over-legal loads could use First Avenue S. to Railroad Way S. to Alaskan Way S.

Travel routes for construction-related trucks would generally follow existing City-designated truck routes, which use major arterials. In the south, these routes include S. Atlantic Street and Royal Brougham Way to access I-5. To travel south, these truck routes include First Avenue S. and Fourth Avenue S. south of S. Atlantic Street, SR 99, E. Marginal Way S., S. Michigan Street, S. Spokane Street, and I-5. In the north, these routes include Mercer Street and Valley Street to access I-5, Aurora Avenue, Westlake Avenue, Western Avenue, and Elliott Avenue. Depending on the construction activities and phase, the haul routes may change during the 66-month construction period.

Actual designated routes specific to the project would be determined by the City or WSDOT as part of project permitting. The project haul routes would not traverse neighborhoods that are primarily residential in character. The effects would be similar to conditions along existing truck routes and arterials. The truck routes may cause temporary delays.. Noise from construction truck traffic during nighttime hours could also affect residents' sleep. For additional information, see Appendix F, Noise Discipline Report.

Traffic Detours During Construction

Near the construction zones, major and minor roadways would be closed for short periods, requiring all non-project-related traffic to take alternative routes. These roadway closures would occur during nighttime hours and weekends and could last for many weeks. In addition, project construction activities would eliminate on-street parking spaces near the two portals and under the viaduct. With fewer parking spaces, vehicles would circulate for a longer time as drivers look for available parking. The resulting traffic congestion from detours and loss of parking is expected to be substantial.

In fact, mitigation of the anticipated traffic congestion during construction is a major concern of the lead agencies. All agree that it is critical to maintain mobility

and access to, from, and within the downtown area for residents, workers, and visitors. Considerable time has been spent modeling, analyzing, and developing recommendations to minimize these effects. The results of this work are presented in Appendix C, Transportation Discipline Report.

6.1.5 Neighborhood Cohesion

Construction activities could adversely affect neighborhood cohesion in the study area. During the construction period, effects would occur in more than one neighborhood at a time but would not affect all neighborhoods for the entire 66 months (5.5 years) of construction. Except for the Pioneer Square neighborhood, construction activities would be ongoing for one or more short periods during the 66-month construction period in any one particular neighborhood. More importantly, construction activities generally would be located on the periphery of the study area neighborhoods, thereby minimizing effects on neighborhood cohesion. The following sections discuss these effects on the study area's six neighborhoods.

Pioneer Square Neighborhood

The Pioneer Square neighborhood and areas to the south would be adversely affected by construction activities for the entire construction period because a major construction staging area would be located on the WOSCA site on the southern edge of the neighborhood. These construction activities would be concentrated from about S. Atlantic Street to S. King Street, west of First Avenue S. The construction activities would include interconnecting the S. Holgate Street to S. King Street Viaduct Replacement Project improvements. The south portal of the bored tunnel and the tunnel operations building would be constructed, and the viaduct would be demolished. As much of this construction would be in an open trench, at-grade, or above grade, there would be construction-related noise, vibration, light and glare, dust and smoke, traffic from construction vehicles, and general traffic on construction detours. Neighborhood residents, workers, and tourists would be affected.

Construction activities occurring south of S. King Street are not expected to substantially affect cohesion in the Pioneer Square neighborhood. The construction area is located on the edge of the neighborhood, while the heart of the neighborhood lies north of S. King Street. The construction area is wedged between Port of Seattle facilities on Terminal 46, the existing viaduct, and the two professional sports stadiums. Several small businesses and market-rate residential complexes along First Avenue S. and S. Atlantic Street, however, are within blocks of the WOSCA site. During the estimated 66 months of construction, these nearby residents, businesses, and workers would experience increased noise, vibration, dust and smoke, and traffic congestion from

construction vehicles and general traffic. Community life near the proposed construction staging area would be affected by disruptions to land uses, access to gathering places, mobility and access, and linkages to community facilities. Outdoor experiences would be unpleasant and could adversely affect the interaction of people in this portion of the neighborhood.

North of S. King Street, adverse effects of construction activities should be substantially less. The tunnel boring machine would already be working at depths greater than about 40 feet below grade. Noise, vibration, light, and glare should be greatly reduced or eliminated. For a relatively short time during the later phase of construction, disruptions due to construction would increase along the existing viaduct while the structure is demolished in short two- to four-block segments. Traffic congestion would increase due to local street closures and detour routes. Because the alignment of the bored tunnel is actually somewhat west of the existing viaduct north of S. King Street, First Avenue S. would be open throughout project construction, with one lane operating in each direction.

Overall, neighborhood cohesion in the Pioneer Square neighborhood is expected to continue. Community life would continue to be similar to existing conditions. Land uses, including substantial low-income housing, would continue. Access and linkage to community facilities and resources would continue, but routes may be more circuitous and somewhat more time-consuming. Population characteristics, daily patterns, and interaction between people should remain intact.

The challenge of minimizing disruptions to the neighborhood, however, would be management of traffic congestion and the temporary loss of on-street parking. In the south end and Pioneer Square neighborhood, construction activities would displace approximately 50 off-street parking spaces and 230 on-street parking spaces in an area with over 6,000 off-street parking spaces. This would not be a significant reduction in available neighborhood parking. Traffic management for large events at the two stadiums would be important. For additional details, see Appendix C, Transportation Discipline Report.

Commercial Core Neighborhood

Construction activities in the Commercial Core neighborhood would include excavation of the bored tunnel and demolition of the viaduct. Although the bored tunnel alignment traverses the middle of the city's financial and retail centers, all of the construction activities would be below grade. The noise, light and glare, and dust and smoke from the construction would not affect the neighborhood. Moreover, construction-related traffic, including the trucks hauling the excavated rock and sediment, would not travel through the downtown area. Rather, excavated materials would be transported through the tunnel and out of the tunnel via the south portal for disposal.

Demolition of the viaduct along the city's central waterfront would be somewhat more disruptive to neighborhood cohesion. However, the construction work would occur on the edge of the neighborhood and towards the end of the construction period, lasting approximately 9 months. To minimize disruption, the proposed construction approach is to demolish the structure gradually, segment by segment, from north to south. Each segment would be only two- to four-blocks long. As the segments are demolished, the building materials would be crushed in place, loaded into trucks, and used to backfill the decommissioned Battery Street Tunnel or hauled off site for disposal.

These activities would generate noise, vibration, dust, and construction-related truck traffic. Vehicle, pedestrian, and bicycle traffic along the waterfront and up the hill to the downtown area would not be adversely affected, except in the two to four blocks of active demolition work. Construction activities would generally occur during weekday daylight hours but could occur up to 24 hours per day, 7 days per week. Similarly, residents and workers near active demolition segments would be adversely affected on a limited basis.

Up to approximately 550 to 560 on-street parking spaces located under the viaduct would be temporarily removed during viaduct demolition towards the end of the construction period (Traffic Stage 8). However, not all of these parking spaces would be removed at the same time. Parking under the viaduct would be temporarily unavailable for the several blocks surrounding the short viaduct segments to be demolished. For the other construction stages, only 80 to 160 on-street parking spaces would be displaced under the viaduct. This temporary displacement of parking would not be significant, considering the Commercial Core has over 23,000 off-street parking spaces (see Appendix C, Transportation Discipline Report).

For the remainder of the Commercial Core neighborhood, community life, land uses, gathering places, people interaction, transportation facilities, and transit service within and out of the neighborhood would not substantially change. Neighborhood cohesion should remain intact during these construction activities.

Belltown Neighborhood

In the Belltown neighborhood, construction activities would be limited to the demolition of the viaduct as it enters the south portal of the Battery Street Tunnel and the decommissioning of the Battery Street Tunnel. These activities are related. Some of the concrete rubble from the viaduct demolition would be used as fill for the decommissioned Battery Street Tunnel. Therefore, the removal of equipment in the Battery Street Tunnel and the relocation of utilities associated with the tunnel would need to occur prior to the disposal of any viaduct rubble in the tunnel. The backfilling of the Battery Street Tunnel would take about 2 months. From start to

finish, the construction work in the Belltown neighborhood would last approximately 12 to 18 months and would occur towards the end of the 66-month construction period.

The adverse effects on neighborhood cohesion are expected to be very limited, primarily affecting the two to three blocks surrounding the existing south portal of the Battery Street Tunnel. The 2 months of construction activities associated with decommissioning the Battery Street Tunnel would mostly occur underground. Construction noise, dust, light and glare, and truck traffic also would generally be underground. Open street grates, however, may act as conduits for the noise (see Appendix F, Noise Discipline Report). Community life and neighborhood identity would remain intact. Land uses would not change, and gathering places and low-income housing would be unaffected. Population characteristics and daily interaction between residents and workers would not change. Vehicle, pedestrian, bicycle, and transit traffic would be affected only on a limited basis near the existing viaduct. Approximately 140 off-street parking spaces would be temporarily displaced. This reduction, however, would not be significant, considering the neighborhood has almost 9,000 off-street parking spaces available. People would continue to have good mobility and access to community facilities within the neighborhood and to destinations outside of the neighborhood. Neighborhood cohesion would generally remain unchanged.

Denny Triangle Neighborhood

Construction activities in the Denny Triangle neighborhood would be limited to those associated with the excavation of the most northerly portion of the bored tunnel and those associated with the north portal. These activities would occur in the far western corner of the neighborhood. Construction activities associated with the tunnel would occur underground, and those associated with the north portal would primarily be at-grade street improvements. These construction activities would involve limited construction vehicle traffic, light and glare, noise, and/or changes in air quality.

Overall, these construction effects are not expected to change cohesion in the Denny Triangle neighborhood. Community life is currently somewhat disrupted by the numerous ongoing development projects in the neighborhood. The neighborhood identity is not strong; it is undergoing transition. Land uses are changing from low- to medium-density to high-density as major high-rise offices and residential complexes are completed. There are few low-income residential uses or established gathering places. Occurring on the edge of the neighborhood, construction activities are not expected to alter mobility and access within the neighborhood, and other local streets would be available as alternative routes to the Belltown and Uptown/South Lake Union neighborhoods. Construction activities are not expected to adversely affect interaction between people in the neighborhood.

Uptown Neighborhood

The Uptown neighborhood would experience the adverse effects of construction related to several elements of the Bored Tunnel Alternative, including improvements to surface streets west of Aurora Avenue and north of Broad Street. Much of this construction would be similar to routine roadway construction within existing rights-of-way.

These effects would not interfere with neighborhood cohesion. The heart of the neighborhood lies a number of blocks west of the planned construction activities, centered at Mercer Street and Queen Anne Avenue N. The several-block area between Broad Street, Taylor Avenue N., and Mercer Street has historically been a parking and training facility for a professional sports team, and more recently, construction is ongoing for the new Bill and Melinda Gates Foundation Campus. Community life and neighborhood identity would continue during project construction. Land uses, gathering places, and affordable housing would be unaffected. Altogether, neighborhood cohesion in the Uptown neighborhood is expected to remain strong during construction.

A potential challenge to continued neighborhood cohesion is expected to be maintenance of access to and from the neighborhood during the reconstruction of Mercer Street. This street is the main access to I-5 for neighborhood residents and a key access for out-of-town residents visiting one of the many cultural venues or festivals at Seattle Center. Careful planning would be needed to address this potentially major adverse effect. For additional information, see Appendix C, Transportation Discipline Report.

South Lake Union Neighborhood

In the South Lake Union neighborhood, construction activities would be associated with several elements of the Bored Tunnel Alternative:

- Construction of the bored tunnel's north portal
- Removal of the tunnel boring machine
- Improvements along Aurora Avenue (Denny Way to Roy Street)
- Widening of Mercer Street
- Closure of Broad Street
- Extension of a number of local streets over Aurora Avenue

Construction activities would extend no more than one block in either direction from Aurora Avenue on local streets, except for the closure of Broad Street. The construction activities would be largely limited to the existing rights-of-way of local streets. Construction vehicles would use local streets in the immediate area to access construction sites. Noise, vibration, light and glare, and degraded air

quality could extend up to about two blocks away from the construction zone. Much of the work along Aurora Avenue and Broad Street, however, would be below grade, so adverse construction effects associated with this work would be more limited.

Surface streets would be improved, three new at-grade streets would be constructed over SR 99, and a new on-ramp would be constructed at Republican Street. As a result, the neighborhood would experience increased noise, vibration, light and glare, dust and smoke, construction-related traffic, and short-term traffic detours. Approximately 370 on-street parking spaces would be temporarily displaced, but this loss would not be significant, considering there are almost 12,000 off-street parking spaces in the South Lake Union neighborhood. These construction effects would be periodic throughout the construction period.

Despite these effects, neighborhood cohesion would not be substantially affected. In fact, the area that would be most severely affected by the proposed construction activities (between Aurora Avenue and Broad Street, north of Denny Way) is currently somewhat separated and isolated from the center of the South Lake Union neighborhood due to the limited crossings of Aurora Avenue and the below-grade alignment of Broad Street between Harrison Street and Ninth Avenue N.

Overall, construction effects on neighborhood cohesion in the South Lake Union neighborhood would be limited. Construction activities would occur on the western edges of the neighborhood. Community life and neighborhood identity are expected to continue to be unsettled because of ongoing office and residential development projects. Building scales and land uses are changing, new gathering places are being established, and new residents, including low-income households, are moving to the neighborhood. Transportation access and mobility within the neighborhood during the construction period are not expected to substantially change. Construction would not substantially affect the interaction between people in the neighborhood.

Construction activities associated with closure and filling of Broad Street, however, would extend several blocks into the middle of the neighborhood towards Lake Union Park. The roadway is currently below grade between about Harrison Street and Ninth Avenue N. and limits traffic movement in this part of the neighborhood. Westlake Avenue N. would continue to provide good linkage between the heart of the South Lake Union neighborhood and destinations south and north.

6.1.6 Environmental Justice

Construction effects on minority and low-income populations would include increased congestion, travel delays, increased response time for emergency services, changes to transit services, and decreased parking. These changes could have an adverse effect on the minority and low-income populations in the study area and the organizations that strive to serve them. These populations and organizations are heavily reliant on transit services, which could be hampered by traffic congestion. Many service providers require clients to arrive in time to get their names on a waiting list for shelter that night, or to arrive by a certain time for other services. If individuals accessing services are unable to reach these providers by certain times, they may not have access to needed services or a safe and secure place to sleep. Traffic congestion could also delay access by emergency services and make deliveries to service providers more difficult. Providing safe pedestrian routes to and from service providers and other central locations is a critical design element to consider. Traffic congestion would be a concern prior to the opening of the bored tunnel, as well as during the demolition of the viaduct. For more information, see Appendix C, Transportation Discipline Report.

Construction activities would affect homeless persons living on downtown streets. The availability of long-term parking for car camping and the displacement of shelter under the viaduct are concerns for the homeless population, as stated by social service providers in the area. People congregate or spend the night in these informal places of shelter. For some, these locations may be areas in which they are accustomed to seeking shelter on a regular basis. Therefore, they may attempt to continue using these areas, even though the areas have become part of a construction zone. Homeless people may try to climb over or otherwise gain access through fences surrounding the construction zone to return to their habitual nighttime shelter locations, at potential risk to themselves. However, these activities are illegal and are not protected by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Depending on the location and severity of the construction effects, homeless people may decide to move elsewhere in the study area, leave the downtown area for adjacent neighborhoods, or obtain shelter inside existing homeless shelters. An increase in demand for shelter beds could substantially decrease the availability of downtown homeless shelter beds, which currently cannot meet the increasing demand.

During interviews, some social service providers indicated that areas under certain portions of the viaduct might be used for criminal activities. If these areas are fenced or off limits to the general public, these criminal activities may shift to other parts of the neighborhood. Neighborhoods adjacent to the study area with high percentages of minority and low-income populations (Duwamish and

International District) could experience negative effects if these activities shift into their neighborhoods.

Section 3.3, Public Involvement, and Attachment C, Summary of Public Involvement Activities, describe the outreach conducted with social service providers in the study area. The following summarizes the concerns relating to construction that were noted during social service agency interviews:

- Transit service disruptions or reroutes (minority and low-income populations depend on public transportation as a primary means of transportation).
- Utility disruptions.
- Increased stress, anxiety, and accidents for homeless people.
- Construction site hazards.
- Service outages for power and other utilities.
- Increased traffic congestion and decreased access, which could affect services, deliveries, staff, volunteers, and emergency service response times.
- Changes in pedestrian access to services and usual pedestrian routes.
- Construction and detours around customary routes, which may disorient persons who are blind or partially sighted and may pose potential hazards for them.
- Displacement of homeless people who find nighttime shelter under the viaduct.
- Increased demand for social services.
- Increased pressure on shelter capacity.
- Elimination of parking used by homeless persons with cars.
- Noise, vibration, and degraded air quality at shelters (most construction should occur during the day). During summer months, shelters often leave the windows open for ventilation.

Several social service providers could be temporarily affected by demolition of the viaduct due to their proximity to Alaskan Way. Located on Alaskan Way, The Compass Housing Alliance (formerly The Compass Center) provides shelter, meals, and other services. Access, air quality, and noise levels could be affected. Heritage House, Bread of Life Mission, Pike Market Senior Center, Plymouth Housing Group, Catholic Seamen's Club, and Rose of Lima House are also close to the viaduct and have similar concerns (Crisis Clinic 2009).

Sidewalks on First Avenue S. from S. King Street to Railroad Way S. would be periodically closed to pedestrian traffic for many months during construction; however, alternative pedestrian access to businesses and residences would be available at all times. This may require short-term relocation of bus stops along First Avenue S. People who walk to the St. Martin de Porres shelter from Pioneer Square and downtown should be directed to avoid the construction zone.

The study area has a substantial number of small businesses, some of which could be minority-owned. During project meetings, several business owners expressed concern that during construction, actual or perceived traffic congestion could discourage customers from driving to patronize businesses in the study area. The results would be reduced gross sales for local businesses.

Construction activities also may adversely affect people with disabilities. Traffic and sidewalk detours, barricades, and other temporary construction measures could present substantial hurdles for these people.

6.2 Construction Mitigation

This section provides a list of recommended construction measures to help avoid, reduce, or minimize potential adverse effects on social resources resulting from construction of the Bored Tunnel Alternative. The list below is organized by type of social resource.

Population and Housing

- Establish neighborhood advisory groups prior to the start of construction to solicit input for mitigation measures. Periodically during construction, meet with neighborhood representatives to communicate important information concerning construction activities and to inquire about the effectiveness of the mitigation measures. Separate groups could be established for special types of organizations, such as community facilities, religious institutions, social and employment services, cultural and social institutions, government institutions, and others.
- Prior to the start of construction and periodically during construction, hold neighborhood public meetings to advise the public of planned construction activities, road closures, traffic detours, changes in pedestrian walkways, and other construction-related activities. Representatives of study area community facilities, religious institutions, social and employment services, cultural and social institutions, cruise lines, government institutions, and others should be included on the mailing list for such events.
- Periodically publish a project newsletter to alert members of the public of planned construction activities, road closures, traffic detours, changes in

public transit routes, changes in pedestrian access routes, and other pertinent information. Newsletters should be published in appropriate languages to effectively communicate with study area residents. Newsletters should be distributed at public facilities, schools, libraries, and other similar locations. Newsletters should also be posted on the project website.

- Provide representatives of study area social resources with the name(s) of one or more contacts with whom they may communicate concerns related to construction activities.
- Establish a community telephone information line so that any member of the public can directly report problems related to construction activities and have these problems addressed promptly.
- Mark pedestrian pathways in the construction area to ensure public safety and to facilitate public way-finding. Monitor installed signage during construction to ensure effective communication to all pedestrians and bicyclists. Help arrange pedestrian detours that comply with the ADA accessibility guidelines and meet the safety needs of those who are blind, partially sighted, or have other disabilities. This includes notifying service providers to help them understand changes to transit routes and schedules, as they are often transit-dependent.
- Coordinate with neighborhood groups, including residents close to construction and staging areas, to develop appropriate mitigation measures for extended durations of 24-hour effects from construction-related noise, vibration, light, glare, and dust.
- Develop special news bulletins and use the project email list to communicate upcoming construction activities to residents close to the project construction and staging areas.

Community Facilities and Religious Institutions

- Coordinate with childcare providers near construction activities to determine whether additional special mitigation is needed.
- Work with representatives of religious institutions located close to construction zones to develop mitigation measures to address potential noise that could adversely affect services, meditation sessions, or other events.

Park and Recreation Lands

- Monitor and update on a continual basis changes in access routes to the central waterfront, its parks, and shoreline accesses during construction.

Accesses should use existing pathways where possible. They should be designed to be safe by providing adequate width and buffering from construction activities. They should be delineated and should provide logical routes to the Pioneer Square Historic District; Commercial Core neighborhood; the Pike Place Market; and the historic piers, waterfront park, and aquarium on the central waterfront.

- Install way-finding along the corridor and on streets for several blocks from construction zones. The signage should provide information on current and future opportunities and routes for access.
- If trails, pedestrian bridges, or other pathways need to be closed temporarily during the construction period, the replacement pathways should be ADA-compliant, accessible to persons with disabilities, and located within a reasonable distance to the current facility.
- Coordinate regularly with park and recreation facility operators to ensure that changes in viaduct removal activities and associated changes in access points and corridors are known in advance.

Social and Employment Services

- Coordinate with providers of mental health, psychiatric, and drug and alcohol treatment facilities to determine whether additional special mitigation is needed.
- Consider providing job information boards.

Cultural and Social Institutions

- Work with representatives of Seattle Center, Safeco Field, Qwest Field, and the Qwest Field Event Center to develop specific mitigation measures to address vehicle and transit access and parking issues related to workers and attendees of large events.
- Coordinate with cultural and social institutions to develop specific mitigation measures for venues where construction-related noise and traffic restrictions or detours could result in adverse effects.

Government Institutions

- Include government agencies located near the project construction areas on distribution lists for general notifications about planned construction activities. Agencies should include the King County Department of Transportation, Marine Division; the Port of Seattle; the Washington State Ferries; the U.S. Coast Guard; and the U.S. Post Office in Pioneer Square. Alerts could include periodic newsletters, website postings, emails, and other forms of communication.

- Notify representatives of the Port of Seattle on an ongoing basis of planned construction activities near the Bell Street Pier Cruise Terminal (Pier 66) and the *Victoria Clipper* passenger terminal at Pier 69 to help facilitate passenger embarking and disembarking activities during the construction period.
- Notify representatives of Washington State Ferries on an ongoing basis to alert them of planned construction activities near Colman Dock to help facilitate passenger and vehicle loading and unloading during the construction period.

Neighborhood Cohesion

The recommended mitigation of potential effects on social resources would not necessarily address all effects on social resources. Potential construction-related effects on neighborhood cohesion would be influenced by other environmental elements. Adverse effects from changes in traffic, parking, land use, noise levels, air quality, and the relocation of businesses would have varying effects on the overall social environment that defines how neighborhood residents, workers, and visitors interact. For these reasons, it is important to review the recommended construction mitigation measures identified in other discipline reports, including the following:

- Appendix C, Transportation Discipline Report
- Appendix D, Visual Quality Discipline Report
- Appendix F, Noise Discipline Report
- Appendix G, Land Use Discipline Report
- Appendix K, Public Services and Utilities Discipline Report
- Appendix L, Economics Discipline Report
- Appendix M, Air Discipline Report

Environmental Justice

Although construction would affect minority and low-income populations, it appears that these effects can be avoided, minimized, and mitigated. Discussions with service providers have identified potential solutions to many known and potential construction effects. The key to mitigating potential effects is ongoing community outreach and communication efforts before, during, and after construction. Monitoring mitigation during the construction period will be important to ensure that the suggested measures are successful and to understand how they might be modified to be more effective.

The following recommended mitigation measures address potential effects on specific adjacent providers of services to the low-income population:

- Identify a safe pedestrian route between Pioneer Square/downtown and the St. Martin de Porres shelter to allow movement of people to and from the shelter throughout construction. Information about the route should be distributed to social service providers, placed in proper notification areas, and marked with directional signs.
- Work with The Compass Housing Alliance (formerly The Compass Center), Heritage House, Bread of Life Mission, Pike Market Senior Center, Plymouth Housing Group, Catholic Seamen's Club, and Rose of Lima House to identify concerns and solutions for potential access, parking, air quality, and noise effects.

The mitigation measures recommended above would help minority and low-income populations. The following potential mitigation measures are additional general recommendations:

- Ensure continuous access to buildings, properties, and loading areas used by social service providers during construction to facilitate:
  - Emergency access at all times
  - Client access at all applicable hours
  - Delivery access
  - Employee access
- Monitor potential noise effects during construction, especially during the nighttime. If monitoring indicates noise levels that exceed threshold levels, mitigation measures can be used to modify the activities or otherwise reduce the noise to meet with permitting conditions. For additional discussion of monitoring and mitigation, refer to Appendix F, Noise Discipline Report.
- Hold briefings and planning sessions with social service providers to keep them up-to-date on the project and to monitor mitigation strategies for minority and low-income populations.
- Cooperate with social service providers on emergent issues that affect minority and low-income populations.
- Ensure continuous utility service during construction. If periodic outages are unavoidable, provide ample notice.
- Secure construction sites to prevent entry and injuries (especially by homeless persons):
  - Light construction areas during the night
  - Conduct security sweeps to look for unauthorized people seeking shelter within construction sites
- Train construction workers on appropriate interactions with homeless persons they may encounter at construction sites.

- Consider extending free bus service farther north and south in the downtown area and extending service later in the evening as recommended by service providers.
- Maintain regular communication with minority-owned businesses that may be affected by construction-related traffic congestion.
- Consider distributing flyers to service providers, ethnic media, and local businesses and placing flyers on windshields of cars parked in long-term parking; these flyers should specify when vehicles should be moved. List other long-term parking alternatives in the area, if any exist.
- Consider offering jobs or apprenticeship programs.

Mitigation measures for construction sites with regard to unauthorized encampments must be consistent with City of Seattle Executive Order 06-08. This executive order directs departments to follow specific procedures in the event of unauthorized encampments on City property (effective April 7, 2008). The City's Multi-departmental Administrative Rule 08-01 also addresses operating hours for City properties, unauthorized camping on City properties, enforcement procedures, and removal of unauthorized property (effective April 7, 2008). In addition, all adopted mitigation measures must be consistent with the WSDOT Guidelines to Address Illegal Encampments Within State Right of Way (effective August 22, 2008).

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Chapter 7 CUMULATIVE EFFECTS

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

This chapter discusses the following topics:

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

A more detailed analysis of cumulative effects on social resources is provided in Attachment F. It describes the specific geographic area evaluated for cumulative effects and the period considered, and it provides a list of past, present, and reasonably foreseeable future projects used to evaluate these effects.

7.1 Current Social Trends

Historically, social conditions in the project area have changed over time due to development and redevelopment of the downtown core and surrounding neighborhoods. Other major events such as the Great Seattle Fire of 1889, which destroyed the downtown area, changed development locations and trends, which in turn affected social trends. Early development concentrated around the shoreline areas and later along the streetcar lines, such as the line that ran north from downtown toward Green Lake. It spread out into various neighborhoods such as Pioneer Square, Belltown, Uptown, South Lake Union, and farther into other areas such as Fremont, Ballard, Beacon Hill, and West Seattle. As the population grew, social services and community facilities also increased to serve this population. A variety of community facilities and social services are now provided by the City of Seattle and King County, as well as numerous private and nonprofit agencies and organizations.

The downtown neighborhoods that would potentially be affected by the Bored Tunnel Alternative and future actions are well-established and, for the most part, are unlikely to change dramatically. However, proposed road and transit improvements, redevelopment activities, and regional and local land use plans are oriented toward making neighborhoods denser and more pedestrian-friendly, which may result in improved neighborhood cohesiveness and quality, easier access to community facilities and social services, and increased mobility. For example, at the core of the PSRC's *VISION 2040* plan (PSRC 2009) is the concept of centers, including Seattle, and is described in *VISION 2040* as follows. "Centers are characterized by compact, pedestrian-oriented development with a mix of uses. Centers provide proximity to a diverse collection of services, shopping, recreation, and jobs, as well as a variety of attractive and well-designed residences. They are locations identified to take a greater proportion of future population and employment in order to curb sprawl—by encouraging development in strategic places inside the region's designated urban growth area." The Growth Management Act and Seattle's Comprehensive Land Use Plan (Seattle 2010) have similar goals. Thus, it is likely that existing neighborhoods will experience more dense development in the future and in some areas such as near South Lake Union, substantial social changes are underway with the pursuit of establishing a biotechnical industry hub in that area. This redevelopment is already well underway..

In general, there do not appear to be future actions that would disproportionately affect environmental justice populations. There are likely to be individual low-income and/or minority persons affected by future projects. However, there is greater awareness of the need to avoid or reduce impacts on these persons and the adverse effects that can often be eliminated or minimized through careful planning and design and outreach to these people.

7.2 Effects From Other Roadway Elements of the Program

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

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

The proposed improvements for the Alaskan Way surface street would further improve neighborhood cohesion along the central waterfront. The improvements to the Alaskan Way surface street would somewhat improve mobility and access for all modes of transportation in the Pioneer Square and Commercial Core

neighborhoods compared to conditions after completion of the Alaskan Way Viaduct Replacement Project. It is unknown at this time if existing parking under the elevated viaduct structure would be replaced, reconfigured, or reduced. However, these surface street improvements would improve safety, especially for nonmotorized traffic. As enhancements to the aesthetic qualities of the corridor, the proposed improvements would likely attract people to the waterfront and increase interaction between residents, workers, and tourists along the central waterfront.

The improvements would not affect population characteristics, land uses, linkage to community facilities, and social services. Nor would the improvements affect social resources in the Denny Triangle, Belltown, Uptown, and South Lake Union neighborhoods.

As noted in Chapter 4, social service providers mentioned that some homeless people park and live in their vehicles under and adjacent to the viaduct in unmonitored long-term parking areas. If long-term parking spaces are removed or reduced, it could affect the homeless population. Other long-term, unmonitored parking in nearby areas could serve as an alternative location for those living in their vehicles. The improvements to the Alaskan Way surface street may remove some parking spaces that are currently under or near the Alaskan Way Viaduct. Loss of long-term parking (although not legal to use for camping) could cause some homeless people to leave the study area or seek housing at local shelters.

7.2.2 Elliott/Western Connector – Pike Street to Battery Street

The new roadway connecting Alaskan Way to Elliott and Western Avenues (in the area between Pike and Battery Streets) would be four lanes wide and would provide a grade-separated crossing of the BNSF mainline railroad tracks. The new roadway would include bicycle and pedestrian facilities. The Lenora Street pedestrian bridge is expected to remain as it is today, except that where the bridge terminates on its east side, modifications would be made to provide an at-grade pedestrian crossing on Elliott Avenue. The southbound on-ramp and the northbound off-ramp to Western Avenue would be removed along with the viaduct structure.

The Elliott/Western Connector would enhance multimodal access and linkage between the central waterfront and the Commercial Core neighborhood. The Bored Tunnel Alternative would improve waterfront access with a new four-lane Elliott/Western Connector roadway. The Elliott/Western Connector would include a sidewalk on both sides of the roadway and would connect to Lenora Street with an at-grade intersection. Population, demographic characteristics, and land uses would not be expected to change. The Elliott/Western Connector

would improve linkages to community facilities and social services and would likely increase interaction among people as well as business and commercial interests in the Pike Place Market area and the central waterfront.

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

The Mercer West Project would continue to improve the vehicle and transit mobility and access benefits to the corridor initiated with the Mercer East Project and Alaskan Way Viaduct Replacement Project. Mercer Street would be restriped and signalized between Fifth Avenue N. and Second Avenue W. to create a two-way street with turn pockets. These improvements also include the restriping and resignalization necessary to convert Roy Street to two-way operations from Fifth Avenue N. to Queen Anne Avenue N.

Construction would temporarily affect local mobility and access to parking facilities adjacent to Seattle Center. In the long term, these improvements are not expected to alter community life, land uses, or population characteristics in the Uptown neighborhood, nor are they expected to affect neighborhood identity or interaction between people. Once completed, these improvements would reduce travel time within the neighborhood and improve travel between Elliott Avenue, SR 99, and I-5.

7.3 Effects From Non-Roadway Elements of the Program

7.3.1 Elliott Bay Seawall Project

The Elliott Bay Seawall needs to be replaced to protect the shoreline along Elliott Bay, including Alaskan Way. It is at risk of failure due to seismic and storm events. The seawall currently extends from S. Washington Street in the south to Bay Street in the north, a distance of about 8,000 feet. The Elliott Bay Seawall Project limits extend from S. Washington Street in the south to Pine Street in the north (also known as the central seawall).

The seawall replacement would safeguard public investments in the Alaskan Way surface street and promenade, as well as public services located at waterfront piers, including the Seattle Ferry Terminal at Colman Dock and the Port of Seattle facilities. Once the replacement is completed, the seawall is not expected to substantially affect social resources, either positively or negatively.

7.3.2 Alaskan Way Promenade/Public Space

The proposed Alaskan Way Promenade/Public Space is a companion project to the proposed improvements to the Alaskan Way surface street. A new, expanded promenade and public space would be provided to the west of the new Alaskan Way surface street between S. King Street and Pike Street. This space would be

approximately 70 feet wide, which is more than three times as wide as the current waterfront promenade. The proposal would enhance the landscaping, hardscape, street furniture, and other amenities for the promenade along the central waterfront.

Once completed, the Alaskan Way Promenade/Public Space would greatly improve the attractiveness of Seattle's central waterfront. Population, demographics, transportation facilities and services, and linkage to community facilities and services would not change. These improvements would greatly contribute to a new identity for the city's waterfront for locals and visitors alike. The Alaskan Way Promenade/Public Space would attract people to walk, meet, and recreate along the waterfront, thus greatly increasing informal and intended interaction between a wide diversity of people.

The existing 20-foot-wide promenade would be substantially widened, resulting in multiple opportunities for landscaping and installation of seating and other amenities that would enhance its open space functions. All these design features would add to pedestrian capacity and provide additional opportunities for public enjoyment of the waterfront. Active recreation activities such as walking would be enhanced and would substantially reinforce passive enjoyment by providing additional opportunities for congregating and enjoying amenities such as views and the activities of people. Opportunities for enhancement of the corridor through landscaping and interpretive displays would add to visual interest. Proximity effects such as noise would be substantially reduced by the removal of the viaduct. The removal of the visual intrusion of the viaduct would add the urban context of downtown Seattle as an additional focus of visual interest.

Pedestrian and bicycle mobility would likely increase in this area, and bicycle and pedestrian conflicts would be reduced. These changes would enhance the environment for bicycle commuters as well as bicyclists choosing this area for sightseeing or exercise. Opportunities for development of amenities such as landscaping and street furniture would enhance passive activities such as congregating, enjoying the setting, and recreational walking. The wider sidewalk, in conjunction with the existing privately owned setback between the buildings and the right-of-way, could lead to private outdoor uses that would enhance the pedestrian environment.

7.3.3 First Avenue Streetcar Evaluation

The First Avenue streetcar is planned to run between S. Jackson Street and Republican Street along First Avenue and would include an extension to the South Lake Union streetcar line. The maintenance base would likely be either at the extension of the South Lake Union line or at a new maintenance base that would be built as part of the First Hill streetcar line.

The proposed First Avenue streetcar would provide people with an option for travel downtown. It would benefit downtown residents, workers, and visitors, including low-income and transit-dependent residents. The streetcar would provide access to community facilities and services and tourist destinations. It would connect neighborhood and cultural facilities located between King Street Station and the stadiums in south downtown and Seattle Center and Key Arena in the north end. Additionally, it may decrease dependency on personal vehicles and increase interaction between people—residents, workers, visitors, and tourists.

7.3.4 Transit Enhancements

A variety of transit enhancements would be provided to support planned transportation improvements associated with the Program and accommodate future demand. These include (1) the Delridge RapidRide line, (2) additional service hours on the West Seattle and Ballard RapidRide lines, (3) peak-hour express routes added to South Lake Union and Uptown, (4) local bus changes (such as realignments and a few additions) to several West Seattle and northwest Seattle routes, (5) transit priority on S. Main and/or S. Washington Streets between Alaskan Way and Third Avenue, and (6) simplification of the electric trolley system. RapidRide transit along the Aurora Avenue corridor would also be provided.

The enhanced transit service would not appreciably change community life, neighborhood identity, land use, or population characteristics. The new transit services, however, would provide transportation options and would increase mobility and affordable access to community facilities and services. This would particularly benefit disadvantaged populations, especially low-income and transit-dependent populations, who reside in downtown Seattle. The enhanced transit service would strengthen relationships and interaction between people. Residents, workers, and visitors could be less dependent on their own personal vehicles for mobility.

7.4 Cumulative Effects of the Project and Other Program Elements

The cumulative effects of the Bored Tunnel Alternative and the other Program elements would have a combined beneficial effect on social resources. They would substantially improve multimodal transportation linkage, mobility, and access in downtown Seattle. Vehicle and transit linkages would be improved between the outlying areas and downtown, as well as through downtown. The projects would improve downtown arterial access and the local street network in the Pioneer Square, Uptown, and South Lake Union neighborhoods. In addition, safe pedestrian and bicycle mobility would be expanded in the Commercial Core neighborhood with the construction of new sidewalks, crosswalks, and bicycle

paths. These improvements would lessen the public's dependence on personal vehicles and increase the availability of affordable transportation, which is valued by the city's low-income and transit-dependent populations residing downtown.

The major benefit of these transportation projects would be improved access to jobs, community facilities, and social services. These projects would not substantially alter population, demographics, or land use characteristics. Community life and neighborhood identity would be preserved, if not strengthened. Pedestrian mobility would increase within and between downtown neighborhoods, and interaction between people would increase. These projects would provide the transportation infrastructure to support future community economic and population growth.

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

The previous sections discuss the effects of the roadway and non-roadway elements of the Program elements and the potential cumulative effects of the Bored Tunnel Alternative in combination with the other Program elements. However, cumulative effects could also result from the combined effects of all of the Program elements and other foreseeable projects, including other transportation projects and other urban development projects near the Program. The following sections outline potential cumulative effects on social resources during construction and operation of the Bored Tunnel Alternative.

7.5.1 Construction Effects

The proposed construction period for the Bored Tunnel Alternative is estimated to extend from mid-2011 through 2017, with use of the new SR 99 tunnel available at the end of 2015. A critical cumulative effects question is whether or not any construction activities for the Bored Tunnel Alternative would overlap with construction activities of other major projects located in the downtown area. The potential overlap of construction activities associated with more than one major project would exacerbate the adverse effects on the daily life of downtown residents, commuters who work downtown, and visitors and tourists.

Construction activities associated with other transportation projects under construction at this time or projects with construction expected to start in the foreseeable future include the possible restoration of the King Street Station, the S. Spokane Street Viaduct Widening, and the Mercer East Project from Dexter Avenue N. to I-5. Construction of other transportation improvement projects, including the First Hill streetcar, also would occur immediately outside of the defined social resources effect area for construction but could contribute to cumulative construction effects.

In addition, several office buildings and residential complexes are currently under construction. These major projects are expected to be completed by mid-2011, with the exception of the construction of the third building on the Bill and Melinda Gates Foundation Campus, which would be completed in 2014. Otherwise, most of this construction would be concluding as work associated with the Bored Tunnel Alternative begins: establishing the staging areas and initiating the required relocation of utilities. The individual office buildings or residential complexes would also likely be completed, and construction-related traffic, noise, and dust would be localized, perhaps extending only several blocks from the construction activities. Construction activities on these urban development projects also would be generally limited to daytime hours. Similarly, the construction effects of other currently unknown urban development projects on individual parcels in the downtown area is expected to be limited, and construction associated with these projects is not expected to substantially affect social resources or neighborhood cohesion.

Construction related to several additional projects, however, would overlap the construction timeframe for the Bored Tunnel Alternative and other Program elements. The construction of the S. Holgate Street to S. King Street Viaduct Replacement Project is planned for completion in early 2014. Similarly, construction associated with the Alaskan Way Surface Street Improvements, the Elliott Bay Seawall Project, and the Alaskan Way Promenade/Public Space is expected to overlap with the construction of the Bored Tunnel Alternative. These overlapping construction activities would occur during at least some portions of the same timeframe and would occur near the proposed construction of the south portal for the Bored Tunnel Alternative. The City has started the planning and design for a proposed new streetcar line along S. Jackson Street from the Pioneer Square neighborhood through the Chinatown/International District to First Hill. If the required funding is secured, construction for this streetcar line could be completed in 2013 or 2014. The City has also approved the conceptual plan for the construction of over 640 residential units, 19,000 square feet of retail space, and up to 480,000 square feet of office space on the 3.85-acre North Lot at Qwest Field. Construction is expected to extend through the mid-2020s.

As a result, the adverse construction effects of these other projects would exacerbate construction-related traffic, noise, and dust in the Pioneer Square area. None of these projects would displace population, businesses, or land uses in the area, but the disruption due to construction would adversely affect community life, transportation routes, linkages to community facilities and services, and interaction between people. A substantial share of the neighborhood population is minority, low-income, and/or transit-dependent. Therefore, activities that minimize the adverse effects of these combined construction projects need to be coordinated.

7.5.2 Operational Effects

The cumulative effects after the construction of the Bored Tunnel Alternative, other Program elements, and other transportation and urban development projects are expected to benefit social resources in downtown Seattle neighborhoods. Together, these projects would substantially contribute to the implementation of a new, sustainable vision for downtown Seattle.

Community life and neighborhood identity would be invigorated and stronger. The continued development of office buildings and relocation of major employers to the area would sustain economic growth and job opportunities for downtown residents. Proposals for substantial residential projects, including low- and moderate-income housing, would stimulate community life. This effect would especially occur in the Denny Triangle, South Lake Union, and Pioneer Square neighborhoods. Land uses would gradually change throughout downtown to higher-density mixed uses. The influx of new housing would increase the downtown population, which would gradually include more affluent, higher-income households. With the anticipated continued concentration of emergency housing and social services for the county in downtown Seattle, downtown residents would continue to represent a wide spectrum of diversity.

The many planned transportation projects would substantially reduce dependence on personal vehicles for downtown mobility and access to community facilities, cultural venues, park and recreation amenities, social services, and government offices. Enhanced transit and extension of the City's streetcar network along First Avenue and S. Jackson Street would substantially improve downtown access to affordable, convenient, and reliable transportation, which would be especially beneficial to downtown low-income and transit-dependent populations.

The new SR 519 intermodal connection, which was competed in spring 2010, and the completion of the Mercer Street improvements, the SR 99 bored tunnel, and the S. Spokane Street Viaduct would also improve access to and from outlying areas and downtown.

The reduction in through traffic, especially on city streets such as the Alaskan Way surface street and the reconnection of the local street grid in the Pioneer Square, Uptown, and South Lake Union neighborhoods would substantially enhance pedestrian connections in downtown Seattle. The removal of the viaduct along the waterfront, the new Alaskan Way surface street and pedestrian promenade, and a new seawall would redefine one of the city's key downtown attractions. Downtown neighborhoods would be more interconnected, increasing interaction between people.

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Chapter 8 ENVIRONMENTAL JUSTICE DETERMINATION

At this stage in the environmental documentation process, indications are that disproportionately high and adverse effects on environmental justice populations under the Bored Tunnel Alternative could be avoided or reduced by careful planning and design. Continued outreach to minority and low-income populations, to the employees of the displaced businesses, and others will enable a determination of whether the impacts may be appreciably more severe for these populations.

Construction of the Bored Tunnel Alternative would require many years to complete and would have effects in many parts of the study area. The most widespread effects would include increased traffic congestion, noise, dust and smoke, and light and glare in and around the construction zone. Planned enhancements to transit services would help to minimize the effects on mobility during construction. Minority and low-income populations would benefit because many are heavily reliant on bus transit and have limited alternatives available. The organizations serving these populations also rely on transit but could be affected by somewhat reduced accessibility for the delivery of supplies, staff, and emergency services. With advanced planning and adaptation, the identified construction effects could be avoided or substantially reduced.

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ATTACHMENT A

Study Area Street Maps

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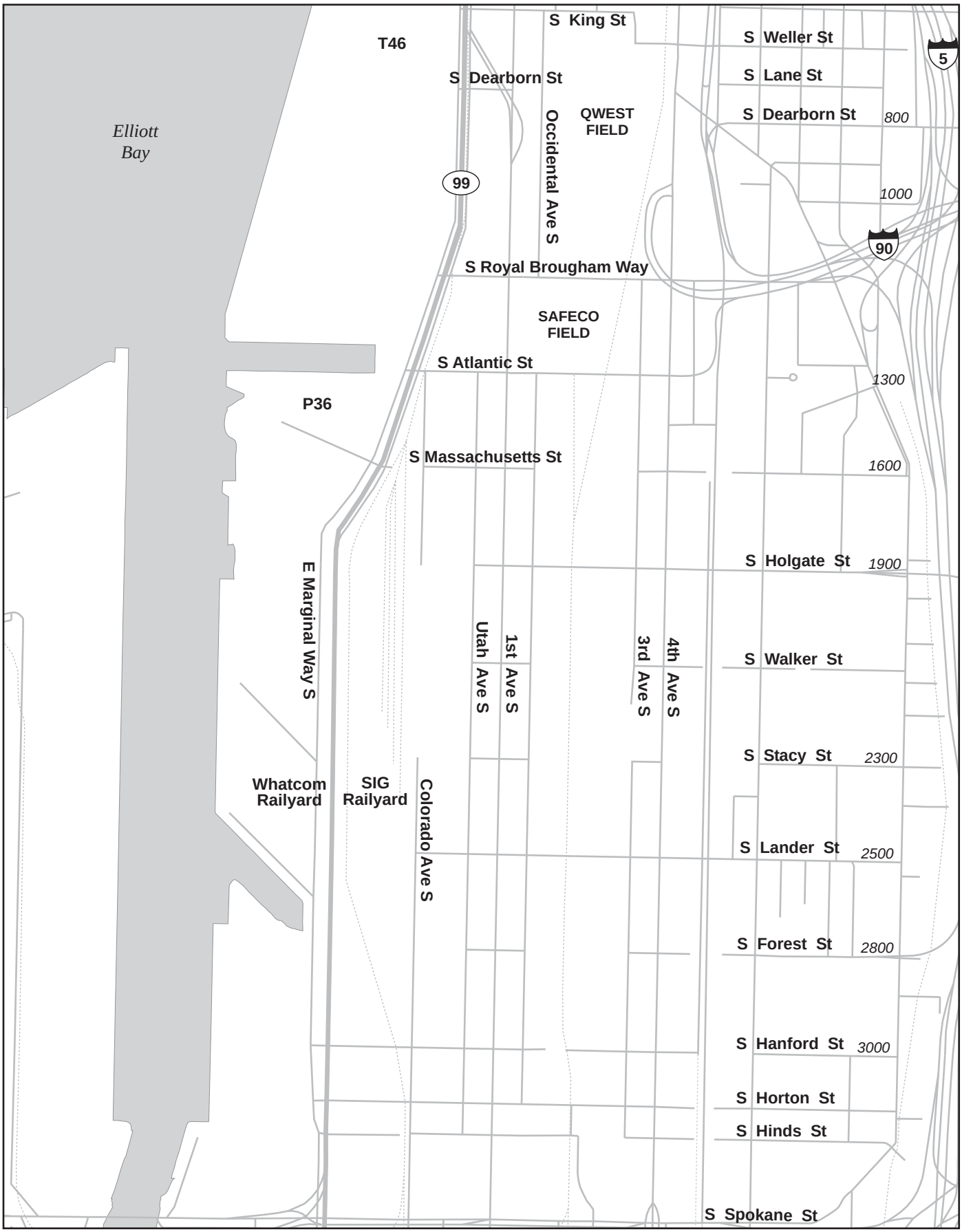

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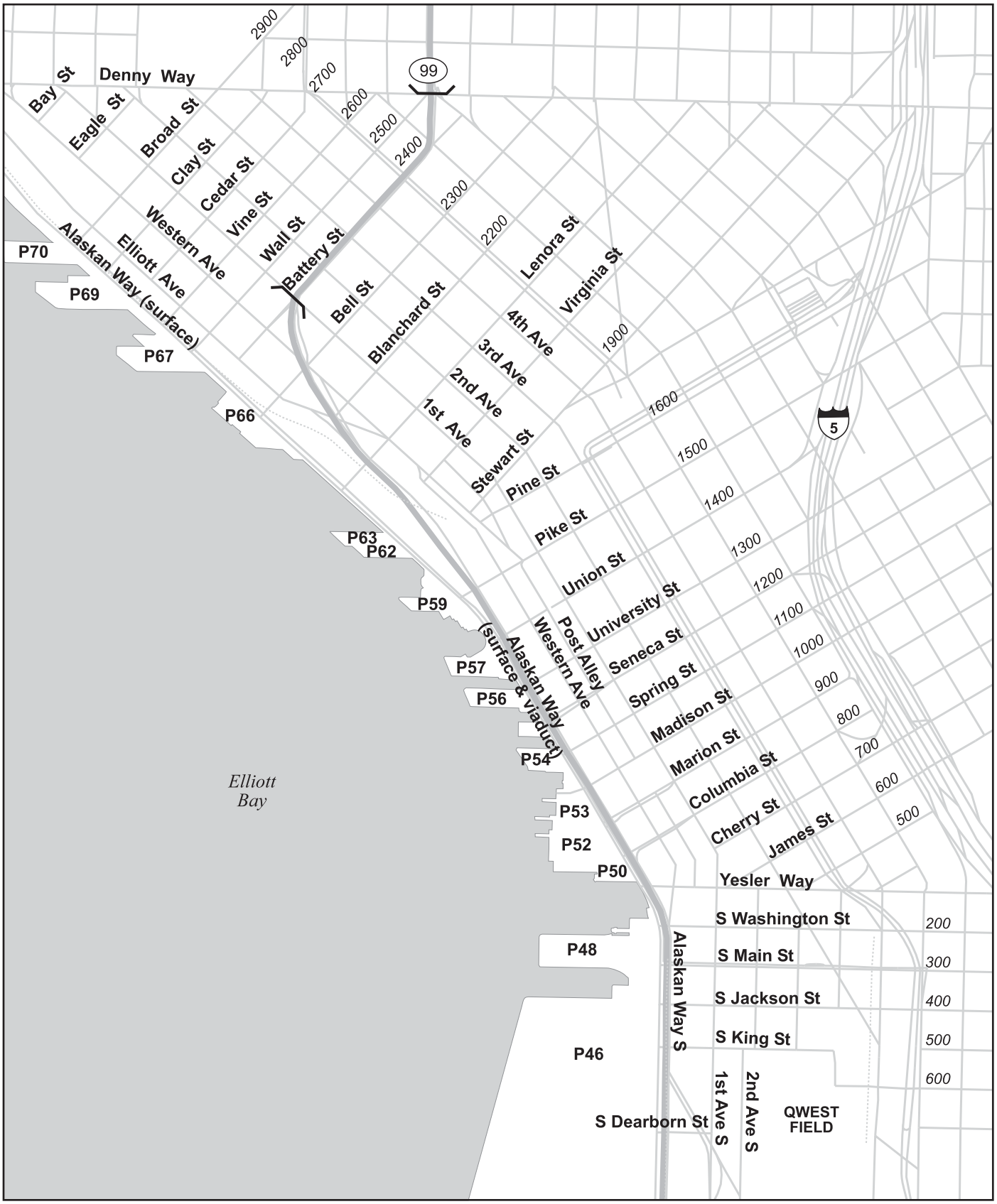
T46 = Terminal 46
P36 = Pier 36

Attachment A-1
Street Map of Stadium Area



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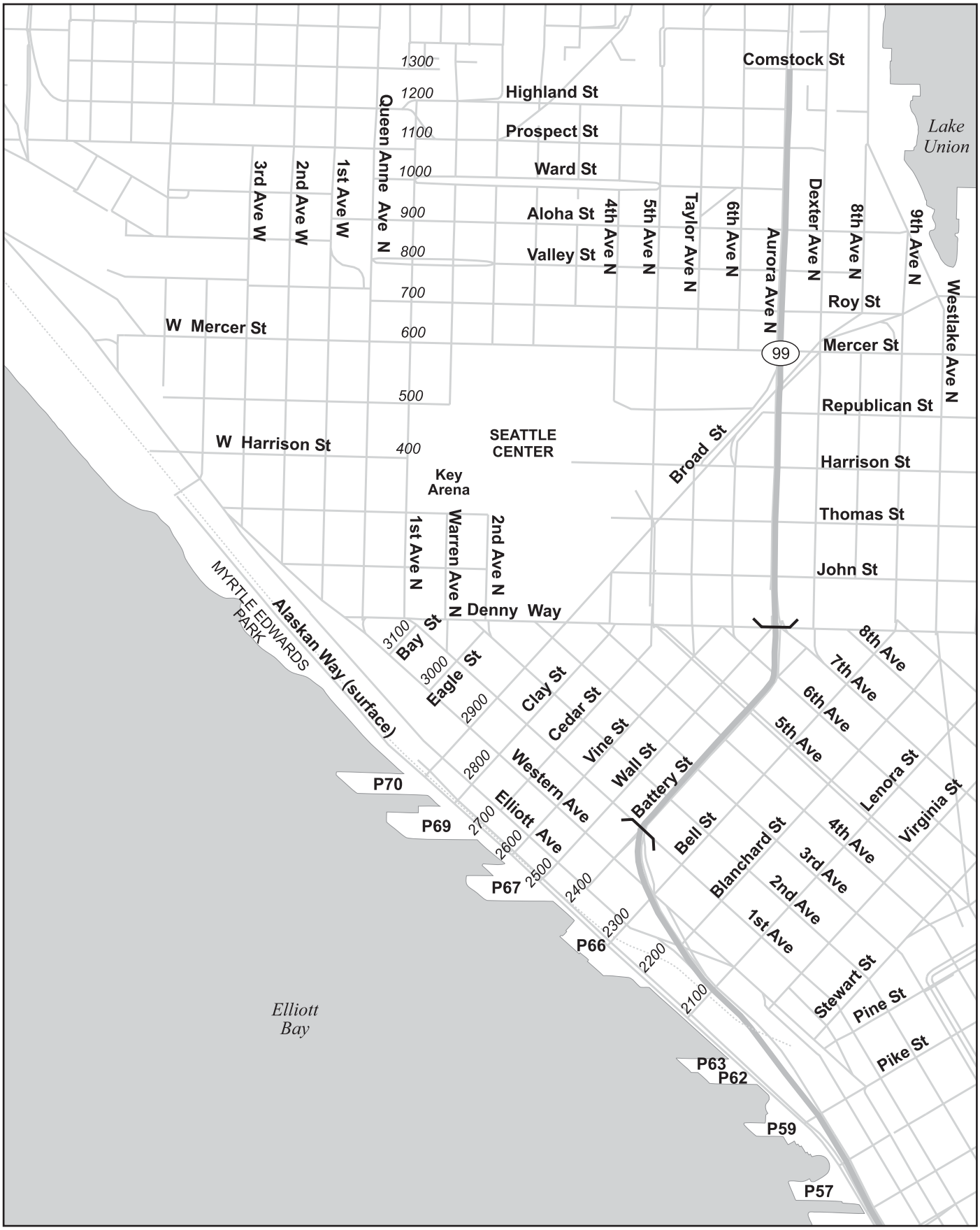
P46 = Pier 46

Attachment A-2
Street Map of Downtown Area



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P57 = Pier 57

Attachment A-3
Street Map of Belltown and Uptown Area

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ATTACHMENT B

Detailed Census Block Group Data

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Exhibit B-1. Population in the Study Area, 2000

2000 Census Tract	Block Group	Total Population
67	2	609
70	3	1,497
71	2	919
72	1	495
	2	2,589
80.01	1	767
	2	1,498
	3	1,145
80.02	1	1,618
	2	1,144
81	1	2,431
	2	1,046
92	2	911
93	2	667
Study Area		17,336
City of Seattle		563,374

Source: U.S. Census Bureau 2000. SF 1, P1.

Exhibit B-2. Racial and Ethnic Population Demographics of the Study Area, 2000

2000 Census Tract	Block Group	Total Population	White	Black or African Am.[1]	Am. Ind.[2] & AK Nat.[3]	Asian	Nat. HI[4] & Pac. Is.[5]	Other Race Alone	Two or More Races	Percent Non-White	Hispanic or Latino	White Hispanic	Percent Hispanic/ Latino	Total Minority	Percent Minority
67	2	609	517	21	5	40	1	6	19	15%	27	17	4%	109	18%
70	3	1,497	1,322	22	6	95	2	17	33	12%	44	22	3%	197	13%
71	2	919	764	33	18	48	3	24	29	17%	60	33	7%	188	20%
72	1	495	371	38	21	30	2	15	18	25%	41	25	8%	149	30%
	2	2,589	2,061	129	32	211	2	53	101	20%	124	58	5%	586	23%
80.01	1	767	633	23	5	87	2	3	14	17%	20	18	3%	152	20%
	2	1,498	1,094	173	17	128	2	24	60	27%	66	30	4%	434	29%
	3	1,145	830	113	31	83	1	34	53	28%	88	39	8%	354	31%
80.02	1	1,618	1,179	165	51	100	4	38	81	27%	105	48	6%	487	30%
	2	1,144	844	113	17	103	4	16	47	26%	38	20	3%	320	28%
81	1	2,431	1,829	208	32	197	6	52	107	25%	139	60	6%	662	27%
	2	1,046	594	260	69	35	4	27	57	43%	328	38	31%	490	47%
92	2	911	554	165	36	59	2	30	65	39%	97	42	11%	399	44%
93	2	667	431	104	43	29	1	40	19	35%	67	47	10%	283	42%
Study Area		17,336	13,023	1,567	383	1,245	36	379	703	25%	1,244	497	7%	4,810	28%
			75%	*9%*	*2%*	*7%*	*0%*	*2%*	*4%*						
City of Seattle		563,374	394,889	47,541	5,659	73,910	2,804	13,423	25,148	30%	29,719	12,357	5%	180,842	32%
			70%	*8%*	*1%*	*13%*	*0%*	*2%*	*4%*						

Source: U.S. Census Bureau 2000. SF 1, P3 and P8.

Notes:

1. African Am. = African American.
2. Am. Ind. = American Indian.
3. AK Nat. = Alaskan Native.
4. Nat. HI = Native Hawaiian.
5. Pac. Is. = Pacific Islander.
6. Sums may not total 100 percent due to rounding.

Exhibit B-3. Household Income Characteristics of the Study Area, 2000

Census 2000 Tract	Block Group	Pop.[1]	HH[2]	1999 Median HH Income	1999 Per Capita Income	HH Public Assistance Status is Estimated 3	1999 HH with Public Assistance	%	Pop. Poverty Status is Estimated	1999 Pop. Below Poverty	%
67	2	609	408	$ 110,680	$ 60,919	297	0	0%	667	8	1%
70	3	1,497	1,035	$ 42,500	$ 38,888	1,054	17	2%	1,468	90	6%
71	2	919	672	$ 32,995	$ 32,651	689	9	1%	915	77	8%
72	1	495	331	$ 28,400	$ 27,505	328	0	0%	430	64	15%
	2	2,589	1,819	$ 27,010	$ 26,507	1,734	54	3%	2,197	404	18%
80.01	1	767	529	$ 49,537	$ 75,962	478	10	2%	738	56	8%
	2	1,498	1,073	$ 30,331	$ 45,046	1,181	26	2%	1,616	406	25%
	3	1,145	757	$ 38,316	$ 38,091	752	33	4%	1,123	255	23%
80.02	1	1,618	1,066	$ 21,250	$ 69,681	1,004	32	3%	1,531	427	28%
	2	1,144	841	$ 35,987	$ 50,940	859	44	5%	1,139	177	16%
81	1	2,431	1,444	$ 47,083	$ 51,384	1,404	53	4%	2,395	592	25%
	2	1,046	518	$ 7,382	$ 14,286	552	93	17%	874	548	63%
92	2	911	431	$ 16,715	$ 17,975	441	64	15%	963	462	48%
93	2	667	139	$ 73,125	$ 20,508	120	0	0%	623	305	49%
Study Area		17,336	11,063	$ 36,130	$41,408	10,893	435	4%	16,679	3,871	23%
City of Seattle		563,374	258,499	$ 45,736	$ 30,306	258,635	7,638	3%	543,198	64,068	12%

Sources: U.S. Census Bureau 2000. SF 1, P1, P15, AND SF 3, P53, P64, P82, and P87.

Notes:

1. Pop. = Population.
2. HH = Household.
3. HH Public Assistance Status is Estimated = Total number of households receiving public assistance for which data was predicted based on the sample survey.

Exhibit B-4. Ability to Speak English, 2000

Tract	Block Group	Population 5 years and over	English Only	English "Very Well" or "Well"	LEP[1] Population	Percent LEP
67	2	577	502	75	0	0%
70	3	1468	1,256	181	31	2%
71	2	910	779	131	0	0%
72	1	430	368	55	7	2%
	2	2491	2,033	405	53	2%
80.01	1	738	604	67	67	9%
	2	1562	1,306	239	17	1%
	3	1115	914	182	19	2%
80.02	1	1484	1,387	97	0	0%
	2	1126	907	169	50	4%
81	1	2364	1,960	341	63	3%
	2	1066	881	166	19	2%
92	2	948	711	177	60	6%
93	2	653	613	40	0	0%
Study Area		16,932	14,221	2,325	386	2%
City of Seattle		537,538	429,105.00	85,361	23,072	4%

Source: U.S. Census Bureau 2000. SF 3 P19

Notes:

1. LEP = A person who is considered to have Limited English Proficiency is someone who speaks a language other than English and does not speak English very well or well.

Exhibit B-5. Household Language Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	HH Estimated[1]	Ave HH Size	English Only	%	Spanish	%	Asian & Pacific Islander	%	Other Indo-European	%	Other Languages	%	Speak Other Languages	%	Linguistically Isolated[2]	%
67	2	414	1.49	359	87%	10	2%	7	2%	38	9%	0	0%	38	9%	0	0%
70	3	1,054	1.45	863	82%	23	2%	64	6%	71	7%	33	3%	104	10%	9	1%
71	2	689	1.29	616	89%	28	4%	10	1%	28	4%	7	1%	35	5%	25	4%
72	1	328	1.22	298	91%	5	2%	7	2%	18	5%	0	0%	18	5%	7	2%
	2	1,734	1.25	1,371	79%	85	5%	142	8%	126	7%	10	1%	136	8%	100	6%
80.01	1	478	1.45	420	88%	33	7%	17	4%	8	2%	0	0%	8	2%	33	7%
	2	1,181	1.27	985	83%	24	2%	72	6%	100	8%	0	0%	100	8%	29	2%
	3	752	1.29	669	89%	0	0%	51	7%	16	2%	16	2%	32	4%	47	6%
80.02	1	1,004	1.34	925	92%	11	1%	38	4%	18	2%	12	1%	30	3%	30	3%
	2	859	1.36	688	80%	19	2%	74	9%	59	7%	19	2%	78	9%	52	6%
81	1	1,404	1.36	1,109	79%	78	6%	87	6%	112	8%	18	1%	130	9%	66	5%
	2	552	1.14	473	86%	19	3%	0	0%	24	4%	36	7%	60	11%	55	10%
92	2	441	1.31	340	77%	26	6%	28	6%	30	7%	17	4%	47	11%	54	12%
93	2	120	1.55	115	96%	0	0%	0	0%	5	4%	0	0%	5	4%	0	0%
Study Area		11,010	1.34	9,231	84%	361	3%	597	5%	653	6%	168	2%	821	7%	507	5%
City of Seattle		258,635	2.08	205,381	*79%*	11,636	*4%*	23,047	*9%*	14,505	*6%*	4,066	*2%*	18,571	*7%*	13,590	*5%*

Sources: U.S. Census Bureau 2000. SF1, P17, SF 3, P20.

Notes:

1. HH Estimated = Total number of households for which data was predicted based on the sample survey.
2. A linguistically isolated household is one in which no member 14 years or older speaks only English or speaks a non-English language and speaks English "very well."
3. Percentages may not sum to 100 percent due to rounding.

Exhibit B-6. Country of Origin, 2000

2000 Census Tract	67	%	70	%	71	%	72	%	80.01	%	80.02	%	81	%	92	%	93	%	Total	%
Foreign-born population: Total	667		987		173		390		567		302		498		772		527		4883	
Other Europe	28	4%	18	2%	0	0%	8	2%	6	1%	14	5%	17	3%	0	0%	0	0%	91	2%
Austria	0	0%	0	0%	0	0%	0	0%	15	3%	0	0%	0	0%	0	0%	0	0%	15	0%
France	25	4%	33	3%	0	0%	8	2%	18	3%	0	0%	10	2%	0	0%	0	0%	94	2%
Germany	28	4%	45	5%	31	18%	15	4%	7	1%	14	5%	40	8%	10	1%	16	3%	206	4%
Netherlands	23	3%	10	1%	0	0%	0	0%	0	0%	16	5%	26	5%	9	1%	0	0%	84	2%
Other Western Europe	26	4%	11	1%	0	0%	14	4%	0	0%	0	0%	0	0%	0	0%	0	0%	51	1%
Greece	16	2%	12	1%	0	0%	0	0%	9	2%	0	0%	0	0%	0	0%	0	0%	37	1%
Italy	0	0%	28	3%	0	0%	0	0%	11	2%	0	0%	0	0%	0	0%	0	0%	39	1%
Czechoslovakia	0	0%	12	1%	0	0%	11	3%	0	0%	0	0%	8	2%	0	0%	0	0%	31	1%
Poland	29	4%	16	2%	0	0%	0	0%	7	1%	0	0%	0	0%	0	0%	4	1%	56	1%
Belarus	0	0%	0	0%	0	0%	0	0%	6	1%	0	0%	0	0%	0	0%	0	0%	6	0%
Russia	27	4%	20	2%	0	0%	0	0%	9	2%	0	0%	0	0%	0	0%	0	0%	56	1%
Ukraine	0	0%	15	2%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	15	0%
Bosnia and Herzegovina	0	0%	0	0%	17	10%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	17	0%
Yugoslavia	0	0%	8	1%	0	0%	0	0%	0	0%	0	0%	10	2%	0	0%	0	0%	18	0%
Other Eastern Europe	21	3%	23	2%	0	0%	46	12%	0	0%	0	0%	0	0%	10	1%	0	0%	100	2%
China excluding Hong Kong and Taiwan	0	0%	32	3%	0	0%	18	5%	14	2%	10	3%	7	1%	225	29%	83	16%	389	8%
Hong Kong	7	1%	25	3%	19	11%	0	0%	0	0%	23	8%	5	1%	9	1%	112	21%	200	4%
Taiwan	0	0%	9	1%	3	2%	0	0%	16	3%	0	0%	13	3%	51	7%	0	0%	92	2%
Japan	20	3%	33	3%	10	6%	55	14%	57	10%	8	3%	27	5%	0	0%	30	6%	240	5%
Korea	14	2%	88	9%	0	0%	48	12%	30	5%	28	9%	25	5%	52	7%	10	2%	295	6%
India	26	4%	0	0%	0	0%	32	8%	35	6%	17	6%	23	5%	0	0%	7	1%	140	3%
Iran	0	0%	10	1%	0	0%	0	0%	15	3%	0	0%	0	0%	0	0%	0	0%	25	1%
Pakistan	9	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	24	3%	0	0%	33	1%
Indonesia	17	3%	24	2%	0	0%	0	0%	12	2%	0	0%	8	2%	7	1%	0	0%	68	1%
Laos	0	0%	12	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	12	0%
Malaysia	8	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	8	0%
Philippines	0	0%	29	3%	6	3%	39	10%	37	7%	65	22%	40	8%	113	15%	93	18%	422	9%
Thailand	17	3%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	17	0%
Other South Eastern Asia	10	1%	9	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	19	0%
Israel	0	0%	11	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	11	0%
Lebanon	0	0%	0	0%	0	0%	0	0%	8	1%	0	0%	0	0%	0	0%	0	0%	8	0%
Turkey	0	0%	0	0%	0	0%	8	2%	18	3%	0	0%	0	0%	0	0%	0	0%	26	1%
Other Western Asia	0	0%	8	1%	0	0%	10	3%	13	2%	0	0%	0	0%	0	0%	0	0%	31	1%
Ethiopia	0	0%	0	0%	0	0%	0	0%	27	5%	11	4%	0	0%	28	4%	24	5%	90	2%
Other Eastern Africa	0	0%	0	0%	0	0%	0	0%	0	0%	18	6%	18	4%	0	0%	26	5%	62	1%

Exhibit B-6. Country of Origin, 2000

2000 Census Tract	67	%	70	%	71	%	72	%	80.01	%	80.02	%	81	%	92	%	93	%	Total	%
Other Northern Africa	7	1%	62	6%	0	0%	0	0%	12	2%	0	0%	0	0%	0	0%	8	2%	89	2%
South Africa	12	2%	0	0%	0	0%	0	0%	0	0%	0	0%	33	7%	0	0%	0	0%	45	1%
Nigeria	0	0%	0	0%	7	4%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	7	0%
Other Western Africa	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	9	2%	0	0%	7	1%	16	0%
Africa, i.e.	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	6	1%	6	0%
Dominican Republic	0	0%		0%	0	0%	6	2%	0	0%	0	0%	0	0%	0	0%	0	0%	6	0%
Jamaica	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	10	2%	0	0%	0	0%	10	0%
Trinidad and Tobago	11	2%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	11	0%
Brazil	0	0%	0	0%	0	0%	0	0%	0	0%	10	3%	0	0%	0	0%	0	0%	10	0%
Cuba	0		0		0		0		0		14		0		0		0		14	
Mexico	0		50		3		7		67		10		22		114		118		391	
El Salvador	20		0		0		0		0		0		12		0		0		32	
Guatemala	0		0		0		0		0		0		11		6		0		17	
Honduras	0		0		2		0		0		0		0		0		12		14	
Panama	0		0		13		0		0		0		9		0		0		22	
Argentina	4		10		0		0		0		0		0		0		0		14	
Chile	0		9		0		8		0		0		0		0		6		23	
Columbia	0		0		0		0		0		13		0		10		0		23	
Peru	20		0		0		15		9		0		0		0		0		44	
Venezuela	0		7		0		0		0		0		0		0		0		7	
Spain	0		0		0		0		0		0		0		6		0		6	
Total Spanish Speaking	44	7%	76	8%	18	10%	30	8%	76	13%	37	12%	54	11%	136	18%	136	26%	607	12%

Source: U.S. Census Bureau 2000. SF 3 PCT19
Note:
Data are unavailable for PCT data sets at the Block Group level so Census Tracts were used.

Exhibit B-7. Population Age Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	Total Population	0-4 yrs.	%	5-17 yrs.	%	Children (0-17 yrs)	%	18-64 yrs.	%	65 and older	%
67	2	609	11	2%	9	1%	20	3%	545	89%	44	7%
70	3	1,497	26	2%	17	1%	43	3%	1,342	90%	112	7%
71	2	919	19	2%	15	2%	34	4%	831	90%	54	6%
72	1	495	3	1%	15	3%	18	4%	446	90%	31	6%
	2	2,589	22	1%	30	1%	52	2%	2,113	82%	424	16%
80.01	1	767	6	1%	19	2%	25	3%	630	82%	112	15%
	2	1,498	25	2%	17	1%	42	3%	1,354	90%	102	7%
	3	1,145	9	1%	21	2%	30	3%	1,056	92%	59	5%
80.02	1	1,618	22	1%	27	2%	49	3%	1,305	81%	264	16%
	2	1,144	13	1%	13	1%	26	2%	1,035	90%	83	7%
81	1	2,431	53	2%	81	3%	134	6%	1,892	78%	405	17%
	2	1,046	3	0%	20	2%	23	2%	964	92%	59	6%
92	2	911	10	1%	13	1%	23	3%	831	91%	55	6%
93	2	667	6	1%	16	2%	22	3%	592	89%	53	8%
Study Area		17,336	228	1%	313	2%	541	3%	14,936	86%	1,857	11%
City of Seattle		563,374	26,215	5%	61,612	11%	87,827	16%	407,740	72%	67,807	12%

Source: U.S. Census Bureau 2000. SF 1, P12.

Note:

1. Sums may not total 100 percent due to rounding.

Exhibit B-8. Household Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	Pop.[1]	HH[2]	Ave HH Size	1-Per HH [3]	%	Family HH[3]	%	Family HH with Children <18 yrs.	%	Single-Parent Family HH with Children <18 yrs.	%	Elderly >64 yrs. House-holder	%
67	2	609	408	1.49	239	59%	90	22%	15	4%	9	2%	32	8%
70	3	1,497	1,035	1.45	647	63%	171	17%	26	3%	9	1%	97	9%
71	2	919	672	1.29	499	74%	73	11%	14	2%	4	1%	46	7%
72	1	495	331	1.22	272	82%	27	8%	6	2%	3	1%	24	7%
	2	2,589	1,819	1.25	1,437	79%	210	12%	39	2%	20	1%	365	20%
80.01	1	767	529	1.45	327	62%	156	29%	15	3%	8	2%	80	15%
	2	1,498	1,073	1.27	830	77%	156	15%	32	3%	19	2%	71	7%
	3	1,145	757	1.29	569	75%	114	15%	21	3%	17	2%	53	7%
80.02	1	1,618	1,066	1.34	768	72%	173	16%	33	3%	20	2%	205	19%
	2	1,144	841	1.36	579	69%	132	16%	20	2%	9	1%	63	7%
81	1	2,431	1,444	1.36	997	69%	345	24%	41	3%	16	1%	266	18%
	2	1,046	518	1.14	483	93%	17	3%	7	1%	6	1%	33	6%
92	2	911	431	1.31	323	75%	51	12%	13	3%	9	2%	40	9%
93	2	667	139	1.55	68	49%	45	32%	4	3%	2	1%	8	6%
Study Area		17,336	11,063	1.34	8,038	73%	1,760	16%	286	3%	151	1%	1,383	13%
City of Seattle		563,374	258,499	2.08	105,542	41%	113,400	44%	50,083	19%	16,366	6%	45,017	17%

Sources: U.S. Census Bureau 2000.SF 1, P1,P17, P18, P19, and P20.

Notes:

1. Pop. = Population.
2. HH = Household.
3. 1-per HH = One person households.
4. Family HH = Households with more than one person related by blood or marriage or adoption.
5. Percentages may not sum to 100 percent due to rounding.

Exhibit B-9. Population Mobility Disability Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	Total Population	16-64 yrs. Disabled	65 yrs. and Older Disabled	Total 16 yrs. or Older Disabled	% Pop. With Disability[1]
67	2	609	0	10	10	2%
70	*3*	1,497	109	28	137	9%
71	2	919	24	0	24	3%
72	1	495	26	-	26	5%
	2	2,589	130	123	253	10%
80.01	1	767	76	8	84	11%
	2	1,498	75	0	75	5%
	3	1,145	41	16	57	5%
80.02	1	1,618	153	29	182	11%
	2	1,144	83	31	114	10%
81	1	2,431	104	94	198	8%
	2	1,046	115	0	115	11%
92	2	911	143	11	154	17%
93	2	667	71	0	71	11%
Study Area		17,336	1,150	350	1,500	9%
City of Seattle		563,374	*19,034*	*13,017*	*32,051*	6%

Source: U.S. Census Bureau 2000.SF 1, P1 & SF 3, P41.

Notes:

1. The percent population is based on total number of population that are 16 and older with a go-outside-home alone disability divided by the total population.

Exhibit B-10. Household Transit Dependency Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	Households	Total Dwellings	Dwellings Occupied	No Vehicle Available to Occupants of Dwelling	%
67	2	408	432	408	34	8%
70	3	1,035	1,114	1,035	18	2%
71	2	672	876	672	208	31%
72	1	331	360	331	153	46%
	2	1,819	2,174	1,819	1,165	64%
80.01	1	529	602	529	98	19%
	2	1,073	1,179	1,073	536	50%
	3	757	827	757	268	35%
80.02	1	1,066	1,155	1,066	717	67%
	2	841	1,004	841	332	39%
81	1	1,444	1,798	1,444	631	44%
	2	518	547	518	466	90%
92	2	431	446	431	309	72%
93	2	139	142	139	8	6%
Study Area		11,063	12,656	11,063	4,943	45%
City of Seattle		258,499	270,524	258,499	42,180	16%

Source: U.S. Census Bureau 2000. SF 1, P15, H1, H3, and SF 3, H44.

Exhibit B-11. Housing Characteristics of the Study Area, 2000

2000 Census Tract	Block Group	Households	Total Dwellings	Vacant Dwellings[1]	%	Vacant, for rent	%	Vacant, for sale	%	Occupied Dwellings	%	Own	%	Rent	%	Persons in Other Non-Institutional Group[2]
67	2	408	432	24	6%	9	38%	1	4%	408	94%	154	38%	254	62%	1
70	3	1,035	1,114	79	7%	40	51%	3	4%	1,035	93%	119	11%	916	89%	0
71	2	672	876	204	23%	18	9%	59	29%	672	77%	103	15%	569	85%	49
72	1	331	360	29	8%	16	55%	0	0%	331	92%	1	0%	330	100%	92
	2	1,819	2,174	355	16%	243	68%	2	1%	1,819	84%	206	11%	1,613	89%	0
80.01	1	529	602	73	12%	11	15%	6	8%	529	88%	268	51%	261	49%	0
	2	1,073	1,179	106	9%	40	38%	2	2%	1,073	91%	346	32%	727	68%	139
	3	757	827	70	8%	24	34%	4	6%	757	92%	232	31%	525	69%	171
80.02	1	1,066	1,155	89	8%	52	58%	1	1%	1,066	92%	191	18%	875	82%	186
	2	841	1,004	163	16%	48	29%	10	6%	841	84%	99	12%	742	88%	0
81	1	1,444	1,798	354	20%	99	28%	4	1%	1,444	80%	423	29%	1,021	71%	470
	2	518	547	29	5%	26	90%	0	0%	518	95%	18	3%	500	97%	383
92	2	431	446	15	3%	6	40%	0	0%	431	97%	44	10%	387	90%	346
93	2	139	142	3	2%	1	33%	1	33%	139	98%	94	68%	45	32%	445
Study Area		11,063	12,656	1,593	13%	633	40%	93	6%	11,063	87%	2,298	21%	8,765	79%	2,282
City of Seattle		258,499	270,524	12,025	4%	4,870	40%	1,473	12%	258,499	96%	125,165	48%	133,334	52%	8,921

Source: U.S. Census Bureau 2000. SF 1, P15, P37, H1, H3, H4, H5.

Notes:

1. Categories of vacant housing include: a) vacant for rent; b) vacant for sale; c) rented or sold, but not occupied; d) for seasonal, recreational, or occasional use; e) for migrant workers; and f) others.
2. Group Non-Institutional includes college dorms, military quarters, and other non-institutional group quarters (including emergency housing & shelters). It does not include correctional institutions, nursing homes, or other institutions.
3. Sums may not total 100 percent due to rounding.

ATTACHMENT C

Summary of Public Involvement Activities

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ATTACHMENT C

SUMMARY OF PUBLIC INVOLVEMENT ACTIVITIES

The environmental justice evaluation for this Supplemental Draft Environmental Impact Statement (EIS) builds on the previous public outreach conducted for the Alaskan Way Viaduct and Seawall Replacement Program (Program). Public outreach for the Alaskan Way Viaduct Replacement Project (project) will be ongoing, and special efforts will be made to include minority and low-income populations throughout the study area. The text below describes the efforts made to date to ensure that populations in the study area are involved in the decision-making process. For additional information on public outreach activities, see Appendix A, Public Involvement Discipline Report.

1.0 Social Service Provider Interviews

The study area has many social service providers, and they have been consulted multiple times during the planning process for the Program. Interviews with social service providers for the Program began in 2001 and are summarized in Exhibit C-1. These interviews were held to ensure that these organizations are engaged in the decision-making process and to discuss their concerns and potential effects on their property and/or operations. Questions were posed to the agency to understand its purpose, clients, and operations, and agency representatives were given the opportunity to discuss the potential issues that the project might present. Most of the interviews were conducted with the executive director and/or program manager of the organization. The list of questions used to guide each interview is provided at the end of this attachment.

Interviews conducted for the entire Program and this project helped the project team understand the population within the study area, learn of potential adverse effects, and identify ways to keep minority and low-income populations and the social service providers they depend on informed and involved in the project.

Potential mitigation or other actions to address concerns raised during these interviews have been developed in some cases. Measures and actions to avoid or reduce adverse effects will be developed through continued coordination with these organizations as project planning proceeds. Exhibit C-1 documents the concerns service providers had at the time of the interview about potential effects on their services or the disadvantaged populations they serve. In some cases, the concern was over a part of the project that has changed and is no longer applicable. Exhibit C-1 also documents ideas service providers had for resolution and potential mitigation measures for dealing with these concerns. The concerns and resolution columns do not necessarily correspond. For example, service providers may have mentioned concerns without ideas for resolution

and vice versa. Most representatives wanted to be a part of future social services briefings and will continue to be involved through project planning and design.

Exhibit C-1. Interviews With Social Service Providers

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
St. Martin de Porres Shelter October 30, 2002 October 3, 2003 June 2, 2005 October 26, 2006 July 18, 2007 August 13, 2008 November 18, 2009	• Access to shelter during construction for vehicles and pedestrians using shelter services. • Traffic levels on Alaskan and E. Marginal Ways S. after construction and effects on access to shelter. • Construction effects, including traffic, on the shelter. Clients are transported to and from the shelter by bus early in the morning and in the evening. • 30 to 40% of the shelter guests choose to walk, and their safety is a concern. Construction may require detours that are not as convenient for shelter guests choosing to walk. • Increased tourist traffic along the corridor. • Current congestion at S. Massachusetts Street and Alaskan Way S. • Unsheltered persons stay up all night to protect themselves and sleep during the day. This hinders their ability to be conscious of activities (construction/closures) around them during the day. • Homeless use state highway overpasses and bridges for shelter. • Service outages.	• Ensure consistent access during construction. • Maintain safe pedestrian routes between the shelter and Pioneer Square area during construction. • Pedestrian crossing at Alaskan Way S. and S. Atlantic Street would be very beneficial. • Consider a traffic signal at S. Massachusetts Street and Alaskan Way S. to assist vehicles leaving the site. This would also benefit the Coast Guard maintenance yard. • Update the shelter on any issues that relate to the homeless population and cooperate with service providers to address any issues. • Post project information in advance in multiple languages. • Personal items found by construction workers should be handled with care and disposed of without direct contact. • Improve power infrastructure serving the area. • Update staff on construction activities. Shelter clients need concrete information focused on short-term effects.

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
Compass Housing Alliance (formerly The Compass Center) August 5, 2003 August 3, 2005 July 10, 2006 July 24, 2007	• Access to the buildings on Western Avenue and S. Washington Street for visitors, residents, and staff. • Access to transit and parking. • Noise and vibration from construction. • Maintaining access for clients at all times. • Loss of Americans with Disabilities Act (ADA) parking space and load/unload zone located underneath the viaduct in front of main entrance. Operation Sack Lunch is a program that borrows Compass Housing Alliance's kitchen to make lunches and then uses the loading zone to load the lunches into their van for distribution. • Many service providers with limited resources share facilities to provide the program services they do. • Air quality during construction. Additional effort to maintain their HVAC system.	• Place posters in advance to notify people of upcoming work. • Give program director several weeks' notice of construction activities. • Provide social service briefings. • Light the construction area to discourage trespassing. • Secure construction sites well. • Increase police patrols during construction. • Designate another space near the center for ADA parking and load/unload. • Continue to coordinate on access to the Center.
Bread of Life Mission August 19, 2003 June 16, 2005 August 15, 2007	• Effects on facility during construction due to proximity of building to the viaduct, including access to the building. • Daytime and nighttime construction noise, although they are used to it. • Increased traffic would affect guests. • Many homeless sleep under the viaduct. • Access to Mission throughout the day is important for deliveries.	• Conduct sweeps of the construction area to locate homeless people prior to construction. • Use signage (in multiple languages; e.g., Spanish) to communicate construction activities. • Social service briefings. • Continue to coordinate on construction impacts.
Lazarus Day Center November 12, 2003 May 23, 2005	• Client access to center. • Increased congestion for services, deliveries, and staff. • Effects to transit service. • Staff commutes would be affected, especially with sports stadiums nearby.	• Maintain access during construction. • Early notification of construction-related changes to bus service, road closures, etc.
Pioneer Square Clinic January 16, 2004 May 16, 2005 April 28, 2006	• Increased congestion for services, deliveries, and staff. • Traffic safety during construction. • Delays in response times for emergency vehicles. • Displacement of illegal encampments under the viaduct. • Access to ferries.	• Maintain access to transit services and pedestrian traffic. • Maintain access during construction. • Provide more shelter space for homeless.

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
Downtown Emergency Service Center May 23 and 24, 2005	• Displaced homeless may try to sleep in construction areas. • Construction disruptions would affect everyone. Pedestrians, especially the homeless, who often carry all their belongings, would be affected. • Construction would increase staff commute times and decrease parking.	• Provide increased shelter space.
Department of Social and Health Services February 23, 2006	• Construction effects, especially to public transportation. • Dangerous construction zones.	• Notify people about route changes at bus stops. • Fence off dangerous construction zones.
Low Income Housing Institute May 22, 2006	• Closure of the Elliott/Western ramps would disrupt access to their building. • Displacement of illegal encampments under the viaduct.	• Ensure adequate access during construction and provide route-planning support. • Provide more shelter space for homeless.
Chief Seattle Club April 5, 2006	• Impacts to facilities during utility relocation • Concerned about homeless peoples who live under the viaduct.	• Employment opportunities for homeless and low-income people.
OK Hotel Apartments July 27, 2007	• Service outages.	• Notification given before service outages. • Maps of available parking for tenants during construction.
Lighthouse for the Blind November 5, 2007	• Blind individuals have a specific path that they've learned to navigate, and pedestrian detours or changes in bus routes would affect blind individuals. • Construction fences or barriers could be potential cane breakers. The bottom 2 to 3 feet of these barriers should be solid.	• Notify Lighthouse for the Blind and service providers for the blind about detours well in advance of construction. • Make the bottom 3 feet of construction barriers or fencing solid (e.g., tarp, wooden boards). • Make sure these detours don't go through parking lots, are marked clearly with caution tape (not cones), and have few turns. • When creating new paths, raised edges such as curbs are helpful to follow paths. It's also important to avoid ditches or drop-offs next to walking paths.
Mission to Seafarers November 7, 2007	• Construction traffic or changes to access affecting the Mission's ability to reach ships berthed around Elliott Bay.	• Maintain access during construction.

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
El Rey Residential Treatment House July, 25, 2003 May 19, 2005	• Access around downtown during construction without the midtown/Bell Street ramps. • Temporary loss of utilities during construction for food storage and clinic uses. • Effects in Belltown.	• Ensure adequate access during construction and provide route-planning support. • Ensure continuous utility service during construction.
Plymouth Housing Group November 7, 2003 May 18 and 19, 2005 June 15, 2009	• Traffic issues would be limited to staff. • Work near Battery Street Tunnel may affect property. • Construction noise and lighting would be a concern for tenants. • Impacts to transit service, especially First Avenue Streetcar. • Displacement of people who live under the viaduct. • Settlement and vibration from geotechnical drilling and tunnel boring.	• Inform staff and residents early when construction would be disruptive. Hotlines are useful because tenants can call when nighttime noise and lighting is a problem. • Maintain access to transit service. • Provide more housing for low-income people.
King County Labor Agency, AFL-CIO December 17, 2003 May 24, 2005	• Traffic during construction is a concern and would affect food bank operations. • Displacement of low-income housing and social service organizations. • Increased number of clients. • Transit service impacts. • Increased congestion for services, deliveries, staff, and volunteers.	• Extend free bus service farther north and south. • Provide funding for increased services, especially the food bank. • Maintain access during construction. • Maintain bus schedules and facilitate traffic flow.
Dorothy Day House July 30, 2003 May 25, 2005	• The facility needs 24-hour access, so any adverse effects to access would be a problem. • Access to transit if routes are relocated from First and Second Avenues during construction. • Noise impacts during construction on house residents.	• Provide alternative transit access during construction. • Evaluate potential noise impacts during construction and mitigate if possible.
Boomtown Café January 14, 2004 June 3, 2005 (*Café closed July 2005*)	• Illegal encampments of homeless individuals under the viaduct would be displaced.	• Provide increased social services, including shelter space.

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
Frye Apartments November 21, 2003 June 3, 2005	• Displacement of illegal encampments under the viaduct. • Impacts to transit service. • Delays in response times for emergency vehicles. • Increased congestion for services, deliveries, and staff.	• Provide more housing for low-income people. • Maintain bus schedules and facilitate traffic flow. • Maintain access during construction.
Heritage House September 15, 2003 June 9, 2005 June 15, 2009	• Access to waterfront during construction, especially for handicapped persons. • Access for visitors, deliveries, and facility vehicles during construction. • Construction traffic, noise, and air quality effects on residents. West side of building is close to the viaduct. • Utility disruptions. • Losing tenants and not being able to fill vacancies due to construction effects.	• Continue to brief the management; residents should not be surprised by construction. Flyers are effective. • Ensure continuous access during construction. • Evaluate potential noise effects during construction and mitigate if possible.
Rose of Lima House Women's Shelter November 21, 2002 June 9, 2005	• Access to transit if routes are relocated from First and Second Avenues during construction. • Indirect impacts from construction, i.e., increased traffic, noise. • Effects to Bell Street.	• Rose of Lima House will be added to the project mailing list. If the project team identifies additional impacts, a follow-up meeting will be held.
Catholic Seamen's Club June 5, 2003 November 7, 2003 June 16, 2005 June 22, 2006	• Relocation of building during construction and loss of income from building tenant during construction. (Relocation is no longer an issue with the Bored Tunnel Alternative). • Closure of the Elliott/Western ramps would affect transportation of people to and from the waterfront. • Traffic during construction. • Access to and through the waterfront area in order to provide services to the workers and sailors at the Port. • Noise impacts on retail tenants. If tenants move out, the Club potentially loses 50% of its income.	• Relocation assistance and compensation for loss of rental revenue. (No longer needed with the Bored Tunnel Alternative). • Ensure adequate access, possibly including replacement parking, for club vehicles. • Evaluate construction noise mitigation measures to protect tenants (operational noise levels will be similar to existing levels).

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
First Avenue Service Center December 5, 2003 December 19, 2003 June 17, 2005	• Increased congestion for deliveries, staff, and volunteers. Although does not anticipate many effects since the Center is on Third Avenue between Virginia and Lenora Streets. • Accidents to homeless people entering construction sites. • Increased number of clients. • Displacement of parked cars used by homeless people.	• Maintain access during construction. • Maintain bus schedules and facilitate traffic flow. • Provide funding for increased social services such as additional outreach workers and shelters/beds. • Secure construction sites to prevent entry. • Monitor availability of long-term parking.
Pike Market Senior Center/Downtown Food Bank September 17, 2003 June 17, 2005 April 4, 2006	• Effects on pedestrians who use First Avenue and Western Avenue. • Construction effects on east side of Alaskan Way. • Access in and out of facility on Western Avenue. • Modifications to bus schedules and timeliness.	• Maintain access during construction. • Maintain bus schedules and facilitate traffic flow.
Union Gospel Mission Men's Shelter January 16, 2004	• Displacement of illegal encampments under the viaduct. • Temporary reroutes of transit service.	• Give adequate notice to people camping illegally under the viaduct prior to the start of construction. • Maintain access to transit service near the shelter locations.
International District Housing Alliance May 18, 2006	• Pedestrian safety due to increased traffic in the neighborhood. • Air quality because of their proximity to trains, highways, stadiums and bus lines.	• Implement a pedestrian safety education campaign. • Maintain pedestrian access and street lighting, etc.
Casa Latina November 13, 2002 January 26, 2004 July 20, 2005 (Moved in 2009)	• Finding and constructing a replacement facility prior to project construction/utility relocation. • Effects on transit.	• Assistance in finding a replacement location. • Consider enhancing transit infrastructure such as adding more park-and-rides and water taxis.
Valley House December 1, 2005 May 17, 2006	• Access to State Route 99 (SR 99). • Impacts to bus stop along Aurora Avenue N. • Construction impacts.	• Access would change but would still be adequate. • Bus stop and pedestrian access to it should remain. • Communicate with King County Metro to keep transit open during construction and other general construction mitigation.

Exhibit C-1. Interviews With Social Service Providers (continued)

Organization and Date of Interview(s)	Potential Concerns	Resolution or Potential Mitigation
Post Alley Apartments August 21, 2003	• Impacts during construction on access to facility (subsidized housing at 60% of median income being phased out by 2005).	• While Post Alley Apartments will no longer be subsidized housing by 2005, a follow-up meeting will be held to discuss construction impacts, once more information is known.
Millionaire Club Charity August 14, 2003	• Transit service impacts. • Increased congestion and decreased access for deliveries and volunteers.	• Maintain access during construction. • Maintain bus schedules and facilitate traffic flow.
Women's Referral Center/Noel House January 13, 2004	• Impacts to transit service. • Increased congestion for services, deliveries, staff, and volunteers. • Safety around current structures. • Access to emergency services.	• Maintain bus schedules and facilitate traffic flow. • Maintaining access during construction. • Open communication.

2.0 Community Briefings

Briefings are another way to provide updates on the project and solicit feedback from social service providers throughout the study area. Briefings were given to all of the organizations that were interviewed (see Exhibit C-1). In addition, briefings were given to organizations listed in Exhibit C-2; however, they were not interviewed at the time of the briefing. These briefings typically included the executive director and/or program manager as well as staff.

The International District Forum is a monthly meeting hosted by the Inter*Im Community Development Association at the Compass Housing Alliance (formerly The Compass Center) that includes social service agencies, businesses, and neighborhood organizations. More than 100 social service organizations located in and around downtown are invited to attend these meetings. The Multiple Service Providers briefings were arranged and hosted by Washington State Department of Transportation (WSDOT). Approximately 100 social service agencies in and around the project area received an e-mail inviting them to attend the briefings. These agencies were also contacted via telephone.

Exhibit C-2. Community Briefings (continued)

Exhibit C-2. Community Briefings

Organization	Briefing Date(s)
International District Forum	September 10, 2007 October 5, 2009
Multiple Service Providers	August 30, 2006 September 27, 2007
Casa Latina	March 26, 2008
Literacy Source	April 14, 2008
Compass Housing Alliance (formerly The Compass Center)	September 8, 2008

3.0 Public Meetings

Public meetings have been held throughout the project corridor to establish a dialogue with the community, solicit public input, and answer questions. Three public scoping meetings were held to gather input about what should be considered when replacing the central waterfront section of the Alaskan Way Viaduct. These meetings used an open house format to allow the public to read and learn at their own pace and ask questions of program staff.

Community calendars, electronic postcards, and a press release were used to notify and inform the public about upcoming meetings. The press release was sent to major publications, including those that provide information in languages other than English, as well as other media. The information was picked up by a variety of prominent local daily and weekly online news publications including the *Seattle Times*, *SeattlePI.com* (formerly the *Seattle Post-Intelligencer)*, and *Seattle Daily Journal of Commerce*.

Meetings were held at locations within the study area or in areas that benefit from the use of SR 99 to ensure that property owners, tenants, service providers, and neighbors in the project area were able to attend. Meeting facilities were selected based on their convenience to the community (e.g., schools, churches, and community centers) and proximity to transit routes and availability. All meeting facilities were accessible per ADA standards.

The date and location of the public scoping meetings are listed below:

- June 8, 2009, Supplemental Draft EIS Public Scoping Meeting – City Hall, Downtown Seattle
- June 10, 2009, Supplemental Draft EIS Public Scoping Meeting – Madison Middle School, West Seattle
- June 11, 2009, Supplemental Draft EIS Public Scoping Meeting – Leif Erickson Hall, Ballard

Comment cards were available for the attending public to complete, and verbal comments were also recorded by a court reporter if members of the public were unable to fill out their own comment card. Input gathered at the meetings was considered as the project was developed.

Additional open houses were held to inform the public about the project, solicit input, and answer questions (see Exhibit C-3 below).

Title VI of the Civil Rights Act of 1964 requires WSDOT to gather statistical data on participants and beneficiaries of federal-aid highway programs and activities to ensure the inclusion of all segments of the population affected by a proposed project. WSDOT collects information on race, color, national origin and gender. At each of these meetings, Title VI forms were available for participants to complete.

Exhibit C-3. Open Houses and Public Hearings

Date(s)	Event
September 7, 12, 13, and 14, 2006	Public Hearings for Supplemental Draft EIS
February 12, 2008	Central Waterfront Open House
May 8, 13, and 15, 2008	Open Houses
September 11, 16, and 18, 2008	Central Waterfront Public Scoping Open House
December 15, 2008	Central Waterfront Public Forum and Scoping Meeting
February 23 and 24, 2009	Central Waterfront Public Scoping Open House
June 8, 10, and 11, 2009	Alaskan Way Viaduct Replacement Project Supplemental Draft EIS Scoping Public Meeting
April 22, 27, and 28, 2010	SR 99 Corridor Hearing and Open Houses

4.0 Project Stakeholder Groups

In May 2009, the Program team formed two portal working groups and one central waterfront working group to keep stakeholders informed of project progress, provide geographic specific information, and seek input from working group members. The groups are made up of individuals representing neighborhood, freight, economic interests and cause-driven organizations. In an effort to have broad-based representation, the working groups also include members that represent the interest of transit users and pedestrian groups; low-income housing; and neighborhoods with higher concentrations of Limited English Proficiency, minority, and low-income populations. Since its inception, the Program team has held nine South Portal Working Group meetings, seven North Portal Working Group meetings, and two Central Waterfront Working Group meetings.

5.0 Project Fact Sheets and Translated Information

Under Title VI of the Civil Rights Act of 1964, recipients of Federal financial assistance have a responsibility to ensure meaningful access to their programs and activities by persons with limited English proficiency. To that end, program materials are translated into Spanish, Chinese, Vietnamese, and Tagalog each year. The translated materials were distributed at interviews, briefings, community fairs and festivals, and other public meetings. In August 2009, the project team distributed translated materials to a variety of cultural centers, free clinics, and other locations that cater to minority and/or low-income populations in neighborhoods throughout Seattle. These translated documents were also made available online as direct links on the project's website under Multilingual Information.

Many public documents are also available upon request in alternative formats such as large print, Braille, cassette tape, or on CD. Information on how to receive materials in alternative formats is provided in these public documents.

6.0 Fairs and Festivals

Community fairs, festivals, and community markets (e.g., farmers markets and flea markets) are an effective way to engage members of the public who may not actively seek out information about the project. The Program team hosted informational booths at approximately 150 fairs, festivals, and farmers markets throughout the Seattle area from July 2006 to September 2010, and the team has hosted booths at many festivals each year since the start of the Program. Many of these events are sponsored by traditionally underrepresented communities.

Materials displayed at information booths included translated folios in Vietnamese, Chinese, Tagalog, and Spanish. At the Chinatown-International District Festival in 2007, 2008, and 2009, high school students from the Wilderness Inner-City Leadership Development (WILD) program, in association with the International District Housing Alliance, were hired to reach out to booth visitors who were not proficient in English. The interpreters were multi-lingual, and between them fluent in Mandarin, Cantonese, and Vietnamese.

7.0 Information Displays

The Program team has increased awareness about the project and increased access to Program information by placing information displays at frequently visited public locations such as community centers and libraries throughout Seattle. Displays are set up for 2 to 3 weeks at each location and rotated throughout the year.

8.0 Project Mailing List

E-mail updates are sent regularly to inform the public and interested groups of new Program developments and milestones, events, and calls for comments. E-mails were sent out approximately once a month to the Program's distribution list, which includes approximately 6,000 e-mail addresses.

The Program team also has a mailing list for social service providers that is composed of contacts from pervious outreach efforts and supplementary information provided by the Seattle/King County Crisis Clinic.

A Program mailing was sent to more than 170 social service providers within the project area in November 2009. The mailing included Program fact sheets, offered Program team speakers to present to their organizations, and provided contact information including an e-mail address, website, and the Program information line phone number.

9.0 Website

The Program website (www.alaskanwayviaduct.org) maximizes public access to timely information about the Program and quick, easy interaction with WSDOT. Information specific to this project can be found at www.wsdot.wa.gov/Projects/Viaduct/centralwaterfront.htm. The public is able to read information about the project, including the plans under consideration, and submit comments online. While the website may not be a viable communication method for those who do not have access to the Internet, it is an important way for those who do have access to become involved in the project. Social service providers can access the website and pass along project information to employees and clients. They can also download translated materials for distribution to clients who may not have Internet access. The website is updated on a regular basis to ensure that current and accurate information is available.

10.0 Project Information Line

The project information line is a toll-free telephone messaging system that is updated on a regular basis to provide information about upcoming public events. The telephone number is advertised heavily on all communication materials, including fact sheets, newsletters, brochures, advertisements, and information displays. The telephone number will also be displayed on-site once construction begins.

Callers can listen to information about upcoming events, including location, time, and date. The information line will allow callers to connect directly to a communications specialist during regular business hours and a staff member 24 hours a day once construction begins. They can also leave messages with questions or comments. Comments are entered directly into the public comment database, while questions are forwarded to the appropriate project team member for a response. Responses are made via a follow-up phone call or other method, if requested by the caller. If requested, information is available in other

languages, and callers can have a translator provided over the phone to translate questions and answers.

11.0 Outreach to Minority-Owned Businesses

In addition to minority and low-income populations, the team also reaches out to minority-owned businesses. To this end, local Disadvantaged Business Enterprises were invited to attend meetings that informed contractors of opportunities to work on the project:

- March 31, 2009, Regional Contracting Forum
- April 2, 2009, Alaskan Way Viaduct Contracting Event
- April 30, 2009, GC Blue Book
- May 5, 2009, Alaskan Way Viaduct Tunnel Contracting Forum
- July 14, 2009 Alaskan Way Viaduct Consulting Fair

An Equal Opportunities in Construction folio was also written to provide information to small businesses, specifically minority-owned and women-owned businesses, interested in working on the Program.

ENVIRONMENTAL JUSTICE INTERVIEW QUESTIONS

Updating information about the agency and clients

- How many staff members work at the agency? How many clients/guests do you have?
- Have you noticed an increase, decrease, or about the same number of clients/guests over the past year? Do you expect to see an increase in the near future?
- Have you noticed a change in the demographics (i.e., race, ethnicity, age, native language, etc.) of the people you serve?
- Have you noticed an increase or decrease in disability or transit-dependent populations?
- Does the group you serve transition in and out of your services? If so, how often?
- How do your clients and staff members commute to the agency? If they drive, where do they park? Is it necessary for them to drive to your building?
- Does your agency work out of other buildings? If so, where? Do other agencies or programs work inside your building?
- Does your agency receive regular incoming or outgoing deliveries? If so, how frequently and what time of day?
- What are your days and hours of operation?

Planning for communication and evaluating impacts during construction

- How aware is the community you serve about the project? What level of understanding do you think they should have now about the project?
- How do you feel your organization will be impacted by the project? Is this different from when we met with you previously (bring list of previous concerns)?
- What interests do you think the group(s) you serve will have in this project?
- What can we do to relate the importance of this project to their needs and interests? What suggestions do you have to meaningfully engage your group and further their understanding of the project?
- What outreach strategies would you recommend to most effectively communicate and engage the target population(s)?
- What communication styles would you recommend as most useful for this target population(s)?

- Are there any key leaders in this community with whom you suggest we speak?
- What groups (community or otherwise) are already meeting, where we could make a presentation? Are there any festivals or events sponsored by this target population(s) where we could set up a booth?
- Which publications would you recommend we use to communicate with the target population(s)? Are you more likely to read something about the project through e-mail or mail?
- Would you be interested in being an environmental justice ambassador and distributing information to your group/clients?

Planning for construction

- What questions or concerns about construction do you have at this time?
- What are the best ways to notify the community you serve about construction?
- Are there any potential issues or concerns that we should be aware of concerning construction, such as future plans for your agency?
- Have you heard anything from homeless populations living under or near the viaduct about how construction outreach has gone so far?
- Are you aware of, and/or concerned about, the removal of parking near the viaduct as a result of this project?
- Do you own, lease or have some other arrangement for the space you occupy?
    - (If own or lease) – Are you concerned about the cost of your space?
    - (If other) – Will you be able to maintain this arrangement long term?

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ATTACHMENT D

U.S. Poverty Thresholds in 1999

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ATTACHMENT D

U.S. POVERTY THRESHOLDS IN 1999

BY SIZE OF FAMILY AND NUMBER OF RELATED CHILDREN UNDER 18 YEARS OLD

Size of family unit	Weighted average threshold	Related children under 18 years old								
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual)	$8,501									
Under 65 years old	$8,667	$8,667								
65 years old and over	$7,990	$7,990								
Two people	$10,869									
Householder under 65 years old	$11,214	$11,156	$11,483							
Householder 65 years old and over . . .	$10,075	$10,070	$11,440							
Three people	$13,290	$13,032	$13,410	$13,423						
Four people	$17,029	$17,184	$17,465	$16,895	$16,954					
Five people	$20,127	$20,723	$21,024	$20,380	$19,882	$19,578				
Six people	$22,727	$23,835	$23,930	$23,436	$22,964	$22,261	$21,845			
Seven people	$25,912	$27,425	$27,596	$27,006	$26,595	$25,828	$24,934	$23,953		
Eight people	$28,967	$30,673	$30,944	$30,387	$29,899	$29,206	$28,327	$27,412	$27,180	
Nine people or more	$34,417	$36,897	$37,076	$36,583	$36,169	$35,489	$34,554	$33,708	$33,499	$32,208

Source: U.S. Census Bureau 2000.

Note: The poverty thresholds determined by the U. S. Census Bureau are used throughout the country and do not vary by geography.

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ATTACHMENT E

Detailed Inventory of Parks, Recreation, and Public Access Amenities

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ATTACHMENT E

DETAILED INVENTORY OF PARKS, RECREATION, AND PUBLIC ACCESS AMENITIES

This attachment describes the park and recreation facilities and public art installations located in the study area from south to north for the south portal, central waterfront, and north portal areas. Note: references that are cited in this attachment are provided in Chapter 9 of the discipline report.

1.0 South Portal Area

Near the south portal, the study area includes a portion of the historic Pioneer Square neighborhood and the sports stadiums.

1.1 Park and Recreation Facilities

Sports Stadiums: The two major facilities in the south portion of the corridor are located approximately one block east of the existing viaduct corridor. Safeco Field (the Seattle Mariners baseball park) is located north of S. Royal Brougham Way, and Qwest Field (the Seattle Seahawks football stadium) is located south of S. Royal Brougham Way. Public development corporations own both facilities and lease them to professional sport enterprises.

Mountains to Sound Greenway Trail: This trail is part of the Mountains to Sound Greenway, a scenic, historic, and recreation corridor along Interstate 90 (I-90) that extends from near Ellensburg, Washington, to Seattle (Mountains to Sound Greenway 2009). The proposed trail connection from I-90 to the waterfront is included in the $2.08 million funding in the City of Seattle Pro Parks Levy.[1] The City currently plans to use the sidewalk on the north side of S. Atlantic Street between Fourth Avenue S. and First Avenue S. for the trail. The trail route is currently in design.

Waterfront Bicycle/Pedestrian Facility: This multipurpose asphalt pathway extends from S. Royal Brougham Way on the south to Bay Street on the north, where it connects to the Elliott Bay Trail.

The Waterfront Bicycle/Pedestrian Facility is part of the Seattle Urban Trails System designated in the *City of Seattle Comprehensive Plan* (Seattle 2005b). The Urban Trails System facilitates walking and bicycling as viable transportation choices, provides recreational opportunities, and links major parks and open spaces with Seattle neighborhoods. These trails provide off-road paths or sidewalks (separated from motor

[1] Seattle City Council Ordinance No. 120024.

vehicles) for pedestrians and bicyclists, as well as off-road trails, special bicycle lanes, and signed routes in the street right-of-way. The City considers the Waterfront Bicycle/Pedestrian Facility primarily a transportation facility rather than a recreational facility. The asphalt trail allows bicycle use, but it is not designated as a bicycle facility or shown on the City bike map as a bicycle facility since it does not meet minimum American Association of State Highway and Transportation Officials (AASHTO) design guidelines (Lagerwey 2002).

The trail connects in the south with the multiuse trail along E. Marginal Way S., which is accommodated on a bicycle lane painted on the west side of the roadway and on the sidewalk. The trail along E. Marginal Way S. connects to a more extensive trail system in West Seattle via an east-west trail that crosses Harbor Island along S. Spokane Street and continues to the west along West Seattle's Alki Park. The trail connects to the north with the Elliott Bay Trail, which extends through Myrtle Edwards Park, Elliott Bay Park, and around Terminals 89, 90, and 91 to Smith Cove Park and the Elliott Bay Marina in the Magnolia neighborhood.

The portion of the trail south of S. Main Street is framed on both sides of the street by a bermed landscaped area containing street trees on both sides of the trail. It is lightly used by pedestrians, except during events in the nearby Safeco Field and Qwest Field when the trail is heavily used. This portion of the trail would be replaced by the Port Side Pedestrian/Bike Trail, which would connect with the future Mountains to Sound Greenway Trail at S. Atlantic Street and run north to S. King Street. The Port Side Pedestrian/Bike Trail would travel along the west side of Alaskan Way S. adjacent to the Port of Seattle container facilities.

Current recreational activities on the Waterfront Bicycle/Pedestrian Facility in this area include exercise-related activities such as walking, bicycling, and skating, as well as passive activities such as enjoyment of scenery and people watching (Betz 1998). The location of the trail allows those using the trail primarily as a transportation facility to incidentally enjoy the urban and natural scenery (Cordell 1995). The width, grade, and surface of the existing trail are adequate for persons with mobility impairments, including persons using wheelchairs and pedestrians with limited stamina and limited ability to negotiate grades, such as the elderly (FHWA 1999). The location of the trail in this portion of the corridor, where it is bounded by industrial port activities on much of the west side and by the viaduct on the east, is likely to limit the elements of passive sightseeing enjoyment.

1.2 Public Art

Although a number of public art installations are located in Safeco Field and Qwest Field, they are not included in this inventory because they are unlikely to be affected by the Bored Tunnel Alternative. No public art is located within the portion of the corridor affected by construction or proximity effects.

2.0 Central Waterfront Area

The study area near the existing Alaskan Way Viaduct includes portions of the Commercial Core and Belltown neighborhoods. Park and recreation facilities and public art resources are described in Chapter 4, Affected Environment, because they could be affected by the viaduct removal. The eventual construction of the Alaskan Way surface street improvements, seawall replacement, Elliott/Western Connector, and Alaskan Way Promenade/Public Space would also likely affect these resources. These separate projects will have their own environmental review.

2.1 Park and Recreation Facilities

Along the waterfront and adjacent to the Alaskan Way surface street are a number of existing and planned public park and public access facilities. The facilities are tied together by the sidewalk promenade extending along the west side of the Alaskan Way surface street and the asphalt multipurpose trail on the east side of the surface street, adjacent to the railway formerly used by the waterfront streetcar.

City of Seattle Comprehensive Plan policies for harborfront open space include improving public access and enjoyment of the shoreline, integrating the harborfront promenade with the rest of downtown through east-west pedestrian connections, and developing open space where appropriate opportunities exist along the waterfront (Seattle 2005b).

The *Pioneer Square Neighborhood Plan* (Seattle 1998b) and the *Seattle Parks and Recreation Plan 2000* (Seattle 2000b) call for design and construction of a vibrant waterfront park somewhere between S. Washington and S. King Streets. The *Downtown Urban Center Neighborhood Plan* (Seattle 1999a) calls for development of a major public open space or open spaces in portions of the street and rail right-of-way along the waterfront. This open space is planned to improve public access to and enjoyment of the shoreline, and to be integrated with the proposed promenade from Pier 48 to Myrtle Edwards Park and the proposed east-west pedestrian connections to the rest of downtown (Seattle 1999a).

Washington Street Boat Landing: This City of Seattle facility is on public right-of-way at the end of S. Washington Street. The pergola is a City-designated historic structure and is listed on the National Register of Historic Places. It is also within the City's Pioneer Square Preservation District. The facility provides some seating and views of the water and mountains to the west. The *Pioneer Square Neighborhood Plan* calls for the rehabilitation and reuse of the Washington Street Boat Landing, either as an entry for the "mosquito fleet" passenger ferries or as part of a new public space (Seattle 1998a).

Klondike Gold Rush National Historic Park: This interpretive center and museum is located in a historic building, formerly the Cadillac Hotel, at 319 Second Avenue S. It provides interactive exhibits, films, demonstrations, and interpretive walks highlighting Seattle's role in the gold rush (National Park Service 2007).

Occidental Plaza: This plaza occupies a half-block west of Occidental Avenue S. between S. Washington and S. Main Streets. The park contains a number of public art installations, including a totem pole and the Seattle Fallen Firefighters Memorial.

Pioneer Square: This park is a small triangular plaza at the intersection of Yesler Way and First Avenue S. in the Pioneer Square Historic District. It is developed with seating, hardscape (paved areas and sidewalks), a totem pole, a small statue of Chief Seattle, and a historic pergola. The waterfront and Alaskan Way are likely to be less important elements for users of Pioneer Square than the immediate surroundings and the First Avenue corridor, which contain historic buildings, restaurants, and retail shops.

Seattle Ferry Terminal (Colman Dock): This large pier serves the Washington State Ferries and provides public access and shoreline viewing areas that are largely shared by pedestrian access to the ferries. Required public access areas have not been completed. The existing designated public access areas include the south side of the walkway for the Pier 50 passenger ferry terminal and an open space area along the promenade near Yesler Way and along the upper level deck of the terminal building. The area along the street near Yesler Way provides benches and a fountain; it is bounded by a roadway on one side and a large area for automobile queuing on the other side. The area provides few or no views of the water, mountains, or other areas of interest. The south side of Pier 50 provides no seating or other amenities.[2] The area of Colman Dock that is accessible without paying a fare has limited visual interest and limited views of the waterfront. These areas also provide pedestrian access to ferries and therefore provide limited opportunities for lingering to enjoy views during peak commuting hours. An interior public information area is provided in the ferry waiting room. This terminal provided service to about 2 million vehicle passengers per year and about 5 million foot passengers per year. The terminals for the Washington State Ferries are a tourist destination for about 2.8 million visits per year.

Fire Station No. 5: The fire station and dock for fireboats located at the foot of Madison Street provides a small public access area for harbor viewing north of the station. The primary elements of visual interest are the fireboats moored at that location and ferries at the terminal to the south.

Waterfront Promenade: The promenade is the sidewalk on the west side of Alaskan Way that extends from S. Washington Street to Myrtle Edwards Park. The promenade is the key element that ties the central waterfront into a linear corridor that accommodates a variety of uses. The interaction of private and public activities makes the waterfront an attractive destination. The interrelated functions of the promenade for pedestrian movement, access to private uses such as retail shops and restaurants, access to public open space, and enjoyment of activities such as walking and viewing occur

[2] Seattle Department of Construction and Land Use (DCLU) Shoreline Permits 9603491 and 9201537.

simultaneously for each user. Of particular interest are the near and distant views of Puget Sound and water-related uses, including ferries, shipping vessels, and recreational craft. The high density of pedestrians and the variety of activities such as retail and restaurant uses provide opportunities for people watching and general enjoyment of the ambience of the setting.

The physical facility is 20 feet wide in most places. Between S. Washington Street and Yesler Way, open water areas and views of Elliott Bay and distant natural features such as the Olympic Mountains are readily visible, but the uses adjacent to the promenade provide little interest. From Yesler Way to Madison Street, the Seattle Ferry Terminal at Colman Dock blocks near views of the water, and distant views are blocked by ferry loading facilities and the terminal building. Between Piers 54 and 59, the waterside is bounded by a variety of historic piers, many of which provide public access areas. Design continuity is provided on the waterside by a concrete railing (where not abutted by piers), which is required to be maintained or reconstructed as part of any development as a component of a Historic Character Area.[3] The width of the promenade limits opportunities for seating, except where provided at the City 's Waterfront Park or at public access facilities at piers along the waterfront.

Waterfront Bicycle/Pedestrian Facility: This multipurpose asphalt pathway (described in Section 1.1) is located between the viaduct and the Alaskan Way surface street in the central waterfront area and near the south portal. Generally, the multipurpose trail fills with pedestrians during midday, precluding heavy bicycle use (Lagerwey 2002). Between S. Main and S. Washington Streets, the trail lies west of the waterfront streetcar tracks, with a landscape berm separating the trail from the surface street. Between S. Washington Street and Pike Street, the waterfront streetcar is between the trail and the street. In this section, there are a landscaped berm and street trees on the east side, adjacent to the viaduct, and a wood rail fence on the west side, adjacent to the streetcar tracks.

Marion Street Green Street: This Type III Green Street permits block-to-block traffic between Second Avenue and Alaskan Way and includes pedestrian and landscape enhancements. A specific design has not been prepared for this corridor. No private development has occurred adjacent to this designated Green Street corridor since guidelines were developed in 1993. A surface parking lot on the south side of the street, between Western Avenue and the alley to the east, provides the potential for developing frontage consistent with Green Street design guidelines if the site is developed in the future.

[3] Seattle Municipal Code, Section 23.60.704.

Marion Street Pedestrian Bridge: This elevated walkway provides ferry access along the south side of Marion Street from First Avenue to Colman Dock. This facility would be replaced as part of the Bored Tunnel Alternative.

Pier 54: This private pier at Madison Street provides a small public plaza area north of Fire Station No. 5 that features a statue of Ivar Haglund. It also provides a public access area along the south side of the pier transit shed within the Madison Street right-of-way that serves as seating for the restaurant. The public access area was required as a condition of a right-of-way use permit.[4]

Piers 55 and 56: These privately owned piers at Seneca Street provide 29,259 square feet of public access on a deck area between the two piers and along the south and west sides of the transit shed on Pier 56. These public access areas are required as a condition of shoreline permit approval and the Washington Department of Natural Resources (DNR) outer harbor aquatic lease (Kiehle 2007).[5] Benches for public seating are provided adjacent to the promenade along Alaskan Way and at the end of Pier 56. Pedestrian counts on Alaskan Way at Pier 56 totaled 1,580 pedestrians for the lunch hour average and 3,741 pedestrians for the daily average in September 2001 (Seattle 2001b).

Boat Access to Blake Island: Blake Island State Park is located in Puget Sound about 5 miles from the Seattle waterfront. This 475-acre park has 5 miles of saltwater beach shoreline and provides 15 miles of day-use trails, 51 individual campsites, and a group camping area in addition to Tillicum Village. Tillicum Village has been located on the island since the establishment of the state park and is a concessionaire of State Parks. It presents a Pacific Northwest Native American style dinner and interpretive program based on legends of various Northwest Coast tribes. The recreational and interpretive services provided by the concessionaire are considered by State Parks to constitute public services necessary or appropriate for the public use and enjoyment of the park. State Parks has invested in recent upgrades to water and sewer systems on the island that largely serve Tillicum Village (McLaughlin 2007).

Access is also available by individual private boat and by Argosy Cruise Line, which provides passenger service from Pier 55. More than 90 percent of the Tillicum Village visitors use Argosy Cruise Line for access. Argosy carried 52,700 persons to Blake Island in 2005 and estimates that 99 percent of the persons it carries attend events at Tillicum Village (Pease 2007).

Blake Island State Park has an estimated 150,500 visitors per year. Tillicum Village served about 64,000 visitors in 2006, up from 57,000 visitors in 2005 (Greer 2007). Overnight boaters and overnight campers total around 14,000 and 4,000, respectively. Of the estimated balance of about 68,000 day users unassociated with Tillicum Village,

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[4] Seattle Street Use Permit 04.25.83, City of Seattle Ordinance No. 112217.

[5] Seattle DCLU Permit 9703373.

the park staff estimates that about half are short-term users of moorage and spend a limited amount of time on the island to use the restrooms, purchase items at the store, or stretch their legs. Other day users spend more time using hiking trails and other amenities.

Pier 57: This pier just north of University Street includes a privately owned transit shed that accommodates restaurants, retail, and recreation uses at the Bay Pavilion and a privately owned deck area on the south side of the transit shed that provides outdoor restaurant seating and public access. A portion of the walkway on the north side of the transit shed is part of the City of Seattle Waterfront Park. A public access area is provided at the end of the pier in accordance with provisions of the DNR outer harbor aquatic lease (Kiehle 2007).

Harbor Steps: This privately owned plaza extends down a series of steps and landings between First Avenue and Western Avenue along the vacated right-of-way of University Street. As a condition of street vacation, the City retained public access rights to the area.[6] Amenities include street-wall and table seating on the Post Alley level, midway between First and Western Avenues. The area is used extensively as an outdoor brown-bag lunch area during the noon hour; it also attracts many people who sit on the walls and steps during warm weather.

The westerly portion of the plaza is one block from the existing viaduct, which is a substantial barrier to views of the waterfront. Noise from the viaduct is a component of the urban environment in this location. In 2001, Average pedestrian counts along First Avenue were 2,507 pedestrians during the noon hour and 7,748 pedestrians per day. Pedestrian volumes walking up and down the Harbor Steps were 1,589 pedestrians during the noon hour and 2,880 pedestrians per day (Seattle 2001b).

University Street Green Street: University Street is designated as a Type I Green Street with vehicular traffic prohibited between First and Western Avenues. It is designated Type III with block-to-block traffic permitted between Western Avenue and Alaskan Way. The Harbor Steps meets Green Street design standards between First and Western Avenues. A specific design has not been prepared for the block between Western Avenue and Alaskan Way. The surface parking lot on the north side of the street between Western Avenue and Alaskan Way has the potential for developing frontage consistent with Green Street design guidelines if the site is developed in the future.

Waterfront Park: The City of Seattle Waterfront Park includes property north of Pier 57, including all of Pier 59, a public deck area between the two piers, and the Seattle Aquarium, which encompasses Piers 59 and 60. The deck area between Piers 57 and 59 provides an overwater plaza with shoreline viewing and congregating areas, fishing areas, and seating and picnicking areas. A fountain and a commemorative statue of

[6] City of Seattle Ordinance Nos. 104256 and 111705, Development Agreement AFN 8906231574.

Christopher Columbus are located in the park. In September 2001, pedestrian volumes on the Alaskan Way surface street at Union Street adjacent to the park totaled 1,917 pedestrians during the noon hour and 5,856 pedestrians per day (Seattle 2001b).

Pier 59 provides public access along a portion of the south and north sides of the structure. The Seattle Aquarium is a fee-entry facility.

The Seattle Parks and Recreation Department is currently conducting design studies for the waterfront that include redevelopment of the Waterfront Park in conjunction with the Seattle Aquarium and Piers 62/63. These plans would be integrated with plans for aquarium expansion. Plans and timing for changes to Waterfront Park likely would be contingent on planning efforts related to the Seattle Aquarium.

Seattle Aquarium: The Seattle Aquarium covers approximately 68,000 square feet and includes Pier 59 and most of the overwater area between Pike and Pine Streets. The purpose of the Seattle Aquarium program is "inspiring conservation of our marine environment." For the full details of the exhibits and programs that the aquarium offers, refer to the 2004 Draft Environmental Impact Statement (WSDOT et al. 2004), Appendix H, Parks and Recreation Technical Memorandum.

In 2007, the City of Seattle and the Seattle Aquarium Society completed a project that expanded the aquarium by 30 percent and replaced the deteriorated Pier 59 pilings. Key components of the project included replacing over 760 decayed pilings with 270 new steel and concrete piles under Pier 59; replacing and rebuilding the eastern end of Pier 59 with an 18,000-square-foot aquarium expansion that includes a new main entrance on Alaskan Way, a new Window on Washington Waters exhibit, a Puget Sound Great Hall for community events, and new visitor services, including a café with catering services and a gift store (Seattle Parks and Recreation Department 2005).

The Seattle Parks and Recreation Department and the Seattle Aquarium Society are in the process of long-term planning that addresses a number of options, including an expanded new aquarium that could include elements such as replacement of the existing Waterfront Park south of Pier 59 together with a new waterfront park in place of Piers 62/63. This planning effort is separate from the recent restoration of Pier 59.

Pier 62/63 Park: This facility, which is owned by the Seattle Parks and Recreation Department, consists of a large unobstructed deck. The facility is currently closed to large events due to structural concerns; however, it remains open for informal use by members of the public. It provides views of the water, the Olympic Mountains, and the downtown skyline. It is also used by individuals to fish for squid at certain times of the year. This facility is 300 to 500 feet from the existing viaduct, which traverses the hill between the Alaskan Way surface street and Western Avenue. North of Pine Street, views of the viaduct are obstructed by apartment buildings facing Alaskan Way.

Pike Street Hillclimb: This facility, which is located on public right-of-way, extends from the Pike Place Market to the Alaskan Way surface street at the Seattle Aquarium.

The portion between Western Avenue and the Alaskan Way surface street includes public plaza areas, stairs, and terraces. The public areas are used for informal seating, gathering, and seating for adjacent restaurants. The largest plaza areas are under the existing viaduct. An art installation, *Breaching Orca*, is located near the Alaskan Way surface street west of the viaduct. The Hillclimb is used mostly as a pedestrian linkage between Pike Street and the market and the waterfront. The stairways are relatively narrow and do not provide opportunities for congregating. Informal seating is provided on the ledges of planters.

Views of the waterfront from the upper levels of the Hillclimb are blocked by the existing viaduct. The noise from the existing viaduct is a substantial intrusion to the enjoyment of the area between Western Avenue and Alaskan Way. The noise and shadows directly beneath the viaduct make the open space in that area unattractive as a congregating area and limit use to a passageway between the amenities to the east and the waterfront to the west.

Victor Steinbrueck Park: This park is located on Western Avenue at Virginia Street, on top of a parking garage developed by the Pike Street Public Market Development Authority. Operated by the Seattle Parks and Recreation Department, the park features views of the waterfront, Puget Sound, and the Olympic Mountains to the west and views of the downtown skyline to the south. It includes lawn and hardscape areas with benches and picnic tables. Two totem poles provide a visual focus. The park is immediately adjacent to the Pike Place Market and has high levels of use as a gathering area and a viewpoint. Although the existing viaduct is directly adjacent to the park and below grade level, it does not block views. However, it is a significant contributor to ambient noise levels.

Lenora Street Pedestrian Bridge: This bridge provides a pedestrian connection under SR 99 and over the railroad tracks near the Pike Place Market to east of the Alaskan Way surface street. Owned by the Port of Seattle, it is subject to a public pedestrian easement as a condition of vacating Lenora Street. It is also subject to a Property Use and Development Agreement that requires compliance with design guidelines, including the rebuilding of elevated Lenora Street into a pedestrian walkway with a viewing platform at its waterward end. The purpose of the platform is to afford panoramic views of Elliott Bay and to maintain a 90-degree view corridor.[7] It provides public access to the waterfront area via stairs and an elevator, as well as a public seating and waterfront viewing area at the top of the elevator/stairway tower.

Bell Street SkyBridge: This skybridge connection across the Alaskan Way surface street and the railroad tracks to Elliott Avenue is located at the roof level of Pier 66, the Bell Street Pier Cruise Terminal. This Port of Seattle complex includes a small craft marina

[7] AFN 9408109264, Property Use and Development Agreement AFN 9408050461, Easement AFN 9408050459

that provides guest moorage for up to 70 vessels, a cruise ship terminal, a conference center, the Maritime Event Center, and restaurants (Port of Seattle 2009a).

2.2 Public Art

Public art in this part of the corridor includes the *Joshua Green Fountain* by George Tsutakawa at Colman Dock. The fountain is located in a public plaza with seating just north of the vehicular entrance at Yesler Way.

At Pier 54, the statue *Ivar Feeding the Gulls* by Richard Beyer is installed on the public right-of-way. The statue commemorates the Seattle businessman adjacent to his signature restaurant venture.

The *Waterfront Gate* by Robert Graham provides an entryway to the waterfront on University Street between Western Avenue and the viaduct.

The *Christopher Columbus* statue by Bennett Douglas is located at the south end of Waterfront Park. It is a somewhat larger than life-size bronze abstract statue oriented to gaze out at the water.

The *Waterfront Fountain* in the northerly portion of Waterfront Park consists of cast and welded bronze cubical structures. It is one of Seattle's five public fountains created by sculptor James FitzGerald.

Breaching Orca by Tony Angell is located on the east side of the Alaskan Way surface street at the Pike Street Hillclimb.

Public art installations in the Pike Place Market include Georgia Gerber's *Rachel*, the market's mascot pig at the intersection of Pike Street and Pike Place; and the So*ng of the Earth* by Aki Sogabe, consisting of seven enameled steel panels.

At Victor Steinbrueck Park, two totem poles are installed directly adjacent to the viaduct. One is a traditional Native American design by James Bender and Marvin Oliver; the other, the *Farmer Pole*, was created by Victor Steinbrueck. A portion of the fence between the edge of the park and the viaduct is a work by Victor Steinbrueck and Ramon Torres.

The *Wave Rave Cave*, created by Dan Corson, is a public art installation under the existing viaduct east of Western Avenue that consists of sculpted concrete waves covered in gravel. It is funded and owned by Seattle City Light and is administered by the Seattle Arts Commission. The work is movable if changes in the viaduct occur (Seattle Post-Intelligencer 2002).

The First Avenue Project is a public art installation consisting of a number of pieces along several blocks of First Avenue. One piece is located on the sidewalk above the existing portal for the Battery Street Tunnel. The overall installation is a linear work of art using found objects. It is designed to provide the experience of discovery for pedestrians walking along the corridor. It was designed with the expectation that development

along the corridor will change with time; individual buildings might be replaced or altered, and tenants will change; however, the experience of encounter will remain unchanged (Simpson 2003). At this location, westward views along Battery Street include the waters of Elliott Bay and Puget Sound in the distance. The character of the views could change in the future, however, due to future increases in the height of buildings on Elliott Avenue that could block the view corridor.

3.0 North Portal Area

The study area near the north portal includes portions of the South Lake Union, Denny Triangle, Belltown, and Uptown neighborhoods and Seattle Center.

3.1 Park and Recreation Facilities

Denny Park: Denny Park, home of the Seattle Parks and Recreation Department's administrative offices, is Seattle's oldest park. Denny Park is bounded by Dexter Avenue N., Westlake Avenue N., John Street, and Denny Way. It consists of 4.6 acres of a sloped, grassy area with canopy trees and formal pathways. The Department of Parks and Recreation headquarters building is located on the site. Current recreational activities include people relaxing on benches and some day-care play sessions (Seattle Parks and Recreation Department 2004). Planned improvements include adding lighting, creating a history plaza, improving the walkways, adding spaces for events and spaces for sitting quietly, installing a water feature, opening up the restrooms in the back of the building, and improving the pedestrian features on the street corners (Seattle Parks and Recreation Department 2009).

Seattle Center: This 74-acre site, owned by the City of Seattle, hosts a variety of cultural and recreational facilities, trade shows, job fairs, and public and private meetings. It is roughly bounded by Broad Street, Fifth Avenue N., Mercer Street, First Avenue N., and Denny Way. It was initially the site of the 1927 Civic Complex and was expanded for the 1962 World's Fair. Seattle Center has open space around a centrally located fountain, smaller lawn and plaza areas, a skateboard park, McCaw Hall, exhibition and meeting halls, the multiuse Center House, and two sports arenas. The Sculpture Garden, located between the Space Needle and Broad Street, contains four large public art works. Seattle Center also hosts a number of private and nonprofit facilities, including the Space Needle, the Experience Music Project and Science Fiction Museum and Hall of Fame, the Seattle Children's Museum, the Northwest Craft Center, the Pacific Northwest Ballet, and the Pacific Science Center. The nonsport use of the Seattle School District's Memorial Stadium is coordinated with Seattle Center activities. Key Arena is home to the Seattle Storm professional women's basketball team and hosts many large events, with an annual attendance of up to 15,000 persons. The Space Needle attracts approximately 4.2 million tourist visits per year. Seattle Center is the site of various cultural activities and festivals. The largest are the Northwest Folklife

Festival and Bumbershoot, which each attract about 220,000 people over the Memorial Day and Labor Day weekends, respectively.

Tilikum Place: This small open space is bounded by Denny Way, Fifth Avenue, and Cedar Street. The main attraction at Tilikum Place is a fountain featuring a life-size statue of Chief Seattle (*The Chief*). Wrapped in a copper shawl, the chief stands on a pedestal with one arm raised in symbolic greeting to the first white settlers who landed at Alki Point in 1851. Bear heads at the base of the pedestal spout streams of water into a pool.

3.2 Public Art

There are six public art installations located in the north portal area. Broad Street Green, an open space near the Space Needle, contains four large public art works: *Black Lightning* by Ronald Bladens, *Olympic Iliad* by Alexander Liberman, *Moon Gates* by Doris Chase, and *Moses* by Tony Smith. *Seattle Mural*, a large mosaic work by Paul Horiuchi commissioned for the 1962 World's Fair, serves as the backdrop to the Mural Amphitheatre just south of the Center House at Seattle Center. Tilikum Place contains *The Chief* by James Wehn.

ATTACHMENT F

Cumulative Effects Analysis

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CUMULATIVE EFFECTS ANALYSIS

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

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

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

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

The Social Discipline Report addresses the following social resources:

- Study area neighborhoods
- Population and demographics
- Housing
- Community facilities
- Parks, recreation, and public access facilities
- Religious institutions and cemeteries
- Social and employment services
- Cultural and social institutions
- Government institutions and national defense installations
- Neighborhood cohesion

Related topics are discussed in separate reports, including Appendix G, Land Use Discipline Report; Appendix K, Public Services and Utilities Discipline Report; and Appendix L, Economics Discipline Report.

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

The social resources study area generally extends along Seattle's downtown waterfront from approximately S. Holgate Street north to about Pine Street, and continues northerly to encompass the Battery Street Tunnel and Aurora Avenue north to Roy Street. The study area for the assessment of potential cumulative effects is the same as that for the assessment of direct and indirect effects. A smaller subarea, however, was used to assess construction effects. The boundaries of these study areas are described below:

- Operational Effects Study Area – The social resources benefits and adverse effects are based primarily on geographic proximity to the proposed transportation improvements. Effects include changes to the resource and changes in access to the resource. For social resources, the study area extends five blocks, or about 0.5 mile, from the project corridor.
- Construction Effects Study Area – For the assessment of temporary construction effects, the boundaries of the study area are more limited than the area considered for operational effects. The boundaries of the study area to assess construction effects extend approximately two blocks from the construction zone. This area would be most affected by construction-related traffic, noise and vibration, light and glare, and dust. Nighttime construction noises would disturb residents trying to sleep within two blocks of construction activities.

The timeframe for the assessment of potential cumulative effects begins in 1850 at the time of significant European settlement and ends in 2030. The construction cumulative effects of the Bored Tunnel Alternative extend from 2011 through 2017—the construction period for the Bored Tunnel Alternative. Operational cumulative effects are evaluated after the construction of the Bored Tunnel Alternative through 2030.

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

Historically, the social conditions in downtown Seattle have always included a mix of different racial and ethnic groups. In the 1800s, this mix included Native Americans, Chinese laborers, and a variety of European immigrants attracted by the Alaskan gold rush, as well as jobs in the logging, farming, mining, shipping, and fishing industries. Several of Seattle's neighborhoods continue to reflect these social groups, such as the International District and Ballard.

Many past actions contributed to the current social conditions, including the establishment of many social services agencies and community facilities founded near the turn of the 20th century, such as Family Services, Neighborhood House, Seattle Children's Hospital, the Atlantic Street Center, and Pike Place Market, to name a few. Through the years, a number of diverse facilities and services have been established, and they continue to provide a wide range of social benefits to the community.

The study area for the Social Discipline Report comprises a mix of land uses that encompass portions of several Seattle's downtown neighborhoods. The area is demographically diverse. Residents include substantial racial and ethnic minority and low-income populations, though

few family households with children. Median household income is relatively high but appears to be skewed due to the broad range of household incomes, from below the federal poverty level to the very affluent. Housing includes apartments, condominiums, and emergency shelters. The study area also includes a substantial homeless population, many of whom take shelter at night in and around buildings and transportation structures. Numerous social services located in the study area provide various types of support to the area's disadvantaged residents. In addition, some study area neighborhoods have experienced substantial redevelopment and construction of new condominiums, which have attracted younger and more affluent residents to the downtown area. These residents, as well as people who live in the region and tourists, visit the study area's many cultural venues and social, religious, and government institutions. Additional details can be found in Chapter 4, Affected Environment, of the Social Discipline Report.

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

Operational direct and indirect effects on social resources include the following:

- Property acquisition would not substantially affect study area social resources. The Bored Tunnel Alternative would not result in the displacement of any social resources. See Appendix G, Land Use Discipline Report, for more information.
- The most substantial effects would be changes in access to social resources. Travel time may increase and travel routes may be more circuitous for travelers to some destinations. These changes would be an inconvenience and a minor adverse effect. For others, access would not change or would be improved. See Appendix C, Transportation Discipline Report, for additional information.
- Some park, recreation, and public access areas would be replaced by new facilities as part of the Bored Tunnel Alternative. Several other recreation resources would need to be relocated. Use of central waterfront recreation resources would be enhanced due to removal of the elevated viaduct structure, elimination of existing shadows, and reduction in noise levels. These changes to recreation resources would support the City of Seattle's goals for downtown recreational resources and would be either beneficial or minor adverse effects.
- Access to the professional sports stadiums south of the Pioneer Square neighborhood would change (see Appendix C, Transportation Discipline Report). This change would result in beneficial direct effects and minor adverse effects due to increased congestion near the south portal.
- The Bored Tunnel Alternative would not change the general land use character of study area neighborhoods, but the transportation improvements would strengthen community cohesion, particularly in the Uptown and South Lake Union neighborhoods. All study area neighborhoods would have improved opportunities for pedestrian facilities. These changes could be expected to increase the desirability of some downtown neighborhoods for residential and commercial/office development. This change could

stimulate additional redevelopment if future market conditions are supportive. These changes would be beneficial effects.

Temporary construction effects include the following:

- Project construction would require the purchase of temporary rights-of-way, also known as temporary construction easements. These effects would be minor adverse effects. See Appendix G, Land Use Discipline Report, for additional information.
- Temporary changes in access for all modes of transportation would be the most common construction effects on community facilities, park and recreation facilities, religious institutions, social and employment services, cultural and social institutions, and government institutions. As a result, travel time may increase and travel routes may be more circuitous for travelers to some destinations. These changes would be minor adverse effects, especially with the proposed mitigation measures. See Appendix C, Transportation Discipline Report, for additional information.
- Construction activities would temporarily affect neighborhood cohesion. These effects, however, would be primarily limited to the immediate areas around the south and north portals and along the existing Alaskan Way Viaduct. In none of these situations would the construction effects substantially change neighborhood identity, community life, population characteristics, or linkages to community facilities and social services. Nor would the construction activities create barriers within or between neighborhoods that would affect interaction between people. These changes would cause disruptions in the neighborhood but would generally be tolerated. As a result, these changes would be minor adverse effects.
- The construction-related noise, light and glare, and truck traffic would be bothersome to neighborhood residents, especially those who reside within about two blocks of construction activities. The most disruption would likely occur from construction-related noise during the limited short-term nighttime construction activities. These changes would be minor adverse effects. Recommended mitigation measures are found in the individual discipline reports on each of these subjects.

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

The project team considered 39 projects (shown in the matrix at the end of this attachment) for potential activities that could have cumulative effects if added to the construction and/or operational effects of the Bored Tunnel Alternative. Eighteen of these projects were determined to be likely to contribute to cumulative effects:

- **A1.** Alaskan Way Surface Street Improvements – S. King Street to Pike Street
- **A2.** Elliott/Western Connector – Pike Street to Battery Street

- **A3.** Mercer West Project – Mercer Street becomes a two-way roadway from Fifth Avenue N. to Elliott Avenue, as does Roy Street from Aurora Avenue to Queen Anne Avenue N.
- **B1.** Elliott Bay Seawall Project
- **B2.** Alaskan Way Promenade/Public Space
- **B4.** First Avenue Streetcar Evaluation
- **C1.** S. Holgate Street to S. King Street Viaduct Replacement Project
- **E1.** Gull Industries on First Avenue S.
- **E2.** North Parking Lot Development at Quest Field
- **E4.** Bill and Melinda Gates Foundation Campus
- **E5.** South Lake Union Redevelopment
- **F1.** Bridging the Gap Projects
- **F2.** S. Spokane Street Viaduct Widening
- **F4.** Mercer East Project from Dexter Avenue N. to I-5
- **H3.** RapidRide
- **H6.** Washington State Ferries Seattle Terminal Improvements
- **I3.** Other Transit Improvements
- **J3.** SR 519 Intermodal Access Project, Phase 2

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

The individual assessment of potential cumulative effects on social resources is provided in the matrix at the end of this attachment. Of the 18 projects that could potentially have cumulative effects, all of the effects were determined to be minor. For some projects, there were cumulative effects during construction, for others there were cumulative effects during operation, and in some cases, there were cumulative effects during construction and operation.

The following two projects were determined to result in minor adverse cumulative effects only during construction:

- **E1.** Gull Industries on First Avenue S.
- **E2.** North Parking Lot Development at Quest Field

The following five projects were determined to result in minor beneficial cumulative effects only during operation:

- **F2.** S. Spokane Street Viaduct Widening
- **F4.** Mercer East Project from Dexter Avenue N. to I-5
- **H3.** RapidRide

- **H6.** Washington State Ferries Seattle Terminal Improvements
- **J3.** SR 519 Intermodal Access Project, Phase 2

The following 10 projects were determined to result in minor adverse cumulative effects during construction and minor beneficial cumulative effects during operation:

- **A1.** Alaskan Way Surface Street Improvements – S. King Street to Pike Street
- **A2.** Elliott/Western Connector – Pike Street to Battery Street
- **A3.** Mercer West Project – Mercer Street becomes a two-way roadway from Fifth Avenue N. to Elliott Avenue, as does Roy Street from Aurora Avenue to Queen Anne Avenue N.
- **B1.** Elliott Bay Seawall Project
- **B2.** Alaskan Way Promenade/Public Space
- **B4.** First Avenue Streetcar Evaluation
- **C1.** S. Holgate Street to S. King Street Viaduct Replacement Project
- **E4.** Bill and Melinda Gates Foundation Campus
- **E5.** South Lake Union Redevelopment
- **F1.** Bridging the Gap Projects

One project was determined to have minor beneficial cumulative effects during construction and operation:

- **I3.** Other Transit Improvements

Step 7. Report the results

The analysis of potential overlap of construction areas and periods for other planned transportation and development projects indicates that some of the 18 projects would be located within the social resources study area for the Bored Tunnel Alternative and would be under construction within the same timeframe. In particular, construction on the S. Holgate Street to S. King Street Viaduct Replacement Project and the Bridging the Gap Projects would occur near the construction activities of the Bored Tunnel Alternative in the Pioneer Square neighborhood and areas south. The Gull Industries Project and the North Parking Lot at Qwest Field are also expected to be under construction within the study area between 2011 and 2017. Other projects that may be constructed concurrently with elements of the Bored Tunnel Alternative include the Alaskan Way surface street improvements, the Elliott/Western Connector, the Mercer West Project, the Elliott Bay Seawall Project, and the Alaskan Way Promenade/Public Space.

All of these projects would increase noise, dust, light and glare, and truck traffic in the study area. During daytime hours, these construction effects would mostly be tolerated by area residents. However, greater adverse cumulative effects may occur for area residents during short-term and occasional concurrent nighttime construction. These changes would also affect area homeless persons, especially during nighttime hours (see Appendix F, Noise Discipline

Report). Interviews with social service providers in the study area indicated that these effects would be expected to increase demand for social services and emergency shelters due to the displacement of persons living on study area streets and the inability of current social and emergency shelters to adequately serve the growing homeless population. The cumulative construction-related congestion would be somewhat mitigated by planned improvements to transit services, the Mercer corridor improvements, and the S. Spokane Street Viaduct Widening, as well as the completed the SR 519 Intermodal Access Project, Phase 2 (see Appendix C, Transportation Discipline Report). Overall, neighborhood cohesion could be temporarily weakened.

In the long term, several major foreseeable projects would overshadow the potential effects of the Bored Tunnel Alternative on the study area social resources. These projects include the large-scale redevelopment of the South Lake Union neighborhood and the growth of employment at the Bill and Melinda Gates Foundation Campus. Together, the direct effects of these projects in the South Lake Union neighborhood will change the character of the neighborhood, more so than any changes due to the Bored Tunnel Alternative. In the south, the planned development of the North Parking Lot Development at Qwest Field would have similar direct effects in the Pioneer Square neighborhood within the study area. Daytime and nighttime populations would increase, and population demographics would change. However, the Bored Tunnel Alternative would improve transportation facilities and general mobility and access in the neighborhood, thereby supporting and facilitating these large-scale development projects.

The cumulative social effects on these two neighborhoods, however, would be different. In the South Lake Union neighborhood, these changes are occurring in a neighborhood with few social resources, and the large scale and pace of development are rapidly changing the historical light industrial character of the neighborhood. The overall effect of redevelopment in the neighborhood combined with the effects of the improved neighborhood street grid due to the Bored Tunnel Alternative are expected to enhance and strengthen neighborhood cohesion.

The substantial increase in population and retail space in the Pioneer Square neighborhood due to the development of the North Parking Lot Development at Qwest Field would also change the existing neighborhood character. This neighborhood already has a substantial population. Higher-income households and larger households could be expected to locate in the neighborhood and change the existing demographic characteristics. This could include more low-income households and homeless persons. It is unknown how these changes might affect the existing minority populations, limited English proficiency, and other demographic characteristics. These changes are likely to be mixed, and some could be perceived as potential adverse effects. The neighborhood, however, is pedestrian friendly. Existing and new residents would have ample opportunities to interact on the sidewalks and at local gathering places and parks. Over time, existing and new residents would develop a new neighborhood identity. The North Parking Lot Development would not result in substantial cumulative social effects with

the Bored Tunnel Alternative, however, because the Bored Tunnel Alternative would have little effect on neighborhood population and demographics.

In conclusion, the Bored Tunnel Alternative is expected to result in short-term, construction-related cumulative adverse effects on social resources in the study area, particularly in the south end of the corridor. During daytime hours, these disruptions are expected to be generally tolerated by area residents. The very limited occurrence of potential concurrent nighttime construction of the several projects would not result in substantial cumulative adverse effects.

The proposed improvements associated with the Bored Tunnel Alternative would have substantial long-term cumulative benefits on social resources when combined with many of the planned and foreseeable projects. These projects include a number of the improvements proposed as part of the Alaskan Way Viaduct and Seawall Replacement Program (the Program). Together, these projects will improve mobility and access, local street grid networks, and pedestrian and bicycle facilities in the study area. These changes will improve neighborhood access and linkage between community facilities and social services, park and recreation facilities, cultural and social institutions, and government offices. The new local streets in the south and north portal areas and general improvement in pedestrian and bicycle facilities will increase interaction among neighborhood residents and improve neighborhood cohesion.

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

The cumulative effects of the Bored Tunnel Alternative and other foreseeable projects are not expected to result in substantial cumulative adverse effects on social resources. Therefore, no additional mitigation measures are recommended.

The following matrix identifies project-specific potential cumulative effects.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX

PROJECT	POTENTIAL CUMULATIVE EFFECTS
A. Roadway Elements	
A1. Alaskan Way Surface Street Improvements – S. King Street to Pike Street	Construction of the Alaskan Way surface street improvements may overlap with construction associated with the Bored Tunnel Alternative. The construction effects would be minor adverse effects, as they would be similar in scope to typical roadway surface improvement projects. Overall, the operational cumulative effects would be beneficial due to improved study area access for all modes of transportation. In turn, this change would increase interaction between people and would improve neighborhood cohesion in the Commercial Core and Pioneer Square neighborhoods.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
A2. Elliott/Western Connector – Pike Street to Battery Street	Construction of the Elliott/Western Connector may overlap with construction associated with the Bored Tunnel Alternative. The effects would be minor adverse cumulative effects. In the long term, the cumulative effects would be beneficial due to improved access within the study area and to/from other areas. These changes would lead to increased interaction among people and would improve neighborhood cohesion.
A3. Mercer West Project – Mercer Street becomes two-way from Fifth Avenue N. to Elliott Avenue, and Roy Street becomes two-way from Aurora Avenue to Queen Anne Avenue N.	Construction associated with this project is expected to overlap with construction associated with the Bored Tunnel Alternative, but these construction effects would be minor adverse cumulative effects. In the long term, cumulative effects would be beneficial due to improved access within the study area and from outside areas. These changes would improve interaction among residents and would improve neighborhood cohesion.
B. Non-Roadway Elements	
B1. Elliott Bay Seawall Project	The construction activities for the seawall replacement may overlap with construction for the Bored Tunnel Alternative, but these construction effects would be minor adverse cumulative effects. Minor adverse cumulative effects are anticipated during construction, and minor beneficial cumulative effects are anticipated during operation.
B2. Alaskan Way Promenade/Public Space	The construction activities associated with the Alaskan Way Promenade/ Public Space may overlap with construction for the Bored Tunnel Alternative, but these construction effects would be minor adverse cumulative effects. Minor adverse cumulative effects are anticipated during construction and minor beneficial cumulative effects are anticipated during operation.
B3. Transit Enhancements – 1) Delridge RapidRide 2) Additional service hours on West Seattle and Ballard RapidRide lines 3) Peak hour express routes added to South Lake Union and Uptown 4) Local bus changes to several West Seattle and northwest Seattle routes 5)Transit priority on S. Main and/or S. Washington Streets between Alaskan Way and Third Avenue 6) Simplification of the electric trolley system	Implementation of this project would be concurrent with construction of the Bored Tunnel Alternative, but the transit enhancements would not have substantial construction effects. The transit enhancements would have beneficial effects on social resources by generally improving transit services in downtown Seattle and improving study area neighborhood cohesion. No cumulative effects are anticipated.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
B4. First Avenue Streetcar Evaluation	The construction activities for this project may overlap with construction for the Bored Tunnel Alternative. The effects would be similar to routine roadway projects. These construction effects would not result in substantial adverse cumulative effects on social resources in the Commercial Core neighborhood. Once constructed, the First Avenue streetcar would improve downtown transit services and study area cohesion. No cumulative effects are anticipated.
C. Projects Under Construction	
C1. S. Holgate Street to S. King Street Viaduct Replacement Project	The planned construction activities for this project will overlap in time and location within the social resources study area south of the Pioneer Square neighborhood. On a temporary basis, the project would affect mobility and access and could temporarily weaken neighborhood cohesion. These changes, however, are generally tolerated during daytime hours. Cumulative minor adverse effects could occur during the limited periods of concurrent nighttime construction of the two projects (see Appendix F, Noise Discipline Report). Once constructed, this project would help to improve access to and from the study area and could strengthen neighborhood cohesion.
C2. Transportation Improvements to Minimize Traffic Effects During Construction	Implementation of this project would occur immediately prior to the start of construction of the Bored Tunnel Alternative. The construction effects would be minimal and would not adversely affect downtown Seattle neighborhoods. Overall, this project would result in beneficial effects. The transportation improvements are planned mitigation measures that would reduce adverse effects on study area mobility and access to social resources during construction of the Bored Tunnel Alternative. The magnitude, however, would not likely change neighborhood cohesion. No cumulative effects are anticipated.
D. Completed Projects	
D1. SR 99 Yesler Way Vicinity Foundation Stabilization (Column Safety Repairs)	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on study area social resources.
D2. S. Massachusetts Street to Railroad Way S. Electrical Line Relocation Project (Electrical Line Relocation Along the Viaduct's South End)	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on study area social resources.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
E. Seattle Planned Urban Development	
E1. Gull Industries on First Avenue S.	Construction of this project would overlap in time with the Bored Tunnel Alternative and is located within the study area. As one major development project that alone might not adversely affect the neighborhood, concurrent construction activities with the Bored Tunnel Alternative could exacerbate the construction effects on the surrounding neighborhood. Such changes, however, are generally tolerated by neighborhood residents during daytime hours. The Gull Industries Project is not expected to require nighttime construction. Only minor cumulative adverse effects from construction are anticipated. Long term, the project would not result in cumulative effects on social resources in the study area.
E2. North Parking Lot Development at Qwest Field	The start of construction for this project is expected to overlap with construction activities for the Bored Tunnel Alternative and would occur within blocks of the construction for the Bored Tunnel Alternative. Only minor construction cumulative adverse effects are anticipated, because residents generally can tolerate construction noises during daytime hours, and this project is not expected to require nighttime construction. No cumulative effects during operation of the Bored Tunnel Alternative are expected.
E3. Seattle Center Master Plan (EIS) (Century 21 Master Plan)	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on study area social resources.
E4. Bill and Melinda Gates Foundation Campus Master Plan	Beneficial direct effects overall. The construction of the third building for this project is expected to extend through 2014 and would overlap with construction associated with the Bored Tunnel Alternative. Because of the size and scale of this project, only minor construction cumulative adverse effects are anticipated. Once completed, the introduction of a major new employer on the eastern edge of Seattle Center would change the character of the South Lake Union neighborhood. The area east of Seattle Center, however, has few social resources and is undergoing substantial redevelopment at this time. The project is an extension of the large-scale redevelopment occurring in the South Lake Union neighborhood. The project will increase daytime population and will create a demand for small-scale retail services. These effects are expected to combine with the effects of the Bored Tunnel Alternative to improve circulation in the South Lake Union neighborhood and could encourage additional development in the neighborhood. The project should greatly strengthen neighborhood cohesion in an area generally lacking in cohesion at this time.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
E5. South Lake Union Redevelopment	Redevelopment of the South Lake Union neighborhood is ongoing, and construction associated with individual projects may be concurrent with construction of the Bored Tunnel Alternative. It is unknown whether any individual project is within two blocks of the proposed construction for the Bored Tunnel Alternative that could result in adverse cumulative effects. Concurrent construction activities would disrupt neighborhood quality of life during daytime hours. It is not expected that nighttime construction would be required. Combined with the long-term operation of the Bored Tunnel Alternative, it is expected that the redevelopment projects in the South Lake Union neighborhood would result in beneficial cumulative effects on neighborhood cohesion.
E6. U.S. Coast Guard Integrated Support Command	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on social resources.
E7. Seattle Aquarium and Waterfront Park	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on social resources.
E8. Seattle Combined Sewer System Upgrades	No cumulative effects. This project is not of a size or scale that would result in cumulative effects on social resources.
F. Local Roadway Improvements	
F1. Bridging the Gap Projects	The construction of these proposed roadway improvement projects would overlap in time and geography with the proposed construction activities associated with the Bored Tunnel Alternative. The elements of this project could exacerbate potential traffic congestion associated with the Bored Tunnel Alternative's construction activities. During daytime hours, however, residents are generally tolerant of construction noise, dust and smoke, light, and glare. It is not expected that substantial portions of the project would require nighttime construction activities, and if required, such effects would be temporary effects. These effects could weaken cohesion in an area south of the Pioneer Square neighborhood. In the long term, operation of these roadway improvement projects would have a beneficial cumulative effect when combined with the operational effects of the Bored Tunnel Alternative.
F2. S. Spokane Street Viaduct Widening	Construction activities associated with this project are planned to be completed prior to the beginning of construction for the Bored Tunnel Alternative. This project will help mitigate construction-related congestion during construction of the Bored Tunnel Alternative. The completion of the project should facilitate mobility and access to and from the south study area and would be expected to strengthen neighborhood cohesion. In the long term, this project will have beneficial cumulative effects.
F3. SR 99/East Marginal Way Grade Separation	No cumulative effects. The planned project is located outside of the social resources study area for the Bored Tunnel Alternative.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
F4. Mercer East Project from Dexter Avenue N. to I-5	Construction would conclude prior to the construction of the Bored Tunnel Alternative. This project is located outside of the study area, but it would convey traffic through the middle of the Uptown and South Lake Union neighborhoods within the study area to I-5. As such, these transportation improvements in the long term would result in beneficial effects due to reduced congestion in the study area during construction and operation of the Bored Tunnel Alternative. In the long term, this project would improve access in the neighborhood and strengthen neighborhood cohesion.
G. Regional Roadway Improvements	
G1. I-5 Improvements	No cumulative effects on social resources – outside of the study area.
G2. SR 520 Bridge Replacement and HOV Program	No cumulative effects on social resources – outside of the study area.
G3. I-405 Corridor Program	No cumulative effects on social resources – outside of the study area.
G4. I-90 Two-Way Transit and HOV Operations Stages 1 and 2	No cumulative effects on social resources – outside of the study area.
H. Transit Improvements	
H1. First Hill Streetcar	No cumulative effects on social resources – only a very small portion of the new streetcar line extension would be located within the study area.
H2. Sound Transit University Link Light Rail Project	No cumulative effects on social resources – generally outside of the study area.
H3. RapidRide	Implementation of RapidRide would occur during construction of the proposed Bored Tunnel Alternative, but it would not require any substantial construction activity. The project would result in beneficial effects on social resources by generally improving transit services in downtown Seattle, improving interaction between people, and improving the study area neighborhood cohesion. Otherwise, it would improve transit outside of the study area.
H4. Sound Transit North Link Light Rail	No cumulative effects on social resources – outside of the study area.
H5. Sound Transit East Link Light Rail	No cumulative effects on social resources – generally outside of the study area.
H6. Washington State Ferries Seattle Terminal Improvements	Minor beneficial cumulative effects are anticipated during operation.
I. Transportation Network Assumptions	
I1. HOV definition changes to 3+ Throughout the Puget Sound Region	No cumulative effects on social resources – generally outside of the study area.
I2. Sound Transit Phases 1 and 2	No cumulative effects on social resources – generally outside of the study area.

PROJECT-SPECIFIC CUMULATIVE EFFECTS MATRIX (CONTINUED)

PROJECT	POTENTIAL CUMULATIVE EFFECTS
I3. Other Transit Improvements	Beneficial effects on social resources by generally improving transit services in downtown Seattle and improving study area neighborhood cohesion.
J. Completed but Relevant Projects	
J1. Sound Transit Central Link Light Rail (including the Sea-Tac Airport extension)	No cumulative effects on social resources – generally outside of the study area. Only minor transit improvements within downtown Seattle for study area residents, workers, and visitors.
J2. South Lake Union Streetcar	No cumulative effects. Already discussed in the affected environment.
J3. SR 519 Intermodal Access Project, Phase 2	Beneficial effects overall. The SR 519 Intermodal Access Project, built in the social resources study area, was completed in Spring 2010. This project was constructed to generally improve access and mobility in the south study area.