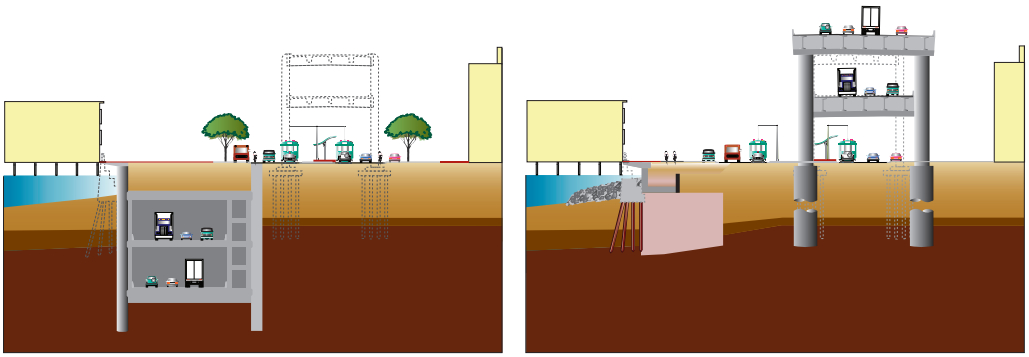
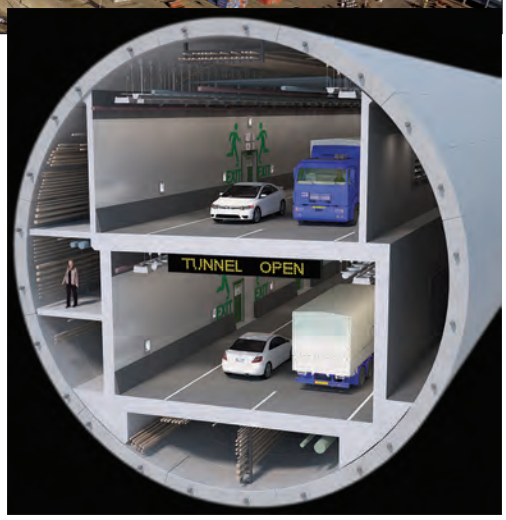
ALASKAN WAY VIADUCT REPLACEMENT PROJECT
Final Environmental Impact Statement

APPENDIX H Social Discipline Report





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U.S. Department of Transportation
Federal Highway Administration

Washington State
Department of Transportation

City of Seattle

JULY 2011

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Alaskan Way Viaduct Replacement Project
Final 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), the City of Seattle. To conduct this project, WSDOT contracted with:

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In association with:
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EnviroIssues, Inc.
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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
CBD	Central Business District
City	City of Seattle
CFR	Code of Federal Regulations
CRC	Columbia River Crossing
DBE	Disadvantaged Business Enterprise
DNR	Department of Natural Resources (Washington)
DOT	Department of Transportation
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FR	Federal Register
HOT	high-occupancy toll
HOV	high-occupancy vehicle
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
SODO	South of Downtown
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 block group is the smallest geographic unit for which the U.S. Census Bureau tabulates sample data. It is a subdivision of a census tract.
Census	The census of population and housing is taken by the U.S. Census Bureau in years ending in zero. The census forms include a short form (100 percent survey) and a long form (sample survey of one in six households).
Census tract	A census tract 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	With respect to an individual, a disability is 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	Federal Executive Order 12898 defines disproportionately high and adverse effects 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	Hispanic/Latino is a self-designated classification of people whose origins are Spain, the Spanish-speaking countries of Central America 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	Neighborhood cohesion refers to 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 to be recognized as a singular unit.
Travelshed	A travelshed is a study area defined by geographical boundaries, with characteristics and facilities that serve similar travel patterns.

Chapter 1 INTRODUCTION AND SUMMARY

1.1 Introduction

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

The Federal Highway Administration (FHWA) is the lead federal agency for this project, primarily responsible for compliance with the National Environmental Policy Act (NEPA) and other federal regulations, as well as distributing federal funding. Per the NEPA process, FHWA was responsible for selecting the preferred alternative. FHWA has based its decision on the information evaluated during the environmental review process, including information contained in the 2010 Supplemental Draft EIS (WSDOT et al. 2010) and previous evaluations in 2004 and 2006. After issuance of the Final EIS, FHWA will issue its NEPA decision, called the Record of Decision (ROD).

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

After the 2007 election, the lead agencies committed to a collaborative process (referred to as the Partnership Process) to find a solution to replace the viaduct along Seattle's central waterfront. In January 2009, Governor Gregoire, King County Executive Sims, and Seattle Mayor Nickels announced that the agencies had reached

a consensus and recommended replacing the aging viaduct with a bored tunnel, which is being evaluated in this Final EIS as the preferred alternative.

1.2 Project Background

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

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

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

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

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

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

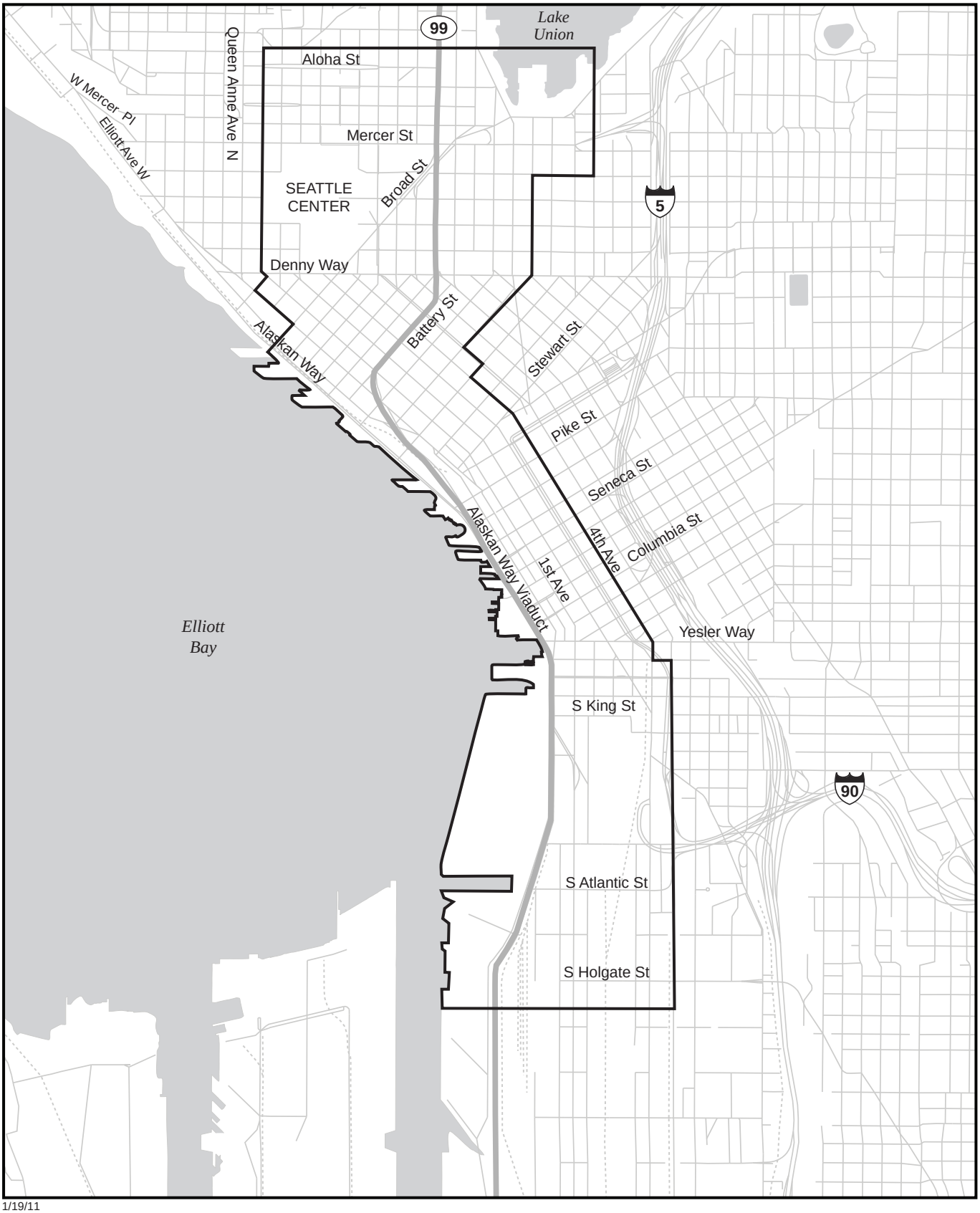
This discipline report describes the existing conditions of social resources in the study area, the potential adverse effects and benefits of the three build alternatives and the Viaduct Closed (No Build Alternative) on social resources, and the recommended mitigation measures for the potential construction effects and operational effects of the build alternatives.

The topics discussed in this report include the neighborhoods in the study area; 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; environmental justice; 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 guidance in the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual*, Chapter 457, Section 4(f) Evaluation; and Chapter 458, Social and Economic (WSDOT 2010a).

1.2.2 Study Area Character and Public Involvement

As shown on Exhibit 1-2, the study area for evaluating the project-related effects on social resources extends approximately five city blocks around the proposed alignment for all three of the build alternatives. (See also Attachment A for street maps of the study area.) It extends along Seattle's downtown waterfront from approximately S. Holgate Street and north to Aloha Street. The area also includes Fourth Avenue on the east to the waterfront on the west. In the north section, it extends from First Avenue N. to Fairview Avenue N. 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 interactions. The study area includes industrial and port facilities, the Pioneer Square and Pike Place Market Historic Districts, office and retail areas including the city's downtown financial and retail core, and mixed-use medium-density residential neighborhoods.



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SCALE IN FEET

Exhibit 1-2
Study Area

The population of the study area consists of residents, employers, employees, visitors, and others. Some of the residents of the study area also work there. 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; few families with children live in the study area. 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.

According to the U.S. census of 2000, minorities make up 28 percent of the study area population, while low-income persons account for about 23 percent. Compared to the demographic characteristics of Seattle, the study area includes a larger percentage of Hispanic/Latino, Black, and/or American Indians, mostly in the Commercial Core and Pioneer Square areas. The largest 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, the Jamestown S'Klallam Tribe, the Lower Elwha Klallam Tribe, the Port Gamble S'Klallam Tribe, and the Duwamish Tribe (a non-federally recognized tribe).

1.3 Summary

1.3.1 Operational Effects, Mitigation, and Benefits

Bored Tunnel Alternative

The Bored Tunnel Alternative (preferred) would have few long-term adverse social effects on neighborhoods, residents, community facilities, or parks in the study area. A total of 13 parcels would be acquired in full or in part to accommodate the Bored Tunnel Alternative, which would affect one nonprofit employment research and policy agency. For more information about displacements and property acquisitions, please see Appendix G, Land Use Discipline Report.

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 Alaskan Way Viaduct would reduce traffic, noise, and shadows in some neighborhoods but would change access to other neighborhoods and could increase congestion in them. Changes in access within

and between the neighborhoods in the study area 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 of the bored tunnel 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 the metropolitan region.

Cut-and-Cover Tunnel Alternative

Similar to the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would have few and minimal long-term adverse social effects on the neighborhoods, residents, community facilities, or parks in the study area. The Cut-and-Cover Tunnel Alternative would provide similar operational benefits as those described for the Bored Tunnel Alternative. Of the 40 parcels that would be acquired in full or in part to accommodate the Cut-and-Cover Tunnel Alternative, none is occupied by social resources. However, one residential condominium building with 132 units, less than half of which are occupied (King County Department of Assessments 2010), would be fully acquired under this alternative, and those residents would be displaced. For more information about displacements and property acquisitions, please see Appendix G, Land Use Discipline Report.

Elevated Structure Alternative

The long-term social effects of the Elevated Structure Alternative would include the visual and psychological impacts of a viaduct along the waterfront. These effects would be considered adverse to some. The other long-terms impacts, similar to those of the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative, would be few and minimal. Of the 35 parcels that would be acquired in full or in part to accommodate the Elevated Structure Alternative, none is occupied by social resources. The same residential condominium building that would be acquired under the Cut-and-Cover Tunnel Alternative would be acquired under the Elevated Structure Alternative; the social effects would be the same under both alternatives. For more information about displacements and property acquisitions, please see Appendix G, Land Use Discipline Report.

1.3.2 Construction Effects and Mitigation

Bored Tunnel Alternative

The construction effects of the Bored Tunnel Alternative (preferred) would mostly be limited to the south and north portal areas of the tunnel. The majority of the construction activities associated with the bored tunnel would occur

underground at depths up to 200 feet below grade, resulting in 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 would result in disturbances that would affect 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, the adverse effects would be limited to the immediate area of demolition for approximately 4 to 8 weeks at any one 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 are discussed in detail in other discipline reports: Appendix C, Transportation Discipline Report; Appendix F, Noise Discipline Report; Appendix M, Air Discipline Report; and Appendix D, Visual Quality Discipline Report.

Cut-and-Cover Tunnel Alternative

The construction effects of the Cut-and-Cover Tunnel Alternative in the north and south segments would be similar to those described for the Bored Tunnel Alternative. However, the central segment of the Cut-and-Cover Tunnel Alternative would be excavated rather than bored. Residents adjacent to and within about two blocks of the construction activities would likely experience noise and vibration from work vehicles and equipment, light and glare, and dust. They would also experience increased pedestrian, bicycle, and vehicle travel times and delay due to construction detours or traffic diversions. Residents on the Alaskan Way surface street or near the construction staging areas would also be affected. The construction effects due to short-term closures and traffic diversions may cause temporary hardships and stress for some residents, especially elderly, low-income, transit-dependent, and disabled persons.

Demolition of the existing viaduct structure along the central waterfront would result in disturbances of social resources comparable to those described for viaduct demolition with the Bored Tunnel Alternative. The recommended measures for mitigating the construction effects of the Cut-and-Cover Tunnel Alternative are similar to those recommended for the Bored Tunnel Alternative.

Elevated Structure Alternative

The construction effects of the Elevated Structure Alternative on social resources, parks and recreation lands, and environmental justice populations would be similar to those described for the Cut-and-Cover Tunnel Alternative, with a major difference being the use of a Broad Street detour, which would maintain two lanes of traffic in the SR 99 corridor during construction. The loss of parking spaces on Broad Street could affect area businesses. Also, special events traffic to and from Seattle Center could create severe localized traffic congestion due to the use of Broad Street as the major construction detour for southbound traffic off Aurora Avenue. Furthermore, the relatively long duration of the use of Broad Street as a detour route would adversely affect residential neighborhoods in the vicinity. The recommended measures for mitigating the construction effects of the Elevated Structure Alternative are the same as those recommended for the other build alternatives.

1.3.3 Indirect Effects

Bored Tunnel Alternative

After the construction of the Bored Tunnel Alternative (preferred), any 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, perceived value of individual properties, aesthetic qualities of new and existing buildings, and 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 Bell 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.

Cut-and-Cover Tunnel Alternative

The indirect effects of the Cut-and-Cover Tunnel Alternative would be the same as those described above for the Bored Tunnel Alternative.

Elevated Structure Alternative

The indirect effects of the Elevated Structure Alternative would be similar to those described for the other build alternatives. The main difference is that the Elevated Structure Alternative would essentially keep access to SR 99 from Belltown and the Commercial Core as it currently exists. In addition, because the Elevated Structure Alternative would build a viaduct, the desirability of properties immediately adjacent to the elevated structure would likely remain similar to existing conditions.

1.3.4 Tolling

The evaluation of social effects of tolling considers those who would choose to use the tolled facility and those who would choose to avoid using the tolled facility. Alternate routes to and from social resources, social service providers, and neighborhoods within the study area would enable travelers to avoid the toll but still reach their destination. Reasonable access to social service providers and neighborhoods would be maintained. However, under all three of the build alternatives with tolling, travel times and congestion on local streets would increase, especially during peak travel hours. Therefore, those who choose to avoid the tolled facility could ultimately spend more time commuting to social resources than they would under non-tolled conditions, in addition to spending less time in other social activities. In some cases, people may choose to patronize a social resource in a different location, if available, or avoid visiting certain neighborhoods during certain times of the day or altogether. Those who use the tolled facility would experience quicker travel times and less congestion than they would experience on the non-tolled facility.

Tolling the build alternatives would not result in disproportionately high and adverse impacts on environmental justice populations. The acquisition of tolling transponders, which could cause an adverse and disproportionate impact, can be minimized or mitigated as suggested in Chapter 7.

1.3.5 Environmental Justice Determination

Through extensive public involvement and numerous outreach efforts that focused on minority and low-income groups, the project team has worked to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. 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 build alternatives.

The results of the analysis of environmental justice included in the environmental review process for the three build alternatives indicate that disproportionately high and adverse effects on environmental justice populations would be avoided or reduced through careful planning and design or through individual choices to use alternate routes or transit. Continued outreach to minority and low-income populations, to employees of the displaced businesses, and others will identify additional mitigation measures to support this determination.

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Chapter 2 METHODOLOGY

This chapter summarizes the methods used to analyze the potential construction and operational effects of the project on social resources, including park and recreation facilities and minority and low-income populations (environmental justice). It provides an overview of government regulations and guidelines, defines special terms used in the discussion, lists the sources of data and information used in the analysis, describes the use of census data in the analysis, and discusses the process used to evaluate the project-related social effects.

2.1 Regulatory Overview

The analysis of potential social effects from the proposed project was conducted according to 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
- U.S. Department of Transportation (DOT) 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 (October 2010)

2.2 Definitions of Key Terms

Several key terms used in the analysis of effects on social resources are defined below (see also the glossary):

- **Project corridor –** The project corridor encompasses the alignments and rights-of-way of the existing roadway and the three build alternatives. The area generally extends along SR 99 from S. Holgate Street, through the downtown waterfront area, through the Battery Street Tunnel, and north along Aurora Avenue to Aloha Street.
- **Study area –** The area used for the analysis of potential effects on social resources extends approximately 0.5 mile, or about five blocks, on each side of the project alignment (see Exhibit 1-2). However, the analysis of park and recreation resources covered the area approximately three to five blocks from the 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 used for the 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 (with the two tunnel alternatives) 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 Alaskan Way Viaduct demolition and the Battery Street Tunnel decommissioning.

2.3 Data and Information Sources

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.

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

Community issues were identified through a review of the *City of Seattle Comprehensive Plan* (City of Seattle 2005), 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 of 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 public involvement activities that started in 2001.

Other discipline reports prepared for the project were used to analyze potential social effects (see 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 is provided in Appendix L, Economics Discipline Report.

2.4 Analysis of Census Data

A substantial portion of the analysis relies on statistics from the 2000 U.S. census. These statistics were used to describe study area characteristics and to assess potential operational and construction effects by comparing data for the study area to data for Seattle. Section 2.4.2 describes how the project team updated the 2000 demographic information.

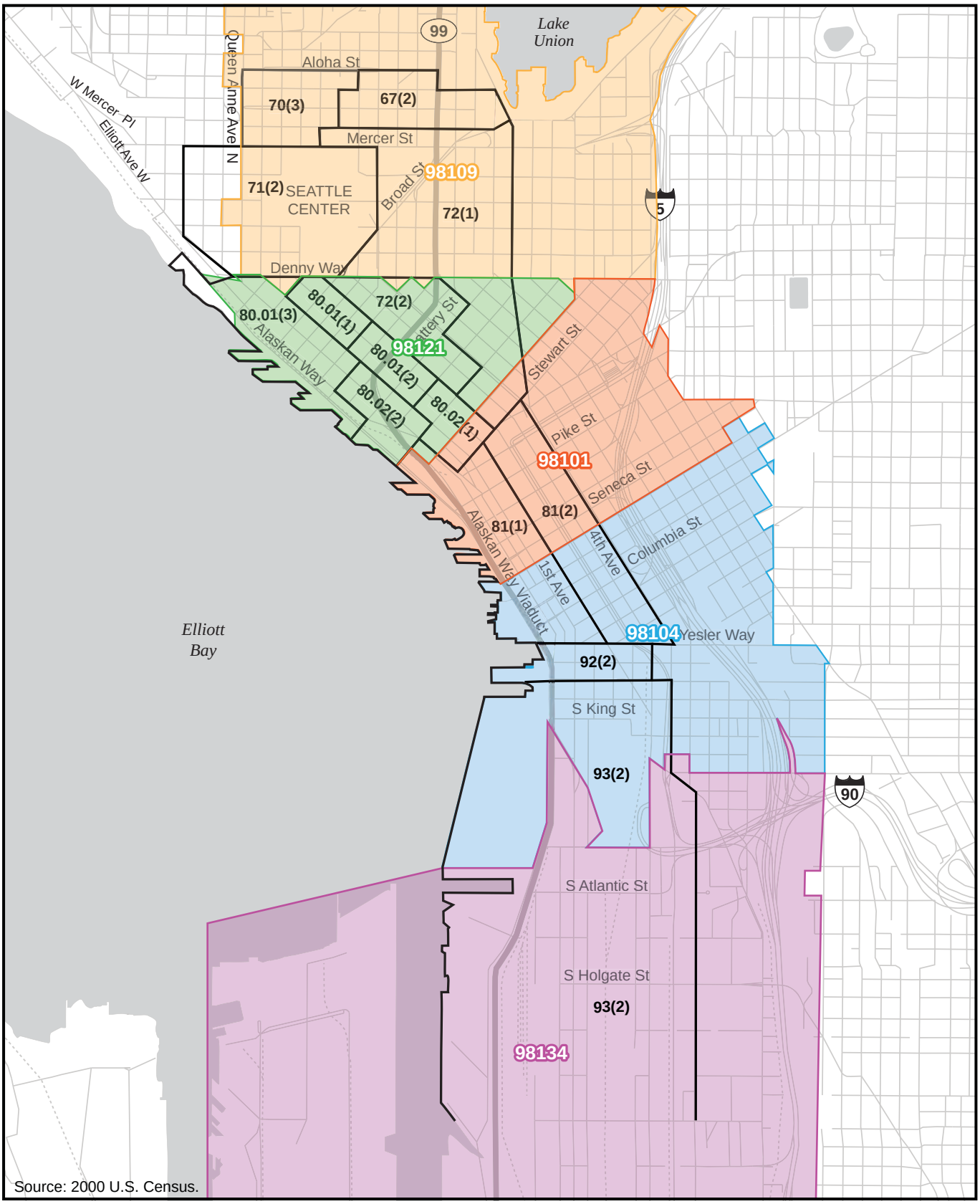
2.4.1 Study Area Boundaries

The project team assessed potential long-term operational effects on social resources within an area extending approximately 0.5 mile from the project corridor (see Exhibit 1-2). Census tract block groups that approximate the study area were used to help determine demographics. Because of the size and shape of some block groups, however, small portions of the study area were excluded. Likewise, small areas outside the study area were included. Exhibit 2-1 shows the 14 block groups that were selected to represent the study area. Detailed tables of demographic statistics are included in Attachment B.

2.4.2 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 languages used to translate published materials, engage interpreters to assist at public meetings, and identify foreign-language newspapers for advertising public meetings.

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 populations with limited English proficiency who speak languages other than Spanish, 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.



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98121 Zip Code

93(2) Census Tract (Block Group)

Exhibit 2-1
Census Block Groups and Zip Codes in the Study Area

Discussions with social service providers confirmed that study area households with limited English proficiency were mostly of Asian ancestry, primarily Chinese-, Tagalog-, and Vietnamese-speaking.

The census data from April 2000 are more than 10 years old, and directly comparable data will not be available until mid-2011 or later. However, more recent demographic data 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 (see Section 4.2). Attachment B compares statistics for census tract block groups within the study area and the city.

2.5 Analysis of Potential Effects

This section describes the 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 effects include effects on the population and its demographic characteristics, environmental justice populations (minority and low-income), neighborhoods, housing, and community facilities and services. Other social resources evaluated for project effects were community centers, educational facilities, cultural and social institutions, park and recreation lands, religious institutions, social service agencies, and government institutions. 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 2010a) are discussed in separate discipline reports: Appendix K, Public Services and Utilities Discipline Report and Appendix L, Economics Discipline Report.

Potential effects of project operation 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 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 of 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 effects of project operation on social resources could 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 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 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 near the construction zone. These effects are largely associated with construction equipment noise and vibration, light and glare, dust, and truck traffic, 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 the basis for assessing construction effects.

2.5.2 Businesses, Employment, and Parking

The project team obtained information from Appendix L, Economics Discipline Report, to assess the effects of the long-term displacement of businesses, employment, and parking spaces on neighborhood cohesion.

Businesses and Employment

The analysis of potential effects on neighborhood cohesion considered the displacement of businesses and employees using an inventory (see Appendix L, Economics Discipline Report). 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 2-1 and compared to Exhibit 1-2.

Parking

The analysis of effects on neighborhood cohesion also considered the long-term effects of displaced parking spaces. For this analysis, information on available parking was obtained from the Puget Sound Regional Council (PSRC), which periodically conducts inventories of downtown parking spaces and their utilization. The most recent data used for this analysis are from 2006 (PSRC 2006a). Parking spaces that would be displaced by the project are analyzed in detail in Appendix C, Transportation Discipline Report.

2.5.3 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.

Operational effects of the build alternatives 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 Environmental Justice Compliance

Detailed analysis was conducted to assess environmental justice compliance with Title VI of the Civil Rights Act, Executive Order 13898, FHWA Order 6640.23, U.S. DOT Order 5610.2, and Washington State code (RCW 49.60.030, freedom from discrimination—declaration of civil rights).

Project-Related Effects on Environmental Justice Populations

The analysis of project-related effects on minority and low-income populations consisted of the following components:

- Examined the population demographic characteristics of the study area using census tract block group data to identify minority and low-income populations.
- Provided the public involvement staff for the project with 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 the involvement of minority and low-income populations; and (2) outreach is planned with social service agencies that may serve minority and low-income populations that are the 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, land use trends, economics, and public services). Evaluated whether these potential effects would be disproportionately adverse for minority and low-income populations in the study area, considering all the proposed mitigation measures.
- Assessed the potential for tolling-related adverse effects on low-income populations. As described below, this included an analysis of project benefits, travel behavior, the demographics of the households in the transportation analysis zones generating the greatest number of facility users.

Ongoing public outreach efforts will continue to provide information on potential project effects and help determine appropriate and effective mitigation measures. To comply 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.

Tolling Effects on Environmental Justice Populations

Since the proposed tolling system would not distinguish between low-income commuters and others, it is important to assess the potential for disproportionate impacts on low-income commuters. The following guidance provides the analytical framework for the literature review as well as other aspects of this analysis:

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994, and the accompanying Presidential Memorandum that mentions minority and low-income communities (see Executive Order 12948, Amendment to Executive Order No. 12898, January 30, 1995)
- U.S. DOT, Final Department of Transportation Order to Address Environmental Justice in Minority Populations and Low-Income Populations. Subsequent to the draft in Federal Register, Vol. 60, No. 125, June 29, 1995, pp. 33899–33903, signed by Secretary Federico Peña on February 3, 1997; published in Federal Register, Vol. 62, No. 72, April 15, 1997, pp. 18377–18381. Officially formatted into U.S. DOT Order 5610.2
- FHWA Order on Environmental Justice, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income

Populations, December 2, 1998, http://www.fhwa.dot.gov/legsregs/directives/orders/6640_23.htm

Project staff and stakeholders can better understand how tolling under the three build alternatives would affect low-income populations by reviewing environmental justice analyses from other projects. Some of the published studies are the result of academic, peer-reviewed research. Others were prepared for proposed transportation plans as well as roadway improvements, including highways, bridges, and high-occupancy vehicle (HOV)/high-occupancy toll (HOT) lane projects.

The discussion examines the additional impacts (i.e., benefits and burdens) of toll roads on low-income populations only. Potential effects include changes to the physical environment such as air quality or noise and changes in mobility, including the availability of alternative transportation modes and alternate routes.

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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. This section describes 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 (see list below). These reports are based on the August 2010 conceptual engineering design for the build alternatives.

- 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, 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 report is provided in Chapter 9.

3.2 Agency Coordination

As part of the assessment of potential effects on low-income persons, the project team contacted a variety of local government organizations and nonprofit agencies. 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 provided the results of recent annual counts of homeless persons in downtown Seattle.

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 (see Appendix A, Public Involvement Discipline Report). Public outreach activities for the project are ongoing, and special efforts have been made to include minority and low-income populations throughout the study area. Outreach has been conducted to ensure that the diverse populations in the study area, 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 public scoping meetings to discuss the three build alternatives. 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, Tagalog, and Vietnamese.
- Creating folios and fact sheets for the project and 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, Tagalog, and, Vietnamese based on the U.S. DOT and U.S. Department of Justice guidance for populations with limited English proficiency.
- Setting up information booths at more than 170 fairs, festivals, and farmers markets throughout the Seattle area.
- Providing information to the public through newsletters and e-mail.

- Creating and updating the Program website to maximize public access to timely information and quick, easy interaction with WSDOT. Website content was provided in Spanish, Traditional Chinese, Tagalog, and Vietnamese.
- Providing a project telephone information line about upcoming events, including location, time, date, and transit routes close to the event.
- Inviting local disadvantaged business enterprises to 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. See also Appendix A, Public Involvement Discipline Report.

3.3.2 Outreach to Social Service Providers

One of the project's challenges has been to involve the substantial number of low-income residents in the study area, including homeless persons. In downtown Seattle, these people often are recent immigrants, have limited education and/or English proficiency, may be affected by mental illness or substance abuse, and/or may move frequently or stay in local emergency shelters. To learn about the concerns of low-income residents, the project team has interviewed social service providers throughout project planning. More than 70 social service provider interviews have been conducted since the beginning of public outreach program in 2001.

3.3.3 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 project design. 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, choose locations for public meetings, and coordinate with new organizations and groups.

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Chapter 4 AFFECTED ENVIRONMENT

This chapter describes the affected environment for social resources in the study area. Topics include 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 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 events. 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 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 to the north, it encompasses the Battery Street Tunnel and Aurora Avenue north to Aloha 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 (City of Seattle 2005). 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:

- Pioneer Square and Pike Place Market Historic Districts
- Seattle's financial, government, retail, and cultural centers
- An older residential neighborhood experiencing substantial redevelopment and in-fill of new housing

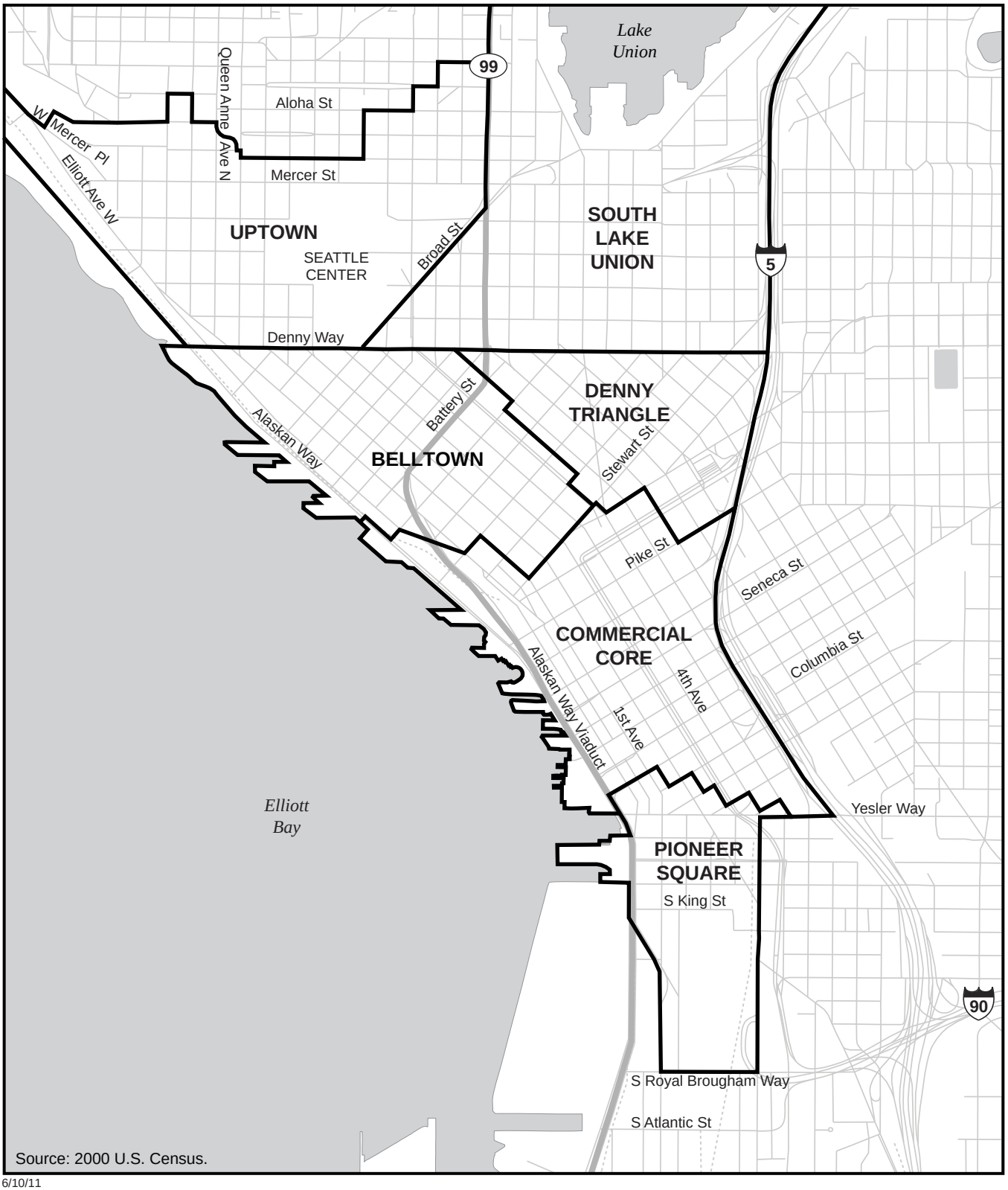

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Exhibit 4-1
Map of Study Area Neighborhoods

- 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
- 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 subsections.

4.1.1 Pioneer Square

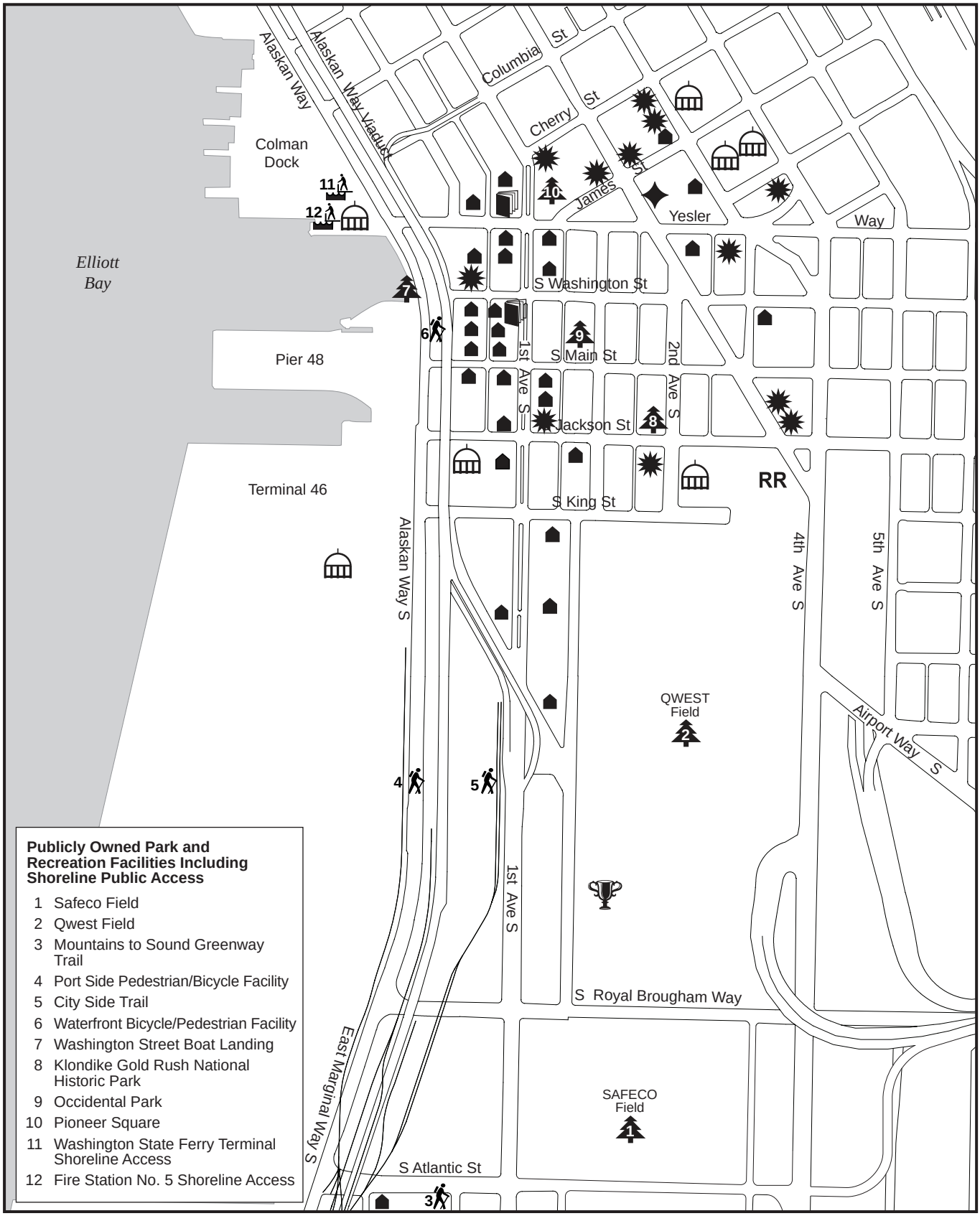
The historic Pioneer Square neighborhood, formerly the city center of Seattle, is generally located between S. Royal Brougham Way and Columbia Street. Residents are likely to be racial minorities, Hispanic/Latinos, persons with disabilities, or persons with household incomes at or below the poverty level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

Walking through the neighborhood and visiting local shops, restaurants, and the Seattle Underground Tour are popular tourist attractions. Old warehouse buildings have been remodeled into artists' lofts and office buildings. The Western Building (619 Western Avenue), built in 1910, is occupied by approximately 118 tenants, primarily artists with workspaces and studios in this building. These tenants have formed an informal community as artists and report valuing the proximity to each other for facilitating the sharing and development of ideas. Many of the artists open their lofts and studios to the public during Pioneer Square's First Thursday Art Walk (occurring on the first Thursday of each month).

Neighborhood residents live in many older buildings that have been converted to residential use, new condominiums, low-income housing buildings, and several emergency homeless shelters (City of Seattle 2007). The main commercial street through the neighborhood is First Avenue S. To the south and east of the neighborhood's commercial district, land uses include residential, and retail, wholesale, warehouse, and industrial businesses.

The King County government office complex is located on S. Jackson Street. Seattle's main railroad station, King Street Station, is also 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 (see Exhibit 4-2).



Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

1. Safeco Field
2. Qwest Field
3. Mountains to Sound Greenway Trail
4. Port Side Pedestrian/Bicycle Facility
5. City Side Trail
6. Waterfront Bicycle/Pedestrian Facility
7. Washington Street Boat Landing
8. Klondike Gold Rush National Historic Park
9. Occidental Park
10. Pioneer Square
11. Washington State Ferry Terminal Shoreline Access
12. Fire Station No. 5 Shoreline Access

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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
- Shoreline Access

Exhibit 4-2
Map of Social Resources - Stadium Area

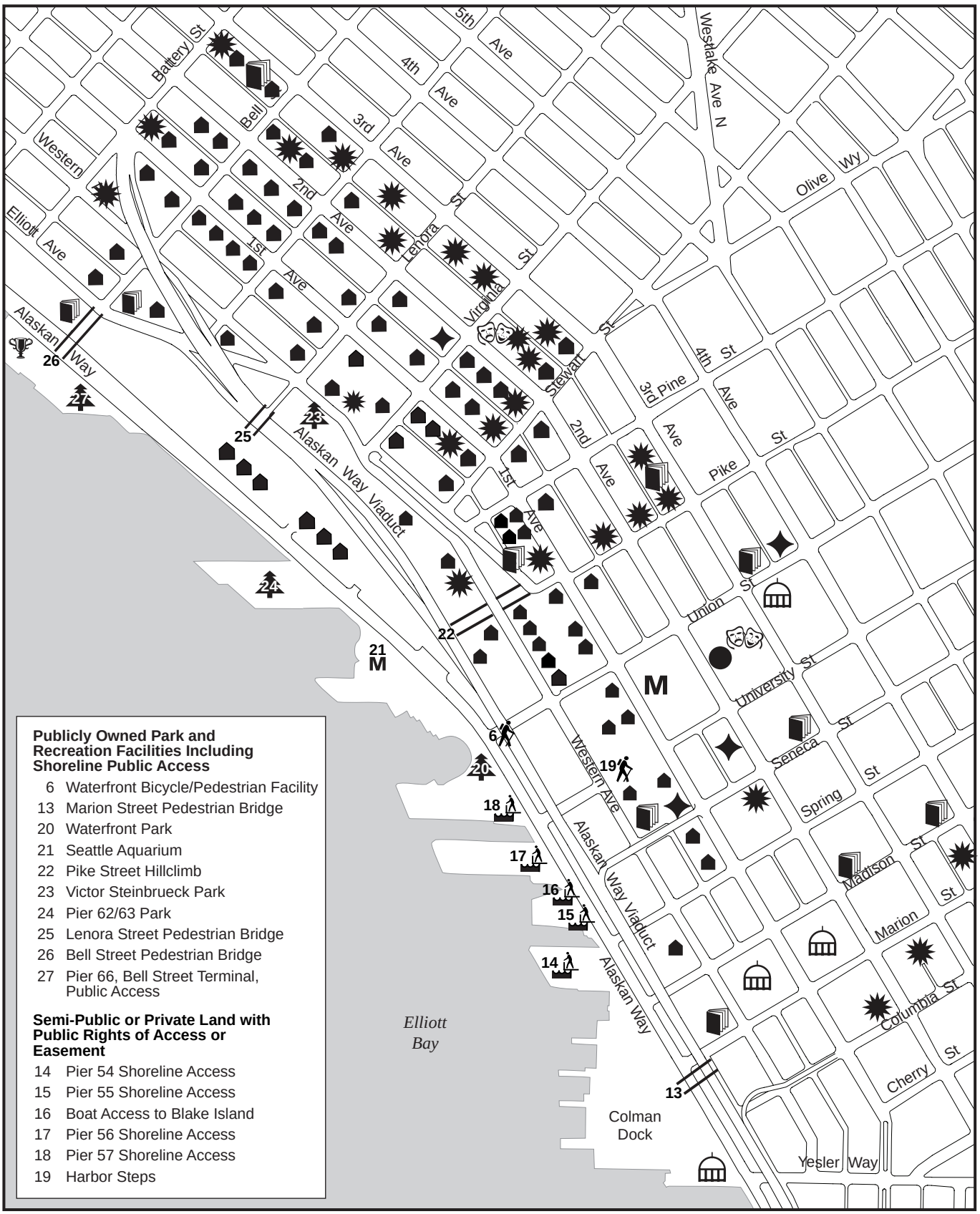
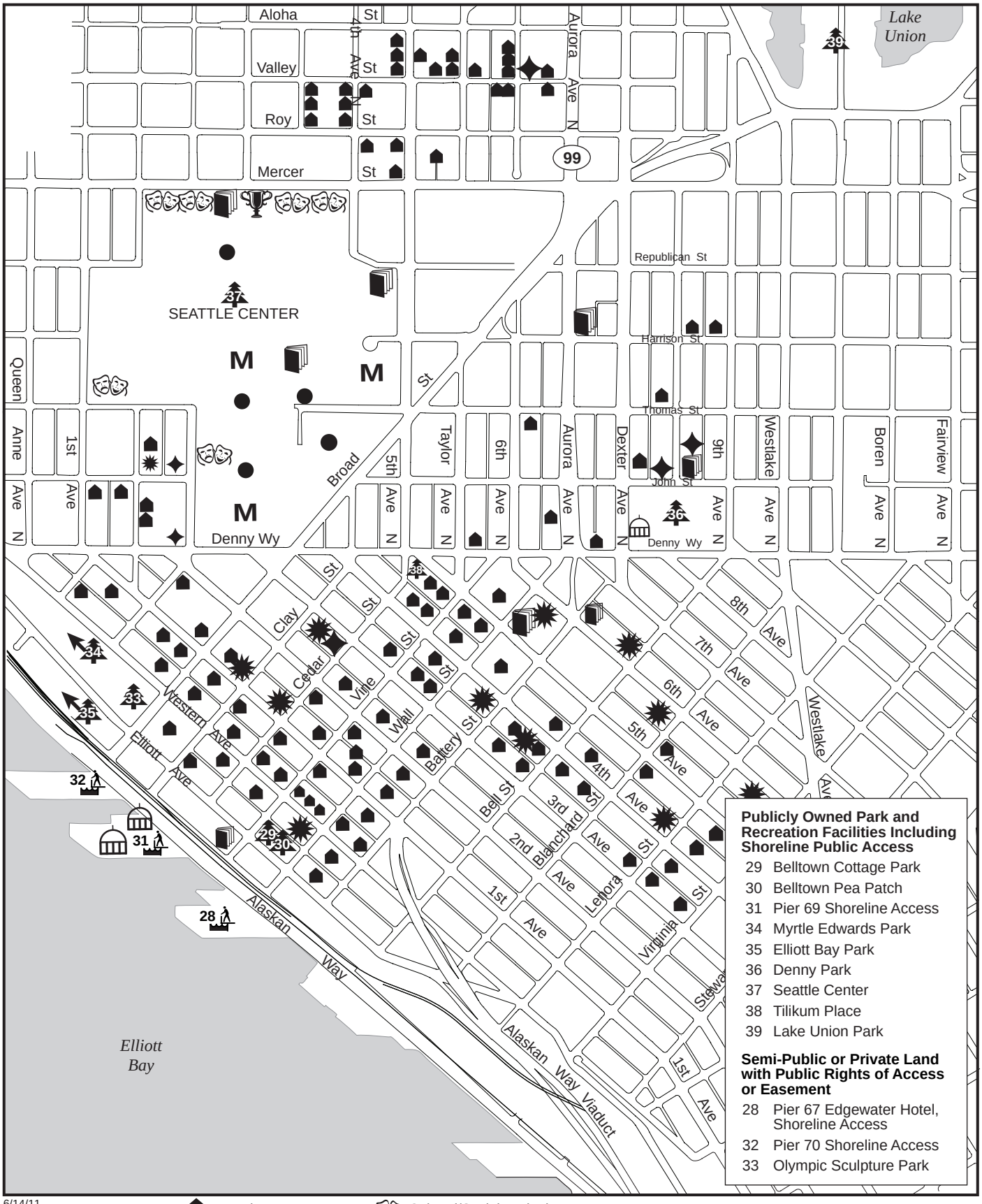


Exhibit 4-3
Map of Social Resources - Downtown Area



Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

29 Belltown Cottage Park
30 Belltown Pea Patch
31 Pier 69 Shoreline Access
34 Myrtle Edwards Park
35 Elliott Bay Park
36 Denny Park
37 Seattle Center
38 Tilikum Place
39 Lake Union Park

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

28 Pier 67 Edgewater Hotel, Shoreline Access
32 Pier 70 Shoreline Access
33 Olympic Sculpture Park

6/14/11

N

0 800

SCALE IN FEET

- 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
- Shoreline Access

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

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, the city's financial district, and its retail core. Hotels, restaurants, museums, theaters, and the symphony hall are concentrated between First and Fifth Avenues. 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 Commercial Core.

4.1.3 Belltown

The Belltown neighborhood is located 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 (City of Seattle 2006a).

This neighborhood has undergone substantial redevelopment over the past 10 to 15 years. Expensive mid-rise condominiums have been constructed close to the waterfront. High-rise condominiums and apartment buildings have also been built up the hill overlooking Elliott Bay (City of Seattle 2007). 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 (City of 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, music venues, 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). 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 has 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 Denny Triangle 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 west of 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 more than 5,000 sporting, educational, and cultural events annually and attracts more than 12 million visitors each year (City of Seattle 2006b).

Most of the restaurants and shops patronized by residents and people 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. 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 (City of Seattle 2006a). 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 to 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. Few social resources are located in the neighborhood. Residents of the South Lake Union neighborhood generally have higher incomes than do 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

In this section, the demographic characteristics of the study area population and Seattle are compared. The analysis below is based on the 2000 census (data from the 2010 census is not expected to be available until mid-2011. Summary statistics are presented in the tables, and detailed statistics by census tract block group are included in Attachment B.

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. According to the 2000 census, the study area had 17,336 people, as shown in Attachment F, Exhibit F-1. This was less than 3 percent of the city's total population, and it 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 Attachment F, Exhibit F-1). In 2000, approximately 75 percent of the population residing in the study area was White, and 25 percent was non-White. Black/African Americans and Asian/Pacific Islanders constituted approximately

9 and 7 percent of the population, respectively. Seven percent of the study area population was Hispanic/Latino. The Black/African American, Asian/Pacific Islander, and Hispanic/Latino groups were the largest minority groups in the study area.

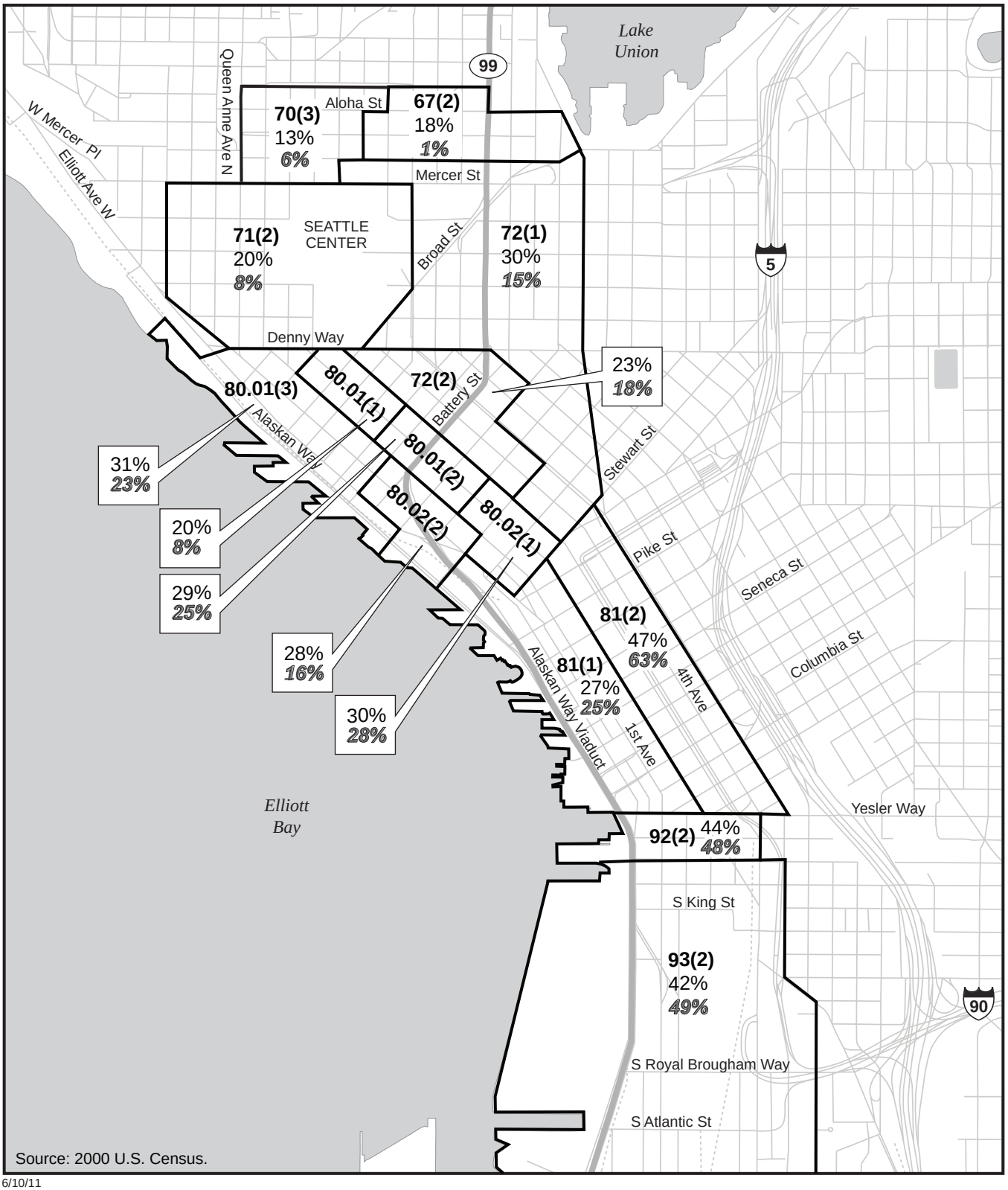
4.2.2 Income Characteristics

Generally, the residents of the study area are less well off than residents of Seattle. In 2000, the median household income in the study area was considerably less than the median income of households in Seattle, as shown in Attachment F, Exhibit F-2. 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 percentage of single-person households in Seattle (see Attachment F, Exhibit F-2). 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 was at or below the poverty level.

4.2.3 Environmental Justice Populations

The study area contains environmental justice (minority and low-income) populations. Attachment F, Exhibit F-1, and Exhibit 4-5 show detailed minority characteristics and income information for the census tract block groups in the study area, and Attachment F, Exhibit F-3, summarizes this information.

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 Bureau 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 smaller than the percentage of minority populations in Seattle. The study area has several census tract block groups in which the percentage of minorities is substantially larger than that for the city (32 percent minority, see Exhibit F-1). These block groups are located in the Pioneer Square and Commercial Core neighborhoods, as shown on Exhibit 4-5.



6/10/11

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0 1,800

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

Exhibit 4-5
Minority and Low-Income Populations in the Study Area

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:

- Muckleshoot Indian Tribe
- Snoqualmie Indian Tribe
- Suquamish Tribe
- The Tulalip Tribes
- Confederated Tribes and Bands of the Yakama Nation
- Jamestown S'Klallam Tribe
- Lower Elwha Klallam Tribe
- Port Gamble S'Klallam Tribe
- 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 regarding potential effects on tribal fishing rights. This tribal consultation is documented in Appendix I, Historic, Cultural, and Archaeological Resources Discipline Report.

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 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 is considered low-income based on the 2000 census, rates exceeding 48 percent were reported for the Pioneer Square and Commercial Core neighborhoods (see Exhibits 4-1 and 4-5).

4.2.4 Limited English Proficiency

The 2000 census indicated that 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.

In 2000, 5 percent of the study area households were linguistically isolated (see Attachment F, Exhibit F-4). Analysis of census data and discussions with social service providers confirmed that study area households with limited English proficiency were mostly Spanish-speaking households or households of Asian ancestry, with residents speaking primarily Chinese, Tagalog, and Vietnamese. Based on this analysis and consultation with local social service agencies, project outreach efforts have been using these three Asian languages and Spanish. This approach for outreach to populations with limited English proficiency will continue through project construction.

4.2.5 Age Characteristics

The age characteristics of the study area population are distinct from those of Seattle. As shown in Exhibit 4-6 below, the population of the study area has had a smaller percentage of children than populations in all other areas of Seattle. In 2000, children under the age of 18 constituted approximately 3 percent of the total population of the study area, compared to over 16 percent for Seattle. The study area and the larger Seattle area had similar percentages (11 and 12 percent, respectively) of elderly residents in 2000.

Exhibit 4-6. Age Characteristics, 2000

Area	Total Population	0 to 4 Years	5 to 17 Years	18 to 64 Years	65 Years and Older
Study area	17,336	228 (1%)	313 (2%)	14,936 (86%)	1,857 (11%)
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 percentage of children but a larger percentage of adults 18 to 64 years of age, it is logical that the household characteristics of the study area are distinct from those of Seattle. As shown in Exhibit 4-7, the U.S. Census Bureau (2000) 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 percentage of elderly households in the study area (13 percent) was smaller than the percentage for the city (17 percent).

Exhibit 4-7. 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%)
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 at least one 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.

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 who are at least 16 years old and have a disability that affects their ability to leave home alone. Exhibit 4-8 presents these statistics for the study area and Seattle. In 2000, approximately 1,500 persons, or approximately 9 percent of the study area population, had mobility limitations. This percentage was somewhat larger than that for the city (6 percent).

Exhibit 4-8. 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%
Seattle	563,374	32,051	6%

Source: U.S. Census Bureau 2000.

Persons with mobility disabilities are likely to be more susceptible to changes in transit services or sidewalks, or accessibility to supporting social services.

4.2.8 Transit Dependence

Nearly half of study area households had no vehicle available for personal use and were dependent on transit, as shown in Exhibit 4 9. This demographic characteristic contrasts sharply 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 the Seattle area's SR 520 Bridge Replacement and HOV Program, an analysis looking at transit users in the east-west SR 520 corridor found a low proportion of low-income transit users, which contrasts with national transit user data. The Alaskan Way Viaduct SR 99 corridor seems more representative of the national data as compared to the neighborhood demographics of the travelshed.

See Appendix C, Transportation Discipline Report regarding transit services in the study area.

Exhibit 4-9. Transit-Dependent Households, 2000

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

Source: U.S. Census Bureau 2000.

4.2.9 Updated Demographic Characteristics

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.

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 in Seattle 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 Seattle has remained the same between 2000 and 2008. In both of these years, 12 percent of the population was living at or below the poverty level (U.S. Census Bureau 2000, 2008). The stable city data indicate that the percentage of the population living at or below the poverty level and residing in the study area has not changed substantially and remains at approximately 23 percent.

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 (City of Seattle 2007). The following subsections describe the diversity of housing available to study area residents.

4.3.1 General Housing Characteristics

In contrast to many 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 2008, total number of dwelling units in the study area increased from 8,800 to between 14,600 and 18,400 (U.S. Census Bureau 1990, 2000; PSRC 2008). Construction of new housing units, especially multi-family buildings, was concentrated in the Belltown, Uptown, and South Lake Union neighborhoods. The relatively high vacancy rates reported in the 2000 census, in part, reflected the recent completion of new residential buildings. Attachment F, Exhibit F-5, lists the number of new dwelling units that have been permitted by the City between 2000 and 2008, the most recent data available.

Compared to Seattle, a larger percentage of study area residents rented rather than owned their dwellings in 2000, as shown in Exhibit 4-10. This would generally be expected due to the high cost of real estate in the downtown area and lower median household income.

Exhibit 4-10. Housing Characteristics, 2000

Area	Total Number Dwellings	Vacant Dwellings	Occupied Dwellings	Owned Dwellings	Rented Dwellings	Other Non-Institutional Group Housing
Study area	12,656	1,593 (13%)	11,063 (87%)	2,298 (21%)	8,765 (79%)	2,282
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.

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 3 percent of the city's total population. Attachment F, Exhibit F-6, lists the 3,995 subsidized rental housing units within the study area. In addition to low-income housing, the study area also has 23 special needs and emergency housing facilities. Attachment F, Exhibit F-7, 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 weather.

Some homeless individuals in downtown Seattle use building overhangs, porticos, elevated walkways, and elevated roadways, including the elevated Alaskan Way Viaduct, for protection from weather when sleeping. Such camping is considered trespassing and is illegal.

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 2009).

The 2009 annual One Night Count (King County 2009) also found that approximately 54 percent of those counted included families with children, and 33 percent were single men. This population was 69 percent non-White or Hispanic/Latino. Nearly 13 percent were immigrants or refugees, and about 10 percent had limited English proficiency.

The Seattle/King County Coalition on Homelessness reports that roughly, 25 to 40 percent of the homeless population need support services for drug and alcohol abuse and 20 to 25 percent have some form of mental illness (Seattle/King County Coalition on Homelessness 2009).

Based on the 2009 One Night Count, approximately 23 percent of unsheltered homeless people in downtown Seattle 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 2009).

The One Night Count from 2007 through 2010 showed an increasing trend in the total number of homeless persons in Seattle and the percentage of homeless persons living under structures or roadways or in cars (Seattle/King County Coalition on Homelessness 2007, 2008, 2009, and 2010).

4.4 Community Facilities

This section describes the community centers and educational facilities in the study area.

4.4.1 Community Centers

Seattle has a number of community centers and late-night recreational programs; however, no community centers are located in the study area. The Yesler Community Center (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 (see Attachment F, Exhibit F-8).

Downtown Seattle has many private childcare facilities, including some state and locally subsidized programs that serve low-income residents. In total, eight childcare facilities are located within the study area (see Attachment F, Exhibit F-8). Together, these facilities provide services for more than 500 children between 1 month and 6 years of age; five of these 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 high school for grades 9 through 12 with about 300 students. Also located at Seattle Center is Seattle Public Schools' Memorial Field, a large sports stadium on the east side of Seattle Center off Fifth Avenue N., just north of Broad Street. This facility is used for citywide high school sport team events, such as football and soccer, as well as cultural events, such as concerts at the Northwest Folklife and Bumbershoot music and arts festivals.

The Morningside Academy, on Westlake Avenue N., is a small private elementary and middle school with a specialized curriculum for fewer than 100 students. In addition, a number of private secondary education and professional training institutions are located in the study area (see Attachment F, Exhibit F-8). 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 other programs.
- The Pacific Northwest Ballet School, a nationally distinguished ballet school, provides beginning level classes through professional ballet training for more than 900 students annually.
- The Art Institute of Seattle enrolls more than 2,000 students each year 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 certificate programs in commercial art, graphic design, website design, and advertising.

4.5 Parks, Recreation, and Public Access Facilities

The study area contains parks that are designated public shoreline access points, Green Streets, and public art installations. The parks and designated public accesses within the study area are described in detail in Attachment E. 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.

Descriptions of park and recreation facilities are provided in the following subsections for the south, central, and north areas. Exhibit 4-11 lists the primary facilities available at these parks and recreation facilities and their uses.

Exhibit 4-11. Facilities and Primary Uses at Parks and Recreation Facilities in the Study Area

Facility Name	Location	Primary Uses
Publicly Owned Park and Recreation Facilities, Including Shoreline Public Access		
South		
1. Safeco Field	First Avenue S. and S. Atlantic Street	Professional baseball
2. Qwest Field	Occidental Avenue S. and S. King Street	Professional football and soccer
3. Mountains to Sound Greenway Trail	S. Atlantic Street at Alaskan Way S.	View enjoyment, walking, jogging, bicycling, and roller skating
4. Port Side Pedestrian/Bicycle Facility	East Marginal Way S. from S. Atlantic Street to S. King Street	View enjoyment (waterfront and urban), walking, jogging, bicycling, and roller skating
5. City Side Trail	East Frontage Road from S. Atlantic Street to S. King Street	View enjoyment (waterfront and urban), walking, jogging, bicycling, and roller skating
Central		
6. Waterfront Bicycle/Pedestrian Facility	Alaskan Way from S. King Street to Bay Street	View enjoyment (waterfront and urban), walking, jogging, bicycling, and roller skating
7. Washington Street Boat Landing	S. Washington Street at Alaskan Way	View enjoyment, relaxation, and fishing
8. Klondike Gold Rush National Historic Park – Seattle Unit	319 Second Avenue S.	Historic interpretation
9. Occidental Square	Occidental Avenue S. between S. Washington and S. Main Streets	Relaxation, picnicking, and people watching
10. Pioneer Square	Yesler Way and First Avenue	Relaxation, picnicking, and people watching
11. Washington State Ferry Terminal, shoreline access	Piers 50 and 52 Alaskan Way between Yesler Way and Madison Street	View enjoyment and relaxation
12. Fire Station No. 5, shoreline access	Alaskan Way at Madison Street	View enjoyment and relaxation
13. Marion Street pedestrian bridge	Marion Street between First Avenue and Colman Dock	View enjoyment and walking
14. Pier 54, shoreline access	Alaskan Way between Madison and Spring Streets	View enjoyment and relaxation
15. Pier 55, shoreline access	Alaskan Way at Seneca Street	View enjoyment, relaxation, picnicking, and people watching

Exhibit 4-11. Facilities and Primary Uses at Parks and Recreation Facilities in the Study Area (continued)

Facility Name	Location	Primary Uses
16. Boat access to Blake Island	Pier 55 Alaskan Way and Seneca Street	Boat access to Blake Island State Park
17. Pier 56, shoreline access	Alaskan Way at Seneca Street	View enjoyment, relaxation, picnicking, and people watching
18. Pier 57, shoreline access	Alaskan Way at University Street	View enjoyment, relaxation, picnicking, and people watching
19. Harbor Steps	University Street between First and Western Avenues	View enjoyment, relaxation, picnicking, and people watching
20. Waterfront Park	Alaskan Way between University and Pike Streets	View enjoyment, relaxation, picnicking, people watching, and fishing
21. Seattle Aquarium	Pier 59 Alaskan Way at Pike Street	Interpretive displays and education research
22. Pike Street Hillclimb	Pike Street, between Pike Place Market and Alaskan Way	View enjoyment, relaxation, and people watching
23. Victor Steinbrueck Park	Western Avenue at Virginia Street	View enjoyment, relaxation, picnicking, and people watching
24. Pier 62/63 Park	Alaskan Way at Pine Street	Relaxation, view enjoyment, and picnicking
25. Lenora Street pedestrian bridge, public viewpoint	Lenora Street between the Alaskan Way Viaduct and Alaskan Way	View enjoyment and relaxation
26. Bell Street Skybridge	Bell Street between Elliott Avenue and the Bell Street Pier (Pier 66)	View enjoyment and relaxation
27. Pier 66, the Bell Street Pier Cruise Terminal, shoreline access	Alaskan Way at Bell Street	View enjoyment, relaxation, and people watching
28. Pier 67, Edgewater Hotel, shoreline access	Alaskan Way at Wall Street	View enjoyment, relaxation, and people watching
29. Belltown Cottage Park	Elliott Avenue at Wall Street	View enjoyment, relaxation, picnicking, and people watching
30. Belltown P-Patch	First Avenue at Vine Street	Community garden
31. Pier 69, shoreline access	Alaskan Way at Bell Street	View enjoyment, relaxation, and picnicking, fishing
32. Pier 70, shoreline access	Alaskan Way at Broad Street	View enjoyment, relaxation, and people watching
33. Olympic Sculpture Park	Between Western Avenue and Alaskan Way at Broad Street	View enjoyment, relaxation, picnicking, people watching, and cultural activities
34. Myrtle Edwards Park	Alaskan Way at Bay Street	View enjoyment, relaxation, picnicking, people watching, walking, jogging, bicycling, roller skating, fishing, and informal sports

Exhibit 4-11. Facilities and Primary Uses at Parks and Recreation Facilities in the Study Area (continued)

Facility Name	Location	Primary Uses
35. Elliott Bay Park	Pier 86: waterfront Between Harrison Street and 16th Avenue W.	View enjoyment, relaxation, picnicking, people watching, walking, jogging, bicycling, roller skating, fishing, and informal sports
North		
36. Denny Park	Between Dexter Avenue N. and Ninth Avenue N. and Denny Way and John Street	Relaxation, picnicking, people watching, walking, jogging, bicycling, and informal sports
37. Seattle Center	Between Broad Street and Mercer Street and First Avenue N. and Fifth Avenue N.	View enjoyment, relaxation, picnicking, people watching, walking, jogging, bicycling, roller skating, informal sports, professional sports, and cultural activities
38. Tilikum Place	Fifth Avenue and Denny Way	Relaxation, picnicking, and people watching
39. Lake Union Park	Valley Street and Terry Avenue N.	View enjoyment, relaxation, picnicking, people watching, boating activities, walking, jogging, bicycling, informal sports, and cultural activities

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

4.5.1 South Area

Exhibit 4-2 shows the locations of the parks, recreation facilities, and public shoreline access points near the south area. The locations, primary uses, and facilities are listed in Exhibit 4-11. Attachment E provides a more detailed description of these amenities.

The south area has five major park and recreation facilities. The Mountains to Sound Greenway Trail currently runs along S. Atlantic Street, and it is proposed to connect to the City Side Trail along the east side of Alaskan Way. The Port Side Pedestrian/Bicycle Facility would run along the west side of SR 99.

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.

4.5.2 Central Waterfront Area

Exhibit 4-3 shows the locations of the parks, recreation facilities, and public shoreline access points along the central waterfront area. The locations, primary facilities, and uses are listed in Exhibit 4-11. A detailed description of these amenities is provided in Attachment E.

Many park and recreational amenities are located along the city's central waterfront. The Waterfront Bicycle/Pedestrian Facility is located adjacent to the existing viaduct. An extra-wide sidewalk, referred to as the waterfront promenade, is located on the west side of Alaskan Way.

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.

4.5.3 North Area

Exhibit 4-4 shows the locations of the parks, recreation facilities, and public shoreline access points in the north area. The primary facilities and uses are listed in Exhibit 4-11. A detailed description of these amenities is provided in Attachment E.

There are four parks in the north area, including Denny Park, Seattle Center, Tilikum Place, and Lake Union Park. The city's prize downtown park is Seattle Center. 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.

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. The study area contains 11 religious institutions (see Attachment F, Exhibit F-9). These institutions are dispersed across the study area; those with large congregations are concentrated in the Belltown and Uptown neighborhoods. The First United Methodist Church of Seattle recently completed construction of a large new church building at Denny Way and Second Avenue N. Several are located either among or within office high-rises in the Commercial Core neighborhood. Members of the religious institutions may live in nearby residential areas or may travel quite a distance to their place of worship or gathering. No cemeteries are located in the study area.

4.7 Social and Employment Services

Attachment F, Exhibit F-10, 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 banks, 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. Different organizations may also be co-located. Interviews with social service providers in the study area revealed that some, especially those that provide referrals, typically work together. 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 Attachment F, Exhibit F-11. 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 every day of the week at all times of day. Individual events may last from several hours to several days. Several museums in the study area are open daily, and exhibits change periodically.

Several concentrations of cultural and social institutions are found in the study area. The historic Pioneer Square neighborhood represents a large concentration 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.

The Seattle Art Museum, Garden of Remembrance Veterans Memorial, and Benaroya Hall are clustered near Second Avenue and Union Street in the Commercial Core neighborhood. The Seattle Aquarium, Maritime Event Center, and Bell Harbor International Conference Center are located along the waterfront. The 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 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. Three of the larger events include the Northwest Folklife Festival over Memorial Day weekend, the Bite of Seattle during a weekend in July, and Bumbershoot 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 4-12 lists some of the 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 or scattered among other businesses. Other important government institutions also are located in the Commercial Core but outside the study area boundaries.

Exhibit 4-12. Key Government Institutions in the Study Area

Government Institutions
City
Seattle Central Library
Seattle City Hall
Seattle Parks and Recreation Department

Exhibit 4-12. Key Government Institutions in the Study Area (continued)

Government Institutions
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 (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 operations terminals for cargo shipping and cruise and passenger vessels. These Port properties are discussed in more detail in Appendix L, Economics Discipline Report.

The Commercial Core includes several city and county office buildings clustered in the six-block area between Third and Sixth Avenues and Cherry and Jefferson Streets. Also in this area is the Seattle Central Library on Fourth Avenue between Madison and Spring Streets and the Seattle Parks and Recreation Department at Denny Park at Denny Way and Ninth Avenue N.

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 define these neighborhoods. Transportation services and infrastructure define accessibility within and between the neighborhoods. Neighborhood cohesion, however, is the "glue" that gives each its own unique identity. The following subsections describe the various elements of cohesion in the study area neighborhoods:

- Community life, neighborhood identity, population and employment
- Land uses, gathering places, and affordable housing
- Transportation facilities, services, and automobile dependence
- Linkages to community facilities and social services
- Isolation or separation
- Interaction between people

4.10.1 Community Life, Neighborhood Identity, Population, and Employment

Each of the several study area neighborhoods has its own identity and unique population of residents, customers, employees, and tourists. Pioneer Square is an important symbol of the city and its historic early days as the shipping off point for Alaska-bound gold miners during the Klondike Gold Rush. In particular, the totem pole and pergola at the square and the Smith Tower are representative elements of the surrounding historic district. The large cargo loading cranes that tower above nearby buildings to the south symbolize the region's trade links to the Pacific Rim. Near the ports and warehouses, employees are present at all hours. Office employees are generally present during the workweek, while residents are present at all times.

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. 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, which continue to link Seattle to its maritime past. The population is predominantly weekday office employees, and tourists who are present throughout the week.

The Commercial Core represents the predominant economic core of 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 quieter. In contrast, street-level activity increases on weekends in the downtown retail and hotel district focused around Westlake Center. The area is popular for downtown and suburban residents, tourists, and

convention visitors, while residents of high-rise apartments and condominiums are a growing part of the population.

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, tourists, and residents annually. Tourists tend to congregate at and around the Pike Place Market and Space Needle.

In contrast, the neighborhoods of the Belltown, Uptown, Denny Triangle, and South Lake Union are in transition. Many large residential complexes and office buildings have been built in these neighborhoods in the past 10 years. Belltown 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. Because of the large residential population, the neighborhood is active most days and most hours.

The new office buildings in the Denny Triangle have extended the downtown office district north toward 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 other high-technology companies. The South Lake Union neighborhood ties into downtown with the city's new streetcar line and the upcoming opening of the Bill and Melinda Gates Foundation Campus. The neighborhood's population of weekday office employees and residents is growing; employees at light industrial businesses are still present.

Exhibit 4-13 lists the total number of businesses and employment for each ZIP code area in 2007. This information was used to assess the significance of the displacement of businesses and employees and the effects on community cohesion.

Exhibit 4-13. Total Business and Employment, 2007

Neighborhoods	ZIP Code	No. of Businesses	No. of People Employed
Pioneer Square and south Commercial Core	98101	3,006	67,051
North Commercial Core and east Denny Triangle	98104	2,220	40,583
South Lake Union and east Uptown	98109	1,570	36,035
Belltown and west Denny Triangle	98121	1,202	24,757
Total		**7,998**	**168,426**

Source: U.S. Census Bureau 2009.

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.

In the Pioneer Square area, the gathering places tend to be public places such as sidewalks, parks, and neighborhood restaurants, taverns, and nightclubs. An example of a gathering place is the Western Building with a small community of artists who have used this building for workspace and studio space. The artists open their studios to the public for Pioneer Square's First Thursday Art Walk each month. 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 cafés. In the Commercial Core, there are public plazas, restaurants, cultural institutions, shopping centers such as Westlake Center and Pacific Place, and lunchtime food courts. 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 large new apartment and condominium complexes also have large courtyards, exercise rooms, or common rooms.

No community centers are located within the study area. However, most of the neighborhoods have community councils that hold regular meetings and host formal and informal activities where residents can gather and interact.

4.10.3 Transportation Facilities, Services, and Automobile Dependence

SR 99 is one of two major north-south highways that provide direct access to downtown Seattle. Through-traffic travels from northwest and southwest Seattle to destinations south and north of downtown, including Sea-Tac Airport.

SR 99 follows the city waterfront, travels in the Battery Street Tunnel under the Belltown neighborhood, and continues at-grade to neighborhoods north of the Lake Washington Ship Canal. High volumes of traffic use the highway daily (including passenger vehicles, commercial vans, large freight and delivery trucks, taxis, and buses). Appendix C, Transportation Discipline Report, provides a detailed description of SR 99 and its function in the regional transportation network.

In the south and central portions of the study area, SR 99 is elevated (Alaskan Way Viaduct) 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. Six lanes of traffic and raised median barriers greatly restrict vehicle, pedestrian, and bicycle crossings of SR 99. Between Denny Way and Aloha Street, only Mercer and Broad Streets allow traffic to cross under the highway. For all other streets, traffic is allowed to make only 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 the downtown area. Washington State Ferries provide connections to Bainbridge Island and Bremerton. Buses, taxis, and the monorail provide transportation throughout the study area. The South Lake Union line of the Seattle streetcar also provides frequent service between Westlake Center and the South Lake Union neighborhood. Free bus service in the Central Business District (CBD) from 6:00 a.m. to 7:00 p.m. 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 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, where the Olympic Sculpture Garden is located. A continuous bicycle and walking trail provides north-south connections along the waterfront.

On-street short- and long-term (paid and unpaid) parking spaces are available along most streets throughout the study area. In general, there are about 1,200 on-street parking spaces, of which about 900 are metered. Off-street parking in the study area totaled more than 68,000 spaces as of 2006. The Commercial Core has the highest number of spaces (23,437) and Pioneer Square the lowest (6,023). Exhibit 4-14 shows available off-street parking and utilization by neighborhood.

Exhibit 4-14. Available Off-Street Parking, 2006

Neighborhood	Parking Zones[1]	No. of 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		68,314	63%

Source: PSRC 2006a.

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.

4.10.4 Linkages to Community Facilities and Social Services

Many study area residents, particularly those who are low-income, have few linkages with the 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 over 17,000. Theaters, performing arts centers, art museum, and sports stadiums attract people from all over the region and beyond. Lower-income residents may be less likely to use these community facilities; therefore, 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 services for a large number of downtown residents (Crisis Clinic 2009). Some of these services assist people residing outside the immediate area; however, most directly support the basic life necessities for the substantial low-income and homeless population residing in the southern and central portions of the study area (see Exhibit 4-5).

4.10.5 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 elevated portion of SR 99 separate industrial port facilities from the mixed residential and retail land uses near Safeco and Qwest Fields. Here, the viaduct traverses the western portion of the Pioneer Square neighborhood. However,

surface streets allow vehicles, pedestrians, and bicyclists to travel 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. Mixed land uses, including high-rise offices, restaurants, retail shops, and residential buildings, extend along the east side of the viaduct. In this segment, the elevated structure visually bisects the neighborhood.

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 SR 99. Through the Belltown neighborhood, however, the roadway is in the Battery Street Tunnel. Therefore, it does not divide the neighborhood either physically or visually. North of Denny Way, however, the lack of intersections and the raised median barrier along SR 99 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.

4.10.6 Interactions Between People

Because the study area is located in downtown Seattle, there are numerous opportunities for people to interact on sidewalks, buses, parks, restaurants, coffee houses, and neighborhood taverns.

Interactions between people in the Pioneer Square neighborhood are 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 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. Pike Place Market and Westlake Center offer many opportunities for people to interact, in part due to vendor stalls, 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 Seattle due to its many and varied venues. The nearby Uptown commercial district is a popular place for local residents and theater-goers. Interaction between people in the Belltown, Denny Triangle, and South Lake Union neighborhoods is more limited due to the smaller number of gathering places and ongoing street-level disruption from construction projects.

Chapter 5 OPERATIONAL EFFECTS AND MITIGATION

This chapter describes long-term operational effects on social resources that are anticipated to occur under the Viaduct Closed (No Build Alternative) and the three build alternatives: Bored Tunnel Alternative, Cut-and-Cover Tunnel Alternative, and Elevated Structure Alternative (see Appendix B, Alternatives Description and Construction Methods Discipline Report). The potential adverse and beneficial social effects discussed in this chapter are related to property acquisition, housing and population, community facilities, parks and recreation, religious institutions, social and employment services, cultural and social institutions, government institutions, national defense installations, and neighborhood cohesion. Also described are the potential environmental justice effects of the operation of the proposed roadway improvements. Recommended mitigation measures for the operational effects are presented for each build alternative.

5.1 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 a build alternative were 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 would 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 two scenarios. 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 for the time being, but a minor or moderately strong earthquake or some other event would lead to sudden unplanned damage to or weakness in the viaduct, requiring its closure.

The damage that causes the 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 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 few ways (or no way) to avoid the area affected by the damage to the viaduct, and they would have no options for obtaining 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 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 the 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 after a major earthquake. The immediate effects of Scenario 2 would be more severe and

more extensive than the effects described for Scenario 1. The 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 for Scenario 1; however, these effects would be substantially greater in magnitude and duration. If homeless or other persons are 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 – Bored Tunnel Alternative

The Bored Tunnel Alternative (preferred) would have few long-term adverse social effects on the study area neighborhoods. The potential long-term adverse social effects of the Bored Tunnel Alternative are generally related to changes in neighborhood access, travel routes, and travel time. The Bored Tunnel Alternative would change how people in the region access the downtown area. Vehicle, transit, and pedestrian movements within and between downtown neighborhoods would change. 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 the associated noise would change—higher and lower in different neighborhoods. The amount of on- and off-street parking would change somewhat. All of these effects would, in turn, slightly change 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 5.4). Circulation to and from neighborhoods would improve, 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 Property Acquisition

Largely because the alignment needed for the Bored Tunnel Alternative would be underground, the effects of right-of-way acquisition would be minimal and would occur only in the south and north portal areas. No residential property,

community facilities, religious institutions, social services, cultural or social institutions, government institutions, or national defense installations would be acquired or displaced.

Of the 13 parcels that would be affected by right-of-way acquisition, one nonprofit tenant would be affected. The acquisition of one building would result in the displacement of one nonprofit tenant (the Seattle Jobs Initiative), a policy and research agency. This 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.

Subsurface property acquisitions would be required for construction of the bored tunnel through downtown (see Attachment A of Appendix G, Land Use Discipline Report). 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. Because of the depth of the tunnel, these permanent rights-of-way would not affect the long-term use of or access to and from these properties.

South Portal

Two full and three partial parcel acquisitions would be needed near the south portal of the bored tunnel. One building with approximately 25 employees would be displaced. With almost 2,200 businesses and 41,000 jobs near the south portal (i.e., in ZIP code 98104), these job displacements would not be substantial (see Section 4.10.1) (U.S. Census Bureau 2009). No private property would be acquired for the proposed new local streets near the south portal.

Central Segment

No residential property, community facilities, religious institutions, social and employment services, cultural or social institutions, government institutions, or national defense installations would be acquired or displaced in the central area. Social resources would continue to have reasonable access.

North Portal

Near the north portal, there would be four full parcel acquisitions and three partial parcel acquisitions. The acquired properties would result in the displacement of one office building with approximately 119 employees. With almost 1,600 businesses and over 36,000 jobs around the north portal (i.e., in ZIP code 98109), these job displacements would not be substantial (see Section 4.10.1) (U.S. Census Bureau 2009). Near the north portal, WSDOT would acquire the east edge of the Bill and Melinda Gates Foundation Campus for the extension of Sixth Avenue N.

5.2.2 Housing and Population

The Bored Tunnel Alternative would require no acquisition of residential properties. Since residents would not be displaced, the general demographic characteristics of the study area neighborhoods would not change in the long term as a result.

South Portal

The new SR 99 interchange at S. Royal Brougham Way would provide access that is more direct for residents who may work outside the downtown area and persons traveling to and from the Pioneer Square neighborhood.

Central Segment

With the removal of the Alaskan Way Viaduct downtown ramps, access to the Commercial Core would change. Access to housing in the Commercial Core would be less direct, because motorists and transit would need to exit SR 99 at either the south portal or the north portal of the bored tunnel and then travel via local streets. With the elimination of the downtown on- and off-ramps, peak-hour traffic congestion would be reduced on Columbia and Seneca Streets and Elliott and Western Avenues. 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 Bell Street.

North Portal

Turning movements near the north portal of the bored tunnel should be improved relative to existing conditions. More importantly, reconnection of three local streets over Aurora Avenue would greatly increase circulation in the area. For further discussion of operational benefits, see Section 5.4.

5.2.3 Community Facilities

Property acquisitions for the Bored Tunnel Alternative would not affect community facilities in the study area neighborhoods. For people who work in downtown community facilities or for those seeking services at community facilities in the study area, primarily educational institutions, access would change slightly. Improved transit would provide increased access to community facilities. However, these facilities would still have reasonable access.

South Portal

Transit access from outside downtown to some portions of downtown through the south portal area would likely improve with the new linkages, such as the

new S. Dearborn Street intersection and new SR 99 on- and off-ramps. These improvements would increase east-west connectivity.

Central Segment

For those traveling from outside 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 less direct, and travel times may be somewhat longer for some destinations in the central segment. For transit-dependent persons, transit travel to and from the Commercial Core may increase slightly.

North Portal

Transit access from outside downtown to some portions of downtown through the north portal area would likely improve because of the reconnected and improved surface streets and new SR 99 on- and off-ramps. These improvements would increase east-west connectivity.

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.

All parks and recreation resources may be affected by changes in nearby traffic volumes, which in turn may change noise levels (see Appendix F, Noise Discipline Report and Exhibit 4-11).

South Portal

Improvements in the south portal area would provide improved connections to park and recreation facilities. 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.

Central Segment

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 Alaskan Way Viaduct would provide opportunities for improving 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; therefore, they are discussed below with the indirect effects of the Bored Tunnel Alternative (Section 5.3).

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. Before construction, a decision will be made to remove or relocate the installation. A relocation site has not been identified at this time.

North Portal

The Bored Tunnel Alternative would change the configuration of SR 99 and nearby streets near the north portal. The new configuration would include reconnecting three surface streets 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.

Reconnecting surface streets across Aurora Avenue would improve circulation near Denny Park and Seattle Center, which would provide increased opportunities for park access and local traffic circulation. In addition, nonmotorized and pedestrian circulation would be improved, with widened sidewalks and a pedestrian/bicycle path along Mercer Street as well as the reconnected surface streets at John, Thomas, and Harrison Streets.

5.2.5 Religious Institutions

The Bored Tunnel Alternative would require no acquisition of religious institutions. Property acquisitions would not adversely affect religious institutions in the study area neighborhoods, and they would still have reasonable access.

South Portal

Access from outside the downtown area to some portions of downtown, especially near the tunnel portal areas, would likely improve. Travel routes to and from religious institutions would likely change in the vicinity of roadway improvements, resulting in slightly increased or decreased travel times.

Central Segment

Access to religious institutions for individuals living in other Seattle neighborhoods or suburban communities would change because of the elimination of downtown on- and off-ramps. For religious institutions in the central segment, slightly increased travel times or changes in travel routes would occur.

North Portal

Access from outside the downtown area to some portions of downtown, especially near the tunnel portal areas, would likely improve. Travel routes to and from religious institutions would likely change in the vicinity of roadway improvements, resulting in slightly increased or decreased travel times.

5.2.6 Social and Employment Services

The Bored Tunnel Alternative would require no acquisition of property owned by social and employment service organizations, and these organizations would continue to have reasonable access. One nonprofit tenant, a tenant in a building that would be acquired in full, would be displaced. Seattle'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 downtown Seattle would change somewhat. Some travel routes could be longer and more time-consuming, while others would be shorter and more direct.

South Portal

No social or employment services would be acquired or displaced in the south portal area.

Central Segment

No social or employment services would be acquired or displaced in the central segment.

North Portal

The acquisition of one building would result in the relocation of one nonprofit tenant, the Seattle Jobs Initiative. However, this community-based administrative organization has no direct contact with job seekers or members of any environmental justice population; rather, it coordinates with other community-based organizations, such as the community colleges and other training programs. It is also anticipated that this organization could relocate within or near the study area. There would be no adverse effects on social or employment services in the north portal area.

5.2.7 Cultural and Social Institutions

The Bored Tunnel Alternative would not require the acquisition of any cultural or social institutions. Property acquisitions for the Bored Tunnel Alternative would not adversely affect cultural or social institutions because residents of local neighborhoods, the metropolitan area, and elsewhere would still have reasonable access to all existing exhibition centers, landmarks, museums, performing arts

venues, and professional sports venues. The effects on cultural and social institutions would not be substantial, however.

South Portal

The new south tunnel portal and east-west intersection would improve access to and from the sports arenas, exhibit hall, and events centers at Safeco and Qwest Fields.

Central Segment

No substantial effects on any social or cultural institutions in the central segment are anticipated with the Bored Tunnel Alternative. The removal of the Alaskan Way Viaduct along the central waterfront would affect the route of some 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 and accommodate similar numbers of participants. With the closure of the downtown on- and off-ramps, some travel routes would change, and travel times would increase slightly, especially to venues in the Commercial Core neighborhood.

North Portal

Reconnecting the local street grid over Aurora Avenue and the other improvements in the north portal area may reduce congestion and improve access to the many cultural venues at Seattle Center.

5.2.8 Government Institutions and National Defense Installations

The Bored Tunnel Alternative would not require the acquisition of any government institutions, such as local, state, or federal government offices, or national defense installations. Travel routes and times to and from downtown government offices would change for some travelers. Depending on their destination, travelers to the many government offices in the Commercial Core neighborhood would need to exit SR 99 in the Uptown/South Lake Union or Pioneer Square neighborhoods. As such, access would change. For some, it would be circuitous, for others more direct. Travel times may also increase somewhat for some travelers. These changes are not expected to be substantial.

South Portal

No government institutions or national defense installations would be acquired or displaced in the south portal area.

Central Segment

No government institutions or national defense installations would be acquired or displaced in the central segment.

North Portal

No government institutions or national defense installations would be acquired or displaced in the north portal area.

5.2.9 Neighborhood Cohesion

The predominant effects of the Bored Tunnel Alternative on neighborhood cohesion would be beneficial. This alternative would place SR 99 underground through most of the study area, which would result in improved neighborhood cohesion because of better connectivity and access. The effects on neighborhood cohesion in the study area would be minor and are described below.

Because few properties are needed for right-of-way acquisition, there would be no substantial changes in the neighborhood land uses (see Sections 4.10.1 and 5.2.1).

The 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. The neighborhood characteristics and special attributes would not change substantially. The unique neighborhood identities, historic buildings, character, tourist attractions, and identity would remain.

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.

South Portal

The tunnel operations building at the south portal would be new in the community. The building's height would generally be no more than about 65 feet, which is similar to the heights of the surrounding buildings. The Building Design Guidelines (and the City's Design Commission's input) will influence the design of the building's appearance. See also Appendix D, Visual Quality, for a discussion of the portal buildings. The design guidelines will help to ensure that the new building blends into the existing character of the Pioneer Square neighborhood.

The Pioneer Square neighborhood would experience an increase in traffic congestion. Motorists who previously used the downtown on- and off-ramps would need to access SR 99 either 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 disrupt neighborhood cohesion substantially or increase isolation or separation, because traffic through downtown would be dispersed. For additional information on traffic effects, see Appendix C, Transportation Discipline Report.

Transportation circulation and access would improve in the south portal area. The new S. Dearborn Street intersection with Alaskan Way S. and First Avenue S. would increase neighborhood mobility, particularly for pedestrians and bicyclists.

Near the south portal, about 110 on- 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 4.10.3).

Central Segment

In the central segment, the transportation facilities would change compared to the existing conditions. The Bored Tunnel Alternative includes no on- and off-ramps in the Commercial Core. The on- and off-ramps in the south and north 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 less direct, and travel times would increase. Vehicles and transit would need to travel through one or more downtown neighborhoods to arrive at desired destinations. No on- or off-street parking would be displaced in the central segment.

The most substantial change would result from the demolition of the Alaskan Way Viaduct along the waterfront and the construction of a tunnel, which would ultimately reduce the noise levels on the Alaskan Way surface street. Removal of the viaduct would eliminate a major physical and visual obstruction separating the waterfront from the rest of downtown. It would also eliminate the shadow effect created by the existing viaduct. (For additional discussion of visual effects, see Appendix D, Visual Quality Discipline Report.) These changes may encourage people to walk to the waterfront, thereby reducing the perceived barrier of the viaduct separating the waterfront from the rest of the Commercial Core. These changes could be seen as an operational benefit by improving neighborhood cohesion along the central waterfront.

North Portal

The tunnel operations building located between Thomas and Harrison streets at the north portal would be new in the community. The building's height would generally be no more than 60 feet, similar to the heights of the surrounding buildings. Similar to the south portal building, Building Design Guidelines and the City's Design Commission review would help to ensure that the new building blends into the existing character of the area. See also Appendix D, Visual Quality Discipline Report for further discussion on the north portal tunnel operations building.

The Uptown and 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 either 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 disrupt neighborhood cohesion substantially or increase isolation or separation, because traffic through downtown would be dispersed. For additional information on traffic effects, see Appendix C, Transportation Discipline Report.

Reconnected local streets would help to improve transportation circulation near the north portal of the bored tunnel. John, Thomas, and Harrison Streets would be reconnected 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.

Sixth Avenue N. would be extended in a curved alignment between Harrison and Mercer Streets to intersect Mercer Street close to Aurora Avenue. The new roadway would have two through lanes between Harrison and Mercer with additional turning lanes at the intersections (Harrison and Mercer) and ramp terminal. The intersection at Mercer Street would not be signalized because of sight distance restrictions and pedestrians and bicyclists would not be allowed to cross Mercer Street. There would be some limitations in access for all three modes of travel at Mercer Street, but these limitations would be necessary from a safety standpoint.

Near the north portal, approximately 280 on-street parking spaces would be eliminated. This reduction would not be substantial because there are more than 7,000 off-street parking spaces between Denny Way and Roy Street and between about Westlake Avenue N. and Fifth Avenue N. (see Section 4.10.3). For more information on parking issues, see Appendix C, Transportation Discipline Report.

5.2.10 Environmental Justice

With the exception of the effects on homeless people, minority and low-income populations in the study area would experience the same effects and benefits as the other populations in the study area. The following subsections describe the economic effects, transportation effects, and effects on homeless persons.

Economics

None of the resources displaced by the operation of the Bored Tunnel Alternative would be resources that are specifically important to minority or low-income

populations. The property acquisitions required for the Bored Tunnel Alternative would result in the displacement of the nonprofit Seattle Jobs Initiative, a policy and research agency. However, this organization has no direct contact with job seekers or members of any environmental justice population; it coordinates with other community-based organizations, such as community colleges and other training programs.

The Bored Tunnel Alternative would displace a small number of businesses. These displaced businesses do not provide unique services to low income or minority residents from the study area. The displaced businesses will be provided assistance as required by the Uniform Relocation and Assistance Act. See Appendix G, Land Use Discipline Report for a more specific discussion on project acquisitions.

Approximately 45 percent of households in the study area have no access to a private vehicle. This demographic characteristic sharply contrasts with an estimated 16 percent of Seattle households overall 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.

Transportation

As discussed elsewhere in this report and in Appendix C, Transportation Discipline Report, the Bored Tunnel Alternative would improve access to and from neighborhoods in the study area. Access to 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 service providers. The linkages between community resources would generally improve.

Concerns for minority and low-income populations include 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 issues associated with 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 changes in the transportation system. These populations may also have fewer transportation options than non-minority and non-low-income populations. The design for all of the build alternatives will meet the requirements of the Americans with Disabilities Act (ADA). Continued community outreach and communication may identify other

transportation effects and mitigation measures for minimizing the adverse effects. The impacts on the transportation system discussed below may affect social service providers and their patrons.

For people who depend on public transit, traveling downtown to access community facilities and social services could involve slightly longer travel times, but the changes are not expected to be substantial. Seattle's downtown low-income and homeless residents would continue to have good transit and pedestrian access to service providers in the corridor. Access to these organizations for workers living outside downtown Seattle would change. Some travel routes could be less direct and more time-consuming, while others would be shorter and more direct.

South Portal

Access to the neighborhoods near the south portal would be improved. The new S. Dearborn cross street would increase neighborhood mobility, particularly for pedestrians and bicyclists. This improvement would benefit the Pioneer Square area, (immediately east of the intersection) that is mostly contiguous with census tract 93(2), which has a large percentage of minority (42 percent) and low-income (49 percent) households (see Exhibit 4-5).

Downtown transit access to and from the south would change, because the Columbia and Seneca Street ramps would be relocated and buses would likely access downtown via the new ramps on Alaskan Way S. Transit would then use S. Main Street and/or S. Washington Street to access the north-south Third Avenue bus "spine." The new ramps would extend transit service coverage to a larger portion of the downtown area—particularly the Pioneer Square area. The Bored Tunnel Alternative would also provide a transit-only lane on the S. Royal Brougham Way off-ramp that would allow transit to bypass queues forming at the intersection.

Central Segment

The ramp connections for the Bored Tunnel Alternative would result in fewer traffic merges, particularly in the midtown area, where ramps to and from Elliott and Western Avenues and Seneca and Columbia Streets would no longer be provided, resulting in improved overall traffic flow and traffic speeds. For those traveling from outside the downtown area, there would be no downtown on- or off-ramps in the Commercial Core neighborhood for motorists or transit. Consequently, the routes might be slightly less direct, and travel times may be somewhat longer to some destinations in the central segment. For transit-dependent persons and others using transit, travel times to and from the Commercial Core may increase slightly. The Commercial Core includes social/employment services providers, particularly to the north along Pike Street.

This area also includes census tract 81(2), which has a large percentage of low-income (63 percent) and minority (47 percent) households (see Exhibit 4-5).

North Portal

Reconnection of local streets over Aurora Avenue would greatly increase neighborhood connections and circulation in the area, benefitting transit-dependent commuters and pedestrians. The Bored Tunnel Alternative would provide three additional east-west streets across SR 99 north of Denny Way.

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. Regardless of the legality of the situation, however, the potential effects of the Bored Tunnel Alternative on the homeless population have been and will still be considered. The project team continues to develop ways to coordinate with social service providers to notify and ensure the safety of homeless individuals who may be using areas in the study area for shelter. The project will comply with both the 2008 WSDOT Guidelines to Address Illegal Encampments within State Right-of-Way and State Executive Order 06-08 on Encampments.

5.3 Indirect Effects – 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 (preferred), and they may occur outside the immediate study area. The following subsections discuss long-term indirect operational effects on neighborhood cohesion, parks and recreation, and environmental justice.

5.3.1 Neighborhood Cohesion

The Bored Tunnel Alternative would affect only 13 properties; therefore, no substantial changes would result from right-of-way acquisition. Minor 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. The residential population and demographics are not expected to change. Neighborhood cohesion is not likely to be affected.

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 pressure 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 could increase the desirability of existing properties or redevelopment pressures on parcels immediately adjacent to the existing Alaskan Way Viaduct because of increased visibility, new views of the waterfront, and reduced noise.

The Bored Tunnel Alternative would provide a new cross street at S. Dearborn Avenue intersecting First Avenue S. and Alaskan Way S., eliminate the SR 99 ramps at Western Avenue and Bell Street, and decommission the Battery Street Tunnel.

The new S. Dearborn cross street and demolition of the existing viaduct could increase the neighborhood cohesion for residents in the adjacent areas of Pioneer Square.

In the Uptown and South Lake Union neighborhoods, the closure of Broad Street and the connection of three local streets would affect 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 of indirect effects, see Appendix D, Visual Quality Discipline Report, and Appendix G, Land Use Discipline Report.

5.3.2 Parks and Recreation

The additional open space opportunities resulting from the removal of the existing Alaskan Way Viaduct 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 reduced substantially by the elimination of the viaduct. The removal of the visual intrusion of the viaduct structure would integrate the urban context of downtown Seattle as an additional focus of visual interest from both the waterfront toward downtown to the east, and from downtown toward the waterfront to the west. The benefits would be experienced in a similar manner by all park and recreation facilities along this portion of the corridor.

5.3.3 Environmental Justice

The elimination of the Alaskan Way Viaduct could improve the perceived quality of life for residents of the Pioneer Square neighborhood, which has a relatively large percentage of low-income and minority households. In the Uptown and South Lake Union neighborhoods, the closure of Broad Street and the connection of the local street grid should affect the desirability of these neighborhoods, especially the properties immediately east of Aurora Avenue. The population of this area is 30 percent minority, higher than the study area average of 25 percent.

An improved transportation system would provide benefits to local government, commuters, businesses, freight interests, and property owners. Eventually, improved access could indirectly increase business interest, such as new commercial or retail shops. Where improved access to the Commercial Core and the waterfront may facilitate commute trips from surrounding neighborhoods, some development activity and/or increased shopping visits may be stimulated by the desirability of this connection. If commercial and construction activity is stimulated in the study area, there is a potential for job growth that could benefit environmental justice populations in the area.

5.4 Operational Benefits – Bored Tunnel Alternative

The Bored Tunnel Alternative (preferred) would substantially improve neighborhood quality of life and cohesion for most of the study area neighborhoods, as described in the following subsections.

5.4.1 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 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 Alaskan Way Viaduct along the central waterfront would substantially improve the experience of pedestrians walking to, from, and along the waterfront. The elimination of the existing downtown on- and off-ramps 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 elimination of the viaduct 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.

5.4.2 Transportation Services and Facilities

Near the south portal of the Bored Tunnel Alternative, the new cross street at S. Dearborn Street would improve the connection between the waterfront and the Pioneer Square neighborhood. Near the north portal, the three new local streets (at John, Thomas, and Harrison Streets) across SR 99 would improve access to and mobility within the Uptown and South Lake Union neighborhoods.

The below-grade alignment of the bored tunnel south of Harrison 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 reconnecting John, Thomas, and Harrison Streets. Moreover, pedestrians, bicyclists, and transit riders would have increased access to neighborhoods, parks, and cultural destinations with the new surface street connections. Dependence on cars in the study area neighborhoods could decrease.

5.4.3 Linkages to Community Facilities and Social Services

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

5.4.4 Isolation or Separation

The Bored Tunnel Alternative would reconnect local streets in the north portal area, which would reduce neighborhood isolation or separation. The existing 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 crossings 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 streets would be reconnected, and the existing Mercer Street crossing would be widened. These street improvements, which would include sidewalks and bicycle facilities, 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.

5.4.5 Interaction Between People

The Bored Tunnel Alternative would increase interactions between people in the study area. Elimination of the existing Alaskan Way Viaduct would likely encourage more pedestrian and bicycle traffic 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, and visitors from suburban cities or communities outside the metropolitan region.

5.4.6 Environmental Justice

The operational benefits of the Bored Tunnel Alternative would apply to minority and low-income populations in the study area. The benefits would be realized by the public as a whole, and minority and low-income populations would similarly benefit.

5.5 Mitigation of Operational Effects – Bored Tunnel Alternative

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 the potential displacement effects of the Bored Tunnel Alternative (preferred). The mitigation of operational effects for the Bored Tunnel Alternative would be limited to minimizing the effects of long-term changes, particularly changes in downtown access, immediately after the completion of project construction.

Therefore, the most important mitigation measures for avoiding, minimizing, or reducing these adverse effects are community outreach and communication during the initial months before and after the opening of the new transportation facilities. The following subsections identify community outreach and communication activities that should occur before the opening of the new bored tunnel to educate and prepare the public for changes in their community.

5.5.1 Communication

- Coordinate the opening of the facilities with other modes of transportation—buses, ferries, taxis, water taxis, 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 would 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 or mobility disabilities, the elderly, low-income people, and the transit-dependent. Such outreach should use English and other languages to accommodate the area's diverse population. For an overview of the outreach program, see Appendix A, Public Involvement Discipline Report.
- Develop a coordinated outreach program to communicate new transit operations to disadvantaged populations, including persons with limited English proficiency or mobility disabilities, the elderly, low-income people, and the transit-dependent. Such outreach should use English and other languages to accommodate the area's diverse population. This program would 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 the needs of individual organization and agencies.
- Use newsletters, websites, community e-mail updates, posters, newspaper inserts, television and radio announcements, public meetings, presentations to neighborhood groups, interviews with social service providers, interviews at community events, and other methods of communication to communicate project information and engage agencies, tribes, and the public. Publish these messages in English and other 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.

5.5.2 Facilitation

- Install a substantial network of temporary signs, posters, or reader boards to guide vehicle and transit traffic during the first several weeks or months after the opening of the new roadway facilities. Consider using a special opening-event logo or theme so that the signs are easily recognizable.

- Establish an interactive website that allows 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 have changed after project construction is completed.
- Use special signage to alert pedestrians to changes to the pedestrian bridges and structures on the Alaskan Way surface street, 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.

5.5.3 Monitoring

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:

- 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 their effectiveness.
- 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 minority and low-income populations and homeless persons, including those living on the street.
- Work with housing authorities, citizen participatory groups, and social service providers to identify new access routes and parking areas for low-income and minority clients, deliveries, and emergency vehicles. Low-income persons include self-sufficient persons, homeless persons, and those living on the streets or in their vehicles. This effort would include working with service providers to disseminate information about changes in transit routes and service 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.

5.6 Operational Effects – Cut-and-Cover Tunnel Alternative

This section discusses potential effects on social resources after construction of the Cut-and-Cover Tunnel Alternative. Like the Bored Tunnel Alternative, the analysis focuses on effects primarily resulting from right-of-way acquisition and changes within neighborhoods due to altered travel routes. The Cut-and-Cover Tunnel Alternative would have few long-term adverse social effects on the study area neighborhoods. Individually, or in combination, changes in transportation infrastructure resulting from the Cut-and-Cover Tunnel Alternative would generally lead to long-term beneficial effects on social resources (see Section 5.8).

5.6.1 Property Acquisition

Most of the alignment of the Cut-and-Cover Tunnel Alternative would be within existing right-of-way. The acquisition effects of the Cut-and-Cover Tunnel Alternative would be more substantial than those of the Bored Tunnel Alternative, because the tunnel would be cut and covered along Alaskan Way and the waterfront, rather than bored under downtown. Although there would be many more full and partial acquisitions necessary for the Cut-and-Cover Tunnel Alternative, no social resources would be acquired.

South Segment

In the south segment, the Cut-and-Cover Tunnel Alternative would require the partial acquisition of three properties; no full acquisitions are anticipated in the south segment. Therefore, no jobs or businesses would be displaced in the south segment, and the partial acquisitions would not affect social.

Central Segment

In the central segment, there would be 5 full and 12 partial parcel acquisitions. The Cut-and-Cover Tunnel Alternative would require the full acquisition of two structures: an office building and a retail establishment. These displacements would affect an estimated 24 jobs, which is a small percentage of the more than 100,000 jobs in the central segment (PSRC 2006b). The owners of the displaced businesses may or may not find property within the immediate area on which to relocate. Neighborhood residents could consider the loss of any displaced businesses an adverse effect.

North Segment

Property acquisitions in the north segment would be more substantial than in the other corridor segments. In the north segment, 20 properties would be acquired:

11 full and 9 partial acquisitions. The 11 full acquisitions include nine buildings, none of which houses social resources. However, one residential condominium property with 132 units would need to be acquired under the Cut-and-Cover Tunnel Alternative. These full acquisitions would displace an estimated 100 jobs, a small number compared to the more than 58,000 jobs in the north segment (PSRC 2006b). Widening and lowering Aurora Avenue would generally enlarge the footprint of roadway facilities.

5.6.2 Housing and Population

Acquisition of one residential condominium property with 132 units would be required under the Cut-and-Cover Tunnel Alternative. Since the residential acquisition would be contained within one city block, the general demographic characteristics of the study area neighborhoods would not change in the long term.

South Segment

In the south segment, the effects of the Cut-and-Cover Tunnel Alternative on housing and population would be the same as those described for the Bored Tunnel Alternative (see Section 5.2.2). The new SR 99 interchange at S. Royal Brougham Way would provide more direct access for residents who work outside the downtown area and persons traveling to and from the Pioneer Square neighborhood.

Central Segment

Although access to residential development and travel routes in the central segment may differ from existing conditions; vehicle and pedestrian access to the market-rate apartments, condominiums, low-income housing, and homeless shelters would be similar to today.

Appendix G, Land Use Discipline Report, provides detailed information about property acquisitions and Appendix L, Economics Discipline Report, provides detailed information on potential displacement of businesses and jobs.

North Segment

One residential building would be acquired in full. This property was recently developed as a condominium building with 132 units, and just less than half of the units were sold as of the 2010 tax year (King County Department of Assessments 2010). In addition, partial property acquisitions would occur at one mixed commercial and residential property. The land to be acquired is in front of the commercial structure; therefore, there should be little effect on the adjacent residential building.

5.6.3 Community Facilities

South Segment

In the south segment, the effects of the Cut-and-Cover Tunnel Alternative on community facilities would be the same as those described for the Bored Tunnel Alternative, which include improved linkages and east-west connectivity (see Section 5.2.3).

Central Segment

No community facilities would be acquired. Numerous public and private educational institutions are generally located in the central segment, and the travel routes to these facilities would change because of the lack of downtown ramps. Travel routes and travel times to and from these community facilities would change, but not substantially.

North Segment

No community facilities in the north segment would be affected by building or land acquisition. Transit access through the north portal area to some portions of downtown would likely improve as a result of the reconnected and improved surface streets and new SR 99 on- and off-ramps. These improvements would increase east-west connectivity.

5.6.4 Parks and Recreation

The Cut-and-Cover Tunnel Alternative would benefit parks and recreation resources with more effective connections between facilities and additional opportunities to use the surface area above the tunnel for a variety of open space and recreational opportunities, similar to those provided by the Bored Tunnel Alternative (see Section 5.2.4). The change in the urban context would allow elements of the park and recreation system to be better integrated into Seattle's downtown neighborhoods rather than being separated by the existing elevated Alaskan Way Viaduct. The following subsections describe the effects of the Cut-and-Cover Tunnel Alternative on parks and recreation resources that would differ from those of the Bored Tunnel Alternative.

South Segment

In the south segment, the effects of the Cut-and-Cover Tunnel Alternative on parks and recreation resources would be the same as those described for the Bored Tunnel Alternative.

Central Segment

The removal of the existing viaduct would improve the integration of existing park and recreation uses along the waterfront and increase opportunities for

developing open space along the waterfront. The benefits would be experienced in a similar manner by all park and recreation facilities along this portion of the corridor.

Expansion of the waterfront promenade would provide multiple opportunities for landscaping, seating, and other amenities that would enhance open space functions along the Alaskan Way surface street. The relocation of the surface street to the east, provision of a local access lane with low traffic volumes, and a corridor for the waterfront streetcar would separate the promenade from traffic noise and hazards.

All of these design features would add to pedestrian capacity and provide additional opportunities for enjoying the waterfront through both passive and active recreation activities. Furthermore, all tourist attractions, such as the piers, the Seattle Aquarium, the Pike Place Market, the Pike Street Hillclimb, and other facilities along the waterfront and in the central segment, would benefit from the removal of the viaduct, increased access, and increased pedestrian activity. The removal of the visual intrusion of the viaduct would add the urban context of downtown Seattle as an additional focus of visual interest. In addition, the Waterfront Bicycle/Pedestrian Facility would be upgraded and improved, further contributing to these beneficial effects.

The loss of parking under the existing viaduct and in the triangular parcel across from the Seattle Aquarium may affect the perception of accessibility for the aquarium visitors who live in King County and are likely to access the aquarium primarily by private vehicle. The largest supply of parking is the public parking garage north of Pike Street, which has an entrance on Alaskan Way. The parking garage entrance for the aquarium would be affected by the lid over the SR 99 roadway at Victor Steinbrueck Park and would need to be modified for effective orientation. The demand for parking related to the Pike Place Market could also affect the perceptions of local visitors about readily accessible parking for the aquarium. Parking supply and potential mitigation measures are discussed under construction impacts.

Users of the Victor Steinbrueck Park would benefit from the lid proposal that would provide a pedestrian connection between Victor Steinbrueck Park at the Pike Place Market and the central waterfront and opportunities for a variety of landscaping and open-space options. With the Victor Steinbrueck Park lidded structure, the facilities adjacent to the cut-and-cover tunnel would experience a substantial reduction in the current high noise levels of SR 99. The lid has the potential to create a system of open spaces along the entire waterfront, in conjunction with the sloping triangle park area between Pike and Pine Streets and a potential direct connection with the Lenora Street pedestrian bridge.

North Segment

With one exception, the effects on parks and recreation resources in the north segment would be the same as those described for the Bored Tunnel Alternative.

Two installations of the Vine Street Grows public art project on the sidewalk would need to be relocated in a context that would meet the intent of the work in evoking the industrial heritage of the waterfront.

5.6.5 Religious Institutions

The Cut-and-Cover Tunnel Alternative would require no acquisition of religious institutions. Property acquisitions would not adversely affect religious institutions in the study area neighborhoods, and they would still have reasonable access.

South Segment

In the south segment, the effects on religious institutions would be the same as those described for the Bored Tunnel Alternative.

Central Segment

No religious institutions would be acquired in the central segment. The religious institutions in the central segment are not close to SR 99. Vehicle and transit access to these facilities would change because of the elimination of the downtown ramps. Travel routes would change and travel times would lengthen, but these changes would not be substantial, considering that travel to these institutions is not likely to be an everyday occurrence.

North Segment

Several religious institutions are located near the north segment; however, none would be affected by property acquisition.

5.6.6 Social and Employment Services

South Segment

No social and employment services would be acquired in the south segment under the Cut-and-Cover Tunnel Alternative.

Central Segment

Many social and employment services are located in the central segment, but only one would be affected by property acquisition. The property, which is owned by the Catholic Archdiocese, is the Catholic Seamen's Club. This agency operates various social services for seamen on the ships coming into port, and leases out a portion of the building to others. In the past several years, the number of persons who have visited the Catholic Seamen's Club has declined, because new

Homeland Security regulations now prohibit many foreign national seamen from leaving their ship while it is in port (Waud and Dias 2003). As a result, the Catholic Seamen's Club now brings services to these clients on their ships. The acquisition of this property and the resulting displacement of this social service would be an adverse effect.

North Segment

No social or employment service organizations would be acquired in the north segment under the Cut-and-Cover Tunnel Alternative.

5.6.7 Cultural and Social Institutions

South Segment

In the south segment, the effects on cultural and social institutions would be the same as those described for the Bored Tunnel Alternative: access would be improved to and from the sports arenas, exhibit hall, and events center at Safeco and Qwest Fields.

Central Segment

Many cultural and social institutions are located in the central segment, but none would be affected by property acquisition for the Cut-and-Cover Tunnel Alternative. The historic Washington Street Boat Landing, however, would be temporarily relocated during construction and then replaced in nearly the same location. Most cultural and social institutions would not be affected by changes in local travel routes because they are several blocks from the project corridor. With no ramps at Columbia and Seneca Streets, however, traffic would need to exit to the south or north of the central downtown area to reach destinations at cultural and social institutions. Traffic routes would change, and travel times may increase. However, visits to these institutions are not an everyday occurrence for most travelers, and some may occur during nonpeak times. Therefore, these effects are not likely to be substantial.

North Segment

Cultural and social institutions in the north segment are several blocks away from the project corridor, primarily at Seattle Center. None would be acquired and all would likely benefit from congestion reduction and improved access due to the reconnection of two local streets over Aurora Avenue.

5.6.8 Government Institutions and National Defense Installations

South Segment

There are no government institutions or national defense installations in the south segment; therefore, there would be no effects.

Central Segment

Many local, state, and federal government office buildings and properties are located in downtown Seattle, and some are adjacent to the project corridor. Some property would be acquired from adjacent piers to accommodate the new alignment of the roadway. For the most part, property access is not expected to change.

For the many government office buildings located downtown, access from outside of Seattle would change because of the elimination of the existing central downtown off-ramps, which drivers could use to exit SR 99 south or north of the downtown core. Travel routes would change, and travel times may increase. For workers, this change may be an inconvenience, but it would not be a substantial change.

North Segment

No government institutions would be acquired in the north segment under the Cut-and-Cover Tunnel Alternative.

5.6.9 Neighborhood Cohesion

The effects of the Cut-and-Cover Tunnel Alternative on neighborhood cohesion would be predominantly beneficial. The Cut-and-Cover Tunnel Alternative would place SR 99 underground through most of the study area and would not result in substantial adverse effects on neighborhood cohesion. Although properties would be needed for right-of-way acquisition, there would be no substantial changes in the neighborhood land uses (see Sections 4.10.1 and 5.2.1). The effects on neighborhood cohesion in the study area would be minor and are described in the following subsections.

South Segment

The effects of the Cut-and-Cover Tunnel Alternative on neighborhood cohesion in the south segment would be the same as those described for the Bored Tunnel Alternative with one exception: about 220 on- 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 4.10.3).

Central Segment

In the central segment, the Cut-and-Cover Tunnel Alternative would change the waterfront area significantly compared to existing conditions. The changes due to the demolition of the elevated Alaskan Way Viaduct along the waterfront would be largely beneficial and the same as those described for the Bored Tunnel Alternative (see Section 5.2.9). Pedestrian access to the waterfront would improve compared to existing conditions, with the construction of the lid that connects to

Victor Steinbrueck Park. In addition, the existing pedestrian bridges would be maintained.

Changing the SR 99 alignment so that the Alaskan Way Viaduct would travel under Elliott and Western Avenues and converting the Bell Street and Western Avenue ramps to emergency access only would likely be viewed as a benefit to residents of the Belltown neighborhood. A portion of the existing elevated structure would be removed, and neighborhood traffic entering and exiting the facility would be reduced. In turn, neighborhood noise could also be reduced. These changes would likely be viewed as improvements in the quality of life and cohesion in the immediate area.

Conditions of the Battery Street Tunnel under the Cut-and-Cover Tunnel Alternative would be similar to existing conditions. The south portal of the Battery Street Tunnel would be reconstructed, but public perception of the accessibility of this neighborhood is not expected to change. These changes would not be substantial. Neighborhood cohesion should remain unchanged in the Belltown neighborhood surrounding the Battery Street Tunnel segment of the project corridor.

On-street parking would be reduced by approximately 240 spaces in the central segment. This long-term reduction in parking, however, is not substantial considering that more than 23,000 parking spaces are located in the Commercial Core, with a parking utilization rate estimated at 72 percent (PSRC 2006a). None of these changes is expected to affect neighborhood cohesion.

North Segment

In the north segment, the Cut-and-Cover Tunnel Alternative would result in both adverse and beneficial effects on neighborhood cohesion. This alternative would construct aerial structures over Aurora Avenue at Thomas and Harrison Streets. These street connection improvements would foster neighborhood cohesion and provide new traffic, pedestrian, and bicycle linkages. Broad Street would be closed and filled in between Taylor Avenue N. and Ninth Avenue N., and Mercer Street would be widened with two-way operation. Cul-de-sacs would be constructed on both sides of Aurora Avenue at John, Valley, and Aloha Streets to prevent through traffic from using the adjacent residential neighborhoods.

These aspects of the Cut-and-Cover Tunnel Alternative contrast with existing conditions. Currently, vehicles and pedestrians are prohibited from crossing Aurora Avenue north of Denny Way, except for the Mercer Street undercrossing. The Mercer Street undercrossing is an unpleasant route for pedestrians because of the narrow, poorly lit sidewalks adjacent to the main traffic thoroughfare. It also has steep incline and decline gradients to allow trucks to pass under Aurora Avenue, which may make this pedestrian route prohibitive for elderly and

disabled persons. Cross streets of Aurora Avenue are limited because of the heavy traffic volumes, a lack of stoplights, and concrete barriers in the middle of the roadway. Only one existing pedestrian bridge crosses Aurora Avenue, located at Galer Street (13 blocks north of Denny Way and 6 blocks north of Aloha Street). Vehicles can make right turns on to and off Aurora Avenue at almost all local streets that currently intersect the roadway. Motorists drive through the residential neighborhoods to get to Seattle Center and the Uptown (Lower Queen Anne) commercial district.

All travel in the neighborhood would be improved. Pedestrians, bicyclists, and vehicles traveling between the South Lake Union and Uptown (Lower Queen Anne) neighborhoods would have increased opportunities to cross Aurora Avenue. The new bridge crossings may also result in changes to bus routes and improved travel conditions for transit riders. The new streets would improve access to recreational amenities along the shoreline of South Lake Union, as well as the entertainment and cultural activities at Seattle Center.

About 230 parking spaces would be removed in the north segment, including Belltown. This is a small percentage of the more than 20,000 parking spaces available in this segment (PSRC 2006a). In addition, many existing businesses in this area have their own off-street parking lots, so customers are not as dependent on on-street parking.

General congestion in the neighborhoods would be reduced because a limited number of streets would provide access to Aurora Avenue, although traffic on major arterials would increase. Both of the adjacent neighborhoods would be buffered from some through-traffic due to the construction of cul-de-sacs on three local streets (John, Valley, and Aloha Streets) intersecting the arterial. However, traffic on Thomas and Harrison Streets would increase relative to existing conditions, because these streets would become bridges across Aurora Avenue.

The long-term effects of the Cut-and-Cover Tunnel Alternative in the north segment would be a mix of both adverse effects and benefits to social resources in the Uptown and South Lake Union neighborhoods. Overall, the benefit of reconnecting the local streets, widening Mercer Street, closing Broad Street, and reconnecting the local street grid would outweigh the adverse effects.

5.6.10 Environmental Justice

With the exception of the effects on homeless people, minority and low-income populations in the study area would experience the same effects and benefits as other populations in the study area. None of the resources displaced by the operation of the Cut-and-Cover Tunnel Alternative is particularly significant to minority or low-income populations. The following subsections describe the transportation effects and effects on homeless persons.

Transportation

As discussed elsewhere in this report, the Cut-and-Cover Tunnel Alternative would improve circulation to and from neighborhoods in the study area.

South Segment

With the Cut-and-Cover Tunnel Alternative, travelers in the south segment would experience increased vehicle delay because the southbound stadium off-ramp traffic would exit onto S. Royal Brougham Way at a very congested location. The additional traffic at this location would cause substantial congestion that is expected to add 2.5 minutes of delay at intersections from East Marginal Way S. to First Avenue S. The south segment is just south of the Pioneer Square neighborhood, which has a high level of environmental justice households and several emergency homeless shelters (City of Seattle 2007). Similar to the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would result in changes in downtown transit access to and from the south, because the Columbia and Seneca Street ramps would be removed, and buses would likely access downtown via the new ramps on Alaskan Way S. (see Section 5.2.10).

Central Segment

In the central segment, the Cut-and-Cover Tunnel Alternative offers substantially improved conditions for pedestrians due to the combination of removing the existing viaduct, substantially widening the existing pedestrian promenade along the waterfront, and building a connection to and from Victor Steinbrueck Park near the Pike Place Market. A number of social service agencies are clustered near the Pike Place Market (Crisis Clinic 2009), many of which are located at the north end of the Commercial Core neighborhood along Pike and Stewart Streets.

North Segment

The Cut-and-Cover Tunnel Alternative would not include the Seneca Street ramp, which may result in slightly increased travel times for drivers destined for the central or northern portions of downtown.

5.7 Operational Benefits – Cut-and-Cover Tunnel Alternative

In addition to the benefits described for the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would also have the following benefits:

- Elimination of the existing downtown ramps would reduce traffic volumes, congestion, and noise levels in those areas. This would improve quality of life and neighborhood cohesion.
- The removal of the existing elevated viaduct would open views of Elliott Bay from the downtown area and remove the shadow effect of the existing structure. These changes would improve pedestrian access and adjacent

neighborhood connectivity with the waterfront. The waterfront in the north segment would continue to be a pedestrian-oriented corridor.

- The Elliott Bay Seawall would be replaced.
- Neighborhood cohesion in the central segment would improve as a result of removing the physical barrier separating the downtown core and the waterfront, as well as connecting two local streets across Aurora Avenue.

Homeless Persons

Homeless persons who live in their cars and take shelter under the viaduct are not expected to experience long-term effects due to the Cut-and-Cover Tunnel Alternative. The effects would be largely the same as those for the Bored Tunnel Alternative.

5.8 Indirect Effects – Cut-and-Cover Tunnel Alternative

The indirect effects of the Cut-and-Cover Tunnel Alternative would be the same as those described for the Bored Tunnel Alternative (see Section 5.3). Furthermore, as stated for the Bored Tunnel Alternative, improved connections in the Commercial Core associated with the Cut-and-Cover Tunnel Alternative could indirectly increase business in the area, perhaps with new commercial or retail shops. If commercial and construction activity is stimulated in the Commercial Core, there is a potential for job growth that could benefit this neighborhood.

5.9 Mitigation of Operational Effects – Cut-and-Cover Tunnel Alternative

Mitigation measures for the operational effects of the Cut-and-Cover Tunnel Alternative should include all those described for the Bored Tunnel Alternative (see Section 5.5). In addition, the following measure should be implemented for the Cut-and-Cover Tunnel Alternative:

- Coordinate with residents and businesses in the south and north segments to develop specific mitigation measures for addressing the moderate to high levels of traffic congestion that would occur during peak periods as a result of the lack of downtown ramps.

5.10 Operational Effects – Elevated Structure Alternative

This section discusses potential effects on social resources after construction of the Elevated Structure Alternative. The analysis focuses on effects resulting primarily from right-of-way acquisition and changes within neighborhoods due to altered travel routes. The Elevated Structure Alternative would have few long-term adverse social effects on the study area neighborhoods. Individually, or in combination, changes in transportation infrastructure resulting from the Elevated

Structure Alternative would generally lead to long-term beneficial effects on social resources (see Section 5.12).

5.10.1 Property Acquisition

Most of the alignment for the Elevated Structure Alternative would be within existing right-of-way (similar to the Cut-and-Cover Tunnel Alternative) and the effects of property acquisition would be more substantial than for the Bored Tunnel Alternative. The acquisitions would be the same as those described for the Cut-and-Cover Tunnel Alternative in the south and north segments. However, there would be differences in the central segment due to the significant differences between the Cut-and-Cover Tunnel Alternative and the Elevated Structure Alternative. With the Elevated Structure Alternative, the acquired properties do not currently serve a social purpose; many of them are office buildings or are already publicly owned.

South Segment

Similar to the Cut-and-Cover Tunnel Alternative, the Elevated Structure Alternative would not involve the full acquisition of any properties; it would require the partial acquisition of three properties in the south segment. The effects of these partial acquisitions would be minor, because they would not result in the displacement of any jobs or social resources.

Central Segment

In the central segment, 12 properties would be affected, which is fewer than the number under the Cut-and-Cover Tunnel Alternative. The three buildings would be displaced; however, the buildings would be acquired from different properties. About 70 jobs would be displaced under this alternative, about three times the number that would be displaced with the Cut-and-Cover Tunnel Alternative. However, this could still be considered a small percentage of the more than 100,000 jobs in the central segment (PSRC 2006b).

North Segment

The Elevated Structure Alternative would require the full acquisition of 11 properties and the partial acquisition of 9 properties in the north segment, similar to the Cut-and-Cover Tunnel Alternative. One residential condominium property with 132 units would be acquired with the Elevated Structure Alternative. The effects of these property acquisitions are discussed in Section 5.6.1.

5.10.2 Housing and Population

The construction of the Elevated Structure Alternative would require the acquisition of the same residential building as for the Cut-and-Cover Tunnel Alternative. Since the residential acquisition would be contained within one city block, the general

demographic characteristics of the study area neighborhoods would not change in the long term.

Appendix G, Land Use Discipline Report, discusses property acquisitions and Appendix L, Economics Discipline Report, provides detailed information on potential displacement of businesses and jobs.

South Segment

In the south segment, the effects of the Elevated Structure Alternative on housing and population would be the same as those described for the Bored Tunnel Alternative. The new SR 99 interchange at S. Royal Brougham Way would provide access that is more direct for residents who work outside the downtown area or for persons traveling to and from the Pioneer Square neighborhood.

Central Segment

Downtown residents would continue to have convenient access to their homes via the downtown ramps from the new elevated structure. Travel routes would be similar to current conditions. The distribution of congestion in the downtown area would be more dispersed than the congestion resulting from the Cut-and-Cover Tunnel Alternative, which would not have the downtown ramps. Residents of Belltown, however, would no longer be able to use the Bell Street and Western Avenue ramps to SR 99.

North Segment

In the north segment, the Elevated Structure Alternative would have the same effects on housing and population as those described for the Cut-and-Cover Tunnel Alternative. The same residential condominium building that would be acquired under the Cut-and-Cover Tunnel Alternative would be acquired for this alternative; the social effects would be the same.

5.10.3 Community Facilities

South Segment

The effects of the Elevated Structure Alternative on community facilities in the south segment would be the same as those described for the Bored Tunnel Alternative, which include improved linkages and east-west connectivity.

Central Segment

Childcare facilities, public schools, technical schools, and a university are all located in the central segment. None of these facilities would be directly affected by property acquisition. Access to and from these facilities would continue to be similar to existing conditions.

North Segment

There would be no acquisition of community facilities in the north segment. Like the Bored Tunnel and Cut-and-Cover Tunnel Alternatives, transit access from outside the downtown area to some portions of downtown through the north portal area would likely improve due to the reconnected and improved surface streets and new SR 99 on and off ramps. These improvements would increase east-west connectivity.

5.10.4 Parks and Recreation

The Elevated Structure Alternative would result in a new structure that is generally wider and taller than the existing viaduct. Parks and recreation resources in the central segment would experience many different effects than the other build alternatives, whereas the effects on these resources in the north and south segments would be the same, for the most part. The following subsections describe the major different effects that would be experienced under the Elevated Structure Alternative.

South Segment

Like the Cut-and-Cover Tunnel Alternative and the Bored Tunnel Alternative, new SR 99 ramps in the south segment would maintain good access to the sports stadiums in the south segment of the project corridor for the Elevated Structure Alternative.

Central Segment

In general, impacts on parks and recreational opportunities would be similar to existing conditions, except for the benefits of the wider pedestrian area on the west side of the corridor that would result from the placement of the northbound Alaskan Way surface street lanes beneath the structure. This would provide additional opportunities to use the area next to the waterfront for recreation-related functions such as walking, congregating, and enjoying the scenery. The opportunity for a new triangular park or open space area between Union Street and Pine Street could enhance the appeal of this area and the waterfront in general, as well as increase the visibility and exposure of the Seattle Aquarium, as discussed below.

The west side of the right-of-way would accommodate both the sidewalk and the Waterfront Bicycle/Pedestrian Facility. This trail would not be framed by landscaping but would be closer to the waterfront and provide users with greater opportunities for enjoyment of scenery during exercise-related activities, such as walking, bicycling, and skating. Like the existing trail, the proposed location between two sidewalks would likely increase conflicts with pedestrians, making it unworkable for heavy bicycle use.

After project-related construction is completed, the pergola at the Washington Street Boat Landing would be replaced in the same location at the edge of the Alaskan Way right-of-way at the foot of S. Washington Street. The new elevated viaduct structure, however, would be about 60 feet from the pergola, rather than the current 100 feet, and about 10 feet higher. The visual dominance of the structure would be much greater than that of the existing viaduct. Proximity impacts such as noise and rapidly moving vehicles on the elevated structure would increase the effects of visual dominance. These features would likely reduce the appeal of the facility for pedestrian congregation and enjoyment of the scenery.

North Segment

The change in configuration of Aurora Avenue to the north of the Battery Street Tunnel would affect Seattle Center by changing the traffic circulation system related to SR 99/Aurora Avenue and the operation of streets that cross SR 99. Closing the Broad Street underpass and widening Mercer Street to accommodate two-way traffic would affect the total number of lanes crossing SR 99 on the major east-west connection to I-5 and change the circulation of local traffic accessing Seattle Center. This may affect use patterns but would not affect the physical configuration of park and recreation facilities within the complex.

5.10.5 Religious Institutions

The Elevated Structure Alternative, like the other build alternatives, would require no acquisition of religious institutions. Property acquisitions would not adversely affect religious institutions in the study area neighborhoods, and they would still have reasonable access.

South Segment

The effects of the Elevated Structure Alternative on religious institutions in the south segment would be the same as those of the Bored Tunnel Alternative (see Section 5.2.5) and the Cut-and-Cover Tunnel Alternative (see Section 5.6.5).

Central Segment

Several religious institutions are located along the project corridor in the central segment, but none would be directly affected by property acquisition. Access to and from these institutions would be similar to existing conditions.

North Segment

Several religious institutions are located near the project corridor in the north segment; however, none would be affected by property acquisition.

5.10.6 Social and Employment Services

South Segment

In the south segment, the Elevated Structure Alternative would require no displacements of social and employment services.

Central Segment

In the central segment, the Elevated Structure Alternative would require no displacements of social and employment services. Vehicle, bus, pedestrian, and bicycle access to the social and employment services in the central segment would be similar to existing conditions. No adverse effects would occur.

North Segment

In the north segment, the Elevated Structure Alternative would require no displacements of social and employment services.

5.10.7 Cultural and Social Institutions

South Segment

The effects on cultural and social institutions in the south segment resulting from the Elevated Structure Alternative would be the same as those described for the Bored Tunnel Alternative (see Section 5.2.7) and the Cut-and-Cover Tunnel Alternative (see Section 5.6.7). Access would be improved to and from the sports arenas, exhibit hall, and events centers at Safeco and Qwest Fields.

Central Segment

A number of cultural and social institutions are located within the central segment, but none would be adversely affected by the Elevated Structure Alternative. The proposed alignment of the elevated roadway near Pike Street is slightly straighter and farther to the east than the existing viaduct, and it would provide more space for pedestrians in the central waterfront area. In general, access to downtown cultural and social institutions would remain similar to existing conditions.

North Segment

Cultural and social institutions in the north segment are several blocks away from the project corridor, primarily at Seattle Center. Like the other build alternatives, the Elevated Structure Alternative would have no effects on cultural and social institutions due to property acquisition.

5.10.8 Government Institutions and National Defense Installations

South Segment

Like the other build alternatives, there are no government institutions and national defense installations in the south segment of the Elevated Structure Alternative alignment; therefore, there would be no effects due to property acquisitions.

Central Segment

Access for government buildings would be similar to existing conditions. Overall, there would be limited adverse effects on government institutions in the central segment, as described for the Cut-and-Cover Tunnel Alternative (see Section 5.6.8).

North Segment

Like the other build alternatives, no property acquisitions in the north segment would affect government institutions or national defense installations.

5.10.9 Neighborhood Cohesion

South Segment

The Elevated Structure Alternative's effects on neighborhood cohesion in the south segment would be similar to those described for other build alternatives, except that it would eliminate about 240 on- and 380 off-street parking spaces. 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 4.10.3).

Central Segment

The Elevated Structure Alternative would have similar effects on neighborhood cohesion as the existing viaduct. Overall, travel routes, access routes to downtown, and congestion would be similar to existing conditions. Vehicle, transit, streetcar, and pedestrian access are not expected to change. No substantial changes in access to community facilities or religious institutions in the central segment are expected. Access to the many social and employment services in downtown Seattle would not change appreciably for either providers or clients.

The new elevated structure, however, would differ in a number of ways from the existing viaduct structure, which could affect neighborhood cohesion. Near S. King Street, the roadway would be in a side-by-side configuration as opposed to the existing stacked configuration. At S. Washington Street, the alignment of the stacked structure would extend farther west than the existing stacked

structure—closer to the historic Washington Street Boat Landing. Along the central portion of the waterfront, the alignment of the stacked structure would be nearly the same as the existing structure. However, all along the waterfront, the stacked elevated structure would be both higher and wider than the existing viaduct. These changes would increase the shadow effect of the structure as well as the barrier effect that currently isolates the waterfront from most of the Commercial Core. In particular, the larger size of the proposed elevated structure would be noticeable for adjacent residents of the Belltown neighborhood just before the roadway enters the Battery Street Tunnel.

About 250 parking spaces would be removed from the central segment. However, this represents only a small portion (5 percent) of the more than 22,000 spaces available in the area.

As a result, the effects of the proposed design and alignment of the Elevated Structure Alternative through the central segment would be mixed, both maintaining and adversely affecting neighborhood cohesion, depending on the location.

North Segment

The effects on neighborhood cohesion in the north segment would be similar to those described for the Cut-and-Cover Tunnel Alternative (see Section 5.6.9), with one exception: about 440 parking spaces in the north segment would be lost. These parking losses would not inhibit neighborhood cohesion, as there would still be more than 15,000 parking spaces available in the north segment (PSRC 2006a).

5.10.10 Environmental Justice

With the exception of the effects on homeless people described below, minority and low-income populations in the study area would experience the same effects and benefits as the other populations in the study area. None of the resources displaced by the operation of the Elevated Structure Alternative would be resources that are particularly important to minority or low-income populations. The following subsections describe the transportation effects and effects on homeless persons.

Transportation

For travelers heading into downtown from West Seattle, the travel times are expected to be comparable for the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative. However, the travel times for the Elevated Structure Alternative are expected to be faster because drivers would still be able to access downtown via a rebuilt ramp at Seneca Street.

South Segment

With the Elevated Structure Alternative, travelers would experience increased vehicle delay in the south segment because the southbound stadium off-ramp traffic would be connected directly to S. Royal Brougham Way at a very congested location.

Central Segment

Under the Elevated Structure Alternative, additional congestion and delay is expected at First Avenue and Columbia Street because an SR 99 on-ramp would be provided in this location, resulting in increased traffic volumes at the intersection and on adjacent surface streets. The Elevated Structure Alternative would provide limited opportunities for improving pedestrian conditions in the central waterfront area. Transit access from the south to downtown and vice versa would likely be similar to existing conditions, because the Columbia and Seneca Street ramps would be rebuilt and transit could continue to use these ramps to access downtown and SR 99. The ramps may help to provide better access to several social service agencies and to census tract 81(2), although they would also result in larger vehicle volumes, longer delays at signals, and related impacts. Census tract 81(2) has the largest percentages of minority and low-income households in the study area.

North Segment

The Elevated Structure Alternative would provide access with rebuilt ramps at Denny Way, providing access similar to today. As noted above, increased connectivity in this area would result in higher neighborhood cohesion. With few social services, low income housing sites, and fewer low-income and minority households than in the south and central sections, environmental justice populations in this area would likely experience the same operational impacts as the general population.

Homeless Persons

Homeless people who either live in their cars and/or take shelter under the existing viaduct are not expected to experience long-term effects due to the Elevated Structure Alternative. For the most part, the effects would be the same as those for the Bored Tunnel Alternative, although once construction is completed, homeless persons may find shelter in locations under the new structure.

5.11 Indirect Effects – Elevated Structure Alternative

This section describes the long-term, indirect operational effects of the Elevated Structure Alternative.

5.11.1 Neighborhood Cohesion

With the Elevated Structure Alternative, the vertical profile of the new structure in the central segment would not likely change the connectivity between downtown neighborhoods or between downtown neighborhoods and the waterfront. This alternative would not affect any development project currently under review by the City, and it would not affect historic or relatively new buildings. This alternative is not expected to change current links between the waterfront, workers, and residents of downtown neighborhoods because the profile of the new elevated structure would be similar to that of the existing viaduct.

Like the Alaskan Way Viaduct, the new elevated structure would continue to be a physical and visual obstruction between the waterfront and adjacent neighborhoods. The Elevated Structure Alternative would not change neighborhood connectivity to the waterfront or increase the desirability of properties adjacent to the corridor. In contrast to the Cut-and-Cover Tunnel Alternative, this alternative is not expected to change property values immediately adjacent to central segment. The Elevated Structure Alternative would essentially keep the number and location of on- and off-ramps the same as they are currently. Therefore, it is not expected to influence where future development would occur in the project corridor.

5.11.2 Parks and Recreation

With the Elevated Structure Alternative, the attractiveness of the waterfront for west-facing buildings would be enhanced. Like the other two build alternatives, this alternative would provide a waterfront promenade with more pedestrian-oriented space and more street amenities. Along the central waterfront, a shared-use path (the Port Side Pedestrian/Bike Trail) would accommodate pedestrians and bicyclists on the west side of the ferry queuing lane, crossing over to the west side of SR 99 at S. Atlantic Street.

5.11.3 Environmental Justice

As stated for the Bored Tunnel Alternative, improved connections in the Commercial Core resulting from the Elevated Structure Alternative could indirectly increase business interest, such as new commercial development or retail shops. If commercial and construction activity is stimulated in the Commercial Core, there is a potential for job growth benefitting environmental justice populations in the area.

5.12 Operational Benefits – Elevated Structure Alternative

Compared to the other build alternatives, the Elevated Structure Alternative would result in fewer operational benefits to social resources. The reconstruction

of the viaduct with wider lanes would continue to obstruct the Pioneer Square neighborhood, as it would be exposed to the traffic noise and shadows from the overhead viaduct like the existing conditions. The noise levels would likely be greater than what is expected under the Viaduct Closed (No Build Alternative), because there would be no traffic on the viaduct with the Viaduct Closed (No Build Alternative). Pedestrians and bicyclists traveling between the waterfront and the Pioneer Square neighborhood, the Commercial Core, or along the waterfront would experience conditions comparable to those they would encounter under the Viaduct Closed (No Build Alternative). Furthermore, views from downtown offices to the waterfront, ferries, and Olympic Mountains and views of downtown from the ferries would continue to be obstructed.

The operational benefits of the Elevated Structure Alternative would be as follows:

- Closing the Bell Street and Western Avenue ramps for general use would improve the perceived quality of life in the immediate area because of reduced traffic congestion and noise.
- Reconnecting the local street grid over a lowered Aurora Avenue would increase linkages between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.
- Limited access to and from Aurora Avenue and construction of cul-de-sacs on each side of the roadway on John, Valley, and Aloha Streets would control traffic flow through the neighborhoods.
- Replacing the Elliott Bay Seawall.
- The existing ramps to and from downtown at Columbia and Seneca Streets and at Elliott and Western Avenues would continue to be available to provide access to community facilities, religious institutions, social and employment services, cultural and social institutions, and government offices.
- Neighborhood cohesion in the north segment of the project corridor would improve by reconnecting local streets between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.

5.13 Mitigation of Operational Effects – Elevated Structure Alternative

Mitigation measures for the operational effects of the Elevated Structure Alternative would include all those described for the Bored Tunnel Alternative (Section 5.5), as well as mitigation for the lack of downtown ramps, as described for the Cut-and-Cover Tunnel Alternative (Section 5.9).

Chapter 6 CONSTRUCTION EFFECTS AND MITIGATION

Many of the construction effects on social resources and mitigation for those effects would be the same for all the build alternatives (see Sections 6.1 and 6.2). Construction effects that are specific to only the Bored Tunnel Alternative (preferred), the Cut-and-Cover Tunnel Alternative, and the Elevated Structure Alternative are discussed in Sections 6.3, 6.4, and 6.5, respectively.

6.1 Construction Effects Common to All Build Alternatives

6.1.1 Population and Housing

Workers and Housing

The population of a community or region can sometimes increase temporarily during project construction because of a high demand for construction workers. For all of the build alternatives, the demand for construction workers would not require workers from outside the region to move to the metropolitan area. Each alternative would require roughly the same number of construction workers. Based on data in Appendix L, Economics Discipline Report, construction of the build alternatives would require about 450 workers per year, which is a small share (0.4 percent) of the 114,600 construction jobs forecasted for 2012 in 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. This is particularly true of workers with knowledge of utility relocation, because the need for experts in utility relocations is expected to exceed the labor available at Seattle City Light and regional contracting companies (Joy 2006). These workers are expected to be employed for relatively short periods, so neither the workers nor their families would be required to move to the region. Typically, these workers would temporarily rent apartment or motel units. This small number of workers would not affect the general availability or cost of housing in the region.

Residents

Construction activities could have several types of effects on residents near the construction zone. Construction-related traffic would likely affect residents in a broad area, potentially extending for some distance from the construction zone because of road closures. Construction traffic, light and glare, noise, and dust would affect residents within approximately one to two blocks of the construction zone.

Construction-related noise could occur up to 24 hours per day and 7 days per week during ongoing construction activities in a particular location. Residents would be particularly sensitive to nighttime noise. With the build alternatives, Pioneer Square would be affected by construction activities because of the location of the large Washington-Oregon Shippers Cooperative Association (WOSCA) construction-staging site along First Avenue S.

Residents adjacent to the construction zone would be able to see the construction activities within the fencing, especially from the top floors of buildings. Lights would be directed at the construction activities and shielded, but residents would see some light and glare. Light and glare would primarily affect residents with windows in the direct line-of-sight of construction activities, especially at night.

Isolation of the construction activities to ensure public safety would require corridor fencing, temporary road closures, and a number of short-term traffic diversions. Such short-term closures and traffic diversions would likely be needed for varying periods, some for weeks or months, and others for several days. As project construction progresses, road closures and traffic detours would change to best accommodate the construction needs and minimize traffic congestion. These construction effects, however, may result in temporary hardships and stress for some residents, especially elderly, low-income, transit-dependent, and disabled persons.

Construction vehicles would enter and exit the construction zone at gates in the perimeter fencing surrounding the construction zone. These gates would likely be located at the ends of streets abutting the construction zone. Pedestrian and vehicle use of some streets may be limited. In addition, direct access to and from some buildings may be disrupted for short periods but not eliminated.

Construction of the build alternatives would not require any temporary residential displacements. People living near the planned construction activities would be expected to remain in their homes.

Displacement of Homeless Persons

Construction activities and the associated noise and light and glare could affect homeless persons living on downtown streets. Some of these people congregate or spend the night in informal places of shelter, including underneath the existing viaduct or in personal vehicles parked under the viaduct. Depending on the construction stages and durations, some people may decide to move elsewhere in the general area or leave the area for other neighborhoods. Homeless persons also may increase their use of homeless shelters to avoid the effects of construction noise and lighting. This could indirectly affect the availability of beds in homeless shelters in the downtown area, because the number of beds is

far fewer than the estimated number of homeless persons residing in the downtown area.

6.1.2 Neighborhood Social Resources

In nonresidential neighborhoods, social resources located near the proposed construction activities include educational and religious facilities, social and employment services, cultural and social institutions, and government and national defense services (see Chapter 4). These resources would be affected by construction noise, vibration, light and glare, dust and smoke, and truck traffic during the construction period for each of the build alternatives (described in more detail in the particular section for each alternative). Many of the social resources function primarily during daytime hours when the threshold for noise, light and glare, and dust is higher. Primary concerns would be related to the ability to gain access to buildings with social resources (e.g., doors, garages, driveways, and walkways). In addition, people may be concerned about vehicle and transit access to the neighborhood and buildings.

Some social resources, such as religious institutions, have time sensitive events; people who attend events that typically take place on weekends would likely experience construction delays, and the events may be disrupted by noise or vibration. This contrasts with existing conditions under which noise levels in downtown Seattle are generally lower on weekend days, and local noise ordinances are more restrictive on Sundays.

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.

South Segment

Approximately 9,500 dwelling units and over 15,000 residents live within two blocks of the proposed construction activities for the build alternatives (Exhibit 6-1). This is nearly three-quarters of the total population in the study area. 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. An analysis of the locations of low-income housing indicated that almost 21 percent of the dwelling units and 24 percent of the population within the effect area might be low-income individuals.

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

	South	Central	North	Battery Street Tunnel	Entire Corridor Area[1]
Total dwelling units[2]	554	5,735	1,716	5,316	9,531
Total population[3]	1,291	9,477	2,738	8,426	15,501
Low-income dwelling units[4]	74 (13%)	1,506 (26%)	202 (12%)	1,020 (19%)	2,045 (21%)
Low-income population[3]	533 (41%)	2,795 (29%)	319 (12%)	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 vary along the corridor. The smallest number of dwelling units is located within two blocks of the proposed construction activities near the south area 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 disruption for nearly the entire construction period. 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 area and associated staging area.

Central Segment

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. An estimated 9,500 residents live within two blocks of the viaduct. About 30 percent of these residents, or almost 2,800, are low-income. However, this segment extends along more than 20 city blocks between S. Royal Brougham Way and Battery Street.

Battery Street Tunnel

A large number of residents are located within two blocks of the construction zone for the Battery Street Tunnel. 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.

North Segment

The second smallest number of residents would be those located within two blocks of the north segment and the proposed connection of local streets in the Uptown/South Lake Union neighborhoods. In the north segment, 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.

6.1.3 Parks and Recreation

The effects of construction on parks and recreational activities depend on their duration and locations. The particular activities determine the character and intensity of effects such as access to parks and recreation resources and proximity effects such as noise and public perception that the construction area should be avoided because it is an unfriendly environment for recreation. Over time, the long duration of construction influences the magnitude of the effect, which is most severe for fee-supported facilities such as the Seattle Aquarium and some 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.

The potential effects in each segment of the project corridor are provided in the following subsections. Facilities for which no effects are expected are not discussed.

South Segment

Access to Safeco Field and Qwest Field would be affected during construction. The overall effect on attendance at the sport fields is likely to be minor, because

the existing on- and off-ramps in the south segment would maintain access to the stadiums. 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 alternate routes and modes of access because they would have sufficient time to plan.

Central Segment

Construction effects in the central segment would be dramatically different for each of the three build alternatives. The particular effects are discussed for each alternative.

North Segment

The cultural and recreational facilities at the 74-acre Seattle Center site would be affected by changes in access patterns, loss of parking, and proximity effects of increased traffic during construction.

Changes in the surrounding roadway network to accommodate activities in different planned stages of construction may result in 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 Sculpture Garden at Seattle Center would not be displaced, but it along with the southern and eastern edges of Seattle Center, may be affected by additional noise and vibration during construction.

6.1.4 Staging Areas, Truck Haul Routes, Parking, and Traffic Congestion

Access to social resources, particularly for neighborhood residents, would 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.

Truck haul routes for project construction would traverse many residential neighborhoods along the northern portion of the waterfront between the Elliott Bay Seawall and the Alaskan Way Viaduct. The effects, which would include noise, dust, light and glare, and temporary traffic delays due to construction equipment, would be similar to conditions along the existing truck routes and arterials throughout the study area. Noise from construction truck traffic during nighttime hours could also affect residents' sleep (see Appendix F, Noise Discipline Report).

Near the construction zones, some roadways would be closed for short periods, requiring all non-project-related traffic to take alternate routes. These roadway closures would occur during daytime and nighttime hours and weekends and could last for many weeks. In addition, project construction activities would

require the temporary elimination of on-street parking spaces within the construction area. With fewer parking spaces, drivers looking for available parking would spend more time circulating. Construction would likely result in increased traffic congestion, both from construction detours and parking losses and restrictions.

Avoidance, minimization, and mitigation of the anticipated traffic congestion during construction are priorities 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. Appendix C, Transportation Discipline Report discusses modeling, analysis, and documentation of traffic-related construction effects. Potential mitigation measures for construction effects are also presented.

6.1.5 Neighborhood Cohesion

The construction effects on and benefits to neighborhood cohesion are discussed in detail for each alternative.

6.1.6 Environmental Justice

Like the effects on downtown commuters and residents, the construction effects on minority and low-income populations would include increased traffic congestion, travel delays, increased response time for emergency services, changes to transit services, and decreased parking. These changes could adversely affect minority and low-income populations in the study area and the organizations that serve them. These populations and organizations tend to rely heavily on transit services, which could be hampered by traffic congestion. Many shelters 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 a certain time, they may not have access to needed services or a safe and secure place to sleep. Providing safe pedestrian routes to and from service providers and other central locations is recognized as an important design element. Traffic congestion could also delay access for emergency services. For more information on traffic, 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 Alaskan Way 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 shelters. For some, these locations may be areas where they are accustomed to seeking shelter on a regular basis. Therefore, they may attempt to continue using these areas, even though they 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.

Depending on the location and severity of the construction effects, homeless people may decide to move elsewhere in the study area or leave the downtown area for other neighborhoods. If they sought space in a homeless shelter, the availability of beds in the downtown homeless shelters likely would be reduced.

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 in or off limits to the public, the criminal activities may move to other neighborhoods. Some of these neighborhoods with large percentages of minority and low-income populations (Duwamish and International District) could experience adverse effects if these activities move into them.

Outreach with social service providers in the study area is described in Section 3.3 and Attachment C. The following list summarizes the concerns relating to construction that were noted during social service agency interviews:

- Transit service disruptions or reroutes (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 electrical 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
- Displacement of homeless people who find nighttime shelter under the viaduct
- Potential increase in demand for social services
- Potential for 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), especially during the summer, when shelters tend to leave the windows open for ventilation

Several social service providers could be temporarily affected by the demolition of the viaduct because of their proximity to Alaskan Way. The Compass Housing Alliance (formerly The Compass Center) provides shelter, meals, and other services. Access to the facility, 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).

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 pose substantial hurdles.

The duration of construction activities for each of the three build alternatives are as follows:

- Bored Tunnel Alternative – approximately 5.4 years
- Cut-and-Cover Tunnel Alternative – approximately 8.75 years
- Elevated Structure Alternative – approximately 10 years

In addition to shorter construction duration, the Bored Tunnel Alternative would limit construction activity mostly to the portals located on the south and north ends of the project area, with virtually no impacts on the central waterfront until demolition of the existing viaduct.

6.1.7 Concurrent Construction Effects of the Build Alternatives and Other Projects

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 near future include restoration of the King Street Station, S. Spokane Street Viaduct Widening, and 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 the defined social resources effect area for construction but could contribute to concurrent 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 build alternatives begins, which includes establishing the staging areas and initiating the required relocation of utilities. The individual office buildings or residential complexes also would 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 generally would be 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 affect social resources or neighborhood cohesion substantially.

Construction related to several additional projects, however, would overlap the construction timeframe for the build alternatives (and other Program elements of the Bored Tunnel Alternative). The construction of the S. Holgate Street to S. King Street Viaduct Replacement Project is planned for completion in early 2014. Similarly, under the Bored Tunnel Alternative only, construction associated with the Alaskan Way Surface Street Improvements, the Elliott Bay Seawall Project, and the Alaskan Way Promenade/Public Space would overlap construction periods. 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.

The adverse construction effects of other projects would exacerbate construction-related traffic, noise, dust, and traffic delays 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.

6.2 Mitigation of Construction Effects Common to All Build Alternatives

This section discusses mitigation measures for avoiding, reducing, or minimizing the potential adverse effects on social resources due to the construction of the build alternatives.

6.2.1 Population and Housing

Following is a list of recommended mitigation measures to help avoid, reduce, or minimize potential adverse effects on population and housing resulting from construction of the build alternatives:

- Establish neighborhood advisory groups before the beginning of construction to solicit input for mitigation measures. Meet with neighborhood representatives periodically during construction 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.
- Before and periodically during construction, hold neighborhood 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 foreign languages to communicate with non-English-speaking study area residents. Newsletters should be distributed at public facilities, schools, libraries, and other facilities such as social service providers. 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 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. Install and monitor signage to ensure effective communication to all pedestrians and bicyclists during construction. Help arrange pedestrian detours that comply with 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 and glare, and dust.
- Develop special news bulletins and use the project e-mail list to communicate upcoming construction activities to residents close to the project construction and staging areas.

6.2.2 Neighborhood Social Resources

Following is a list of recommended mitigation measures to help avoid, reduce, or minimize potential adverse effects on social resources resulting from the construction of the build alternatives:

- 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.
- Coordinate with community service providers to determine whether additional or special mitigation measures are needed.
- 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.
- Work with representatives of religious institutions near construction zones to develop mitigation measures that address potential noise that could adversely affect services, meditation sessions, or other events.
- Include government agencies located near the project construction areas on distribution lists to notify them about planned construction activities.

6.2.3 Parks and Recreation

Many of the mitigation measures described below apply to other types of uses in addition to recreation and public access facilities. The discussion of mitigation at this phase of review is designed to assist decision-makers in choosing between the alternatives. Detailed mitigation measures will be incorporated in the design of the alternative that is ultimately chosen. The specific impacts on specific uses must be evaluated further in cooperation with the particular facility operator.

Following is a list of recommended mitigation measures to help avoid, reduce, or minimize potential adverse effects on parks and recreation resources resulting from the construction of the build alternatives:

- On a continual basis during construction, monitor and update changes in access routes to the central waterfront, its parks, and shoreline accesses. Accesses should use existing pathways where possible. They should be designed to be safe by providing adequate width and buffering from construction activities. Pathways should be delineated and provide logical routes to the Pioneer Square Historic District; Commercial Core neighborhood; Pike Place Market; and the historic piers, Waterfront Park, and Seattle Aquarium on the central waterfront.
- Install way-finding signage 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, provide ADA-compliant replacement pathways (i.e., accessible to persons with disabilities) that are located within a reasonable distance from 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.
- Continue public outreach through project construction to keep the community informed about temporary closures or rerouting of facilities, and other potential effects.

6.2.4 Neighborhood Cohesion

The recommended mitigation of potential effects on social resources would not necessarily address all effects. Potential construction-related effects on neighborhood cohesion would be influenced by other environmental elements. Adverse effects due to changes in traffic, parking, land use, noise levels, air quality, and the relocation of businesses would have varying effects on the overall social environment, which 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

6.2.5 Environmental Justice

Although project-related construction would result in effects on minority and low-income populations, these effects can be avoided minimized, and/or 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 minority and low-income populations:

- Identify a safe pedestrian and ADA-compliant pedestrian route between Pioneer Square/downtown and the St. Martin de Porres shelter to allow movement of people to and from the shelter throughout the construction period. Information about the route would 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 the following:
  - Emergency access at all times
  - Client access during all applicable hours
  - Delivery access
  - Employee access
- Monitor potential noise effects during construction, especially at night. If monitoring indicates noise levels that exceed threshold levels, mitigation

measures can be used to modify the activities, or other means can be used to reduce the noise to comply with the permitting conditions. For additional discussion of monitoring and mitigation, refer to Appendix F, Noise Discipline Report.

- Hold briefings and interviews with social service providers to keep them up to date on the project and to monitor mitigation strategies for minority and low-income populations.
- Work with citizen participatory groups and service providers, such as committees, task forces, advisory bodies, housing authorities, and social services, to identify, communicate, and assist disadvantaged populations with transportation options.
- Cooperate with social service providers on emergent issues that affect minority and low-income populations.
- Provide continuous utility service during construction, as feasible. If periodic outages are unavoidable, provide ample notice.
- Work service providers for the homeless, neighborhood groups, the City, and King County to ensure the safety and survival of nearby homeless people before, during, and after the transportation facilities open. Nearby homeless people include those living outdoors or in vehicles located under or near transportation facilities in the project area.
- Secure construction sites to prevent unauthorized 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.
- Maintain regular communication with minority-owned businesses that may be affected by construction-related traffic congestion.
- Distribute flyers to service providers, ethnic media, and local businesses and place flyers on windshields of cars parked in long-term parking areas; these flyers should specify when vehicles should be moved. List other long-term parking alternatives in the area, if any exist.

Mitigation measures for construction sites in terms of unauthorized encampments must be consistent with City of Seattle Executive Order 06-08, which 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 WSDOT Guidelines to Address Illegal Encampments Within State Right-of-Way (effective August 22, 2008).

6.3 Construction Effects – Bored Tunnel Alternative

In general, many of the construction effects on social resources would be similar for all the build alternatives (see Section 6.1). This section discusses construction effects that would be specific to the Bored Tunnel Alternative (preferred).

6.3.1 Population and Housing

South Portal

Near the south portal, there would be no additional construction effects on population and housing resulting from the Bored Tunnel Alternative, other than those described in Section 6.1.1 as common to all the build alternatives.

Central Segment

A large number of residents are located within two blocks of the construction zone in the central segment. Most of the construction effects, such as noise and vibration or light and glare, however, would occur underground, so the residents would not likely experience those typical adverse construction effects. However, these residents would experience altered pedestrian, bicycle and vehicle travel routes and/or travel times due to construction detours.

Viaduct Demolition and Removal

The removal of the existing viaduct would create disturbances affecting residents located in the immediate area of demolition. Portions of the structure would be demolished in two- to four-block segments, and demolition would last from 4 to 8 weeks in any one location along the corridor. Residents could be affected by noise, vibration, light and glare, dust and smoke, and truck traffic associated with the demolition activities. Appendix B, Alternatives Description and Construction Methods Discipline Report describes the proposed construction activities.

Battery Street Tunnel Decommissioning

With the Bored Tunnel Alternative, the Battery Street Tunnel would be closed. Residents near the Battery Street Tunnel may experience minor effects associated with decommissioning. Residents could be subjected to some noise during the filling and sealing of the Battery Street Tunnel. However, most of the construction activities associated with decommissioning the tunnel would occur underground; therefore, these effects would be minimal.

North Portal

Near the north portal, there would be no additional construction effects on population and housing resulting from the Bored Tunnel Alternative, other than those described in Section 6.1.1 as common to all the build alternatives.

6.3.2 Neighborhood Social Resources

Social resources in nonresidential neighborhoods would be affected by construction noise, vibration, light and glare, dust and smoke, and truck traffic beyond the effects that are common to all the build alternatives described in Section 6.1.2. The following subsections describe the anticipated effects on the nearby social resources.

South Portal

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 affected for nearly the entire 65-month construction period. The south portal area would be used to stage equipment and materials used for boring the tunnel, and the 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 (on Terminal 46).

Access to buildings could change for short periods, but it would be maintained throughout the construction period. The land uses in this area are generally more active during daytime hours when people generally have higher thresholds for loud noises, vibration, and light and glare. Therefore, social resources near the south portal are not expected to experience substantial adverse effects.

Central Segment

The Bored Tunnel Alternative's alignment would pass under the Western Building (619 Western Avenue), a historic building in the Pioneer Square Historic District that has been identified as being in poor structural condition. This building will be protected and reinforced during construction. The protection and stabilization approach will strengthen the building's foundation with micropiles and beams or other similar methods. This would result in the relocation of the 118 tenants in the Western Building. The building would be unavailable for 12 to 20 months during the construction period. Most of the building tenants are artists who use the building for studio or work space. The artists benefit from their proximity to each other and the associated opportunities to share ideas and inspiration. WSDOT is actively supporting the artists' relocation efforts by finding replacement accommodations, either in the Pioneer

Square neighborhood, if feasible, or in other locations in the greater Seattle area where the artists may choose to relocate.

With the anticipated construction duration of 12 to 20 months for the building's reinforcement, the relocation of the artists from the Western Building would not have substantial, long-term effects on the overall neighborhood identity of Pioneer Square. The remaining neighborhood resources and existing social fabric would maintain the overall neighborhood identity.

Construction of the bored tunnel would be underground in the central segment (as deep as 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. (See Appendix F, Noise Discipline Report for a discussion of vibration effects during construction.)

Viaduct Demolition and Removal

The removal of the existing viaduct would create disturbances affecting a number of social resources located in the immediate area of demolition, including seven childcare or educational facilities, one religious institution, three social service agencies, eight cultural institutions, and three government offices or other facilities. Portions of the structure would be demolished in two- to four-block segments, and demolition would last from 4 to 8 weeks in any one location along the corridor. Approximately 22 social resources extending over 20 city blocks could be affected by noise, vibration, light and glare, dust and smoke, and truck traffic associated with the demolition activities. Appendix B, Alternatives Description and Construction Methods Discipline Report, describes the proposed construction activities in more detail.

Most of these social resources are accessed 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 are not likely to be substantial. Appendix F, Noise Discipline Report, provides additional discussion of potential construction-related noise and vibration effects and recommended mitigation measures. See also Appendix L, Economics Discipline Report.

Operators of the three childcare facilities and one religious institution could be concerned about potential disruptions due to noise and vibration. Furthermore, construction of the Bored Tunnel Alternative would affect vehicle and transit access and cause temporary changes in access to buildings, particularly west of the Alaskan Way surface street. However, since viaduct demolition would take

place in two- to four-block segments, and demolition would continue from 4 to 8 weeks in any one location along the corridor, the effects would be temporary and would not cause businesses or residences to go out of businesses or relocate. For additional information about this issue, see Appendix G, Land Use Discipline Report and Appendix L, Economics Discipline Report.

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 and 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 would likely have special concerns related to increased noise levels during late evening hours. 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 expected for these social service agencies.

North Portal

An estimated 12 social resources are located within approximately two blocks of proposed construction activities near the north portal of the bored tunnel. These include four educational institutions, three churches, three social providers, a cultural institution, and Seattle Parks and Recreation Department offices. All of these resources are generally used during daytime hours, and access would be provided throughout the construction period. However, noise and vibration during construction may adversely affect the religious institutions and childcare facilities in the area because of the time-sensitive events, such as quiet reflection and prayer or naptime. As described in Section 6.1.2, this would be in contrast with existing conditions, where noise levels are generally lower on weekend days in downtown Seattle and local noise ordinances are more restrictive on Sundays. Refer to Appendix F, Noise Discipline Report, for a more detailed discussion of noise effects.

6.3.3 Parks and Recreation

Specific discussions of each affected resource are provided in the following subsections. Facilities for which no effects are expected are not discussed.

South Portal

Near the south portal, there would be no additional construction effects on parks and recreation resources resulting from the Bored Tunnel Alternative, other than those described in Section 6.1.3 as common to all the build alternatives.

Central Segment

Viaduct Demolition and Removal

Demolition and removal of the existing viaduct is expected to occur in short segments. Therefore, access to the existing waterfront promenade and other waterfront facilities could be disrupted near the segment that is being removed at any time. 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. Consequently, minor access changes would occur on a short-term basis. Furthermore, many of the parks and recreation resources along the existing viaduct would experience temporary and short-term use restrictions varying from closures to reduced access. Access to the Seattle Ferry Terminal at Colman Dock would be maintained throughout the viaduct removal.

Battery Street Tunnel Decommissioning

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

North Portal

Near the north portal, there would be no additional construction effects on parks and recreation resources resulting from the Bored Tunnel Alternative, other than those described in Section 6.1.3 as common to all the build alternatives.

6.3.4 Staging Areas, Parking, and Traffic Congestion

The impacts on social resources resulting from staging areas, truck haul routes, and traffic congestion would be generally the same for all the build alternatives (see Section 6.1.4). These include increase noise and vibration, increased light and glare, dust, and increased travel times due to traffic detours and temporary road closures. Specific effects of the Bored Tunnel Alternative related to construction staging areas are described in the following sections.

South Portal

Construction-related effects of the staging areas near the south portal would occur in areas that already have 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 parking lot currently occupies Pier 48. Therefore, the proposed parking for construction workers 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. The main construction staging area (WOSCA site) had warehouses on it that were recently demolished to prepare the site; in recent years, there has been little business activity at this location. 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.

Some residential units are located in the area several blocks east of Alaskan Way S. opposite Pier 46 and Pier 48. Residents in these buildings would be exposed to increased light, and glare, and noise levels, particularly during nighttime hours. They would 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, 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.

Central Segment

Proposed construction staging areas in the central segment would be along Alaskan Way. The Alaskan Way right-of-way would be used for demolition and removal of the existing viaduct structure. This area would not be continuously affected during the viaduct demolition. Since portions of the structure would be demolished in two- to four-block segments, and demolition would last from 4 to 8 weeks in any one location along the corridor, the effects would last for a short time. During viaduct demolition, residences, businesses, and social resources would be subjected to roadway, pedestrian, and bicycle detours between the waterfront and downtown. There would also be an increase in noise, light, and glare from viaduct demolition and transport of debris from the site.

North Portal

The proposed staging areas would be located adjacent to Aurora Avenue, and all would be contained within the study area. These areas would be used for construction staging activities and material storage and, at several locations, for roadway widening activities. The existing noise, light and glare, and dust levels are already elevated in the immediate area due to existing commercial and residential redevelopment. 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 other redevelopment projects in the neighborhood.

6.3.5 Truck Haul Routes

Trucks would be the primary means of transporting materials to and from the construction zone. Trucks could also be used to transport excavation or demolition spoils.

During construction of the Bored Tunnel Alternative, designated truck routes would be used for transporting construction materials, oversized equipment, and spoils in and out of the construction zones. In the south portal area, primary access to the work area (on the WOSCA site) would be from S. Atlantic Street via a temporary construction road that would cross the southbound off-ramp from SR 99.

Travel routes for construction-related trucks would generally follow existing City-designated truck routes, using major arterials. In the south, these routes include S. Atlantic Street and S. 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, East 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 approximately 5.4-year construction period. Actual designated routes specific to the project would be determined by the City or WSDOT as part of project permitting.

6.3.6 Neighborhood Cohesion

This section addresses whether temporary construction effects would prevent the study area neighborhoods from maintaining their social identity. As defined in the glossary, neighborhood cohesion is "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."

During the construction period for the Bored Tunnel Alternative, effects would occur in more than one neighborhood at a time but they would not affect all neighborhoods for the entire 65 months (5.4 years) of construction. There would be construction effects, such as construction-related noise, vibration, light and glare, dust and smoke, traffic from construction vehicles, and general traffic on the construction detours. However, construction activities generally would be

located on the periphery of the study area neighborhoods, thereby minimizing effects on neighborhood cohesion.

The Bored Tunnel Alternative would not cause substantial relocation of residences or social services. Residences, tourists, employees, and business owners within the study would change their typical travel routes due to construction detours. Neighborhood linkages, such as pedestrian walkways, bicycle paths, and sidewalks, would be altered intermittently throughout construction period due to temporary road closures; however, these temporary detours and road closures would not adversely affect the overall neighborhood's sense of community or its ability to function as a singular unit.

Since most of the construction in the central segment would take place below grade, people in the Commercial Core would be able to maintain communications and interactions and function as a singular unit. The construction effects would be most prominent adjacent to the south and north portals; however, the effects would not be severe enough to reduce the sense of community or any of the ability of any of the neighborhoods to function and be recognized as a singular unit.

On- and off-street parking spaces would be temporarily removed during construction throughout the project area. The elimination of parking spaces would vary throughout the construction stages (traffic stages). For the Bored Tunnel Alternative, the most significant temporary parking impacts would be during Traffic Stage 8 (the last stage of construction) when approximately 1,200 on- and 300 off-street parking spaces would be removed. During the previous traffic stages (1 through 7), between 640 and 760 on-street parking spaces and about 50 off-street spaces would be removed. Due to numerous off-street parking lots throughout the project area that range in utilization from about 40 to 70 percent, there should be an ample supply of parking in all the neighborhoods. However, finding an on-street parking space may be more challenging as compared to existing conditions.

6.3.7 Environmental Justice

Construction of the Bored Tunnel Alternative would result in beneficial regional and state economic effects, which in turn could potentially benefit 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. This increase in employment typically leads to induced effects, as the additional wages and salaries paid to workers generally foster increased consumer spending. Assuming that the construction duration for the Bored Tunnel Alternative is 65 months, the total construction labor would be about 2,500 person-year jobs. Under the Bored Tunnel Alternative, new demand

for construction would generate gross direct effects equal to the capital cost of $1,788 million in construction dollars.

Construction impacts that would affect minority and low-income populations in the project area include traffic congestion, reduced mobility, reduced transit service, increased air emissions, and increased noise. These effects are summarized in Section 6.1.6.

6.4 Construction Effects – Cut-and-Cover Tunnel Alternative

This section discusses the construction effects of the Cut-and-Cover Tunnel Alternative. Most of the construction effects are described in Section 6.1 or are similar to those effects described for the Bored Tunnel Alternative (see Section 6.3). Mitigation measures for are described in Section 6.7.

The construction duration for the Cut-and-Cover Tunnel Alternative would be 105 months (8.75 years). Construction activity would take place in the central segment throughout the duration of project construction.

6.4.1 Population and Housing

South Segment

In the south segment, there would be no additional construction effects on population and housing resulting from the Cut-and-Cover Tunnel Alternative, other than those described in Section 6.1.1 as common to all the build alternatives.

Central Segment

Under the Cut-and-Cover Tunnel Alternative, construction traffic, light and glare, noise, and dust would affect residents within approximately two blocks of construction activities. The effects of the construction activities associated with the Cut-and-Cover Tunnel would be greater in the central segment since the tunnel would be excavated, rather than bored as for the Bored Tunnel Alternative. Residents adjacent to and within about two blocks of the construction activities would likely experience noise and vibration from work vehicles and equipment, light and glare, and dust, along with increased pedestrian, bicycle, and vehicle travel times and delays due to construction detours or traffic diversions. Residents on Alaskan Way or near the construction staging areas would also be affected. Construction effects due to short-term road closures and traffic diversions may cause temporary hardships and stress for some residents, especially elderly, low-income, and transit-dependent persons and persons with disabilities.

Viaduct Demolition and Removal

The removal of the existing viaduct would take place during the 27-month closure of SR 99 and the Alaskan Way surface street. Similar to the Bored Tunnel Alternative, the Cut-and-Cover Tunnel Alternative would include demolition of the viaduct in two- to four-block segments, and the demolition would continue for 4 to 8 weeks in any one location. During demolition, residents near the existing viaduct would experience light and glare, dust and smoke, and noise and vibration. They would be affected by construction trucks hauling away debris from demolition of the viaduct and excavation of the cut-and-cover tunnel. Vehicular traffic trying to avoid the construction and demolition sites along the waterfront is expected to increase. Although pedestrian access to waterfront businesses would be provided at selected locations during construction, pedestrian and bicycle travel to and from homes and businesses and other social resources such as parks or social service providers may become difficult.

Battery Street Tunnel

The construction effects associated with modifying the Battery Street Tunnel to incorporate seismic, fire suppression system, and life and safety upgrades would be minimal, since most construction would occur underground within the existing tunnel.

North Segment

In the north segment, there would be no additional construction effects on population and housing resulting from the Cut-and-Cover Tunnel Alternative, other than those described in Section 6.1.1 as common to all the build alternatives and in Section 6.3.1 for the Bored Tunnel Alternative.

6.4.2 Neighborhood Social Resources

South Segment

In the south segment, there would be no additional construction effects on social resources resulting from the Cut-and-Cover Tunnel Alternative, other than those described in Section 6.1.2 as common to all the build alternatives and in Section 6.3.2 for the Bored Tunnel Alternative.

Central Segment

Construction of the cut-and-cover tunnel in the central segment would have a substantial effect on neighborhood social resources adjacent to the construction activities. As described in Section 6.1.2, these resources would be affected by construction noise, vibration, light and glare, dust and smoke, and truck traffic during the 8.75-year construction period anticipated for the Cut-and-Cover

Tunnel Alternative. Similarly, primary concerns would be related to building access to social resources (e.g., doors, garages, driveways, and walkways).

Viaduct Demolition and Removal

Effects on social resources near the viaduct demolition area would be similar to the effects on residents in the vicinity. Truck traffic, light and glare, dust and smoke, and noise and vibration could deter the patrons of certain social resources near the construction site if there is another similar social resource accessible in the area.

Battery Street Tunnel

Construction activities associated with modifications to the Battery Street Tunnel would occur underground. 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 near the Battery Street Tunnel would not be adversely affected by noise or vibration. (For additional information about vibration, see Appendix F, Noise Discipline Report).

North Segment

In the north segment, there would be no additional construction effects on social resources resulting from the Cut-and-Cover Tunnel Alternative other than those described in Section 6.1.2 as common to all the build alternatives and in Section 6.3.2 for the Bored Tunnel Alternative.

6.4.3 Parks and Recreation

The length of time the existing viaduct would be closed to through-traffic would have a minor influence on the use of parks and recreation resources, because through-traffic is not likely to be important for park and recreation facilities on the waterfront. Park and recreation facilities depend on direct surface access, which is affected both by construction activities that interrupt existing patterns of movement and by public perceptions. For this reason, the analysis of construction effects did not focus on construction stages. Specific discussions of the effects on parks and recreation resources in each segment of the project corridor are provided in the following subsections.

South Segment

In the south segment of the Cut-and-Cover Tunnel Alternative, there would be no construction effects on parks and recreation resources other than effects that are common to all the build alternatives (see Section 6.1.3). Exceptions would include minor effects from noise, vibration, and dust during seawall replacement.

Central Segment

Access along the waterfront would be disrupted throughout the duration of construction for the Cut-and-Cover Tunnel and seawall replacement. Provisions for movement across the cut-and-cover tunnel construction site and provision of temporary overwater connections would maintain access between Piers 54 and 59 (the Seattle Aquarium). It is unknown whether those provisions would be sufficient to overcome a general avoidance of the construction area; similarly, use would likely be reduced along some east-west streets and pedestrian connections, such as the Marion Street Green Street. Furthermore, the asphalt trail for the Waterfront Bicycle/Pedestrian Facility would be displaced early in the construction process, and functions would not be available again until the surface street is completed at the end of construction. Bicycle and pedestrian traffic would likely divert to Western Avenue south of Pine Street and continue to use the surface street north of Pine Street.

Access to the Colman Dock facilities in the main terminal is likely to be maintained as part of pedestrian access to ferries. The shoreline public access areas on Pier 50 and the plaza area at Yesler Way are not likely to be maintained during adjacent construction.

Pedestrian access to most piers and parks would be maintained throughout construction. However, the appeal of the waterfront would likely be diminished by the actual or perceived lack of access. The public access areas on the piers are likely to have limited appeal for waterfront viewing as separate destinations that require threading through a construction zone. Use likely would be limited primarily to persons attracted to the piers by restaurants or other private uses. Persons interested in many of the waterfront activities may choose other destinations if they perceive the access as inconvenient. Noise from construction may affect portions of parks and recreation resources, and park attendance would likely be influenced by overall levels of construction activity on the waterfront. Similar to the Bored Tunnel Alternative, access to the Seattle Ferry Terminal at Colman Dock would be maintained throughout the construction for the Cut-and-Cover Tunnel Alternative.

Specifically, attendance at the Seattle Aquarium could be reduced during construction along the waterfront even with pedestrian access maintained in the construction area. With waterfront construction expected to last approximately 5 years, and potential public perceptions of difficulty in travel and parking in the area, the appeal of the waterfront as a recreational destination could be diminished, although mitigation to minimize this effect would be in place. These potential perceptions could persist and affect attendance and revenue.

The status of the aquarium as a fee-supported facility makes public use of the area during construction an important concern. A higher risk for the aquarium than

the risk of spills is the possibility that public perception of construction effects may reduce the number of visitors to the waterfront, because a reduction in visitors would affect the revenue needed to maintain the collection and programs.

Three major factors influencing the success of the aquarium in attracting visits are likely to be adversely affected during construction:

- Physical access to the site would be limited by the construction area and the displacement of parking, although access to the facility would be maintained throughout construction.
- The general perceptions of the public that construction sites are an undesirable destination may lead to avoidance of the area, despite programs to retain access and provide parking.
- Supportive land uses along the waterfront, including commercial uses that lead to attracting people (particularly tourists) for recreational purposes, may be difficult to maintain during the construction and may reduce overall pedestrian volumes and the overall pool of potential visitors.

The effects of viaduct demolition and removal on park and recreation resources would be the same as construction effects described for the central segment.

North Segment

In the north segment, the parks and recreation resources would be predominantly affected by revisions in traffic flow. In addition, resources along the northern portion of the waterfront would experience minor effects, such as noise, vibration, and dust during seawall reconstruction. These effects would be a nuisance to parks and recreation resources in proximity to the seawall reconstruction, which would take approximately 21 months.

6.4.4 Staging Areas, Truck Haul Routes, Parking, and Traffic Congestion

The general impacts on social resources due to staging areas, truck haul routes, and traffic congestion would be similar for all three of the build alternatives (see Section 6.1.4). These include increase noise and vibration, increased light and glare, dust, and increased travel times due to traffic detours and temporary road closures. Specific effects related to construction staging areas associated with the Cut-and-Cover Tunnel Alternative are described below.

South Segment

The staging areas and construction effects on truck haul routes and traffic congestion in the south segment would be the same as those described for the Bored Tunnel Alternative, except for temporary effects on parking. Approximately 620 total spaces would be affected during construction in the south segment, 250 of which are off-street parking spaces. Of the on-street spaces

affected in the south segment, 310 are short-term spaces and 60 are long-term spaces. All of these spaces would be removed for the duration of project construction (8.75 years).

Central Segment

Construction staging areas would be located throughout the central segment for the Cut-and-Cover Tunnel Alternative (see Appendix B, Alternatives Description and Construction Methods Discipline Report). The Pier 48 uplands could be used for the construction of a temporary ferry access bridge. The combined effects of the construction activities and staging areas would contribute to more construction noise, vibration, light and glare, dust and smoke, and increased travel times and truck traffic in the surrounding neighborhoods and business areas. 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.

Approximately 1,010 total spaces would be affected during construction in the central segment, 350 of which are off-street parking spaces. Of the on-street spaces affected in the central segment, 660 are short-term spaces and 10 are long-term spaces. All of these on- and off-street parking spaces would be removed for the duration of project construction (8.75 years).

The construction staging areas described for the central section would also be used during the demolition and removal of the viaduct, and the effects on traffic would be the same.

North Segment

Most of the staging areas and construction effects on truck haul routes and traffic congestion in the north segment would be the same as those described for the Bored Tunnel Alternative.

In the north segment, there would be several construction staging sites. Construction effects would be more evident for residents and businesses in the north segment, with a potential increase in truck traffic. However, the physical effects of the staging areas would be to the same as those described for the Bored Tunnel Alternative. These effects are already present in the immediate area due to other commercial and residential redevelopment activities.

Approximately 330 total parking spaces would be affected during construction in the north segment, 80 of which are off-street parking spaces. Of the on-street spaces affected in the north segment, 80 are short-term spaces and 170 are long-term. All of these spaces would be removed for the duration of project construction (8.75 years).

6.4.5 Neighborhood Cohesion

South Segment

In the south segment, there would be no additional construction effects on neighborhood cohesion resulting from the Cut-and-Cover Tunnel Alternative other than those described in Section 6.1.5 as common to all the build alternatives and in Section 6.3.6 for the Bored Tunnel Alternative.

Central Segment

Construction activities in the central segment would include excavation of the cut-and-cover tunnel and demolition of the existing viaduct. The construction activities would be above ground throughout the duration of project construction. The noise, light and glare, and dust and smoke from construction would likely affect the neighborhood. Moreover, construction-related traffic, including the trucks hauling the excavated rock and sediment, would travel through the downtown area to the waterfront, where the material would be transported by barge to an off-site location for disposal. This truck traffic would result in additional noise and dust and smoke in the central segment.

North Segment

In the north segment, there would be no additional construction effects on neighborhood cohesion resulting from the Cut-and-Cover Tunnel Alternative other than those described in Section 6.1.5 as common to all the build alternatives and in Section 6.3.6 for the Bored Tunnel Alternative.

6.4.6 Environmental Justice

In addition to the construction impacts described in Section 6.1.6, construction associated with the Cut-and-Cover Tunnel Alternative would result in beneficial economic effects due to construction jobs and supplies. With construction expected to last approximately 8.75 years, the construction labor required for the Cut-and-Cover Tunnel Alternative would be between 500 and 600 persons per day.

6.5 Construction Effects – Elevated Structure Alternative

The construction effects of the Elevated Structure Alternative on social resources, parks and recreation lands, and environmental justice populations would be the same as those described for the Cut-and-Cover Tunnel Alternative, except for those described below.

6.5.1 Population and Housing

Effects on population and housing would be the same as those described for the Cut-and-Cover Tunnel Alternative, except for viaduct removal. With the Elevated Structure Alternative, the existing viaduct would be demolished and reconstructed in its existing location. Demolition and replacement of the structure would take place on the bottom deck first, while traffic would be allowed on the upper deck. Demolition would take place in two- to four-block segments and would continue for 4 to 8 weeks in any one location. Similar to the other build alternatives, residents near the viaduct during demolition would experience light and glare, dust and smoke, and noise and vibration. They would also be affected by the construction trucks hauling away demolition debris from the viaduct. Residents near the viaduct demolition would also be affected by additional vehicular traffic trying to avoid the construction sites along the waterfront. Although pedestrian access to the waterfront businesses would be provided at select locations during construction, pedestrian and bicycle travel to and from homes and businesses and other social resources such as parks or social service providers may become difficult.

6.5.2 Neighborhood Social Resources

With the Elevated Structure Alternative, the effects on neighborhood and social resources would be the same as those described for the Cut-and-Cover Tunnel Alternative, except for viaduct removal. The effects on social resources and residents near the viaduct demolition area would be similar. Truck traffic, light and glare, dust and smoke, and noise and vibration could deter the patrons of certain social resources near the construction site if there is another similar social resource accessible in the area.

6.5.3 Parks and Recreation

As discussed for the Cut-and-Cover Tunnel Alternative, the length of time the existing viaduct would be closed to through-traffic should have only a minor influence on the use of park and recreation facilities, because through-traffic is not as important for park and recreation facilities on the waterfront. Park facilities depend on direct surface access, which is affected both by construction activities that interrupt existing patterns of movement and by public perceptions. For this reason, the analysis of construction impacts did not focus on construction stages. Specific discussions of the effects on parks and recreation resources in each segment of the project corridor are provided in the following subsections.

South Segment

In the south segment, no effects on parks and recreation resources resulting from the Elevated Structure Alternative are expected, other than those discussed in Section 6.2.3 as common to all the build alternatives.

Central Segment

Preliminary site work would disrupt the existing access from downtown to the waterfront promenade and other parks and recreation resources along the waterfront because of a variety of construction activities in the Alaskan Way right-of-way, including utility relocation, removal of the streetcar track, replacement of parking under the viaduct with through-lanes, and other activities. After those activities, the promenade would be displaced during the 18 months of seawall reconstruction south of Pine Street. Limited access likely would reduce use.

The potential risks for the Seattle Aquarium collection during construction are similar to those described for the Cut-and-Cover Tunnel Alternative. However, they would be generally of a somewhat smaller scope, because the seawall reconstruction would likely have less risk of a high-magnitude discharge.

Under the Elevated Structure Alternative, the shorter period of construction for the seawall reconstruction would allow resumption of near normal access and movement along the waterfront sooner than the Cut-and-Cover Tunnel Alternative. This may result in less-severe declines in attendance at the Seattle Aquarium as well as other waterfront park/recreation resources, although similar factors would be in operation.

Similar to the Cut-and-Cover Tunnel Alternative, public resources would be affected by noise and disruption of the construction zone. In contrast to the cut-and-cover tunnel, construction of the elevated structure would likely result in greater proximity impacts such as noise and visual effects. Furthermore, pedestrian connections and access, such as the Lenora Street pedestrian bridge, would be closed to foot traffic during portions of the construction efforts. The long duration of construction associated with the Elevated Structure Alternative (10 years) could significantly affect accessibility between the waterfront and downtown Seattle.

Battery Street Tunnel

If the First Avenue Project art installation located on the First Avenue sidewalk above the Battery Street Tunnel needs to be removed during construction, it will be replaced in the same location.

North Segment

Parks and recreation resources along the northern portion of the waterfront would experience similar temporary effects to those described for the Cut-and-Cover Tunnel Alternative, including noise, vibration, and dust from the seawall reconstruction. Furthermore, resources such as the Seattle Center facilities would be affected by changes in access patterns during construction, loss of parking, and proximity impacts of increased traffic.

The Elevated Structure Alternative would institute the Broad Street detour, which would increase traffic along the south boundary of Seattle Center. The increased traffic volumes could be accommodated by increasing signal cycle times for the traffic on Broad Street. This may reduce the signal time available for vehicles and pedestrians crossing Broad Street to access Seattle Center. Increased traffic volumes on Broad Street also would increase noise levels on adjacent portions of the site that accommodate the art installations at Broad Street Green at the Seattle Center. Higher noise levels may marginally affect pedestrian use of and enjoyment of this area; however, it is not generally considered a high-use area.

Reconstruction of the seawall to the south would affect the Olympic Sculpture Park only during construction. Access to the park from Western Avenue, Elliott Avenue, and Broad Street would be uninterrupted during construction. The Broad Street detour overpass extending from Elliott Avenue across the BNSF railroad tracks would affect the southern portion of the sculpture park along Broad Street as a visual intrusion. The detour structures would tend to obstruct some views to the south from the central pedestrian corridor and increase noise levels in activity areas adjacent to Broad Street for about 3 years, including construction and demolition. Although areas adjacent to Broad Street may experience less use because of proximity impacts, the overall use of the sculpture park is unlikely to change substantially.

6.5.4 Staging Areas, Truck Haul Routes, Parking, and Traffic Congestion

The general impacts on social resources due to staging areas, truck haul routes, and traffic congestion would be generally the same for all of the build alternatives (see Section 6.1.4). These include increased noise and vibration, light and glare, dust, and travel times due to traffic detours and temporary road closures. Specific effects related to the construction staging areas associated with the Elevated Structure Alternative in the various segment of the project corridor are described in the following subsections.

During the duration of project construction, the Elevated Structure Alternative would temporarily remove 1,280 on-street parking spaces throughout the project corridor.

South Segment

The staging areas and construction effects on truck haul routes and traffic congestion in the south segment would be the same as those described for the Cut-and-Cover Tunnel Alternative, except for temporary effects on parking. Approximately 620 total spaces in the south segment would be affected during construction, 250 of which are off-street parking spaces. Similar to the Cut-and-Cover Tunnel Alternative, all of the spaces would be removed for the duration of project construction (10 years).

Central Segment

In contrast to the Bored Tunnel Alternative and the Cut-and-Cover Tunnel Alternative, the Elevated Structure Alternative would maintain the two lanes of traffic in the SR 99 corridor during construction by using a traffic detour on Broad Street. The Broad Street detour would accommodate traffic traveling southbound on Aurora Avenue through downtown while the new elevated structure is being built along the central waterfront and while the Battery Street Tunnel undergoes a seismic retrofit. The primary purpose of the detour is to provide a designated route for those traveling through downtown to the SODO area or West Seattle. The detour would not provide access to the downtown area.

Temporary improvements would need to be made to ensure a high level of service on the Broad Street detour. The Broad Street detour would be in operation for approximately 27 months, which would provide predictability for motorists traveling through downtown.

Land uses along Broad Street currently are mixed, but there are a few residential buildings. The effect of several years of substantial traffic volumes on Broad Street would be considerable for the residential Belltown and Uptown (Lower Queen Anne) neighborhoods. The use of this arterial as a detour route would also temporarily reduce on-street parking. The high volumes of traffic are not likely to be perceived as a substantial adverse effect because of the existing heavy traffic volumes on Broad Street. The loss of parking spaces on Broad Street could affect area businesses. Traffic related to special events at Seattle Center, however, could create severe localized traffic congestion due to the use of Broad Street as the major construction detour for southbound traffic off Aurora Avenue. This could reduce attendance at Seattle Center venues. In addition, neighborhood disruptions related to the use of a temporary aerial trestle over the railroad tracks would be unavoidable. For additional information, please see Appendix L, Economics Discipline Report, and Appendix C, Transportation Discipline Report.

The primary concern is that despite mixed land uses adjacent to this arterial, neighborhoods to both the south and the north are predominantly residential. The relatively long duration of the use of Broad Street as a detour route would

adversely affect these neighborhoods. One mitigating factor is that Broad Street is already a wide, busy arterial that forms the boundary between the Belltown and Uptown (Lower Queen Anne) neighborhoods. This detour would not travel through the middle of any residential neighborhoods.

Approximately 940 total parking spaces would be affected during construction in the central segment, 280 of which are off-street parking spaces. Temporary effects on on-street parking would be the same as those for the Cut-and-Cover Tunnel Alternative. All of these on- and off-street parking spaces would be removed for the duration of the project construction (10 years).

The construction staging areas described for the central segment would be used during demolition and removal of the viaduct, and the effects on parking would be the same.

North Segment

The staging areas and construction effects on truck haul routes and traffic congestion in the north segment would be the same as those described for the Bored Tunnel Alternative, except for temporary effects on parking. Temporary parking displacements associated with the Elevated Structure Alternative would be the same as those for the Cut-and-Cover Tunnel Alternative; however, the construction duration would be 2.25 years longer.

6.5.5 Neighborhood Cohesion

The construction duration for the Elevated Structure Alternative would be 10 years (4.6 years longer than that of the Bored Tunnel Alternative and 2.25 years longer than that of the Cut-and-Cover Tunnel Alternative). The long construction duration for the Elevated Structure Alternative would contribute to diminished neighborhood cohesion. The construction effects described above, including the separation of the waterfront from downtown Seattle, decreased linkages between neighborhood social resources and parks, as well as the increase traffic congestion and detours, would be similar to those described for the Cut-and-Cover Tunnel Alternative. However, the severity of the impacts would likely be exacerbated by the length of time that they would be in effect.

As the neighborhoods in the project area progress through a decade of project-related construction effects, people would likely change how they navigate through their neighborhoods to local amenities such as grocery stores, churches, and parks. These changes may reorient focal points of communities and neighborhoods that last beyond the construction period.

Furthermore, on- and off-street parking spaces would be temporarily removed during construction throughout the project area. For the Elevated Structure Alternative, about 1,280 on- and 740 off-street parking spaces would be removed

for the duration of the construction period. Parking impacts of the Elevated Structure Alternative would be more substantial and continue for a longer period than those due to either of the other build alternatives. However, the effects of temporary parking removal should not affect the ability of the neighborhoods to function as singular units because ample parking at low-utilization rates is present throughout the study area. Appendix C, Transportation Discipline Report, discusses the parking impacts specific to each neighborhood.

6.5.6 Environmental Justice

In addition to the construction impacts described in Section 6.1.6, construction of the Elevated Structure Alternative would result in beneficial economic effects similar to those for the Bored Tunnel Alternative. An average of about 500 persons a day would be required for construction of the Elevated Structure Alternative during its approximately 10-year construction period.

6.6 Mitigation of Construction Effects – Bored Tunnel Alternative

6.6.1 Neighborhood Social Resources

In addition to the mitigation measures identified in Section 6.2, the following mitigation measures are recommended to help avoid, reduce, or minimize potential adverse effects on social resources resulting from the construction of the Bored Tunnel Alternative (preferred):

- Coordinate with childcare providers near construction activities to determine whether additional special mitigation is needed.
- 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.
- Include government agencies on distribution lists for notifications about upcoming construction activities. Agencies should include King County Department of Transportation, Marine Division; Port of Seattle; Washington State Ferries; U.S. Coast Guard; and the U.S. Post Office in Pioneer Square. Alerts could include periodic newsletters, website postings, e-mails, 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 the Washington State Ferries on an ongoing basis of planned construction activities near Colman Dock to help facilitate passenger and vehicle loading and unloading during the construction period.

6.6.2 Parks and Recreation

No mitigation measures for parks and recreation resources are planned for the Bored Tunnel Alternative, other than those discussed as common to all the build alternatives (Section 6.2.3).

6.6.3 Environmental Justice

Although construction would affect minority and low-income populations, these effects can be avoided, minimized, and mitigated. See the proposed mitigation measures for temporary effects in Section 6.2.5.

6.7 Mitigation of Construction Effects Common to the Cut-and-Cover Tunnel and Elevated Structure Alternatives

In addition to the mitigation measures identified in Section 6.2, the following construction measures are recommended to avoid, minimize, or mitigate the effects resulting from construction of the Cut-and-Cover Tunnel Alternative and the Elevated Structure Alternative.

6.7.1 Neighborhood Social Resources

To mitigate the construction effects on social resources, the following measure is recommended:

- Work with representatives of the Millionair Club charity to develop a plan for temporary relocation of its day labor program to a location that allows this program to continue its operations during construction.

6.7.2 Parks and Recreation

Mitigation for parking loss or restrictions during construction for those wanting to visit the central waterfront parks and recreation areas could be addressed by a number of strategies, including the following programs to provide alternate parking:

- Promote the use of the e-Park program, a City of Seattle program aimed to improve access to off-street short-term parking using marketing, way-finding, and technology means. This could include the following:
  - Providing improved access to information relating to parking options through the e-Park and Seattle Parking Map websites for businesses to share with customers and visitors.

  - Using existing and new social media and blog outlets to provide frequently updated information about parking availability to reduce the time spent in search of parking
  - Encouraging businesses to give parking vouchers to customers as an incentive to park in designated lots
- Work with private and public parking facilities to use the City's e-Park system, an electronic guidance system now in place that displays real-time parking availability on right-of-way signs, facility signs, and the Seattle Parking Map website. Dynamic message signs could be located at key access points in the central waterfront areas, downtown, and Pioneer Square.
- Provide short-term off-street parking serving the waterfront pier area.
- Provide a fee structure through validation that will compensate travelers for higher-cost parking or less-convenient parking.

Disruption of existing and usual patterns of north-south traffic along the waterfront corridor has the potential to reduce the overall appeal of the waterfront as a destination. Potential strategies to minimize disruptions are listed below by alternative.

Bored Tunnel Alternative

- Provide ADA-compliant detour routes whenever possible (if trails, pedestrian bridges, or other pathways are closed temporarily. Detours would be within a reasonable distance of the closed 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.
- WSDOT could also provide information on current and future access routes using way-finding signage along the corridor and on streets surrounding the construction zones or staging areas.

Cut-and-Cover Tunnel Alternative and Elevated Structure Alternative

Mitigation measure would include those discussed above for the Cut-and-Cover Tunnel and Elevated Structure Alternatives, those discussed in Section 6.2.3 for all three build alternatives, and the measures discussed below:

- Provide temporary overwater pedestrian connections to allow continuity between Piers 54 and 59 while the waterfront promenade is not in operation.
- To the extent possible, schedule construction activities to complete waterfront work quickly and restore a continuous, if temporary, corridor

as soon as possible, while work continues on related activities that do not directly disrupt movement along the corridor.

- Provide specific locations for (charter or cruise ship-related) bus parking with clear and convenient access to the waterfront to preserve and enhance group attendance.
- Provide and publicize alternative modes of access to the waterfront by public transit or by dedicated transit service on peak demand days from park-and-ride lots or other facilities, including the following:
  - Routing existing and future transit routes to provide convenient service close to waterfront access
  - Providing information on transit schedules and routes at bus stops and in the transit tunnel
  - Coordinating with a variety of operators of other modes of transportation (buses, taxis, tour buses, light rail trains, tourist industry, cruise ships) to publicize access points and opportunities for enjoying waterfront park and recreation facilities, along with waterfront businesses

The effects of noise and vibration on passive recreation activities such as walking, picnicking, and enjoying the views may be addressed by a variety of measures, including construction scheduling and noise attenuation measures, as required by the Major Public Project Construction Noise Variances (see Appendix F, Noise Discipline Report, for discussion of potential noise mitigation). The facility most likely to benefit from noise mitigation is Waterfront Park, which abuts Alaskan Way for most of its length.

If determined necessary during project final design or as construction progresses, access to cruises to Blake Island State Park (Pier 55) would be temporarily relocated to portions of the waterfront less affected by cut-and-cover tunnel construction or seawall reconstruction. Potential locations may include portions of Terminal 46, Pier 66, or Pier 70 within the general area or the Pier 91 or Fauntleroy areas. Such relocation would need to be coordinated with the disseminated of public information to ensure that potential users are aware of the changes.

To mitigate impacts on park and recreation uses that depend on admission fees, mitigation measures that address access and parking impacts would help to alleviate the perceived hassle of visiting the waterfront parks and recreations facilities.

Construction activities along the waterfront could result in public perception that the waterfront would be less convenient or pleasant to visit. This perception can be addressed through a coordinated strategy including all the elements outlined

above to provide physical access as well as public information targeting a variety of markets, including the public, tourists, and specific users such as schools, businesses, and cultural groups. Additional research may identify new markets that would compensate for the reduction in attendance by some groups of current users.

WSDOT could work with tourism groups, local businesses, existing stakeholder groups, the media, and others to ensure that critical access to the waterfront is maintained and accurate information about current and long-term construction activities is shared.

6.7.3 Environmental Justice

Although construction would affect minority and low-income populations, these effects can be avoided, minimized, and mitigated. See the proposed mitigation measures for temporary effects in Section 6.2.5.

Chapter 7 TOLLING

This chapter qualitatively describes the potential impacts on social resources and environmental justice populations in the study area that would result from tolling the build alternatives. Traffic response to tolling is documented in Appendix C, Transportation Discipline Report (see also Attachment G, Tolling Research and Literature Review). The anticipated social impacts of the tolling would be similar for all of the build alternatives; therefore, the effects of all three build alternatives are discussed together. The analysis assumed that transit or carpools would not pay a toll.

7.1 Tolling Effects on Social Resources

The evaluation of the social effects of tolling considers those who would choose to use the tolled facility and those who would choose to avoid using the tolled facility. The tolled portion of SR 99 would be parallel to I-5, and exit ramps would be available for drivers to use prior to a tolling point on SR 99. In addition to using I-5 as an alternative, drivers could navigate to or through downtown using Alaskan Way or any of the other north-south streets parallel to SR 99. These alternate routes to and from social resources, social service providers, and neighborhoods would enable travelers to avoid the toll, yet still reach their destination. Reasonable access to social service providers and neighborhoods would be maintained.

As described in Chapter 7 of Appendix C, Transportation Discipline Report, both vehicle hours of travel and vehicle hours of delay would be higher for each of the tolled alternatives compared to their non-tolled counterparts, with the effects most pronounced in the central portion of downtown. These increases would be a result of longer trips and increased congestion due to traffic diversion away from the tolled SR 99 facility.

In addition, the SR 99 tolling study concluded that one effect of tolled facilities could be that drivers would be more willing to stay on SR 99 for longer trips. "For drivers making shorter trips, paying a toll would be a greater part of the total trip cost, making it more attractive for those trips to use city streets or I-5" (WSDOT 2010b).

Travelers wishing to avoid the toll may cause congestion at off-ramps to non-tolled roadways located before the entrance to the tolled portion of SR 99. Therefore, those who choose to avoid the tolled facility could ultimately spend more time traveling to social resources than they would under non-tolled conditions, in addition to spending correspondingly less time in other social activities. In some cases, people may choose to access a social resource in a

different location, if available, or avoid visiting certain neighborhoods at certain times of the day. (The economic effects of congestion are described in Appendix L, Economics Discipline Report.).

Tolling the build alternatives would not restrict travelers from using business, social, or cultural amenities in the project area, because several alternate routes would be available, depending on the destination.

Under the Bored Tunnel Alternative (preferred) or the Cut-and-Cover Tunnel Alternative, transit routes with destinations in the CBD would still travel on SR 99 but would exit SR 99 farther south rather than using the on- or off-ramps at Columbia or Seneca Streets as they do today. These downtown ramps would not exist, except under the Elevated Structure Alternative.

7.2 Tolling Effects on Environmental Justice Populations

Tolling the build alternatives could adversely affect low-income and minority populations. Congestion on highways or local arterial networks increases travel time for all users and can increase traffic accidents. Congestion pricing (variable tolling rates) creates an incentive for drivers to change their travel times, routes, or modes in order to avoid or reduce the additional cost. The result could be reduced traffic and faster, more reliable commutes for those drivers most willing to pay and those using transit or carpooling. For most low-income populations, the effect of tolling would not be highly adverse due to the overall project benefits and the personal options to avoid the toll (e.g., using transit) or to minimize the toll's impacts (e.g., carpooling).

7.2.1 Tolling Effects and Issues Identified in Other Studies

Other WSDOT Reports and Projects

In September 2006, WSDOT published the *Washington State Comprehensive Tolling Study Final Report*, which included *Background Paper #4 – Equity, Fairness, and Uniformity in Tolling* (Texas Transportation Institute 2006). The following types of equity issues were identified in the Washington tolling study:

- Geographic equity or distribution of improvements
- Income equity or distribution of negative impacts on disadvantaged populations
- Participation equity or lack of representation of disadvantaged populations in the planning and decision process
- Opportunity equity or distribution of benefits based on cost recovery
- Modal equity or the appearance that the project will have negative impacts on multimodal transportation options

The Washington tolling study identified some situations that have the potential to burden lower-income populations. These include the exclusive use of electronic tolling without measures to minimize financial hardships (e.g., requiring credit cards or checking accounts), tolling an existing non-tolled roadway in a way that requires greater out-of-pocket costs for lower-income populations, and allowing an "ability to pay" determination to influence the decision to provide transportation improvements in areas with lower-income populations.

SR 520 Bridge Replacement and HOV Program

The SR 520 Bridge Replacement and HOV Program is intended to enhance safety by replacing the aging floating bridge and provide vital transit and roadway improvements throughout the corridor. The 12.8-mile program area begins at I-5 in Seattle and extends to SR 202 in Redmond.

WSDOT conducted an in-depth review and analysis of tolling impacts on environmental justice populations for its Urban Partnership SR 520 Variable Tolling Project (WSDOT 2009). Specifically related to environmental justice populations, focus group interviews of low-income drivers for this project indicated that some lower-income drivers believed a $3.50 toll would be worth it for a faster, more reliable trip. This finding is consistent with other studies on the equity of HOT lanes, which also found that some lower-income people supported congestion pricing if it ensured a faster, more reliable trip. Project team researchers hypothesized that lower-income people who worked for hourly wages or depended on childcare would choose to pay a toll to avoid losing wages or paying high fees for late pickups at their childcare facilities. For many lower-income people juggling multiple jobs and childcare, traffic delays may pose an even bigger burden than a toll.

According to WSDOT's SR 520 telephone survey, nearly 51 percent of low-income respondents said they would not use transit to avoid paying the toll. More than 53 percent of those who said they would not use transit indicated that transit service is not frequent enough on their routes. Nearly 56 percent said they live or work too far from transit. Of those low-income respondents who said they would use transit to avoid paying the toll, 63 percent said that it would greatly increase their travel time.

For survey respondents, non-tolled routes were considered preferable to paying the toll. More than 64 percent of low-income respondents said they would use a non-tolled route if they wanted to avoid paying the toll, 67 percent of whom felt it would greatly increase their travel time.

Columbia River Crossing

The Columbia River Crossing (CRC) is a comprehensive proposal to address safety and congestion problems on I-5 in Vancouver, Washington, and Portland,

Oregon. The CRC will replace the I-5 bridge over the Columbia River and extend light rail to Vancouver. The *Environmental Justice Technical Report* for the CRC project (an appendix to the 2008 Draft EIS prepared by WSDOT) indicated no disproportionate environmental justice impact associated with tolling. However, tolling the facility has the potential to adversely affect low-income populations and/or populations with limited English proficiency that may experience difficulty acquiring a transponder.

The operation of the CRC project will benefit all users, including low-income populations, minority populations, and populations with limited English proficiency. Others benefitting from increased speeds and trip reliability on the I-5 bridge include transit riders, minority and limited English proficiency drivers, and/or those with low incomes.

The CRC project uses the FHWA methodology for assessing such an impact. FHWA defines an environmental justice impact as one that is either "predominantly borne by environmental justice populations" or "appreciably more severe" for environmental justice populations. The CRC project has concluded that the toll would not be "appreciably more severe," because there are alternatives for avoiding it and minimizing it, and it allows the river crossing structures to be built, which subsequently enables high-capacity transit to reach Vancouver from Portland.

CRC bridge users would have to purchase a transponder and set up an account or receive a bill for the toll with a surcharge added. Both options were found to present a potential burden to bridge users who are low-income or have limited English proficiency.

Results of Public Outreach

Project staff met with representatives of social service providers and other organizations to inform them about the build alternatives and to ask a series of questions related to project impacts and the potential effects of tolling on their clients or staff. The interviews enabled project staff to better understand the unique needs of each agency or organization. The interviews included discussions of tolling the build alternatives. One question was "Are you aware that the proposed bored tunnel may be tolled?" The interview excerpts below provide a summary of the comments about tolling that were received from various services providers:

- **Pike Place Market Senior Services and Food Bank** – They responded that their staff and volunteers were aware of the toll and would not pay it. They would take surface streets to avoid paying a toll.

- **Catholic Seaman's Club –** They responded that they would be forced to use surface streets to travel to and from the Port of Seattle, and that their organization would not have the funding to pay for tolls in the tunnel.
- **Dorothy Day House, Rose of Lima House, Noel House** – They responded that "Tolling is expensive; it would be better to raise taxes than toll the tunnel. If the tunnel is tolled, nobody will pay extra to fund social service providers."

Overall, these interviews suggested that employees and patrons of these organizations would prefer to take alternate routes or the new Alaskan Way rather than pay tolls due to their downtown locations.

Acquisition of Transponders

Numerous studies and project analyses have found a potential for the acquisition of transponders to result in an environmental justice impact. Current electronic toll collection systems with transponders present various hurdles for low-income users. People acquiring transponders normally either pay a deposit or link the account to a credit card or bank account (Parknay 2004). Some low-income users may not be able to afford the set-up fees or may have difficulty for lack of a credit card and/or checking account. According to the results of the telephone survey conducted for WSDOT's SR 520 project, more than 25 percent of low-income respondents indicated that they would not be able to use a credit, debit, or checking account to prepay their account (WSDOT 2009).

The tolling system described above could have an adverse impact on those affected. Obstacles may exist when new tolls are instituted in areas where some groups and individuals lack the English language skills necessary to understand the complex tolling system, or a credit card or checking account to facilitate payments. These impacts could be mitigated by means of a program established specifically to communicate with these populations. This program is discussed below in Section 7.2.4.

7.2.2 Travelshed Analysis

This section considers the travelshed for the Bored Tunnel Alternative to determine the characteristics of the population that would be most affected by tolling the SR 99 replacement facility. The travelsheds for all three of the build alternatives would be similar (see Appendix C, Transportation Discipline Report). While vehicle demand for SR 99 from some neighborhoods is expected to increase or decrease depending on the alternative and its connectivity, each of these areas would still be served by the SR 99 mainline within the study area.

This section considers where potential bored tunnel users live and work (i.e., the origins of trips on SR 99 through downtown Seattle), also referred to as the

travelshed. It is important to note that this section is focused on trips traveling *through* downtown Seattle, not *to* downtown Seattle, since trips to downtown would not be subject to tolls. The trip origins of users were evaluated to determine the geographic and demographic characteristics of drivers likely to be most affected by tolling the build alternatives.

Even though discussions of environmental justice usually examine the effects on both low-income populations and minority populations, the following discussion focuses only on low-income populations, because the effects of tolling would not vary according to minority status. The following discussion focuses on projected automobile-users of the bored tunnel, their geographic distribution, and their poverty status.

Exhibit 7-1 lists the census tracts with the greatest number of trip origins for SR 99 trips using the bored tunnel, according to the modeling work summarized in Appendix C, Transportation Discipline Report. The percentage of households below the federal poverty level is shown for these high-trip tracts. These tracts are mapped in Exhibit 7-2.

Exhibit 7-1. Poverty Levels in the Travelshed in 2030

Census Tract	Number of Trips on SR 99	Percentage of Households Below Federal Poverty Level in 2000	Neighborhood
93	4,309	28%	SODO/Georgetown
72	3,130	18%	South Lake Union (west)
284.02	2,519	15%	SeaTac
73	2,348	40%	South Lake Union (east)
109	1,388	19%	Georgetown
107	687	32%	Delridge
113	503	15%	White Center (north)
13	429	19%	Licton Springs
100	419	18%	Beacon Hill
268.01	390	15%	White Center (south)
272	381	16%	North Tukwila/Highline Medical Center
276	302	18%	Burien
80.01	295	21%	Belltown
265	293	39%	White Center (central)
4.01	286	17%	Bitter Lake
292.01	282	18%	Renton Boeing area
101	179	16%	Genesee

Exhibit 7-1. Poverty Levels in the Travelshed in 2030 (continued)

Census Tract	Number of Trips on SR 99	Percentage of Households Below Federal Poverty Level in 2000	Neighborhood
271	174	18%	North Tukwila/Highline Medical Center
94	169	16%	North Beacon Hill
289.02	155	15%	Des Moines
602	154	24%	Tacoma Piers
110	147	19%	South Beacon Hill
305.01	136	32%	Auburn (north)
308.01	125	17%	Auburn (south)
300.02	124	17%	Star Lake (south)
103	118	16%	Columbia City
300.04	111	16%	Star Lake (north)
91	109	50%	International District

Source: Parametrix 2010, based on U.S. Census 2000.
SODO = South of Downtown
SR = State Route

The totals shown in Exhibit 7-1 include trips originating both from the home and from the workplace. Many of the census tracts are predominantly residential; therefore, the poverty levels of the bored tunnel users would correspond to the poverty levels of the census tract residents. Other tracts, such as census tract 93 (SODO/Georgetown), contain many land uses besides residential. For these census tracts, the poverty level of the residents is less informative of the poverty level of potential bored tunnel users, because many of the trips would be made from the workplace instead of the home.

Alternatives to Toll Payment

To avoid paying a toll on the SR 99 replacement facility, some low-income travelers may choose to take a different route through downtown Seattle or to switch to transit instead of driving. Instead of using SR 99, some low-income travelers may choose to use one of several alternate routes through downtown or parallel to downtown.

Alternate Routes for Drivers

Instead of using SR 99, numerous alternate routes through downtown or parallel to downtown are available for the residents of the neighborhoods listed in Exhibit 7-1. Identifying and analyzing all potential alternate routes is not practicable. Instead, for each of the neighborhoods listed in Exhibit 7-1, a sampling of alternate routes have been identified and analyzed. These routes are shown in Exhibit 7-2 and described in Exhibit 7-3.

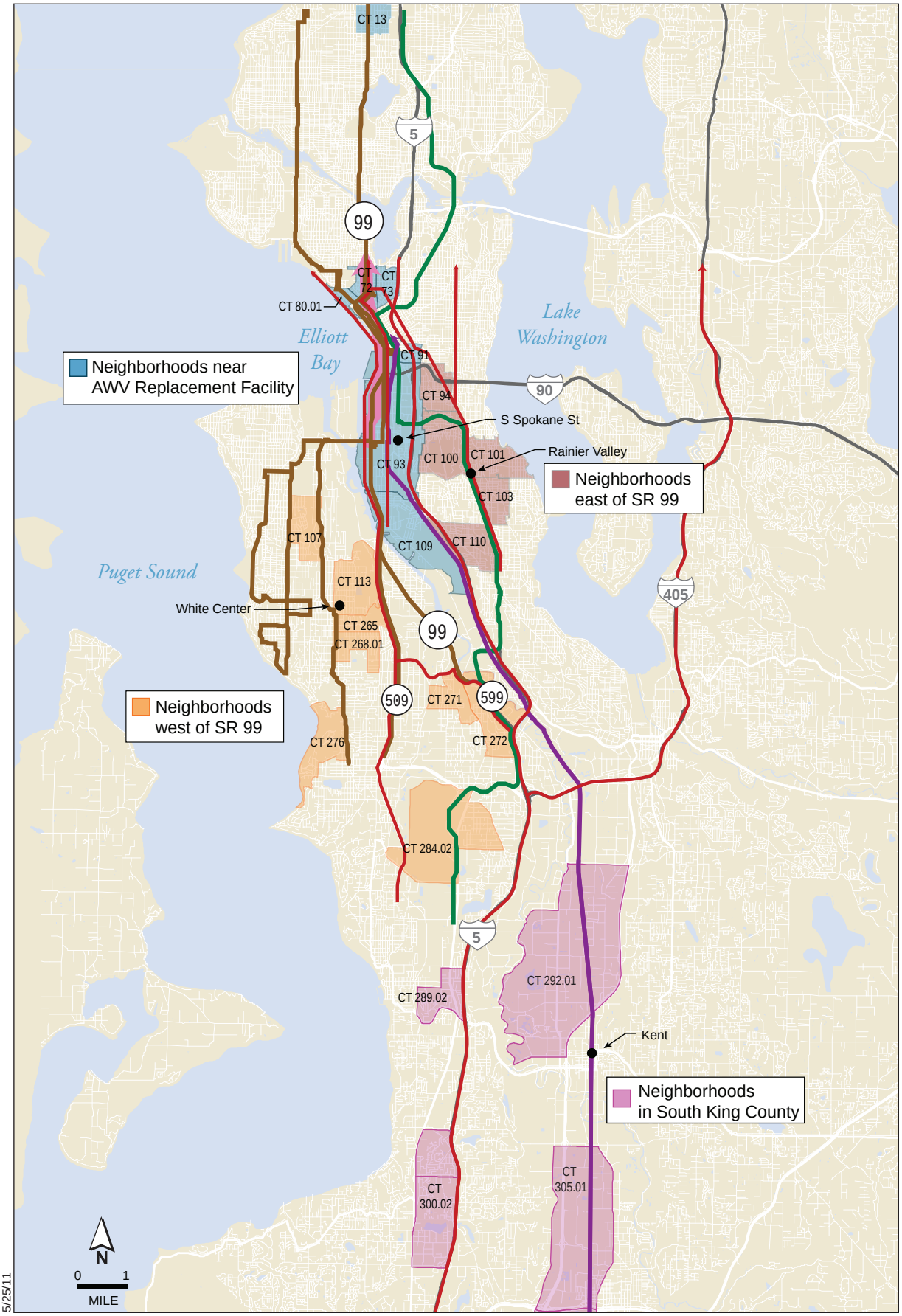
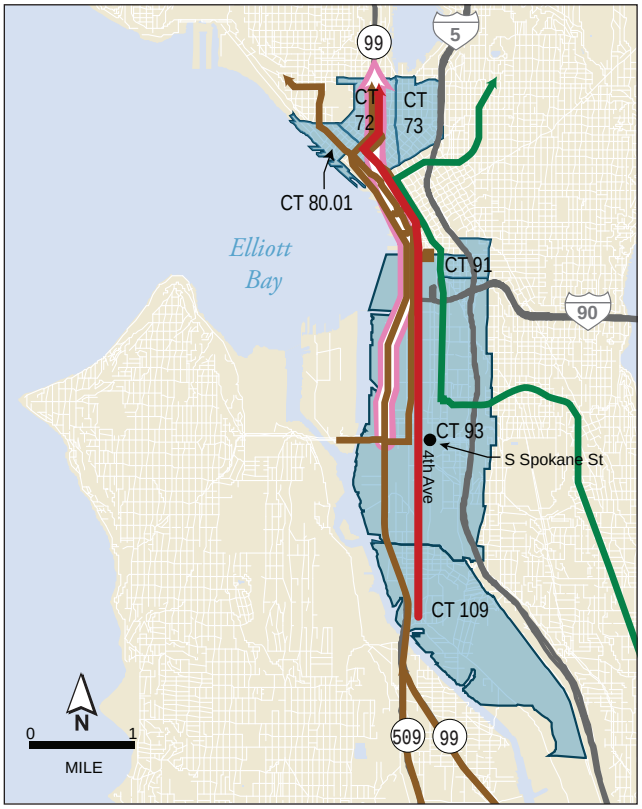
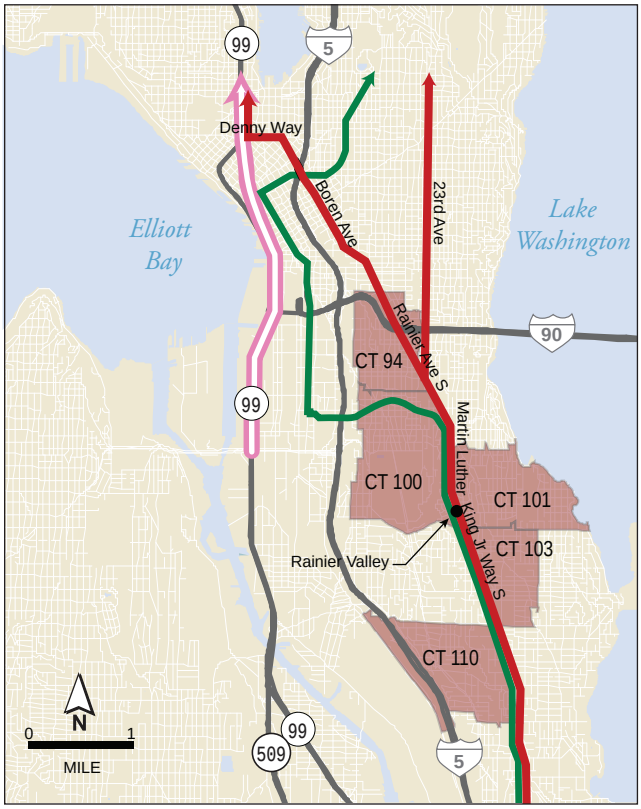


Figure 7-2 (Page 1 of 2)
Alternate Routes from Low-income Census Tracts in Bored Tunnel Travelshed

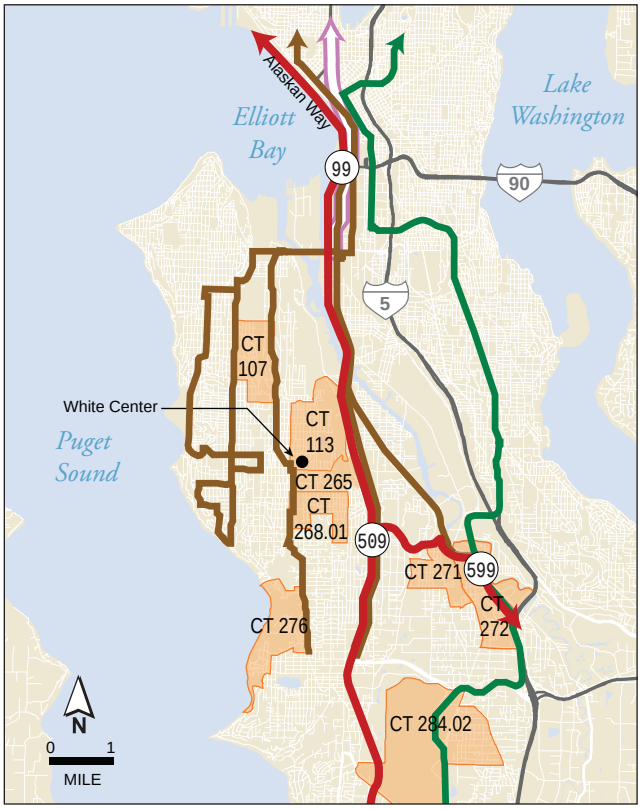
Neighborhoods near AWV Replacement Facility



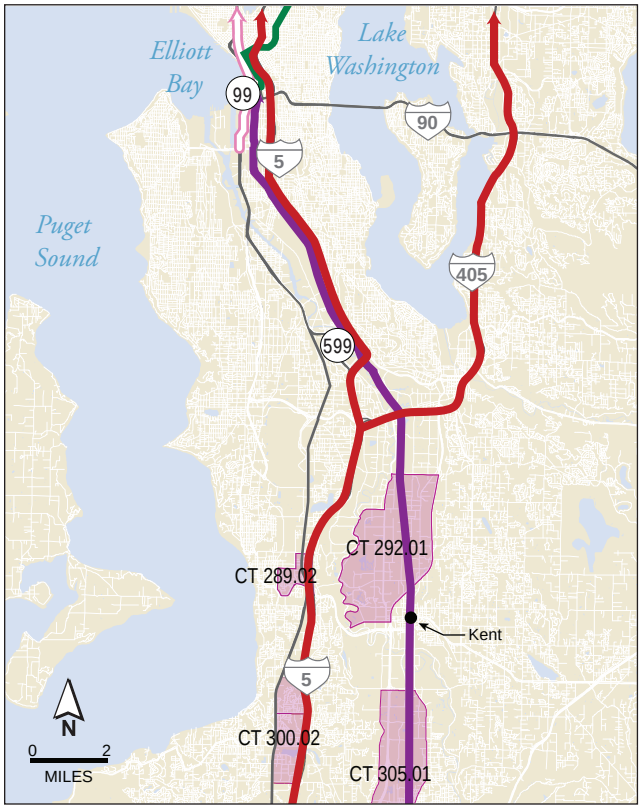
Neighborhoods east of SR 99



Neighborhoods west of SR 99



Neighborhoods in South King County



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- AWV Replacement Facility
- Bus Routes Servicing Downtown Seattle
- Link Light Rail
- Commuter Rail
- Roadway
- Sample Trip Point Origin
- CT 000.00 Census Tract

Figure 7-2 (Page 2 of 2)
Alternate Routes from Low-income Census Tracts in Bored Tunnel Travelshed

Exhibit 7-3. Alternate Routes With Tolled Bored Tunnel and Alternate Non-Tolled Routes

Route
Neighborhoods Near Alaskan Way Viaduct Replacement Facility
S. Spokane Street to Lake Washington Ship Canal (NB)
Via SR 99 (tolled)
Via alternate roadways: Fourth Avenue S./Fourth Avenue/Battery Street/Aurora Avenue
Via bus: RapidRide C transfer to RapidRide E
Neighborhoods East of SR 99
Rainier Valley to Lake Washington Ship Canal (NB)
Via S. Columbian Way, Beacon Avenue S., S. Holgate Street, First Avenue S., SR 99 (tolled)
Via alternate roadways: Martin Luther King Jr. Way, Rainier Avenue, Boren Avenue, Denny Way, Aurora Avenue
Via Link light rail (Columbia City Station to RapidRide E)
Neighborhoods West of SR 99
White Center to Ballard (NB) [1]
Via S.W. Roxbury Street, Olson Place S.W., SR 99 (tolled), Roy Street, Dexter Avenue N., Mercer Street, 15th Avenue N.W.
Via S.W. Roxbury Street, Olson Place S.W., Alaskan Way surface street, Elliott Avenue, 15th Avenue N.W.
Via bus: Metro Route 120, transfer to RapidRide D
Neighborhoods in South King County
Kent to Lake Washington Ship Canal (NB)
Via SR 167, I-405, I-5, SR 599, SR 99 (tolled)
Via SR 167, I-405, I-5
Via Sounder commuter rail, transfer to Link light rail (International District Station to University Station)

Notes: I-5 = Interstate 5
I-405 = Interstate 405
NB = northbound
SR = State Route

1. For routes from neighborhoods west of SR 99 to destinations east of Ballard, refer to the routes listed under "Neighborhoods Near Alaskan Way Viaduct Replacement Facility.".

Most of the neighborhoods listed in Exhibit 7-1 are located south of downtown. Therefore, sample routes mapped in Exhibit 7-2 and described in Exhibit 7-3 are provided only for northbound trips through downtown.

Northbound trips through downtown could end at any number of destinations in Seattle, north King County, or beyond. Therefore, the Lake Washington Ship Canal is used in this analysis to represent all potential northern endpoints.

2030 Vehicle Travel Times

Because tolling is only expected to affect travel times within and near the study area (see Appendix C, Transportation Discipline Report, Chapter 4), travel times are reported only from S. Spokane Street to the Lake Washington Ship Canal and from S. Holgate Street at Sixth Avenue S. to the ship canal. The travel times from the ends of these routes to locations farther from downtown would be no different under tolled and non-tolled conditions.

Travel times for trips using non-tolled alternate routes would be longer, compared to travel times for trips using the tolled bored tunnel. Travel times for trips to and from West Seattle and the Duwamish area to the Aurora Bridge using non-tolled alternate routes would be 18 to 21 minutes longer, depending on the direction. Travel times for the S. Holgate Street to the Aurora Bridge portion of non-tolled trips to or from the Rainier Valley are forecasted to be 18 to 24 minutes longer than trips using the tolled bored tunnel.

2030 Transit Travel Times

Tolling would increase travel times moderately for some transit routes. Link light rail and the Sounder commuter rail would be unaffected due to their exclusive right-of-way to and through downtown.

Transit priority treatments, either existing or as planned as part of the project, are expected to minimize the effects of diverted traffic on transit travel times. These transit priority treatments include the following:

- Peak-period transit lanes, such as those on Second and Fourth Avenues
- All-day transit lanes, like those on Battery Street, Wall Street, Aurora Avenue, and the northbound SR 99 off-ramp in the stadium area
- Third Avenue, which would continue to operate as a transit priority facility for much of the day
- The E-3 and D-2 busways, which would continue to be restricted to transit only all day

Most increases in transit travel time due to tolling are expected to occur where transit operates with general-purpose traffic. These delays are expected to occur on Fourth Avenue S. at S. Jackson Street, Airport Way S., S. Holgate Street, and S. Lander Street. These delays of up to 3 minutes in the AM peak hour and 5 minutes in the PM peak

hour would affect certain routes to and from West Seattle, White Center, and areas near Boeing Field.

Nearly all buses that operate in the CBD would travel on Second, Third, and Fourth Avenues; some routes to the Eastside and First Hill also would operate on Fifth Avenue, although this street is not expected to be as affected by diverted traffic as other facilities closer to the SR 99 corridor.

Neighborhoods Near SR 99 – For low-income neighborhoods near SR 99, such as Georgetown, SODO, Belltown, the International District, and South Lake Union, alternate driving routes include surface streets like Second and Fourth Avenues. Low-income travelers switching to transit could use local bus routes, as well as King County's new RapidRide service and Sound Transit's Link light rail service. As described above, driving through downtown on Fourth Avenue instead of on SR 99 would include an increase in travel time of approximately 18 to 21 minutes. Transit routes through downtown are available, using RapidRide or Link light rail.

Neighborhoods East of SR 99 – For low-income neighborhoods east of SR 99, such as Beacon Hill, Rainier Beach, Columbia City, and Genesee, alternate driving routes include arterials east of I-5 like Boren Avenue and 23rd Avenue. Low-income travelers switching to transit would be well served by Link light rail, with several stations in the Rainier Valley. As discussed above, if trips to and from these neighborhoods use downtown streets, the travel times on non-tolled alternate routes are estimated to be 18 to 24 minutes longer than trips using the tolled bored tunnel.

Neighborhoods West of SR 99 – For low-income neighborhoods west of SR 99, such as Delridge, White Center, North Tukwila, Des Moines, and Burien, alternate driving routes through downtown include the Alaskan Way surface street or various combinations of local arterial roadways. Low-income travelers switching to transit would be served by RapidRide. Although the sample route described in Exhibit 7-3 would not be served by Link light rail, some neighborhoods west of SR 99 would be well served by light rail. As described in Exhibit 7-3, compared to the bored tunnel, the Alaskan Way surface street provides a more direct route through downtown to Ballard. Upon completion of the new Alaskan Way surface street and the Elliott/Western Connector, this alternate route would be even more direct. For travel times to destinations east of Ballard, refer to the routes listed under "Neighborhoods Near Alaskan Way Viaduct Replacement Facility" in Exhibit 7-3.

Neighborhoods in South King County – For low-income neighborhoods in south King County (e.g., Renton Boeing area or Star Lake), a variety of alternate routes are available, including I-5. Low-income travelers switching to transit would be served by Sounder commuter rail, which often provides a faster trip to downtown

Seattle than any roadway option. However, Sounder does not provide service through downtown, so a transfer would be required.

Conclusions Regarding Alternate Routes

Low-income SR 99 users would need to choose between paying a toll to use the SR 99 replacement facility or changing to a different route or mode of travel. Travel times on the many non-tolled alternate routes through downtown Seattle would be somewhat slower than those on the SR 99 replacement facility, but the absence of a toll on these routes may attract commuters who otherwise would have used SR 99. Travel times using transit instead of SR 99 may be slower but would include the added benefit of reduced expenses relative to the expenses related to car use, such as gas and maintenance costs. Low-income users wishing to travel through downtown Seattle would need to choose between the costs associated with a potentially faster and more reliable trip on SR 99 and the effects associated with using alternate driving routes or transit. Although the toll itself would disproportionately affect low-income users of the facility, there are viable alternate routes. In most cases, the travel times on the alternate routes would slower than the travel times on a tolled SR 99. However, these slower travel times would be experienced by motorists of all income levels and would not be appreciable more severe for low-income travelers.

Costs of Transit

Transit fares for adults on King County Metro and Sound Transit buses range from $2.25 to $3.00. Discounted fares are available for seniors, Medicare recipients, riders under the age of 18, and those with disabilities. The King County Metro transit fares for those with the Regional Reduced Fare Permits are only $0.75. The Regional Reduced Fare Permit entitles senior riders, riders with a disability, and Medicare cardholders to reduced fares on the following public transportation systems in the Puget Sound region:

- Metro Transit
- Community Transit
- Everett Transit
- Pierce Transit
- Intercity Transit
- Jefferson Transit
- Skagit Transit
- Kitsap Transit
- Sound Transit
- Mason Transit

- Washington State Ferries
- King County Water Taxi
- South Lake Union Streetcar

Metro Transit is free between 6:00 a.m. and 7:00 p.m. daily in downtown Seattle. However, users of SR 99 are more likely to be traveling beyond the geographic limits of the Ride Free Area. The Ride Free Area extends from Battery Street in the north to S. Jackson Street in the south and from Sixth Avenue in the east to the waterfront in the west.

Fares range from $2.75 to $4.75 on Sound Transit Sounder commuter rail and $1.75 to $2.50 on Link light rail. By comparison, the proposed average toll would be approximately $2.45 for periods of moderate congestion.

As discussed previously, there are numerous options for avoiding the toll. However, many of these options have limitations such as potentially longer commutes. In addition, certain households are unfamiliar with transit or may choose not to switch to transit, because of the distance and length of time it would take to access transit stops or stations or because of multiple destinations (or stops) that must be made (such as day-care centers). The toll would not vary according to the driver's income; however, with numerous options available, the impacts of tolling on low-income commuters would not be appreciably more severe or highly adverse.

7.2.3 Environmental Justice Issues Associated With Other Tolling Impacts

The location, intensity, and duration of potential environmental impacts due to tolling were reviewed. The project team reviewed the effects of tolling on traffic, air quality, and noise to determine impacts on environmental justice populations. See Appendix C, Transportation Discipline Report, for details on congested intersections, travel time projections, and other effects. See also Appendix M, Air Quality Discipline Report and Appendix F, Noise Discipline Report.

7.2.4 Environmental Justice Conclusions

For low-income populations, the impact of tolling would not be highly adverse because of the project benefits and the options for avoiding the toll (e.g., by using alternate routes or transit) or minimizing the impacts of the toll (e.g., by carpooling). The analyses of the equity of tolling concluded that the effects would not be disproportionately high and adverse for the following reasons:

- There would be viable options for avoiding the toll.
- The acquisition of tolling transponders, which could cause an adverse and disproportionate impact, can be minimized or mitigated as described below.

Tolling the build alternatives would not result in disproportionately adverse impacts on environmental justice populations. Other roadway facilities in Washington State have recently begun tolling, and WSDOT will continue to evaluate the tolling methods in order to address the effects on low income populations so that new minimization or mitigation methods can be employed, if needed.

Any potentially adverse impacts that may result from the need to acquire tolling transponders can be minimized or mitigated with the measures that are in use now for other recently tolled facilities (such as the SR 520 bridge) and would continue to be used for this project, as listed below:

- Establish customer service centers using storefronts in the travelshed. Find locations online at http://www.wsdot.wa.gov/goodtogo/contacts.htm.
- Enable people without credit cards or checking accounts to obtain transponders by paying with cash or Electronic Benefit Transfer (Quest) cards issued by the Washington State Department of Social and Health Services.
- Provide public service announcements in multiple languages regarding the Good to Go!™ accounts and transponders.
- Establish Good To Go!™ retail outlets at convenient locations, such as grocery stores, convenience stores, or pharmacies throughout the travelshed and convenient to lower-income neighborhoods.
- Share information with and through other public service providers.
- Provide social service agencies with tolling information and options to avoid the tolls.
- Promote rideshare opportunities such as those in Rideshareonline.com, carpoolworld.com, and commuteseattle.com, and vanpool providers.

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Chapter 8 ENVIRONMENTAL JUSTICE

Project construction 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. The Bored Tunnel Alternative would be the least disruptive of the three build alternatives.

Continued contact and coordination with social resources that serve minority and low-income populations will help to determine whether project-related impacts may be appreciably more severe for these populations. Any disproportionately high and adverse effects on environmental justice populations due to the Bored Tunnel Alternative or the other two build alternatives can be avoided or minimized through careful planning and design, along with continued coordination with the groups and agencies that serve these populations.

Planned enhancements to transit services would help to minimize the effects on mobility during construction. Minority and low-income populations would benefit because many rely heavily on bus transit and generally have fewer transportation options. The organizations serving these populations also rely on transit, and they could be affected by reduced accessibility for staff, emergency services, and deliveries. With the advanced planning and coordination that has taken place and that will continue during construction, the identified construction effects could be avoided or substantially reduced.

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ATTACHMENT A

Street Maps of the Study Area

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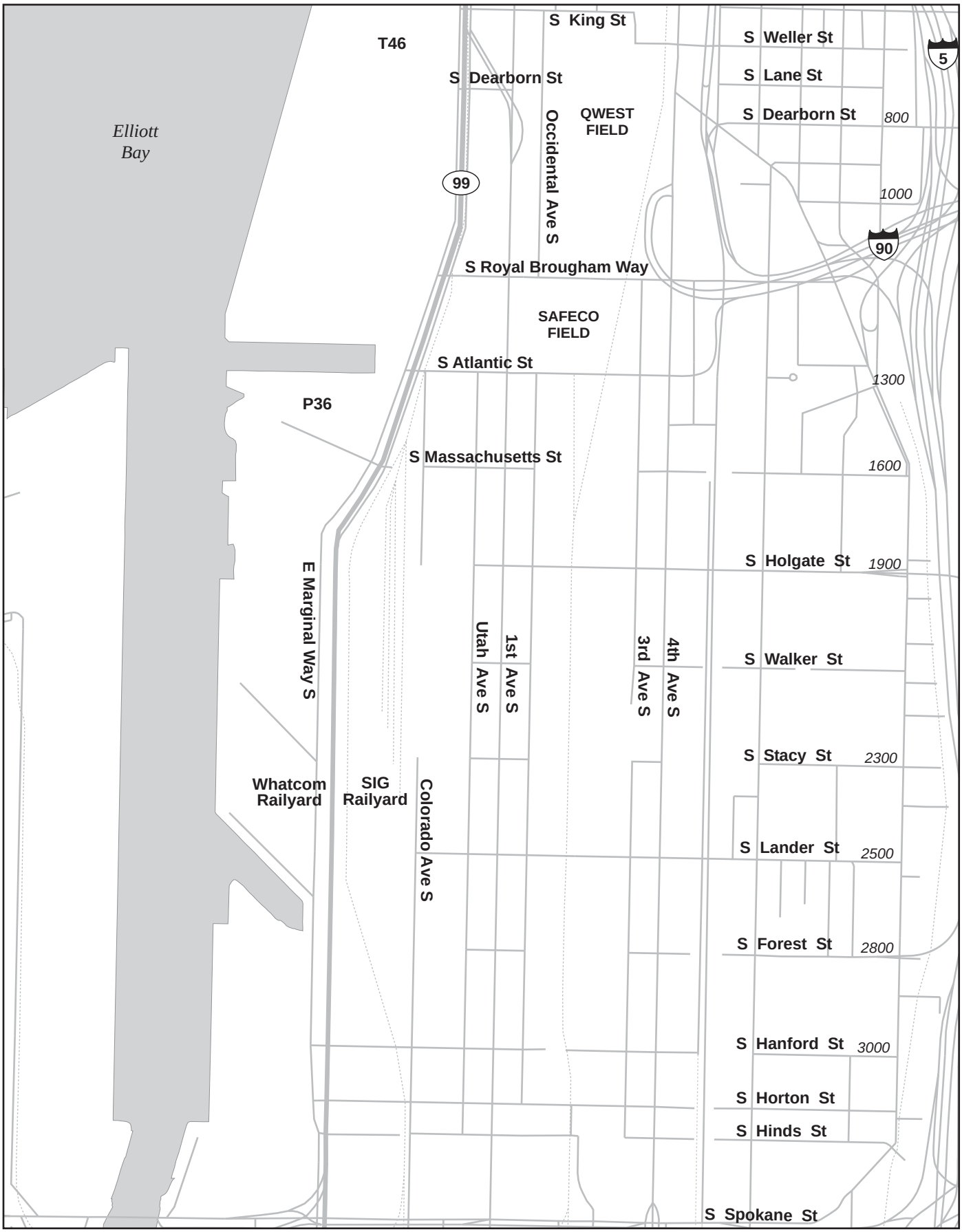

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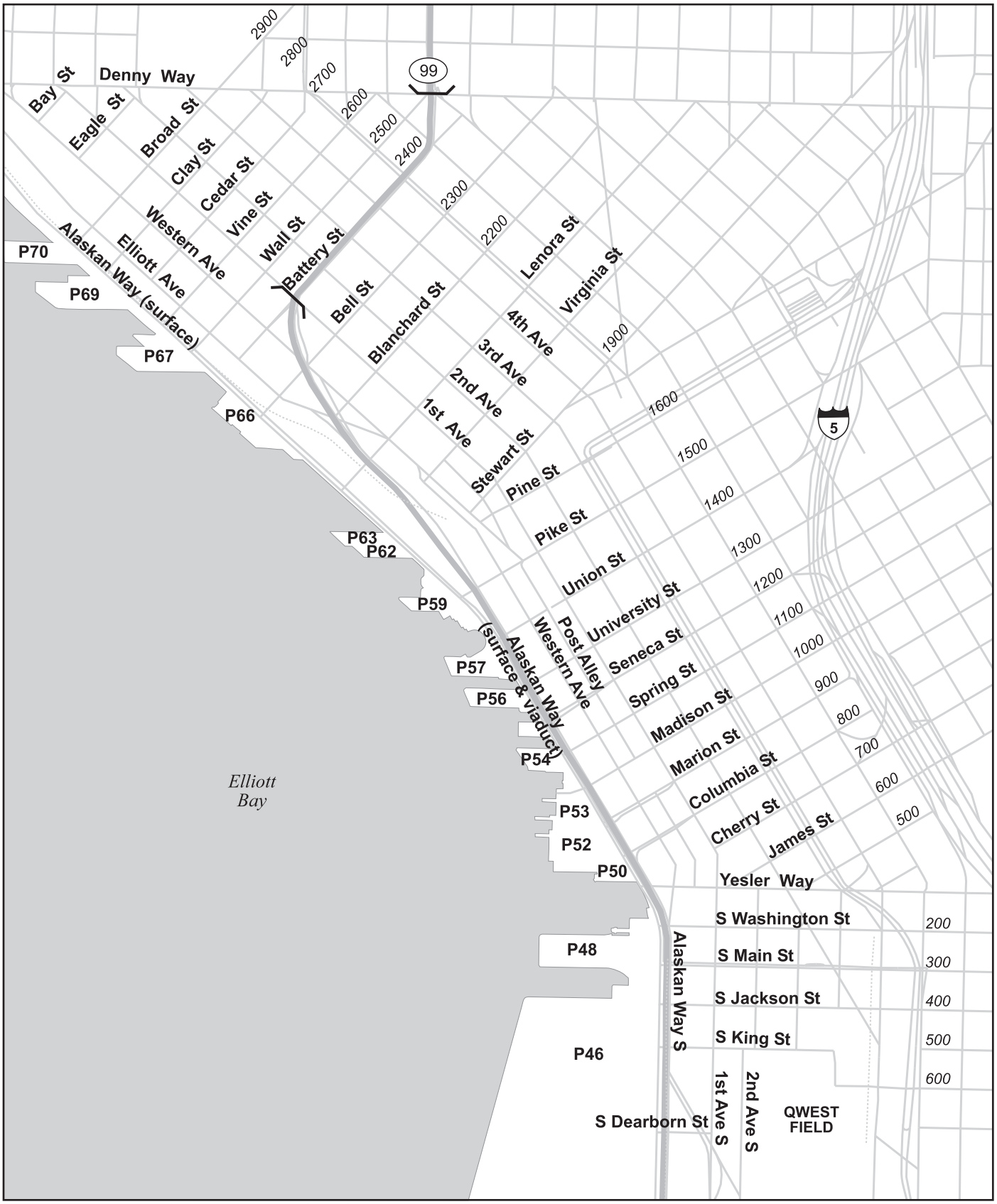
T46 = Terminal 46
P36 = Pier 36

Attachment A-1
Street Map of Stadium Area



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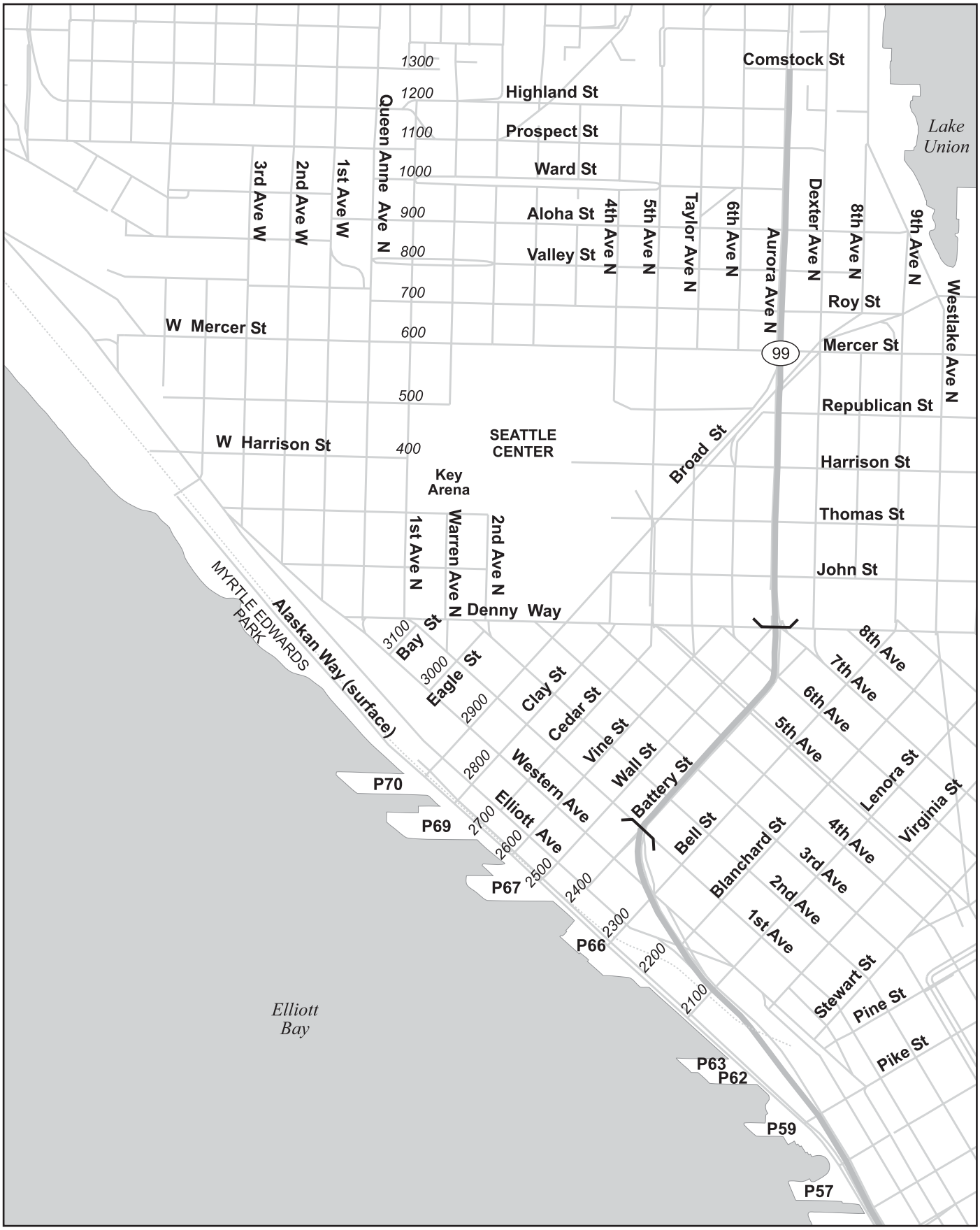
P46 = Pier 46

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.	Am. Ind. & AK Nat.	Asian	Nat. HI & Pac. Is.	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%
			1	*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:

African Am. = African American.

Am. Ind. = American Indian.

AK Nat. = Alaskan Native.

Nat. HI = Native Hawaiian.

Pac. Is. = Pacific Islander.

Percentages 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.	HH	1999 Median HH Income	1999 Per Capita Income	Estimated HH Public Assistance Status*	1999 HH With Public Assistance	%	Estimated Pop. Poverty Status	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:

Pop. = Population.

HH = Household.

* 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 Older	Speaks English Only	Speaks English "Very Well" or "Well"	LEP Population	Percentage 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	85,361	23,072	4%

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

Notes:

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	Avg HH size	English Only	%	Spanish	%	Asian & Pacific Islander	%	Other Indo-European	%	Other Languages	%	Speak Other Languages	%	Linguistically Isolated[1]	%
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	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:

HH Estimated = Total number of households for which data were predicted based on the sample survey.

HH = household

1. 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%

Exhibit B-6. Country of Origin, 2000

	2000 Census Tract																			
	67	%	70	%	71	%	72	%	80.01	%	80.02	%	81	%	92	%	93	%	Total	%
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%
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	Children 0-4 yrs.	%	Children 5-17 yrs.	%	Children (0-17 yrs)	%	Adults 18-64 yrs.	%	Adults 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:

Percentages may not total 100 percent due to rounding.

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

2000 Census Tract	Block Group	Pop.	HH	Ave HH Size	1-Per HH	%	Family HH	%	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:

Pop. = Population.

HH = Household.

1-per HH = One person households.

Family HH = Households with more than one person related by blood or marriage or adoption.

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
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:
The percent population is based on total number of population 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.

Percentages may not total 100 percent due to rounding.

ATTACHMENT C

Summary of Public Involvement Activities

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The environmental justice evaluation for this Final 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 (see Exhibit C-1 for summaries). The 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 each 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. A 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.

After the release of the 2010 Supplemental Draft EIS (WSDOT et al. 2010), additional efforts were made to reach out to social service providers and social resources identified as being in close proximity to proposed construction. The Program team invited social service providers to participate in public hearings, a briefing specifically for social service providers, and to interviews.

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 moves forward. Exhibit C-1 documents the concerns service providers had at the time of the interview about potential effects on their services or the 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 they 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 East Marginal Way 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 beneficial. • Consider a traffic signal at S. Massachusetts Street and Alaskan Way S. to assist vehicles leaving the site. This would also benefit the U.S. 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 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 November 1, 2010	• 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 the mission throughout the day is important for deliveries.	• Conduct sweeps of the construction area to locate homeless people before construction. • Use signage (in multiple languages, such as 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 on 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 on 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 November 2, 2010	• 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 do not 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 is 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 on 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 November 30, 2010	• The facility needs 24-hour access, so any adverse effects on 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 on 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 November 30, 2010	• Access to transit if routes are relocated from First and Second Avenues during construction. • Indirect impacts from construction (i.e., increased traffic, noise). • Effects on 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. Not anticipate many effects are anticipated, 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 November 12, 2010	• 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 before 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 before project construction/utility relocation. • Effects on transit.	• Assistance in finding a replacement location. • Consider enhancing transit infrastructure such as adding more park-and-ride lots and water taxis.
Valley House December 1, 2005 May 17, 2006	• Access to SR 99. • Impacts on bus stop along Aurora Avenue. • 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.
Millionair 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 November 30, 2010	• Impacts on 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.

ADA = Americans with Disabilities Act
HVAC = heating, ventilation, and air conditioning
SR = State Route

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.

Often briefings are given to a specific social service agency upon request. Occasionally, the Program team hosts Multiple Service Providers briefings and invites social service providers within the project area to attend, hear a presentation, and ask questions. More than 200 social service organizations are located in the project area and are invited by mail, e-mail, or telephone.

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 November 9, 2010
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 (Exhibit C-3). 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.

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
November 16, 17, and 18, 2010	Public Hearings for 2010 Supplemental Draft EIS

Community calendars, advertisements in local newspapers and on news websites, e-mail updates, information on the Program websites, and press releases 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 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 Americans with Disabilities Act (ADA) standards.

Comment cards were available for the attendees to complete, and spoken comments were 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.

Title VI of the Civil Rights Act of 1964 requires the Washington State Department of Transportation (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.

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 comprise individuals representing neighborhoods, 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 people with limited English proficiency and minority and low-income populations. Since its inception, the Program team has held 10 South Portal Working Group meetings, 8 North Portal Working Group meetings, and 2 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, Traditional Chinese, Tagalog, and Vietnamese each year. The translated materials were distributed at interviews, briefings, community fairs and festivals, and other public meetings as needed. 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 compact disc (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 Spanish, Traditional Chinese, Tagalog, and Vietnamese. 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 multilingual, 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 more than 6,000 e-mail addresses.

The Program team has a mailing list for social service providers. The list is composed of contacts from previous 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 phone number for the Program information line. Similarly, a Program update was sent to more than 200 social service providers in October 2010 informing them about the availability of the 2010 Supplemental Draft EIS, ways to comment, and opportunities to be involved.

9.0 Website

The Program website (http://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 http://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 would 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 (DBEs) 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

WSDOT also hosts community roundtables for DBEs. The Program team attended the following events:

- April 27, 2010, DBE Community Roundtable in Shoreline
- November 2, 2010, Community Roundtable at South Seattle Community College

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

Environmental Justice / Social Services Interview Questions

Learning about the agency and clients

- Can you briefly describe the mission of your organization and the services you offer?
- How many staff members or volunteers work at the agency?
- How many clients/guests do you serve?
  - Have you noticed an increase, decrease, or about the same number of clients/guests over the past year? What are you anticipating in the coming year?
  - What languages do the people you serve speak? Would translated project materials or interpreters at public meetings be useful?
- How do your clients and staff members access the agency's services? Do they drive, take transit, walk to your offices?
- Does your agency work out of other buildings? If so, where?
- What are your hours of operation?

Best methods for outreach / communication

- What interests do you think the group(s) you serve will have in the project?
- What are your concerns regarding the potential impacts of the project on your service(s) and/or people that you serve? *(If applicable)* When we met previously, you mentioned the following concerns (*fill in concerns)*. Do these still apply given the current preferred alternative? Are there others?
- As we reach out to all groups and individuals that may be affected by the project, what is the most effective way to reach you and the people you serve?
  - Community events
  - E-mail
  - Media
  - Program presentation
  - Providing written materials
  - Community meetings
  - Posters / fliers
  - Other

- We recently held a briefing for social service providers in addition to three public hearings to seek public comments on our environmental document. Were you able to attend any of these meetings?
  - If yes: Thank you for attending. Was the (insert meeting name) helpful? Did you find the format useful for you and/or your clients?
  - If no: Are public meetings a good way for your organization or clients to participate?
- Are there any key organizations or community leaders that we should be speaking with?

Planning for construction

- What questions or concerns about construction do you have at this time?
  - Removal of parking under the viaduct
  - Noise
  - Dust
  - Construction work zone safety
  - Increased congestion
  - Access to your facility
- Are there any future plans for your agency that you think would be helpful for our design and construction teams to know about?

Tolling

- Are you aware that the proposed bored tunnel may be tolled?
- Would your clients or staff be affected by tolling? Do you believe they would pay the toll or choose another route or mode of transportation to avoid paying the toll?

Closing

- What is the most effective way to continue to involve and inform your organization and/or clients in the project as it moves forward?
- Would you like to be added to the Program's monthly e-mail update?
- Are you aware you can comment on the Second Supplemental Draft Environmental Impact Statement until December 13, 2010? *(explain ways to comment)*

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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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This attachment describes the park and recreation facilities and public art installations located in the study area from south to north for the south, central, and north areas. Exhibits E-1 through E-3, are maps of social resources in the project area. The references cited in this attachment are provided in Chapter 9 of the discipline report.

1.0 South Area

The south area includes a portion of the historic Pioneer Square neighborhood and the sports stadiums.

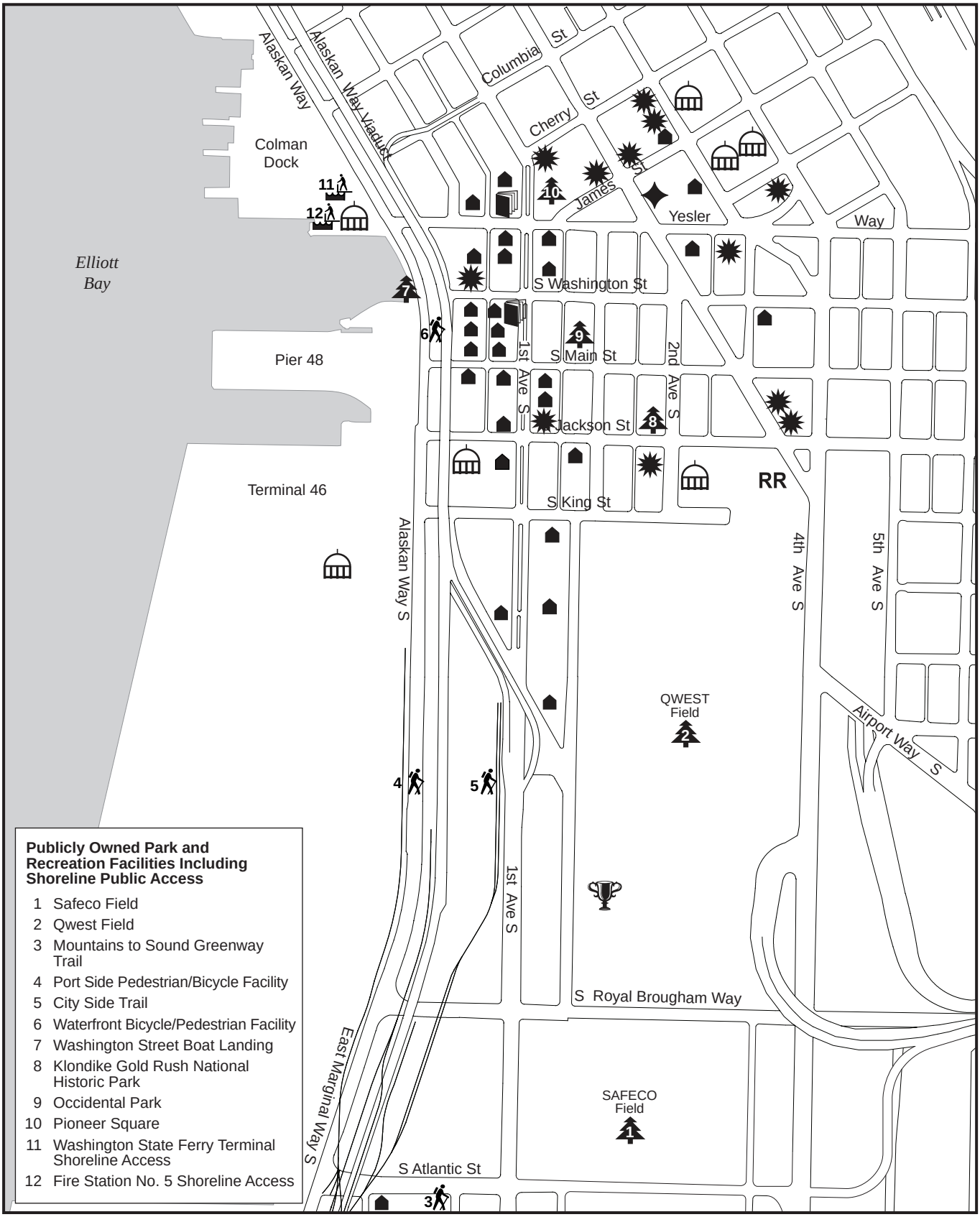
1.1 Park and Recreation Facilities

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. 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. In the south area, the S. Holgate to S. King Street Viaduct Replacement Project will replace the pathway with the Port Side Pedestrian/Bike Trail. The City Side Trail will be constructed by the S. Holgate Street to S. King Street Viaduct Replacement Project but will be realigned between S. Royal Brougham Way and S. King Street as part of this project.

Port Side Pedestrian/Bike Trail – In the south area, the Waterfront Bicycle/Pedestrian Facility will be replaced by the Port Side Pedestrian/Bike Trail, a bicycle/pedestrian shared-use path located to the west of SR 99 and the relocated BNSF tail track. The trail will connect in the south with the multiuse trail along East 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 East 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 will connect in the north with the existing waterfront promenade and eventually with bicycle facilities planned for the redeveloped waterfront promenade.



Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

1. Safeco Field
2. Qwest Field
3. Mountains to Sound Greenway Trail
4. Port Side Pedestrian/Bicycle Facility
5. City Side Trail
6. Waterfront Bicycle/Pedestrian Facility
7. Washington Street Boat Landing
8. Klondike Gold Rush National Historic Park
9. Occidental Park
10. Pioneer Square
11. Washington State Ferry Terminal Shoreline Access
12. Fire Station No. 5 Shoreline Access

6/14/11

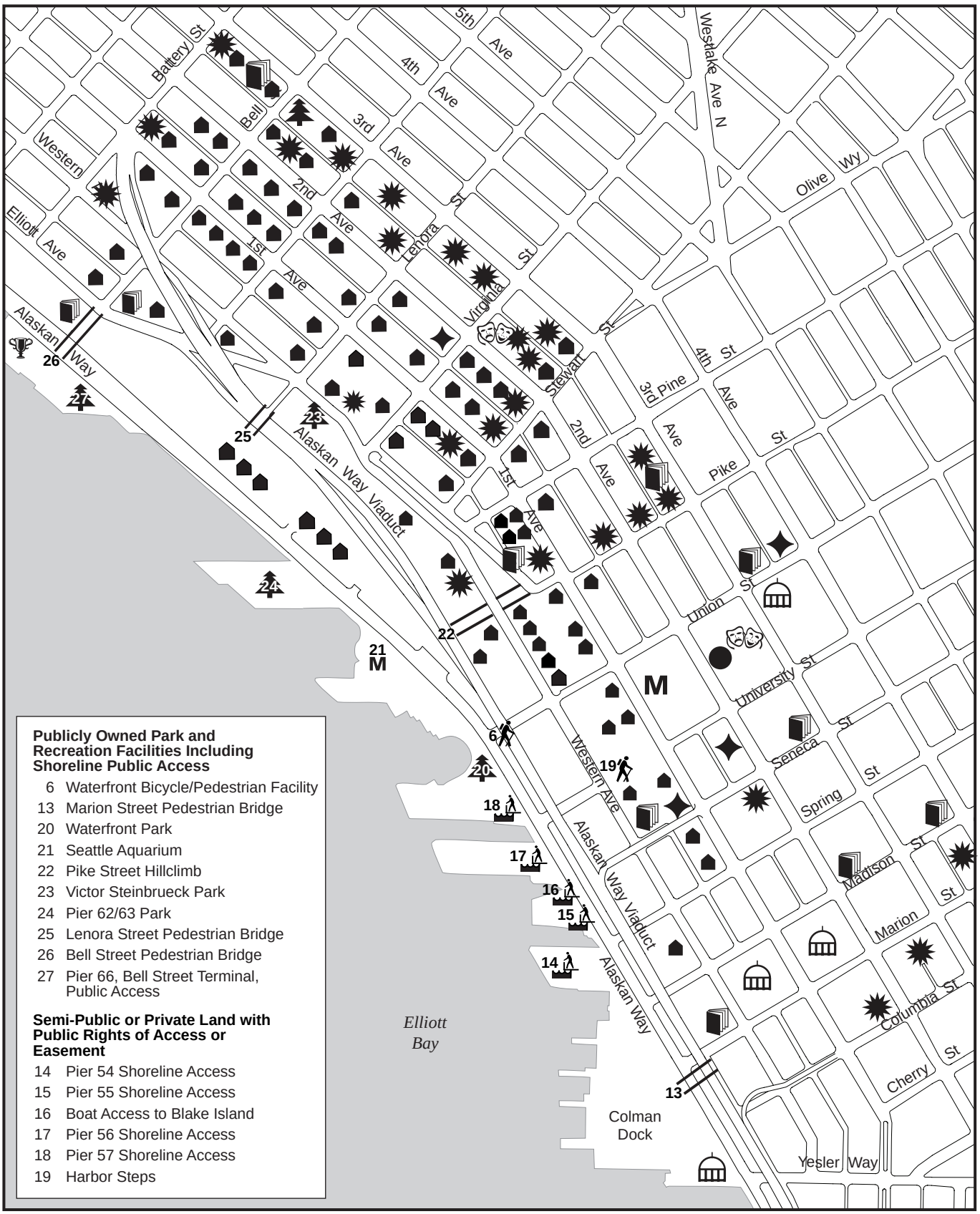
N

0 600

SCALE IN FEET

- 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
- Shoreline Access

Exhibit E-1
Map of Social Resources - Stadium Area



Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

- 6 Waterfront Bicycle/Pedestrian Facility
- 13 Marion Street Pedestrian Bridge
- 20 Waterfront Park
- 21 Seattle Aquarium
- 22 Pike Street Hillclimb
- 23 Victor Steinbrueck Park
- 24 Pier 62/63 Park
- 25 Lenora Street Pedestrian Bridge
- 26 Bell Street Pedestrian Bridge
- 27 Pier 66, Bell Street Terminal, Public Access

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

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

5/25/11

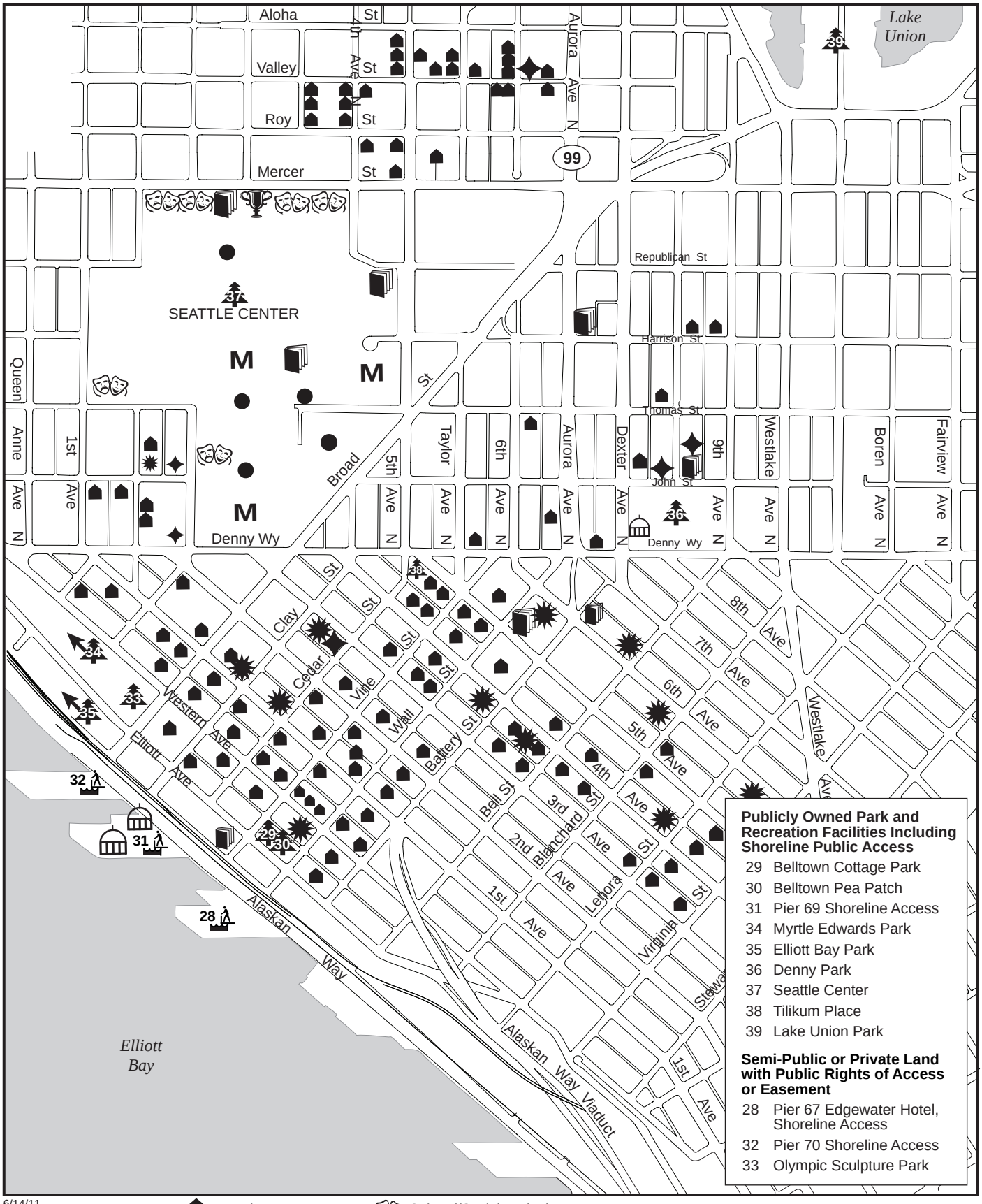
N

0 600

SCALE IN FEET

- 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
- Shoreline Access

Exhibit E-2
Map of Social Resources - Downtown Area



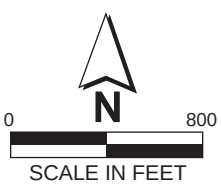
Publicly Owned Park and Recreation Facilities Including Shoreline Public Access

29 Belltown Cottage Park
30 Belltown Pea Patch
31 Pier 69 Shoreline Access
34 Myrtle Edwards Park
35 Elliott Bay Park
36 Denny Park
37 Seattle Center
38 Tilikum Place
39 Lake Union Park

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

28 Pier 67 Edgewater Hotel, Shoreline Access
32 Pier 70 Shoreline Access
33 Olympic Sculpture Park

6/14/11



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
Shoreline Access

Exhibit E-3
Map of Social Resources - Uptown and South Lake Union Area

City Side Trail: The S. Holgate to S. King Viaduct Replacement Project will construct a new multi-use pedestrian/bicycle trail east of SR 99. The City Side Trail will run along the east side of a new frontage road between S. Atlantic Street and S. King Street. The trail will connect in the south with the planned extension of the Mountains to Sound Greenway Trail and in the north with the existing Waterfront Bicycle/Pedestrian Facility along the east side of the existing Alaskan Way surface street. This project will realign the City Side Trail between S. Royal Brougham Way and S. King Street.

1.2 Public Art

A number of public art installations are located in Safeco Field and Qwest Field, and are unlikely to be affected by any alternative.

2.0 Central Area

The central 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 (see also Exhibits E-1 through E-3 for maps showing the locations of social resources).

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 (City of Seattle 2005).

The *Pioneer Square Neighborhood Plan* (City of Seattle 1998b) and the *Seattle's Parks and Recreation Plan 2000* (City of Seattle 2000) call for design and construction of a vibrant waterfront park somewhere between S. Washington and S. King Streets. The *Downtown Urban Center Neighborhood Plan* (City of Seattle 1999) 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 a proposed promenade from Pier 48 to Myrtle Edwards Park and the proposed east-west pedestrian connections to the rest of downtown (City of Seattle 1999).

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 (City of 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 Klondike gold rush (National Park Service 2007).

Waterfall Garden Park – This park is within Pioneer Square at S. Main Street and Second Avenue S. The park features a 22-foot waterfall that cascades over granite boulders into a Japanese pool.

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. 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. A public information area is provided in the ferry waiting room. This terminal provides 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 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.

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 S. Holgate Street to S. King Street Viaduct Replacement Project will replace the portion of the trail between S. Royal Brougham Way and S. King Street with the Port Side Pedestrian/Bike Trail.

The Waterfront Bicycle/Pedestrian Facility is part of the Seattle Urban Trails System designated in the *City of Seattle Comprehensive Plan* (City of Seattle 2005). 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 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 bicycle map as such, since it does not meet minimum American Association of State Highway and Transportation Officials (AASHTO) design guidelines.

The City Side Trail, running along the east side of Alaskan Way, will be constructed as part of S. Holgate Street to S. King Street Viaduct Replacement Project, and will provide for bicycle and pedestrian travel. This project will realign the City Side Trail between S. Royal Brougham Way and S. King Street.

In the central area, the multipurpose asphalt pathway is located between the viaduct and the Alaskan Way surface street. In this section, there is a landscaped berm with street trees on the east side, adjacent to the viaduct; and a wood rail fence on the west side, adjacent to the streetcar tracks. Generally, the pathway fills with pedestrians during midday, precluding heavy bicycle use.

Marion Street Green Street – This Type III Green Street permits block-to-block traffic between Second Avenue and Alaskan Way, and it 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.

Marion Street Pedestrian Bridge – This elevated walkway provides ferry access along the south side of Marion Street from First Avenue to Colman Dock.

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, who started the Ivar's Acres of Clams Restaurant that is still there today. 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.

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).

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 (City of Seattle 2001).

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 Cruises, which provides passenger service from Pier 55. More than 90 percent of the Tillicum Village visitors use Argosy Cruises 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, 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's 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. 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. On average, 2,507 pedestrians were counted during the noon hour and 7,748 were counted per day along First Avenue in 2001. Pedestrian volumes walking up and down the Harbor Steps were 1,589 during the noon hour and 2,880 per day (City of Seattle 2001).

University Street Green Street – University Street is designated as a Type I Green Street, with vehicle 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's 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 areas for shoreline viewing, congregating, fishing, sitting, and picnicking. A fountain and commemorative statue of 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 during the noon hour and 5,856 per day (City of Seattle 2001).

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

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 EIS (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 (Seattle Parks and Recreation Department 2005). Key components of the project included the following:

- 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:
  - New main entrance on Alaskan Way
  - New Window on Washington Waters exhibit
  - Puget Sound Great Hall for community events
  - New visitor services, including a café with catering services and a gift store

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 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 Pike Street 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. 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 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 2009).

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 vehicle 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 northern 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 Song 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 consisting of found objects that is intended to provide the experience of discovery for pedestrians walking along the corridor. It was designed with the expectation that development along the corridor would change with time; individual buildings might be replaced or altered, and tenants will change, but the experience of encounter will remain unchanged (Simpson 2003).

3.0 North Area

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

3.1 Park and Recreation Facilities

Pier 66, the Bell Street Terminal – This Port of Seattle complex includes a small craft marina providing guest moorage for up to 70 vessels, a cruise ship terminal, a conference center, the Odyssey Maritime Museum, and restaurants (Port of Seattle 2003). Public access facilities include a roof deck and street-level plaza areas. The roof deck provides panoramic views and seating. A bridge connection across the Alaskan Way surface street to Elliott Avenue is provided at the roof level on the alignment of Bell Street. On the street level, public plaza areas are provided between the conference center and the marina. Amenities include viewing areas, seating, and art features required by shoreline permits. Pedestrian volumes are high when cruise ships load and unload at the pier and are moderate at other times. A public art installation, the Light Tower by Ron Fisher, is located

on the tip of the breakwater at the entrance to the marina. Ann Gardner created a public art installation, a mosaic wall entitled Danza del Cerchio, in 1996 on commission from the Port of Seattle.

Edgewater Hotel, Pier 67 – This overwater hotel provides a waterfront public viewing area along the north side of the parking area as a condition of shoreline permits and use of public aquatic lands. Title to the dock and building shell within public aquatic lands has devolved to the state, which leases them to a private party (Kiehle 2007).

Vine Street Green Street – Vine Street is designated as a Type II Green Street with block-to-block traffic prohibited between Denny Way and Alaskan Way. A specific design has not yet been prepared or implemented. The street is currently open to traffic. At either side of Vine Street, a work by Buster Simpson is located on the sidewalk next to the adjacent rail lines. These works were developed as a part of a public art project, Vine Street Grows, under the City's 1% for Art Program. The pieces are intended to evoke the industrial heritage of the waterfront (Simpson 2003).

Pier 69 – This pier is the Port of Seattle Headquarters and provides public access areas along the north and west sides for viewing and public fishing. Public access is a condition of shoreline permits and of use of public aquatic lands (Kiehle 2007).

Clay Street Green Street – Clay Street is designated as a Green Street per the 1999 *Downtown Urban Center Neighborhood Plan* (City of Seattle 1999).

Pier 70 – This pier provides public access areas along the south, north, and west sides as a condition of shoreline permits and DNR lease conditions for public aquatic lands and use of public aquatic lands. Title to the dock and building shell within public aquatic lands has devolved to the state, which leases them to a private party (Kiehle 2007).

Belltown Cottage Park – This City of Seattle Parks and Recreation Department facility is located adjacent to the Belltown P-Patch, which is owned by a private nonprofit organization. It includes historic buildings that are in the process of restoration and houses a writers-in-residence program. The park functions as a community gathering place and a place for passive recreation. Two public art installations are located in the park, a tile mural and a solar fountain. The park is bounded on the north by Vine Street, which is designated a Green Street.

Olympic Sculpture Park – This park is located between the Alaskan Way surface street and Western Avenue and is bounded by Broad Street on the south and Bay Street on the north. It opened to the public in January 2007. The site encompasses approximately four city blocks. The adjacent Alaskan Way right-of-way is designated a "Park Boulevard" and is integrated with the park (City of Seattle 2005). The park is configured to match grade at Western Avenue on the eastern

boundary of the park where a pavilion provides for all-weather activities. The park central walkway provides circulation through the site in a "Z" configuration that is elevated above Elliott Avenue and the BNSF railroad with areas that slope down to match grade at Broad Street and with other display areas below the walkway. A number of different landscape and sculpture theme areas are connected to the central pedestrian corridor by internal trails. Numerous viewpoints, seating areas, and passive use areas are provided. The Olympic Sculpture Park is operated by the Seattle Art Museum in partnership with the City of Seattle and is open to the public free of charge during normal hours.

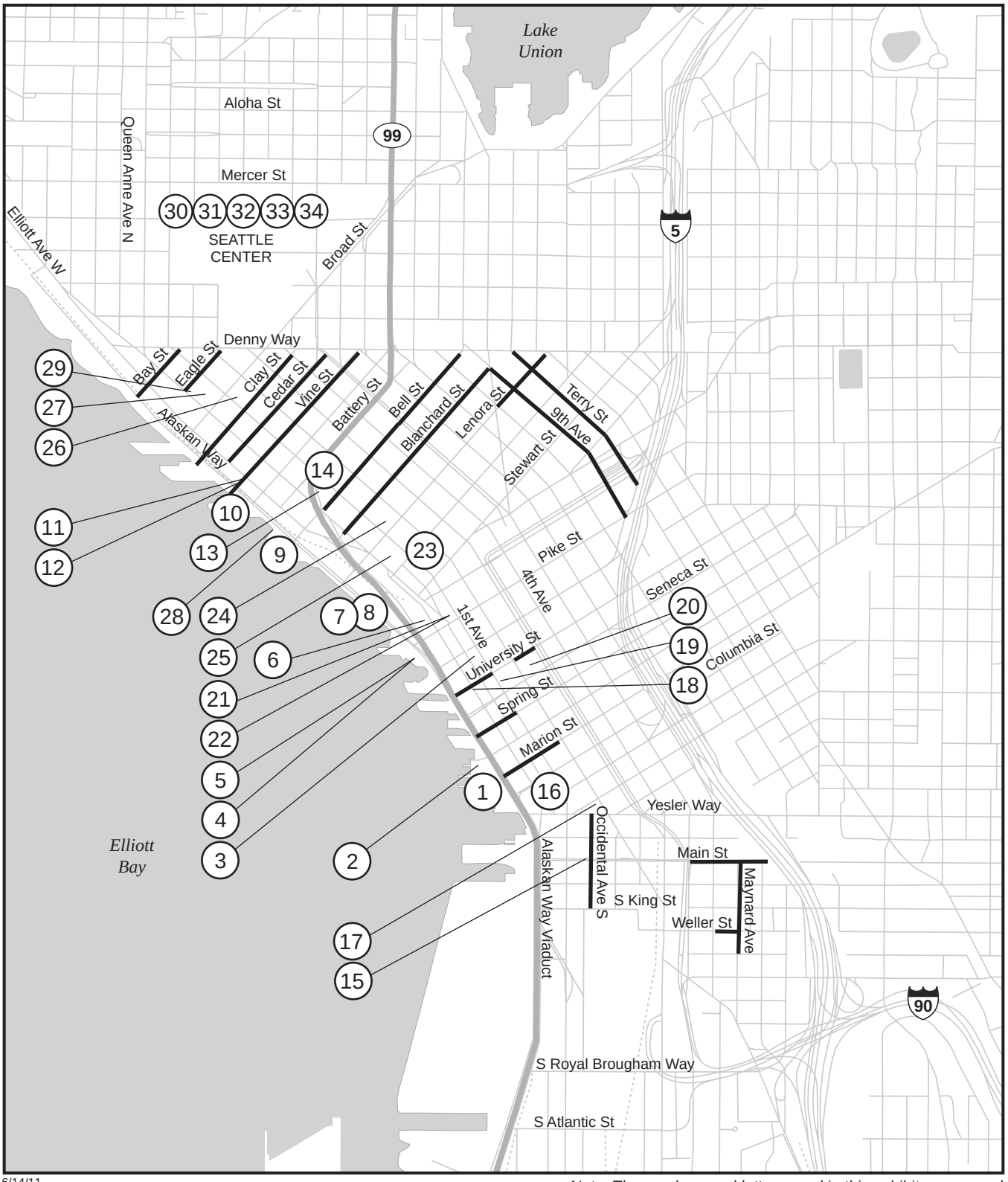
Denny Park – Denny Park, headquarters of the Seattle Parks and Recreation Department, is Seattle's oldest park. Denny Park is bounded by Dexter Avenue N., Westlake Avenue N., John Street, and Denny Way. It consists of 6.4 acres of a sloped, grassy area with canopy trees and formal pathways. Current recreational activities include people relaxing on benches and some daycare play sessions (Seattle Parks and Recreation Department 2004). Improvements completed in 2009 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 Key Arena. 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

Several public art installations are located in the north area (see Exhibits E-4 and E-5). Broad Street Green, an open space near the Space Needle at Seattle Center, 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.



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Note: The numbers and letters used in this exhibit correspond to park and recreation resources listed in Exhibit E-5.

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SCALE IN FEET

Green Streets

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

Exhibit E-5. 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 and 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

Exhibit E-5. Public Art Installations (continued)

	Title	Artist	Owner
24	Untitled Fence	Victor Steinbrueck and Ramon Torres	Seattle Parks and Recreation Department
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

Notes: The numbers in column 1 indicate the location of these resources on Exhibit E-4.
Several additional installations by multiple artists are also located at Seattle Center.

Several public art installations are located along the north waterfront corridor. Welcoming Spirit by Melvin Schuler is located at 1950 Alaskan Way, near Lenora Street.

Public art in the Port of Seattle Pier 66 development includes the Light Tower by Ron Fisher at the entrance to the marina and the mural Danza del Cerchio by Ann Gardner facing the public plaza adjacent to the street.

At either side of Vine Street, works by Buster Simpson are located next to the adjacent rail lines. These works were developed as a part of a public art project, Vine Street Grows, under the City's 1% for Art Program. The pieces on the sidewalk adjacent to the railroad include planters intended to evoke the industrial heritage of the waterfront (Simpson 2003). A related piece is Beaconing Cistern, an aluminum cistern system that collects roof water from the 81 Vine Street building through a series of pipes that are modeled on the gesture of outreaching fingers (Simpson 2007).

The Olympic Sculpture Park east of Broad Street between Western Avenue and the waterfront includes a varied collection of public art.

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ATTACHMENT F

Population and Social Characteristics of the Study Area

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This attachment includes exhibits that describe the population and social characteristics of the study area in support of the description of the affected environment in Chapter 4 of the discipline report.

Exhibit F-1. Minority Characteristics, 2000

Area	Total Population	Total Minority	Race					Ethnicity[1]
			White	Black/ African Am.	American Indian & Alaska 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%)
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.

Exhibit F-2. 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%)
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.

Exhibit F-3. 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%)
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.

Exhibit F-4. 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%)
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

Exhibit F-5. New Housing Located in the Project 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, and 5), 71 (1 and 2), 72 (1 and 2), 80.01 (1, 2, and 3), 80.02 (1 and 2), 81 (1 and 2), 92 (2), and 93 (2). The geographic area encompassed by the census tracts included in the table is larger than the study area.

Exhibit F-6. Subsidized Housing in the Project Area

Subsidized Housing	Units	Subsidized Housing	Units
A.L. Humphrey House	81	LeRoy Helms Building	11
Adams	22	Lewiston Apartments	50
Apex Belltown Co-op	21	Lexington/Concord Apartments	59
Bay View Tower	100	Livingston Baker	96
Bell Tower	119	Lowman Building	89
Belltown Senior Apartments	25	Market House	51
Boston Hotel	3	Merrill Gardens at Queen Anne	194
Bremer	49	New Pacific	42
Cedars I	31	OK Hotel	44
Cedars II	29	Oregon Hotel	83
Denny Park Apartments	50	Oxford	49
Devonshire	62	The Pacific Hotel	109

Exhibit F-6. Subsidized Housing in the Project Area (continued)

Subsidized Housing	Units	Subsidized Housing	Units
Donald	14	Plymouth on Stewart (formerly St. Regis)	87
Dorothy Day House	41	Quintessa Apartments	132
Ellis Court	58	Ross Manor	100
Fleming	36	Sanitary Market	22
Frye Apartments	234	Scargo Hotel	46
Gatewood Hotel	96	Second & Pine Building	42
Gilmore	65	Security House	107
Glen Hotel	38	St. Charles	64
Guiry/Schillstad	28	Stewart House	87
Haddon Hall	54	Sunset House	82
Heritage House	62	Tashiro Kaplan Artists Lofts	50
John Carney	27	Valley House	8
Josephinum	228	Vermont Inn	177
The Karlstrom	23	Vincent House	60
Kasota	49	Vine Court	55
Langdon and Anne Simons Senior Apartments	92	The William Tell	50
LaSalle Cliff House	64	YWCA Opportunity House	145
	Total	**3,992**	

Sources: City of Seattle 2003, 2007; Crisis Clinic 2009.

Exhibit F-7. Special Needs and Emergency Housing in the Study Area

Special Needs Housing	Capacity (Number of Beds)
Transitional Housing and Residential Treatment Services	
Community Psychiatric Clinic El Rey Treatment Facility	60
Compass Housing Alliance (formerly the Compass Center)	23
Rose of Lima House AHA	13

Exhibit F-7. Special Needs and Emergency Housing in the Study Area (continued)

Special Needs Housing	Capacity (Number of Beds)
Sacred Heart Shelter AHA	6 single (6 additional rooms for families; number of beds unknown)
Seattle's Union Gospel Mission	209 (50 additional in severe weather)
Second Chance Reynolds Work Release Program	99
St. Martins at Westlake AHA	53
Traugott Terrace AHA	50
YMCA Young Adults in Transition	20
Emergency Housing and Homeless Facilities	
Bread of Life Mission	50 (24 additional in severe weather)
Chief Seattle Club (day use)	N/A
City of Seattle Survival Services Severe Weather Shelter (Location 1)	75
City of Seattle Survival Services Severe Weather Shelter (Location 2)	25
Compass Center First Church Men's Emergency Shelter	79
Compass Center Hammond House Women's Shelter	40
Denny Place Youth Shelter	6
Downtown Emergency Service Center Lyon Building	64
Downtown Emergency Service Center The Morrison	190
Downtown Emergency Service Center Union Hotel	52
King County Winter Response Men's Shelter (500 Fourth Avenue)	–

Exhibit F-7. Special Needs and Emergency Housing in the Study Area (continued)

Special Needs Housing	Capacity (Number of Beds)
Noel House AHA	60
St. Martin de Porres Shelter AHA	212 (34 additional in winter cold weather)
YWCA Angeline's Center for Homeless Women	35

Source: Crisis Clinic 2009.
AHA = Archdiocesan Housing Authority

Exhibit F-8. Educational Facilities in the Study Area

Educational Facilities	Capacity
Childcare Centers and Family Childcare	
Beginnings II (no subsidies)	40
Bright Horizons (subsidies)	112
Little Eagles Childcare Center (subsidies)	87
Paideia Academy (subsidies)	80
Pike Market Child Care Center (subsidies)	50
Whole Child Learning Center (no subsidies)	12
Young Child Academy (no subsidies)	129
YWCA Infant/Toddler Center (subsidies)	23
Schools	
The Center School	N/A
Morningside Academy	N/A
Seattle Public Schools' Memorial Field	N/A
GED Instruction	
Washington State Employment Security – WorkSource	N/A
Colleges or Universities	
Antioch University	N/A
Argosy University	N/A
Professional/Technical Schools	
Academy of Languages Translation & Interpretation Services	N/A
Floral Design Institute	N/A

Exhibit F-8. Educational Facilities in the Study Area (continued)

Educational Facilities	Capacity
Pacific Maritime Institute (Pier 36)	N/A
Pacific Northwest Ballet School	N/A
School of Visual Concepts	N/A
The Art Institute of Seattle (North Campus)	N/A
The Art Institute of Seattle (South Campus)	N/A
The Pottery School	N/A

N/A = not applicable

Exhibit F-9. Religious Institutions in the Study Area

Religious Institutions
Christian Science Practitioner (two locations)
Christian Science Reading Room
Church of Mary Magdalene
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

Exhibit F-10. 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

Exhibit F-10. Social and Employment Service Providers in the Study Area (continued)

Social and Employment 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

Exhibit F-10. Social and Employment Service Providers in the Study Area (continued)

Social and Employment Services
Recovery Cafe
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 Jobs 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

Exhibit F-11. 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

Exhibit F-11. Cultural and Social Institutions in the Study Area (continued)

Cultural and Social Institutions
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)
Kobe Bell (Seattle Center)
Horiuchi's Seattle Mural (Seattle Center)
Center House (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 and opera)
Mercer Arts Arena (currently closed)
Moore Theatre
Seattle Children's Theatre
Seattle Repertory Theatre

Exhibit F-11. Cultural and Social Institutions in the Study Area (continued)

Cultural and Social Institutions
Professional Sports Facilities
Key Arena (basketball)
Safeco Field (baseball)
Qwest Field (football and 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)
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 G. Komen Race for the Cure (September charity run from the Seattle Center along First Street to Spring Street and back)

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ATTACHMENT G

Tolling Research and Literature Review

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Tolling Effects Research

There have been limited studies on the impact of tolling on social resources, neighborhoods, and communities in the United States and internationally. Some of the impacts identified by these studies are listed below:

- Increased commuting costs, which in turn can decrease disposable income
- Increased travel times to and from social resources as a result of increased congestion on non-tolled routes (for non-transit and transit riders) and/or longer travel routes (the cost of congestion is discussed in Appendix L, Economics Discipline Report)
- Disruptions in social networks or a decrease in social opportunities because of toll avoidance, especially when a tolled facility is the only option between two points
- Possible reduced desirability of employment along the tolled facility
- Possible avoidance of the tolled facility for shorter trips as compared to longer regional trips

Literature Review

In 2009, the University of Washington and the Washington State Transportation Center published a research paper *The Impacts of Tolling on Low-Income Persons in the Puget Sound Region*, which asserts that "Tolls may be progressive, regressive, or neutral, depending on the social and geographic characteristics of the town or region and the structure of the tolling regime. The distributional effects must be evaluated on a site- and project-specific basis." (Plotnick et al. 2009)

The Washington State Department of Transportation and the Washington Division of the Federal Highway Administration have been developing a policy on the environmental justice implications of tolling. Although such policy direction will be helpful, the quotation above highlights the need for project-specific analyses.

International Experiences With Congestion Pricing (May 1993) considers the equity component of congestion pricing. May cites older studies arguing that congestion pricing is a regressive measure that has greater impacts on lower-income drivers, but indicates that this population is more likely to travel by transit or foot. The report concludes that the most inequitable effects are dependent on the pricing scheme implemented and would likely affect a small percentage of lower-income drivers. It suggests that the only way to address the issue of equity is to invest some of the toll revenue in public transport rather than solely to improve the road infrastructure (May 1993).

Tolling schemes to fund improvements would supplant existing revenue generation methods, which are also largely regressive. The existing system of road financing is regressive, according to Plotnick et al. (2009), as are five of the six taxes supporting the existing highway system (Giuliano 1994).

Giuliano (1994) found that both poor and middle-income users, who pay the charge and keep driving, come out slightly ahead of where they would have been without the charge. The only category of driver found to lose heavily from congestion charges are long-distance, middle-income (and presumably low-income, although these are not calculated separately) commuters who do not switch to bus or carpool. These drivers would continue to drive a crowded route during the AM or PM peak period, twice a day, every mile of which is fully charged.