SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROGRAM

Social Resources Technical Memorandum

S. Holgate Street to S. King Street Viaduct Replacement Project

Environmental Assessment

June 2008

TABLE OF CONTENTS

Chapter 1 Summary....1
1.1 Affected Environment....1
1.2 Operational Effects and Mitigation....2
1.3 Construction Effects and Mitigation....3
Chapter 2 Methodology....5
2.1 Regulatory Overview....5
2.2 Use of Terms....6
2.3 Data and Information....6
2.4 Census Data Analysis....7
2.4.1 Determination of Study Area Boundaries....7
2.4.2 Comparison to Seattle Census Data....7
2.4.3 Census Data Used for Public Involvement Activities....8
2.4.4 Update to 2000 Census Data....8
2.5 Analysis of Potential Effects....9
2.5.1 Overview....9
2.5.2 Assessment of Effects to Businesses, Employment, and Parking....9
2.6 Coordination....10
2.7 Public Involvement Activities....11
Chapter 3 Affected Environment....13
3.1 Study Area Overview....13
3.1.1 Duwamish Manufacturing and Industrial Center....13
3.1.2 Pioneer Square Neighborhood....15
3.2 Population and Demographics....17
3.2.1 Study Area Census Tract Block Groups....17
3.2.2 Population and Minority Characteristics....17
3.2.3 Diversity and Limited English Proficiency....18
3.2.4 Age Characteristics....21
3.2.5 Household Characteristics....21
3.2.6 Income Characteristics....22
3.2.7 Disabled Persons....23
3.2.8 Transit Dependency....24
3.2.9 Updated Demographic Characteristics....24
3.2.10 Long-Term Population and Demographic Changes Expected....25
3.3 Housing....26
3.3.1 General Characteristics....26
3.3.2 Subsidized, Transitional, and Emergency Housing....28
3.3.3 The Unsheltered Homeless Population....28
3.4 Community Facilities....29
3.4.1 Community Centers....30
3.4.2 Educational Facilities....30
3.5 Religious Institutions and Cemeteries....30
3.6 Social and Employment Services....30
3.7 Cultural and Social Institutions....31
3.8 Government Institutions and National Defense Installations....32

3.9 Neighborhood Cohesion 32
3.9.1 Transportation Services and Infrastructure 32
3.9.2 Land Uses 33
3.9.3 Population Characteristics 34
3.9.4 Linkages to Community Facilities and Social Services 34
3.9.5 Unique Community Identity 35
3.9.6 Interaction Between People 35

Chapter 4 Operational Effects, Mitigation, and Benefits 37

4.1 Operational Effects 37
4.1.1 Acquisition Effects 37
4.1.2 Population and Housing 38
4.1.3 Community Centers 39
4.1.4 Education Facilities 39
4.1.5 Religious Institutions and Cemeteries 39
4.1.6 Social and Employment Services 39
4.1.7 Cultural and Social Institutions 39
4.1.8 Government Institutions and National Defense Installations 40
4.1.9 Neighborhood Cohesion 40
4.2 Operational Mitigation 43

Chapter 5 Construction Effects and Mitigation 45

5.1 Construction Effects 45
5.1.1 Population and Housing 45
5.1.2 Nonresidential Social Resources 49
5.1.3 Traffic Management and Truck Haul Routes 52
5.1.4 Overall Neighborhood Cohesion 54
5.2 Construction Mitigation 55
5.2.1 Population and Housing 56
5.2.2 Education Facilities 57
5.2.3 Social and Employment Services 57
5.2.4 Cultural and Social Institutions 58
5.2.5 Government Institutions 58
5.2.6 Neighborhood Cohesion 58

Chapter 6 Indirect and Cumulative Effects 59

6.1 Indirect Effects 59
6.1.1 Operational Effects 59
6.1.2 Construction Effects 59
6.2 Cumulative Effects 59
6.2.1 Operational Effects 60
6.2.2 Construction Effects 60

Chapter 7 References 63

LIST OF EXHIBITS

Exhibit 2-1. Total Off-Street Parking, 2006 10
Exhibit 3-1. Map of the Neighborhoods in the Study Area 14
Exhibit 3-2. Map of Social Resources in the Study Area 16
Exhibit 3-3. Minority Characteristics, 1990 and 2000 18
Exhibit 3-4. Household Language Characteristics, 1990 and 2000 20
Exhibit 3-5. Age Characteristics, 1990 and 2000 21
Exhibit 3-6. Household Characteristics, 1990 and 2000 22
Exhibit 3-7. Income Characteristics, 1990 and 2000[1] 23
Exhibit 3-8. Persons with Mobility Disabilities, 2000 24
Exhibit 3-9. Transit-Dependent Households, 2000 24
Exhibit 3-10. Housing Characteristics, 1990 and 2000 27
Exhibit 3-11. Transitional and Emergency Housing in the Study Area 28
Exhibit 3-12. Educational Facilities in the Study Area 30
Exhibit 3-13. Social and Employment Service Providers in the Study Area 30
Exhibit 3-14. Project Area Cultural and Social Institutions in the Study Area 31
Exhibit 3-15. Key Government Institutions in the Study Area 32
Exhibit 4-1. Some Indicators of Long-term Disruption to Neighborhood Cohesion[1] 41
Exhibit 5-1. Construction Effects on Nearby Housing and Population 47
Exhibit 5-2. Adjacent Residents Affected by Corridor Construction Activities 48
Exhibit 5-3. Nearby Nonresidential Social Resources Affected by Construction Activities[1] 49

ATTACHMENTS

ATTACHMENT A Street Map

ACRONYMS

BG	Block Group
CFR	Code of Federal Regulations
CT	Census Tract
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
NEPA	National Environmental Policy Act
OFM	(Washington State) Office of Financial Management
Project	SR 99: S. Holgate Street to S. King Street Viaduct Replacement Project
SEPA	State Environmental Policy Act
SIG	Seattle International Gateway
SODO	South of Downtown
SR	State Route
USC	United States Code
WSDOT	Washington State Department of Transportation

GLOSSARY

Block Group	A subdivision of a census tract, a block group is the smallest geographic unit for which the U.S. Census Bureau tabulates sample data.
Census	The census of population and housing is taken by the U.S. Census Bureau in years ending in zero. The census form includes both a short form (100 percent survey) and a long form (sample survey of one in six households).
Census Tract	This is a small, relatively permanent statistical subdivision for the purpose of presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries or other nonvisible features. Census tracts average about 4,000 inhabitants.
Hispanic/Latino	A self-designated classification for people whose origins are from Spain, the Spanish-speaking countries of Mexico, Central or South America, the Caribbean, or those identifying themselves generally as Spanish, Spanish-American, etc. Origin can be viewed as ancestry, nationality, or country of birth of the person or person's parents or ancestors. Hispanic/Latino persons may be of any race, White and Non-White (Persons of Color).
Median	A value in an ordered set of values below and above which there is an equal number of values.
Race	Race is a self-identification characteristic of population and in 2000 included White and Non-White (Persons of Color). Non-White includes Black or African-American alone, American Indian or Alaska Native alone, Asian alone, Native Hawaiian or other Pacific Islander alone, some other race alone, or a mixture of two or more races. Non-White can include persons of Hispanic/Latino heritage. Some Hispanic/Latinos, however, are White.
Social Resources	Social elements of the environment include population, housing, community facilities, religious institutions, social and employment services, cultural and social institutions, government institutions, military installations, and neighborhood cohesion.

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Chapter 1 SUMMARY

This technical memorandum assesses the effects on social resources that would result from construction and operation of the SR 99: S. Holgate Street to S. King Street Viaduct Replacement Project (the Project). This chapter provides a brief overview of the key issues discussed.

1.1 Affected Environment

The study area generally extends along Seattle's waterfront south of downtown from approximately S. Walker Street to S. King Street. The corridor traverses the Duwamish Manufacturing and Industrial Center and the Pioneer Square neighborhood. The project corridor encompasses portions of the region's industrial and manufacturing center adjacent to the city's seaport, as well as the Pioneer Square Historic District.

Based on the 2000 census, less than 700 people reside in this area of mixed land uses. About 40 percent of the population is minority, and some may have limited English proficiency. In contrast, the city's population is considerably less diverse and has a higher proportion of limited English proficient households. Most residents in the study area are adults, and almost half live alone. Household income is substantially below the city's median, and almost half of the population is living at or below the poverty level. Annual surveys also document that a substantial homeless population lives on the streets in the study area. The study area population has almost twice as many persons with mobility disabilities as the city (11 percent versus 6 percent), though only 6 percent of the population is transit dependent.

Though the study area has experienced very little population growth over the past 15 years, the future is likely to bring substantial changes. In the north end of the study area nearest to Pioneer Square, market- and above-market rate priced apartments and condominiums are planned. The area is expected to continue to attract a diverse population, but household incomes would be substantially higher than for most of the area's current residents. The area south of S. Royal Brougham Way is anticipated to maintain its heavy commercial, industrial, and manufacturing character.

Few social resources are located in the study area. The study area has large homeless shelters and transitional housing, but only three low-income subsidized units. Two sizable maritime training schools are located in the study area. There are no religious institutions or cemeteries, but a number of organizations provide social services to the substantial low-income and homeless population. The city's two professional sports stadiums, an event

center, and two museums also are in the study area. Major port facilities are located west of the State Route (SR) 99 corridor, including one of the city's two cruise ship terminals and a commercial shipping terminal. Community cohesion is stronger in the Pioneer Square neighborhood, but it is quite weak in the Duwamish Manufacturing and Industrial Center south of S. Royal Brougham Way.

1.2 Operational Effects and Mitigation

The Project is not expected to result in substantial adverse effects on social resources. Three partial property acquisitions would be required. Small slivers of land would also be acquired for utility easements. The Project would not displace any housing, community or cultural facilities, social services, religious institutions, cemeteries, or government institutions.

Access to social resources in the study area would change. A new northbound off-ramp and southbound on-ramp south of S. King Street would improve access to the study area. The proposed U-shaped undercrossing near S. Atlantic Street would substantially improve vehicular access to Terminal 46 for freight trucks. Realignment of several roads would change access routes and could increase travel time for some social resources. Access to individual buildings would be maintained, but would change somewhat. For example, vehicles traveling to St. Martin de Porres Shelter, the Coast Guard Museum of the Northwest, and the Pacific Maritime Institute located at Pier 36 would no longer be able to travel south along Alaskan Way S. to Pier 36 due to reconfiguration of roadways at S. Atlantic Street.

The most substantial change in the study area would be the removal of approximately 820 off-street parking spaces, 418 long-term on-street spaces, and 29 short-term on-street spaces. This is a sizable number of spaces, but existing off-street parking in the community is plentiful. According to PSRC (2006), average weekday utilization of existing off-street parking within a quarter-mile of the project area is approximately 37 percent. Therefore, the parking removed by the Project would not result in a substantial adverse effect. However, large public events at the stadiums and the event center could be affected by this reduction in parking (see Appendix F, Transportation Discipline Report for more information).

Mitigation measures to minimize adverse effects would focus on communicating how the roadway network has changed in the study area and alert individuals, organizations, companies, social service agencies, and public transit providers to make changes to their travel routes. This effort would be needed prior to and for a short duration following the completion of the new transportation facilities. Messages will be published in English and other

languages to accommodate the area's diverse population. New roadside signs would need to clearly identify changes in the roadway network so drivers could easily find their way after the opening of the new transportation facilities. Existing neighborhood cohesion would be supported through the implementation of mitigation measures identified for other disciplines, including transportation, noise and vibration, land use and shorelines, parks and recreation, relocations, public services and utilities, economics, and air quality.

1.3 Construction Effects and Mitigation

Major construction of this Project would create about 350 new construction jobs per year for approximately 3 to 4 years. The regional work force would be more than adequate to accommodate the anticipated demand for construction workers, and workers from outside the region are not expected to move to the area for employment opportunities associated with this Project. As such, the Project would not directly affect population or housing resources in the Puget Sound region.

Construction traffic, light and glare, noise, and dust would affect approximately 800 residents living within approximately two blocks of the construction and staging areas. Approximately one third of these residents are low-income. Access to nearby properties would be ensured throughout the construction period. Residents would especially be affected when construction activities occur during nighttime hours. Four residential buildings, including St. Martin de Porres Shelter, are located adjacent to the proposed construction zone and staging areas. Homeless persons living in and around SR 99 would be displaced by construction activities, which could result in these persons shifting to other city neighborhoods and/or increasing the demand for emergency shelter housing in downtown Seattle.

For the several nonresidential social resources located within two blocks of the corridor, proximity to construction activities should not substantially affect daytime activities. Access, however, could require more circuitous travel trips due to traffic detours. These construction detours also could affect travel patterns for the many people attending events at either of the nearby sports stadiums or the events center. In all cases, however, access to buildings would be maintained during construction. Proposed transit enhancements and other traffic mitigation measures would minimize effects. The SR 99/ Viaduct Project Initial Transit Enhancements and Other Improvements (another of the Moving Forward projects) are discussed in Appendix F, Transportation Discipline Report.

Mitigation to minimize effects on social resources during the construction period would focus on establishing a communication program to tell residents, workers, businesses, social service agencies, and others about upcoming construction activities. In addition to providing communication outreach in the community, the communication program should also provide opportunities for people to identify construction effects that are exceeding expectations, to alert the project team of unforeseen effects, and to make suggestions regarding mitigation measures that have not been effective. The public outreach proposed includes neighborhood advisory groups, public meetings, newsletters, public news media bulletins, and postings to a project website. Both written and verbal communications should be presented in foreign languages spoken in the study area, particularly Spanish. The names and contact information for project personnel should be widely advertised. Signs using both words and symbols should be used to alert passersby of changes in pedestrian and bicycle paths near the construction zone. In addition, thorough investigations should be undertaken on a periodic basis near and within the construction zone to minimize the risk of residents, including homeless persons, placing themselves in danger.

Chapter 2 METHODOLOGY

This chapter summarizes the methods used to conduct the analysis presented in this technical memorandum. These topics include a review of pertinent government regulations and guidelines, definitions of terms, general sources of data and information, and specific information guiding the use and analysis of census data. Section 2.5 describes how the assessment of effects was conducted. The final two sections summarize coordination and public outreach activities.

2.1 Regulatory Overview

The analysis of potential social effects from the proposed Project follows federal, state, and city laws, regulations, and guidelines, including:

- National Environmental Policy Act (NEPA)
- Title VI of the Civil Rights Act of 1964
- 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
- Title 23 of the United States Code (USC) Section 109(h), Federal Highway Administration Effectuation of Title VI of the Civil Rights Act of 1964
- Presidential Executive Order 12898 – Federal Actions to Address Environmental Justice to Minority Populations and Low-Income Populations
- Presidential Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency
- 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)
- Federal Highway Administration (FHWA) *NEPA Guidelines*
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- FHWA's *Community Impact Assessment: A Quick Reference for Transportation*
- Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual*, Section 458 (September 2007)

- The City of Seattle's environmental policies and SEPA procedures (Seattle Municipal Code 25.05)

2.2 Use of Terms

A list of acronyms and general glossary follow the Table of Contents at the beginning of this document. To avoid misunderstanding and confusion, however, several key terms used in the analysis are defined below.

Project Corridor – The project corridor encompasses the alignment and rights-of-way of the existing roadway and the proposed action. The area generally extends along SR 99 from S. Walker Street to S. King Street. This is the portion of SR 99 that would be affected by construction activities and changes in roadway operation.

Study Area – Potential social resource effects are analyzed for an area that extends approximately 0.5 mile, or five blocks, on both sides of the project corridor and two blocks north and south of the corridor termini. Operation and/or construction effects are expected to occur within this area. The discussion of demographic characteristics is presented for the census tract block group that encompasses an area larger than the study area.

Effect Area – This is the area within about two blocks of the project corridor and adjacent roadways that would experience most of the construction effects.

Attachment A of this report contains a street map of the project corridor. This map can be used to locate the physical proximity of social resources to the alignment of the proposed action and anticipated construction activities.

2.3 Data and Information

Data were collected from a variety of federal, state, and local sources. Much of the descriptive analysis relies on 1990 and 2000 statistics published by the U.S. Census Bureau. Information also was obtained from local government agency websites. A database printout of social services located in the study area was obtained from the Crisis Clinic. This information was reviewed to inventory the number and types of low-income and special needs housing and social and employment services in the study area. In addition, an Internet search was used to identify businesses as well as community facilities and social institutions in the study area.

A field survey was not conducted to comprehensively identify and inventory social resources. When published data conflicted or information was not available, then a focused field survey was conducted to confirm land use information. In particular, a field survey was conducted to confirm information concerning land uses within two blocks of the corridor. It is this area, referred to as the effect area, that would incur most of the air, noise, and light and glare construction effects.

Particular community issues were identified through review of Seattle's Comprehensive Plan (City of Seattle 2000). In particular, the adopted goals and policies for the City-designated neighborhoods traversed by the project corridor were studied. These include the Duwamish Manufacturing and Industrial Center and the Pioneer Square neighborhood.

Scoping comment letters were received and considered, along with comments submitted and recorded at public meetings. Additional information was obtained from meeting notes documenting public outreach activities.

Additional information was obtained from other technical memoranda and discipline reports prepared for the Project. In particular, the findings from a field survey that inventoried the types and sizes of businesses adjacent to the project corridor were reviewed (see the Economics Technical Memorandum for additional information).

2.4 Census Data Analysis

2.4.1 Determination of Study Area Boundaries

As mentioned above, much of the analysis in this report, particularly population and demographic information, is based on statistics published by the U.S. Census Bureau. Data were collected for census tract 93 block group 2 (CT 93 BG 2). It comes closest to approximating the area encompassed by the study area, though it extends considerably south of S. Walker Street. This geographic area is a heavy commercial and industrial area with few residents. Because there are so few residents, inclusion of the area outside of the study area is not expected to substantially change the general demographic characteristics reported for the study area.

2.4.2 Comparison to Seattle Census Data

Census demographic statistics collected for the city of Seattle were used to evaluate how the characteristics of the study area are similar to or different from those describing the entire city. Census figures from 1990 and 2000 are also compared to evaluate changes over the decade.

2.4.3 Census Data Used for Public Involvement Activities

The analysis of demographic characteristics was used for other project activities, in particular to help develop and execute the public involvement activities (see Section 2.7). It was used to help determine the appropriate languages that should be used for translating published materials, what types of translators should attend public meetings, and which non-English newspapers should be used for advertising public meetings. Furthermore, much of the population and demographic data and analysis found in this technical memorandum were used in the analysis of potential environmental justice effects.

2.4.4 Update to 2000 Census Data

Additional research was conducted to evaluate potential changes in the demographic characteristics of the study area since 2000. This research was conducted for two reasons:

- The census data were collected in April 2000 and are now more than 7 years old; these data may no longer reflect the true demographic characteristics of the study area.
- FHWA requests that demographic analysis be based on more than one source of information. Typically, the demographic characteristics of public schools located in the study area are used. In this case, however, there are no schools in the study area. As such, other sources were used to infer likely changes in demographic characteristics of the study area.

Recent demographic data at the city level are available for 2005 through the U.S. Census Bureau's American Community Survey and the Washington State Office of Financial Management (OFM). These data, when compared to the city-level census data from 2000, were used to indicate likely changes in the demographic characteristics of the study area.

In addition, the City of Seattle's ongoing planning project called the Livable South Downtown project was reviewed because it projects future demographic changes in the study area. The project encompasses the Pioneer Square neighborhood, Chinatown/International District, and the Duwamish Manufacturing and Industrial Center, which includes the study area for this Social Resources Technical Memorandum. The purpose of the planning project is to evaluate existing land use and development policies and make recommendations to guide future development, including residential development. Preliminary land use recommendations were presented in March 2006, the Draft Environmental Impact Statement (EIS) was published in November 2007, the Final EIS is anticipated to be released in mid-2008, and

the adoption of comprehensive plan amendments and changes to the City's development regulations are not expected until early 2009.

2.5 Analysis of Potential Effects

2.5.1 Overview

The method for evaluating potential effects on social resources includes researching the following variables:

- Changes in population or demographics.
- Changes in availability or cost of housing.
- Changes in employment.
- Acquisition of property (land or buildings) that is actively used by community facilities, religious institutions, social and employment services, cultural and social institutions, or government institutions, including national defense installations.
- Changes in pedestrian, vehicular, or transit access to community facilities, religious institutions, social or employment services, cultural or social institutions, or government institutions.
- Changes in linkages between community facilities, loss of businesses and services, changes in community identity and likely interaction of study area residents and workers, or changes in the perceived quality of life that define neighborhood cohesion.
- Changes in land use that would affect the daily needs of neighborhood residents and businesses.

Examining all of these issues for this Project provided quantifiable attributes and qualitative characteristics of both operational and construction effects.

2.5.2 Assessment of Effects to Businesses, Employment, and Parking

Information also was obtained to provide context for potential long-term displacement of businesses, employment, and parking spaces and the effect on neighborhood cohesion as a result of operation of the Project. The smallest geographic area for published data on businesses and employment is ZIP codes. The U.S. Census Bureau publishes data on the total number of businesses and employees located within ZIP codes.

The 2005 data indicated that there were 862 businesses with 28,059 employees in the Seattle ZIP code 98134 (U.S. Census Bureau 2005). This ZIP code includes the study area and extends south to the Duwamish Waterway.

In 2006, the Puget Sound Regional Council published an inventory of parking spaces in downtown Seattle by census tract and block group (PSRC 2006). The data were collected only for nonresidential off-street parking spaces. A total of 10 of the 27 lots in CT 93 BG 2 provide pay parking for employee use only. Average daily occupancy for this off-street parking is only 35 percent (Exhibit 2-1). In contrast, the average daily occupancy for parking lots located immediately north of the study area, but located in the center of the Pioneer Historic District, is 73 percent.

Exhibit 2-1. Total Off-Street Parking, 2006

Area	Census Tract Block Group	Parking Lots	Parking Spaces	Average Daily Occupancy
Study Area	93 (2)	27	4,826	35%
Pioneer Square (north of the study area)	92 (2)	16	449	73%

Note: Occupancy percentages have been rounded up.
Source: PSRC (2006).

This parking information was used to assess the significance of the displacement of parking that would occur during and after project construction. The data provide a rough magnitude of available parking and its utilization in the study area. However, because available on-street parking or on-site parking for specific businesses is excluded from the parking inventory, the inventory does not reflect the total number of parking spaces available in the study area. A more detailed discussion of parking issues is found in Appendix F, Transportation Discipline Report.

2.6 Coordination

Local government organizations and nonprofit agencies were contacted for information. The City of Seattle Department of Neighborhoods, Office of Housing, and the Seattle Housing Authority were contacted for information on housing, including low-income, emergency, and transitional housing. These agencies provided copies of housing inventory lists 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. Together, this information was used to assess potential effects on low-income persons. In addition, the Seattle/King County Coalition on Homelessness was contacted regarding annual counts of homeless persons in downtown Seattle in 2006 and 2007.

The Crisis Clinic, a nonprofit organization, provided information about social services (government and nonprofit). The organization has a comprehensive

database of social services, contacts, and brief descriptions of services provided. Child Care Resources and the Seattle School District were also contacted regarding childcare facilities and programs available in the study area.

Public outreach to social service providers was conducted. The key objective of the outreach activities was to ensure that members of the public and social service providers were kept informed of project developments, especially the proposed construction. Dialogue with neighborhood stakeholders helped to assess public understanding and expectations of construction mitigation measures. Social service providers were also asked for recommendations in how information about the Project and planned construction should be communicated to their clients.

2.7 Public Involvement Activities

A public involvement and communication outreach program has been conducted for the Project. Public meetings, open houses, community briefings, and design workshops have been held. Interviews with local businesses, social service agencies, and community social and cultural institutions have been conducted. In addition, briefings have been held for elected officials, a citizen advisory group, and social service agencies.

As part of this effort, the public involvement team developed a variety of materials to ensure widespread communication about the Project. The project team has prepared written materials (newsletters, brochures, and fact sheets), display boards, and a project website. Some materials were translated into Traditional Chinese, Tagalog, Vietnamese, and Spanish, which are the four most common foreign languages spoken by Seattle residents (U.S. Census Bureau 2000). Displays were set up at city and county libraries, community centers, and neighborhood service centers. In addition, a project information line was established so the public could call to speak with a project team member or leave messages regarding their concerns about the Project.

Public comments have been recorded. Summary notes have been prepared and released to the project team on an ongoing basis. In addition, specific comments submitted by members of the public have been entered into a database.

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Chapter 3 AFFECTED ENVIRONMENT

This chapter describes social resources in the study area. Topics discussed include an overview of the region and community, population and demographics, housing, community facilities and services, social and employment services, cultural and social institutions, government institutions, and neighborhood cohesion.

3.1 Study Area Overview

SR 99 is one of two major regional transportation corridors that connect downtown Seattle to Everett in Snohomish County to the north and Tacoma in Pierce County to the south. 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 or recreational events. The roadway also serves freight traffic between the Duwamish and Interbay industrial areas located to the south and north of downtown Seattle, respectively. People who live and work in the study area also use the roadway for travel outside of the Seattle area, and in particular for travel to the Seattle-Tacoma International Airport.

The study area is located south of Seattle's commercial and office core downtown and generally extends along Seattle's waterfront from approximately S. Walker Street to S. King Street. The corridor traverses two neighborhood planning areas designated by the City of Seattle (City of Seattle 2000). Starting from the south and moving north, the study area includes the Duwamish Manufacturing and Industrial Center and the Pioneer Square neighborhood (Exhibit 3-1). The project corridor encompasses a portion of the region's industrial and manufacturing center adjacent to the city's seaport, as well as the historic Pioneer Square District. See the Land Use and Shorelines Technical Memorandum for additional information.

3.1.1 Duwamish Manufacturing and Industrial Center

The Duwamish Manufacturing and Industrial Center is generally south of S. Royal Brougham Way, but extends farther to the north to include Terminal 46 along the waterfront. The area has wholesale, warehouse, outdoor storage yard, trucking, industrial, and manufacturing businesses. Office buildings and retail businesses are more likely to be located in the northern portion, nearer to downtown Seattle. The city's central railroad tracks and spurs crisscross the area to create a discontinuous street network. Large barges and tugs move commerce up and down the Duwamish Waterway. The Port of

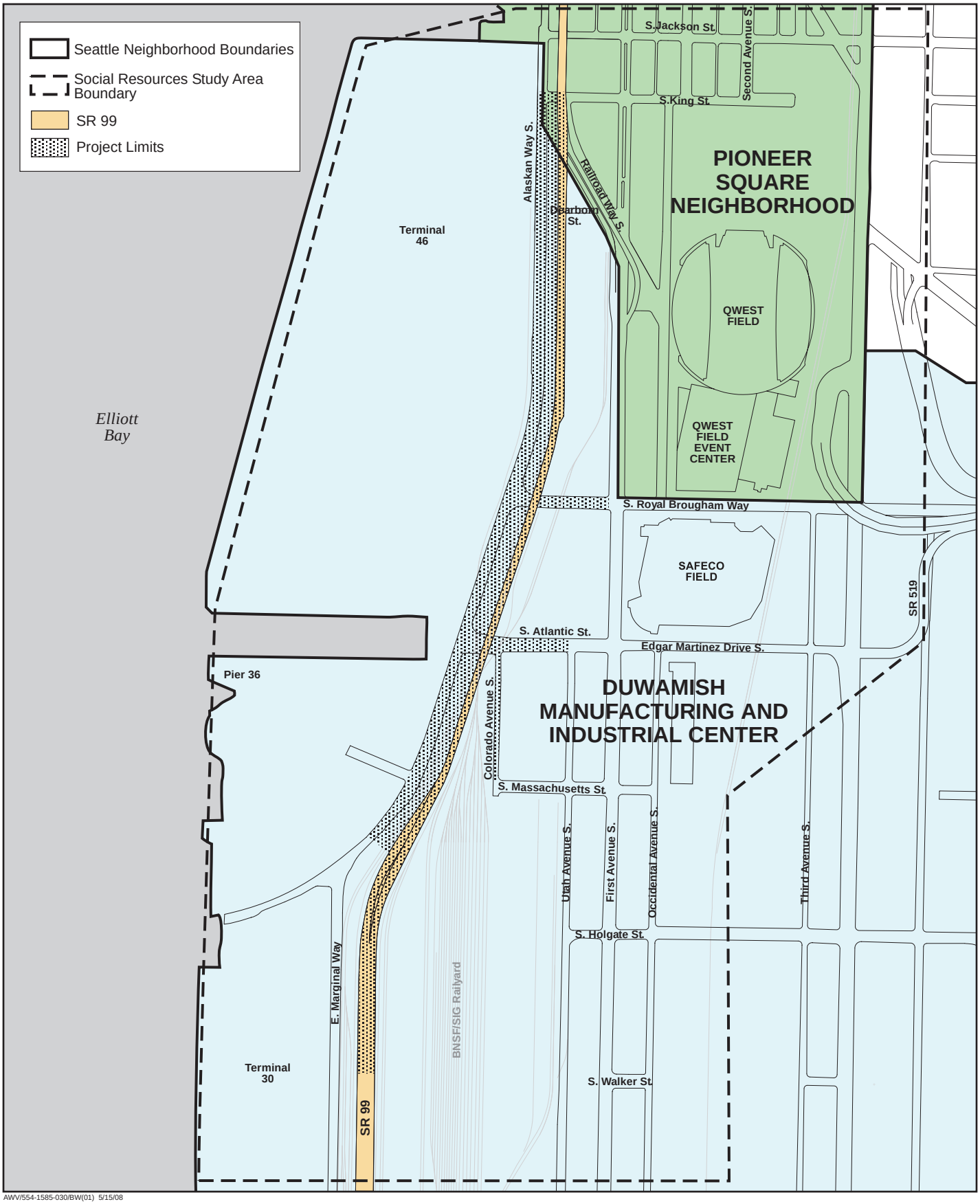

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Exhibit 3-1
Map of the Study Area Neighborhoods

Seattle's ocean-going container ship loading operations are located along the waterfront and on Harbor Island located west of the study area.

The total estimated employment for CT 93 is over 42,000 jobs (PSRC 2005), but the geographical area of the census tract is substantially larger than the study area. (Unfortunately, employment data for census tract block groups are not available.) However, if we consider that the total population of CT 93 is less than 3,000 residents, it is reasonable to conclude that the daytime work force population for the study area as represented by CT 93 BG 2 would still be very large compared to the fewer than 700 persons residing in the block group (Census Bureau 2000). Residents are likely to be minorities, one-person households, and individuals living at or below the poverty level.

The area has only a few community facilities and social services (Exhibit 3-2). A few apartment buildings and old motels are scattered along major arterial roads. Many of the streets lack curbs, gutters, and sidewalks, which creates potential safety issues for pedestrians.

3.1.2 Pioneer Square Neighborhood

The Pioneer Square neighborhood, the city's historic center, is generally located between Yesler Way and S. Royal Brougham Way. It was established in the late 1800s. The boundaries of the Pioneer Square neighborhood also encompass the National Register historic district and the slightly larger City-designated preservation district. The city blocks are relatively small, and the tree-lined streets are narrow. Smaller-scale two- and four-story brick buildings, many with unique architecture, and several plazas characterize the neighborhood.

Walking through the neighborhood is a popular attraction for visitors. The interiors of old brick warehouses have been remodeled into artists' residential lofts and offices. Neighborhood residents live in older apartment buildings, new condominiums, low-income housing, and several emergency shelters. Popular retail businesses, restaurants, and boutiques line First Avenue S., which is landscaped with large sycamore trees in the street median.

Several newer office buildings, including the King County government office complex, have recently been built in this neighborhood. Seattle's main railroad station, King Street Station, also is located in this neighborhood. The adjacent historic Union Station was restored and is now used as Sound Transit's headquarters. Qwest Field (professional football) is also located in this neighborhood, and Safeco Field (professional baseball) is located immediately over the neighborhood boundary to the south of Qwest Field. Both are regional attractions for thousands of sports fans.

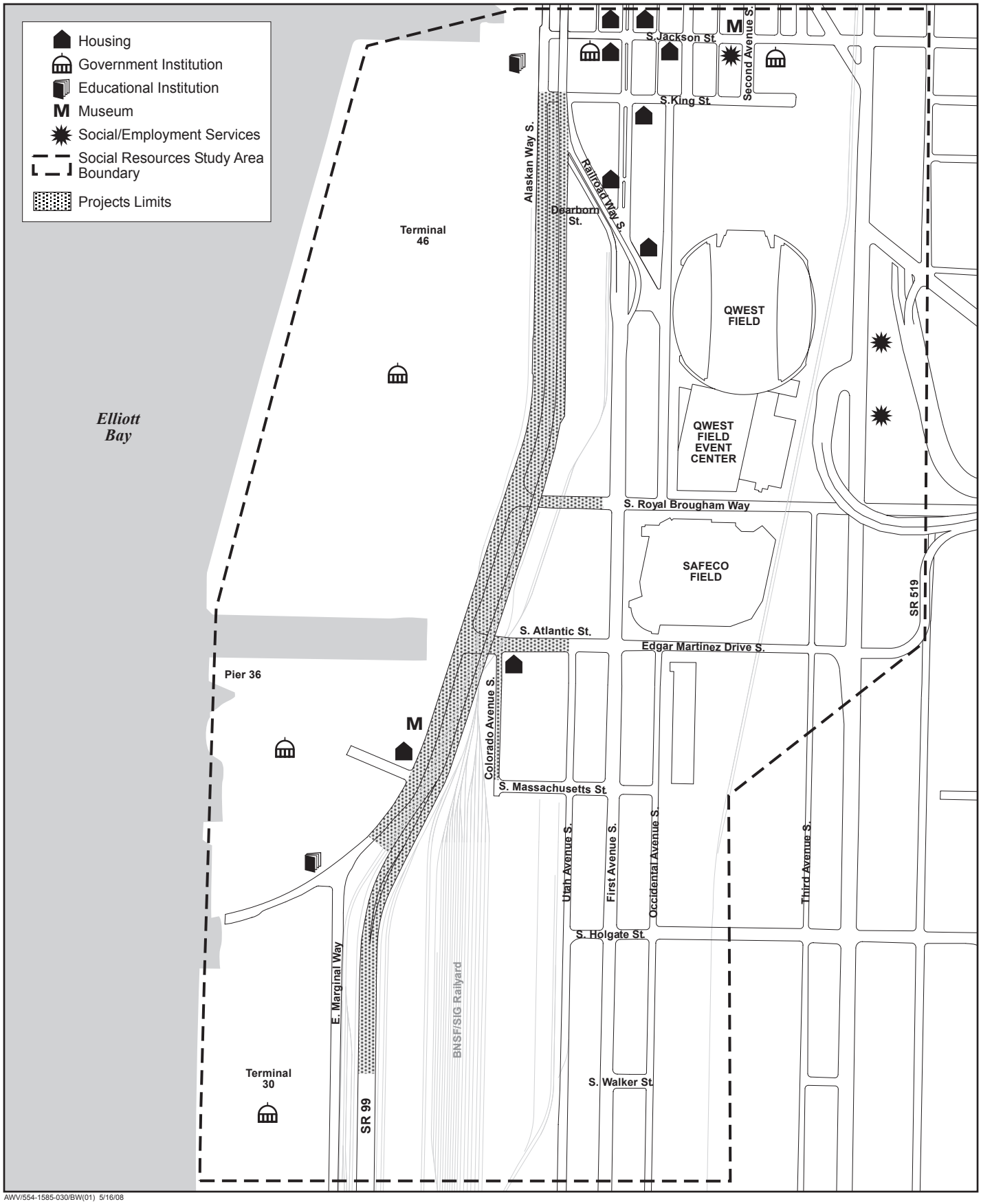

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Exhibit 3-2
Map of Social Resources in the Study Area

3.2 Population and Demographics

The population trends and demographic characteristics of the study area are both similar to and very different from the overall population of the city of Seattle. The most comprehensive recent source of demographic information for the study area was published in 2000 by the U.S. Census Bureau. The following section describes characteristics of the study area and compares them to those of the city as a whole. Characteristics described include total population, minority characteristics, language, age, household status, income, disability, housing, and transit dependency. The text below also includes a short discussion of likely changes in the demographic characteristics of the project corridor since 2000.

3.2.1 Study Area Census Tract Block Groups

For 2000, a single census tract block group was selected to represent the study area: CT 93 BG 2. In 1990, this same area was identified as CT 93 BG 8 and CT 93.99 BG 8.

3.2.2 Population and Minority Characteristics

The study area, although located downtown, comprises only a very small portion of the city's total population. In 2000, the population of the study area was an estimated 667 people (Exhibit 3-3). This was less than 1 percent of the city's total population of 563,374. This small population reflects the industrial and heavy commercial character of much of the study area.

The population of the study area basically did not change between 1990 and 2000. In 1990, the population of the study area was 643. In the following 10 years, the population increased to only 667, or 24 additional residents. Section 3.3.1 describes the existing housing stock and recent residential development in the study area.

The demographic characteristics of the study area residents are largely similar to the city's total population. The study area residents, however, are more diverse (see Exhibit 3-3). In 2000, approximately 65 percent of the population residing in the study area was White and 35 percent was non-White. Black/ African Americans and Asian/Pacific Islanders composed approximately 16 percent and 4 percent of the population, respectively. The minority population totaled 42 percent. For comparison, the city's 2000 population was approximately 70 percent White and 32 percent minority.

Exhibit 3-3. Minority Characteristics, 1990 and 2000

Area	Total Population[1]	Total Minority[2]	Race[3]					Ethnicity[4]
			White	Black/ African Am	Am Ind & AK Native	Asian & Pacific Islander	Other	Hispanic or Latino
1990 Census								
Study Area	643	144 (22%)	518 (81%)	70 (11%)	36 (6%)	8 (1%)	11 (2%)	33 (5%)
City of Seattle	516,259	135,835 (26%)	388,858 (75%)	51,948 (10%)	7,326 (1%)	60,819 (12%)	7,308 (1%)	18,349 (4%)
2000 Census								
Study Area	667	283 (42%)	431 (65%)	104 (16%)	43 (6%)	30 (4%)	59 (9%)	67 (10%)
City of Seattle	563,374	180,842 (32%)	394,889 (70%)	47,541 (8%)	5,659 (1%)	76,714 (14%)	38,571 (7%)	29,719 (5%)

Notes:
1. Total population includes persons residing in both housing units as well as group quarters (e.g. shelter).
2. The definition of minority is all non-White groups plus White Hispanic groups.
3. The definitions for racial groups used by the U.S. Census Bureau changed between 1990 and 2000. In 1990, the groups were (1) White, (2) Black, (3) American Indian, Eskimo, and Aleut, (4) Asian or Pacific Islander, and (5) Other. In 2000, the groups were (1) White, (2) Black/African American, (3) American Indian/Alaska Native, (4) Asian, (5) Native Hawaiian/Pacific Islander, (6) Other, and (7) two or more races. For purposes of comparison in the table, groups have been combined. Percentages may not sum to 100 due to rounding.
4. The category Hispanic or Latino is not a racial group, but an ethnic identity, and persons may be of any race. Statistics for Hispanic or Latino people are included in the race categories in the previous columns.

Source: U.S. Census Bureau (1990, 2000).

Like Seattle, the study area became more diverse between 1990 and 2000. During this decade, the study area minority population increased from 22 to 42 percent. This change was substantially greater than the city's increase from 26 to 32 percent. This change is partially due to changes in the 2000 census form, which allowed people for the first time to select mixtures of up to eight racial groups. Before, people were only allowed to define their race in terms of a single race. Because the percentage of minority people in the study area in 1990 was approximately the same as for the city, but it nearly doubled between 1990 and 2000 while the city's population diversity only increased by about 23 percent, it is likely that the study area population disproportionately increased in diversity and the change cannot be explained entirely by the change in reporting for race statistics.

3.2.3 Diversity and Limited English Proficiency

Another U.S. Census Bureau statistic that helps to measure diversity is the primary language spoken in the home. Several language categories were reported for census tract block groups in both 1990 and 2000. These included

persons 5 years or older speaking English only, Spanish, Asian and Pacific Islander, and other languages in the 1990 census. The 2000 census added a category for Indo-European languages. In addition, the U.S. Census Bureau assessed whether foreign language households were linguistically isolated from the community (i.e., no one in the household aged 14 years or older spoke English "very well"). In 1990, 97.8 percent of the population spoke English (only or very well), and none of the households were linguistically isolated (Exhibit 3-4). In contrast, the statistics for Seattle were different, with 92.9 percent of the population speaking English (only or very well) and 7.1 percent of the households linguistically isolated.

Both the study area and the city experienced only slight changes in the proportion of households speaking English between 1990 and 2000. The proportion was 100 percent of the population speaking English (only or very well), whereas this figure was 90.7 percent for the city. Also, although 0.9 percent of the city's population spoke Spanish in the home, none spoke Spanish in the study area. Rather, residents were more likely to speak other languages. None of the households in the study area, however, were reported to be linguistically isolated.

Though not available for block groups, the U.S. Census Bureau also reported specific languages, not language groups, persons 5 years or older spoke at home for the city of Seattle. These data indicated that approximately 20 percent of the city's population spoke a foreign language at home. The most frequent foreign languages were reported to be Spanish, Chinese, Tagalog, and Vietnamese. Based on these statistics, handouts used to communicate information about the Project to the public were translated into these four languages.

The census data, however, do not report whether linguistic isolation exists for residents of group quarters, such as homeless shelters, and there is a substantial proportion of the population in the study area who reside in group quarters. Recent information collected during the 2006 One Night Count indicated that as a general guideline, almost half of the individuals who stay in shelters countywide are families, and most of these individuals are immigrants with limited English proficiency (Committee to End Homelessness in King County 2006). Although information provided by Oki (2008 personal communication) indicates that Somalis constitute the largest group of limited English proficiency homeless to access emergency shelters, unfortunately, the referenced One Night Count did not collect information specific to the study area or regarding which foreign languages are most frequently used by individuals in these shelters. More importantly, though, compared to census data, this information provides very different evidence of

whether limited English proficiency issues are likely among study area residents.

Exhibit 3-4. Household Language Characteristics, 1990 and 2000

Area		Speak English Only or Very Well	Speak Spanish & Some English	Speak Indo-European & Some English[1]	Speak Asian or Pacific Islander & Some English	Speak Other Languages & Some English
1990 Census						
Study Area[2]	Population[3]	677 (97.8%)	8 (1.2%)	NA	0 (0%)	7 (1.0%)
	Linguistically Isolated HH[4,5]	NA	0.0%	NA	0.0%	0.0%
City of Seattle	Population[3]	452,495 (92.9%)	3,385 (0.7%)	NA	25,046 (5.1%)	6,243 (1.3%)
	Linguistically Isolated HH[4,5]	NA	0.3%	NA	2.6%	0.9%
2000 Census						
Study Area[6]	Population[3]	653 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Linguistically Isolated HH[4,5]	NA	0%	0%	0%	0%
City of Seattle	Population[3]	487,784 (90.7%)	9,748 (1.8%)	4,916 (0.9%)	31,453 (5.9%)	3,537 (0.7%)
	Linguistically Isolated HH[4,5]	NA	0.9%	0.7%	3.2%	0.5%

Notes:
1. The 1990 census did not distinguish between Indo-European languages and other languages as was made in the 2000 census. 1990 census data are P028 and P029 and 2000 census data are P19 and P20.
2. The Study Area for the 1990 census includes census tract 93 block group 8 and census tract 93.99 and block group 8.
3. Population includes only persons 5 years or older in a household.
4. HH = households.
5. 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.
6. The study area for the 2000 census includes census tract 93 block group 2 only, but is the same geographic area as census tract 93 block group 8 in the 1990 census.

Source: U.S. Census Bureau (1990, 2000).

The continued use of the four foreign languages in public outreach activities is consistent with more recent anecdotal evidence related to limited English proficiency in the study area. Chinese, Spanish, and Vietnamese are three of the five foreign languages currently used by the Seattle Housing Authority on their webpage for housing applications (http://www.seattlehousing.org/housing/downloads.html). The information on this website is also available

in Somali and materials used for public outreach for the project were translated into that language as well. Public outreach to study area social service agencies (Bread of Life, Compass Center, Urban Reststop, and others) repeatedly identified the need for project information to be translated into Spanish (EnviroIssues 2007). Additionally, social service agency representatives have told project team members that project notices for distribution in the community should be kept basic and should consider using pictures to help communicate messages. These recommendations were provided because many residents of the study area are immigrants from Latin American countries, may suffer from mental illness and anxiety, and/or may have only an elementary school education (EnviroIssues 2007).

3.2.4 Age Characteristics

The age characteristics of the study area population are distinct from those of the city of Seattle. Residents of the study area are overwhelmingly adults between 18 and 64 years of age. As shown in Exhibit 3-5, the study area population has a substantially lower proportion of children and elderly than the rest of the city. In 1990, less than 1 percent of the study area population was under the age of 18, compared to nearly 17 percent for Seattle. The proportion of adults 18 to 64 years of age decreased for the study area compared to a slight increase for the city by 2000. The number of elderly residing in the study area increased slightly over the same period.

Exhibit 3-5. Age Characteristics, 1990 and 2000

Area	Total Population	0–4 Years	5–17 years	18–64 Years	65 Years and Older
1990 Census					
Study Area	643	0 (0%)	1 (0%)	612 (95%)	30 (5%)
City of Seattle	516,259	29,269 (6%)	55,661 (11%)	352,929 (68%)	78,400 (15%)
2000 Census					
Study Area	667	6 (1%)	16 (2%)	592 (89%)	53 (8%)
City of Seattle	563,374	26,215 (5%)	61,612 (11%)	407,740 (72%)	67,807 (12%)

Note: Percentages may not sum to 100 due to rounding.
Source: U.S. Census Bureau (1990, 2000).

3.2.5 Household Characteristics

Considering that the population of the study area in 2000 had a very small proportion of children and a large proportion of adults 16 to 64 years of age, it is logical that the household characteristics of the study area are distinct from

those of the city of Seattle (Exhibit 3-6). In 1990, the U.S. Census Bureau reported that approximately 48 percent of households in the study area were one-person households and none of the households were families with children. In contrast, Seattle households were approximately 40 percent one-person households and 20 percent families with children. Using the 2000 census statistics for the study area, the average number of persons per household is approximately 1.55, compared to 2.18 for the entire city. In 2000, the proportion of elderly households in the study area was substantially less than the proportion for the city.

Exhibit 3-6. Household Characteristics, 1990 and 2000

Area	Households	One-Person Households	Family Households[1]	Families with Children[2]	Single Parent Families with Children	Elderly Households[3]
1990 Census						
Study Area	23	11 (48%)	9 (39%)	0 (0%)	0 (0%)	1 (4%)
City of Seattle	236,702	94,179 (40%)	112,969 (48%)	47,629 (20%)	3,630 (2%)	52,931 (22%)
2000 Census						
Study Area	139	68 (49%)	45 (32%)	4 (3%)	2 (1%)	8 (6%)
City of Seattle	258,499	105,542 (41%)	113,400 (44%)	50,083 (19%)	16,366 (6%)	45,017 (17%)

Notes:
1. Family households are households with more than one person related by blood or marriage or adoption.
2. Families with children are households with one or more child less than 18 years of age residing in the home.
3. Elderly households have at least one member 65 years or older.

Source: U.S. Census Bureau (1990, 2000).

3.2.6 Income Characteristics

Income statistics for the study area show another aspect of the diversity of residents in the study area. Generally, the residents are substantially less well off than residents of the city (Exhibit 3-7). In 1990, the median household income was substantially less than the median household income of households in Seattle—$4,999 compared to $29,353. Between 1990 and 2000, the median income of the study area and city increased from $4,999 to $73,125 and $29,353 to $45,736, respectively.

Keeping in mind that the median is the "middle" number and not the average, the reported $73,125 median income and 49 percent of the population living at or below the poverty level shows just how very diverse the population is in the study area. The study area median income is more than 1.5 times as great as the city's median income, yet the 1999 per capita income

was $20,508 for the study area compared to $30,306 for all of Seattle. These very divergent characteristics indicate that many households in the study area are in fact quite poor, but some households have a relatively high income. This is largely due to the increase in people residing in newer market-rate and luxury apartments and condominiums (see Section 3.2.10 for more recent information and future trends for study area demographics). These statistics may also be skewed because the data is based on a sample survey of only 120 households—a relatively small sample population.

Exhibit 3-7. Income Characteristics, 1990 and 2000[1]

Area	Households	Median Household Income	Per Capita Income	Households With Public Assistance	Population At or Below the Poverty Level
1990 Census					
Study Area	23	$4,999	$23,331	0 (0%)	211 (62%)
City of Seattle	236,702	$29,353	$18,308	15,051 (6%)	61,681 (12%)
2000 Census					
Study Area	139	$73,125	$20,508	0 (0%)	305 (49%)
City of Seattle	258,499	$45,736	$30,306	7,638 (3%)	64,068 (12%)

Note:
1. Income statistics for the 1990 census are for year 1989 and statistics for the 2000 census are for year 1999.
Source: U.S. Census Bureau (1990, 2000).

3.2.7 Disabled Persons

The U.S. Census Bureau (2000) also published statistics on the number of persons with disabilities residing in the study area. Respondents to the long form could report more than one type of disability, and the disabilities could cause limitations to one or more activities. However, not all limitations can be assumed to affect a person's mobility. For example, there is no reason a deaf person or a person who has difficulty bathing would necessarily have difficulties going outside and driving a car or taking public transit. Moreover, children 5 to 15 years of age generally have family members or guardians who assist them when they go outside. As such, it is not appropriate to report all persons with one or more disabilities as representative of persons who have difficulties going outside alone.

Therefore, for this analysis, only those persons who reported difficulties going outside the home alone and are 16 years old or older are considered to be persons with "mobility disabilities." Exhibit 3-8 presents these statistics for the study area and the city of Seattle. In 2000, approximately 11 percent of the

study area population had mobility disabilities. This proportion was considerably higher than for the city, which had an estimated 6 percent of the population with mobility disabilities.

Exhibit 3-8. Persons with Mobility Disabilities, 2000

Area	Population	Population 16 Years or Older with Mobility Disability	Percent of Total Population
Study Area	667	71	11%
City of Seattle	563,374	32,051	6%

Source: U.S. Census Bureau (2000).

3.2.8 Transit Dependency

The U.S. Census Bureau (2000) reported the types of transportation available to households, and respondents reported the number of vehicles available for personal use. For the study area, approximately 6 percent of households in 2000 had no private vehicles, whereas an estimated 16 percent of households in Seattle did not have use of a vehicle for personal use (Exhibit 3-9). This proportion of the study area population that is transit-dependent is less than half that for the city as a whole. Without a vehicle available, these residents must rely upon public transit (trains, buses, ferry, and taxis) for their transportation needs.

Exhibit 3-9. Transit-Dependent Households, 2000

Area	Dwellings	Occupied	No Vehicle Available	Percent
Study Area	142	138	8	6%
City of Seattle	270,524	258,499	42,180	16%

Source: U.S. Census Bureau (2000).

3.2.9 Updated Demographic Characteristics

The above discussion of demographic characteristics is based on U.S. Census Bureau data collected in 2000 and may not reflect the demographics of the population currently residing in the study area in 2008. New data for the study area will not be available from the U.S. Census Bureau until after 2010. Mid-census demographic information often is obtained from student demographics of project area schools. In this case, however, there are no schools in or near the study area. But updated demographic data for the city of Seattle are available for 2005 through the U.S. Census Bureau's American Community Survey and the OFM. These statistics can be used to indicate likely changes in study area demographics based on changes in the city.

Between 2000 and 2005, the population for the city of Seattle increased to 573,000 persons, a 2 percent increase (OFM 2005). The city of Seattle's non-White population increased from 30 percent in 2000 to 31 percent in 2005 (U.S. Census Bureau 2000, 2005a). Unlike the 2000 census, however, the 2005 American Community Survey does not include populations in group quarters (e.g., dormitories, prisons, and shelters). For comparison, the 2000 racial characteristics for the study area was 35 percent non-White in 2000. Based on this citywide change, the demographics of the study area may be slightly more racially diverse than in 2000—perhaps exceeding 36 percent non-White. A similar analysis showed that the proportion of Hispanics in Seattle increased from 5 percent in 2000 to slightly greater than 6 percent in 2005, indicating that Hispanics may now represent more than 10 percent of the population of the study area. Together, these changes in demographic characteristics indicate total minority population in the study area may now exceed 44 percent.

In addition, the percentage of persons living at or below the poverty level in Seattle remained nearly the same between 2000 and 2005. In 2000, 12 percent of the population was living at or below the poverty level, and in 2005 an estimated 12.3 percent were living at or below the poverty level (U.S. Census Bureau 2000, 2005a). This information likely provides an accurate comparison for the study area because populations in group quarters were not included in either the 2000 census or the 2005 American Community Survey. Based on the minor increase for the city, it is assumed that the proportion of the study area population living at or below the poverty level may have increased from 49 percent to slightly over 50 percent.

3.2.10 Long-Term Population and Demographic Changes Expected

Longer term, however, the demographics of residents of the study area are expected to substantially change due to forecasted urban development trends. The City of Seattle is currently conducting a planning project called the Livable South Downtown project, which includes the study area.

As residential development is generally not allowed in the Duwamish Manufacturing and Industrial Center, no substantial changes are expected in that portion of the study area generally south of S. Royal Brougham Way. Some of the older industrial buildings, however, may be converted to artist's residential lofts and studios consistent with City policy to encourage this type of housing, while preserving industrial and heavy commercial properties in the Duwamish area.

A technical report associated with the Livable South Downtown planning project (BHC Consultants and Property Counselors 2007) also indicates that,

although there is limited property available, there is strong demand for additional residential development in the Pioneer Square neighborhood. The study also reports that public sentiment is that the neighborhood has its fair share of low-income housing. As such, residents and business owners may put political pressure on decision-makers to not approve substantial additional low-income housing in the neighborhood and/or sanction additional low-income housing through changes in the City's comprehensive plan. Thus, the majority of new residential development in the Pioneer Square neighborhood is expected to be market-rate housing. The cost of real estate also seems to support condominium development over rental apartments. Recommended changes in the City's comprehensive plan and development regulations may also permit substantially taller building structures than under current zoning, which could further increase residential development of market-rate units in the Pioneer Square neighborhood.

A major future development site is the Qwest Field north parking lot that King County sold to a private developer in June 2007. The property is proposed for redevelopment with mixed uses and up to perhaps 400 residential units with perhaps 100 low-income units (Puget Sound Business Journal 2007). This proposed development project alone would almost double the existing population in the study area.

If City development policies change and demand continues to press for new residential housing near the downtown core, there could be a substantial increase in the current population over the next 10 to 15 years. The existing study area demographic characteristics also support the notion that overall, these new residents would likely be similarly diverse consistent with citywide increased diversity. These new residents, however, would also be expected to have substantially higher incomes than most of the current residents.

3.3 Housing

This section describes housing in the study area. General housing characteristics are described, as well as subsidized and special needs housing.

3.3.1 General Characteristics

Because the study area is largely industrial and heavy commercial, there is very little housing in the study area. In 2000, the census reported that the number of dwellings had increased over the previous decade from 23 to 142 units (Exhibit 3-10). The census also reported very high occupancy rates, indicating a relatively tighter real estate market compared to the city of Seattle. Homeownership increased from 0 to 68 percent, which substantially exceeds the 48 percent homeownership citywide. This reflects the substantial

increase in median household income in the study area, as more households can now afford to own their residence. The census data also show that the number of persons residing in noninstitutional group housing, such as transitional housing and shelters, decreased slightly.

Exhibit 3-10. Housing Characteristics, 1990 and 2000

Area	Total Dwellings	Vacant	Occupied	Own	Rent	Population in Other Noninstitutional Group Housing[1]
1990 Census						
Study Area	23	0 (0%)	23 (100%)	0 (0%)	23 (100%)	599
City of Seattle	249,032	12,330 (5%)	236,702 (95%)	115,709 (49%)	120,993 (51%)	5,384
2000 Census						
Study Area	142	3 (2%)	139 (98%)	94 (68%)	45 (32%)	445
City of Seattle	270,524	12,025 (4%)	258,499 (96%)	125,165 (48%)	133,334 (52%)	8,921

Note:
1. Other noninstitutional group housing includes college dorms, military quarters, and other noninstitutional group quarters, such as emergency shelters.
Source: U.S. Census Bureau (1990, 2000).

Since 2000, new housing has continued to be developed in the study area, particularly at the northern end close to the heart of the Pioneer Square Historic District. Because of the tight restrictions regulating new development within the historic district and the general lack of vacant parcels, much of this new housing has involved conversion of office and warehouse space into residential space. An example is the Florentine Condominium Project at 526 First Avenue S., which resulted in the conversion of a 1909 warehouse into 108 new condominiums.

More recently, a 2007 report (BHC Consultants and Property Counselors 2007) indicates strong economic pressures for additional housing development south of Yesler Way. The demand to live near the downtown core is high, and the development costs south of downtown are less expensive than in the Belltown and Denny Triangle neighborhoods. An example is the 85-unit condominium project called the Stadium Lofts that is currently under construction at 589 Occidental Avenue S.

Some property owners and developers would like to see development regulations changed to allow for the construction of high-rise buildings in this part of the city (BHC Consultants and Property Counselors 2007). Future

development is expected to be dominated by market-rate housing—apartments as well as condominiums—for middle- and upper-income households.

3.3.2 Subsidized, Transitional, and Emergency Housing

The study area also has subsidized, transitional, and emergency housing. The subsidized units category includes all low-income public housing developments (i.e., Section 8 project-based housing), senior housing, and affordable housing operated by partner nonprofits such as the Archdiocesan Housing Authority. It does not include households that use federal Section 8 housing vouchers to subsidize the purchase of housing of their choice. Only three subsidized units are located in the study area at the Boston Hotel (City of Seattle 2003, 2007). Most of the city's downtown subsidized housing is located in the Belltown neighborhood.

The study area has a substantial portion of the city's transitional and emergency housing. This includes short-term and long-term housing with supportive social services, emergency temporary housing, and homeless shelters. Exhibit 3-11 lists transitional and emergency housing within the study area. Seattle's Union Gospel Mission with a capacity of 209 residents comprises more than 40 percent of the city's total transitional housing located in downtown (South of Downtown [SODO] area north to the Belltown neighborhood). The Bread of Life Mission and St. Martin de Porres Shelter with a combined capacity of 262 residents comprise more than 30 percent of the city's total emergency housing located downtown. Moreover, several large men's shelters are located immediately north of the study area near the intersection of Yesler Way and Third Avenue.

Exhibit 3-11. Transitional and Emergency Housing in the Study Area

Special Needs Housing
Transitional Housing and Residential Treatment Services
Seattle's Union Gospel Mission (209 cap. + 50 additional in winter cold weather)
Emergency Housing and Homeless Facilities
Bread of Life Mission (50 cap. + 24 additional in winter cold weather)
St. Martin de Porres Shelter AHA (212 cap. + 34 additional in winter cold weather)

Notes: Cap. = capacity; AHA = Archdiocesan Housing Authority.
Source: Crisis Clinic (2002, 2003, 2006).

3.3.3 The Unsheltered Homeless Population

Some individuals in downtown Seattle use the shelter provided by building overhangs, porticos, or elevated walkways and roadways for protection from

the weather for sleeping. Several elevated portions of the Alaskan Way Viaduct are known to provide shelter to Seattle's homeless population.

The Seattle/King County Coalition for the Homeless reports that more than 8,000 people lack permanent housing in the county (Eisinger 2007). Many of these people obtain shelter in the county's homeless shelters, some of which are described in Section 3.3.2 above. In 2006, an estimated 2,513 such beds were available in all of King County (Committee to End Homelessness in King County 2006). Others "couch surf" and temporarily live with a series of friends and acquaintances. However, in 2006 more than 1,900 individuals were found to be living on the streets in King County.

The 2006 One Night Count reported demographic data for King County's homeless population residing in emergency and transitional housing. The survey indicated that an estimated 48 percent included families with children and 36 percent were single men. In sharp contrast to King County demographics, a total of 63 percent of this population was non-White. Of those identified as immigrants or refugees, nearly 90 percent were families with children, and 75 percent of these families had limited English proficiency. In addition, social service providers have told the Project's public outreach team that a substantial share of homeless persons suffer from mental illnesses and anxiety disorders (EnviroIssues 2007).

In part because nearly 84 percent of the county's emergency and homeless housing facilities and many social services are located in downtown Seattle, a substantial proportion of the county's homeless people are living on the streets in downtown Seattle. The 2007 One Night Count of unsheltered individuals determined that an estimated 1,589 individuals, or 74 percent, were located in Seattle (Seattle/King County Coalition on Homelessness 2007). An estimated 16 percent were found during the survey to be located in or under structures or roadways, and an additional 28 percent were sleeping in their cars or trucks. Although there is no published data, it is clear that a substantial number of people may spend the night on streets near or under portions of the viaduct (Eisinger 2007). Moreover, homeless persons often do not sleep at night due to risks to personal well-being and instead find shelter and sleep during the day (Goetschius 2007).

3.4 Community Facilities

This section describes community facilities in the study area, including community centers and educational facilities. Religious, cultural, and social institutions are described separately in later sections.

3.4.1 Community Centers

Though Seattle has a number of community centers, performing arts centers, and recreational program centers, none are located in the study area.

3.4.2 Educational Facilities

Exhibit 3-12 lists the two public educational facilities located in the study area. The two professional/technical training schools are located on the waterfront piers. There are no Seattle School District facilities, child care facilities, colleges, or universities. For additional information, please see the Public Services and Utilities Technical Memorandum.

Exhibit 3-12. Educational Facilities in the Study Area

Professional/Technical School
Crawford Nautical School (Terminal 46)
Pacific Maritime Institute (Pier 36)

3.5 Religious Institutions and Cemeteries

No cemeteries or religious institutions are located in the study area.

3.6 Social and Employment Services

A number of public and nonprofit social service providers are located within the study area. Moreover, a number of social service providers are located immediately north of the study area. These social service organizations provide hot meals, food bank services, clothing, employment and mental health counseling, and legal services, as well as referrals for other social services and employment assistance (Exhibit 3-13). Many of these services focus on serving the low-income and homeless persons in the study area.

Interviews with some social service providers in the study area revealed that some providers, especially those that provide referral services, typically work closely with other downtown social service providers. Coordination may include the types of services provided, referrals, and transportation from one service provider to another (Goetschius 2002). As such, the many social service agencies and organizations form a network that supports the daily lives of many downtown residents, whether or not they reside in the Duwamish Manufacturing and Industrial Center or the Pioneer Square neighborhood.

Exhibit 3-13. Social and Employment Service Providers in the Study Area

Social Service Provider
Chief Seattle Club Community Service Center

Social Service Provider
International Rescue Committee
Lazarus Day Center
Northwest Justice Project (legal advice for low-income people)
Salvation Army – Thrift Store
Salvation Army – Adult Rehabilitation Center
YMCA – Family Services and Mental Health Program

Sources: Crisis Clinic (2002, 2003, 2006).

3.7 Cultural and Social Institutions

Several cultural and social institutions are located in the study area. These include an exhibition center, two museums, a public square, and two major sports stadiums. They attract residents from the Puget Sound region as well as visitors, tourists, and others. Hundreds to tens of thousands of people may attend individual events at these facilities. Events occur during daytime and evening hours on weekdays, as well as on weekends. Individual events may last several hours or occur over a period of several days. The two museums near the project corridor are open daily, and exhibits change periodically. Exhibit 3-14 lists cultural and social institutions within the study area.

Exhibit 3-14. Project Area Cultural and Social Institutions in the Study Area

Institution
Exhibition Centers
Qwest Field Events Center
Landmarks
Occidental Square
Museums
Coast Guard Museum of the Northwest (Pier 36)
Klondike Gold Rush National Historic Park
Professional Sports Facilities
Safeco Field (Baseball)
Qwest Field (Football & Soccer)

In addition to these institutions, charity fundraising events use the project corridor. The St. Patrick's Day Dash is an annual walk/run event to raise monies for the Detlef Schrempf Foundation. The event course runs from Seattle Center to Qwest Field via the Alaskan Way Viaduct. In addition, the Susan B. Komen Race for the Cure sponsors a September charity walk/run race that extends from Qwest Field along Alaskan Way Viaduct to the Belltown neighborhood and then back to Qwest Field.

3.8 Government Institutions and National Defense Installations

Government offices also are located within the study area (Exhibit 3-15). They represent special tax district (municipal corporation) and local and federal government offices and facilities. A number of Port of Seattle operations and the U.S. Coast Guard facilities are located along the waterfront. For additional information about the Port properties, see the Economics Technical Memorandum.

Exhibit 3-15. Key Government Institutions in the Study Area

Government Institutions
County
King County King Street Center
Special District
Port of Seattle – Cruise Ship Terminal at Terminal 30
Port of Seattle – Hanjin Shipping Co. Terminal at Terminal 46
Federal
U.S. Coast Guard at Pier 36
U.S. Post Office – Pioneer Square Office

3.9 Neighborhood Cohesion

The neighborhood cohesion found in the Duwamish Manufacturing and Industrial Center and the Pioneer Square neighborhood is defined by land use, population characteristics, public facilities, gathering places, community services, and special landmarks. Transportation services and infrastructure define accessibility within and between the neighborhoods. A key aspect of cohesion is connectivity of land uses, facilities, services, and population, as well as the interrelationships between these elements that define the human environment. Together, these characteristics allow people to interact with each other in ways that lead to a sense of community. The following sections highlight these issues that define the cohesiveness of the study area.

3.9.1 Transportation Services and Infrastructure

SR 99 is one of two major highways (along with I-5) that provide direct access to downtown Seattle. The route is a primary north–south arterial located west of I-5. It follows the Duwamish Waterway, the city waterfront, and continues north through several downtown neighborhoods. High volumes of traffic (including passenger vehicles, commercial vans, large freight and delivery trucks, taxis, and buses) use the highway daily. Appendix F, Transportation Discipline Report, provides a detailed description of this facility and its function in the regional transportation network.

The existing SR 99 is constructed above grade in the study area. SR 99 has only one interchange south of S. King Street. E. Marginal Way S. and Alaskan Way S. are at-grade streets immediately west of SR99. Between S. Hanford Street and S. Atlantic Street, the Seattle International Gateway (SIG) Railyard prevents local streets from intersecting either E. Marginal Way S. or Alaskan Way S.

Most of the study area is accessible by public bus and taxis, though less so in the Duwamish Manufacturing and Industrial Center south of S. Royal Brougham Way. The low-income and homeless persons living in the study area rely on the public transit system. The downtown bus ride free area, however, only extends south to S. Jackson Street. With increasing numbers of people living south of downtown, there is hope that this zone will eventually be expanded farther to the south. Metro, however, does provide expanded services when the professional sports teams are playing at one of the stadiums.

The elevated structures, multiple lanes of traffic, and high traffic volumes and associated noise form a barrier between most of the study area and the waterfront. The location of the railroad tracks, the incomplete roadway grid, and lack of sidewalks on some streets impede mobility in the study area and weaken cohesion.

3.9.2 Land Uses

Along the project corridor, different types of land uses are separated or split by SR 99. At the south end of the study area, the roadway traverses industrial land uses. Warehouses, wholesale, and manufacturing businesses are primarily located east of the roadway. The Port of Seattle container ship loading facilities are located west of the roadway. The roadway splits the Whatcom and SIG Railyards. Farther north, the elevated roadway separates the Port of Seattle container terminal facilities from the mixed residential, retail, and heavy commercial land uses in the stadium area. In the Pioneer Square area, a wide variety of mixed land uses are located east of the highway, while port-related land uses continue along the waterfront west of the highway. The land uses are quite similar, but the elevated roadway is a physical as well as a visual obstruction between the land uses. For additional details on land uses in the project area, please see the Land Use and Shorelines Technical Memorandum. The mixed and very diverse pattern of land uses indicates that community cohesion should be stronger at the north end of the study area due to the availability of shops, gathering places, and social services for area residents.

3.9.3 Population Characteristics

Different types of people use various portions of the project corridor on different days of the week and at various times of the day. To the north, as the highway enters the Pioneer Square neighborhood, the population is mixed. Office workers, residents (including homeless persons), visitors, and others mingle. A portion of this mixed population is present most of the day. The higher density of residents and the comparatively higher number of gathering places strengthens cohesion in the northern portion of the study area.

In the southern portion of the study area, however, there is a general lack of tourists. The number of residents is small and dispersed. The dominant population is the substantial number of workers who arrive daily. There are few gathering places for residents and/or workers to interact. As such, cohesion is weak in the southern portion of the study area, as there are few opportunities for the population to interact.

3.9.4 Linkages to Community Facilities and Social Services

Many low-income and homeless persons living in the study area have a strong tie to community facilities located in the study area, but also with those located in adjacent neighborhoods. They also rely on social services, medical clinics, and food programs in the community. There are no community centers are located in the study area. The closest are located in the Yesler Terrace, International District/Chinatown, Delridge, and Jefferson Park neighborhoods, which are all some distance from the study area. Some residents spend time at the Lazarus Day Center and the recently completed Chief Seattle Club Community Service Center on Second Avenue S. Ext., but these cater to minority and low-income residents rather than study area residents at-large.

For the middle- and upper-income residents of the study area, very few community facilities are available. Children must attend day care and public schools outside of the neighborhood. Downtown religious institutions are generally located in the downtown core and the Belltown neighborhood to the north. The closest large supermarkets are located in the International District or Belltown neighborhoods. Theaters and performing arts centers are located in downtown or at Seattle Center. But all of these community facilities and services are relatively close by via either private car or a short bus ride, even if they are not located in the study area.

This dispersion of community facilities and services used by study area residents weakens community in the study area. There is a general lack of community facilities in the study area. Minority and low-income residents

have nearby gathering places, but other residents may need to travel some distance to the city's community centers. These conditions reduce the likelihood that neighbors would get to know each other.

3.9.5 Unique Community Identity

Living in the historic Pioneer Square neighborhood where there is a dominance of older historic commercial and industrial buildings creates a unique living environment for some study area residents. The Pioneer Square Historic District is an important symbol of the city and its historic early days as the shipping off point for thousands of miners heading for the Klondike Gold Rush in Alaska. The mixture of land uses, the old brick buildings, and the narrow tree-lined streets present a very different character than the city's other residential neighborhoods. The district is a popular tourist destination. And the large cargo loading cranes that tower above nearby buildings to the south now symbolize the region's international trade links to the Pacific Rim. This special identity adds to a sense of community in the northern portion of the study area.

3.9.6 Interaction Between People

Overall, community cohesion in the study area is weak. To the south of about S. Royal Brougham Way, land uses are primarily corporate offices, heavy commercial, warehouse, and industrial. Most have large parking lots for workers and patrons. There are only a very few residences and an almost total lack of retail shops such as corner markets, drug stores, or banks to meet the daily needs of residents. Interaction between residents as they conduct daily shopping and errands is limited.

The area also experiences a very large influx of people who work in the study area during daytime hours. Distances are great between the few retail shops, restaurants, taverns, or fast food establishments. Sidewalks are missing on a number of streets, streets dead end, and the roadways are wide and characterized by a relatively high volume of truck traffic. Transit services are limited. East-west transit services are sparse, but north-south routes provide frequent service on First and Fourth Avenues S. in the study area. As such, it is not a particularly pleasant environment for walking, and both residents and workers tend to use their personal vehicles for trips. Interaction between residents and workers is limited in the course of daily movement of people in the study area.

As such, the interaction between workers, particularly in the southern portion of the study area, is largely limited to their places of work and the businesses they patronize for purchasing lunch or after-work snacks and drinks. Some of these workers may be residents in the study area. But interaction between

residents is limited due to the lack of community gathering places, with the exception of the scattered restaurants, taverns, and entertainment venues.

In contrast, land uses north of about S. Royal Brougham Way are much more mixed with lots of retail shops, restaurants and cafes, professional offices, and residential apartments and condominiums. The unique historic city blocks are small, and the narrow streets have sidewalks and trees. The local street grid is continuous and provides a pleasant pedestrian environment. Some people both live and work in the Pioneer Square neighborhood. Residents, workers, and tourists commingle on the streets and at area restaurants and shops. The area is active with people on the streets from early morning hours to late at night due to many businesses, restaurants, taverns, and places of entertainment. There is both a neighborhood business association and a residents' association. As such, there are opportunities for residents to run into neighbors on the street, whether they are on the way to their place of work, a local restaurant, or errands at nearby shops. In comparison to the study area south of S. Royal Brougham Way, the Pioneer Square neighborhood has substantially stronger community cohesion.

Chapter 4 OPERATIONAL EFFECTS, MITIGATION, AND BENEFITS

This chapter describes anticipated effects on social resources that would occur following construction of the Project. Operational effects would include changes in traffic patterns, the roadway network, noise, light and glare, etc. that would affect population and housing, community facilities, religious institutions, social and employment service providers, cultural and social institutions, government institutions, and cohesion.

4.1 Operational Effects

The Project would involve construction of an at-grade roadway that would transition to an aerial, side-by-side structure crossing over the railroad tracks near S. Massachusetts Street. This bridge crossing over the railroad tracks would allow for reconfiguration of the Whatcom Railyard. A new and improved access would be constructed to Terminal 46, including a U-shaped undercrossing that would permit east-west traffic to enter and exit the terminal when trains on the tail track block traffic on Alaskan Way S. The construction of the undercrossing would require S. Royal Brougham Way to be closed just east of SR 99. A new northbound off-ramp and southbound on-ramp connecting to Alaskan Way S. would be provided south of S. King Street. SR 99 would return to an at-grade configuration for a short distance north of S. Royal Brougham Way and then transition to a stacked, aerial structure that would match the existing stacked viaduct at about S. King Street. Pedestrian and bicycle paths would be added. The informal ferry queuing that currently occurs on Alaskan Way would be replaced with a new remote holding area between S. Royal Brougham Way and S. King Street along the east side of SR 99. Tree planting on both sides of SR 99 would establish new urban greenway corridors.

The following subsections analyze effects on social resources primarily resulting from project right-of-way acquisition and effects on population and housing.

4.1.1 Acquisition Effects

The construction of the Project would require the acquisition of small slivers of land from a number of land owners, but no properties would need to be acquired in full. Refer to the Relocations Technical Memorandum for detailed information on property acquisitions for this Project. Small slivers of right-of-way would be acquired from Pier 36 and Terminal 46. Social resources are located on both of these Port of Seattle piers. These include the Crawford

Nautical School, the Pacific Maritime Institute, St. Martin de Porres Shelter, and the Coast Guard Museum of the Northwest. The required acquisition of land, however, would not displace any social resources, nor would access routes or access to the buildings housing social resources substantially change.

4.1.2 Population and Housing

The construction of the Project would not have an effect on population or housing in the study area. Construction of the Project would not require the acquisition of any housing. The properties proposed to be acquired are currently vacant, parking lots or garages, or roadway.

Operation of the Project would require the repair and maintenance of the infrastructure. The number of employees would likely be small, and most would already be employed by WSDOT, the Seattle Department of Transportation, Seattle Public Utilities, Seattle City Light, or private utilities. Any new personnel would likely be hired from the regional labor force, as the types of new jobs would not likely require employees with highly specialized skills. Project operation would not attract workers from outside the region, and as such, the Project would not result in an increase in regional population or an increase in the demand for housing.

Access to residential properties and traffic patterns in the study area would generally be similar to current conditions. However, the new interchange at S. Atlantic Street and closure of S. Royal Brougham Way would increase traffic volumes on S. Atlantic Street. The revised flow of traffic through this interchange and the new access to Terminal 46 would also change access to the St. Martin de Porres Shelter. Many of the overnight visitors at the shelter are transported to and from the facility by an agency van from downtown Seattle. The van would need to drive a slightly longer and more circuitous route compared to traveling south on Alaskan Way S. from downtown.

An estimated 30 to 40 percent of the nighttime visitors to St. Martin de Porres Shelter, however, walk to the shelter (Goetschius 2007). The access route to the facility for these clients would change slightly compared to current conditions. The proposed design has pedestrian walkways and crosswalks that would continue to provide pedestrians a safe travel route south along Alaskan Way S. and east along S. Atlantic Street. The design includes a tree-lined sidewalk along the west side of Alaskan Way S. between S. Atlantic Street and S. Massachusetts Street (site of St. Martin de Porres Shelter). The new pedestrian facilities would include an 8-foot-wide facility with curb, gutter, and sidewalk on the west side of Alaskan Way S., whereas the existing pedestrian facilities are narrower and consist of roadway pavement with a

barrier that separates the walkway from the vehicular travel lanes. The new urban greenway corridor would improve the pedestrian environment along the waterfront.

The proposed minor reconfigurations of the streets near S. Atlantic Street and SR 99 would also slightly change access to the loft residences located in the Bemis Building on the southeast corner of the intersection of Colorado Avenue S. and S. Atlantic Street. New circulation patterns for traffic would alter access to the parking lot to the south of the Bemis Building. Overall, access routes would differ somewhat from current conditions, but the new travel patterns would not cause substantial adverse effects on the residents living in the study area. In addition, the two new ramps would provide increased access to SR 99 and destinations south and north of the study area.

4.1.3 Community Centers

No community centers are located in the study area.

4.1.4 Education Facilities

No education facilities would be affected long-term by the Project as a result of property acquisition. Right-of-way acquisitions would not include the purchase of property currently used by childcare facilities, public schools, instructional institutes, or professional or technical schools or colleges.

Operation of the Project would not affect access to the Crawford Nautical School at the north end of Terminal 46, but access to the Pacific Maritime Institute would be somewhat more circuitous due to the reconfiguration of the streets and intersection at S. Atlantic Street and Alaskan Way S.

4.1.5 Religious Institutions and Cemeteries

No religious institution or cemeteries are located in the study area.

4.1.6 Social and Employment Services

The acquisition of property for the Project would not displace any social service organizations. Operation of the Project may change vehicular access to several social service organizations, and travel times may increase slightly due to the reconfiguration of Alaskan Way S. at S. Atlantic Street. Such changes are not expected to be substantial, as the social and employment services offices are located several blocks away from the corridor.

4.1.7 Cultural and Social Institutions

The Project would not require the purchase or displacement of property currently used by any cultural or social institutions. Safeco Field, Qwest

Field, the Qwest Field Events Center, and the Coast Guard Museum of the Northwest are located in the study area. Visitors to these facilities would use the new SR 99 ramps for improved access to these institutions. Traffic patterns and areas of congestion would be different following major events at these facilities. The new SR 99 ramps would generally improve access to the area, but changed circulation patterns may result in deteriorated conditions at the start and end of special events, including charity fundraising events, held at the two stadiums and the Events Center. Access to the Coast Guard Museum of the Northwest would change somewhat due to the reconfiguration of Alaskan Way S. at S. Atlantic Street. All in all, no adverse effects to the stadium and event center facilities are expected.

4.1.8 Government Institutions and National Defense Installations

The acquisition of right-of-way for the Project would not adversely affect any of the government institutions located in the study area. No local, state, or federal government agency offices or national defense installations would be displaced.

The Project would require the purchase of narrow strips of land from both Terminal 46 and Pier 36. These sites are owned by the Port of Seattle. The Hanjin Shipping Company Ltd. has a long-term lease for use of the property as a container terminal. The company is a major handler of container ship cargo entering and exiting the Port of Seattle. The Port recently extended its lease with Hanjin Shipping for use of the container terminal until 2015, with an option until 2025. The proposed roadway improvements would substantially improve access to Terminal 46, and railroad operations would no longer block freight truck access to the terminal.

4.1.9 Neighborhood Cohesion

Exhibit 4-1 presents some indicators of long-term disruptions to neighborhood cohesion. A key issue is whether or not the Project would create a barrier in the community, either physically or by separating residents from the resources they may use. These indicators include total number of building acquisitions, acquisition of property, loss of jobs, and reduction in parking.

For the Project, only slivers of property would need to be acquired from three properties. This property would be needed for right-of-way and construction staging. In addition, some very small portions of sites would be needed for utility easements. Small slivers of land would be acquired from both Pier 36 and Terminal 46, both of which have social resources. No jobs would be displaced as a result of property acquisitions. The magnitude of property

acquisition effects would be quite small when considering the many buildings that are currently adjacent to the 1-mile corridor.

Exhibit 4-1. Some Indicators of Long-term Disruption to Neighborhood Cohesion[1]

Indicators	Total
Number of Properties Partially Acquired[1]	3
Buildings Acquired/Demolished	0
Social Buildings Acquired[2]	0
Jobs Displaced	0
Parking Spaces Displaced[3] (447 on-street & 820 off-street)	1,267

Notes:

1 The number of properties affected does not include properties already owned by WSDOT.

2 "Social Buildings Acquired" is the number of buildings that would be acquired that are social resources (i.e., residences, community facilities, religious institutions, social and employment services, cultural and social institutions, or government institutions).

3 "Parking Spaces Displaced" is the number of parking spaces along the project corridor that would be eliminated by construction of the Project. It includes adjacent on-street and off-street spaces. The total number of off-street parking spaces that currently exists was estimated to be 6, 450 spaces within a quarter-mile of the project area. This number does not represent the total number of parking spaces available within the general project corridor as it excludes on-street parking spaces. By far, the majority of parking available in the corridor, however, is off-street parking.

An estimated 447 on-street parking spaces (418 long-term spaces, and 29 short-term spaces) and 820 off-street parking spaces would be permanently removed from the study area. Although this is a large number, approximately 4,100 off-street parking spaces are currently available on an average weekday within a quarter-mile of the project area. This is based on approximately 6,450 existing spaces and an average utilization rate of approximately 37 percent on non-event weekdays (PSRC 2006). (Appendix F, Transportation Discipline Report provides additional information.) This is a loss of public parking spaces, not on-site parking that would be used to meet zoning requirements for parking. For persons with mobility limitations, this reduction in parking spaces may decrease accessibility to some destinations. This is because if disabled drivers are unable to find an available disabled parking space, they are permitted to use regular parking spaces without risk of getting a parking ticket. Thus, a general reduction in number of parking spaces would generally decrease their ability to locate a parking space. However, since relatively few residents and retail businesses are located in the area, the reduction in parking spaces should not affect neighborhood cohesion.

Another key aspect of cohesion is linkage and connectivity. The Project would change connectivity between the region and the project corridor neighborhoods, as well as between neighborhoods. Within the corridor, connectivity between SR 99 and SR 519 would improve. The addition of the urban greenway corridors on both sides of SR 99 would visually improve the linkage of the more industrial land uses of the southern portion of the study area with the tree-lined streets of the historic Pioneer Square neighborhood in the northern portion of the study area. The new sidewalks and bike paths would also improve nonvehicular mobility in the study area.

The Project would slightly change the existing street network and links to existing community facilities and services in the corridor. One such change is the closure of S. Royal Brougham Way immediately east of SR 99 and the rerouting of traffic at S. Atlantic Street. Vehicles could continue to travel northbound and southbound along Alaskan Way S.; however, in the vicinity of the new interchange, travel would be slightly more circuitous at the S. Royal Brougham Way intersection than current conditions.

Noise levels for the Project are predicted to be generally similar to current levels, despite forecasted increases in traffic volumes. The existing traffic volumes are currently high, and the facility operates near (and sometimes exceeds) roadway capacity. Traffic speeds are low, and transit ridership is high. Traffic noise effects, however, occur as a result of high traffic volumes on the entire urban arterial grid. The existing noise levels generally approach or exceed FHWA noise abatement criteria. The future traffic levels are not predicted to change substantially in the area as a result of the Project. Mitigation of traffic noise levels is not feasible in the area because the majority of the traffic noise is generated by arterial traffic on the city street grid. For additional information, please see the Noise and Vibration Technical Memorandum. Noise levels would not increase substantially over current levels for this section of SR 99, so there would be no substantial change in this aspect of the quality of life in the study area.

Air quality levels for the Project are generally predicted to be below current levels, although the modeling indicated a few localized increases above existing conditions. In all cases, predicted air quality levels are anticipated to be below the National Ambient Air Quality Standards for the project corridor (see Appendix G, Air Quality Discipline Report).

Taken altogether, these changes in the study area are not expected to substantially change community cohesion and the ability of residents, workers, and tourists to interact. The improved vehicular access and urban greenway corridors may in fact expand the neighborhood sense of community identity south of the Pioneer Square neighborhood.

4.2 Operational Mitigation

This section describes potential measures that could be implemented to mitigate adverse effects on social resources following construction of the Project. These effects are focused on effects to overall neighborhood cohesion. Changes in vehicular, transit, and pedestrian movement within the study area and between the study area and downtown neighborhoods would occur. Levels of traffic congestion and associated noise may change. Parking both on-street and off-street would be reduced. These changes are not expected to substantially affect the interaction, behavior, routine, and daily patterns of people. Potential mitigation for these adverse social effects must address how the effects on the community could be avoided, minimized, or reduced.

The most important mitigation measure is community outreach and communication. Changes in the transportation network could cause people to get confused or lost. This could occur for drivers in vehicles, transit passengers, or pedestrians. The following list identifies community outreach and communication activities that should occur prior to the opening of the new facilities to educate and prepare the public for changes in their community.

- Use newsletters, websites, posters, newspaper inserts, television and radio public announcements, special neighborhood public meetings, and other similar methods of communication to announce to the public the upcoming opening and use of the new roadway facilities. Publish these messages in both English and other languages to accommodate the area's diverse population.
- Establish an interactive website that will allow members of the public to map their trip using the new facilities. Locations of public parking lots and garages should be shown, as the routes to these facilities may change following construction of the Project.
- Coordinate the opening of the facilities with other modes of transportation—bus, taxi, tour buses, ferry, light rail, trains, commercial trucking, railroads, and the airport. Both public and private transportation providers may need to modify operations and communicate these changes to their users. The public and the business community need to understand that there is an integrated multimodal public transportation system that will meet their transportation needs.
- The project team would coordinate with transit agencies to conduct special outreach activities to communicate new transit operations to members of the public who have mobility limitations and those who may be transit-dependent. Coordination efforts could be extended to

social and employment service agencies that work with these special populations, as well as low-income and homeless populations (including those living on the street).

- Install a substantial network of temporary signs, posters, or reader boards to guide vehicular or transit traffic the first several weeks or months after the opening of the new roadway facilities. Consider using a special opening-event logo or theme so signs are easily recognizable.
- Special consideration should be given to communicate changes in roadway operations for traffic associated with large sports events and cultural performances. Many of the attendees at these events live outside the downtown area and may not regularly use the new road facilities. Coordination also should occur with sponsors of special fundraising events.

Chapter 5 CONSTRUCTION EFFECTS AND MITIGATION

This chapter discusses anticipated changes and disruptions that could affect social resources during construction. These effects are evaluated for all social resources located within approximately two blocks of the project corridor per the methodology described in Chapter 2. This area would be most adversely affected by construction effects, particularly noise effects. These effects on social resources are temporary, although the anticipated duration of major construction for the Project (Traffic Stages 1 through 4) would be an estimated 3 years 2 months.

5.1 Construction Effects

5.1.1 Population and Housing

Construction activities and their effects on the lives of residents living near construction zones are described below.

Workers and Housing

Major construction of this Project would employ workers for approximately 3 to 4 years. The average number of new construction jobs required for the Project would be 350 workers per year, and the required skills would generally be those typical of construction workers. In 2010 (near the start of project construction), the total number of workers employed in the construction sector of the regional economy, which includes King, Pierce, Kitsap, and Snohomish Counties, is forecasted to be approximately 121,100 workers. The average annual number of workers who would be employed for the Project would compose a very small percentage of the forecasted number of workers in the region's construction sector.

As such, the size of the forecasted regional work force, and particularly the construction sector, appears to be more than adequate to accommodate the anticipated demand for construction workers associated with the Project. Workers from outside the region are not expected to move to the area for employment opportunities specifically associated with this Project. Some workers, however, would likely move to the area as part of the normal shift of workers from one labor market to another.

In conclusion, it is not anticipated that the demand for construction workers, including those from outside the region, would affect population or housing resources in the Puget Sound region.

Construction Effects on Residents

Construction activities could have several different types of effects on residents near the construction zone. Construction-related traffic would likely affect residents in the study area, potentially extending some distance from the construction zone because of temporary road closures or detours. Construction traffic, light and glare, noise, and dust would affect residents within approximately one to two blocks of construction. In addition, residents across the street or adjacent to potential construction staging areas would be affected.

Isolation of the construction activities to ensure public safety would require corridor fencing, temporary road closures, and a number of short-term traffic diversions. (These would be separate from any planned designated traffic detours.) Such short-term closures and traffic diversions would likely be needed for varying periods of time, some for weeks or months, and others for only several days. As project construction progresses, road closures and traffic detours would change to best accommodate construction needs and to minimize traffic congestion. These construction effects, however, may cause temporary hardship or inconvenience due to increased travel duration or temporary transit route realignments for some residents. This change would be more difficult for the elderly, disabled, and transit-dependent persons.

Residents generally would be able to hear noises associated with the operation of construction equipment up to a distance of approximately one to two blocks. Construction-related noise would generally occur up to 10 hours per day and 5 days per week while construction activities are ongoing at a particular location. Construction-related noise could extend up to 20 to 24 hours per day and 7 days per week for critical construction activities. Any nighttime work would be completed under a noise variance, if granted by the City of Seattle Department of Planning and Development. Residents would be particularly sensitive to nighttime noise.

Residents across the street from construction would be able to view construction activities within the fencing, especially from top floors of buildings. Lights would be directed at construction activities and shielded, but light and glare would affect residents with windows in direct line-of-sight of construction activities, especially at night. Preliminary engineering indicates that construction staging would occur at the following locations:

- East of SR 99 between S. Atlantic Street and S. Royal Brougham Way
- East of SR 99 and extending to First Avenue S. between S. Royal Brougham Way and S. Dearborn Street
- East of SR 99 and extending to First Avenue S. between S. Dearborn Street and Railroad Way S.

- 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, such as portions of S. Atlantic Street, S. Royal Brougham Way, First Avenue S., Alaskan Way S., E. Marginal Way S., S. Dearborn Street, and Railroad Way S., may be limited at times (e.g., fewer travel lanes or use of only one sidewalk). In addition, primary access to and from some buildings may change for short periods, although access would not be eliminated.

Nearby Residents

Residents within approximately two blocks of the project corridor would be affected by construction activities. As construction extends as far north as S. King Street, the construction effect area extends two blocks to S. Main Street. Exhibit 5-1 shows the total number of dwelling units and the estimated population within this two-block area. This estimate also includes residents who would be affected by nearby construction staging areas, but not potential traffic detour routes.

Exhibit 5-1. Construction Effects on Nearby Housing and Population

	Corridor Effect Area
Total Dwelling Units[1]	344
Total Population[2]	792
Low-Income Dwelling Units[3]	5 (1.5%)
Low-Income Population[2]	267 (34%)

Notes:

[1] Dwelling units are those that would be affected by noise or those within approximately one to two blocks of the construction area. The term "dwelling" does not include stays in hotels, motels, or shelters. For purposes of this analysis, buildings that house homeless persons are counted as one dwelling unit, no matter how many beds are provided at the facility.

[2] Population is calculated using the average size of households in the study area, or 1.55 persons per household (2000 census for CT 93 BG 2), plus the total capacity of the shelters.

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

In total, the construction effect area defined by noise effects includes an estimated 342 dwelling units plus two shelters with a total population of 792 residents. Of these dwellings, three units and the two shelters house an estimated 267 low-income residents, or over 33 percent of the population of the total construction effect area.

Adjacent Residential Properties

The residential buildings adjacent to the construction zone would experience the most adverse effects of construction. Whereas those residing within two blocks would be affected by traffic and noise, those adjacent would also be affected by light, glare, and change in access to their residential building. Construction could occur up to 24 hours per day during critical construction activities. If nighttime work is needed, a noise variance would be applied for from the City of Seattle Department of Planning and Development. Exhibit 5-2 lists the social resources adjacent to the construction zone (i.e., buildings located within 50 feet of the project corridor). In summary, four residential properties are estimated to be affected by the Project, and an estimated 397 residents live adjacent to the construction area, including the staging areas.

Exhibit 5-2. Adjacent Residents Affected by Corridor Construction Activities

Adjacent Residential Buildings[1]	Buildings	Population[2]
Bemis Building (32 units)	1	50
St. Martin de Porres Shelter (212 cap.)[3]	1	212
Stadium Lofts (85 units)	1	132
Triangle Hotel & Bar (2 units)	1	3
Total	**4**	**397**

Notes:

1 "Adjacent" is defined as a building or property within approximately 50 feet of construction activity; access to the building may be affected.

2 Population is calculated using 1.55 average persons per household (2000 census for CT 93 BG 2) and 1.0 person per bed at homeless shelters.

3 Cap. = capacity.

Displacement of Unsheltered Homeless Persons

Construction activities and the associated noise and light and glare effects in the construction corridor would adversely affect unsheltered homeless persons living downtown. Some of these people congregate or spend the night in informal places of shelter, including underneath existing elevated structures of SR 99 or in personal vehicles parked under the highway. Depending on the location and severity of the construction effects, these people may decide to move elsewhere along the project corridor or could leave the downtown area for adjacent neighborhoods. This could cause concern on the part of residents whose neighborhoods have not had

substantial numbers of homeless persons in the past. Others may try to climb fences surrounding the construction zone to return to their habitual nighttime shelter locations. Still others may try to obtain shelter at existing homeless shelters to avoid the noise and light in the construction zone. This could indirectly affect the availability of homeless shelter beds in the entire downtown area, as the number of emergency shelter beds is far fewer than the estimated number of homeless persons residing downtown.

5.1.2 Nonresidential Social Resources

Nonresidential social resources in close proximity to the project corridor (within two blocks) also would be affected by construction. The study area has 10 such properties, and they are listed in Exhibit 5-3.

Exhibit 5-3. Nearby Nonresidential Social Resources Affected by Construction Activities[1]

Building Use	
Community Facilities	
	Pacific Maritime Institute (Pier 36)
	Crawford Nautical School (Terminal 46)
Subtotal	2 properties
Cultural and Social Institutions	
	Coast Guard Museum of the Northwest
	Safeco Field
	Qwest Field
	Qwest Field Events Center
Subtotal	4 properties
Government Institutions	
	Port of Seattle Cruise Ship Terminal – Holland America and Princess Lines (Terminal 30)
	U.S. Coast Guard offices (Pier 36)
	Port of Seattle – Hanjin Shipping Co. Terminal (Terminal 46)
	U.S. Post Office – Pioneer Square Branch
Subtotal	4 properties
TOTAL	**10 Properties**

Notes:
[1] "Nearby" is defined as within two blocks of construction activity.

Community Centers

No community centers are located adjacent to the construction area.

Education Facilities

Potential construction effects on workers, students, and others at education facilities would likely be less than those experienced by residents. People

would typically be at the Pacific Maritime Institute or Crawford Nautical School during the daytime or early evening hours. People typically have higher thresholds for loud noises, light, and glare during the daylight hours compared to nighttime when people are trying to sleep. For additional discussion, please see the Noise and Vibration Technical Memorandum. Primary concerns would be related to temporary changes in building access (e.g., doors, garages, driveways, and walkways).

Even for education facilities near the construction zone, general transportation access and building access would be ensured. Fencing would provide a minimum of 4 to 6 feet of pathway for pedestrians to enter buildings. Signs would be posted to direct both vehicular and pedestrian traffic. As such, education facilities would experience some effects, but not substantial adverse effects.

Religious Institutions and Cemeteries

No religious institutions or cemeteries are located adjacent to the construction area.

Social and Employment Services

Potential construction-related effects on social and employment services would be similar to those described above for education facilities. Workers or clients would primarily be in the building during the daytime. As such, they would have a higher threshold for noise, light, and glare. The effects would be experienced, but would not likely be perceived as substantial adverse effects.

During construction, noise from certain activities is likely to exceed the higher daytime limits during some construction stages. Nighttime construction that would exceed nighttime noise limits is also likely to be required. To accommodate these exceedances of the City of Seattle noise regulations, the Project would apply for nighttime noise variances from the City of Seattle.

Social and employment services also must be able to continue to provide services to their clients during construction. This may cause them to refer some clients to other social or employment service agencies should the construction activities result in a shift in either demand or geographical need for social services. Clients very likely would take public transportation or walk to the location of the other service agency.

In addition, some service agencies may provide transportation for their clients. For example, many residents of the St. Martin de Porres Shelter near Pier 36 are transported each morning to the Lazarus Day Center in the Pioneer Square area. Plans, however, could be made in advance by these social

service agencies to ensure that these transportation services would not be compromised. As such, effects on social and employment services would not have a substantial adverse effect.

Cultural and Social Institutions

Construction effects would be perceived as an inconvenience. As described above, the study area contains several areas where cultural or social institutions would be near the construction zone. This includes the stadiums in the Pioneer Square neighborhood.

Vehicle, transit, and pedestrian access to social and cultural institutions to attend events could be affected by construction activities, particularly construction-related congestion, road closures, and traffic detours. Such adverse effects would be worse when special events occur during or close to rush-hour. The inconvenience caused by detours and additional travel time could deter some patrons from attending.

Professional sports events would not be affected by construction noise and lighting, as most of these activities occur some distance from construction activities and the events themselves are very loud. For information about potential traffic effects, please see Appendix F, Transportation Discipline Report. Activities, such as movies or lectures, at the Coast Guard Museum of the Northwest could be affected, depending on the types of construction activities and the timing. In summary, potential effects on nearby cultural and social institutions would be minor.

Government Institutions and National Defense Installations

Potential construction effects to key government office buildings are expected to be similar to those described for education facilities above. Along the waterfront, a number of government institutions are within two blocks of the construction zone. The Port of Seattle Cruise Ship Terminal (Terminal 30), U.S. Coast Guard (Pier 36), and the Port of Seattle Terminal 46 (Hanjin) are all adjacent to the construction zone. The Pioneer Square Post Office is also located within two blocks of the construction zone. Occupants would be in these buildings primarily during daytime hours when they generally have a higher threshold for construction-related noise, light, and glare.

Access to several of these buildings and facilities, however, could be different, especially considering that access is possible only from the land side of the waterfront piers, which are immediately adjacent to the construction zone. Transporting large numbers of tourists to and from the Cruise Ship Terminal and access for delivery trucks for the cruise ships could be more time-consuming. Vehicles would need to avoid the construction zone, which could result in longer travel trips and changing detour routes during the

construction period. For additional information, please see Appendix F, Transportation Discipline Report. Overall, these effects would be perceived as adverse, but manageable. For additional discussion of these issues, please see the Economics Technical Memorandum.

5.1.3 Traffic Management and Truck Haul Routes

Management of Traffic Congestion during Construction

During construction, roadway closures would be needed intermittently, although two lanes of SR 99 traffic would be maintained in each direction. During road closures, alternate routes would be provided. Construction would result in a general increase in traffic congestion downtown. A complete discussion of these issues is provided in Appendix F, Transportation Discipline Report.

Major construction is expected to take approximately 3 years 2 months. Portions of the SR 99 corridor would be open for the entire period except a long weekend at the start of Traffic Stage 3, though both northbound and southbound traffic would be detoured for varying times throughout the construction period. A connection between Alaskan Way S. and E. Marginal Way S. also would be maintained until the very end of construction when final roadway configurations are completed and traffic flow can be restored. These detours of SR 99 traffic would use Alaskan Way S., Colorado Avenue S., S. Atlantic Street, S. Royal Brougham Way, First Avenue S., Railroad Way S., and a temporary roadway constructed on the WOSCA property, on the east side of Alaskan Way S. This detour would take traffic on and off of SR 99 between S. Atlantic Street and Railroad Way S. Use of the SR 99 detour would occur in Traffic Stages 2 and 3, about 18 months after construction has started, and the detour would be in place for approximately 14 months.

Traffic detours and roadway closures would affect social resources within two blocks of SR 99. This includes the three Port of Seattle piers, the two nautical professional schools, the Coast Guard Museum of the Northwest, St. Martin de Porres Shelter, the post office, and three residential buildings. Access to and from each of these properties would be ensured throughout the construction period, but the access routes to get to these properties would change over time, could be congested, and the routes would be potentially longer and more circuitous than current conditions. Moreover, nearby parking would be reduced. Other social resources located more than two blocks from the project corridor would be less affected by the detours. They are more distant from the proposed detour routes, and persons choosing to visit these social resources could use I-5 as an alternative route.

Other social resources, and in particular Qwest Field, the Events Center, and Safeco Field, could be substantially affected by the effects of the construction detours. The large special events held at these facilities attract thousands of people. These people must arrive and depart at defined times. Many of the event attendees may not be familiar with the construction detours, as they may live and work outside of the Seattle downtown area. As such, they could get confused or lost because of the changing detours.

Traffic congestion during construction is a concern; it is critical to maintain mobility and access to and from downtown, as well as within the downtown area. Through traffic modeling and analysis, recommendations were developed in coordination with the local and regional transit agencies to minimize the effects on traffic during construction. The results of this work led to the development of the SR 99/Viaduct Project Initial Transit Enhancements and Other Improvements to address anticipated traffic problems (see Appendix F, Transportation Discipline Report). The six key plan strategies include the following:

- Maintain or increase arterial capacity.
- Manage traffic effectively.
- Enhance traveler information.
- Effectively manage transportation demand.
- Maintain reliable transit service.
- Improve and expand transit service in affected corridors.

Because of the elimination of large numbers of parking spaces during construction, improved transit is a key component of the SR 99/Viaduct Project Initial Transit Enhancements and Other Improvements. Downtown workers and residents would particularly benefit from the proposed transit improvements that would provide expanded services to suburban communities during rush hour as well as non-peak hours. As a result, bus service in the downtown core would be markedly improved over current conditions, with buses arriving within just minutes of each other.

Construction Haul Routes

Trucks would be the primary mode used to transport both workers and materials to and from the construction zone. Large shipments of materials may also be transported by rail, and then trucks would deliver the materials to the construction zone. Trucks also may be used to transport excavated soils or demolition materials. Existing City-designated haul routes would most likely be used. From the south, these routes include E. Marginal Way S., SR 99, S. Michigan Street, S. Spokane Street, and I-5. From the north, these

routes include I-5 and Elliott Avenue. Outside of the construction zone, these haul routes would not traverse residential neighborhoods.

5.1.4 Overall Neighborhood Cohesion

Potential construction-related effects on neighborhood cohesion are more complex to evaluate than the individual effects primarily caused by property acquisition and changes in traffic congestion, access, noise, light and glare, or dust. Effects on neighborhood cohesion are more closely linked to the effects from a variety of factors that define neighborhood character. These factors include transportation, infrastructure, pedestrian access, topography, landscaping, population characteristics, linkages to community facilities and services, and unique characteristics. All of these factors would affect the interaction of people residing or working in or visiting the study area neighborhoods.

Currently, the existing project corridor both defines and disrupts existing neighborhoods. Elevated portions of SR 99 have formed physical obstructions for more than 50 years. Urban development and redevelopment have occurred with this obstruction in place. The Alaskan Way surface street follows the waterfront and defines the outside edge of both the Duwamish Manufacturing and Industrial Center and the Pioneer Square neighborhood. Yet as an arterial, traffic volumes and noise levels detract from pedestrian excursions along the waterfront.

Construction activities associated with the Project would be located within this same corridor. The construction effects (traffic congestion, detours, noise, light and glare, and dust) would be in addition to current disruptions. As such, the changes could be perceived as adverse effects, especially by residents and social resources immediately adjacent to the construction zone. Together, though, the effects might not be considered substantially adverse considering that they are primarily confined to the project corridor, which is on the periphery of the neighborhoods, and few residents live nearby. Some disruptions would be inevitable and unavoidable.

In fact, the duration of construction activities would likely be the most obtrusive effect on neighborhood cohesion. The Project would require approximately 3 years 2 months of major construction. Construction activities would typically occur 5 days per week and 10 hours per day to meet proposed construction schedules. During critical construction activities, however, construction could occur up to 24 hours per day, 7 days per week. If nighttime work would be needed, a noise variance would be applied for from the City of Seattle Department of Planning and Development. Construction activities would occur at several locations within the project corridor

simultaneously. These activities together would create ongoing stress upon residents, workers, visitors, and businesses.

The social fabric of the neighborhood could be affected by the duration of construction. Some residents may move. Some businesses, such as those selling lunches, gasoline, beverages, and sundries, may see an increase in business as a result of the large number of construction workers in the area. Some businesses would suffer little or no adverse effects. These construction-related effects could adversely affect the flow of customers, materials, or supplies to and from businesses near the construction zone and in adjacent neighborhoods. For additional information, please see the Economics Technical Memorandum.

Transportation mobility in and around the project corridor would change for residents, workers, and commercial businesses. Roadways would close or require traffic detours. Congestion would be high. The construction zone would also displace a considerable number of parking places along the corridor. For people who do not travel to downtown Seattle regularly, such as attendees of special cultural or sports events or tourists, these effects could change each time they travel downtown, and the route they take might vary. Advanced planning and implementation of a variety of transportation programs would reduce these effects. In particular, transit enhancements and other improvements would be implemented to maintain mobility and accessibility in the project area. These transit enhancements and other mobility proposals are detailed in Appendix F, Transportation Discipline Report.

Pedestrian linkages between neighborhoods and to the waterfront would be maintained throughout construction. This mostly applies to the Pioneer Square neighborhood, as the railyards already create a barrier to waterfront access between S. Hanford and S. Atlantic Streets. Pedestrian detours along city streets would be marked with appropriate signs and would meet Americans with Disabilities Act (ADA) accessibility standards.

Overall, the anticipated construction effects on neighborhood cohesion would be mixed.

5.2 Construction Mitigation

This section provides a list of recommended potential construction mitigation measures to avoid, reduce, or minimize potential adverse effects on social resources resulting from construction of the Project.

5.2.1 Population and Housing

General

- Establish neighborhood advisory groups prior to the start of construction to solicit input for mitigation measures. Periodically during construction, meet with neighborhood representatives to communicate important information concerning construction activities and to inquire if mitigation measures are effective and meet public expectations. Separate groups also could be established for special types of organizations, such as social and employment services, cultural institutions, and others.
- Prior to the start of construction and periodically during construction, hold neighborhood public meetings to advise the public of planned construction activities, road closures, traffic detours, changes in pedestrian walkways, etc. Representatives of project corridor community facilities, social and employment services, cultural and social institutions, 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, etc. Newsletters should be published in appropriate languages to effectively communicate with project area residents. Newsletters should be distributed at area community centers, schools, libraries, fire stations, City Hall, social service agencies, King County Metro kiosks, and other similar locations so they may be seen by the general public. Newsletters should also be posted on the Project's website.
- Provide representatives of social resources in the project corridor with the name(s) of one or more contacts with whom representatives may communicate concerns related to construction activities.
- Establish a community telephone or Internet project information line so that members of the public can directly report problems related to construction activities, and in turn, the project team can address problems promptly.
- Mark pedestrian pathways around the construction area to ensure public safety and to facilitate public wayfinding. Signs should be prepared in appropriate foreign languages, and/or use symbols to communicate with persons with limited English proficiency or low literacy.

All Residents

- Coordinate with neighborhood groups, including residents close to the project construction zone and staging areas, regarding appropriate mitigation measures for construction-related issues such as noise, light, glare, and dust.
- Develop special news bulletins to communicate upcoming construction activities to residents close to the project construction zone and staging areas.

Low-Income and Homeless Persons

- Prior to the start of construction, work with representatives of the low-income and homeless populations, either directly or through representatives of agencies providing services to these populations, to develop specific mitigation measures pertinent to these project area residents.
- Periodically meet with representatives of the low-income and homeless populations and social service agencies that provide services to these populations during construction to ensure that implemented mitigation measures are effective.
- Conduct outreach communication with representatives of area homeless shelters, special needs housing, transitional housing, and related social service organizations prior to the start of construction to develop specific mitigation measures for the needs of these special low-income populations, including those living on the streets. For example, thorough field investigations should be undertaken periodically prior to and during construction to ensure homeless persons are not taking shelter within the construction zone, including under elevated portions of SR 99 (LeCouteur 2007).

5.2.2 Education Facilities

- Work with representatives of professional/technical schools located close to the construction zone to develop mitigation measures if required to address potential noise effects that may affect their services.

5.2.3 Social and Employment Services

No additional mitigation measures are recommended for social and employment services.

5.2.4 Cultural and Social Institutions

- Work with representatives of Safeco Field, Qwest Field, and the Qwest Field Event Center to develop specific mitigation measures to address vehicular and transit access and parking issues related to workers as well as attendees of large events.
- Coordinate with cultural and social institutions to develop specific mitigation measures if required for venues where construction-related noise could result in adverse effects (e.g., the Coast Guard Museum of the Northwest).

5.2.5 Government Institutions

No additional mitigation measures are recommended for government institutions.

5.2.6 Neighborhood Cohesion

Changes in the study area are not expected to change neighborhood cohesion and the ability of residents, workers, and tourists to interact. No additional mitigation measures are recommended.

Chapter 6 INDIRECT AND CUMULATIVE EFFECTS

This chapter discusses potential indirect and cumulative effects of the Project.

6.1 Indirect Effects

Indirect effects are effects that are caused by a project but occur later in time or farther removed in location. For example, operation of a road project could encourage downtown urban redevelopment and population increase, but that development would likely occur in the years following completion of the project.

6.1.1 Operational Effects

The Project would affect only a very few social resources, which means indirect effects in the immediate area would be small. The redevelopment of any residual land not required for project construction would occur consistent with the City's Comprehensive Plan and zoning regulations. Considering the small amount of property that would be acquired, changes to the general land use character of neighborhoods are not expected to affect neighborhood cohesion. The social mix of workers, business owners, and residents could change only very slightly.

The design of the Project is not expected to alter the land use character of the project corridor. On the other hand, the new ramps on and off of SR 99 would improve access to the SODO area and could support redevelopment activities.

6.1.2 Construction Effects

Indirect effects during construction are not expected to be substantial. The demographic characteristics of these neighborhoods are not expected to change because there are so few residential buildings close to the construction zone. It is not expected that neighborhood cohesion would be adversely affected.

6.2 Cumulative Effects

Cumulative effects are the total effects of the Project combined with other past, present, and reasonably foreseeable future actions. They can include both construction and operational effects.

A number of large individual projects as well as many smaller development projects are being completed or proposed in the project corridor that, when combined with the SR 99 S. Holgate Street to S. King Street Viaduct Replacement Project, could affect social resources in project corridor

neighborhoods. These projects include several other transportation projects—the Central Link light rail project through the Downtown Seattle Transit Tunnel, the SR 519 Intermodal Access Project, and the Spokane Street Viaduct Widening and Ramp Construction Project. In addition, numerous small- to medium-sized residential, retail, and office projects are proposed in the project corridor.

6.2.1 Operational Effects

Cumulative operational effects would occur following construction of the Project. These cumulative long-term effects could have both adverse and beneficial effects on neighborhoods, the community, and the larger region.

A number of transportation projects are proposed within the project corridor. All are being developed and designed to accommodate and meet the demand for transportation services associated with forecasted population and employment growth in the region. The Project is one element in the regional transportation infrastructure, and the long-term effects of this Project are not expected to have substantial adverse effects on social resources above and beyond the cumulative beneficial effects of other planned and proposed projects.

Construction of the Project and other projects nearby may affect the long-term desirability or the redevelopment potential of some properties. Changes in access routes and ramps to and from SR 99 could play a major role. The change could have mixed effects on neighborhood cohesion.

6.2.2 Construction Effects

The major construction period for this Project would be 3 years 2 months, and the overall construction duration would be 4 years 4 months. During this period, several other development and transportation projects are planned near the project corridor. Construction activities and potential operation of the Project in combination with other projects could have cumulative effects. An assessment of these potential cumulative effects is provided below.

Construction activities associated with other transportation and development projects in the area would generally have a relatively short-term and localized effect. Projects limited to a particular property, such as an office building or condominium, would have construction traffic and noise that would generally affect the two city blocks around the construction site and would generally be limited to daytime hours. The construction of the Project could last many months or more than a year longer than these other development projects. As such, the Project and these types of development projects would have modest cumulative effects on social resources. The Environmental Assessment

provides a more comprehensive view of potential cumulative effects related to the Project.

When combined with the construction effects of other projects, there would be marginal increases in traffic congestion on city streets, some road closures and detours, and reduced on-street parking. As a result, the planned transportation projects in or near the project corridor may exacerbate disruptions to adjacent neighborhoods. Pedestrian, vehicular, and transit access to and from neighborhoods in the study area may be adversely affected by road closures and traffic detours required for other concurrent construction projects. Access to individual buildings, offices, and shops may be affected.

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ATTACHMENT A

Street Map

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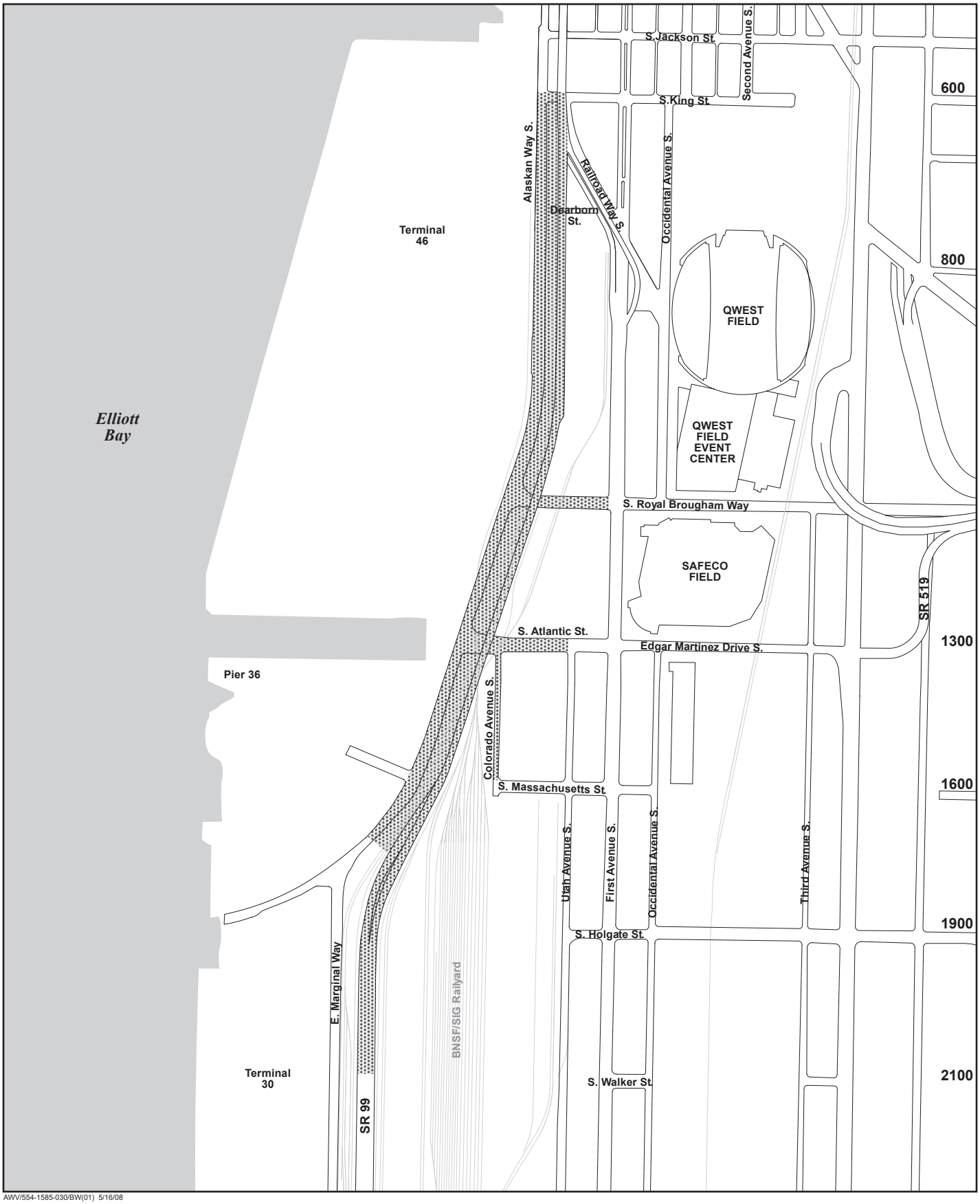

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Scale In Feet

Projects Limits

Attachment A
Street Map

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