Discipline Report

Social, Economic, and Relocation

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ECONorthwest

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Seattle Department of Transportation
Agreement No. T01-34

Environmental Assessment

Magnolia Bridge Replacement

City of Seattle

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Purpose and Need

Purpose

The purpose of this project is to replace the existing Magnolia Bridge structure, approaches, and related arterial connections with facilities that maintain convenient and reliable vehicular and nonmotorized access between the Magnolia community and the rest of the City of Seattle. The bridge provides an important link to the Magnolia community in Seattle (see Figure 1and Figure 2). Because the existing bridge provides the only public vehicular access to the land between North Bay, also referred to as Terminal 91, Smith Cove Park, Elliott Bay Marina, and U.S. Navy property, the project purpose also includes maintenance of access to these areas.

Need

Structural Deficiencies

The City of Seattle has identified the Magnolia Bridge as an important bridge that should remain standing following a "design" seismic event (an earthquake with a peak ground acceleration of 0.3g that is anticipated to happen every 475 years and may measure 7.5 on the Richter scale). Even with the repairs completed following the February 2001 earthquake, the existing bridge is susceptible to severe damage and collapse from an earthquake that is less severe than the "design" seismic event.

The original bridge was constructed in 1929 and has been modified, strengthened, and repaired several times. The west end of the bridge was damaged by a landslide in 1997, requiring repair and replacement of bridge columns and bracing, the construction of six additional supports, and a retaining wall north of the bridge to stabilize the bluff from further landslides. Repairs after the 2001 earthquake included replacement of column bracing at 27 of the 81 bridge supports. A partial seismic retrofit of the single-span bridge structure over 15th Avenue West was completed in 2001. The other spans were not upgraded.

Inspections of the bridge conclude that the concrete structure is showing signs of deterioration. The concrete is cracking and spalling at many locations, apparently related to corrosion of the reinforcing steel. The bridge requires constant maintenance in order to maintain its load capacity, but there does not appear to be any immediate load capacity problem. The existing foundations have insufficient capacity to handle the lateral load and uplift forces that would be generated by a "design" seismic event. The existing foundations do not extend below the soils that could liquefy during a "design" seismic event. If the soils were to liquefy, the foundations would lose their vertical-load-carrying ability and the structure would collapse.

System Linkage

There are three roadway connections from the Magnolia community, with more than 20,000 residents, to the rest of Seattle. As the southernmost of the three connections, the Magnolia Bridge is the most direct route for much of south and west Magnolia to downtown Seattle and the regional freeway system.

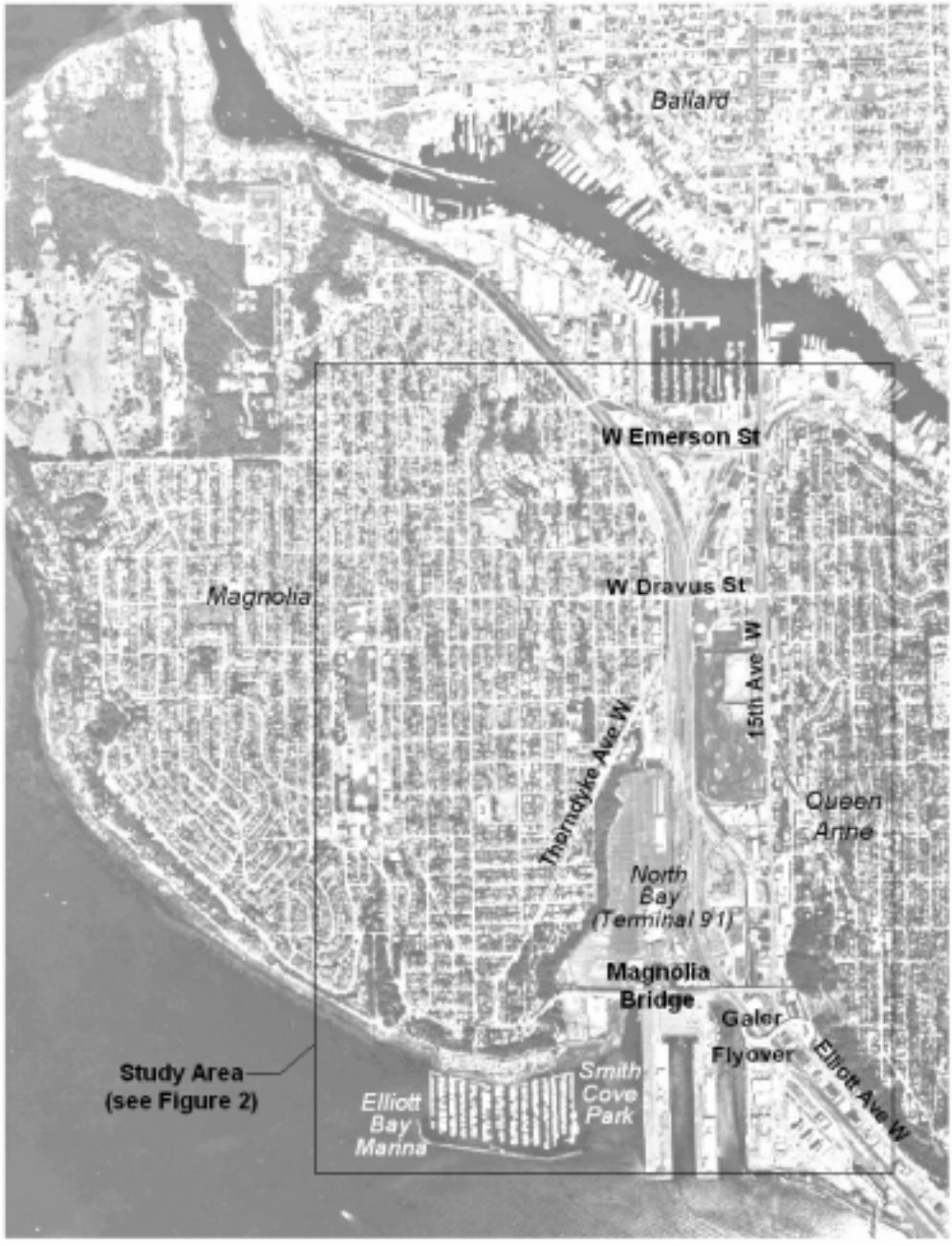


Figure 1
Vicinity Map

In meetings with the public and the Seattle Fire Department, the importance of this route for emergency services has been emphasized. The loss of use of this bridge in 1997 and again in 2001 demonstrated to the City that the remaining two bridges do not provide acceptable operation. During the bridge closure following the February 2001 earthquake, the City addressed community concerns about reduced emergency response time to medical facilities outside of Magnolia by stationing paramedics at Fire Station 41 (2416 34th Avenue West) 24 hours a day.

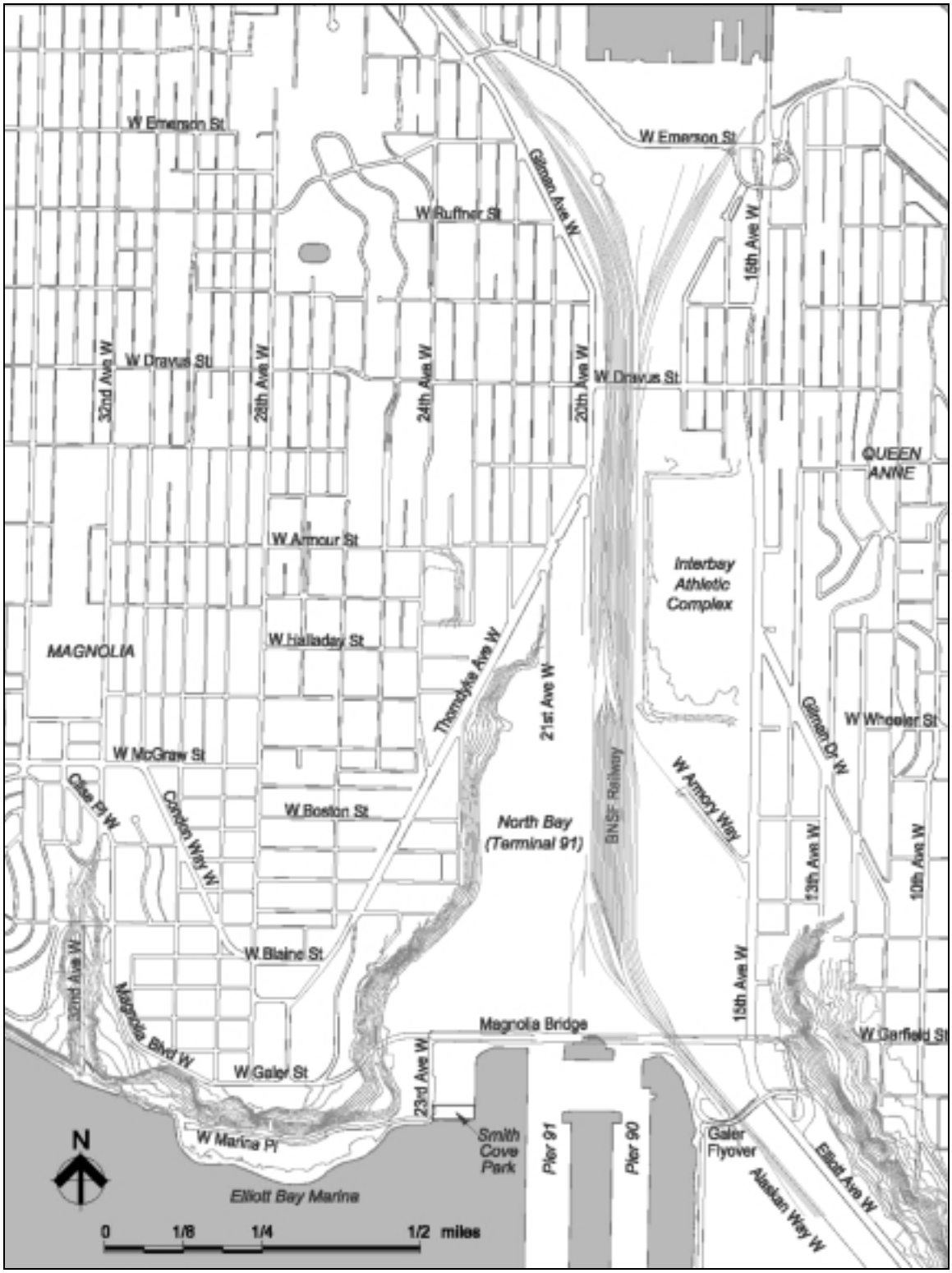


Figure 2
Study Area

Traffic Capacity

The three Magnolia community connections to the 15th Avenue West corridor are adequate for the present volume of traffic. Each of the three connections carries 30 to 35 percent of the 60,100 daily vehicle trips (2001 counts) in and out of the Magnolia community. Loss of the use of the Magnolia Bridge for several months after the February 2001 earthquake, and in 1997 following the landslide at the west end of the bridge, resulted in lengthy 15- to 30-minute delays and increased trip lengths for many of the users of the Magnolia Bridge. These users were required to use one of the two remaining bridges at West Dravus Street and West Emerson Street. Travel patterns in the Magnolia community changed substantially resulting in negative impacts on local neighborhood streets. The increase of traffic through the West Dravus Street and West Emerson Street connections also resulted in congestion and delay for the regular users of these routes. Losing the use of any one of these three bridges would result in redirected traffic volumes that would overwhelm the capacity of the remaining two bridges.

Modal Interrelationships

The Magnolia Bridge carries three of the four local transit routes serving Magnolia and downtown Seattle destinations. The topography of the east side of Magnolia, East Hill, would make access to the 15th Avenue West corridor via the West Dravus Street Bridge a circuitous route for transit. Use of the West Emerson Street connection to 15th Avenue West would add significant distance and travel time for most trips between Magnolia and downtown Seattle.

The Magnolia Bridge has pedestrian facilities connecting the Magnolia neighborhood to Smith Cove Park and Elliott Bay Marina as well as to 15th Avenue West/Elliott Avenue West. These facilities need to be maintained. The Elliott Bay multi-use trail connects Magnolia with downtown Seattle through Myrtle Edwards Park. The trail passes under the Magnolia Bridge along the west side of the BNSF rail yard, but there are no direct connections to the bridge.

Bicycle facilities on Magnolia Bridge need to be maintained or improved. Even with the steep (about 6.3 percent) grade, cyclists use the Magnolia Bridge in both directions. There are no bike lanes on the bridge, so cyclists use the traffic lanes and sidewalks. Once cyclists cross the bridge, they must either travel with motor vehicles on Elliott Avenue West or find a way back to the Elliott Bay Trail using local east-west streets such as the Galer Flyover.

Transportation Demand

The existing Magnolia Bridge provides automobile access for Port of Seattle North Bay (Terminal 91) to and from Elliott Avenue West/15th Avenue West. Truck access between Terminal 91 and Elliott Avenue West/15th Avenue West is accommodated via the Galer Flyover. Future planned expansion of the Amgen facility on Alaskan Way West and redevelopment of underutilized portions of North Bay and other areas of Interbay will increase demand for traffic access to the Elliott Avenue West/15th Avenue West corridor. The Port of Seattle has a master planning process under way (July 2003) for its North Bay (Terminal 91) property and the Washington National Guard property east of the BNSF Railway between West Garfield Street and West Armory Way. This area contains 82 acres available for redevelopment. There are also 20 or more acres of private property available for

redevelopment east of the BNSF Railway between West Wheeler Street and West Armory Way. Redevelopment of the North Bay property will include public surface streets with connections to the replacement for the Magnolia Bridge. Forecasts of future (year 2030) traffic demand indicate that the access provided by the Galer Flyover and West Dravus Street would be inadequate. The capacity provided by the existing Magnolia Bridge or its replacement would also be needed.

Legislation

Seattle Ordinance 120957, passed in October 2002, requires that the Magnolia Bridge Replacement Study: (1) identify possible additional surface roads from Magnolia to the waterfront (avoiding 15th Avenue West and the railroad tracks); (2) obtain community input on the proposed roads; and (3) identify the cost for such roads and include it in the total cost developed in the Magnolia Bridge Replacement Study.

An alignment study process was implemented to help identify the specific bridge replacement alternatives to be studied in the EIS. Twenty-five concepts were developed and screened against the project goals and objectives. This resulted in nine alignment alternatives, identified as A through I, that merited further analysis. These nine went through an extensive public review and comment process as well as project screening criteria and prioritization. Initially, the top four priority alternatives, A, B, D, and H, were identified to be studied in the EIS. Early on, Alternative B was eliminated because it became clear that it violated City shoreline policies and Federal Section 4(f) criteria. Upon detailed traffic analysis, Alternative H was eliminated because two key intersections were predicted to function at a level of service F and could not be mitigated. The next priority, Alternative C, was then carried forward for analysis in the EIS.

Independent of this project, a new north-south surface street will be constructed on Port of Seattle property connecting 21st Avenue West at the north end of North Bay with 23rd Avenue West near Smith Cove Park. In addition, a southbound ramp will be added to the Galer Flyover to accommodate eastbound to southbound Elliott Avenue West traffic movements. The Galer Flyover ramp has been identified as a needed improvement for expected future development of property west of the railroad tracks. Locations for new surface streets through the Port of Seattle property will be determined through the Port's master planning process for the North Bay property. The north-south surface street and ramp are assumed to exist under any Build Alternative, but they are not part of this environmental process.

Typical cross sections and plans of the Build and No Build Alternatives are located at the end of this section.

No Build Alternative

The No Build Alternative, shown in Figure 3 and Figure 5, would maintain the existing bridge structure in place with the existing connections at the east and west ends. Long-term strategies for maintaining the existing structure would be required for the No Build Alternative. To keep the existing bridge in service for over 10 years, the following would need to be accomplished:

- An in-depth inspection of the bridge would be required to determine needed repairs and a long-term maintenance program.
- Concrete repairs would be required. These repairs could include injection of epoxy grout into cracks, repair of spalled concrete, and replacement of deficient concrete and grout.
- Preservation measures to slow corrosion of the reinforcement would be required. These measures could include a cathodic protection system.
- Any structural elements that lack the capacity to carry a tractor-trailer truck with a 20-ton gross trailer weight would need to be identified, modeled, and strengthened.

Alternative A

Alternative A would replace the existing bridge with a new structure immediately south of the existing bridge as shown in Figure 4 and Figure 6. The alternative would construct a signalized, elevated intersection (Alternative A – Intersection) in the bridge's mid-span to provide access to the waterfront and the Port of Seattle North Bay property from both the east and west. Connections at the east and west ends of the bridge would be similar to the existing bridge.

An optional half-diamond interchange (Figure 7, Alternative A – Ramps) could be constructed in lieu of the elevated intersection to provide access to the waterfront and the Port of Seattle North Bay property to and from the east only.

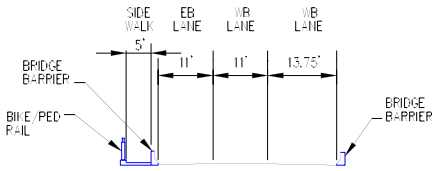
Alternative C

Alternative C would provide 2,200 feet of surface roadway within the Port of Seattle North Bay property between two structures as shown in Figure 4 and Figure 8. The alternative alignment would descend from Magnolia Bluff on a structure running along the toe of the slope. The alignment would reach the surface while next to the bluff before turning east to an intersection with the north-south surface street. The alignment would continue east from the intersection, turning south along the west side of the BNSF rail yard. The alignment would rise on fill and structure, turning east to cross the railroad tracks and connect to 15th Avenue West.

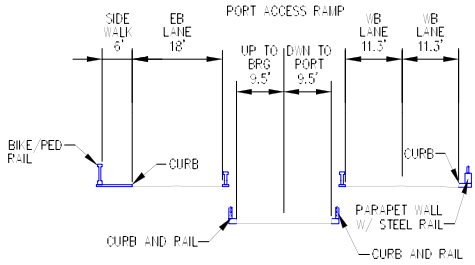
Alternative D

Alternative D would construct a new bridge in the form of a long arc north of the existing bridge as shown in Figure 4 and Figure 9. Connections at the east and west ends of the bridge would be similar to the existing bridge. This alternative would construct a signalized, elevated intersection (Alternative D – Intersection) in the bridge's mid-span to provide access to the waterfront and Port of Seattle North Bay property from both the east and west.

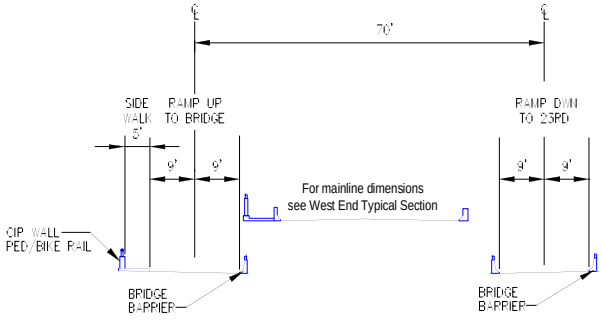
An optional half-diamond interchange (Figure 10, Alternative D – Ramps) could be constructed in lieu of the elevated intersection to provide access to the waterfront and the Port of Seattle North Bay property to and from the east only.



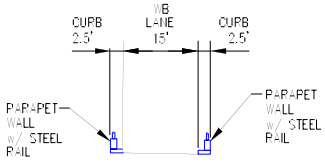
Bridge West End



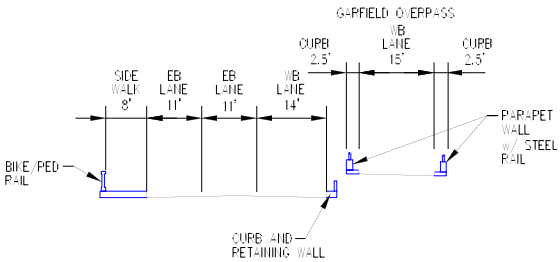
Ramp to Port Access



Ramps to 23rd Avenue West



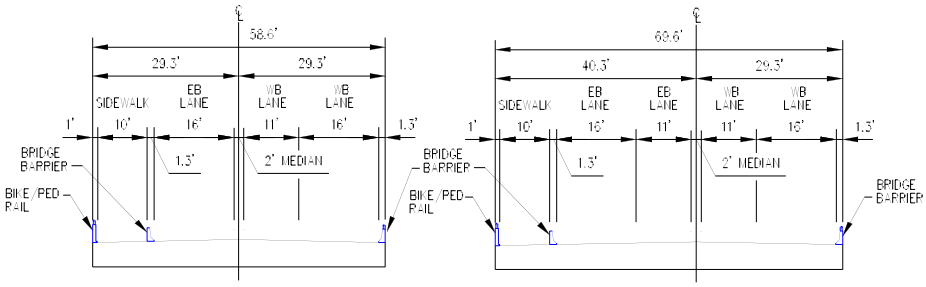
Garfield Overpass



15th Avenue West Connection
Eastbound Off-Ramp
Westbound On-Ramp

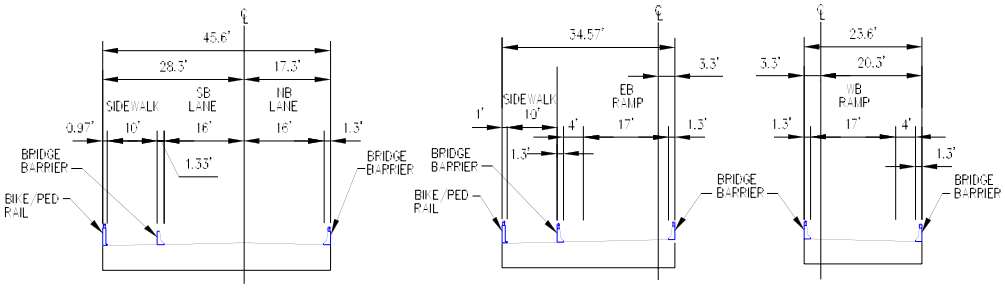
NOTE:
Dimensions are approximate and obtained from construction plans and aerial photographs. The information shown has not been field verified.

Figure 3
Typical Sections – No Build Alternative



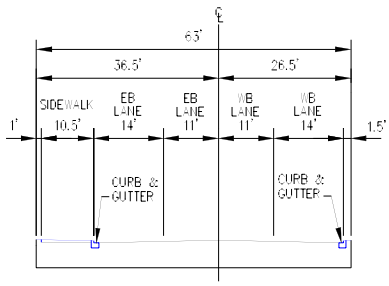
West End East End

Typical Bridge Structure

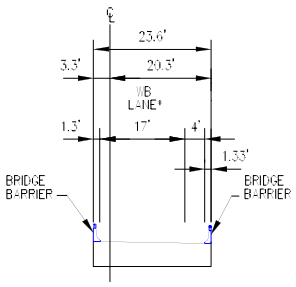


T-Ramp On-Ramp Off-Ramp

Typical A & D Intersection Option Typical A & D Ramp Option

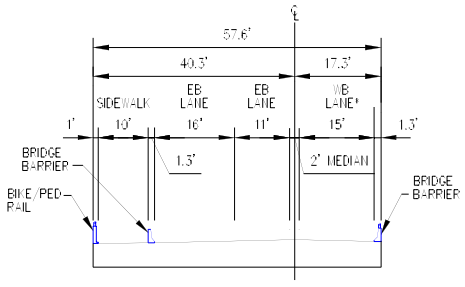


Typical Alternative C Surface Road



Garfield Overpass

* 15' Alternative C
19' Alternative D



15th Avenue West Connection

Eastbound Off-Ramp
Westbound On-Ramp

* 16' Alternative D

Figure 4
Typical Sections – Build Alternatives

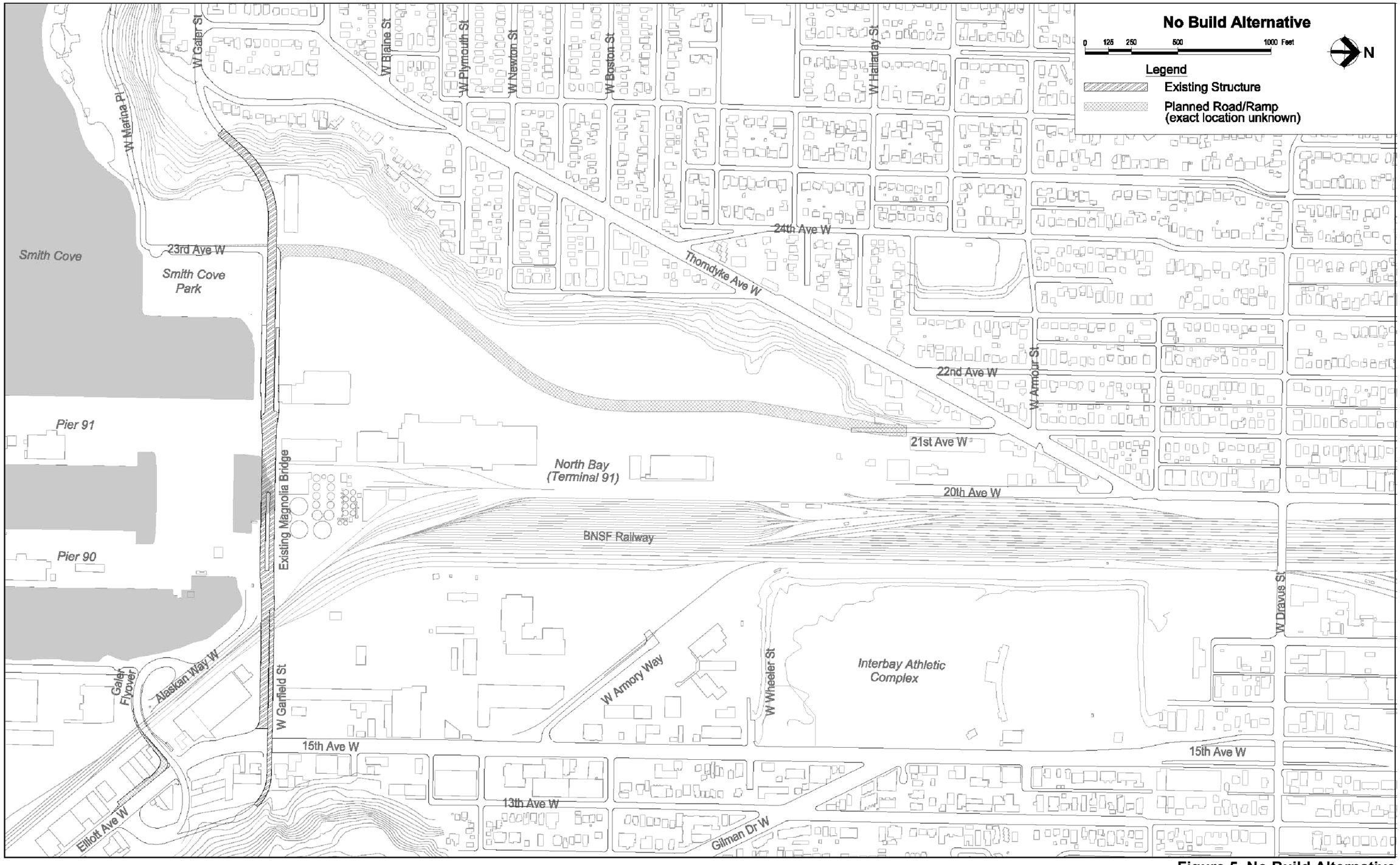


Figure 5 No Build Alternative

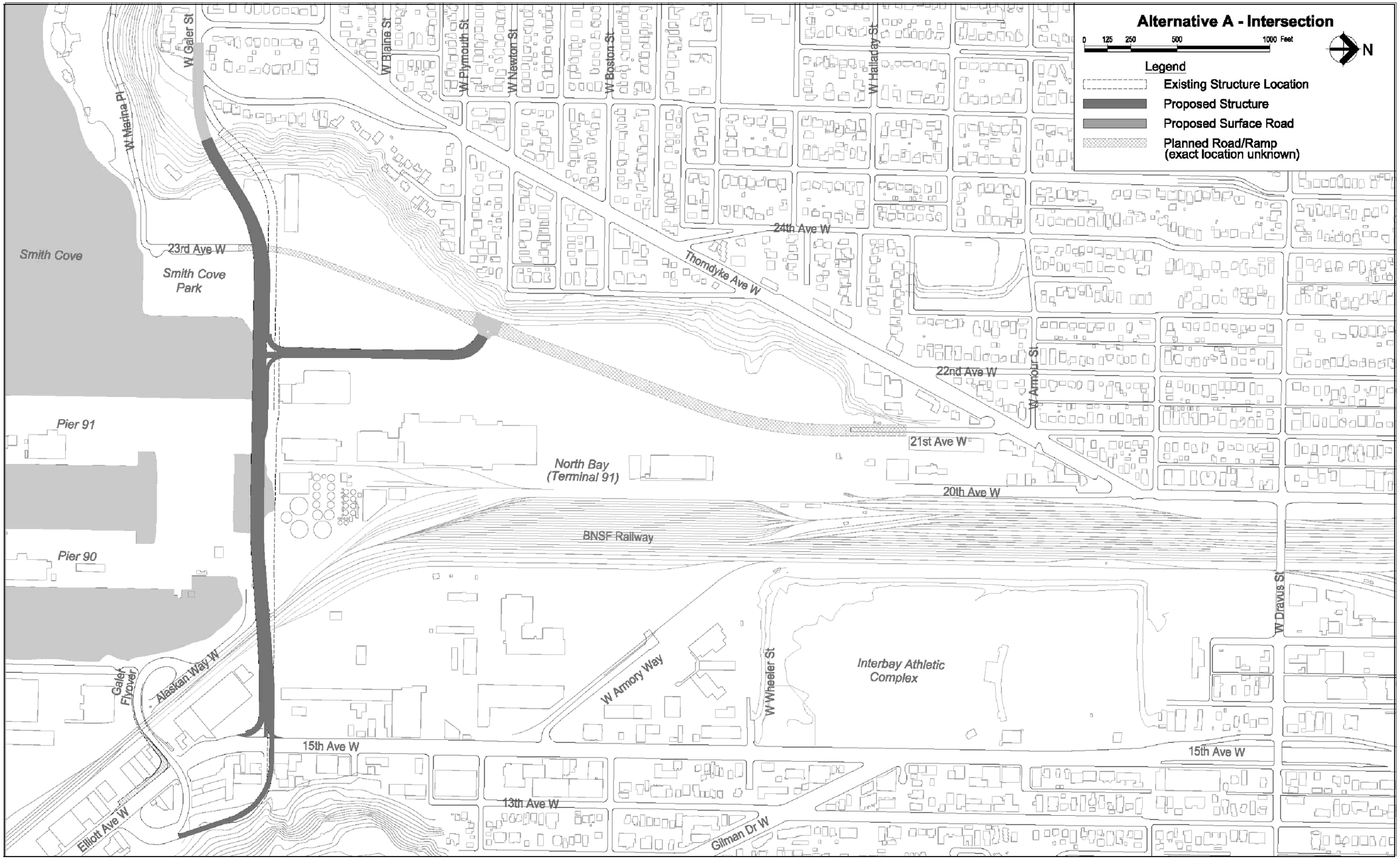


Figure 6 Alternative A - Intersection

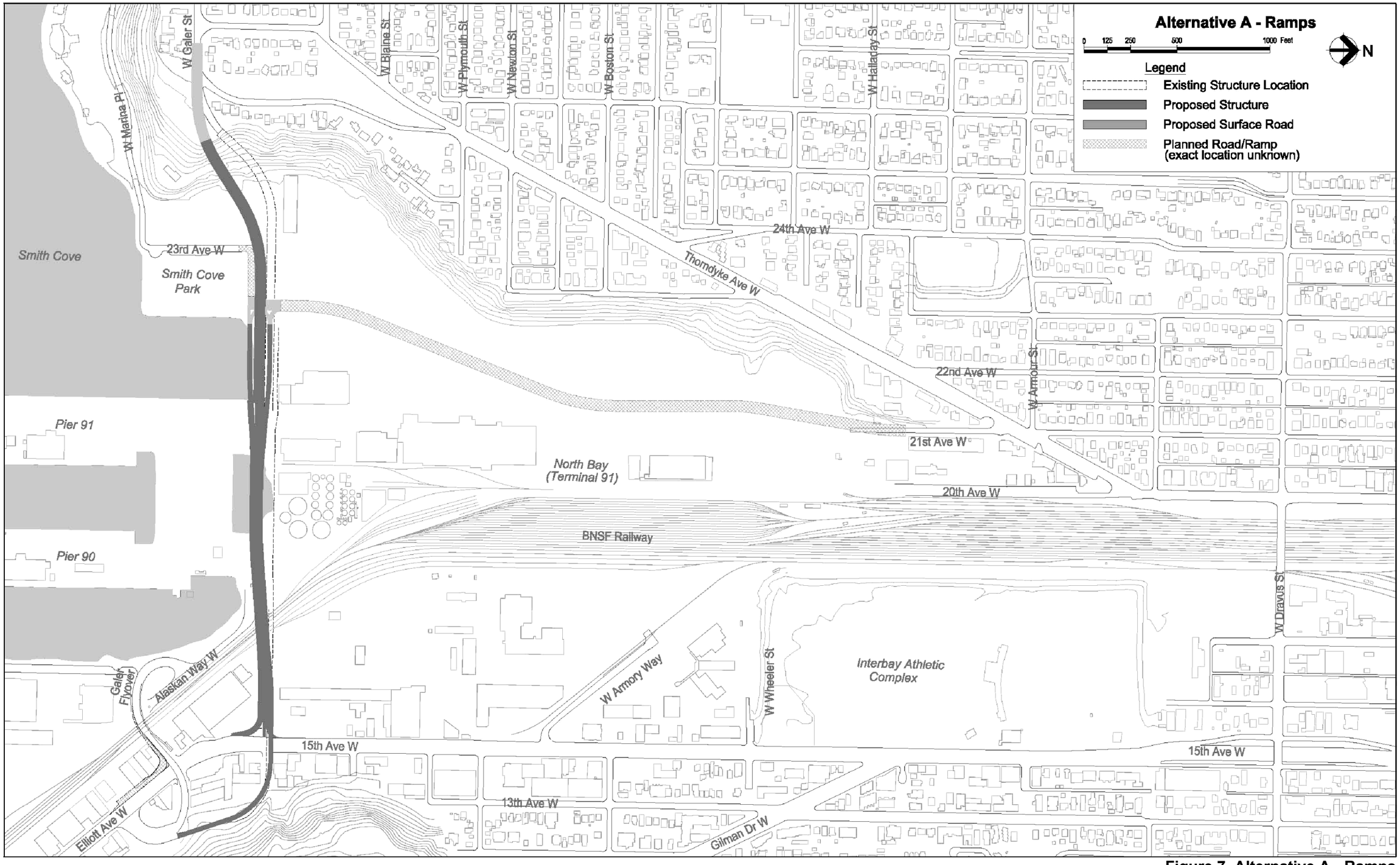


Figure 7 Alternative A - Ramps

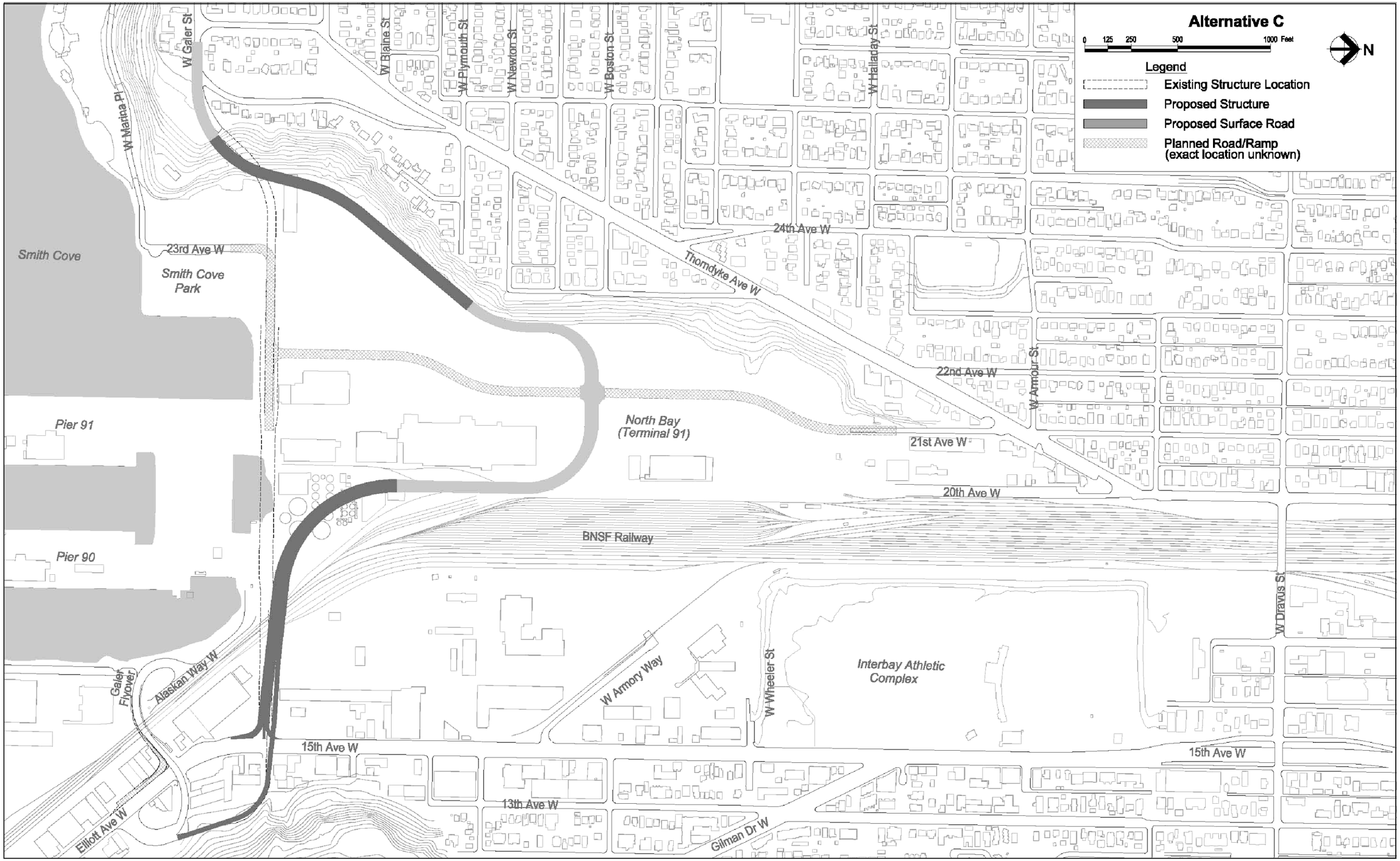


Figure 8 Alternative C

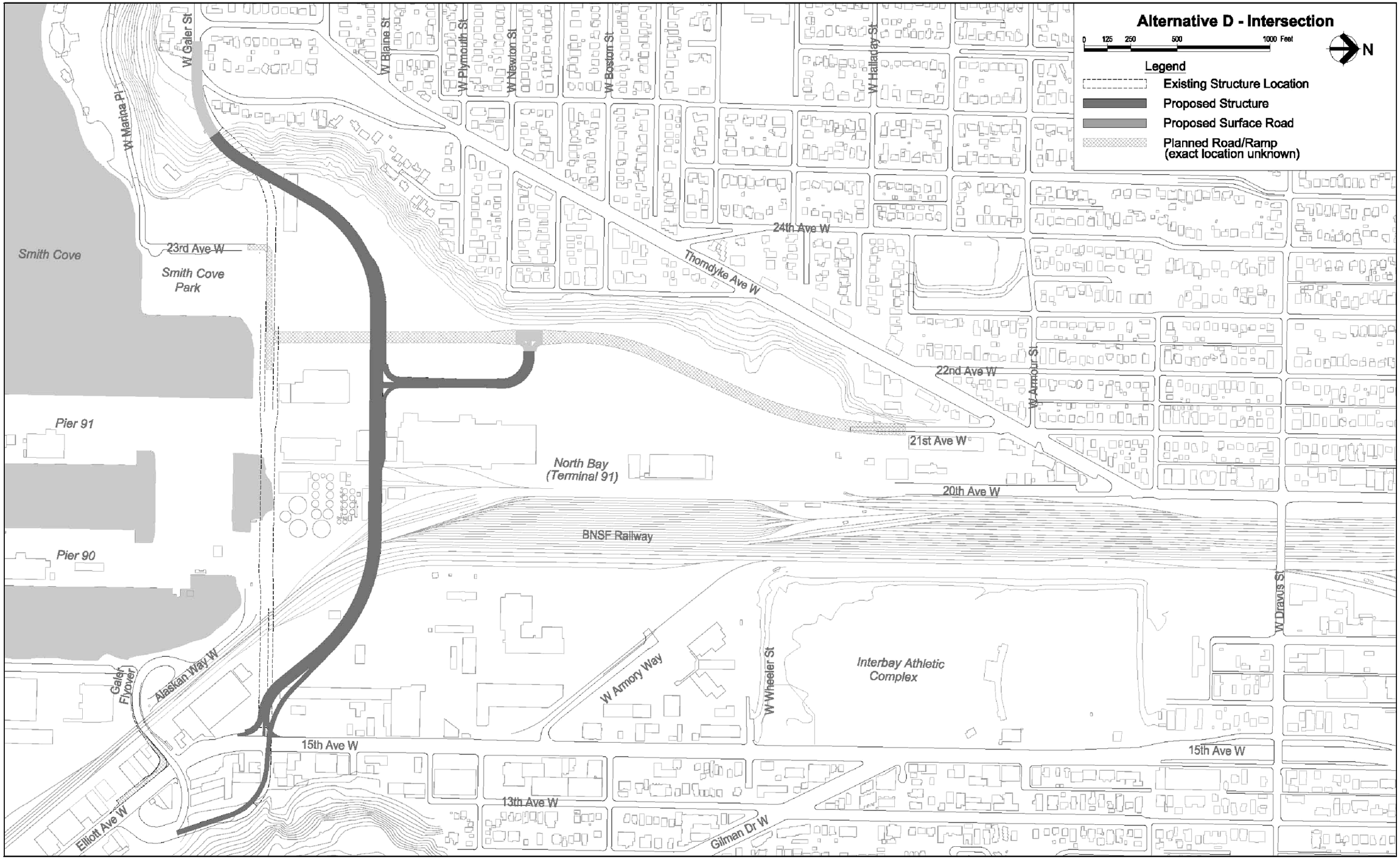


Figure 9 Alternative D - Intersection

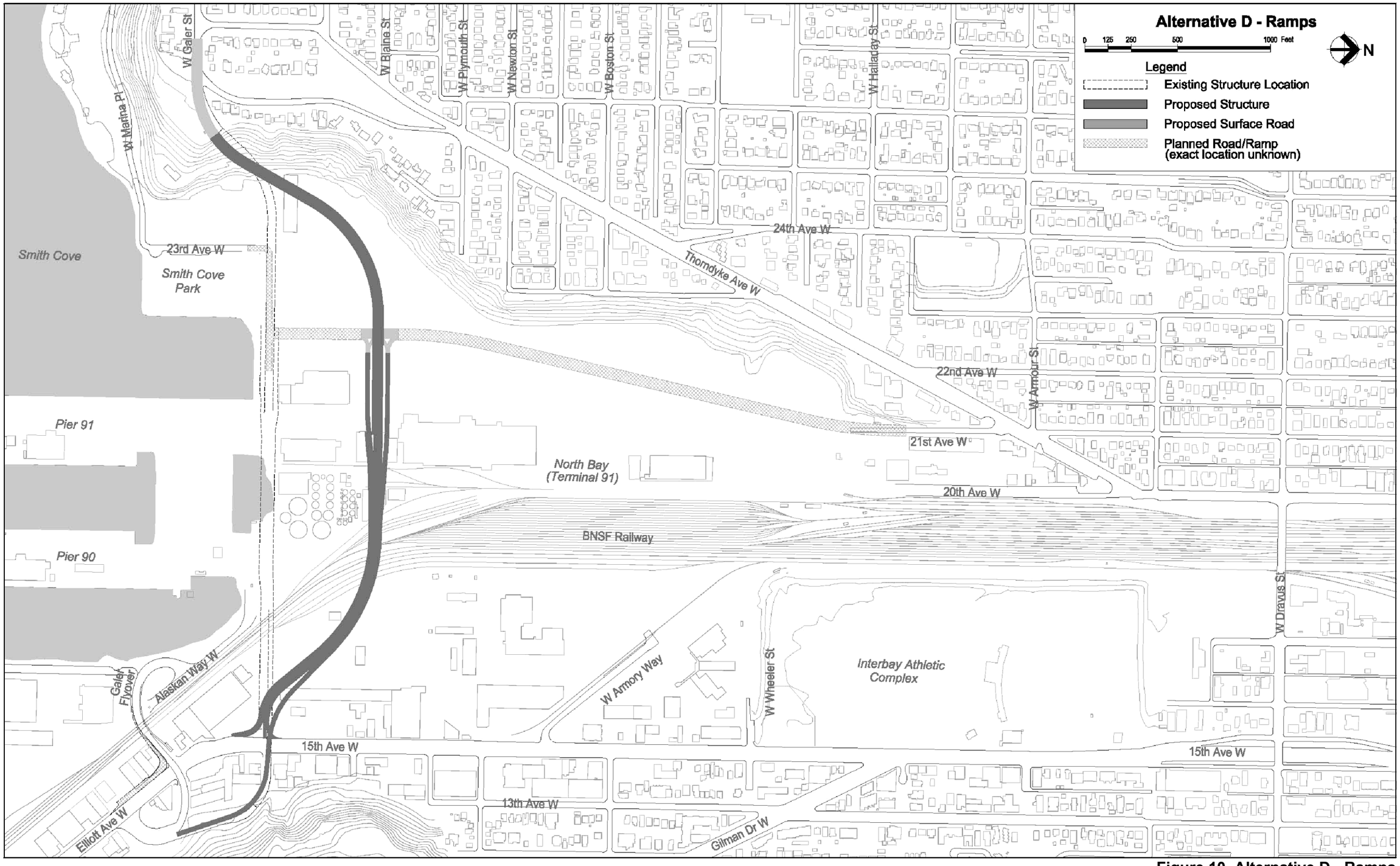


Figure 10 Alternative D - Ramps

This social, economic, and relocation discipline report has been prepared in accordance with the guidelines contained in Section 457 of the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual.* For purposes of this analysis, the study area includes that portion of the City of Seattle encompassing parts of the Magnolia, Interbay, and Queen Anne neighborhoods, as defined by 2000 U.S. Census Tracts 56.00, 57.00, 58.01, 58.02, 59.00, and 69.00 (see Figure 11). Census Tract 58.02 contains the area within which the alternatives would be constructed.

Social Conditions

Demographic information collected for the social conditions analysis was based primarily on the 2000 U.S. Census data and Puget Sound Regional Council (PSRC) forecasts. Census data has been used to describe the characteristics of the existing population (age, disability, household income) and housing (number, type, tenure) in the study area. The 2000 U.S. Census is the most accurate and complete source for data on household income, as well as race and ethnicity that is compiled at the census tract level. The PSRC forecasts were consulted to evaluate future population and household growth predicted for the study area. Local land use plans and studies, and field investigations were used to provide information on existing development patterns and community characteristics. Field investigations were also conducted for some observations related to community cohesion and mobility. These investigations involved drive-by surveys of the surrounding residential neighborhoods and business districts as well as the project site. Dex Online Directory, the official directory of Qwest, the local telecommunications provider, was used to research the location of educational, social, medical, and religious institutions in the study area.

Economic Conditions

This section provides an overview of the study area, data sources, and methods used to assess the economic impacts of the bridge alternatives. The study area defined above for the alternative bridge location analysis was also used to assess the economic impacts. The economic impacts of the project on those businesses affected by each alternative were assessed on a case-by-case basis and, where appropriate, economic consequences beyond the formally designated study area have been evaluated. Much of the economic analysis focuses on Census Tract 58.02 (Figure 11), which encompasses the footprints of all of the bridge replacement alternatives. The industrial and marine businesses located within this census tract on Port of Seattle property would be affected by the bridge replacement project. Some data for this report are available only by PSRC Forecast Analysis Zone (FAZ)[1]. Figure 11 shows the FAZs that compose the study area.

1 FAZ is a Forecast Analysis Zone as used in the PSRC's long-range forecasting models and in PSRC's data and modeling database.

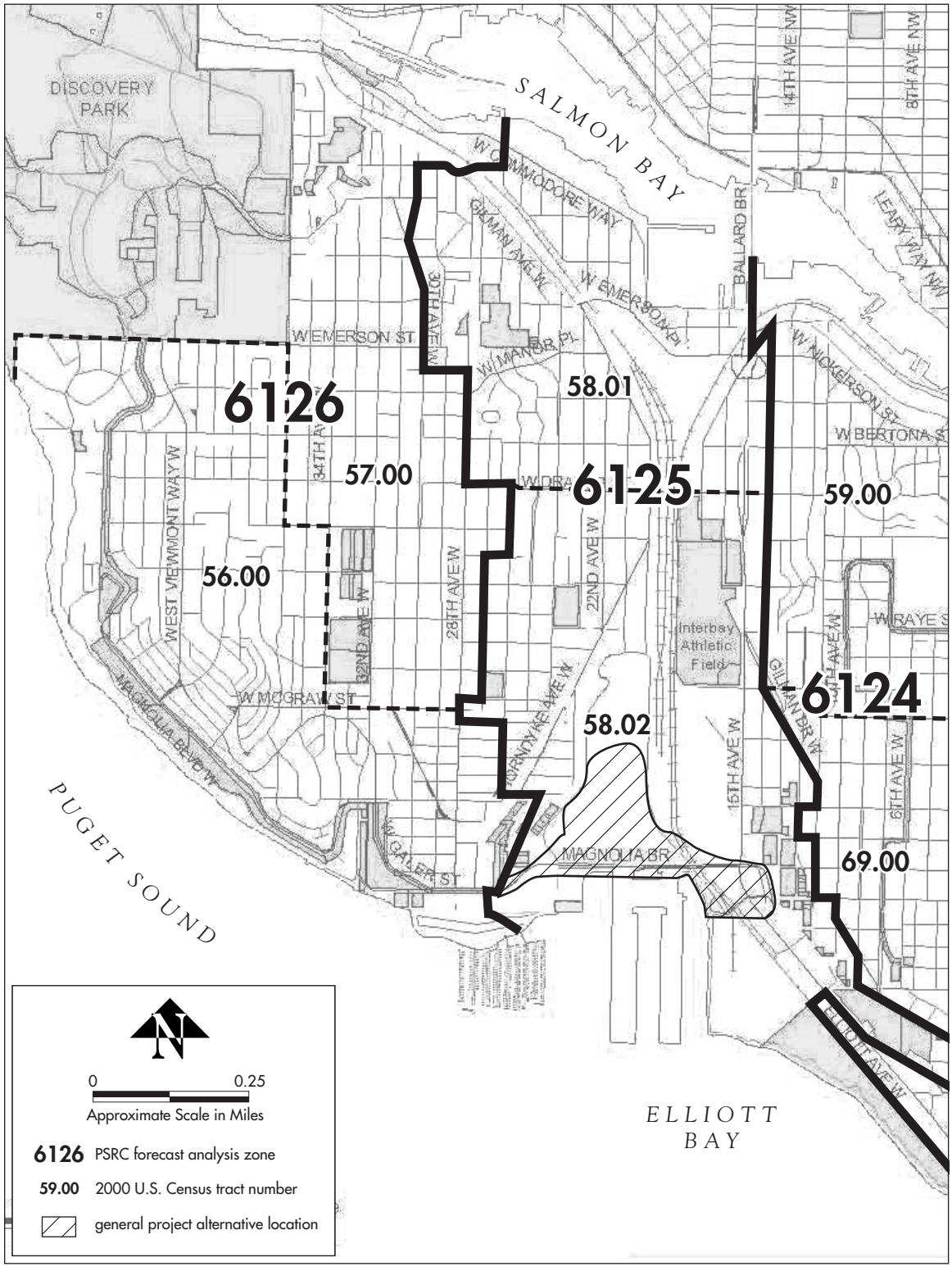


Figure 11
Study Area Census Tracts and Forecast Analysis Zones

The economic information provided in this report was compiled from a variety of sources. The economic overview was summarized from a number of publications available through the PSRC and the Washington State Employment Security Department. Direct and indirect effects on businesses in the study area were evaluated for both the construction and operation phases of the project. Direct economic effects on a business would occur if an alternative would displace a building or property, or change access. Indirect impacts would occur if business activities were affected by other factors, such as vibration, noise, or exposure to hazardous materials. Those businesses or property owners that would experience direct displacements or access changes were contacted, and representatives from the businesses were interviewed. Five business owners/managers and one property owner were interviewed to determine economic impacts from each of the alternatives.

Multiple sources of employment data were used to develop a reliable estimate of employment for the businesses affected by the alternatives. Employment information was primarily obtained through State of Washington Employment Security (ES-202) data available from the PSRC. In addition, a field reconnaissance was conducted to verify data, and independent commercial sources of employment data were consulted to cross-check employment levels[2] A list of the type of firms affected by the Magnolia Bridge Replacement Project was compared to data supplied by infoUSA.com.

The "cluster analysis" included a number of steps. First, a list of companies was compiled from two primary sources: (1) Workboat.com, an online resource for the commercial marine industry containing a database of marine-related companies, and (2) References USA Business Directory Database by SIC (Standard Industrial Classification) Code, an Internet-based reference service from the Library Division of infoUSA.com[3]. Second, preliminary employment figures for the cluster analysis were derived from Reference USA-recorded ranges for employees. Final estimates were based on industry knowledge and Dun & Bradstreet searches, which were compared to the information developed through other sources consulted in support of this analysis. An estimate of the non-employer companies in the industry was produced from a review of the 2001 Economic Census non-employer data. Reference USA-recorded ranges for employees were then reviewed to estimate the proportion of these self-employed businesses that are located in Seattle. This database indicated that approximately half the self-employed businesses in King County are in Seattle (InfoUSA 2003).

The data for employment in Seattle and sales by company came from several sources including the USA Business Directory, Dun & Bradstreet, Experian, Worldbase, and in one case a Web search by ECONorthwest. Additional data were derived through corporate reporting forms. Employment numbers cause some difficulty because the location employment number may include some workers who are primarily employed at sea. Those employees bring pay into Seattle; however, the residency of their employment is technically the home office from where the ships

2 The nature of employment in this area is highly seasonal, thus employment levels are subject to extreme variability at different times during the year. Additionally, ES-202 data are based on unemployment insurance tax reports, which do not include self-employed individuals, farm labor (that meet specific conditions), domestic service (that meet specific conditions), and some employment on American or foreign vessels that engage in interstate, foreign, or high seas navigation.

3 Questionable companies from the two sources were verified through Web site searches and individual inspection.

are directed, which could be Seattle but may also be some other city. Thus, although it is possible to estimate employment associated with the maritime cluster in Seattle, it is impossible to accurately state the exact Seattle employment effect[4].

Interviews with Affected Businesses

For the purposes of analyzing potential long-term impacts on businesses in the Interbay area, ECONorthwest conducted interviews with the five businesses and one landowner that would be affected under Alternatives A, C. and D. These businesses were determined by first locating land parcels crossed by each alternative alignment. Buildings that could be affected on each parcel were then identified. Businesses were matched to each building through land parcel information and a field check. Once identified, each business was contacted to determine the appropriate manager or owner who should be present for the interview, and an interview time was scheduled. Only those owners or managers were interviewed whose company's building and/or land could be removed or whose access could be affected.

ECONorthwest interviewed representatives of the following companies. The location of these companies is shown in Figure 12.

- **Snider Petroleum (Bryan Snider, President).** Snider Petroleum is a petroleum distributor that sells gasoline, fuels, and lubricants. The company's Interbay facility primarily stores, repackages, and distributes lubricants.
- **Trident Seafoods (Ron Hildebrandt, Senior Director of Logistics).** Trident is the largest frozen seafood processing company in the United States. Operations include seafood processing, cold storage for distribution, and some long-term storage.
- **Anthony's Seafood Distributing (Tim Ferleman, Operations Manager).** Anthony's Restaurants Fresh Seafood Distributing buys all the seafood for, and distributes it to, the 16 Anthony's Restaurants in Washington State.
- **Tsubota Family/Opus (Leeanne Tsubota, Representative, and Ron Sudderth, Representative)[5].** The Tsubota family currently owns 4.2 acres of land along 15th Avenue West, which abuts the north side of the existing Magnolia Bridge. This land is being considered for future commercial development.
- **City Ice (Kim Suelzle, President).** City Ice is a public cold storage warehouse that provides warehouse space for customers at -10 degrees Fahrenheit. The company owns five buildings in the Interbay area. City Ice almost exclusively (99 percent) stores seafood. The capacity of City Ice facilities allows its customers to catch large amounts of seafood and store it at City Ice until it is processed or sold.

4 For information that was reported in a range, numbers were chosen close to the middle of that range (e.g., if employees were listed as one to four, two were assumed, or if sales was listed as under $500,000, $200,000 was assumed).

5 The Tsubota family property currently has two tenants who have not been included in the interviews. The property is optioned by Opus, a development group, and if purchased the tenants will not remain on site. Therefore, the Tsubota family property has been omitted from the following business discussions as they have no pertinent information to include. However, a general discussion of the effect of the alternatives on this property is included.

- **Independent Packers (Jeff Buske, President).** Independent Packers is a custom seafood processor that turns both fresh and frozen product into any form.

Questionnaire

Topics covered during the interviews were designed to obtain information regarding the general operation of each company, the types of employees, and how each company could possibly be affected by relocation or restricted access. The following list summarizes the questions that were asked. See Appendix A for the full questionnaire.

General Questions

- Description of business/services/products
- Length of time in business and location

Employment

- Number of employees
- Types of jobs they perform
- Percentage of ethnicity/disadvantaged
- Travel methods to and from work

Current Operations

- To whom products are sold
- How/where products are shipped
- Supplies needed for business
- How supplies are received
- Where they are received from
- Special access issues
- Important influencing factors (e.g., proximity to raw materials or customers, utility costs, expansion opportunities, transportation access,)

Relocation Effects

- Importance of location
- Amount of time needed for transition if moved
- Degree of difficulty of physically relocating
- Effect of relocation on employees
- Specific complications
- Whether or not business would close due to relocation

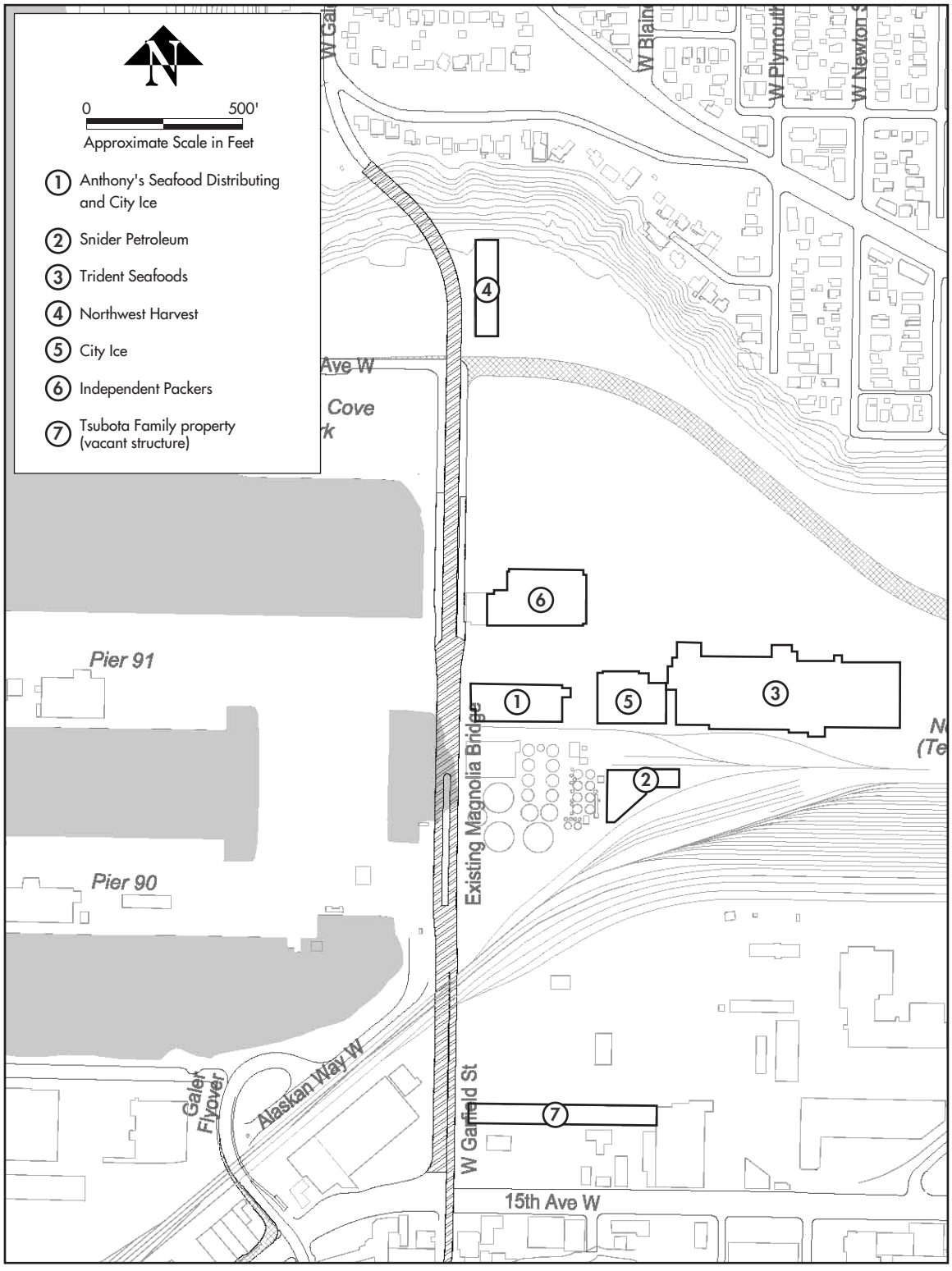


Figure 12
Potentially Affected Study Area Businesses and Structures

Taxes and Revenues

- Taxes paid annually (Sales and B&O)
- Wages and salaries paid annually
- Annual revenue generated

Mitigation

- Problems associated with each alternative
- Suggestions for alterations that might decrease problems
- Other additional information

Construction Analysis

Potential construction impacts resulting from the Magnolia Bridge Replacement Project are complex and depend on a myriad of factors, such as the development timeline, funding sources, and construction methods and materials. Because the construction cost estimates are preliminary (less than 5 percent of the design work has been completed), these complexities most likely will be determined at later stages in the design process. Therefore, current estimates of the economic impacts assume that the project's construction cost estimates are associated with new, non-local dollars flowing into the four-county Seattle metropolitan region economy as a result of the proposed bridge replacement project. These "net" dollars are purchases by outside entities (e.g., federal transfer payments and state of Washington highway construction funds) that would not occur in the four-county region if the proposed project were not constructed.

ECONorthwest used a specially constructed input-output model of the four-county Seattle metropolitan region's economy to trace the effects (economic impacts) associated with these construction funding sources and the activity they generate. Specifically, ECONorthwest used the IMPLAN (for IMpact Analysis for PLANning) modeling software.[6]

The IMPLAN model reports the following economic impacts:

- Output includes expenditures on all goods and services (direct, indirect, and induced), including both business and other income.
- Labor income includes workers' wages and salaries, other benefits such as health and life insurance, and retirement payments (exclusive of FICA).
- Jobs include both full- and part-time employment.

[6] IMPLAN was developed by the Forest Service in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management to assist federal agencies in their land and resource management planning. Applications of IMPLAN by the U.S. Government, public agencies, and private firms span a wide range of projects from broad, resource management strategies to individual projects, such as proposals for developing ski areas, coal mines, and transportation facilities, and harvesting timber or other resources. ECONorthwest has applied the model to a variety of public- and private-sector projects including various programmatic and project-level impact evaluations in the states of Oregon and Washington.

- Taxes include indirect business taxes (e.g., motor vehicle, property, sales, business and operation, severance), personal taxes (e.g., motor vehicle, property), and various social insurance taxes (e.g., employee and employer contributions to FICA).

Construction impacts are described for each of the three bridge replacement alternatives (Alternatives A, C, and D). Alternatives A and D each have an "intersection" option where structural costs include an elevated intersection and a "ramp" option in which the intersection is at-grade and ramps are used to bring traffic from the elevated sections of the proposed bridge replacement to an at-grade intersection.

Construction impacts associated with structures of this magnitude and composition were estimated using the IMPLAN model and data generally available for King, Snohomish, Pierce, and Kitsap counties. The construction costs required to replace the Magnolia Bridge under each of the three alternatives (including both the "ramp" and "intersection" variants) are based on engineering estimates provided by HNTB and its subcontractors. Estimates of the economic and fiscal impacts on the regional economy associated with the proposed project are based on these generalized cost estimates. The costs of constructing each alternative and option are presented in Table 1.

Table 1
Cost Estimates for Magnolia Bridge Replacement Alternatives

Alternative/Option	Roadway	Detour	Demolition	Structure	Total
A – Intersection	$3,480,000	$1,460,000	$9,600,000	$73,300,000	$90,800,000
A – Ramps	$1,920,000	$1,460,000	$9,600,000	$66,700,000	$79,700,000
C	$5,450,000	$1,360,000	$9,600,000	$61,100,000	$77,500,000
D – Intersection	$4,250,000	$1,540,000	$9,600,000	$83,400,000	$98,800,000
D – Ramps	$1,850,000	$1,540,000	$9,600,000	$77,600,000	$90,600,000

Source: Data from HNTB, 2004.

No information concerning the timing or sequencing of construction, the amount of local versus non-local material or labor, or the composition of materials (e.g., steel versus concrete) was available at the time these economic impact estimates were developed. Therefore, the economic impacts reported in this document reflect default settings in IMPLAN and the "top-line" cost estimates provided by HNTB.[7] As more details concerning the design of the alternatives considered for bridge reconstruction become available, refinements and revisions in the construction impact assessment would be evaluated and, if appropriate, estimates would be recomputed using the more detailed data.

Relocation

The relocation analysis has been prepared in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, which establishes a uniform policy for the fair and equitable treatment of

[7] For those components of construction related to elevated structures, we used the "bridge construction" default settings in IMPLAN. For ramp and approach construction elements we used the "street construction" default settings in IMPLAN.

individuals and businesses displaced as a direct result of programs or projects undertaken by a federal agency. The primary purpose of this act is to ensure that individuals do not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement.

Relocation requirements for the alternatives were determined based on preliminary roadway plans and areas of new right-of-way. Potentially displaced structures were verified in the field. No residential displacements would occur under any of the alternatives. This analysis, therefore, addresses effects on businesses resulting from displacement of structures, changes in access, and potential business disruption from factors such as noise, vibration, and exposure to hazardous materials.

The effect of business displacement on employment in the study area has also been considered. Interviews with potentially affected businesses owners were conducted to determine business relocation requirements and to evaluate the availability of suitable/comparable sites for relocation within reasonable proximity of the alternative alignments.

Coordination with Community Leaders, Local Agencies, and Organizations

Ongoing coordination with community leaders and local organizations has occurred since the beginning of the Magnolia Bridge Replacement Project (fall of 2002). A series of project briefings and updates has been held with the Seattle City Council Transportation Committee, the Seattle Design Commission, and the Seattle Port Commission. In addition, the project team has made presentations to and solicited input from several local community organizations and citizen groups. These groups include the Magnolia Chamber of Commerce, the Seattle Port Neighborhood Advisory Committee, the Queen Anne Transportation Committee, the Queen Anne Chamber of Commerce, the Queen Anne/Magnolia District Council, the Ballard Interbay Northend Manufacturing and Industrial Center Action Committee, and the North Seattle Industrial Council. Finally, a Design Advisory Group, consisting of representatives from local organizations, has been in place throughout the project and has provided input in developing the alternatives. See Table 2 in the Public Involvement and Interaction section for a list of public meetings and meeting dates for the project.

Studies and Data Sources

Documents and studies reviewed included:

- Assortment of Lifestyles Lends Charm to Area, Mark Higgins, 1997.
- Ballard Interbay Northend Manufacturing and Industrial Center Plan, 1998.
- Basic Industries Cluster Analysis Study, City of Seattle, written by Berk & Associates for the Office of Economic Development, January 2004.
- City of Seattle Comprehensive Plan, 1994-2014.
- Commons/South Lake Union Development Fiscal Impact Analysis, Final Report, Gibson Economics Inc., November 1994.
- Economic Forecaster, Dick Conway and Doug Pedersen, 2003.

- Final Environmental Impact Statement for Central Link Light Rail Transit Project, Central Puget Sound Regional Transit Authority, November 1999.
- King County Economic Profile, Labor Market and Economic Analysis (LMEA) Branch of the Washington State Employment Security Department, March 2001.
- Looking at Neighborhoods – Observations from Successful Neighborhoods in Seattle, Robert Foxworthy, 1997.
- Park is a Slice of Wilderness Inside the City, Mark Higgins, 1997.
- Port of Seattle Harbor Development Strategy 21, 2001
- Potential Economic and Fiscal Impacts of South Lake Union Development, Draft Report, Paul Sommers, Ph.D., December 2003.
- Preliminary Economic Impact of the Southern Tier Expressway: Western Portion, Southern Tier West Regional Planning and Development Board, Economic Development Research Group, Inc., and Cambridge Systematics, Inc., 2003.
- Puget Sound Milestones: Central Puget Sound Regional Economic Profile, Puget Sound Regional Council, March 2003.
- Queen Anne Plan – The Neighborhood Plan for the Community of Queen Anne, Queen Anne Neighborhood Planning Committee, 1998.
- Seattle's Original North District: Queen Anne, Roberta Cruger, 2002.
- Seattle Parks and Recreation Plan 2000.
- South Lake Union Development Investments and Revenues Report, Draft Report, City of Seattle Office of Policy and Management, December 2003.

Data sources included:

- U.S. Census 2000
- PSRC Report Tables Compiling U.S. Census 2000 Summary File 3 data for Washington State.
- PSRC Small Area Forecasts of Population and Housing for the Central Puget Sound Region.
- Washington State Office of Financial Management (OFM) 2003 Population Estimates for Washington State.
- 2002 ES-202 employment data from the Puget Sound Regional Council
- Interviews of affected business owners, County, and City government officials
- Real Estate property tax from the King County Finance and Business Operations Division
- Regional Economic and Demographic Data Base, Modeling, and Forecasting: Data Base for Puget Sound Region Specification of STEP02 Long-Range Forecasts for Puget Sound Region, Puget Sound Regional Council, 2002.

- Personal property tax (King County Assessors Office and ECONorthwest interviews)
- Sales tax (City of Seattle and ECONorthwest interviews)
- B&O tax (City of Seattle and ECONorthwest interviews)
- Workboat.com
- References USA Business Directory Database from the Library Division of InfoUSA
- Dun & Bradstreet
- InfoUSA firm data
- Dex online directory (URL: http://www.dexonline.com/)

Major Assumptions

Because the project alternatives would not create additional traffic capacity, this analysis assumes that the alternatives would not induce population or housing growth in the study area and would not increase demand for public services or recreational facilities. The study area is expected to grow at less than 1 percent per year as allowed by current City of Seattle land use plans and zoning (Puget Sound Regional Council 2003c). The same amount of growth would occur under the No Build Alternative and the Build Alternatives.

This analysis assumes that the Port of Seattle North Bay property will be developed consistent with current industrial zoning for the site, which will allow industrial and commercial development but not residential development.

Public Involvement and Interaction

This section summarizes public involvement activities and describes efforts that have occurred to identify and contact minority, low-income, and linguistically isolated communities and individuals in potentially affected areas. For more information, see the Public Involvement Plan for this project, which is included as an appendix to the Final Study Plan.

General Public Involvement Activities

Stakeholder Interviews

Approximately 25 people identified as stakeholders were interviewed at the project's outset in the fall of 2002 to help the team understand key issues and concerns. Those individuals interviewed were affiliated with local community organizations, businesses, and public service providers.

Comments Database

At the beginning of the Magnolia Bridge Replacement Project (fall of 2002), an electronic database was created to capture public and agency input submitted in many different formats. This database allowed those entering comments to "code" them based on the topics that they addressed. The database also allowed users to generate mailing and e-mail lists to notify interested people of project updates and opportunities for involvement. Several forms of input were gathered and entered in the database, including information from comment forms distributed at public meetings, comments submitted to the project Web site, e-mails to project team members, letters and attachments, petitions, telephone calls to team members, and scoping meeting transcripts.

Environmental Impact Statement Scoping Meetings

The State Environmental Policy Act (SEPA) and National Environmental Policy Act (NEPA) require the publication of official scoping notices through separate, legally mandated processes, and scoping meetings for interested agency personnel and the public are required. Environmental Impact Statement (EIS) scoping meetings for agencies and the public were held on May 22, 2003. The agency meeting was held from 10:30 AM to noon, and was followed by a bus tour of the study area. The public meeting was held that same evening from 5:30 to 8:30 PM, and included an open house, a presentation, and the opportunity for attendees to make formal oral comments to a court reporter.

Project Meetings

A series of meetings has been held to acquaint local community, government, and business groups with the project, to keep them informed of progress, and to solicit public input on design alternatives. Meetings held through mid-December 2006 are listed in Table 2 along with a brief description of their intent and the date on which each occurred.

Table 2
Project Meetings

Meeting	Description	Date(s)
City of Seattle Council	Briefings of the Transportation Committee	9/25/02, 12/17/02, 3/4/03, 12/2/03, 7/27/04, 4/11/06, 12/12/06
Public Open Houses	All-community meetings designed to inform the public about the project and solicit input for alternative development	10/9/02, 12/5/02, 11/20/03, 10/26/04, 11/29/05, 9/13/06
Design Advisory Group	Ongoing meetings with representatives from local organizations to solicit input on project alternatives.	10/2/02. 11/6/02, 12/4/02. 1/8/03. 2/5/03, 3/5/03, 5/7/03. 6/3/03, 9/10/03, 11/5/03, 2/4/04, 3/3/04, 5/5/04, 6/2/04, 10/6/04, 2/2/05, 6/1/05/, 10/5/05, 11/2/05, 12/7/05, 4/5/06, 5/3/06, 6/7/06, 7/5/06, 8/2/06, 9/6/06, 10/4/06
EIS Scoping Meetings	Meetings with the public and agency representatives to gather comment on what should be studied during the EIS process.	5/22/03
Seattle Design Commission	Briefing to solicit input on project progress	10/17/02, 4/17/03, 7/15/04, 12/1/05, 10/5/06
Queen Anne Transportation Committee	Project briefing	10/30/02, 9/24/03, 11/30/05
Queen Anne Chamber of Commerce Board	Project briefing	11/5/02
Port of Seattle Commission or Executives	Project briefings at Commission and executive levels to inform and solicit feedback	6/11/02, 11/20/02, 12/10/02, 1/15/03, 2/11/03, 11/11/03, 11/9/06
Port of Seattle Neighborhood Advisory Committee	Project briefing	11/20/02, 10/15/03
Port of Seattle's Transportation Forum	Project briefing	11/6/03
Port of Seattle Public Open House	Project briefing	11/16/04
Magnolia Chamber of Commerce	Project briefing	11/21/02, 2/13/03, 5/11/06
Queen Anne/Magnolia District Council	Project briefing	12/2/02, 4/14/03, 10/14/03, 1/12/04, 7/12/04, 11/14/05
Ballard Interbay Northend Manufacturing and Industrial Center Action Committee	Project briefing	12/11/02, 4/9/03, 11/12/03, 3/10/04, 11/2/05
North Seattle Industrial Association	Project briefing	6/25/02, 11/25/03
Seattle Freight Mobility Advisory Council	Project briefing	10/21/03
15th Avenue Corridor Business Briefing	Project briefing targeting business people along the 15th Ave/Elliott Ave corridor	12/11/02
Elliot Bay Marina Business Briefing	Project briefing targeting business people from Palisades,/ Elliot Bay Marinas	5/18/06
Mayor's Marine Industrial Conference	Project Briefing	6/30/04
Magnolia Community Club	Project briefing	2/13/03, 3/11/04, 2/10/05
Magnolia Farmers Market	Project briefing	9/27/03, 10/11/03, 7/24/04, 7/31/04, 8/21/04, 9/18/04, 7/16/05, 8/20/05, 9/17/05, 6/24/06, 7/15/06, 9/16/06
Magnolia Summer Festival	Project briefing	8/1/03, 8/2/03, 8/6/04, 8/7/04, 8/6/05, 8/7/05, 8/4/06, 8/5/06
32nd Ave W Neighborhood	Targeted neighborhood briefing	2/19/03
Thorndyke Ave W Neighborhood	Targeted neighborhood briefing	3/11/03
W Wheeler St Neighborhood	Targeted neighborhood briefing	3/19/03
Interbay P-Patch	Targeted neighborhood briefing	5/13/03, 10/21/03
Galer St Neighborhood	Targeted neighborhood briefing	4/16/03, 12/10/03
Trident Seafoods	Targeted employee briefing	5/6/04

Source: City of Seattle, 2006.

Source: City of Seattle 2005.

Tribal Consultation

As part of the Section 106 process for historic and cultural resources, the federal lead agency, the Federal Highway Administration (FHWA), is required to make formal government-to-government consultation with potentially affected tribes. The project alternatives are located within the ceded territory and the "usual and accustomed areas" of the Suquamish Tribe, Tulalip Tribes, Muckleshoot Tribe, Yakama Indian Nation, the Duwamish Tribe (pending federal recognition), and the Kikiallus Indian Nation (not federally recognized). FHWA will send a formal letter to these identified tribes and any other tribe FHWA determines to be appropriate to initiate the Section 106 consultation. If a response from a tribe is not received within 30 days after the delivery date of the initiation of consultation letter, project development is allowed to move forward. The tribes have the option, however, of entering consultation at a later date. Any issues identified by the tribes will be addressed through the ongoing environmental process.

Public Involvement Targeted to Environmental Justice

Strategies for engaging Environmental Justice populations and specific efforts that have occurred to date are described below. As the project proceeds through environmental review and design, efforts will continue to be made to identify and contact minority, low-income, and linguistically isolated populations. The public involvement plan may be amended pending the results of these efforts.

Demographic research in the study area indicates that U.S. Census Tract 58.02, which encompasses the alternatives' footprints, contains a population that is over 5 percent Hispanic. Because this percentage is of sufficient size according to Department of Justice guidance to warrant translation and interpretation services (Petersen, pers. comm., 2003), the project team has established strategies to engage the Spanish-speaking population living and/or working in the study area. Census Tract 58.02 also contains a population that is over 5 percent Asian. Although the number and type of individual Asian languages spoken in Census Tract 58.02 are unknown, the City can provide or arrange for foreign language translation services for these populations if requested.

Research conducted in coordination with the economic impact analysis also indicates that some potentially displaced businesses employ a high percentage of minority individuals and could employ a high percentage of low-income employees. Strategies to engage these employees have also been discussed.

Strategies

Publicity

As the Draft EIS hearing draws nearer, project publicity pieces will be directed to potentially affected areas and the general neighborhood. All project publicity pieces will contain a message in Spanish directing readers to call a specified telephone number for additional project information. The City of Seattle Department of Transportation (SDOT) has two employees who are fluent in Spanish and will be able to learn callers' needs and take appropriate steps. This information will be included on posters, display ads, the project Web site, and in e-mails to the project

mailing list. Publicity pieces can also be printed in other foreign languages, as warranted, to ensure equal access to all project information.

Identifying Residents

Project information mailings will be targeted to areas of potential impact and additional meetings specifically focused on impact areas will be held. The project team will also distribute handouts and hang posters in these areas.

Research

Research will be conducted with both the City's social service departments and local non-profit organizations to determine if they serve a population that works/lives in the study area and would be affected by one or more of the project alternatives.

Engaging Workers

The project team has interviewed potentially displaced Interbay employers and asked them to identify, if possible, the number of minority, low-income, or linguistically isolated employees in their companies. The majority of employees at these companies commute to work either by automobile or bus, and these workers do not appear to live within the immediate study area. Therefore, onsite public outreach at affected businesses will be important for effective communications. Major Interbay employers (i.e., Trident and City Ice) will be asked to distribute a project summary handout to employees. A project summary also will be available in Spanish for Spanish-speaking employees or in other foreign languages, as necessary. In addition to an overview of the project, the handout will ask readers if they would like to attend a public meeting. If enough interest is shown, the project team will work with the employers to host an onsite informational meeting during a lunch period or shift change. An interpreter will be available.

Other Strategies

Public involvement and demographic analysis to date have not revealed community impacts related to minority or low-income populations. Also, none of the alternatives would require residential displacements. If through the ongoing environmental process such potential impacts are identified, the project team could use the following additional strategies.

Reaching Students and Parents

The same handout distributed to potentially affected employees in English and Spanish also would be distributed to students who attend school in the study area. As with the workers, if there is enough interest, a targeted meeting for parents would be held at the school, and an interpreter would be available.

Optional Service

Depending on demand, the team could set up and monitor a project dialogue center. The center would have a phone number with a message in Spanish (and/or other foreign languages, as warranted) urging callers to leave their name, phone number, and address along with any questions. The call center could also have a message tree with prerecorded answers to frequently asked questions.

Specific Public Involvement Efforts and Results

Throughout the environmental review, the project team has taken a number of specific steps to reach out to Environmental Justice populations. These steps have included the following:

- At the November 5, 2003 Design Advisory Group (DAG) meeting, the team asked DAG members if they were aware of any Environmental Justice populations living or working within the study area. The DAG identified Environmental Justice populations in the fish processing industry at Interbay.
- Prior to the November 20, 2003 community meeting, the project Web site featured a section on the homepage inviting Spanish speakers to attend the meeting. The message explained that an interpreter would be present. The same message was sent to those on the e-mail list. That message asked English speakers to pass the message on to community members who spoke Spanish.
- At the November 20, 2003 community meeting, the project team added a Spanish interpreter and an American Sign Language (ASL) interpreter. As community members entered the building, a sign written in Spanish greeted them and informed them of the interpreter. There was also a Spanish sign-in sheet. The interpreter wore a nametag, which identified in Spanish that she was the interpreter. The ASL interpreter translated the presentation and assisted with individual questions during the open house portion of the meeting.
- During January and February of 2004, the project team conducted interviews with representatives of potentially affected marine businesses in the Interbay area. As part of the interview process, the project team sought information on the demographic characteristics of the businesses' employees. Some major employers on the Port of Seattle property indicated that approximately 73.3 percent of their work force would be considered a member of a minority group. Also, one employer indicated that 40 percent of the company's work force would not be considered proficient in English. Based on estimates from the interviews with potentially affected marine businesses in the Interbay area, the average wage for seafood processors is between $28,000 and $36,000 per year. These wages are substantially lower than the $54,000 estimated from the 2000 U.S. Bureau of Labor Statistics for the 4,332 covered employees in the sector. The project team was not able to obtain accurate information regarding poverty status. Although many of the jobs on Port property could be considered relatively low paying, no information was available on employee family size or whether employees were members of households with more than one income. However, it is likely that some employees of the marine businesses on the Port's North Bay property would be considered low income.
- In the spring of 2004, the project team contacted social service providers active in the project area to identify potential impacts to each provider's services and constituency. Telephone interviews were conducted with provider representatives. The social service providers included City Team, Washington Council of the Blind, United Blind of Seattle, Queen Anne Helpline, Society of St. Vincent de Paul, Creative Living Services, United

Indians of all Tribes Foundation, Elderhealth Northwest, and Northwest Center. This process did not reveal any specific impacts on minority or low-income populations. Respondents indicated that the bridge replacement would not affect their services, and they did not identify any specific individuals or groups that they served that would be affected by the project.

- In the fall of 2004, SDOT contacted the four fish processing employers in the Interbay area, offering project briefings to their employees with project materials in whatever languages the companies requested. Staff managers at three of the four companies declined briefings, but the fourth company requested Spanish and Vietnamese interpretations. SDOT hosted a briefing for these employees on October 15, 2004, providing a Spanish interpreter and arranging for interpretation by a Vietnamese staff member. Handouts translated into Spanish and Vietnamese were placed in common areas for employees, along with signs advertising an upcoming open house. These handouts were also given to two of the three other fish processing companies in the area. (The third business manager said his staff was proficient in English.)

Please see the Environmental Justice Discipline Report for the Magnolia Bridge Replacement Project for detailed discussion of potential impacts and mitigation measures related to minority and low-income populations in the study area.

This section describes the affected environment of the study area as it relates to Social, Economic, and Relocation considerations. Information in this section has been compiled in accordance with the guidelines contained in Section 457 of the WSDOT *Environmental Procedures Manual*. Section 457 contains three checklists identifying items to be evaluated in this discipline report. These checklists are Exhibit 457-1, Social Elements; Exhibit 457-2, Economic Elements; and Exhibit 457-3 Relocation. Appendix B of this report contains a checklist summary, which gives the location of where each checklist item is addressed in this document or indicates why the item is not applicable to the Magnolia Bridge Replacement Project.

The purpose of this Affected Environment section is to provide a baseline for analyzing potential impacts from the alternatives. The level of detail provided for each item is commensurate with the information needed to complete the impact analysis and with potential issues associated with the alternatives. See the Impacts section below for a discussion of project factors influencing the types of impacts related to this project.

Neighborhood Summary

The Magnolia Bridge provides one of three roadway connections to the City of Seattle's Magnolia neighborhood, which is situated on a peninsula at the northern entrance to Elliott Bay. The neighborhood is home to approximately 20,000 residents who depend on bridges to gain access to the rest of the city. The project alternatives would provide the same capacity for vehicle traffic access as the existing Magnolia Bridge.

Magnolia is primarily a residential neighborhood with a main shopping area called Magnolia Village located generally along West McGraw Street. This business district contains retail establishments, specialty stores, professional services, and restaurants. Other features of the neighborhood include Magnolia Park, Smith Cove Park, and a marina on the south side of Magnolia. Also, Discovery Park, located on Magnolia's northwest side, encompasses 534 acres and is Seattle's largest park.

The project alternatives would mostly be constructed over industrial-zoned land east of Magnolia. This area is within the Interbay neighborhood and is part of the Ballard Interbay Northend Manufacturing and Industrial Center, which includes a diverse mix of industrial, light industrial, and maritime businesses. The main landholder in the study area is the Port of Seattle. All of the project alternatives would be located on the Port's North Bay property, also known as Terminal 91. Major tenants at North Bay include Trident Seafoods, City Ice Cold Storage, Independent Packers, Anthony's Seafood Distributing, and Snider Petroleum. Other uses in the area include the BNSF railroad tracks, the Washington State National Guard Armory, and a mix of retail, commercial, and residential uses along 15th Avenue West.

The Queen Anne neighborhood is immediately east of the study area and Interbay. The project alternatives would continue to provide access between the south end of Magnolia and Queen Anne. Like Magnolia, Queen Anne is primarily a residential neighborhood with a main business district located along Queen Anne Avenue North

near the middle of the neighborhood. This business district also contains a mix of retail establishments, specialty stores, professional services, and restaurants.

Social Conditions

Community Cohesion/Demographics

Community Cohesion and Linkages

As described above under Neighborhood Summary, the study area encompasses portions of the Magnolia, Interbay, and Queen Anne neighborhoods in Seattle. A key aspect of community cohesion is connectivity of land uses, facilities, services, and population; the interrelationships between these elements help define the human environment.

The Magnolia neighborhood is well defined and functions similar to an island community, with limited roadway connections to the rest of the City. Magnolia is primarily residential but also contains local services, public facilities, parks, and a neighborhood business center. The residential land uses and associated facilities and services in Magnolia and Queen Anne are physically separated from one another by the Interbay neighborhood, which includes a diverse mix of industrial, light industrial, and maritime businesses.

The Magnolia Bridge is one of three bridges that connect the region and the study area neighborhoods as well as between local neighborhoods. The existing bridge and the alternative alignments connect to the southeastern edge of the Magnolia community at West Galer Street. The other two bridges are located along West Dravus Street and West Emerson Street, both of which are north of the existing Magnolia Bridge. Access from other neighborhoods to community facilities in the Magnolia neighborhood, such as schools and churches, is therefore dependent on the three bridges. As the southernmost of the three bridges, the Magnolia Bridge is the most direct route for much of south and west Magnolia to downtown Seattle and the regional freeway system. See the Services section for a more detailed description of churches, schools, and other community facilities and services in the study area. The population characteristics of the study area neighborhoods are described in more detail below.

Population

Population counts and characteristics for King County, the City of Seattle, and the 2000 Census Tracts that encompass the study area are summarized in Table 3.

The study area contains a lower proportion of disabled individuals than Seattle or King County as a whole, and Census Tract 58.02, which encompasses the alternative alignment footprints, has proportionately fewer disabled individuals than the other surrounding census tracts in the study area.

The number of people in the study area age 65 and older is generally comparable to the city and the county. Census Tracts 56.00 and 57.00, however, which encompass much of the Magnolia neighborhood to the west, contain a higher percentage of individuals in that age group.

Table 3
Population Characteristics

Area	Population	Percentage Age 65 and Older	Percentage with Disability[1]
Local Jurisdiction			
King County	1,737,034	10.5%	16.1%
City of Seattle	563,375	12.1%	17.2%
Study Area Census Tracts			
Census Tract 56.00	6,299	18.3%	11.2%
Census Tract 57.00	5,990	14.1%	12.3%
Census Tract 58.01	4,543	12.2%	13.5%
Census Tract 58.02	4,817	10.4%	10.6%
Census Tract 59.00	6,715	7.5%	11.6%
Census Tract 69.00	3,845	10.5%	13.5%

Notes: [1] Percentage of civilian non-institutionalized population 5 years of age and older.
Source: PSRC 2002a, 2002b.

Race and Ethnicity

Table 4 compares the ethnic and racial population components of the study area census tracts with those of the City of Seattle and King County.

The study area has a smaller percentage of minority residents compared with the rest of the city and King County. Whites account for approximately 90 percent of the population in the study area compared to approximately 73 percent in the city and 79 percent in the county. Based on the U.S. Census data, no particular ethnic or racial group appears to reside in proportionately higher numbers in the study area compared to the city or the county.

Table 4
Ethnic and Racial Composition

Area	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Hispanic or Latino
Local Jurisdiction							
King County	78.9%	6.5%	1.9%	12.5%	0.9%	3.7%	5.5%
City of Seattle	73.4%	9.9%	2.1%	15.0%	0.9%	3.7%	5.3%
Study Area Census Tracts							
Census Tract 56.00	93.2%	1.3%	1.1%	4.7%	0.2%	1.0%	2.3%
Census Tract 57.00	88.7%	2.4%	1.2%	8.7%	0.9%	1.5%	3.1%
Census Tract 58.01	87.1%	3.5%	1.7%	8.5%	0.6%	2.2%	3.9%
Census Tract 58.02	88.1%	3.7%	1.8%	7.5%	0.7%	2.6%	5.3%
Census Tract 59.00	92.3%	1.9%	1.3%	6.2%	0.5%	1.6%	2.9%
Census Tract 69.00	92.6%	2.3%	1.5%	5.3%	0.2%	1.2%	2.4%

Note: Individuals can identify themselves as being of more than one race and Hispanic people can be of any race; therefore, itemizations add up to more than 100%. Races are tallied to include individuals identifying themselves as one race alone or in combination with one or more other races.
Data represent individuals who reside but do not necessarily work in the study area. Study area worker demographics may differ from those reported above. The ethnic and racial composition of employees working in the study area is discussed in the Economic Conditions section under the Affected Marine Cluster heading.
Sources: PSRC 2003a, 2003b.

Household Income and Characteristics

Table 5 compares the household characteristics of the study area census tracts with those of the City of Seattle and King County.

Generally, households in the study area have higher median household incomes compared to households in the city and county. Within Census Tract 58.02, which encompasses the project site, household median incomes are slightly higher compared to Seattle but lower than incomes in King County as a whole. Household sizes in the western portion of the study area (Census Tracts 56.00 and 57.00) are comparable to the city and county and are more likely to be family households. The eastern portion of the study area contains smaller households on average and includes a greater proportion of non-family households.

Table 5
Household Characteristics

Area	Number of Households	Median Household Income	Average Household Size	Percentage of Family Households [1]	Percentage of Non-Family Households [2]
Local Jurisdiction					
King County	711,235	$53,157	2.39	59.5%	40.5%
City of Seattle	258,635	$45,736	2.08	44.7%	55.3%
Study Area Census Tracts					
Census Tract 56.00	2,700	$87,578	2.31	70.3%	29.7%
Census Tract 57.00	2,711	$60,410	2.20	55.3%	44.7%
Census Tract 58.01	2,470	$48,906	1.81	36.2%	63.8%
Census Tract 58.02	2,424	$47,021	1.80	37.5%	62.5%
Census Tract 59.00	2,548	$59,070	2.00	46.5%	53.5%
Census Tract 69.00	2,089	$61,540	1.83	37.6%	62.4%

Notes: [1] Family households include a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption.
[2] Non-family households include a householder living alone or with non-relatives only.
Sources: PSRC 2002c, 2002d, 2002e.

Housing

Table 6 shows the characteristics of housing units in the study area, the City of Seattle, and King County.

Housing values and rents are higher in the study area than in the city and the county. Generally, a greater proportion of units are renter-occupied in the study area than in the city and county; however, Census Tracts 56.00 and 57.00, which encompass much of the Magnolia neighborhood to the west of the project site, contain a higher percentage of owner-occupied units.

Table 6
Housing Characteristics

Area	Number of Housing Units	Percentage Owner-Occupied	Percentage Renter-Occupied	Percentage Vacant	Median Housing Value	Median Contract Rent
Local Jurisdiction						
King County	742,237	57.3%	38.5%	4.2%	$236,900	$696
City of Seattle	270,536	46.3%	49.3%	4.4%	$259,600	$677
Study Area Census Tracts						
Census Tract 56.00	2,775	88.6%	8.2%	3.2%	$470,100	$1,201
Census Tract 57.00	2,794	64.6%	32.4%	3.0%	$291,500	$739
Census Tract 58.01	2,641	36.7%	57.0%	6.3%	$289,600	$804
Census Tract 58.02	2,520	37.5%	58.5%	4.1%	$346,400	$713
Census Tract 59.00	2,666	54.4%	41.0%	4.6%	$385,500	$703
Census Tract 69.00	2,174	47.2%	48.5%	4.3%	$456,000	$725

Source: PSRC 2002d.

Poverty Status

Table 7 shows the poverty status for individuals in the study area, the City of Seattle, and King County.

The study area has proportionately fewer individuals living under the poverty level than the city and county. Census Tract 58.02, which encompasses the project site, has proportionately more people living under the poverty level than the other census tracts in the study area.

Table 7
Poverty Status

Area	Population for Poverty Status Determination [1]	Population Below Poverty	Percentage Below Poverty Level
Local Jurisdiction			
King County	1,706,305	142,546	8.4%
City of Seattle	543,198	64,068	11.8%
Study Area Census Tracts			
Census Tract 56.00	6,227	112	1.8%
Census Tract 57.00	5,932	377	6.4%
Census Tract 58.01	4,538	324	7.1%
Census Tract 58.02	4,370	320	7.3%
Census Tract 59.00	5,122	320	6.2%
Census Tract 69.00	3,831	196	5.1%

Note: [1] The Census Bureau uses the federal government's official poverty definition, which involves comparing an individual's total family income with the poverty threshold appropriate for that individual's family size and composition. Poverty status is determined for all people except those who are institutionalized, in military group quarters, in college, or unrelated and under 15 years old.

Source: PSRC 2002g.

Linguistic Isolation

Table 8 shows the number of individuals classified as linguistically isolated who live in the study area, the City of Seattle, and King County.

The study area contains proportionately fewer individuals who are classified as linguistically isolated compared to the city and county. The total number of people living in the study area that are classified as linguistically isolated is 462. The presence of linguistically isolated employees working in the study area is discussed in the Economic Conditions section under the Affected Marine Cluster heading.

Table 8
Linguistic Isolation

Area	Population Age 5 and Older	Linguistically Isolated Population Age 5 and Older[1]	Percentage of Linguistically Isolated Population
Local Jurisdiction			
King County	1,632,553	83,837	5.1%
City of Seattle	537,538	29,940	5.6%
Study Area Census Tracts			
Census Tract 56.00	5,874	50	0.9%
Census Tract 57.00	5,579	47	0.8%
Census Tract 58.01	4,391	201	4.6%
Census Tract 58.02	4,679	85	1.8%
Census Tract 59.00	6,551	47	0.7%
Census Tract 69.00	3,685	32	0.9%

Note: [1] Linguistically isolated population includes individuals living in households in which no person age 14 or older speaks only English or speaks English as a second language very well.
Source: PSRC 2002f.

Regional and Community Growth

The Puget Sound region and the City of Seattle are expected to continue to grow over the next few decades. The PSRC provides small area forecasts for Puget Sound counties, cities, and FAZs. FAZs are composed of census tracts. Figure 11 shows the census tracts in the study area, and Table 9 lists the census tracts with their equivalent FAZ.

Table 9
2000 U.S. Census Tracts and Corresponding PSRC Forecast Analysis Zones

2000 U.S. Census Tract	PSRC Forecast Analysis Zone
56.00 and 57.00	6126
58.01 and 58.02	6125
59.00 and 69.00	6124 [1]

Note: [1] FAZ 6124 also contains U.S. Census Tracts 60.00, 68.00, and 70.00, which are not included in the study area.
Source: PSRC 2003c.

Population and household counts and forecasts for the City of Seattle and FAZs encompassing the study area are summarized in Table 10. The City of Seattle and the study area have had population growth in recent years. The population of the City of Seattle was estimated at 571,900 people in April 2003 (Washington State Office of Finance and Management [OFM] 2003). The city has grown by approximately 55,000 people since the 1990 Census (OFM 2003). Growth in the city is expected to continue over the next 20 to 30 years as employment opportunities attract more people to the region.

Table 10
Population and Household Forecasts, 2000 to 2030

	2000	2010	% Change 2000-2010	2020	% Change 2000-2020	2030	% Change 2000-2030
King County							
Population	1,737,034	1,869,479	7.6%	2,039,480	17.4%	2,202,366	26.8%
Households	710,916	782,070	10.0%	869,440	22.3%	959,507	35.0%
City of Seattle							
Population	563,313	598,551	6.3%	651,832	15.7%	718,389	27.5%
Households	258,481	281,440	8.9%	313,295	21.2%	353,718	36.8%
FAZ 6124 Queen Anne							
Population	24,786	25,804	4.1%	27,421	10.6%	27,421	10.6%
Households	13,140	13,940	6.1%	15,029	14.4%	15,213	15.8%
FAZ 6125 Interbay							
Population	9,360	9,435	0.8%	9,757	4.2%	10,268	9.7%
Households	4,892	4,967	1.5%	5,147	5.2%	5,458	11.6%
FAZ 6126 Magnolia							
Population	12,219	12,640	3.4%	12,956	6.0%	12,726	4.1%
Households	5,398	5,710	5.8%	5,943	10.1%	6,524	20.9%

Source: PSRC 2003c.

The forecasts presented in Table 10 indicate that population and households in the study area are generally expected to grow at slower rates than the City of Seattle and King County as a whole. The PSRC forecasts that the population of FAZs making up the study area will increase by 4.1 percent to 10.6 percent between 2000 and 2030, which is less than 1 percent per year. During the same period, the City of Seattle's population is expected to increase by 27.5 percent and King County's by 26.8 percent. These forecasts represent the most recent official information and are based on assumptions for projected population, implementation of planned transit, utility and public facility projects, and suitability and desirability factors for development in specific areas. See the Economic Conditions section below for a discussion of PSRC employment forecasts.

The Magnolia, Interbay, and Queen Anne neighborhoods are substantially built out areas. Future population and housing growth in Magnolia and Queen Anne neighborhoods is expected to occur as infill development in the neighborhoods consistent with existing zoning and City of Seattle Comprehensive Plan designations. The community is not in transition and no changes in population characteristics such as ethnic/racial composition, family composition, or income levels are expected under current conditions.

Recreation, Pedestrian, Bicycle, and Transit Facilities

Figure 13 shows the location of recreation, park, and bicycle/pedestrian facilities in the study area. Major parks in the Magnolia, Interbay, and Queen Anne areas include Discovery Park, Magnolia Park, the Interbay Athletic Complex (including the golf course and P-Patch), and Elliott Bay Park.

Facilities located near the alternative bridge alignments include the Smith Cove Acquisition parcels, Smith Cove Park, Thorndyke Park and adjacent boulevards, the Terminal 91 Bicycle Path, open space parcels on the Magnolia and Queen Anne hillsides, and park-owned tidelands. Other than the bicycle path, the facilities near

the bridge do not provide active recreation opportunities. They are either open spaces that do not provide public access or small neighborhood parks that provide viewing areas and places for non-organized park use; they do not support designated activities. As such, there are no available data on the number of users at each of these facilities.

The project team reviewed plans to identify present and future recreation, pedestrian, bicycle, and transit facilities. These include the *Seattle Parks and Recreation Plan 2000* (Seattle Parks and Recreation 2000), an update to the 1993 Parks COMPLAN (comprehensive plan); *Destination 2030* (PSRC 2001), a transportation action plan for the central Puget Sound region; and the *Seattle Popular Monorail Plan* (Elevated Transportation Company 2002), a plan for creating a 58-mile, 5-line, citywide monorail system. With the exception of the Smith Cove Acquisition Project and the Seattle Monorail Project described below, no other planned recreation, pedestrian, bicycle, or transit facilities are identified in the study area.

The park and recreation resources located near the alternative alignments are described below. For purposes of this analysis, all of these facilities are considered to be of local significance and subject to Section 4(f) requirements. See the Public Lands, Section 4(f) Discipline Report for more information.

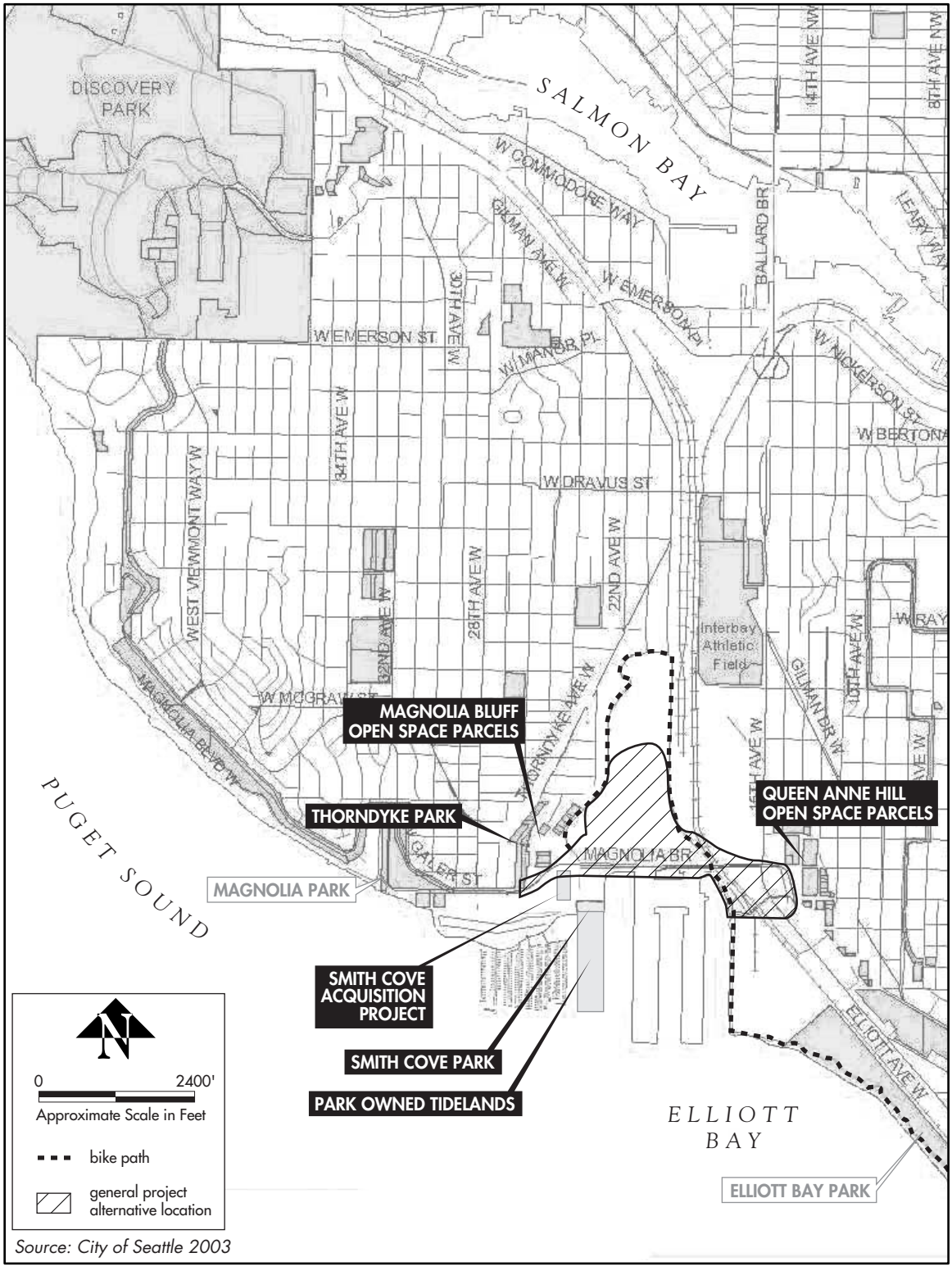
Pedestrian and transit facilities in the study area are also described below. These facilities are not subject to Section 4(f) requirements. See the Traffic and Transportation Discipline Report for more information.

Smith Cove Acquisition Project

Location, Access, and Size

In November 2000, Seattle voters approved a $198.2 million levy (the Pro Parks Levy) designed to fund more than 100 parks and recreation projects all over the city. Funds from the Pro Parks Levy purchased U.S. Navy property south and west of the Magnolia Bridge and west of 23rd Avenue West, referred to as the Smith Cove Acquisition Project, a neighborhood parks acquisition project. The acquisition of this U.S. Navy property at Smith Cove and corresponding plans for long-term park improvements at the site are identified as an action item in the *Seattle Parks and Recreation Plan 2000* (Seattle Parks and Recreation 2000).

On August 11, 2003, the Seattle City Council approved Ordinance 121250, authorizing the Superintendent of Parks and Recreation to acquire 7.3 acres of property from the U.S. Navy, to make appropriations to pay for this purchase, and to accept the property for park, recreation, and open space purposes. The acquired property at Smith Cove has two separate areas. The upper site is composed of 2.4 acres of property immediately south of West Galer Street on Magnolia Hill west of the existing Magnolia Bridge. The lower site is composed of 4.9 acres of property along 23rd Avenue West at the southeast foot of Magnolia Hill between the Magnolia Bridge and the Elliott Bay Marina. Access to the lower site is provided directly from 23rd Avenue West. According to City Ordinance 121250, the portion of the lower site within the boundaries of the existing Magnolia Bridge right-of-way maintains its transportation function through an easement to the Seattle Department of Transportation.



Source: City of Seattle 2003

Figure 13
Park, Recreation, and Bike Facilities

Function and Activities

The upper site is currently undeveloped open space, but it will likely be developed into a public viewing area. Seattle Parks and Recreation plans to develop the northern two-thirds of the lower site (encompassing approximately 128,000 square feet) as a turf area for passive park use. This area would not be used for organized activities. Some underground utilities in this area that have surface access or aboveground features would need to be relocated. The approximately 47,000-square-foot area immediately south of the interim turf area would be used for parking. The City also plans to replace an existing gate at the top of the bluff and south of the bridge approach with bollards (i.e., a series of short posts) to allow nonmotorized access to this viewpoint.

Smith Cove Park and Public Waterfront Access

Location, Access, and Size

A small public waterfront access area, called Smith Cove Park at Terminal 91, is located along the Elliott Bay shoreline approximately 1,000 feet southeast of the western end of the existing bridge. The Port of Seattle provides this shoreline access, although Seattle Parks and Recreation owns the tidelands south of Smith Cove Park (see discussion under Other Land, below). The public waterfront area is accessible from 23rd Avenue West via the Magnolia Bridge and is separated from upland properties by 23rd Avenue West/West Marina Place. Port of Seattle property currently used for storage of marine business-related material is located north of the park. The Elliott Bay Marina is situated to the west.

Function and Activities

Smith Cove Park is a moderately used neighborhood park that provides public shoreline access, benches, picnic tables, and views of Elliott Bay but does not provide for high use and organized activities.

Thorndyke Park and the Boulevard System

Location, Access, and Size

Thorndyke Park is a 1.4-acre city park located between Thorndyke Avenue West and Magnolia Way West approximately 1,200 feet north of the western end of the existing bridge. Adjacent streets are part of Seattle's boulevard system and are owned by Seattle Parks and Recreation. Streets in the area designated as park boulevards include portions of West Galer Street, Magnolia Way West, and Magnolia Boulevard West. Seattle Parks and Recreation has established Non-Park Use of Park Lands polices, which were endorsed by a City Council resolution in October 1996 (Seattle Parks and Recreation 1996). These policies define a boulevard as "a linear park, established by ordinance, usually an extension or expansion of a dedicated street(s) which continues to serve as a street right-of-way in addition to being park land."

Magnolia Way West and Magnolia Boulevard West extend to their southern intersection with West Galer Street. The West Galer Street Boulevard extends to its eastern intersection with Magnolia Way West.

These boulevards provide vehicular, pedestrian, and bicycle access to Thorndyke Park as well as the Magnolia Bridge. Thorndyke Park and the boulevards are

primarily adjacent to single-family residences, with some low-rise multifamily residential structures located to the north.

Function and Activities

Thorndyke Park is a moderately used neighborhood park and does not contain any formal recreation facilities. Boulevard streets provide vehicle, bicycle, and pedestrian circulation in the area. No new facilities are currently planned for the park.

Terminal 91 Bicycle Path

Location, Access, and Size

A 4,000-foot-long, limited access, paved bicycle path runs along the east, north, and west borders of the Port of Seattle North Bay/Terminal 91 property. This path is primarily on property owned by the Port of Seattle with some portions crossing designated City of Seattle street right-of-way. Bike lanes connect to West Dravus Street to the north via 20th Avenue West, Smith Cove Park and the marina to the southwest, and to Elliott Bay Park, which includes the Elliott Bay Trail, and Myrtle Edwards Park to the south.

Function and Activities

The bike path provides a travelway for pedestrians and cyclists that is separated from motor vehicles. Data on pedestrian and cyclist safety along this path are not available. No improvements are currently planned for this path.

The City of Seattle surveyed bicycle traffic volumes during the morning rush hour on the Elliott Bay Trail in 1992, 1995, and 2000. The surveys were taken from 6:30 to 9:30 AM at the south end of Myrtle Edwards Park. The following trends are expected to be similar to those farther north in the Interbay area along the Terminal 91 bicycle path.

During the eight years between first and last surveys, peak period bicycle users increased by 68 percent; there were 92 cyclists in 1992, 126 cyclists in 1995, and 155 cyclists in 2000. In the 2000 survey, travel directions were recorded for the first time. There were 123 southbound (downtown Seattle bound) and 33 northbound cyclists. A heavy proportion (80 percent) of peak period cyclists were traveling to and from downtown Seattle.

Other Parks and Recreation Land

Seattle Parks and Recreation owns a number of parcels in the project vicinity. These parcels are undeveloped park property located on steep slopes or in the water, including:

- Seattle Parks and Recreation owns 10 parcels totaling 2.75 acres along the eastern bluff of Magnolia. The parcels, along with privately owned land, make up the greenbelt area along the Magnolia hillside.
- Seattle Parks and Recreation owns approximately 20 parcels on Queen Anne Hill east of the eastern Magnolia Bridge ramp. The greenbelt on the hill comprises these Seattle Parks and Recreation-owned parcels and SDOT street right-of-way. Land immediately adjacent to the eastern bridge ramp is

under SDOT jurisdiction and includes the portion of the hillside recently secured to prevent landslides.

- The tidelands south of Smith Cove Park at North Bay/Terminal 91 are also owned by Seattle Parks and Recreation. These city-owned lands are approximately 440 feet wide and extend approximately 1,500 feet into Elliott Bay. They provide fish and wildlife habitat. No other facilities or amenities are associated with the tideland parcel.

Other Bicycle Facilities

The Seattle Department of Transportation's *Bicycling Guide Map* (SDOT 2003) shows Magnolia Boulevard as a commonly used bike route linking Discovery Park to the south with Magnolia Park and Thorndyke Avenue West. According to the map, a bicycle lane is present along the part of Thorndyke Avenue West north of 23rd Avenue West. This lane continues north along 20th Avenue West and Gilman Avenue West before turning west along Government Way and leading into Discovery Park. From Thorndyke Avenue West, cyclists can also connect to the Terminal 91 bicycle path (see discussion above).

Cyclists also have been observed using the Magnolia Bridge in both directions, although there are no separate bike lanes. The cyclists travel in the traffic lane. The 6.5 percent grade makes it difficult for many occasional cyclists to use the Magnolia Bridge particularly in the westbound, uphill direction. Data on Magnolia Bridge cyclist safety are not available. Magnolia Bridge is not a designated bicycle route and is therefore not considered a Section 4(f) recreation resource.

Pedestrian Facilities

In addition to the Terminal 91 bicycle path, the Magnolia Bridge has pedestrian facilities connecting the Magnolia neighborhood to 15th Avenue West/Elliott Avenue West. The south side of the existing bridge has a 5-foot-wide sidewalk along the length of the structure, which connects to the ramps to Elliott Avenue West. The north side of the bridge has a short section of discontinuous sidewalk at the midpoint near the ramps that lead to the marina and Smith Cove.

There are two stairways for pedestrians on the south side of the bridge. One stairway is located at the midpoint of the bridge (near the north end of Pier 91). The stairway leads to a pedestrian underpass that connects to the stairs located directly opposite on the north side of the bridge. The other stairway is along the eastern end of the bridge immediately east of the BNSF tracks. The walkway at the bottom of the stairs crosses to the north side of the bridge and continues east to 15th Avenue West along the north side of the structure. Data on Magnolia Bridge pedestrian safety are not available.

A new pedestrian bridge over the BNSF tracks at West Prospect Street is under construction as a link to Amgen's new development in the area. See the Traffic and Transportation Discipline Report for more information on pedestrian facilities.

Transit

The Magnolia Bridge links the Magnolia neighborhood with Elliott Avenue West, a major roadway (classified as a principal arterial) into downtown Seattle. Six transit routes travel along Elliott Avenue West. Three routes carry passengers to the downtown area from the Ballard neighborhood to the north and three routes serve

the Magnolia neighborhood. A Magnolia route that bypasses the Magnolia Bridge links Magnolia with the University of Washington.

There are 12 bus stops near the Magnolia Bridge. Two of these stops are on the Magnolia Bridge and serve Terminal 91 businesses. Bus routes serving the study area carry more than 11,000 passengers each day. The three routes serving Magnolia contribute around 28 percent of the daily total ridership along the corridor. See the Traffic and Transportation Discipline Report for more detail.

The only planned new transit facility in the study area is the Seattle Monorail Project Green Line, which will extend 14 miles from Ballard to West Seattle through downtown Seattle. The Green Line is being built to implement the Seattle Popular Monorail Plan, which was approved by Seattle voters in November 2002. Seattle voters, through citizens' initiatives in 1997 and 2000, asked that a plan for a citywide monorail system be developed. The 2002 vote approved the plan and provided funding to build and start operations of the Green Line.

In the Magnolia Bridge study area, the dual-beam monorail would travel on the west side of 16th Avenue West and 15th Avenue West and along the center of Elliott Avenue West with switches to allow trains to transfer into and out of an Operations Center located west of 15th Avenue West and north of West Armory Way. See the Traffic and Transportation Discipline Report for more detail.

Services

Educational Facilities

Seattle Public Schools operates public schools in the study area. Attendance boundaries vary depending on the type of school. For example, the school district enrolls children in a cluster of schools for elementary education based on the location of their residence. The district allows citywide enrollment for middle and high schools. The Magnolia Bridge provides one of three access routes for school buses between the Magnolia neighborhood and the rest of the city.

Table 11 provides information about the cluster of elementary schools that serves the Magnolia, Interbay, and Queen Anne neighborhoods and about middle and high schools that are closest and most likely to serve residents of the study area. Table 11 also identifies preschools and private schools that operate in the study area. None of these facilities are located in the immediate vicinity of the project alternative footprints.

Table 11
Study Area Schools

School	Grades	Address	Neighborhood
Preschools			
Sweet Pea Cottage Pre-School Of The Arts	Pre-School-Kindergarten	1606 5th Ave W	Queen Anne
Creative Arts for Children	Pre-School-Kindergarten	3116 W Smith St	Magnolia
Discovery Montessori School	Pre-School-Kindergarten	2836 34th Ave W	Magnolia
Kaleidoscope Preschool	Pre-School-Kindergarten	4625 34th Ave W	Magnolia
Magnolia Co-Operative Preschool	Pre-School-Kindergarten	3555 W McGraw St	Magnolia
Seattle Public Schools			
Lawton Elementary	Kindergarten-5	4000 27th Ave W	Magnolia
John Hay Elementary	Kindergarten-5	201 W Garfield St	Queen Anne
Frantz H. Coe Elementary	Kindergarten-5	2424 7th Ave W	Queen Anne
Catherine Blaine School	Kindergarten-8	2550 34th Ave W	Magnolia
McClure Middle School	6-8	1915 1st Ave W	Queen Anne
The Center School	9-12	305 Harrison St	Queen Anne
Ballard High School	9-12	1418 NW 65th St	Ballard
Secondary Bilingual Orientation Center	6-12	411 Boston St	Queen Anne
Private Schools			
Matheia School	Kindergarten-5	414-A W Howe St	Queen Anne
Our Lady of Fatima	Kindergarten-8	3301 W Dravus St	Magnolia
Seattle Country Day School	Kindergarten-8	2619 Fourth Ave N	Queen Anne
St. Anne School	Kindergarten-8	101 W Lee St	Queen Anne

Source: Seattle Public Schools 2004a, 2004b; Rand McNally 2003; Seattle Times 2004; Dex Online Directory 2004.

There are also a number of childcare facilities in the study area, primarily in the Queen Anne neighborhood (see Table 12). Together, these facilities provide services for more than 500 children between 1 month and 12 years of age. None of these facilities are located in the immediate vicinity of the project alternative footprints.

Table 12
Child Care Services

Name	Licensed Capacity	Age Range	Address	Neighborhood
The Baby Bungalow	22	12 months-3 years	1617 1st Ave W	Queen Anne
Cosmopolitan Kids	33	1 month - 5 years	19 W McGraw St	Queen Anne
Hilltop Children's Center	80	2 years - 10 years	2400 8th Ave W	Queen Anne
Kidspace	85	3 months - 5 years	3837 13th Ave W	Queen Anne
North Queen Anne Day Care	112	1 year - 10 years	3200 3rd Ave W	Queen Anne
Northwest Center Child Development Program	103	1 month - 12 years	2919 1st Ave W	Queen Anne
Whizz Kids Academy Magnolia	43	1 year - 6 years	2450 33rd Ave W	Magnolia

Source: Dex Online Directory 2004; Washington State Department of Social and Health Services 2004.

Religious Institutions and Cemeteries

There are a total of 22 religious institutions located in the project study area. For the purposes of this report, religious institutions are defined as places of worship, meditation, or gathering places for members. These institutions are mainly located in the Queen Anne and Magnolia neighborhoods and represent a variety of religious affiliations including Christian Science, Presbyterian, Methodist, Lutheran, Catholic, Baptist, and Jehovah's Witnesses. Members of the religious institutions may live in nearby residential areas or farther away from the place of worship or gathering. No cemeteries are associated with these religious institutions.

The closest cemeteries to the Magnolia Bridge are the Mt. Pleasant Cemetery and Queen Anne Columbarium located on the top of Queen Anne Hill and the Fort Lawton Cemetery and Kiwanis Memorial Park located in north Magnolia. These cemeteries, however, are well outside the project alternative footprints.

The closest religious institution relative to the Magnolia Bridge is City Team Ministries, a mission located at 904 Elliott Avenue West. The closest church is Saint Margaret's, a Catholic church located on 14th Avenue West at West Dravus Street in the north Interbay neighborhood. These institutions, however, are outside the project alternative footprints.

Social Institutions

A variety of community and family services and organizations are in the study area; most of these facilities are located in the Queen Anne neighborhood (see Table 13). In addition, one fraternal organization, the Queen Anne Masonic Temple, is located in the Queen Anne neighborhood at the corner of 4th Avenue West and West Garfield Street. The closest community organizations near the Magnolia Bridge are Northwest Harvest, which occupies a warehouse immediately north of the west end of the Magnolia Bridge, and Northwest Center, which is located on West Armory Way in the Interbay neighborhood. Northwest Harvest is a non-profit organization that collects and distributes food to hunger programs throughout Washington State. It is located within the footprint of Alternatives C and D. Northwest Center is a non-profit organization dedicated to promoting the independence of people with disabilities through programs of education, rehabilitation, and work opportunity. It is outside all of the project alternative footprints.

Table 13
Study Area Community and Family Services

Name	Service	Address	Neighborhood
Guardianship Services	Social Service Organization	200 1st Ave W	Queen Anne
National Casa (Court Appointed Special Advocates for Children)	Social Service Organization	100 W Harrison St	Queen Anne
Northwest Harvest	Social Service Organization	Port of Seattle/North Bay	Interbay
Northwest Center	Social Service Organization	1600 W Armory Way	Interbay
Seattle Children's Home	Social Service Organization/ Mental Health Services	2142 10th Ave W	Queen Anne
Peace for the Streets by Kids	Sheltered Care Home/ Homeless Services	2142 10th Ave W	Queen Anne

Source: Dex Online Directory 2004.

Medical Services

Several medical services are in the study area, primarily in the Queen Anne and Magnolia neighborhoods. These include AIDS information and treatment services; dental, eye, and foot clinics; and assisted living facilities. In addition, three veterinary hospitals are in the study area—two in the Interbay neighborhood and one in Magnolia. The closest medical facility to the Magnolia Bridge is the Elliott Bay Animal Hospital at 15th Avenue West near West Armory Way. This facility, however, is outside the project alternative footprints.

Fire and Police Protection

The Seattle Fire Department provides fire and emergency medical protection services in the City of Seattle. Several emergency response facilities in the study area provide direct service to the Magnolia, Interbay, and Queen Anne neighborhoods. The facilities include Station No. 18 in Ballard, Station Nos. 8 and 20 in Queen Anne, and Station No. 41 in Magnolia. Harborview Medical Center, located in downtown Seattle, also serves the study area with two medic units. Together, the personnel at each of these facilities provide emergency fire and medical services to the study area.

The Seattle Police Department provides public safety protection to businesses and residents within the City of Seattle. The city is divided into four precincts—the North, East, West, and South. The city's West Precinct provides police protection in the study area, which includes the Magnolia, Interbay, and Queen Anne neighborhoods. The West Precinct provides 24-hour patrols and a full range of emergency response and public safety services to prevent crime and enforce the law. In addition to the Seattle Police Department, the Port of Seattle provides police services to its property in the study area.

The Magnolia Bridge is one of three access routes for emergency response routes between the Magnolia neighborhood and the rest of the city. For additional details, please refer to the Public Services and Utilities Discipline Report.

Public Services and Utilities

Public utility services within the study area are numerous and fall under both city and county jurisdictions. They include water, sanitary sewer and stormwater drainage, wastewater treatment, natural gas, electricity, telecommunications, and garbage and recycling services. Existing utility service mains are generally located within the public right-of-way. Service is extended to customers through overhead, side/lateral, and branch connections. Each of these services is summarized below.

Water, Stormwater, and Sanitary Sewer Services

Seattle Public Utilities (SPU) provides water service within the study area. Potable water is distributed into the study area via mains that are generally located within the public right-of-way.

SPU is also responsible for managing and maintaining drainage services, including stormwater drains, sanitary (wastewater) sewers, and pump stations. Stormwater runoff and wastewater flows are transported within conveyance infrastructure, such as storm drains, sewer mains, combined storm and sanitary sewer mains, and overflow systems. Conveyance systems may also use ditches, culverts, and creeks.

Wastewater Treatment

King County provides wastewater treatment service within the City of Seattle. The county system includes three treatment plants, 42 pump stations, and 19 regulator stations. Combined sewer overflow, or wastewater discharged during high volume periods, is also a component of the King County system.

Natural Gas

Puget Sound Energy supplies natural gas to the study area. Natural gas is purchased in the summer and stored in underground reservoirs until it is distributed during the winter. Puget Sound Energy is responsible for extending natural gas lines and connecting new permanent service lines.

Electricity

Seattle City Light, a non-profit public utility, is owned by Seattle citizens and governed by the City of Seattle. Seattle City Light services include installation and/or relocation of electrical infrastructure, temporary connections or disconnections, and electrical equipment repair.

Telecommunications

Telecommunication services encompass both voice and data networks, such as telephone, DSL (digital subscriber line), internet, wireless, long distance, and directory services. Qwest provides these services to 14 western states, including Washington State.

Garbage and Recycling

SPU operates and maintains garbage and recycling services for residential customers. Since 2001, SPU has contracted with other firms to provide commercial garbage collection. Rabanco Companies serves businesses within the study area. Private companies, hired at the expense of the business owner, provide commercial recycling services.

For additional details, please refer to the Public Services and Utilities Discipline Report.

Government Institutions and National Defense Installations

Seattle has numerous government agencies representing city, county, state, and federal interests. Most of these agencies are located in downtown Seattle. Government institutions in the study area are limited to libraries and postal facilities in the Queen Anne and Magnolia neighborhoods. There are no other governmental services in the study area.

The only national defense installation located in the study area is an Army National Guard unit. The Army National Guard Headquarters for the 181st Support Battalion is located on West Armory Way in the Interbay neighborhood north of the existing bridge.

Economic Conditions

This section provides an overview of the economic conditions of the region. Marine industries have been identified as an “industrial cluster” in the Interbay area of the

City of Seattle. Firms identified as having a connection to this cluster and the likely economic impacts on these firms that are attributable to each of the alternatives are discussed in the Impacts section of this report.

Regional Economic Overview

The Puget Sound area's economy[8] has historically been dependent on transportation (Boeing and the aeronautics industry) and natural resources (fisheries and timber). Over the past 30 years, the economy has diversified, providing significant new jobs in services, retail, finance, and government. The services sector, which includes specialized industries such as software development and biotechnology, grew at an accelerated rate during the last half of this time period.

The relative lack of diversity in employment sectors has contributed to the historical boom/bust cycle exhibited by the regional economy. Diversification in regional employment and emergence of technology and biomedical industries in the early 1990s contributed to the relatively mild regional recession associated with the previous (1990/91) national recession. However, for a variety of reasons, the Puget Sound region was vulnerable to the most recent recession, which began in March 2001. The recession continued through 2003, with the Puget Sound showing a deeper downturn than the United States as a whole in 2001 and 2002. A crash in the "dot com" industry put many people out of work in the region. The effects of the September 11, 2001 terrorist attacks on air travel and tourism, and the relocation of Boeing Company headquarters in the same month set the tone for a protracted regional economic downturn from which the Puget Sound region has only recently emerged. During this regional contraction, Boeing cut 40,000 jobs, 28,000 of which were located in the Puget Sound region. This amount is just over one-quarter of a total of 99,000 private-sector jobs lost in the Puget Sound region since January 2001.

Business Patterns in the Impact Area

The Magnolia Bridge Replacement Project impact area includes three business districts (within the closest corresponding census tracts): the Ballard Interbay Northend Manufacturing and Industrial Center (Census Tracts 58.01 and 58.02), Magnolia Village (Census Tracts 56 and 57), and the Queen Anne Neighborhood (Census Tracts 59 and 69).

Over half of the employment in the Magnolia Bridge Replacement Project is located in Census Tracts 58.01 and 58.02, as shown in Table 14. Another quarter of employment is located in Census Tract 59. Table 15 shows the top 25 employment sectors in the impact area by sector and census tract. The Standard Industrial Classification with the highest number of jobs, SIC 20 (Food and Kindred Products), dominates Census Tracts 58.01 and 58.02.

SIC 20 includes firms that manufacture or process foods and beverages for human consumption, as well as certain related products, including ice. Most of the employment in this sector in the study area is credited to the manufacturing and processing of fish, seafood, and ice. The importance of fish and seafood processing to the region is discussed in the following section.

8 The following summary of the regional economy is drawn in part from the PSRC's *Puget Sound Milestones; Central Puget Sound Regional Economic Profile*, March 2003 and the Washington State Employment Security's *King County Profile*, March 2001.

Table 14
Employment by Census Tract,
Magnolia Bridge Replacement Impact Area, Seattle, 2002

Census Tract	Employment	% of Total Employment
56	623	5%
57	1,159	10%
58.01	3,201	27%
58.02	3,863	32%
59	2,703	22%
69	474	4%
Total	12,023	100%

Source: ES-202 data provided by the Puget Sound Regional Council (Kristin Koch) 2003.

All of the businesses located in Census Tract 58.01 depend on transportation access provided by the bridge and intersections leading to the bridge including Elliott Avenue West, 15th Avenue West, and West Galer Street. Retail businesses along 15th Avenue West depend on access from the south for their customers, and retail, manufacturing, and transportation firms depend on access to ship freight. Several firms in the study area depend on and generate freight traffic, including Trident Seafood, City Ice, and Snider Petroleum.

Interbay

The Interbay area is partly made up of land owned by the Port of Seattle, much of which is leased to private companies for a variety of uses. This area is rich in marine industry including large fishing vessels, seafood processing and packing, cold/ice storage, and many other related businesses. The BNSF railroad runs through this area providing an important advantage to industries requiring rail service.

East of the Port property is 15th Avenue West. This street is a main thoroughfare containing both businesses and residences. Some of the businesses located on the section of 15th Avenue West closest to the bridge include a hardware supply company, an automotive repair shop, consulting firms, and an animal hospital. A few single-family residences and several multifamily apartment buildings are located along this corridor.

Magnolia Village

Magnolia Village lies to the west of the Interbay region. Magnolia is a largely residential neighborhood surrounded on three sides by water. The village includes approximately 13 square blocks of commercial area providing local shopping. It also includes everything from a post office to gas stations, banks, and churches. This area makes Magnolia feel and function much like a small town although it is only a few miles from downtown Seattle.

Queen Anne Neighborhood

To the east of the Interbay region is the Queen Anne neighborhood. This area is similar to Magnolia in that it is largely residential with its own commercial core. Largely built up in the late 1800s, it is full of Victorian architecture and many of the buildings have been historically preserved. Lower Queen Anne is home to the Seattle Center, which began as the site for the 1962 Seattle World's Fair.

Table 15
Top 25 Employment Sectors by Census Tract, Magnolia Bridge Replacement Impact Area, Seattle, 2002

Rank	SIC No.	SIC Employment Services Division Definition	Employment by Census Tract						
			56	57	58.01	58.02	59	69	Total
1	20	Food and Kindred Products	*	0	618	257	*	0	1,379
2	73	Business Services	35	90	303	372	91	23	914
3	17	Special Trade Contractors	10	34	198	518	50	13	823
4	50	Wholesale Trade - Durable Goods	20	4	287	168	64	131	674
5	37	Transportation Equipment	*	*	265	0	40	0	318
6	44	Water Transportation	0	*	2	21	570	0	727
7	82	Educational Services	*	*	*	*	*	*	948
8	27	Printing and Publishing	0	*	113	*	*	*	558
9	83	Social Services	6	101	15	*	110	*	930
10	65	Real Estate	25	19	45	151	12	12	264
11	9	Fishing, Hunting and Trapping Other Industries	*	*	124	*	0	*	126
12	64	Insurance Agents, Brokers and Services	*	3	29	*	*	0	195
13	32	Stone, Clay, Glass and Concrete Products	0	0	*	0	0	0	247
14	87	Engineering, Accounting & Management	*	*	73	93	43	14	241
15	15	General Building Contractors	30	*	*	65	14	*	250
16	51	Wholesale Trade - Nondurable Goods	6	30	143	59	*	*	258
17	58	Eating and Drinking Places	71	*	178	321	*	*	686
18	54	Food Stores	*	229	94	*	*	0	373
19	59	Miscellaneous Retail	51	18	8	96	*	*	234
20	7	Agricultural Services	24	7	14	*	*	*	105
21	47	Transportation Services	*	*	42	*	*	*	129
22	72	Personal Services	29	17	*	*	*	2	216
23	34	Fabricated Metal Products	0	*	*	*	*	0	72
24	60	Depository Institutions	17	16	*	0	*	*	54
25	55	Automotive Dealers and Service Stations	*	97	15	31	*	0	144
Total Unsuppressed			411	724	2,720	2,334	1,019	237	7,445
Total Suppressed			212	435	481	1,529	1,684	237	4,578
Total (Suppressed and Unsuppressed)			623	1,159	3,201	3,863	2,703	474	12,023

Note: * The total output per sector does not include suppressed sectors (indicated by an asterisk), thus it underrepresents the total number of employees and output per sector. Output per employee for all suppressed sectors was assumed to be the average output for all sectors. In this context, the term "suppressed" means that data are reported but the names are not publicly released to preserve the confidentiality of individual firms. Public information available from the U.S. Census and the U.S. Bureau of Labor Statistics is "suppressed" if there are less than three employers within a geographic area or sector or if one employer accounts for more than 80 percent of the jobs within that geography/sector.

Source: ES-202 employment data provided by the Puget Sound Regional Council (Kristin Koch) 2003. Analysis by ECONorthwest.

Regional Fishing Activity[9]

Seattle has served as homeport for the North Pacific fishing fleet since the early 1900s. The North Pacific fishing fleet refers to a variety of commercial fishing operators that harvest and/or process salmon, pollock, cod, halibut, other groundfish, and crab and other shellfish primarily from Alaskan waters and the Bering Sea. As homeport to the large North Pacific fishing fleet, Seattle also is home to the various businesses that supply fishing operations, such as shipyards, suppliers, and marine support services. This clustering of interrelated businesses has efficiencies that tend to lower production costs.

Although the commercial fishing industry contributes less than 1 percent of Washington's annual state gross product, it has historically been a very important industry especially for Western Washington. Today, the industry generates approximately 10,000 jobs in the greater Puget Sound region and harvests more fish annually than any other state. Washington's annual fish harvest exceeds five billion pounds and represents half of all seafood landed each year in the United States.

Washington's fish and seafood processing industry is the second most important food processing industry in the state, with only the apple processing industry yielding a larger annual job impact. Washington seafood processors lead the nation in the amount of fish that is purchased and processed annually. The Washington-based, at-sea processing fleet produces over $1 billion of seafood annually, most of which is exported. Internationally, the largest markets for processed fish and seafood products are Japan and Europe. The magnitude of Washington's seafood processing industry dwarfs that of the rest of the United States. Washington exports more processed fish and seafood products, in both value and weight, than the rest of the United States combined.

The North Pacific fishing fleet makes its home in Seattle because of the inherent advantages in doing so. The Seattle-based seafood industry has advantages over other regions because of its relatively easy access to Alaska's abundant fisheries resources, proximity to product markets, and access to transportation assets that carry final products to regional, national, and international markets. As such, the Seattle-based seafood industry can harvest, process, and transport North Pacific seafood products with less sacrifice than entities operating out of other west coast ports, including those in Alaska.

These advantages (collectively called "comparative advantage") help to explain the location of industries on a regional or international basis. Geographically, Seattle is strategically better situated than other West Coast ports to harvest, process, and transport the fisheries resources of the North Pacific. In addition, with a natural protected waterway (the "Inland Passage") extending almost 1,000 miles from Puget Sound to Skagway, Alaska, fishing vessels can safely harbor in fresh water, ice-free ports and then make a relatively protected journey to North Pacific fishing grounds.

Seattle has other geographic advantages relative to other West Coast and Alaskan ports, all of which benefit vessel owners and those that build, repair, or maintain fishing vessels. For instance, the fresh water inlets of Puget Sound help to eliminate

9 The following sections contain an analysis of the marine cluster in the Interbay area. While the focus is on the marine cluster, there are other representative industries—most notably bio-technology—located nearby. The focus on the maritime cluster is designed to focus on the importance of the dominant industry in the study area and direct impacts associated with bridge reconstruction, but there are other businesses and industrial groups represented that may be indirectly impacted.

salt-water marine growth on boat hulls and other equipment. It is not unusual for vessel operators to rinse equipment, such as nets, in fresh water before docking. Fresh water, therefore, acts to protect vessels and their equipment, and minimize expensive maintenance and repairs. In addition, Seattle ports are in deep water, free of ice and silt, and do not have the severe tidal action that is characteristic of Alaskan ports, which is a significant advantage for boat owners, shipyards, and other repair facilities.

In addition to its proximity to the fishing resources of the North Pacific, Seattle is the closest West Coast port to Asian trading partners, giving Seattle-based exporters of seafood products a time and cost advantage over competing ports in Oregon and California. With most of the processed seafood exported to Asian and European markets, this geographic advantage and proximity to markets is very important to the industry. (Seattle is a nine-hour flight from both Tokyo and London.) According to the Port of Seattle, by dollar value, frozen fish was the Port's fourth largest waterborne export in 2001. By comparison, the waterborne export of apples ranked 18th in that year.

Because most of the processed seafood is exported and much of the fresh seafood is consumed in regional markets such as Seattle/Tacoma and Portland, connections between ships, airplanes, trains, and trucks is crucial for the industry. The Port of Seattle is situated close to the Seattle-Tacoma Airport, has easy access to interstate highways, and on-dock and near-dock rail yards that are linked to a highly developed regional and transcontinental rail system. In Washington, the shipping of commodities by rail is facilitated by approximately 2,075 miles of Class I railroad track owned by the Burlington Northern Santa Fe and Union Pacific railroads, and 1,115 miles of track operated by various short line railroads. This transportation network facilitates international and regional distribution of processed seafood products and fresh fish seafood products.

Clustering

With these advantages, Seattle became the center of the North Pacific fishing fleet as early as 1913 and, over time, linked firms and businesses that supply the fishing fleet have developed or "clustered" in the Seattle area. This clustering of interrelated businesses has efficiencies that tend to lower production costs, and gives Seattle-based commercial fishing operators another cost advantage over competitors in other ports. A thriving fishing industry depends, to a great extent, on access to a seafood infrastructure that develops as the larger maritime industry grows.

The cluster of maritime services includes eight major shipyards and more than 20 smaller yards in the Puget Sound area. They include long established dry-dock services with the capacity to service small and large fishing vessels. In fact, Seattle is home to two shipyards (MARCO and Kvichak Marine) that design and build commercial fishing vessels specifically for the North Pacific.

Many companies that supply essential products and equipment specifically designed for the North Pacific fishing fleet—such as navigation equipment, hydraulics, engines, refrigeration, deck machinery—are concentrated in the Seattle area. For example, Northwood Ventures designs, fabricates, and installs specialized seafood processing equipment in factory trawlers.

Puget Sound, in general, and Seattle, in particular, are also home to an array of firms offering marine support services, including maritime law, customs brokerage, freight

forwarding, warehouse and distribution, finance, and accounting. According to the City of Seattle, Puget Sound has more than 100 maritime law and fisheries attorneys, and more than 60 custom brokers and 100 freight forwarders to provide logistics services to the maritime industry. In addition to docking and mooring facilities, the Port of Seattle offers many marine support services including: loading docks with vehicle access; short-term gear storage with staging areas and areas to mend nets and repair gear; long-term gear storage with lockers and storage yards; and onsite equipment rentals.

Within the larger Seattle cluster, there are smaller clusters of marine businesses that rely on the immediate proximity of one another. One such cluster is located in the Ballard Interbay Northend Manufacturing and Industrial Center area and includes Trident Seafoods, City Ice cold storage, Independent Packers seafood processing, and Anthony's Seafood Distributing. These companies are all interrelated and depend on one another for increased business, storage, and movement of product. City Ice lies at the heart of this cluster, giving the other businesses plenty of cold storage space and bringing business to the area. Trident Seafoods is the largest of the businesses and uses a large portion of City Ice's storage capacity.

Risks of Interfering with a Natural Cluster

Clustering is often misunderstood. It is something that economists use to explain why similar businesses tend to co-locate. In any city, for instance, similar businesses such as big law firms, live theaters, restaurants, and hardware stores will tend to locate near one another. This type of clustering can sometimes be forced through planning, which is what a mall developer does. By being close together, the establishments benefit by creating convenience for either their customers or their employees. This type of clustering is true for endogenous businesses, ones that largely serve the local population that can be found in most places around the country.

For an industry whose sales are made mostly outside the region (exogenous sales), which is what seafood processing does, clustering is a consequence of natural cost minimization. Specialized firms that primarily serve one another can deliver goods and services better by being near their customers. It would make little sense, for instance, for a firm that cleans fishing boat hulls to move to a place where no commercial fishing boats are moored or for an ice plant that specializes in loading ice directly into large ships to move inland. These businesses are simply too specialized to operate efficiently at locations that are not either adjacent to or within a very short distance of one another. In the Interbay area of Seattle, sales to other sectors are not significant enough to justify other locations.

However, it is important to realize that the seafood processing industry (or most any exogenous-based sector) is not in Seattle because there is a cluster. It is there because Seattle has a comparative advantage. Seattle's economy is better at managing, financing, marketing, and operating seafood businesses than it is many other exogenous-based industries. But it also needs to have some absolute advantages, which means its costs have to be internationally competitive.

Thus, the cluster is a contributing factor in Seattle's comparative advantage in seafood processing. If that cluster is broken apart, its efficiency would be compromised and the cost of running processing businesses in Seattle would lose some of its absolute advantages. Separation of many of the highly interdependent businesses in the Interbay area, especially those involved in processing and storage

of seafood would, at a minimum, raise the costs of production. Although there is no way to generalize about what such costs would be, it is apparent that the margins on which the seafood industry operates are thin, and the relative cost advantages enjoyed in the Interbay area could eventually be developed in Bellingham or Tacoma if the current efficiencies of operation offered in the Interbay area are compromised.

Relocation of processing operations could have an impact on the corporate offices of many seafood companies, which are located in downtown Seattle. Revenue and headquarters employment data from Dun & Bradstreet for 10 of the large seafood companies based in Seattle confirm that over 900 service-sector (non-processing and manufacturing) jobs and revenues in excess of a billion dollars are generated by these service and business support activities.

These firms benefit from their proximity to their production assets as well as financial, legal, insurance, marketing, and regulatory resources, which are widely available in the city. Ready access to large and diversified financial institutions is essential for the success of professions supplying support services to the seafood industry because “arcade” financial instruments, such as Japanese yen denominated currency options, are often used to help mitigate the significant financial risks seafood processors and harvesters face. As the pricing of many of their products is denominated in foreign currencies and because there are often substantial time differentials between various transactions, arbitrage and other sophisticated financial services designed to reduce financial risk and exposure to international monetary markets are often required.

The service industry skills developed through industry experience in the Seattle region have allowed corporations located here to thrive, albeit often in the face of significant risks and market instability. This is an industry that relies heavily on extensive financing and deals with continually changing regulations both in harvesting and processing. The industry must also keep close tabs on changing consumer tastes so that it can stay ahead of changing trends in the restaurant trade and in supermarkets. More importantly, the industry must do this with an intense international focus, because for many of these firms their product is sold largely overseas within days of being caught and processed.

For these reasons, the skills required are often specialized and highly valued. Thus, wage rates for the seafood processing industry in King County are high—in 2000, according to the U.S. Bureau of Labor Statistics, the 4,332 covered employees in the sector earned an average annual wage of $54,213. It is important to recognize that this represents a mix of both highly skilled financial and legal professionals and a large workforce of semi-skilled processing and support personnel, as well as many other mid-level management and sales positions.

If Seattle’s comparative advantage in the production and fleet maintenance aspects of this sector was to be severely compromised, the City’s comparative advantages for retaining the corporate office would also be affected. On the face of it, the combination of Seattle’s geographic position with its willingness to retain the fleet—not its livability or history—are why these important corporate offices are thriving.

Proximity to production, especially in a sector where product development and production cost control are so crucial, is essential. It is why the leading grain-based food manufacturers, such as General Mills and Kraft, are in Midwest cities. They

could probably find lower wage employees if they moved elsewhere, but they would lose touch with their products, their suppliers, and their production workers—all of which are very important in the food industry.

Fishery and Seafood Industry

Fishery and seafood industries in the four-county area (King, Snohomish, Kitsap, and Pierce) are concentrated in Seattle[10]. Almost 75 percent of the industry's regional employment is along Elliott Bay, the Lake Washington Ship Canal, Lake Union, and the Duwamish River.

Fishery and seafood companies in the four-county region lost over 2,100 jobs, or almost a quarter of total employment, between 1995 and 2001. Over half of the losses occurred in SIC 2092, Prepared Fresh or Frozen Fish and Seafoods. Trident Seafoods was identified as one of the major employers in the region.

Affected Marine Cluster

Alternatives A, C, and D directly affect a small marine cluster located on Port of Seattle property. Included in this cluster are Trident Seafoods, City Ice (cold storage), Independent Packers (seafood processing), and Anthony's Seafood Distributing. City Ice operates five buildings in the Interbay area, all of which are generally used to capacity. The building that would require removal under Alternative D is a newer building and an integral part of the company's operation.

This component of the marine cluster—heavily concentrated on seafood processing—differs from the citywide marine cluster in several ways. Employment in the affected area is dominated by processing and cleaning, jobs that tend to pay a lower wage than the cluster average. Based on estimates from interviews with all of the affected businesses in the Interbay area, the average wage for seafood processors is between $28,000 and $36,000 per year. This is substantially lower than the $54,000 estimated from the 2000 U.S. Bureau of Labor statistics (see above), even accounting for the recent downturn in overall employment in this sector as described in the PSRC review of industry clusters.

Based on interviews with local businesses, minorities represent a higher percentage of workers in seafood processing and production in the Interbay cluster than would be found in the region's overall workforce. For example, major employers on the Port of Seattle property indicated that approximately 73.3 percent of their work force would be considered a member of a minority group. Approximately 90 percent of the labor pool at Independent Packers is minority, and Independent Packers relies on long-time employees for specifically developed skills and multilingual abilities in communicating with these workers.

Given the high percentage of minorities, many employees present in the study area may also be classified as linguistically isolated (i.e., individuals living in households in which no person age 14 or older speaks only English or speaks English as a second language very well). For example, one employer indicated that 40 percent of the company's work force would not be considered proficient in English.

All of the marine businesses surrounding City Ice (i.e., Trident, Independent Packers, and Anthony's Seafood) rely on City Ice's cold storage either to store their

10 Puget Sound Regional Council, *Central Puget Sound Regional Economic Profile: Puget Sound Milestones*, December 2003.

own products, or for the business that City Ice brings to the cluster (and in some cases both). Because of this close relationship, there is a necessity for close physical proximity. For example, a large percentage of Independent Packers' customers store their product at City Ice before and after processing and packaging. Some of Trident Seafoods' customers also store product at City Ice. This storage is designed to help manage the flow of product—evening out the seasonal catches and the relatively non-cyclical demand for processed seafood[11]. Therefore, product is continually being moved from the City Ice cold storage buildings to Independent Packers or Trident Seafoods for processing before being returned to City Ice and then shipped out to the customer. Trident Seafoods and Anthony's Seafood actually share buildings with City Ice and lease cold storage space for their own products.

During interviews, business owners emphasized their mutual reliance on each other and the necessity of co-location with one another for the benefit of each business. Several businesses made it clear that their very existence is dependent upon being located next to the others.

Anthony's currently leases space on the second floor of a City Ice building, with its entry/loading/unloading area directly connected to the Magnolia Bridge. All Build Alternatives would require the relocation of Anthony's Seafood. Therefore, any change in location of the bridge (and even rebuilding the bridge in the same location but without this second-floor access) would render this space inaccessible.

Overview of Types and Number of Businesses, Employment, Taxes, and Property Values of the Impact Area

Number and Type of Businesses

The number of firms was derived from data purchased from infoUSA.com and drive-by surveys. According to infoUSA, a nationwide directory assistance for businesses, there are approximately 180 businesses in Census Tract 58.02. These businesses were broken down into 42 2-digit SIC codes grouped by major industries. The top nine industries by number of firms are:

- SIC 73 Business Services. Twenty-five different categories of businesses are in SIC 73 Business Services. This major group includes firms that provide services on a contract or fee basis. Firm categories include: advertising, copying and duplicating, photography, pest control, janitor and housecleaning services, musical instrument rentals, computer services, Web site design, scanning services, interior decorating, embroidery, recording studios, and paper shredders.
- SIC 50 Wholesale Trade—Durable Goods. Fifteen types of businesses are in SIC 50 Wholesale Trade—Durable Goods. Firm types include (wholesale): linens, copying machines and supplies, scales, sound systems and equipment, solar energy equipment, furnaces and heating, ventilating equipment, pumps, screen printing equipment and supplies, metal tanks, hobby and model construction supplies, importers, and manufacturers agents and representatives.

[11] There are certain products that are in demand on a seasonal basis. But because the catch season for these products may not correspond exactly with demand, the capacity to store large volumes of product on-site is a primary advantage of the Ballard Interbay Northend Manufacturing and Industrial Center storage and processing complex in Seattle.

- SIC 79 Amusement and Recreation Services. Eleven firms are identified in SIC 79 Amusement and Recreation Services. Firm types include: dance instruction, entertainment bureaus, golf course and instruction, martial arts instruction, parks, psychic mediums, and ski equipment rental.
- SIC 17 Construction—Special Trade Contractors. Nine firms are identified in SIC 17 Construction—Special Trade Contractors. Firm categories include: plumbers, painters, electric contractors, drywall contractors, and welding and steel fabrication.
- SIC 72 Personal Services. Eight firms are identified in SIC 72 Personal Services. Firm types include: cleaners, manicurists, and beauty salons.
- SIC 15 Building Construction—General Contractors and Operative Builders. Seven firm categories are identified in SIC Building Construction—General Contractors and Operative Builders. Firm categories include: general contractors, designers, home builders, and building contractors.
- SIC 58 Eating and Drinking Places. Seven firm types are identified in SIC 58 Eating and Drinking Places. Firm categories include: restaurants and caterers.
- SIC 59 Miscellaneous Retail. Seven firm types are identified in SIC 59 Miscellaneous Retail. Firm categories include: consignment shops, used furniture, fishing tackle dealers, snowboard retailers, hobby and model construction supplies, fabric shops, and pet shops.
- SIC 65 Real Estate. Seven firm types are identified in SIC 65 Real Estate. Firm categories include: apartments, office and desk space rentals, real estate management, and real estate.

Employment

According to the U.S. Census, more than 12,000 people were employed in the impact study area with almost one-third of the employment located in the Ballard Interbay Northend Manufacturing and Industrial Center area (Census Tract 58.02) in 2002. Table 16 shows the total employment by sector and census tract in the Magnolia Bridge Replacement impact area. Census Tract 58.02 (highlighted) represents the area likely to experience the most significant impacts in both the short and long term.

The sector with the highest number of employees in Census Tract 58.02 is SIC 17 Special Trade Contractors. SIC 17 includes contractors who specialize in building construction and painting, electrical work, carpentry work, plumbing, heating, air-conditioning, roofing, and sheet metal work. Other large employment industries include Business Services (SIC 73), which employs about 375 people; Eating and Drinking (SIC 58), which employs more than 320 people; and Food and Kindred Products (SIC 20), which employs more than 250 people.

Table 16
Estimated Employment by Sectors in
Magnolia Bridge Replacement Impact Area, Seattle, 2002

2-Digit SIC	2-Digit SIC Employment Services Division Definition	Census Tract Employment						
		56	57	58.01	58.02	59	69	Total
20	Food and Kindred Products	*	0	618	257	*	0	1,379
73	Business Services	35	90	303	372	91	23	914
17	Special Trade Contractors	10	34	198	518	50	13	823
50	Wholesale Trade - Durable Goods	20	4	287	168	64	131	674
37	Transportation Equipment	*	*	265	0	40	0	318
44	Water Transportation	0	*	2	21	570	0	727
82	Educational Services	*	*	*	*	*	*	948
27	Printing and Publishing	0	*	113	*	*	*	558
83	Social Services	6	101	15	*	110	*	930
65	Real Estate	25	19	45	151	12	12	264
9	Fishing, Hunting and Trapping Other Industries	*	*	124	*	0	*	126
64	Insurance Agents, Brokers and Services	*	3	29	*	*	0	195
32	Stone, Clay, Glass and Concrete Products	0	0	*	0	0	0	247
87	Engineering, Accounting & Management	*	*	73	93	43	14	241
15	General Building Contractors	30	*	*	65	14	*	250
51	Wholesale Trade - Nondurable Goods	6	30	143	59	*	*	258
58	Eating and Drinking Places	71	*	178	321	*	*	686
54	Food Stores	*	229	94	*	*	0	373
59	Miscellaneous Retail	51	18	8	96	*	*	234
7	Agricultural Services	24	7	14	*	*	*	105
47	Transportation Services	*	*	42	*	*	*	129
72	Personal Services	29	17	*	*	*	2	216
34	Fabricated Metal Products	0	*	*	*	*	0	72
60	Depository Institutions	17	16	*	0	*	*	54
55	Automotive Dealers and Service Stations	*	97	15	31	*	0	144
39	Miscellaneous Manufacturing Industries	0	0	*	0	0	0	67
36	Electronic Equipment, Except Computer	0	0	*	0	0	0	43
24	Lumber and Wood Products, exc. Furniture	0	0	*	0	0	0	32
88	Private Households	61	20	10	14	16	29	150
23	Apparel and Other Textile Products	0	*	48	*	*	0	78
57	Furniture and Home Furnishings	*	*	*	72	*	*	120
78	Motion Pictures	*	*	*	*	*	*	122
79	Amusement and Recreation Services	0	*	37	57	*	*	118
35	Industrial Machinery & Concrete Products	0	*	*	*	0	0	39
42	Trucking and Warehousing	0	0	0	*	*	0	65

Notes: Shaded column represents the area likely to experience the most significant impacts in both the short term and long term.

* The total output per sector does not include withheld sectors (indicated by an asterisk), thus it under-represents the total number of employees and output per sector. Output per employee for all withheld sectors was assumed to be the average output for all sectors. In this context, the term "withheld" means that data are reported but the names are not publicly released to preserve the confidentiality of individual firms. Public information available from the U.S. Census and the U.S. Bureau of Labor Statistics is "withheld" if there are less than three employers within a geographic area or sector or if one employer accounts for more than 80 percent of the jobs within that geography/sector.

Source: ES-202 employment data provided by the Puget Sound Regional Council (Kristin Koch) 2003. Analysis by ECONorthwest.

Table 16
(Continued)

2-Digit SIC	2-Digit SIC Employment Services Division Definition	Census Tract Employment						
		56	57	58.01	58.02	59	69	Total
80	Health Services	23	13	0	0	*	13	53
28	Chemicals and Allied Products	0	0	0	*	0	*	4
52	Building Material and Garden Supplies	0	26	0	*	*	0	45
75	Automotive Repair, Services & Parking	0	*	7	39	*	0	50
81	Legal Services	3	*	6	0	*	*	18
86	Membership Organizations	*	*	28	*	0	0	39
76	Miscellaneous Repair Services	*	0	18	*	9	0	33
38	Instruments and Related Products	0	0	*	0	0	0	13
62	Security, Commodity Brokers and Services	*	*	*	*	0	0	9
61	Nondepository Credit Institutions	0	0	*	0	*	0	8
67	Holding and Other Investment Offices	*	0	0	0	*	0	8
33	Primary Metal Industries	0	*	0	0	0	0	5
30	Rubber and Misc. Plastics Products	0	0	0	*	0	0	10
56	Apparel and Accessory Stores	*	*	0	*	0	*	15
25	Furniture and Fixtures	0	0	*	*	0	0	5
89	Services, Not Elsewhere Classified	*	*	0	*	*	*	4
48	Communications	0	0	*	0	0	0	1
63	Insurance Carriers	0	0	0	*	0	0	1
70	Hotels and Other Lodging Places	0	*	0	0	0	*	3
8	Forestry	0	0	0	0	*	0	*
16	Heavy Construction Contractors	0	*	0	0	0	0	*
84	Museums, Botanical, Zoological Gardens	*	0	0	0	0	0	*
Total Not Withheld		411	724	2,720	2,334	1,019	237	7,445
Total Withheld(average of all sectors)		212	435	481	1,529	1,684	237	4,578
Total		623	1,159	3,201	3,863	2,703	474	12,023

Notes: Shaded column represents the area likely to experience the most significant impacts in both the short term and long term.
* The total output per sector does not include withheld sectors (indicated by an asterisk), thus it under-represents the total number of employees and output per sector. Output per employee for all withheld sectors was assumed to be the average output for all sectors. In this context, the term "withheld" means that data are reported but the names are not publicly released to preserve the confidentiality of individual firms. Public information available from the U.S. Census and the U.S. Bureau of Labor Statistics is "withheld" if there are less than three employers within a geographic area or sector or if one employer accounts for more than 80 percent of the jobs within that geography/sector.

Source: ES-202 employment data provided by the Puget Sound Regional Council (Kristin Koch) 2003. Analysis by ECONorthwest.

Table 17 shows the concentration of study area employment and Census Tract 58.02 employment within the City of Seattle. Special Trade Contractors (SIC 17) and Food and Kindred Products (SIC 20) have the highest concentration of employment in the impact area and the city. Over 60 percent of the Special Trade Contractors employed in the impact area work in Census Tract 58.02 and these workers represent more than 5 percent of the Special Trade Contractors in the city. About 20 percent of the Food and Kindred Products employees in the impact area work in Census Tract 58.02, and they represent almost 4 percent of Food and Kindred Product employees citywide.

Industries with a high concentration of impact area employees in Census Tract 58.02 include: Automotive Repair (78 percent), Furniture and Home Furnishings (60

percent), Real Estate (57 percent), Amusement and Recreation (48 percent), and Eating and Drinking (47 percent). Automotive Repair and Furniture and Home Furnishings may sustain higher impacts because of the reliance on automobile transportation either for clients or to transport products.

Table 17
Concentration of Employment by Sector by Study Area and Census Tract 58.02, Seattle, 2002

2-Digit SIC	2-Digit SIC Employment Services Division Definition	City of Seattle Emp	Total Study Area Emp	% of City of Seattle	Census Tract 58.02 Emp	% of City of Seattle	% of Study Area Emp
20	Food and Kindred Products	6,891	1,379	20.01%	257	3.73%	18.64%
32	Stone, Clay, Glass and Concrete Products	1,461	247	16.91%	0		
82	Educational Services	6,470	948	14.65%	*		
44	Water Transportation	5,108	727	14.23%	21	0.41%	2.89%
09	Fishing, Hunting and Trapping Other Industries	924	126	13.64%	*		
27	Printing and Publishing	5,060	558	11.03%	*		
24	Lumber and Wood Products, exc. Furniture	317	32	10.09%	0		
17	Special Trade Contractors	9,153	823	8.99%	518	5.66%	62.94%
78	Motion Pictures	1,456	122	8.38%	*		
83	Social Services	13,226	930	7.03%	*		
07	Agricultural Services	1,636	105	6.42%	*		
39	Miscellaneous Manufacturing Industries	1,177	67	5.69%	0		
72	Personal Services	3,903	216	5.53%	*		
54	Food Stores	7,103	373	5.25%	*		
50	Wholesale Trade - Durable Goods	13,794	674	4.89%	168	1.22%	24.93%
23	Apparel and Other Textile Products	1,608	78	4.85%	*		
64	Insurance Agents, Brokers and Services	4,026	195	4.84%	*		
88	Private Households	3,306	150	4.54%	14	0.42%	9.33%
55	Automotive Dealers and Service Stations	3,383	144	4.26%	31	0.92%	21.53%
47	Transportation Services	3,062	129	4.21%	*		
34	Fabricated Metal Products	1,761	72	4.09%	*		
15	General Building Contractors	6,402	250	3.91%	65	1.02%	26.00%
57	Furniture and Home Furnishings	3,100	120	3.87%	72	2.32%	60.00%
38	Instruments and Related Products	418	13	3.11%	0		
73	Business Services	30,084	914	3.04%	372	1.24%	40.70%
65	Real Estate	8,735	264	3.02%	151	1.73%	57.20%
36	Electronic Equipment, Except Computer	1,562	43	2.75%	0		
52	Building Material and Garden Supplies	1,642	45	2.74%	*		
51	Wholesale Trade - Nondurable Goods	9,718	258	2.65%	59	0.61%	22.87%
42	Trucking and Warehousing	2,394	65	2.72%	*		
51	Wholesale Trade - Nondurable Goods	9,718	258	2.65%	59	0.61%	22.87%
37	Transportation Equipment	12,254	318	2.60%	0		
76	Miscellaneous Repair Services	1,281	33	2.58%	*		
58	Eating and Drinking Places	30,613	686	2.24%	321	1.05%	46.79%
30	Rubber and Misc. Plastics Products	453	10	2.21%	*		

Note: Table shows sectors with at least 19 percent of employment or more in Census Tract 58.02.
Source: ES-202 data provided by the Puget Sound Regional Council (Kristin Koch) 2003. Analysis by ECONorthwest.

Table 17
Continued

2-Digit SIC	2-Digit SIC Employment Services Division Definition	City of Seattle Emp	Total Study Area Emp	% of City of Seattle	Census Tract 58.02 Emp	% of City of Seattle	% of Study Area Emp
35	Industrial Machinery & Concrete Products	1,804	39	2.16%	*		
79	Amusement and Recreation Services	5,544	118	2.13%	57	1.03%	48.31%
25	Furniture and Fixtures	240	5	2.08%	*		
59	Miscellaneous Retail	11,910	234	1.96%	96	0.81%	41.03%
75	Automotive Repair, Services & Parking	3,815	50	1.31%	39	1.02%	78.00%
87	Engineering, Accounting & Management	20,321	241	1.19%	93	0.46%	38.59%
86	Membership Organizations	4,747	39	0.82%	*		
89	Services, Not Elsewhere Classified	494	4	0.81%	*		
33	Primary Metal Industries	840	5	0.60%	0		
61	Nondepository Credit Institutions	1,350	8	0.59%	0	0.00%	0.00%
60	Depository Institutions	12,055	54	0.45%	0	0.00%	0.00%
67	Holding and Other Investment Offices	1,861	8	0.43%	0		
56	Apparel and Accessory Stores	5,518	15	0.27%	*		
28	Chemicals and Allied Products	1,672	4	0.24%	*		
62	Security, Commodity Brokers and Services	4,099	9	0.22%	*		
81	Legal Services	9,327	18	0.19%	0	0.00%	0.00%
80	Health Services	39,763	53	0.13%	0	0.00%	0.00%
70	Hotels and Other Lodging Places	5,879	3	0.05%	0		
48	Communications	7,797	1	0.01%	0		
63	Insurance Carriers	8,733	1	0.01%	*		
01	Agricultural Production - Crops	47	0	0.00%	0		
14	Nonmetallic Minerals, Except Fuels	48	0	0.00%	0		
22	Textile Mill Products	86	0	0.00%	0		
26	Paper and Allied Products	270	0	0.00%	0		
41	Local and Interurban Passenger Transit	1,780	0	0.00%	0		
45	Transportation by Air	4,681	0	0.00%	0		
49	Electric, Gas and Sanitary Services	960	0	0.00%	0		
53	General Merchandise Stores	3,416	0	0.00%	0		
02	Agricultural Production - Livestock	*	0		0		
08	Forestry	79	*		0		
10	Metal Mining	*	0		0		
12	Coal Mining	0	0		0		
13	Oil and Gas Extraction	*	0		0		
16	Heavy Construction Contractors	963	*		0		
29	Petroleum Refining & Related Industries	*	0		0		
31	Leather and Leather Products	*	0		0		
40	Railroad Transportation	0	0		0		
46	Pipe Lines, Except Natural Gas	0	0		0		
84	Museums, Botanical, Zoological Gardens	874	*		0		
Total		364,454	12,023	3.30%	3,863	1.06%	32.13%

Note: Table shows sectors with at least 19 percent of employment or more in Census Tract 58.02.
Source: ES-202 data provided by the Puget Sound Regional Council (Kristin Koch) 2003. Analysis by ECONorthwest.

The Puget Sound Regional Council forecasts employment for the four-county region. Employment is expected to grow at a slower rate in FAZ 6125 (22 percent) than in King County (40 percent) between 2000 and 2030, as shown in Table 18. The Interbay area is forecast to lose 40 percent of manufacturing jobs (compared to

12 percent in the county) during the same time period. The largest employment increases in FAZ 6125 are forecast for the Finance, Insurance, Real Estate, and Services (FIRES) sector (81 percent) and retail sector (43 percent) by 2030. The County is forecast to experience the highest increases in employment in the FIRES (63 percent) and Wholesale, Transportation, Communication, and Utilities (WTCU) (37 percent) sectors.

Table 18
Forecast Employment, Interbay FAZ 6125, Seattle, 2000-2030

Employment Sector	2000	2010	% Change 2000-2010	2020	% Change 2000-2020	2030	% Change 2000-2030
FAZ 6125 (Interbay)							
Total Employment	8,661	9,243	7%	10,022	16%	10,549	22%
Manufacturing	2,858	2,146	-25%	1,808	-37%	1,717	-40%
WTCU	1,679	1,681	0%	2,013	20%	2,174	29%
Retail	971	1,152	19%	1,260	30%	1,388	43%
FIRES	2,628	3,699	41%	4,416	68%	4,763	81%
Government/ Education	525	565	8%	525	0%	507	-3%
King County							
Total Employment	1,196,043	1,351,220	13%	1,516,898	27%	1,670,793	40%
Manufacturing	147,868	135,472	-8%	131,151	-11%	129,664	-12%
WTCU	172,682	182,050	5%	211,094	22%	236,438	37%
Retail	209,969	223,226	6%	249,106	19%	274,575	31%
FIRES	505,375	626,000	24%	730,743	45%	822,584	63%
Government/ Education	160,149	184,472	15%	194,804	22%	207,532	30%

Note: Total employment includes the total number of jobs located in the FAZ, including part-time, self-employed, proprietors, and military, as well as wage and salary workers in all industry sectors except resources (agriculture, forestry, fishing, and mining) and construction. Manufacturing includes the number of jobs in SIC 19-39, plus the Puget Sound Naval Shipyard (PSNS) in Kitsap County. WTCU includes the number of jobs in wholesale trade, transportation services, communication, and utilities, SIC 40-42, 44-51. Retail includes the number of jobs in SIC 52-59. FIRES includes the number of jobs in SIC 07, 60-67, 70, 72-74, 75-76, 78-81, 83-84, 86, 89. Gov/Ed includes the number of jobs in SIC 43, 82, 92-97, and government enterprises classified elsewhere (except PSNS).

Source: Data from 2002 Small Area Forecasts of Population and Employment, Central Puget Sound Region by the Puget Sound Regional Council (http://www.psrc.org/datapubs/pubs/forecasts_2002.htm).

Potential Port of Seattle North Bay Development

Proposed future development of the Port of Seattle North Bay property could create major employment changes in the area that are not accounted for in the PSRC employment forecasts described above. The Port began a master planning process for North Bay, including Terminal 91, in 2003.

Future Port development scenarios for North Bay include a range of low-, high-, and mixed-density development alternatives. The development alternatives, which include similar infrastructure, utility, and roadway networks, represent the limits of potential development. Four development alternatives and two no build alternatives are proposed that represent a full range of land use densities that the site could accommodate, given existing and proposed Comprehensive Plan and zoning designations (Port of Seattle 2004). Although three of the four development alternatives include a residential component, it is assumed in this environmental analysis that the Port would develop North Bay under existing industrial zoning,

which would allow industrial and commercial development but not residential development.

Table 19 shows employment counts and forecasts for the North Bay planning area (in and around Terminal 91), the commercial/industrial area west of 15th Avenue West between West Wheeler Street and the Magnolia Bridge, and the commercial/industrial area west of Elliott Avenue West between the Grain Terminal and the Magnolia Bridge. The forecasts presented in Table 19 indicate that employment in this particular portion of the study area is expected to grow at substantially faster rates than King County, the City of Seattle, or the study area FAZs, more than doubling by 2030.

Table 19
Estimated and Forecasted Employment in Terminal 91 and West of 15th Avenue West/Elliott Avenue West

Area	2000	2010	% Change 2000-2010	2030	% Change 2000-2030
Terminal 91	881	1,223	38.8%	2,156	144.7%
West of 15th Ave. W between Magnolia Bridge and W. Wheeler St.	511	528	3.3%	1,391	172.2%
West of Elliott Ave. W between Grain Terminal and Magnolia Bridge	938	1,307	39.3%	2,800	198.5%
Total	2,330	3,058	31.2%	6,347	172.4%

Source: HNTB Corporation and Mirai Associates 2003.

Tax Base

Business and occupation (B&O) taxes and sales tax revenues for the City were estimated by obtaining total tax revenues paid by businesses in the City of Seattle by industry. These tax revenues were then divided by the total employment per industry to get the average tax paid per employee. It was then possible to estimate the annual taxes paid by a company according to how many people are employed there.

It is estimated that businesses in the impact area paid approximately $3.9 million in B&O taxes in 2002. Businesses in Census Tract 58.02 paid approximately 23 percent of the impact area's estimated B&O taxes ($904,000). Businesses in Census Tract 58.02 paid approximately 31 percent, or $1.2 million, of the $3.7 million in sales taxes paid to the City in the impact area.

Interviews with Affected Businesses

As described in the Studies and Coordination section, to analyze potential long-term impacts on businesses in the Interbay area, ECONorthwest interviewed the five businesses and one landowner who would be affected under Alternatives A, C, and D. ECONorthwest interviewed representatives of Snider Petroleum, Trident Seafoods, Anthony's Seafood Distributing, City Ice, Independent Packers, and the Tsubota Family. The questionnaire used to guide the interviews is described in the Studies and Coordination section. The results of these interviews are described below.

Few businesses would be displaced under each alternative. To protect the proprietary information of individual businesses, specific employment figures and other statistics are not provided separately. The overall employment demographics

of the cluster of businesses on Port of Seattle property that could be affected by one or more of the alternatives are, therefore, described cumulatively.

General Information

The average length of time businesses have been in operation is 34 years, with a range from 5.5 to 102 years, as shown in Table 20. The average length of time at their Interbay location is 17.5 years with a range of 5.5 to 30 years. The longevity of business operation and business location is significant because the business owners and managers have built their businesses around the location. They have tailored their operations and management to their specific site and to alter that may be more of a change than just the physical location. They may have to alter their operation to suit a new location with different employees, neighbors, site access, and suppliers.

(Note: In order to maintain privacy for specific businesses, the information for the affected businesses is combined in the following tables. However, this information has been individually collected, and general discussions of the potential effects on each business are included in later sections.)

Table 20
Years of Operation and Years at Location, Interviewed Businesses, Magnolia Bridge Replacement Project, Seattle, 2004

Average Years in Operation	Average Years at Location	Range of Years in Operation	Range of Years at Location
33.8	17.5	5.5 - 102	5.5 - 30

Source: ECONorthwest interviews.

Employment

The six businesses interviewed employ a total of 490 employees and pay approximately $10,900,000 annually in wages[12], as shown in Table 21. Of the total employees, 349 are full-time workers and 141 are part-time workers. Part-time workers are either seasonal employees or temporary day workers who are called in when unexpectedly large amounts of work are present, such as large shipments of product that must be loaded or unloaded.

Overall, a large percentage of employees in this area are minority. Of the total 490 employees, 359 (73.3 percent) were identified as minority[13].

Table 21
Employment Totals, Employee Ethnicity, and Total Wages of Interviewed Businesses, Magnolia Bridge Replacement Project, Seattle, 2004

Employees						Wages
Full Time	Part Time	Total	Non-Minority	Minority	% Minority	
349	141	490	126.75	359.25	73.3%	$10.9 Million

Source: ECONorthwest interviews.

12 This total does not include wages paid by Snider Petroleum, which was unable to furnish this information.

13 See the Environmental Justice Discipline Report for further discussion on this topic.

Current Operations

Movement of product and supplies into and out of the Interbay area is important to the business representatives interviewed for this report. These businesses need to move significant amounts of product and supplies to and from each business daily. Most of this movement occurs by truck; however, many businesses rely on water/dock access and the railroad spurs. Even though some of the businesses do not currently use the railroad spurs, interviewees indicated that it is an important advantage to their business to be able to allow their customers the option should they need it.

Each interviewed business was asked to rate the following business factors by their importance on a scale of 1 to 5. Below are the responses to this question, shown without the business identifiers to maintain the anonymity of the interviewees, and ranked by order of average importance.

Table 22 illustrates the importance of both the location of the businesses (i.e., their proximity to customers/clients) and their transportation accessibility with average ratings of 4.5 and 4.4, respectively. These issues are paramount for the majority of businesses and would be important factors when considering the possible relocation of any of the businesses.

Table 22
Importance of Business Factors to Interviewed Businesses, Magnolia Bridge Replacement Project, Seattle, 2004[1]

Influencing Factors	Responses						Average
Proximity to customers/clients	5	5	4	5	5	3	4.5
Good transportation accessibility	4	5	4	4	4	5	4.3
Reliable utility operations	5	5	2	3	4	5	4.0
Expansion opportunities	4	5	2	4	4	5	4.0
Favorable state and local taxation	5	3	2	5	4	4.5	3.9
Available and qualified labor	4	3	4	3	4	4.5	3.8
Proximity to raw materials/suppliers	5	2	5	3	5	3	3.8
Favorable utility costs	2	4	4	3	2	4	3.2
Favorable regulatory environment	3	3	3	n/a	3	4.5	3.3
Favorable labor costs	3	3	2	3	3	4.5	3.1
Easy street access for customers	1	2	1	3	1	4	2.0
Foot traffic	1	2	1	1	1	n/a	1.2

Note: [1] On a scale from 1 (lowest) to 5 (highest).

Source: ECONorthwest interviews.

Relocation Effects

Interviewees were asked to rate the importance of their Interbay location to their current operations. Table 23 shows the average response and the range of responses. Table 23 reinforces the importance of location for interviewees. Of the six businesses interviewed, five rated the importance of their location as a five; the sixth rated it a three.

Table 23
Importance of Location for Interviewed Businesses, Magnolia Bridge Replacement Project, Seattle, 2004[1]

Average Response of Importance	Range of Responses
4.7	3 - 5

Note: [1] On a scale from 1 (lowest) to 5 (highest).
Source: ECONorthwest interviews.

Important Points for Relocation:

The following concerns were raised by the interviewees regarding the possibility of moving:

- **Importance of the marine cluster**. The marine cluster's interdependence is of paramount importance. If any one of the four marine companies was to relocate away from the others, it would not only be a hardship for that company but also for those who remain.
- **Reasonable rent**. Reasonable rent is a major concern. Many companies have located in this area specifically because of the reasonable lease rates or have been in their current location long enough to have negotiated low rates. They are concerned that they may not be able to survive in another suitable area because of higher rent/lease costs.
- **Security**. Security is also an issue for many of the interviewed businesses. One company said that they were aware of one other location that might suit their needs, but that the other companies located there had problems with theft. Those companies currently located on Port property benefit from Port security.

Further discussion of each respondent's relocation options is included in the Mitigation section.

Taxes and Revenues

To obtain an understanding of the scope of tax revenue that would be affected by the alternatives, information was gathered from each of the six businesses on the amount of sales tax and B&O tax that they paid. Information was also gathered on the amount of revenue collected annually by each business.

The total annual amount of sales tax and B&O tax paid to Washington State by the interviewed businesses is just over $500,000, as shown in Table 24. The approximate total collected revenue for the businesses (Interbay locations only) is $526 million. When considering all locations of the businesses interviewed, the approximate revenue increases to $1,275 million.

Table 24
Annual Taxes Paid and Revenues Collected

Taxes			Revenue	
Sales	B&O	Total	Interbay Location	Total for all Business Locations
$220,000	$290,000	$510,000	$526,000,000	$1,275,000,000

Source: ECONorthwest interviews.

Information on annual real estate property tax was also gathered from the King County Assessor's Office. This tax is paid by the landowner rather than the business owner and is paid on the entire land parcel. Table 25 shows the total property tax paid in 2002 and 2003 for all land parcels crossed by Alternatives A, C, and D. Note that there are many more affected land parcels than there are affected businesses because many of the land parcels do not contain businesses, or may contain businesses that are not directly in the path of the considered alternative and are therefore not affected. Also worth noting is that the majority of affected land is owned by the Port of Seattle, which is exempt from paying property tax.

Table 25
Annual Real Estate Property Taxes Paid

Total Tax Paid 2002	Total Tax Paid 2003
$25,788.66	$34,963.51

Source: King County Assessor's Office.

Assessment of Impacts

Potential impacts were assessed in accordance with the guidelines contained in Section 457 of the WSDOT *Environmental Procedures Manual*. Section 457 contains three checklists identifying items to be evaluated in this discipline report. These checklists are Exhibit 457-1, Social Elements; Exhibit 457-2, Economic Elements; and Exhibit 457-3 Relocation. Appendix B of this report contains a checklist summary, which gives the location of where each checklist item is addressed in this document or indicates why the item is not applicable to the Magnolia Bridge Replacement Project. Evaluated elements include but are not limited to: community cohesion; air quality; noise; water quality; park and recreation resources; visual quality; historic and cultural resources; community growth; public services; and pedestrian, transit, and bicycle facilities. Information collected through the public outreach process, as described above in the Public Involvement section, was also an important component in conducting the analysis.

Overall, relatively few impacts related to Social, Economic, and Relocation considerations were identified. The following factors contribute to the overall low potential for Social, Economic, and Relocation operational impacts from the Magnolia Bridge Replacement Project:

- The purpose of the project is to replace a bridge. None of the alternatives increase capacity for vehicle traffic into and out of Magnolia. Traffic volumes in local neighborhoods would not increase as a result of this project. The project would not influence population and housing growth, would not create increased demand for public services, and would not encourage increased use of park and recreation facilities in the area.
- All of the alternatives connect to the same termini as the existing bridge. Traffic patterns would not change under any of the alternatives. Therefore, no operational impacts related to community cohesion would occur. Also, pedestrian and bicycle connections in the study area would be maintained and facilities on the bridge would be improved under all of the alternatives.
- No residential displacements would occur under any of the alternatives.
- Other discipline reports have been reviewed and, largely because the project is a bridge replacement with the same termini as existing conditions, no localized areas of impact have been identified related to air quality, water quality, visual quality, and hazardous materials. Noise thresholds would be exceeded at some residences in 2030, but these noise levels would occur under the No Build Alternative as well as the Build Alternatives. These noise levels are a result of background traffic volume growth and would be achieved even if the project were not constructed. (see the Noise Discipline Report). Substantial localized impacts related to these elements of the environment have not been identified, and the project would not result in disproportionate adverse impacts on minority or low-income populations.

- Finally, as described above in the Public Involvement section, an ongoing public involvement program has been in place throughout the project. Through this process, no disproportionate impacts on minority or low-income populations have been identified other than the potential for job losses at businesses on Port of Seattle property. See the Environmental Justice Discipline Report for more information.

Few businesses would be displaced under each alternative. All of these businesses are part of the maritime industrial cluster and all are located on Port of Seattle property within a few hundred yards of the existing Magnolia Bridge. To preserve confidentiality, economic data such as employment, revenue, and other non-public information or potentially proprietary data are "withheld" for individual firms. In this context, the term "withheld" means that data are reported but names are not publicly released. These data are presented cumulatively, however, for each of the alternatives considered.

Suppression of firm-level economic data is consistent with policies and procedures adopted by most governmental agencies that collect and report potentially proprietary information. Public information available from the U.S. Census and the U.S. Bureau of Labor Statistics is withheld if there are less than three employers within a geographic area or sector or if one employer accounts for more than 80 percent of the jobs within that geography/sector. These criteria apply to the businesses located nearby that are affected by the alternatives under consideration for replacement of the Magnolia Bridge. The overall employment demographics of the cluster of businesses are described cumulatively in the Affected Environment section above.

A summary of impacts for each of the alternatives is presented below consistent with the WSDOT *Environmental Procedures Manual* checklists in Section 457.

No Build Alternative

Because the existing bridge would remain in place under the No Build Alternative, no impacts related to community cohesion, recreation, cultural resources, recreational and community growth, pedestrian, transit, and bicycle facilities, or displacement would occur. Under the No Build Alternative, the bridge would be more likely to be damaged and closed after an earthquake than under the Build Alternatives, which would adversely affect emergency vehicle access and be more likely to cause rerouting of school buses. Under the No Build Alternative, adverse impacts on utility services may include collateral damage to the various utilities in the bridge vicinity, including the electrical power supply to Pier 91, the Interbay pump station, Port switchgear (located under the existing viaduct), and area lighting.

The closure of the bridge after an earthquake would also have an economic impact on the businesses primarily in Census Tract 58.02 and the study area in general. Closures are anticipated for regular maintenance and repairs, as well as after an earthquake. Under this scenario, employees in Census Tract 58.02 would experience increased transportation costs while they are forced to detour around the closed bridge. Businesses either shipping raw materials into the area by ground transportation or shipping goods out would also experience higher transportation costs with every bridge closure. Businesses that regularly pass under the bridge for access to the docks could also be affected if bridge maintenance and repair work impedes this access.

Alternative A

Social Conditions

Community Cohesion

A key aspect of community cohesion is connectivity. Under Alternative A, connectivity between the region and the study area neighborhoods, as well as between neighborhoods, would not change because traffic patterns would remain the same as under existing conditions and the existing bridge termini would be maintained. Furthermore, the new bridge would be constructed primarily over existing industrial property. Therefore, Alternative A would not cut off streets or separate or isolate any community or neighborhood areas such as nearby residential areas in Magnolia.

Right-of-way acquisition would require removal of access to part of one non-residential structure in the study area (see Relocation below), but the displaced business does not serve neighborhood retail or services needs. Links to existing community facilities and services in the study area would not change. Social relationships or patterns, including the movement and interaction of people, both residents and workers, would be similar to existing conditions.

There would no displacement of residential properties. Therefore, there would be no impact on the availability of affordable and accessible housing within the study area.

Because traffic capacity would not increase and there would be no influence on population and housing growth, Alternative A would not result in a redistribution, influx, or loss of population and would not have an impact on community life. Alternative A would also not lead to an increase in automobile dependency.

Recreation

The only recreation facility that would be affected by Alternative A is the Smith Cove Acquisition Project. Potential direct impacts on this resource are summarized below. See the Public Lands, Section 4(f) Discipline Report for additional information.

The Build Alternatives have been designed to replace the existing bridge and would not increase the capacity of traffic to and from Magnolia. The alternatives, therefore, would not cause population growth or increased access and would not indirectly contribute to future increased use of recreation resources in the Magnolia, Interbay, and Queen Anne areas.

Facilities/Capacity

Alternative A would be located over 0.92 acre of currently designated parkland at the Smith Cove Acquisition site. The existing Magnolia Bridge easement over the lower site (covering 0.4 acre) could be transferred to Seattle Parks and Recreation in exchange for a new easement to accommodate Alternative A. The existing bridge easement could then be redeveloped over time for park and recreation purposes. This exchange would reduce the net direct impact of this alternative from 0.92 acre to 0.51 acre.

In addition, because only 0.02 acre of the lower site would be required to accommodate the proposed overhead bridge footings, the remainder of the area

under the bridge (0.6 acre) could continue to be used for recreational activities, in effect resulting in a net gain of approximately 0.1 acre of parkland.

Access

Alternative A would relocate the bridge structure south of its existing location over the lower site and would bisect the area proposed for turf activities. However, placement of proposed overhead bridge footings is not anticipated to adversely affect existing or future access to planned park and recreation activities on this site. Drivers, cyclists, and pedestrians would still be able to directly access the site from 23rd Avenue West.

Access to the upper site is provided directly from West Galer Street. Loss of 0.29 acre of parkland at the upper site would not impede access to other portions of the upper site from West Galer Street.

Aesthetics

Under Alternative A, the bridge over the lower site would bisect the area proposed for turf activities. The structure in this location would be a more visible presence to users of the turf area than under existing conditions. However, aesthetic attributes of the lower site would not be substantially impaired or diminished. The remaining portions of the upper site would continue to provide views of the city and waterfront.

Air Quality

Air quality modeling for this project (see the Air Quality Discipline Report) shows that carbon monoxide (CO) concentrations at all intersections in the study area would drop in the future and would continue to meet all applicable ambient air quality standards in 2010 (year of opening) and 2030 (design year). CO concentrations would drop because predicted decreases in vehicle emissions would offset the forecast increases in traffic levels. No air quality impacts are anticipated near the park properties.

Noise

Noise modeling for this project (see the Noise Discipline Report) indicates that noise levels in 2030 could increase by 1 to 4 decibels at nearly all receivers compared to existing conditions because of increases in traffic volumes. The increase in traffic noise levels would result from the growth in traffic volumes through 2030 across Magnolia Bridge and surrounding streets and would not be the result of Alternative A. The same increase in traffic volumes would occur under the No Build Alternative and the Build Alternatives.

Water

Alternative A would install stormwater conveyance and treatment facilities. Applying stormwater treatment prior to discharge through an existing outfall would result in a net benefit to water quality in the area because no treatment facilities are currently in place. Therefore, no impacts related to water quality have been identified that would substantially affect or diminish the activities or attributes of the park properties.

Land Use in the Vicinity

Alternative A would not adversely affect land uses in the vicinity of the Smith Cove Acquisition Project. Alternative A is designed to avoid residential displacements and would not otherwise restrict or substantially impair the use and enjoyment of nearby residential parcels or park property such as Smith Cove Park. Furthermore, Alternative A would not induce population or housing growth in the study area and would not create additional demand for public use of park and recreation facilities.

The Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at this site, which would exempt this resource from Section 4(f) requirements (FHWA 1987) and establish mitigation measures.

Cultural Resources

The project alternatives are located within the ceded territory and the "usual and accustomed areas" of the Suquamish Tribe, Tulalip Tribes, Muckelshoot Tribe, Yakama Indian Nation, the Duwamish Tribe (pending federal recognition), and the Kikiallus Indian Nation (not federally recognized). Analysis to date indicates that one or more of these tribes may have an interest in activities associated with this project because of tribal fishing activities in Elliott Bay and historic place name references to what is now the Interbay area. No specific adverse impacts on cultural resources have been identified, however. The tribes will have the opportunity to identify potential issues through formal Section 106 government-to-government consultation initiated by FHWA. Any issues identified by the tribes will be addressed through the ongoing environmental process. See the Historic, Cultural, and Archaeological Resources Discipline Report for additional information.

Recreational and Community Growth

No impacts related to population and housing would occur under Alternative A. Alternative A and the other Build Alternatives have been designed to maintain existing access to and from the Magnolia neighborhood and would not increase the capacity for traffic to access Magnolia. Also, Magnolia is essentially a built-out community with little room for growth under existing zoning. It is assumed that the study area would grow at less than 1 percent per year under existing zoning under all alternatives including the No Build Alternative (Puget Sound Regional Council 2003c). Alternative A would not induce population growth in the study area. Without induced population growth, no increase in the demand for housing or recreation facilities is expected as a result of this alternative.

Services

Educational Facilities

A number of educational facilities are located in the study area, including childcare facilities, preschools, and public and private schools. However, no buildings are close to the proposed roadway under Alternative A, so direct access to such facilities would not need to be modified. General travel patterns are not expected to change substantially under Alternative A; therefore, travel routes including public bus routes, and travel times to and from these educational facilities are not expected to change in the future.

Religious Institutions

There are only two religious institutions in the immediate vicinity of the Magnolia Bridge—City Team Ministries and Saint Margaret's Church. Both facilities are several blocks from the new bridge alignment proposed as part of Alternative A and would not be affected in the long term. Direct access to and from these facilities would be the same as current conditions, and traffic patterns and travel times are not expected to change in the vicinity of these facilities. No adverse effects would occur.

Social Institutions

Two social institutions are near the Alternative A footprint: Northwest Center and Northwest Harvest. These facilities, however, are not adjacent to the alignment of Alternative A, so access patterns, travel routes, and travel times to these facilities would not be changed under Alternative A. No adverse effects would occur.

Medical Services

A number of medical services are located in the study area, but all are located between several blocks and miles away from proposed bridge alignment under Alternative A. Direct access to these facilities would be the same as current conditions, and travel routes and travel times are not expected to change in the long term. No adverse effects on medical services would occur under Alternative A.

Fire and Police Protection

The Alternative A – Ramps option would provide almost the same access and maintain the same travel patterns as provided by the existing bridge, and emergency vehicle access would not be affected.

The Alternative A – Intersection option would have a signalized intersection at mid-span, and there would be up to a 0.4-mile increase in travel distance to Smith Cove and Terminal 91 because of the length of connector street between the Magnolia Bridge intersection and the 21st Avenue West intersection. Because the added distance is relatively short, this option is not expected to substantially add to the emergency vehicle response time to Smith Cove and Terminal 91. Similarly, this option would not substantially affect emergency vehicle access to and from Magnolia. The traffic signal on the bridge is not expected to delay emergency vehicles because they could bypass the signal when necessary, or intelligent traffic controls could be installed in the signal.

Public Services and Utilities

Replacing the bridge would not create additional demand for utility service within the study area. Operation of the bridge in its new configuration under Alternative A would likely result in permanent relocation of utility infrastructure; these relocation impacts are described below under Construction Impacts.

Government Institutions and National Defense Installations

Under Alternative A, no local, state, or federal government agency offices would be affected. The only national defense installation in the immediate vicinity of the Magnolia Bridge is the Army National Guard Headquarters for the 181st Support Battalion on West Armory Way. However, this installation is north of the new

bridge alignment proposed as part of Alternative A and would not be affected in the long term. Direct access to and from this site, general travel patterns, and travel times near this facility would not change in the future. As such, there would be no adverse effects on this installation.

Demand for Services

Alternative A would not induce population and housing growth because it would not increase capacity of vehicle traffic to and from Magnolia. Therefore, Alternative A would not create an increased demand for new or additional community facilities, institutions, or services in the study area. Because there would be no increase in demand, there would be no change in service area for these types of facilities in the study area. Other potential impacts are summarized below.

Pedestrian, Transit, and Bicycle Facilities

Pedestrian and Bicycle Facilities

Under Alternative A – Ramps, pedestrian and bicycle usage, capacity, and connections would be similar to existing conditions. As a result, nonmotorized travel times would also be similar to existing conditions. Pedestrians using the south sidewalk and cyclists using either the south sidewalk or the eastbound travel lane would be required to cross the eastbound on-ramp. Cyclists using the westbound travel lane would also cross the westbound off-ramp. Pedestrians and cyclists would have to yield to ramp traffic before crossing the ramps.

Having the intersection on the bridge would be safer for bicycles and pedestrians than the design under the No Build Alternative or Alternative A – Ramps option. On the bridge, the intersection would be signalized and there would be no ramps to cross. The intersection design would also allow for direct and faster pedestrian and bicycle connections from Magnolia down to the Port property and the waterfront. This would save time for nonmotorized users heading to the marina area from Magnolia or connecting to the western end of the Terminal 91 bicycle path.

Alternative A would also improve pedestrian and bicycle facilities on the new bridge compared to existing conditions. A 5-foot sidewalk would be provided on the south side of the new bridge, and 16-foot-wide outside lanes would provide room for cyclists. The wider lanes would improve cyclist safety by minimizing potential conflicts with motorists.

Transit Facilities

No major changes to bus route circulation patterns are expected with Alternative A because the bridge would remain in the same location as the existing bridge with the same connections at both the east and west ends. Under Alternative A, the same or equivalent bus access would be available, either by building the required bus stops on the bridge or with a Metro bus route revision through the North Bay development. Travel times on these routes would not be adversely affected. Furthermore, Alternative A would not induce population growth in the study area and is therefore not expected to increase transit demand.

Economic Effects

This economic analysis focuses primarily on the impacts to employers, specifically the effects of displacement of businesses and possible removal of buildings. Long-

term operational impacts are associated with the effects of the replacement of the bridge after construction, from year of completion to approximately 50 years after completion (the life expectancy of the bridge).

Overall Business Activity

In the long term, the reliable access provided by a new bridge would positively affect businesses that depend on the Magnolia Bridge to provide access to employees and customers and to transport raw materials or finished products. Business displacement could have an adverse impact on specific businesses, but the extent of the impact, if any, would depend to a high degree on the operating characteristics of the particular business. Alternative A is designed to maintain current vehicle carrying capacity and to enhance the operating efficiency of the current flow of traffic. Because Alternative A would not alter land use, traffic patterns, or traffic volumes, it has no foreseeable long-term economic effect on businesses other than the relocation of Anthony's Seafood Distributing, which is discussed below. Travel time for shipment of goods would remain the same, and no change would occur in business or shopping patterns.

Change in Permanent Jobs

If Anthony's Seafood Distributing were to relocate within the Interbay area under Alternative A, no changes in permanent jobs would occur. However, if this business were forced to relocate outside the Interbay area, the area would lose approximately 12 to 15 full- and part-time jobs. This projected job loss would include approximately nine minority employees; the remaining employees at this business are non-minority. Once construction is complete, no structural diversions or barriers that could affect jobs would be in place, and no induced growth or development would occur.

Property Value Trends and Local Economy

Because Alternative A would be built immediately south of the current bridge and maintain connections at the east and west ends of the bridge, traffic volumes and access are expected to remain the same. No long-term effect on the surrounding property and local economy is expected.

Effects on the Region

No foreseeable effects on the region would occur under Alternative A. This alternative would not change land use or traffic patterns; therefore, no effects on the communities, businesses, interchanges, or transit stops near the new bridge are anticipated.

Relocation

Anthony's Seafood Distributing would be relocated under Alternative A (Figure 12). This business is not minority owned or operated but is among the interviewed companies that have a high percentage of minority employees and a number of relatively low-paying jobs. No other business would need to be relocated; however, other businesses in the marine cluster on Port of Seattle property could be affected by any disruption in the cluster's operations. See the discussion of potential impacts on these businesses under Alternatives C and D, below.

Anthony's Seafood Distributing

Anthony's Seafood Distributing would have to move under Alternative A. This company is located on the second floor of a building owned by City Ice, and the entrance is directly connected to the mid-span of the existing Magnolia Bridge. Therefore, under any alternative that requires the bridge to be closed (even temporarily) or relocated, Anthony's would lose its existing connection to the bridge and with it all access to its business. Anthony's is closely linked with City Ice; therefore, it is advantageous for the company to be located either directly next to or physically connected to City Ice facilities. The company manager indicates a strong preference for remaining close to City Ice. Anthony's also indicated that it would be possible to function at ground level as long as the company's operations were still in close physical proximity to City Ice. It might even be advantageous to be relocated at ground level given that their operations would then be within the Port of Seattle security area.

One important aspect of Anthony's Seafood Distributing is that it operates seven days a week for 362 days of the year. It is unacceptable in their line of work to close. It would be crucial to their business that a new facility is built and ready to use with plenty of lead time so that they could transition their business over to a new location without having to close.

Alternative C

Social Conditions

Community Cohesion

Right-of-way acquisition for Alternative C would require relocation of three non-residential structures in the study area (see Relocation below), but these displaced businesses do not serve neighborhood retail or services needs. Links to existing community facilities and services in the study area would not change. Social relationships or patterns, including the movement and interaction of people, both residents and workers, would be similar to existing conditions.

There would no displacement of residential properties. Therefore, there would be no impact on the availability of affordable and accessible housing within the study area.

As described for Alternative A, Alternative C would not cut off streets or separate or isolate any community areas; would not result in a redistribution, influx, or loss of population; and would not have an impact on community life. Alternative C would also not lead to an increase in automobile dependency.

Recreation

Alternative C would be located over 0.31 acre of currently designated parkland at the Smith Cove Acquisition site. As described for Alternative A, the Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at this site.

Cultural Resources

Potential cultural resource issues and tribal consultation under Alternative C would be similar to those described for Alternative A. Alternative C would be less likely

than Alternative A to have cultural resource issues related to tribal fishing activities in Elliott Bay because the new bridge would be located farther away from the shoreline.

Recreational and Community Growth

As described for Alternative A, Alternative C would not induce population growth and no increase in the demand for housing or recreation facilities is expected.

Services

Similar to Alternative A, no educational, religious, or medical facilities are close to the proposed roadway under Alternative C, so direct access would not need to be modified. However, one social institution, Northwest Harvest, located on the west side of Port property would be removed under Alternative C (see Relocation, below, for further discussion). Alternative C would not substantially affect facility access to and from Magnolia because it provides almost the same access and maintains similar travel patterns as the existing bridge.

Under Alternative C, the bridge would be located over a small portion of the property occupied by the Army National Guard Headquarters for the 181st Support Battalion. However, operation of this facility would not be affected in the long term. Direct access to and from this site, general travel patterns, and travel times near this facility would not change in the future. As such, there would be no adverse effects on this installation.

The Alternative C bridge is slightly longer compared to existing conditions and Alternatives A and D because the new route would curve to the north. This route, however, is not expected to substantially add to the travel time over the bridge. Similarly, Alternative C would not substantially affect emergency vehicle access to and from Magnolia. As described for Alternative A, the traffic signal at the surface road intersection on Port property is not expected to delay emergency vehicles because they could bypass the signal when necessary, or intelligent traffic controls could be installed in the signal. Also, as described for Alternative A, the increased travel distance of up to 0.5 mile to Smith Cove and Terminal 91 is relatively short and is not expected to substantially affect emergency vehicle response times to that area.

As described for Alternative A, Alternative C would not induce growth and therefore would not create an increased demand for new or additional community facilities, institutions, or services in the study area. Because demand would not increase, there would be no increase in service area for these types of facilities in the study area.

Pedestrian, Transit, and Bicycle Facilities

Pedestrian and Bicycle Facilities

Pedestrian and bicycle usage, capacity, and connections under Alternative C would be similar to existing conditions. Under Alternative C, existing pedestrian and bicycle connections at the east and west ends of the bridge and the Terminal 91 bicycle path would be maintained, so no long-term adverse impacts on pedestrian and bicycle facilities are expected. The pedestrian and bicycle facilities on the new Alternative C elevated bridge would be similar to Alternative A but would be longer because Alternative C curves to the north. The approximately 0.5 mile longer length

would increase walking time by about 10 minutes and cycling time by less than 3 minutes. Pedestrians and cyclists using the bridge would also experience greater grade changes than under the other alternatives because Alternative C includes a longer drop to a surface road on Port property.

Under Alternative C, the portion of the Terminal 91 bicycle path from the 21st Avenue West surface street to Smith Cove Park would need to be realigned because the western bridge component of the alternative would be located over the current path. Although a specific alternative route has yet to be determined, it is anticipated that this segment of the path would be relocated on Port property east of the proposed ramp that would cut diagonally in front of the face of the Magnolia Bluff greenbelt. The capacity and amenities of the existing bicycle path would be accommodated along this new route (see Mitigation Measures).

Similar to Alternative A, Alternative C would also improve pedestrian and bicycle facilities on the new bridge compared to existing conditions. A 5-foot sidewalk would be provided on the new bridge, and 16-foot-wide outside lanes would provide room for cyclists. The wider lanes would improve bicycle safety by minimizing potential conflicts with motorists.

Transit Facilities

Bus routes are not expected to change with Alternative C because the bridge would maintain the same connections at both the east and west ends. However, the travel distance for the Magnolia Bridge routes would increase because the new bridge would arc north of the existing bridge. Travel time would increase slightly if similar bus stops were in place. With Alternative C, the same or equivalent bus access would be available, either by building the required bus stops on the bridge or with a Metro bus route revision through the North Bay development. As described for Alternative A, no increase in transit demand is expected as a result of this alternative.

Economic Effects

Overall Business Activity

Like Alternative A, Alternative C would not alter land use, traffic patterns, or traffic volumes; thus, it has no foreseeable long-term economic effect on business activity. If businesses and buildings that must relocate do so within the Interbay area, then no loss in business property or productivity is expected. Travel time for shipment of goods would remain the same. Little to no change in business or shopping patterns would occur.

Change in Permanent Jobs

If businesses that must relocate do so within the Interbay area, no changes in permanent jobs are expected. If both Snider Petroleum and Anthony's Seafood Distributing were forced to relocate outside the Interbay area, the area would lose approximately 15 to 20 full- and part-time jobs. This projected job loss would include approximately nine minority employees at Anthony's Seafood; the remaining employees in both businesses are non-minority. Once construction is complete, no structural diversions or barriers that could affect jobs would be in place, and no induced growth or development would occur.

Property Value Trends and Local Economy

Similar to Alternative A, Alternative C would maintain connections at the east and west ends of the bridge similar to existing conditions. Traffic volumes and access are expected to remain the same and no long-term effects on the surrounding property and local economy are expected. If all businesses that must relocate do so within the Interbay area, impacts on property values and the local economy would be minimal.

Effects on the Region

No foreseeable effects on the region would occur under Alternative C. This alternative would not change land use or traffic patterns; therefore, no effects on the communities, businesses, interchanges, or transit stops near the new bridge are anticipated.

Relocation

Alternative C would remove the Snider Petroleum building and would relocate Anthony's Seafood Distributing. Also, the eastern loading docks and railroad spur serving the Trident Seafoods building would need to be reconfigured to accommodate the surface road through Port property. These businesses are not minority owned or operated but are among the interviewed companies that have a high percentage of minority employees and a number of relatively low-paying jobs. All affected businesses prefer to relocate within the Interbay area, preferably as close to their current location as possible.

The building currently housing Northwest Harvest on the west side of Port property would be removed, but Northwest Harvest is on a short-term lease. The building is expected to be unoccupied by the time of construction.

Anthony's Seafood Distributing

See discussion under Alternative A.

Snider Petroleum

Alternative C requires the relocation of Snider Petroleum. This business has a lease at its current space until 2007, at which time the business may or may not renew, although it has no plans for relocating at this point.

The physical aspect of moving Snider Petroleum would require cranes and trucks to move tanks and plumbing. Tanks would need to be drained, which could cause some logistical problems in terms of where product gets placed in the interim. Some loss of product would also occur because of the process of moving. When product is pumped out of a tank, it cannot be completely drained. The lines must be flushed and, ultimately, some of the product is unrecoverable because it is mixed with materials used in the flushing process.

Assuming a new facility were in place for the move, barrels and pumps would need to be relocated as well as an intricate plumbing system. It would require several days to move packaging supplies. Moving plumbing would take approximately a week, and moving tanks would take at least a week. Plumbing and tanks could be moved simultaneously.

Trident Seafoods

Under Alternative C, Trident Seafoods would not need to be relocated, but the company could be affected by any disruption in the marine cluster. Also, the loading docks and railroad spurs on the eastern side of Trident's building would need to be reconfigured to accommodate the surface road component of Alternative C. If this disruption is considerable either from the relocation of other businesses or from the construction of the bridges and surface road, Trident may choose to relocate. Also of great significance to Trident is the free flow of product from Piers 90 and 91. Trident staff and vehicles make many trips daily to bring product from the pier to Trident's facility. If this thoroughfare were disrupted, it would create a considerable challenge for Trident's business.

If Trident must move, it may be possible to build another building nearby, possibly to the south or west of the current facility. If this is not an option, Trident would consider connecting to another of its existing facilities in Fife, Anacortes, or Bellingham, or the company might consider splitting its current operations. Important aspects Trident would consider are the tax base of various locations, labor rates, and utility costs. They would also consider offers they might receive from other cities.

More than relocating, Trident is concerned about what construction of a new bridge would do to the buildings in the area. Construction of the bridge near Trident's building could cause problems in terms of contamination, soils, settling, and liquefaction. See the Construction Impacts section below for additional information. Alternative C is more of a concern than Alternative A in this regard because the bridge would be located closer to Trident's building.

Alternative D

Social Conditions

Community Cohesion

Right-of-way acquisition for Alternative D would require relocation of four non-residential structures in the study area (see Relocation below), but these displaced businesses do not serve neighborhood retail or services needs. Links to existing community facilities and services in the study area would not change. Social relationships or patterns, including the movement and interaction of people, both residents and workers, would be similar to existing conditions.

There would no displacement of residential properties. Therefore, there would be no impact on the availability of affordable and accessible housing within the study area.

As described for Alternative A, Alternative D would not cut off streets or separate or isolate any community areas; would not result in a redistribution, influx, or loss of population; and would not have an impact on community life. Alternative D would also not lead to an increase in automobile dependency.

Recreation

Alternative D would be located over 0.30 acre of currently designated parkland at the Smith Cove Acquisition site. As described for Alternative A, the Seattle Department of Transportation and Seattle Parks and Recreation are working together

to establish a Joint Development Agreement for construction of a new bridge at this site.

Cultural Resources

Potential cultural resource issues and tribal consultation under Alternative D would be the similar to those described for Alternative A. Alternative D would be less likely than Alternative A to have cultural resource issues related to tribal fishing activities in Elliott Bay because the new bridge would be located farther away from the shoreline.

Recreational and Community Growth

As described for Alternative A, Alternative D would not induce population growth and no increase in the demand for housing or recreation facilities is expected.

Services

Similar to Alternative A, no educational, religious, or medical facilities are located close to the proposed roadway under Alternative D, so direct access would not need to be modified. Alternative D would not substantially affect access to and from Magnolia because it provides almost the same access and maintains the same travel patterns as the existing bridge. As with Alternative C, Alternative D would require removal of the Northwest Harvest building (see Relocation below).

Under Alternative D, the bridge would be located over the southern portion of the property occupied by the Army National Guard Headquarters for the 181st Support Battalion. However, operations of this facility would not be affected in the long term. Direct access to and from this site, general travel patterns, and travel times near this facility would not change in the future. As such, there would be no adverse effects on this installation.

Under Alternative D, the bridge would be slightly longer compared to existing conditions because the new route would curve to the north; it would be shorter than Alternative C, however. This longer route is not expected to substantially add to the travel time over the bridge.

Similar to Alternative A, Alternative D would not substantially affect emergency vehicle access and bus routes to and from Magnolia because it provides almost the same access and maintains the same travel patterns as the existing bridge. As described for Alternative A, the Alternative D – Intersection option with a traffic signal is not expected to delay emergency vehicles because they could bypass the signal when necessary, or intelligent traffic controls could be installed in the signal. Also, as described for Alternatives A and C, the increased travel distance of up to 0.3 mile to Smith Cove and Terminal 91 is relatively short and is not expected to substantially affect emergency vehicle response times to that area.

As described for Alternative A, Alternative D would not induce growth and therefore would not increase demand for new or additional community facilities, institutions, or services in the study area. Because demand would not increase, there would be no increase in service area for these types of facilities in the study area.

Pedestrian, Transit, and Bicycle Facilities

Pedestrian and bicycle usage, capacity, and connections under Alternative D would be similar to existing conditions. Under Alternative D, existing pedestrian and

bicycle connections at the east and west ends of the bridge and the Terminal 91 bicycle path would be maintained so no long-term adverse impacts on pedestrian and bicycle facilities are expected. The pedestrian and bicycle facilities on the new Alternative D bridge would be similar to Alternative A but would be slightly longer because Alternative D curves to the north. The one-tenth mile increased length compared to No Build or Alternative A would increase walking time by about 2 minutes and would increase bicycling time by less than 30 seconds.

As with Alternative A, the Alternative D – Intersection design would be safer for bicycles and pedestrians on the bridge than the No Build Alternative or Alternative D – Ramps option because there would be no ramps to cross. The intersection design would also allow for direct and faster pedestrian and bicycle connections from Magnolia down to the Port property and the waterfront. This would save time for nonmotorized users heading to the marina from Magnolia or connecting to the western end of the Terminal 91 bicycle path.

Similar to Alternative A, Alternative D would improve pedestrian and bicycle facilities on the new bridge compared to existing conditions. A 5-foot sidewalk would be provided on the south side of the new bridge, and 16-foot-wide outside lanes would provide room for cyclists. The wider lanes would improve bicycle safety by minimizing potential conflicts with motorists.

Transit Facilities

Bus routes are not expected to change with Alternative D because the bridge would remain in nearly the same location with the same connections at both the east and west ends. The travel distance for the Magnolia Bridge routes would increase slightly because the new structure would arc north of the existing bridge. Travel time would increase about 10 seconds if similar bus stops were in place. With Alternative D, the same or equivalent bus access would be available, either by building the required bus stops on the bridge or with a Metro bus route revision through the North Bay development. As described for Alternative A, no increase in transit demand is expected as a result of this alternative.

Economic Effects

Overall Business Activity

Like Alternative A, Alternative D would not alter land use, traffic patterns, or traffic volumes; thus, it has no foreseeable long-term economic effect on business activity. If businesses and buildings that must relocate do so within the Interbay area, then no loss in business property or productivity is expected. Travel time for shipment of goods would remain the same. Little to no change in business or shopping patterns would occur.

Change in Permanent Jobs

If businesses that must relocate can do so within the Interbay area, then no changes in permanent jobs are expected. If both Snider Petroleum and Anthony's Seafood Distributing were forced to relocate outside the Interbay area, the area would lose approximately 15 to 20 full- and part-time jobs. This projected job loss would include approximately nine minority employees at Anthony's Seafood; the remaining employees in both businesses are non-minority. Once construction is

complete, no structural diversions or barriers that could affect jobs would be in place, and no induced growth or development would occur.

Property Value Trends and Local Economy

Similar to Alternative A, Alternative D would maintain connections at the east and west ends of the bridge that would be similar to existing conditions. Traffic volumes and access are expected to remain the same and no long-term effect on the surrounding property and local economy is expected.

If all businesses that must relocate buildings are able to do so within the Interbay area, impacts on property values and the local economy would be minimal. The Tsubota family property is the only land that is privately owned. All other land affected by bridge reconstruction is owned by the Port of Seattle.

Effects on the Region

No foreseeable effects on the region would occur under Alternative D. This alternative would not change land use or traffic patterns; therefore, no effects on the communities, businesses, interchanges, or transit stops near the new bridge are anticipated.

Relocation

Alternative D would remove the Snider Petroleum building, the Tsubota building, and one of the five City Ice buildings, and would relocate Anthony's Seafood Distributing. These businesses are not minority owned or operated but are among the interviewed companies that have a high percentage of minority employees and a number of relatively low-paying jobs. All affected businesses prefer to relocate within the Interbay area, preferably as close to their current location as possible.

As with Alternative C, the building currently housing Northwest Harvest would be removed, but it is expected to be unoccupied by the time of construction.

Anthony's Seafood Distributing

See discussion under Alternative A.

Snider Petroleum

See discussion under Alternative C.

Trident Seafoods

Under Alternative D, Trident Seafoods would not need to be relocated, but may be affected by the removal of a City Ice building and any disruption in the marine cluster. The eastern loading docks and railroad spurs would not need to be reconfigured.

As described for Alternative C, Trident is concerned about what construction of a new bridge would do to the buildings in the area. Construction of the bridge near Trident's building could cause problems in terms of contamination, soils, settling, and liquefaction issues. See the Construction Impacts section below for additional information. Alternative D is more of a concern than Alternative A in this regard because the bridge would be located closer to Trident's building.

The ramps for the intersection option under Alternative D terminate in front of Trident's building, which could be an issue for trucks coming into and out of the facility. Any design that locates the ramp within 200 feet of the building could cause issues of accessibility and could affect productivity of current operations because a substantial amount of vehicle circulation (both intra-building and semi-trailer positioning) is currently required.

City Ice

Alternative D requires the removal/relocation of one of the City Ice storage buildings. The Interbay location is crucial to City Ice because of its connection to the seafood processing plants. If Alternative D is chosen, the operations that depend on the affected building must be relocated. City Ice would prefer that a new location for those operations remain very close to its existing facility in order to maintain connections with existing processors. Relocating the entire business would be extremely difficult but would not be necessary under Alternative D.

As discussed for Trident Seafoods, it is also important to City Ice that the corridor under the bridge remain open to facilitate travel back and forth to the docks. If this access is interrupted by a surface road (either a temporary construction access or a future surface road), it could cause significant changes to City Ice's operations.

Independent Packers

Similar to Trident Seafoods, Independent Packers would not be required to move under any of the currently considered alternatives; however, the company may be adversely affected by the movement of other businesses in the marine cluster. Independent Packers works closely with City Ice and both businesses are interdependent. Therefore, it is important that their businesses remain in close physical proximity.

Independent Packers also relies on long-time employees for specifically developed skills and multilingual abilities in communicating with the existing labor pool. Relocation would require hiring an entirely new labor force, which would be a difficult transition.

Tsubota Family Property

Alternative D requires taking the southwest section of the Tsubota family property and the southernmost building. This property is located to the west of 15th Avenue West and to the north of the existing bridge. No businesses are currently located on this portion of the property; however, plans are under way for future commercial development on this land. The land currently is assumed at a certain value; however, if Alternative D becomes the preferred alternative, then the land's value would likely change because a smaller area would be available for redevelopment.

No Build Alternative

No operational impacts would occur under the No Build Alternative and no mitigation measures are proposed.

Alternative A

Social Conditions

No long-term adverse impacts on community cohesion, cultural resources, recreational and community growth, services, or pedestrian, transit, and bicycle facilities would occur under Alternative A. Therefore, no mitigation measures are required.

The Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisitions site. The Joint Development Agreement would exempt this recreation resource from Section 4(f) requirements (FHWA 1987) and would establish mitigation measures to minimize the loss of designated parkland. See the Public Lands, Section 4(f) Discipline Report for additional information.

Economic Effects and Relocation

Only one business, Anthony's Seafood Distributing, would experience a long-term operations impact under Alternative A. Approximately 12 to 15 full- and part-time employees, including nine minorities, would be affected at this business. See the Environmental Justice Discipline Report for a discussion of potential disproportionate and adverse impacts on minority and low-income populations.

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, owners of displaced business properties would be compensated at fair market value without discrimination when purchases occur. Businesses occupying displaced structures would be given relocation assistance consistent with the Act. The City and the federal government would pay a portion of the costs of relocating Anthony's Seafood Distributing. Representatives of Anthony's indicate that they would prefer to relocate as close to their current location as possible. Underdeveloped land is available nearby at the Port's North Bay/Terminal 91 property. However, a market analysis has yet to be conducted to determine the feasibility of using a part of this property for business relocation purposes.

The City would work with representatives from both Anthony's and City Ice to determine if a new building could be constructed that would facilitate the movement of product between the two companies. If no solution is possible close to City Ice, the City would work with Anthony's to find an alternative location.

Timing of relocation would be critical to Anthony's business. The company operates 362 days per year, 24 hours per day. It is important to complete construction of a

new building and facilitate a move that would allow the company to remain in operation during the transition.

Alternative C

Social Conditions

As described for Alternative A, no long-term adverse impact on community cohesion, cultural resources, recreational and community growth, or services would occur under Alternative C.

As mitigation for direct impacts on the Terminal 91 bicycle path under Alternative C, detailed plans would be developed for rerouting the bicycle path. The path would be relocated most likely somewhere on the Port's vacant North Bay/Terminal 91 property east of the proposed ramp that would cut diagonally in front of the face of the Magnolia Bluff greenbelt. The new route would be designed to provide equivalent or better facilities for pedestrians and cyclists. The Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisition site. This agreement would include mitigation measures to minimize the loss of this designated parkland.

Economic Effects and Relocation

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, owners of displaced businesses would be compensated at fair market value without discrimination when purchases occur. Businesses occupying displaced structures would be given relocation assistance consistent with the act. The City and the federal government would pay a portion of each business' relocation costs.

As described for Alternative A, underdeveloped land is available nearby at the Port's North Bay/Terminal 91 property. However, a market analysis has yet to be conducted to determine the feasibility of using a part of this property for business relocation purposes. Long-term mitigation activities are listed below for each business that would be affected by Alternative C.

Anthony's Seafood Distributing

See Alternative A for long-term mitigation related to Anthony's Seafood Distributing.

Snider Petroleum

Snider Petroleum would need to be relocated under Alternative C. Approximately five full- and part-time employees, all non-minorities, would be affected at this business.

If relocation is not possible in the Interbay area, the company would prefer to be relocated near industrial and freeway access. Access to Interstate 5 is very important to the company's operation. Snider Petroleum must also have a diked area for the containment of its tanks in accordance with environmental regulations.

The City would need to work with Snider Petroleum to create a plan for storing product during the moving process. Cranes and trucks that can move the tanks and plumbing would be necessary for moving the business.

Trident Seafoods

Trident Seafoods would not be relocated under Alternative C; however, the eastern loading docks and railroad spurs serving the company's building would be reconfigured. The City and Port would need to work with Trident Seafoods to redesign the loading docks and railroad spurs to accommodate Trident's long-term needs and prevent any temporary disruptions of business operations.

Northwest Harvest

Northwest Harvest is on a short-term lease, and it is expected that the company will have moved by the time of construction. If for some reason Northwest Harvest has not moved, the City and Port would need to work with the organization to have a new facility in place prior to relocation so that no disruption of community services would occur.

Alternative D

Social Conditions

As described for Alternative A, no long-term adverse impact on community cohesion, cultural resources, recreational and community growth, services, or pedestrian, transit, and bicycle facilities would occur under Alternative D. Therefore, no mitigation measures would be required.

The Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisitions site. This agreement would include mitigation measures to minimize the loss of this designated parkland.

Economic Effects and Relocation

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, owners of displaced business properties would be compensated at fair market value without discrimination when purchases occur. Businesses occupying displaced structures would be given relocation assistance consistent with the Act. The City and the federal government would pay a portion of each business' relocation costs.

As described for Alternative A, vacant, underdeveloped land is available nearby at the Port's North Bay/Terminal 91 property. However, a market analysis has yet to be conducted to determine the feasibility of using a part of this property for business relocation purposes. Long-term mitigation activities are listed for each business that would be affected by Alternative D.

Anthony's Seafood Distributing

See Alternative A for long-term mitigation related to Anthony's Seafood Distributing.

Snider Petroleum

See Alternative C for long-term mitigation related to Snider Petroleum.

Northwest Harvest

See Alternative C for long-term mitigation related to Northwest Harvest.

City Ice

Alternative D requires the removal/relocation of one of the City Ice storage buildings. City Ice prefers that the new building be located as close as possible to its existing facility to maintain connection with the processors.

The key to making a transition to a new building would be to have a facility in place before the actual move. It would take from two weeks to one month to move all of the product from the current building to a new space. Timing of the move would also be important and would need to be scheduled during the slower seasons. Peak operations are from February to mid-April and August to October.

Tsubota Family Property

Alternative D requires taking the southwest section of the Tsubota family property as well as the southernmost building. The City would need to purchase the building and the land required for the Alternative D right-of-way through this property. No business relocations from this property would be required.

No Build Alternative

No construction impacts would occur under the No Build Alternative and no mitigation measures related to construction are proposed.

Alternative A

Impacts

During construction, the existing bridge and its access to southern Magnolia would need to be closed for periods of time while the east and west connections of Alternative A are completed. The construction period for both the ramp and intersection options for Alternative A would be 39 months. Both access options would have a 17-month period during the middle of construction in which the Magnolia Bridge corridor would be closed to all traffic. During the remaining 22 months of construction, traffic would be maintained on combinations of the existing structure and completed portions of the new structure.

Social Conditions

During construction periods when the Magnolia Bridge corridor is closed to all traffic, vehicles including some emergency service vehicles and school buses would need to be rerouted to West Dravus Street and West Emerson Street to the north. Increased traffic on those streets and longer routes would temporarily affect public services. Emergency response times would be longer in instances when police and fire/emergency vehicles would need to approach or leave the south end of Magnolia. For example, it is estimated that backup police response units originating south of the Magnolia Bridge would require three additional minutes to access the Magnolia Village area via West Dravus Street (HNTB Corporation and Mirai Associates 2003). Existing school bus routes between Magnolia and southeast Seattle would also be temporarily lengthened. These detours would also affect access to the Magnolia community as a whole. Magnolia residents traveling to and from the neighborhood would temporarily experience increased traffic and delays on the two remaining access routes while the Magnolia Bridge is closed. Access from the rest of the city to community facilities (schools, churches, parks, etc.) in Magnolia would also be more difficult because of the increased traffic and delays on the West Dravus Street and West Emerson Street routes. The increases in traffic volume on these two routes, together with additional congestion, could also increase the probability of nonmotorized accidents along these corridors.

Construction of Alternative A would require activities over and within the bicycle path that is located on the perimeter of the Port of Seattle's North Bay property. Bicycle and pedestrian movement on the pathway would be temporarily rerouted. The Terminal 91 bicycle path on the east side of the Port property would be open to pedestrians and bicycles up to its intersection with the 21st Avenue West surface street for all stages of construction. The portion of this bicycle path from the 21st Avenue West surface street to Smith Cove Park would be closed during the entire construction period; however, the 21st Avenue West surface street would serve as a

temporary access for this segment of the trail during construction. Because access would be maintained, no delays for pedestrians or cyclists using the trail would occur.

Construction of Alternative A would result in the temporary relocation of utility service connections, which is required to facilitate construction, as well as the permanent demolition and relocation of utility connections that are necessary to support the new bridge and intersection configurations. This process may result in unavoidable, temporary service interruptions. No permanent interruptions to utility services are anticipated under Alternative A. Potential impacts on specific utility services are described in further detail in the Public Services and Utilities Discipline Report.

During periods when the bridge would be completely closed, pedestrians and cyclists who would normally use the bridge would instead need to use the open portions of the trail or the 21st Avenue West surface street. This approximately 4,000-foot detour around Port property would cause delays of less than 5 minutes for cyclists and approximately 15 minutes for pedestrians. Please see the Traffic and Transportation Discipline Report for additional information on pedestrian and bicycle impacts.

During the entire period of construction (39 months), bus routes would need to be detoured to West Dravus Street. This would result in increased transit route distances and travel times, which would require a change in bus schedules. The existing bus stops on the bridge would also be removed because they would no longer have access to the stairs that access Piers 90 and 91 and North Bay/Terminal 91. Please see the Traffic and Transportation Discipline Report for additional information on transit impacts.

Economic Conditions

Businesses that depend on the Magnolia Bridge to provide access to employees and customers and to transport raw materials or finished products would be adversely temporarily affected by lack of access during construction. Alternative A is expected to have a number of short-term effects on local businesses from construction and detours, including the following:

- Increases in the amount of time necessary for customers to reach businesses, resulting in some customers frequenting other businesses during the construction period.
- Increases in the travel times and costs of transporting goods to and from the Magnolia Bridge impact area because of detours.
- Increases in the amount of time it takes employees to drive to work.
- Construction noise and vibration may affect businesses that depend on low ambient noise (such as restaurants, music recording, and golf courses) and that are sensitive to vibration. (Audio recording facilities and food processing plants indicated their clean air circulation systems may be affected by foundation cracks caused by construction-related vibration.)

The four-month closure of the Magnolia Bridge in February 2001 because of earthquake damage resulted in lengthy and unacceptable delays and increased trip lengths for many bridge users. Travel patterns changed substantially. It is anticipated that the bridge closure would have a negative impact on businesses in Magnolia

Village. Detoured traffic that can find substitute businesses along the detoured route would be less likely to travel on already congested streets to shop in Magnolia Village.

Businesses that would experience the most significant impacts include those closest to the bridge. Firms to the west of the bridge would have the longest commutes from the south. Anthony's Seafood Distributing would not be able to function in its present location during construction. The only truck access to Anthony's is directly from Magnolia Bridge. Firms to the east of the bridge would lose easy access to employees and customers located in Magnolia Village and the surrounding neighborhood.

If construction activities cause conflicts that hinder access between marine businesses and the piers or create security concerns, one or more of the marine business employers could decide to relocate. Any such relocation would have adverse employment and economic impacts on the local area. Many of the businesses in the cluster indicated that they would be forced to relocate or close if access to the piers were limited[14].

Table 26 reports a summary of the economic and fiscal impacts for Alternative A, including both the ramp and intersection options. Specifically, construction activities financed by state or federal sources will generate between 1,230 and 1,510 jobs, between $65.1 and $75.9 million in wages, and between $163.0 and $190.3 million in overall economic output. Moreover, firms and individuals that undertake, support, or are supported by the envisioned construction work will pay between $4.1 and $4.8 million in state and local taxes.

Table 26
Economic and Fiscal Impacts of Alternative A, Four-County Seattle Metropolitan Area and King County

Jurisdiction	Economic Output[1]	Labor Income[1]	Jobs	Taxes[1]
Intersection				
Four Counties	$190.3	$75.9	1,510	$4.8
King County	$185.7	$74.2	1,400	$4.7
Percentage of Four-County Total	*97.58%*	*97.71%*	*92.72%*	*97.92%*
Ramps				
Four Counties	$167.0	$66.7	1,330	$4.2
King County	$163.0	$65.1	1,230	$4.1
Percentage of Four-County Total	*97.59%*	*97.72%*	*92.48%*	*97.87%*

Note: [1] in millions of 2004 dollars.
Source: ECONorthwest 2004.

Although it is likely that the four-county metropolitan Seattle region will provide almost all of the materials and labor required to demolish the existing Magnolia Bridge and construct the replacement structure, most of the economic output, labor income, jobs, and taxes would likely accrue to King County. Based on information

14 Security requirements for businesses engaged in export and Port of Seattle procedures require security checks for all vehicles passing through secure areas. Introducing a surface road inside the secure area could require multiple security checks for vehicles traveling among Trident, Independent Packers, and the City Ice, which would change internal circulation patterns and could substantially increase the time needed to move between buildings. This time is critical as most of the products require that they remain frozen.

available at this time, most of the economic impacts (over 90 percent in every case) will accrue to businesses, residents, and governments located in King County.

Mitigation Measures

Social Conditions

A construction management plan would be prepared to manage construction traffic in the project vicinity. The plan would identify mitigation measures during the construction phases to ensure access by emergency service providers and school buses, and circulation on the bicycle pathway. The measures would include providing advanced notice of construction activities to local residents, the schools, emergency services, and law enforcement agencies serving the area, and stipulating detour routes and parking locations. Signs and detour routes would be posted on the bicycle pathway to direct cyclists and pedestrians during construction.

Traffic control officers could be stationed along the West Dravus Street and West Emerson Street routes during peak traffic periods to facilitate traffic flow.

Emergency medical personnel could be temporarily stationed in Magnolia during bridge closures to provide adequate response time for medical emergencies within the community.

Potential impacts on major utility infrastructure and sanitary sewer and drainage services would be avoided through the careful placement of bridge footings, the configuration of project excavations, and the careful execution of construction. Mitigation for unavoidable, temporary disruptions of other utility services (power, gas, communications, etc.) would first aim to minimize the duration and impact of the interruptions to utility customers through methods such as installing and preparing alternate replacement connections before de-activating existing connections. Mitigation would also include coordinating the timing of interruptions to coincide with the lowest utility demand periods.

Mitigation for permanent relocation of utilities would be new service connections in the best possible location, depending on the needs and plans of service providers and customers. See the Public Services and Utilities Discipline Report for a detailed description of measures to mitigate construction impacts on local utilities.

Temporary transit service to North Bay during the period when the bridge is closed to bus service could be provided using shuttle vans or buses between West Dravus Street and North Bay.

Economic Conditions

General Construction Mitigation Activities

- **Communication with affected businesses.** Once an alignment is chosen, the City would work with affected businesses to determine the effects of construction operations (noise and vibration) and circulation requirements. Given the specific technical requirements of each business with regard to Food and Drug Administration regulations for maintaining a clean environment, and the need for efficient flow of products between various buildings in the processing complex (including efficient gate security clearances, if intersection/surface road options are proposed), the City would

need to allow for sufficient planning to accommodate the needs of existing businesses.

- **Liaison to affected businesses.** The City would appoint appropriate technical engineering staff to communicate and coordinate with affected businesses throughout the design, development, and initial operations of the project. These staff members would have the responsibility to be sure that design and monitoring of all technical conditions cited above, and those that may arise as the project is developed, meet the federal and state governmental standards and operating needs of the affected businesses.

Outreach to Customers of Affected Businesses

- **Advertising.** The City could provide advertising on city buses that operate in the affected business area to announce that businesses are open during construction of the new Magnolia Bridge. In addition, the City could advertise the detour routes in the local newspapers and include advertisements of businesses that are the most likely to be affected by the detour.
- **Signage.** The City would post signs (such as temporary neon road signs) to indicate the bridge was closed with directions to the alternative route.

Detoured Transportation of Materials and Products

- **Maintaining access to businesses and scheduling transportation of materials and products.** The construction management plan would ensure that access to all businesses in the study area would be maintained at all times. The City would work closely with affected businesses to coordinate detours and possible road closures during construction to minimize delay of material and product shipments.
- **Use of the railroad.** Although current operations at the seafood processing facilities in the Interbay area are not as dependent on rail as they have been in the past, a substantial number of shipments continue to be made from the Trident facilities (approximately 70 cars per year). Any temporary or permanent changes to the area that are related to replacement of the Magnolia Bridge would need to preserve rail operations. This is especially important considering rail may again play a dominant role in moving processed seafood from the Interbay area to regional and especially national markets.

Construction Noise and Vibration

- **Communication.** A schedule of major construction activities would be given to local businesses to help them plan for loud events, such as pile driving or blasting.
- **Vibration.** It is recommended that the City work with engineering and plant maintenance personnel from the affected businesses to be sure that construction activities do not result in any of the vibration effects described above. If such impacts cannot be avoided entirely, the City would work with affected businesses to ensure that adequate provisions be made to address these impacts by modifying construction techniques, providing alternative

means of ventilation or monitoring, and remediating any possible vibration effects.

Alternative C

Impacts

Construction impacts under Alternative C would be similar to those described above for Alternative A. Compared to Alternative A, the total construction period for Alternative C would be slightly longer—41 months. Similarly, the portion of the Terminal 91 bicycle path from the 21st Avenue West surface street to Smith Cove Park would also be closed for up to 41 months under Alternative C. However, the period of time in which the Magnolia Bridge corridor would be closed to all traffic would be slightly shorter—11 months. During this time, buses would be detoured to West Dravus Street and access to Piers 90 and 91 and North Bay/Terminal 91 could no longer be made from the bus stops on the existing bridge.

Under Alternative C, construction of the bridge near Trident's building could cause problems in terms of soils, settling, and liquefaction because the ground in the area has been filled but not completely compacted. This factor is important because all of the circulation for Trident's production cooling system is located between concrete slabs under the flooring and would be susceptible to a breach if minor cracks were to develop. Unconsolidated soils and vibrations caused by subsurface drilling and pile driving could cause a variety of problems related to operating and maintaining the integrity of the cooling system. Leaks would compromise the contamination prevention program required for certification of the processing facility. Also, there are known contamination issues with subsurface hydrocarbon plumes located nearby. Even minor cracking or shifts in sealed expansion joints in the flooring could cause dust or debris to enter the company's "clean" areas and contaminate them. Hydrocarbons in the soil could also be released into the air, which would require Trident to invest in air intake controls for its buildings—an expense not presently incurred. Trident's building is built on a floating foundation with no augured or driven piling supports, which is standard construction. This means that the closer the bridge is built to the building, the higher the potential for vibration and pile driving impacts. Therefore, Alternative C is more of a concern than Alternative A because the bridge would be constructed closer to Trident's building.

Table 27 summarizes the economic and fiscal impacts for Alternative A, including both the ramp and intersection options. Specifically, construction activities financed by state or federal sources will generate between 1,200 and 1,290 jobs, between $63.2 and $64.7 million in wages, and between $158.1 and $162.1 million in overall economic output. Moreover, firms and individuals that undertake, support, or are supported by the envisioned construction work will pay between $4.0 and $4.1 million in state and local taxes.

Table 27
Economic and Fiscal Impacts of Alternative C, Four-County Seattle Metropolitan Area and King County

Jurisdiction	Economic Output[1]	Labor Income[1]	Jobs	Taxes[1]
Four Counties	$162.1	$64.7	1,290	$4.1
King County	$158.1	$63.2	1,200	$4.0
Percentage of Four-County Total	*97.55%*	*97.68%*	*93.02%*	*97.80%*

Note: [1] in millions of 2004 dollars.
Source: ECONorthwest 2004.

Although it is likely that the four-county metropolitan Seattle region will provide almost all of the materials and labor required to demolish the existing Magnolia Bridge and construct the replacement structure, most of the economic output, labor income, jobs, and taxes would likely accrue to King County. Based on information available at this time, most of the economic impacts (over 90 percent in every case) will accrue to businesses, residents, and governments located in King County.

Mitigation Measures

Mitigation measures related to proposed construction for Alternative C would be the same as those described for Alternative A.

In addition, the City could consider specific measures to address concerns that vibration from construction activities near the Trident building would affect the company's ventilation system and operations. Impact pile driving would be the greatest source of vibration for this project. Potential measures to reduce vibration from impact pile driving could be used when appropriate for specific site conditions. These include:

- Jetting – The use of a mixture of air and water pumped through a high-pressure nozzle to erode the soil adjacent to the pile, facilitating pile placement.
- Predrilling – Predrilling a hole for a pile to place the pile at or near its design depth, eliminating most or all impact driving.
- Cast-in-place or auger piles – Eliminates impact driving and limits vibration to the lower levels generated by drilling.
- Pile cushioning – A resilient material placed between the driving hammer and the pile.
- Alternative non-impact drivers – Several types of proprietary pile-driving systems have been designed specifically to reduce the impact-induced vibration by using torque and down pressure or hydraulic static loading.

The contractor could also be required to monitor vibration at the Trident building during construction.

Alternative D

Impacts

Construction impacts under Alternative D would be similar to those described above for Alternatives A and C. Compared to Alternatives A and C, the total construction period for Alternative D would be slightly longer—45 months. During the first 33 months of construction, the existing bridge would be open, including the bus stops on the bridge. However, the portion of the Terminal 91 bicycle path from the 21st Avenue West surface street to Smith Cove Park would be closed for up to 45 months under Alternative D. The period of time in which the Magnolia Bridge corridor would be closed to all traffic would be slightly shorter compared to Alternative A—9 months. During this time, buses would be detoured to West Dravus Street and access to Piers 90 and 91 and North Bay/Terminal 91 could no longer be made from the bus stops on the existing bridge.

As described for Alternative C, construction of the bridge near Trident's building under Alternative D could cause problems related to soils, settling, and liquefaction.

Table 28 summarizes the economic and fiscal impacts for Alternative D, including both the ramp and intersection options. Specifically, construction activities financed by state or federal sources will generate between 1,400 and 1,640 jobs, between $74.1 and $82.6 million in wages, and between $185.3 and $206.9 million in overall economic output. Moreover, firms and individuals that undertake, support, or are supported by the envisioned construction work will pay between $4.7 and $5.2 million in state and local taxes.

Table 28
Economic and Fiscal Impacts of Alternative D, Four-County Seattle Metropolitan Area and King County

Jurisdiction	Economic Output[1]	Labor Income[1]	Jobs	Taxes[1]
Intersection				
Four Counties	$206.9	$82.6	1,640	$5.2
King County	$201.9	$80.7	1,530	$5.1
Percentage of Four-County Total	*97.58%*	*97.70%*	*93.29%*	*97.89%*
Ramps				
Four Counties	$189.9	$75.8	1,510	$4.8
King County	$185.3	$74.1	1,400	$4.7
Percentage of Four-County Total	*97.60%*	*97.72%*	*92.72%*	*97.92%*

Note: [1] in millions of 2004 dollars.
Source: ECONorthwest 2004.

Although it is likely that the four-county metropolitan Seattle region will provide almost all of the materials and labor required to demolish the existing Magnolia Bridge and construct the replacement structure, most of the economic output, labor income, jobs, and taxes would likely accrue to King County. Based on information available at this time, most of the economic impacts (over 90 percent in every case) will accrue to businesses, residents, and governments located in King County.

Mitigation Measures

Mitigation measures related to proposed construction for Alternative D would be the same as those described for Alternative A. Mitigation could also include the same measures described for Alternative C to reduce vibration impacts at the Trident building.

Project Objectives

The purpose of this project is to replace the existing Magnolia Bridge structure, approaches, and related arterial connections with facilities that maintain convenient and reliable vehicular and nonmotorized access between the Magnolia community and the rest of Seattle. Because the existing bridge also provides the only public vehicular access to the land between North Bay, Smith Cove Park, Elliott Bay Marina, and U.S. Navy property, the project purpose also includes maintenance of access to these areas.

Affected Environment

The project alternatives would mostly be constructed over industrial-zoned land east of Magnolia. This area is within the Interbay neighborhood, which includes a diverse mix of industrial, light industrial, and maritime businesses. The main landholder in the study area is the Port of Seattle. All of the project alternatives would be located on the Port's North Bay property, also known as Terminal 91.

The study area includes the 2000 U.S. Census Tract that encompasses the project alternative footprints (Census Tract 58.02) and adjacent census tracts. The study area has proportionately fewer low-income, minority, and disabled residents compared to the City of Seattle and King County. Housing values and rents are also higher in the study area than in the city and the county.

The PSRC forecasts that population, employment, and housing in the study area will grow at a slower rate between 2000 and 2030 than in the city and county, at less than 1 percent per year (Puget Sound Regional Council 2003c). The Magnolia, Interbay, and Queen Anne neighborhoods are substantially built-out areas. Future population and housing growth are expected to occur as infill development in the neighborhoods consistent with existing zoning and City of Seattle Comprehensive Plan designations. However, projected employment growth in and immediately around the Port of Seattle's North Bay property (including Terminal 91) is expected to more than double over existing conditions (year 2000) by 2030. The community is not in transition and no changes in population characteristics such as ethnic/racial composition, family composition, or income levels are expected.

A few parks and recreation facilities are located in the immediate vicinity of the project alternative footprints. Smith Cove Park is located on Elliott Bay approximately 1,000 feet south of the western end of the Magnolia Bridge. This park is not owned by the City but is on Port of Seattle land and provides public waterfront access. Thorndyke Park and the designated park boulevards, West Galer Street, Magnolia Way West, and Magnolia Boulevard West, are located to the west and north of the bridge. A bike path circumscribes the Port of Seattle North Bay property. In August 2003, Seattle Parks and Recreation acquired approximately 7.3 acres of property from the U.S. Navy immediately north of Smith Cove for park, recreation, and open space purposes. (This area is referred to as the Smith Cove Acquisition site.) Other undeveloped parcels owned by Seattle Parks and Recreation are located on the Magnolia and Queen Anne hillsides.

Public services in the study area that use the Magnolia Bridge include Seattle Police Department's West Precinct, Seattle Fire Department Station Nos. 8, 18, 20, and 41, and Seattle Public Schools. No public service institutions, religious institutions, or other organizations have been identified in the immediate vicinity of the project alternative footprints.

A small cluster of marine businesses is located on Port of Seattle property within and adjacent to the project alternative footprints. Included in this cluster are Trident Seafoods, City Ice (cold storage), Independent Packers (seafood processing), and Anthony's Seafood Distributing. Interviews with these businesses indicated that they are dependent on each other and that unobstructed access to the piers is crucial for their continued operations. Also, interviews indicated that workers in seafood processing and production have a higher representation by minorities than would be found in the region's overall workforce.

Impacts

Operational Impacts

No Build Alternative

Under the No Build Alternative, the bridge would be more likely to be damaged and closed after an earthquake than under the Build Alternatives. Closures are also anticipated for regular maintenance and repairs. Employees in the study area would experience increased transportation costs while they are forced to detour around the closed bridge. Businesses either shipping raw materials into the area or shipping goods out by ground transportation would also experience higher transportation costs with every bridge closure. Businesses that regularly pass under the bridge for access to the docks could also be affected if bridge maintenance and repair work impedes this access.

Alternative A

No impacts related to community cohesion would occur under Alternative A. Alternative A would not change neighborhood characteristics and would not separate or isolate any neighborhoods.

Alternative A would be located over 0.92 acre of currently designated parkland at the Smith Cove Acquisition site.

No specific adverse impacts on the "usual and accustomed areas" of local tribes have been identified for Alternative A. The tribes will, however, have the opportunity to identify potential issues through formal Section 106 government-to-government consultation initiated by FHWA. Alternative A would not induce population growth in the study area. Without induced population growth, no increase in the demand for housing, recreation facilities, or community facilities, institutions, or services in the study area is expected. Furthermore, direct access to and from community facilities and general travel patterns and travel times near these facilities would not change in the future.

There would be no adverse impact on pedestrian, bicycle, and transit facilities. Nonmotorized travel times would be similar to existing conditions.

Because Alternative A would not alter land use, traffic patterns, or traffic volumes, it has no foreseeable long-term economic effect on businesses (other than potentially Anthony's Seafood Distributing, as described below). Travel time for shipment of goods would remain the same. No change in business or shopping patterns would occur.

Realignment of the Magnolia Bridge would require relocation of one business, Anthony's Seafood Distributing, whose access is located on the existing bridge. From an economic standpoint, no environmental consequences would occur if this business were able to relocate within the Port of Seattle property and preserve its operational connections. The company manager indicates that Anthony's has a strong preference for remaining close to City Ice. If this business were relocated to other places within Seattle with access to cold storage and Port facilities for sea-borne cargo, no loss of tax revenue to the City would be expected, and no impact on the region as a whole would be expected. In the unlikely event that relocation within Port property or within the City of Seattle is not possible, suitable facilities may be available in either Tacoma or Bellingham. Under this scenario, tax revenues generated by Anthony's Seafood Distributing would be lost to the City.

Alternative C

As described for Alternative A, no long-term adverse impacts on community cohesion, cultural resources, including impacts on usual and accustomed areas used by tribes, recreational and community growth, or services would occur under Alternative C. Alternative C would be located over 0.31 acre of currently designated parkland at the Smith Cove Acquisition site. In addition, the portion of the Terminal 91 bicycle path from the 21st Avenue West surface street to Smith Cove Park would need to be realigned because the western bridge component of Alternative C would be located over the current path.

Like Alternative A, Alternative C would not alter land use, traffic patterns, or traffic volumes; thus, it has no foreseeable long-term economic effect on business activity. Alternative C would displace the Snider Petroleum building, relocate Anthony's Seafood Distributing, and require reconfiguration of the eastern loading docks and railroad spurs serving the Trident Seafoods building. All affected businesses prefer to relocate within the Interbay area as close to their current location as possible. The building currently housing Northwest Harvest on the west side of Port property would be removed, but Northwest Harvest is on a short-term lease. The building is expected to be unoccupied by the time of construction.

From an economic standpoint, no environmental consequences would occur if the affected businesses are able to relocate within the Port of Seattle property and preserve their operational connections. If businesses are relocated within the Interbay area or other places with ready access to cold storage and Port facilities for sea-borne cargo, no loss of tax revenue to the City is expected, and no impact on the region as a whole is expected. In the unlikely event that relocation within Port property or within the City of Seattle is not possible, several businesses have indicated that suitable facilities may be available in either Tacoma or Bellingham. Relocation outside the City of Seattle by either City Ice or Trident could precipitate the closure of some of the smaller dependent businesses that have chosen to co-locate with these two larger firms. Tax revenues generated by both the closed businesses and the relocated firms would be lost to the City. Based on interviews, it is unlikely that either City Ice or Trident Seafoods would close entirely, but their

decisions to relocate would depend on the ability to resolve any effects of project construction and operation.

Alternative D

As described for Alternative A, no long-term adverse impacts on community cohesion, cultural resources, including impacts on usual and accustomed areas used by tribes, recreational and community growth, services, or pedestrian, transit, and bicycle facilities would occur under Alternative D. However, Alternative D would be located over 0.30 acre of currently designated parkland at the Smith Cove Acquisition site.

Like Alternatives A and C, Alternative D would not alter land use, traffic patterns, or traffic volumes; thus, it has no foreseeable long-term economic effect on business activity. Alternative D would remove the Snider Petroleum building, the Tsubota building, and one of the five City Ice buildings, and would relocate Anthony's. All affected businesses prefer to relocate within the Interbay area and as close to their current location as possible. As with Alternative C, the building currently housing Northwest Harvest would be removed, but it is expected to be unoccupied by the time of construction.

As described under Alternatives A and C, no environmental consequences from an economic standpoint would occur if the affected businesses are able to relocate within the Port of Seattle property and preserve their operational connections. If businesses relocate within the Interbay area or other places with ready access to cold storage and Port facilities for sea-borne cargo, no loss of tax revenue to the City is expected, and no impact on the region as a whole is expected. In the unlikely event that relocation within Port property or within the City of Seattle is not possible, several businesses have indicated that suitable facilities may be available in either Tacoma or Bellingham. Relocation outside the City of Seattle by either City Ice or Trident could precipitate the closure of some of the smaller dependent businesses that have chosen to co-locate with these two larger firms. Tax revenues generated by both the closed businesses and the relocated firms would be lost to the City. Based on interviews, it is unlikely that either City Ice or Trident Seafoods would close entirely, but their decisions to relocate would depend on the ability to resolve any effects of project construction and operation.

Construction Impacts

During construction of the Build Alternatives, the existing bridge would need to be closed for a period of time. All vehicles would need to be rerouted to West Dravus Street and Emerson Street West. Increased traffic on those streets and longer routes would temporarily affect public services and access to and from Magnolia residences, businesses, and community facilities.

Construction of the Build Alternatives would require activities over and within the bicycle path that is located on the perimeter of the Port of Seattle's North Bay property. The portion of this bicycle path from the 21st Avenue West surface street to Smith Cove Park would be closed during the entire construction period; however, the 21st Avenue West surface street would serve as a temporary access for this segment of the trail during construction.

The Build Alternatives would temporarily relocate utility service connections and permanently demolish and relocate utility connections that are necessary to support

the new bridge and intersection configurations. This process may result in unavoidable, temporary service interruptions. No permanent interruptions to utility services are anticipated.

The Build Alternatives are expected to have short-term impacts on local businesses from construction and detours. These impacts include increases in travel times for customers to reach businesses, which could cause some customers to frequent other businesses during construction. Other impacts are increases in travel times and costs of commuting workers and the transportation of goods, and impacts on businesses that rely on low ambient noise and clean air.

Under all Build Alternatives, Anthony's Seafood Distributing would not be able to function in its present location during construction. The only truck access to Anthony's is directly from Magnolia Bridge.

Under Alternatives C and D, construction activities near Trident's building could cause problems in terms of soil settling and liquefaction, because the ground in the area has been filled but not completely compacted. This factor is important because all of the circulation for Trident's production cooling system is located between concrete slabs under the flooring and would be susceptible to a breach if minor cracks were to develop. Also, there are known contamination issues with subsurface hydrocarbon plumes located nearby. Even minor cracking or shifts in sealed expansion joints in the flooring could cause dust or debris to enter Trident's "clean" areas and contaminate them. The closer the bridge is built to the building, the higher the potential for vibration and pile driving impacts.

Table 29 summarizes the economic and fiscal impacts for the three Build Alternatives, including both the ramp and intersection options for Alternatives A and D. Specifically, construction activities for the Build Alternatives financed by state or federal sources will generate between 1,200 and 1,640 jobs, between $63.2 and $82.6 million in wages, and between $158.1 and $206.9 million in overall economic output. Firms and individuals that undertake, support, or are supported by the envisioned construction work will pay between $4.0 and $5.2 million in state and local taxes.

Table 29
Economic and Fiscal Impacts of Build Alternatives, Four-County Seattle Metropolitan Area and King County

Jurisdiction	Economic Output[1]	Labor Income[1]	Jobs	Taxes[1]
Alternative A – Intersection				
Four Counties	$190.3	$75.9	1,510	$4.8
King County	$185.7	$74.2	1,400	$4.7
Alternative A – Ramps				
Four Counties	$167.0	$66.7	1,330	$4.2
King County	$163.0	$65.1	1,230	$4.1
Alternative C				
Four Counties	$162.1	$64.7	1,290	$4.1
King County	$158.1	$63.2	1,200	$4.0
Alternative D – Intersection				
Four Counties	$206.9	$82.6	1,640	$5.2
King County	$201.9	$80.7	1,530	$5.1
Alternative D – Ramps				
Four Counties	$189.9	$75.8	1,510	$4.8
King County	$185.3	$74.1	1,400	$4.7

Note: [1] in millions of 2004 dollars.
Source: ECONorthwest 2004.

Secondary and Cumulative Impacts

No secondary or cumulative impacts related to social and economic conditions are expected. If businesses requiring relocation are able to relocate within the Interbay area, no effect on the region would occur. However, if businesses operating in the marine cluster are required to relocate outside of the area or shut down completely, such an event could cause potentially large secondary or cumulative effects to the local economy. It is possible that if one or more businesses were to leave the cluster, the other businesses would be forced to either shut down or move elsewhere as well.

The Magnolia Bridge Replacement Project is one of several projects in the study area in the planning and evaluation phases of development. For example, planning is under way for building the Seattle Monorail Project and developing the Port of Seattle North Bay/Terminal 91 property. If the proposed transportation systems were designed in consort with redevelopment in the Interbay area, the concept for a future intermodal hub could develop. An intermodal hub could eliminate the need for buses from Magnolia to use 15th Avenue West. This change would reduce traffic on 15th Avenue West and benefit freight and other traffic along the corridor. The intermodal hub could provide connections between the monorail, commuter rail, water transport, buses, and pedestrian and bicycle systems. See the Traffic and Transportation Discipline Report for more information.

Mitigation Measures

Operational Mitigation

Alternative A

Social Conditions

The Seattle Department of Transportation and Seattle Parks and Recreation are working together to establish a Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisitions site. The Joint Development Agreement would exempt this recreation resource from Section 4(f) requirements and would establish mitigation measures to minimize the loss of designated parkland.

Economic Effects and Relocation

Only one business would experience a long-term impact from construction of Alternative A—Anthony's Seafood Distributing. Approximately 15 full- and part-time employees, including nine minorities, would be affected at this business. In accordance with the provisions of the Uniform Relocation Act of 1970, as amended, the City and the federal government would pay a portion of the costs of relocating Anthony's Seafood Distributing. Representatives of Anthony's indicate that they would prefer to relocate as close to their current location as possible. The City would work with representatives from both Anthony's and City Ice to determine if a new building could be constructed that would facilitate the movement of product between the two companies.

Alternative C

Social Conditions

As mitigation for direct impacts on the Terminal 91 bicycle path under Alternative C, detailed plans would be developed for rerouting the bicycle path. The path would be relocated most likely somewhere on the Port's vacant North Bay/Terminal 91 property east of the proposed ramp that would cut diagonally in front of the face of the Magnolia Bluff greenbelt. The new route would be designed to provide equivalent or better facilities for pedestrians and cyclists.

As described for Alternative A, the Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisition site would include mitigation measures to minimize the loss of this designated parkland.

Economic Effects and Relocation

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, owners of displaced business properties would be compensated at fair market value when purchases occur. Businesses occupying displaced structures would be given relocation assistance consistent with the act. The City and the federal government would pay a portion of each business' relocation costs. The following mitigation is proposed:

Anthony's Seafood Distributing

See Alternative A for long-term mitigation related to Anthony's Seafood Distributing.

Snider Petroleum

Approximately five full- and part-time employees, all non-minorities, would be affected at Snider Petroleum under Alternative C. If relocation is not possible in the Interbay area, Snider Petroleum would prefer to be relocated near industrial and freeway access. Access to Interstate 5 is very important to the company's operation. Snider Petroleum must also have a diked area to contain its tanks in accordance with environmental regulations.

Trident Seafoods

The City and Port of Seattle would work with Trident Seafoods to redesign the loading docks and railroad spurs to accommodate Trident's long-term needs and prevent any disruptions of business operations.

Northwest Harvest

If for some reason Northwest Harvest has not moved, the City and Port would need to work with the organization to have a new facility in place prior to relocation so that no disruption of community services would occur.

Alternative D

Social Conditions

As described for Alternative A, the Joint Development Agreement for construction of a new bridge at the Smith Cove Acquisitions site would include mitigation measures to minimize the loss of this designated parkland.

Economic Effects and Relocation

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, owners of displaced business properties would be compensated at fair market value when purchases occur. Businesses occupying displaced structures would be provided with relocation assistance consistent with the Act. The City and the federal government would pay a portion of each business' relocation costs. The following mitigation is proposed:

Anthony's Seafood Distributing

See Alternative A for long-term mitigation related to Anthony's Seafood Distributing.

Snider Petroleum

See Alternative C for long-term mitigation related to Snider Petroleum.

Northwest Harvest

See Alternative C for long-term mitigation related to Northwest Harvest. City Ice

Alternative D requires the removal/relocation of one of the City Ice storage buildings. City Ice prefers that the new building be located as close as possible to its existing facility to maintain the connection with processors.

Tsubota Family Property

Alternative D requires taking the southwest section of the Tsubota family property and the southernmost building. The City would have to purchase the building and land required for the Alternative D right-of-way. No business relocations from this property would be required.

Construction Mitigation

For all Build Alternatives, a construction management plan would be prepared to manage construction traffic in the project vicinity. The plan would identify mitigation measures during the construction phases to ensure access by emergency service providers and schools and continued circulation on the bicycle pathway.

Traffic control officers could be stationed along the West Dravus Street and West Emerson Street routes during peak traffic periods to facilitate traffic flow.

Emergency medical personnel could be temporarily stationed in Magnolia during bridge closures to provide adequate response time for medical emergencies within the community.

Potential impacts on major utility infrastructure and sanitary sewer and drainage services would be avoided through the careful placement of bridge footings, the configuration of project excavations, and the careful execution of construction. Mitigation for unavoidable, temporary disruptions of other utility services (power, gas, communications, etc.) would first aim to minimize the duration and impact of the interruptions to utility customers through methods such as installing and preparing alternate replacement connections before de-activating existing connections. Mitigation for permanent relocation of utilities would be new service connections in the best possible location, depending on the needs and plans of service providers and customers.

Temporary transit service to North Bay during the period when the bridge is closed to bus service could be provided using shuttle vans or buses between West Dravus Street and North Bay.

The following are recommended general construction mitigation activities.

- **Communication with affected businesses.** The City would work with affected businesses to determine the effects of construction operations (noise and vibration) and circulation requirements. Given the specific technical requirements of each business with regard to Food and Drug Administration regulations for maintaining a clean environment, and the need for efficient flow of products between various buildings in the processing complex, the City would need to allow for sufficient planning to accommodate the needs of existing businesses.
- **Liaison to affected businesses.** The City would appoint appropriate technical engineering staff to communicate and coordinate with affected businesses throughout the design, development, and initial operations of the project.
- **Advertising.** The City could provide advertising on city buses that operate in the affected business area to announce that businesses are open during construction of the new Magnolia Bridge.

- **Signage.** The City would post signs (such as temporary neon road signs) to indicate the bridge was closed with directions to the alternative route.
- **Maintaining access to businesses and scheduling transportation of materials and products.** The construction management plan would ensure that access to all businesses in the study area would be maintained at all times. The City would work closely with affected businesses to coordinate detours and possible road closures during construction to minimize delay of material and product shipments.
- **Use of the railroad.** Although current operations at the seafood processing facilities in the Interbay area are not as dependent on rail as they have been in the past, a substantial number of shipments continue to be made from the Trident facilities (approximately 70 cars per year). Any temporary or permanent changes to the area related to the Magnolia Bridge replacement would need to preserve rail operations. This is especially important considering rail may again play a dominant role in moving processed seafood from the Interbay area to regional and national markets.
- **Construction noise and vibration.** The City would work with engineering and plant maintenance personnel from affected businesses to ensure construction activities do not result in any harmful vibration effects. If such impacts cannot be avoided entirely, adequate provisions would be made to address these impacts by modifying construction techniques, providing alternative means of ventilation or monitoring, and remediating any possible vibration effects.

  The City could also consider specific measures for Alternatives C and D to address concerns that vibration from construction activities near the Trident building would affect the company's ventilation system and operations. Potential measures to reduce vibration from impact pile driving that could be used where appropriate for specific site conditions include: jetting, predrilling, cast-in-pace or auger piles, pile cushioning, and alternative non-impact drivers. The contractor could also be required to monitor vibration at the Trident building during construction.

Comparison of Alternatives

The No Build Alternative would not require any business displacements. Under this alternative, however, the bridge would be more likely to be damaged during an earthquake than under the Build Alternatives, which would adversely affect business operations, emergency vehicle access, and traffic circulation in the local community.

All of the alternatives are characterized by minimal or no alteration of land use patterns, traffic patterns, or traffic volumes; thus, only minimal or no long-term social and economic effects are anticipated. No residential displacements would occur under any of the Build Alternatives.

Under Alternative A Anthony's Seafood Distributing would need to be relocated. If Alternative C is chosen, Anthony's Seafood Distributing and Snider Petroleum would be relocated, and Trident Seafoods' eastern loading docks and railroad spurs would be reconfigured. If Alternative D is chosen, Anthony's Seafood Distributing, a City Ice storage building, and Snider Petroleum would need to be relocated. Productivity and travel time for shipment of goods would remain the same in the

long term. Alternative D would displace the most businesses, whereas Alternative A would displace the fewest businesses of the Build Alternatives.

As described in more detail in the Environmental Justice Discipline Report, displaced businesses under the Build Alternatives employ a high percentage of minorities. Also, businesses that would be displaced provide a high percentage of low-paying jobs, increasing the likelihood that low-income individuals would be affected. However, with the mitigation measures implemented for displaced businesses as described above, no adverse or disproportionate impacts on minority or low-income populations would occur under any of the Build Alternatives.

Public Involvement and Interaction

Public involvement activities have been ongoing throughout project development. At the project's outset in the fall of 2002, identified stakeholders were interviewed to understand key issues and concerns, and a project comment database was established to track and document community input. Over 50 meetings with the general public, local interest groups, targeted neighborhood residents, and agency personnel have been held during the project development and environmental review processes. Also, specific strategies have been implemented to identify and communicate with minority, low-income, and limited English proficiency populations in the study area. These strategies have included interviews with potentially affected businesses, publicity pieces with directions in Spanish on how to receive additional information, distribution of information targeted to areas of potential impact, and research with local social service providers.

References

Ballard Interbay Northend Manufacturing and Industrial Center Planning Committee. 1998. *Final Plan.* Seattle, Washington.

Conway, Dick and Doug Pedersen. 2003. The Puget Sound Economic Forecaster.

Cowan, JoAnn. October 2, 2003. Strategic Advisor Real Estate, Seattle Parks and Recreation. Personal communication.

Cruger, Roberta. 2002. Seattle's Original North District: Queen Anne. The Seattle Press. URL: http://www.seattlepress.com/article-9515.html

Dex Online Directory. 2004. URL: http:/www.dexonline.com (visited September 2004).

Elevated Transportation Company. August 5, 2002. Seattle Popular Monorail Plan. URL: http://www.elevated.org/_downloads/project/story/seattle_popular_monorail.pdf (visited September 2004).

Federal Highway Administration. 1987 (revised 1989). *Section 4(f) Policy Paper*.

Foxworthy, Robert. 1997. Looking at Neighborhoods – Observations from Successful Neighborhoods in Seattle. URL: http://www.asu.edu/caed/proceedings97/foxworth.html

Gibson Economics. 1994. Commons/South Lake Union Development Fiscal Impact Analysis.

Higgins, Mark. 1997. Assortment of Lifestyles lends Charm to Area. Seattle Post-Intelligencer. URL: http://seattlepi.nwsource.com/neighbors/magnolia/hood02a.html

Higgins, Mark. 1997. Park is a Slice of Wilderness Inside the City. Seattle Post-Intelligencer. URL: http://seattlepi.nwsource.com/neighbors/magnolia/hood02c.html

HNTB Corporation and Mirai Associates. October 2003. *Draft Discipline Report Traffic and Transportation. Magnolia Bridge Replacement Project*.

InfoUSA. Business data, purchased December 2003.

King County. March 2001. Economic Profile, Labor Market and Economic Analysis (LMEA). Branch of the Washington State Employment Security Department.

Petersen, Jodi L. September 2003. Civil Rights Program Manager, Federal Highway Administration. Personal communication.

Port of Seattle. 2001. *Harbor Development Strategy 21*. Seattle, Washington.

Port of Seattle. 2004. *North Bay Master Plan EIS Scoping Document. POS SEPA No. 04-10*. November 24, 2004. URL: http://www.portseattle.org/business/realestate/development/northbay/

Puget Sound Regional Council. May 24, 2001. *Destination 2030*. URL: http://www.psrc.org/projects/mtp/d2030plan.htm (visited September 2004).

Puget Sound Regional Council. 2002a. *2000 Census Characteristics of Age.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002b. *2000 Census Characteristics of Disability.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002c. *2000 Census Characteristics of Employment.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002d. *2000 Census Characteristics of Housing.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002e. *2000 Census Characteristics of Income.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002f. *2000 Census Characteristics of Language.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2002g. *2000 Census Characteristics of Poverty.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf3/index.htm

Puget Sound Regional Council. 2003a. *2000 Census Summary File 1 (SF1), Total Races Tallied.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf1/index.htm

Puget Sound Regional Council. 2003b. *2000 Census Summary File 1 (SF1), Hispanic or Latino by Total Races Tallied.* Seattle, Washington. URL: http://www.psrc.org/datapubs/census2000/sf1/index.htm

Puget Sound Regional Council. 2003c. *2003 Sub-County (Small-Area) Forecasts of Population and Employment, Central Puget Sound Region.* Seattle, Washington. URL: http://www.psrc.org/datapubs/data/forecasts.htm

Puget Sound Regional Council. March 2003d. Puget Sound Milestones. Central Puget Sound Regional Economic Profile.

Queen Anne Neighborhood Planning Committee. 1998. *Queen Anne Plan – The Neighborhood Plan for the Community of Queen Anne*. City of Seattle, Neighborhood Planning Office. URL: http://www.cityofseattle.net/npo/plans/qa/

Rand McNally. 2003. The Thomas Guide 2004: King, Pierce, & Snohomish Counties.

Seattle Department of Transportation (SDOT). 2003. *Seattle Bicycling Guide Map*.

Seattle Office of Policy and Management. 2003. South Lake Union Development Investments and Revenues Report, Draft Report.

Seattle Parks and Recreation. 2000. *Seattle Parks and Recreation Plan 2000.* Seattle, Washington.

Seattle Public Schools. 2004a. *Elementary School Choices: 2004-2005.* Seattle Washington. URL: http://www.seattleschools.org/area/eso/elementary_guide_04_05.pdf

Seattle Public Schools. 2004b. *Secondary School Choices: 2004-20054.* Seattle Washington. URL: http://www.seattleschools.org/area/eso/secondary_guide_04_05.pdf

Seattle Times. 2004. *Seattle Times School Guide*. URL: http://schoolguide.seattletimes.nwsource.com/story.cfm?slug=leftout

Seattle, City of. 2003. *City of Seattle Geographic Information System (GIS).* Seattle, Washington.

Seattle, City of. 2003. *Seattle's Comprehensive Plan, Toward a Sustainable Seattle, A Plan for Managing Growth 1994-2014 (as amended).* Seattle, Washington.

Seattle, City of. 2005. Magnolia Bridge Replacement Project Community Schedule. Seattle Department of Transportation. URL: http://www.cityofseattle.net/transportation/magbridgeschedule.htm (visited February 2005).

Sommers, Paul. 2003. Potential Economic and Fiscal Impacts of South Lake Union Development, Draft Report.

Sound Transit. 1999. Central Link Light Rail Transit Project, Volume 1 Final Environmental Impact Statement.

Southern Tier West Regional Planning and Development Board, Economic Development Research Group, Inc., and Cambridge Systematics, Inc. 2003. Preliminary Economic Impact of the Southern Tier Expressway: Western Portion. Federal Highway Administration. URL: http://www.fhwa.dot.gov/planning/econdev/i86ny.htm

U.S. Census Bureau. 2003. *Summary File 3 2000 Census of Population and Housing, Technical Documentation.* Washington D.C. URL: http://www.census.gov/prod/cen2000/doc/sf3.pdf

Washington State Department of Social and Health Services. 2004. Child Care Information System. URL: https://wws2.wa.gov/dshs/clic/request.asp (visited September 2004).

Washington State Department of Transportation (WSDOT). 2003. *Environmental Procedures Manual.* M31-11. URL: http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/EPM/EPM.htm

Washington State Department of Transportation (WSDOT). 2003. *Environmental Procedures Manual*. M31-11. URL: http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/EPM/EPM.htm

Washington State Office of Financial Management. 2003. 2003 Population Trends for Washington State. Olympia, Washington. URL: http://www.ofm.wa.gov/pop/poptrends/poptrends_03.pdf

Appendix A Interview Form

INTERVIEW FORM

General Questions

1. What type of business is this?

2. What are the major products or services (e.g., sales, production, manufacturing, wholesale, retail, warehousing/distribution, etc.) being offered at this location?

3. How long has the business been in operation?

4. How long have you been operating in your current location?

Employment

Federal regulations require that local agencies receiving federal funds consider whether a project would have disproportionate or high adverse impacts to minority and low-income individuals.

1. How many employees do you have? (Full-time, part-time, contract, etc.)

2. What types of jobs do they do? (Occupation or other classification)

3. What is the general mix of employees by ethnicity? (Percentage by race/ethnicity)

4. What percentage of your employees is disadvantaged? (Low-income, disabled, etc.)

5. How do your employees get to work?

    a. Car
    b. Bus
    c. Train
    d. Walk
    e. Other _____

6. Do any of the methods listed above have special/unusual characteristics?

7. Do any of your employees participate in King County Metro Jobs Access Transportation Program or the King County Reverse Commute program?

Current Operations

1. Where do you sell your product or services (i.e., at this location or are they shipped to other locations)?

    a. If combined local and shipped business, what percentage split is there between local and non-local business?

    b. Of products that are shipped, what percentage are shipped to:

        - customers within the Interbay area _____%

- within the City of Seattle _____%
- within King County _____%
- within Western Washington _____%
- within the State of Washington _____%
- within the United States _____%
- outside the United States _____%

c. How are these products shipped?

- Road/highway
- Railroad (Are the rail spurs used? If yes, how often? In what capacity? How important are they to your business?)
- Water/Dock-side access
- Air

d. Is special access needed for any of the methods cited above?

e. How much of your total production is shipped to other operations within your firm?

2. What types of supplies do you need for the business? (not including utilities such as water, electricity, etc.)

3. Where do these supplies come from?

- within the Interbay area _____%
- within the City of Seattle _____%
- within King County _____%
- within Western Washington _____%
- within the State of Washington _____%
- within the United States _____%
- outside the United States _____%

4. How do your supplies reach you?

a. Road/highway

b. Railroad spurs (If yes, how often? In what capacity? How important are they to your business?)

c. Water/dock-side access

d. Air

5. How much of your total supply/input stream is provided by other operations within your firm?

6. Is special access needed for any of the methods cited in Question 5?

a. Are there any other special needs (e.g., direct ramp access, parking, storage, loading/unloading, etc.)?

7. What are the most important factors that influence your current operations?

		Not important				Very important
a.	Proximity to raw materials/suppliers	1	2	3	4	5
b.	Proximity to customers/clients	1	2	3	4	5
c.	Good transportation accessibly	1	2	3	4	5
d.	Favorable labor costs	1	2	3	4	5
e.	Available and qualified labor	1	2	3	4	5
f.	Favorable utility costs	1	2	3	4	5
g.	Reliable utility operations	1	2	3	4	5
h.	Expansion opportunities	1	2	3	4	5
i.	Favorable state and local taxation	1	2	3	4	5
j.	Favorable regulatory environment	1	2	3	4	5
k.	Foot traffic	1	2	3	4	5
l.	Easy street access for customers	1	2	3	4	5
m.	Other _____	1	2	3	4	5

Relocation Effects

1. How important is this business location to your current operations?

   1 2 3 4 5
   Not important Very important

2. If you had to relocate, where is the most advantageous location, given your current operations?

3. How much time would you need to be closed if you were to relocate?

4. How difficult would it be for your company to relocate?

   1 2 3 4 5
   Not difficult Very difficult

5. Would there be any specific complications for relocating (e.g., moving large equipment, etc.)?

6. Would the need to relocate cause you to close the business completely?

7. Would relocating cause any foreseeable problems for your employees? (e.g., those that use public transportation, commuting distances to possible new location, etc.)

8. Would relocation change the amount of people you employ?

   a. If yes, would it increase or decrease, and by what percentage?

Taxes and Revenues

1. Approximately how much do you pay annually for:
   a. Sales Tax _____ (**ECO estimate** _____)
   b. Business & Occupation Tax _____ (**ECO estimate** _____)

c. Property Tax (real estate, personal) _____ (**ECO estimate** _____)
d. Utility Tax _____

2. What do you pay annually in wages and salaries?

3. Approximately how much annual revenue do you generate at your Interbay location?

4. What percentage is this of your total corporate revenues?

Mitigation

1. Identify likely problems associated with each of the alternatives that have to do with:

	Alternative A	**Alternative D**	**Alternative H**
In-bound movement of goods or services			
Out-bound goods or services			
On-site operations			
Employee Access			

2. Consider the way that goods and services move to and from your business (e.g. particular types of access, turning space for semi-trailers, extra height or width requirements for either rail or trucks needing access to loading areas, etc.). Is there anything that might be included in the layout or design of the alternatives that would reduce or avoid the problems described above?

3. With respect to on-site operations, is there anything that is important about the way you operate your business on the current site that would require changes due to any of the alternatives? If so, please identify the changes that might be necessary. Is there anything that might be included in the layout or design of the alternatives that would reduce or avoid these problems?

Please feel free to provide any additional information that will help us to better understand your business, your current operations, or any other aspect of the Magnolia Bridge Replacement Project that may influence your current business operations.

Appendix B Checklist Summary

Social Elements Checklist Summary

Item Number		Applicable	Document Location & Comments
I.	A.	X	p. 25, Studies and Coordination, Coordination with Community Leaders and Local Agencies and Organizations and pp. 25-27, Studies and Data Sources
II.	A.	X	pp. 29-34, Public Involvement and Interaction
	A.1	X	pp. 30-31, Tribal Consultation
	A.2	X	pp. 31-34, Public Involvement Targeted to Environmental Justice
	A.3	X	pp. 31-32, Strategies and pp. 33-34, Specific Public Involvement Efforts and Results
III.	A.	X	pp. 36-41, Community Cohesion/Demographics (community facilities and services are described in Section III D)
	B.	X	pp. 41-47, Recreation, Pedestrian, Bicyclist, and Transit Facilities
	B.1	X	pp. 41-45, Function and Activities Subsection for Each Facility
	B.2		Not Applicable (N/A) - Potentially affected facilities are small neighborhood parks, open spaces, and trails that do not support designated activities.
	B.3	X	pp. 41-45, Function and Activities Subsection for Each Facility
	B.4	X	pp. 41-42, Recreation, Pedestrian, Bicyclist, and Transit Facilities, paragraph 4 – official statements of significance are not available at this time.
	B.5	X	pp. 41-45, Location, Access, and Size Subsection for Each Facility
	B.6	X	pp. 41-45, Location, Access, and Size Subsection for Each Facility
	B.7	X	pp. 41-42, Recreation, Pedestrian, Bicyclist, and Transit Facilities, paragraphs 4 and 5
	C.	X	pp. 40-41, Regional and Community Growth
	C.1	X	pp. 40-41, Regional and Community Growth
	C.2	X	pp. 40-41, Regional and Community Growth
	C.2.a	X	pp. 37, Race and Ethnicity
	C.2.b	X	pp. 36-37, Population
	C.2.c	X	p. 38, Household Income and Characteristics, Poverty Status
	C.2.d	X	pp. 39-40, Linguistic Isolation
	C.2.e	X	pp. 36-37, Population
	C.2.f	X	pp. 40-41, Regional and Community Growth
	D.	X	pp. 47-51, Services
	D.1	X	pp. 47-48, Educational Facilities
	D.2	X	p. 49, Religious Institutions and Cemeteries
	D.3	X	p. 49, Social Institutions
	D.4	X	p. 50, Medical Services

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-1

Item Number		Applicable	Document Location & Comments
	D.5	X	p. 50, Fire and Police Protection
	D.6	X	pp. 50-51, Public Services and Utilities
	D.7	X	p. 49, Religious Institutions and Cemeteries
	D.8	X	p. 51, Government Institutions and National Defense Installations
	D.9		With the exception of post offices and libraries addressed in Checklist Item III D.9, there are no other governmental services in the study area.
	E.	X	pp. 41-47, Recreation, Pedestrian, Bicyclist, and Transit Facilities
	E.1	X	pp. 41-47, Recreation, Pedestrian, Bicyclist, and Transit Facilities
	E.2	X	pp. 41-42, Recreation, Pedestrian, Bicyclist, and Transit Facilities. Paragraph 3
	E.3	X	pp. 41-47, Recreation, Pedestrian, Bicyclist, and Transit Facilities
	E.4	X	pp. 42-44, Smith Cove Acquisition Project and pp. 46-47, Transit (Seattle Monorail)
	E.5		Data on existing bicyclist and pedestrian safety in the project are is not available.
	E.6	X	pp. 75-89, Impacts, Pedestrian, Transit, and Bicyclist Facilities Subsection for Each Alternative; and p. 110, Summary of Findings, Secondary and Cumulative Impacts
	F.	X	pp. 36-41, Social Conditions, Community Cohesion/Demographics
	F.1	X	pp. 36-41, Social Conditions, Community Cohesion/Demographics
IV.	A.		pp. 73-74, Assessment of Impact – No operational impacts because the project is a bridge replacement. Traffic capacity would not increase, the same bridge connections would be maintained, and no residential displacements would occur.
	A.1		Replacement bridge: no change in traffic patterns or influence on growth.
	A.2		Replacement bridge: no change in traffic patterns or influence on growth.
	A.3		Replacement bridge: no change in traffic patterns or influence on growth.
	A.4		Replacement bridge: no change in traffic patterns: primarily constructed over industrial property: and existing bridge termini maintained.
	A.5		Replacement bridge: no increase in traffic capacity or influence on growth.
	A.6		Replacement bridge: no change in traffic patterns: primarily constructed over industrial property: and existing bridge termini maintained.
	A.7		Replacement bridge: no change in traffic patterns: primarily constructed over industrial property: and existing bridge termini maintained.

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-1

Item Number	Applicable	Document Location & Comments
A.8		Replacement bridge: no change in traffic patterns: primarily constructed over industrial property: and existing bridge termini maintained.
A.9		Replacement bridge: no change in traffic patterns: primarily constructed over industrial property: and existing bridge termini maintained.
A.10		Replacement bridge: no increase in traffic capacity.
A.11		Replacement bridge: no residential displacements or change in traffic patterns.
B.	X	pp. 75-89, Impacts, Recreation Subsection for Each Alternative
B.1	X	pp. 75-89, Impacts, Recreation, Facilities/Capacity (p. 73 for Alternative A and discussed as necessary for Alternatives C and D)
B.2	X	pp. 75-89, Impacts, Recreation, Access (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
B.3	X	pp. 75-89, Impacts, Recreation, Aesthetics (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
B.4	X	pp. 75-89, Impacts, Recreation, Air Quality (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
B.5	X	pp. 75-89, Impacts, Recreation, Noise (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
B.6	X	pp. 75-89, Impacts, Recreation, Water (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
B.7	X	pp. 75-89, Impacts, Recreation, Land Use in the Vicinity (p. 74 for Alternative A and discussed as necessary for Alternatives C and D)
C.	X	pp. 77, Impacts, Cultural Resources
C.1	X	pp. 77, Impacts. Cultural Resources
D.		No impacts related to population and housing would occur.
D.1		No impacts related to population and housing would occur.
D.2		No impacts related to population and housing would occur.
D.2.a		No impacts related to population and housing would occur.
D.2.b		No impacts related to population and housing would occur.
D.2.c		No impacts related to population and housing would occur.
D.3		No impacts related to population and housing would occur.
E.	X	pp. 77-79, Impacts, Services
E.1	X	pp. 77-79, Impacts, Services
E.2	X	pp. 77-79, Impacts, Services
E.3		No increase in service area for any service, facility, or institution.
E.4		No increased demand for new or additional services, facilities or institutions.

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-1

Item Number		Applicable	Document Location & Comments
	F	X	pp. 75-89, Impacts, Pedestrian, Transit, and Bicyclist Facilities Subsection for Each Alternative
	F.1		No changes in pedestrian, transit, or bicyclist usage or capacity.
	F.2	X	pp. 75-89, Impacts, Pedestrian, Transit, and Bicyclist Facilities Subsection for Each Alternative
	F.3	X	pp. 75-89, Impacts, Pedestrian, Transit, and Bicyclist Facilities Subsection for Each Alternative
	F.4	X	pp. 75-89, Impacts, Pedestrian, Transit, and Bicyclist Facilities Subsection for Each Alternative
	F.5	X	pp. 82-83, Impacts, Alternative C (Alternative C is the only alternative that would require displacement of an existing bicycle or pedestrian route)
V.	A.		The project would not change neighborhood characteristics and would not separate or isolate any neighborhoods under any of the alternatives. Therefore community cohesion mitigation is not required.
	A.1		The project would not change neighborhood characteristics and would not separate or isolate any neighborhoods under any of the alternatives. Therefore community cohesion mitigation is not required.
	A.2		The project would not change neighborhood characteristics and would not separate or isolate any neighborhoods under any of the alternatives. Therefore community cohesion mitigation is not required.
	B.	X	pp. 91-94, Mitigation Measures
	B.1	X	pp. 91-94, Mitigation Measures. Section 6(f) of the Land and Water Conservation Funds Act does not apply to this project.
	B.2		No additional mitigation measures were considered or are available for impacts to recreation resources.
	C.		No impacts related to population and housing would occur under any of the alternatives therefore mitigation of regional and community growth is not applicable.
	D.		No adverse impacts to services would occur under any of the alternatives therefore mitigation is not applicable.
	D.1		No adverse impacts to services would occur under any of the alternatives therefore mitigation is not applicable.
	D.2		No adverse impacts to services would occur under any of the alternatives therefore mitigation is not applicable.
	E.	X	p. 92, Mitigation Measures, Alternative C, Social Conditions. No other long-term adverse impacts on pedestrian, transit, or bicyclist facilities or users are expected.
	F.		Mitigation for impacts on potentially impacted low-income and/or minority communities is addressed in the Environmental Justice discipline report.
Vi	A.	X	p. 105, Summary of Findings, Project Objectives
	B.	X	pp. 105-106, Summary of Findings, Affected Environment
	B.1	X	pp. 106-109, Summary of Findings, Impacts

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-1

Item Number	Applicable	Document Location & Comments
C.	X	pp. 106-109, Summary of Findings, Impacts
D.	X	pp. 111-114, Summary of Findings, Mitigation Measures
E.	X	pp. 114-115, Summary of Findings, Comparison of Alternatives
G.	X	p. 115, Summary of Findings, Public Involvement and Interaction

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-1

Economic Elements Checklist Summary

Item Number	Applicable	Document Location & Comments
I. A.	X	pp. 20-23, Interviews with Affected Businesses, and pp. 67-71, Interviews with Affected Businesses
B.		No residents in the study area.
C.	X	pp. 25-27, Studies and Coordination, Coordination with Community Leaders and Local Agencies and Organizations, and Studies and Data Sources
D.	X	pp. 25-27, Studies and Coordination, Coordination with Community Leaders and Local Agencies and Organizations, and Studies and Data Sources
E.	X	pp. 52-60, Regional Economic Overview
F.	X	pp. 66-67, Potential Port of Seattle North Bay Redevelopment
G.		No new or induced development.
H.		All directly affected parcels are on Port of Seattle property
I.		All directly affected parcels are on Port of Seattle property
J.		All directly affected parcels are on Port of Seattle property
II. A.	X	pp. 52-60, Economic Conditions and Regional Economic Overview
B.	X	pp. 51-71, Economic Conditions
III. A.1		Replacement bridge: no change in traffic patterns or influence on growth. No development induced by proposed project; no change in access, travel time or increased capacity of facility.
A.2		Replacement bridge: no change in traffic patterns or influence on growth. No development induced by proposed project; no change in access, travel time or increased capacity of facility.
A.3		Replacement bridge: no change in traffic patterns or influence on growth. No development induced by proposed project; no change in access, travel time or increased capacity of facility.
A.4		Replacement bridge: no change in traffic patterns or influence on growth. No development induced by proposed project; no change in access, travel time or increased capacity of facility.
B.1	X	pp. 73-89, Impacts, Relocation Subsection for Each Alternative
B.2		Replacement bridge: no change in traffic patterns or influence on growth.
B.3		Replacement bridge: no change in traffic patterns or influence on growth.
B.4		Replacement bridge: no change in traffic patterns or influence on growth.
B.5	X	pp. 73-89, Affected Businesses, Interviews with Directly Affected Businesses, Relocation Effects, Impacts, Relocation Subsection for Each Alternative
C.1		Replacement bridge: no change in traffic patterns or influence on growth.
C.2		Replacement bridge: no change in traffic patterns or influence on growth.
C.3		Replacement bridge: no change in traffic patterns or influence on growth.

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-2

Item Number	Applicable	Document Location & Comments
C.4	X	pp. 73-89, Impacts, Relocation Subsection for Each Alternative and pp. 52-54 Business Patterns in the Impact Area
C.5		Replacement bridge: no change in traffic patterns or influence on growth.
C.6		All affected property owned by Port of Seattle.
C.7	X	pp. 60-67, Overview of Types and Number of Businesses, Employment, Taxes and Property Values of the Impact Area
D.1		Replacement bridge: no change in traffic patterns or influence on growth.
D.2		Replacement bridge: no change in traffic patterns or influence on growth.
D.3		Replacement bridge: no change in traffic patterns or influence on growth.
IV. A.	X	pp. 91-94, Mitigation Measures
B.		No additional available mitigation measures were considered.
V. A.1	X	pp. 95-103, Construction Impacts, Economic Conditions, Subsection for Alternative A (Discussed as necessary for Alternatives C and D)
A.2	X	pp. 95-103, Construction Impacts, Subsection for Alternative A (Discussed as necessary for Alternatives C and D)
A.3	X	pp. 95-103, Construction Impacts, Economic Conditions, Subsection for Alternative A (Discussed as necessary for Alternatives C and D)
A.4	X	pp. 95-103, Construction Impacts, Economic Conditions, Subsection for Alternative A (Discussed as necessary for Alternatives C and D)
B.1	X	pp. 95-103, Construction Impacts, General Construction Mitigation Activities, Subsection for Alternative A (Discussed as necessary for Alternatives C and D)
B.2		No additional available mitigation measures were considered.
VI A.	X	p. 105, Summary of Findings, Project Objectives
A.1	X	pp. 51-71, Economic Conditions
A.2	X	pp. 106-110, Summary of Findings, Impacts
A.3	X	pp. 111-114, Summary of Findings, Mitigation Measures
B.	X	pp. 114-115, Comparison of Alternatives

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-2

Relocation Checklist Summary

Item Number		Applicable	Document Location & Comments
I.		X	Uniform Relocation Assistance and Real Property Acquisition Policies Act discussed on pp. 24-25, Studies and Coordination, Relocation
I.	A.	X	p. 17, Studies and Coordination, Social Conditions
	B.	X	pp. 25-27, Studies and Coordination, Studies and Data Sources
	C.	X	p. 25, Studies and Coordination, Coordination with Community Leaders and Local Agencies and Organizations
	D.	X	p. 17, Studies and Coordination, Social Conditions and pp. 24-25, Relocation
II.	A.	X	pp. 36-41, Affected Environment, Social Conditions, Community Cohesion/Demographics and Regional and Community Growth (for long-term stability of the area)
	B.	X	pp. 60-67, Affected Environment, Overview of Types and Number of Businesses, Employment, Taxes, and Property Values of the Impact Area; and pp. 67-71, Interviews with Directly Affected Businesses. To protect the proprietary information of individual businesses, specific employment figures and other statistics are not provided separately. Availability of replacement sites/buildings is addressed on pp. 91-94, Mitigation Measures.
III.	A.		No residential displacements would occur under any of the alternatives.
	A.1		No residential displacements would occur under any of the alternatives.
	A.2		No residential displacements would occur under any of the alternatives.
	A.3		No residential displacements would occur under any of the alternatives.
	A.3.a		No residential displacements would occur under any of the alternatives.
	A.3.b		No residential displacements would occur under any of the alternatives.
	A.3.c		No residential displacements would occur under any of the alternatives.
	A.3.d		No residential displacements would occur under any of the alternatives.
	A.3.e		No residential displacements would occur under any of the alternatives.
	A.3.f		No residential displacements would occur under any of the alternatives.
	A.3.g		No residential displacements would occur under any of the alternatives.
	A.3.h		No residential displacements would occur under any of the alternatives.
	B.		No residential displacements would occur under any of the alternatives therefore no minority and/or low-income households would be impacted.

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-3

Item Number		Applicable	Document Location & Comments
	C.	X	pp. 73-89, Impacts, Relocation Subsection for Each Alternative
	C.1	X	pp. 73-89, Impacts, Relocation. To protect the proprietary information of individual businesses, specific employment figures such as the sizes of businesses to be displaced are not provided separately.
	C.2		To protect the proprietary information of individual businesses, specific employment figures such as the approximate number of employees for businesses to be displaced are not provided separately.
IV.	A.		No residential displacements would occur under any of the alternatives therefore mitigation is not required.
	A.1		No residential displacements would occur under any of the alternatives therefore mitigation is not required.
	A.2		No residential displacements would occur under any of the alternatives therefore mitigation is not required.
	A.3		No residential displacements would occur under any of the alternatives therefore mitigation is not required.
	B.		
	B.1	X	pp. 91-94, Mitigation Measures
	B.2		No farm operations would be affected by the project.
	C.	X	pp. 91-94, Mitigation Measures (Reference to the Uniform Relocation Act is included on pp. 24-25, Studies and Coordination, Relocation)
	D.	X	pp. 91-94, Mitigation Measures. Coordination with affected business owners is documented on pp. 20-23, Studies and Coordination, Interviews with Affected Businesses. The results of this coordination effort helped to formulate business-specific mitigation measures.
	E.		No other additional mitigation measures and commitments have been identified at this time.
V.	A.		Construction impacts are not applicable because the affected businesses will be permanently displaced from their present location as a result of the project.
	B.		Construction mitigation is not applicable because the affected businesses will be permanently displaced from their present location as a result of the project.
VI.	A.	X	p. 105, Summary of Findings, Project Objectives
	B.		Housing availability and vacancy rates are not applicable because the project would not result in residential displacements.
	C.	X	pp. 106-110, Summary of Findings, Impacts
	D.	X	pp. 111-114, Summary of Findings, Mitigation Measures
	E.	X	pp. 114-115, Comparison of Alternatives

Notes: X = Checklist item is applicable to the project. If left blank, item is not applicable
Source: WSDOT Environmental Procedures Manual, Exhibit 457-3