Central Link Light Rail Transit Project
Final Supplemental Environmental Impact Statement
North Link

APPENDIX I
Environmental Justice

Appendix I Environmental Justice

I.1 INTRODUCTION

This analysis was prepared in compliance with Presidential Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (EO 12898), dated February 11, 1994, and the Department of Transportation's Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order). The purpose of this analysis is to provide information on opportunities provided to minority and low-income populations to participate in the project planning process for the North Link Project, and to determine whether North Link would result in disproportionately high and adverse effects on minority and/or low-income populations.

I.2 REGULATORY FRAMEWORK

EO 12898, issued by President Clinton in 1994, provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." In the accompanying memorandum, President Clinton urged federal agencies to incorporate environmental justice principles into analyses prepared under the National Environmental Policy Act (NEPA) and emphasized the importance of public participation in the NEPA process.

In response to EO 12898, the U.S. Department of Transportation issued the DOT Order, which outlines how environmental justice analyses should be performed and how transportation project decisions should be made to avoid disproportionately high and adverse effects on minority and low-income populations. The DOT Order requires agencies to do two things: (1) explicitly consider human health and environmental effects related to transportation projects that may have a disproportionately high and adverse effect on minority or low-income populations; and (2) implement procedures to provide "meaningful opportunities for public involvement" by members of those populations during project planning and development (DOT Order § 5(b)(1)). The DOT Order further provides that "In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non-low-income areas." DOT Order § 8(b).

I.3 METHODOLOGY AND APPROACH

In accordance with the DOT Order, this Environmental Justice Analysis summarizes the efforts that Sound Transit has made to involve minority and low-income populations in the development of the North Link Project. This summary is contained in Section I.5, below. In addition, it analyzes, relying principally on the information developed in the SEIS and accompanying technical reports, whether the North Link Project would result in disproportionately high and adverse effects, taking into account proposed mitigation measures and project benefits as appropriate. This analysis is contained in Section I.6. The demographics of the population residing in the vicinity of the North Link alternatives were identified to provide an appropriate context both for the public involvement efforts and the analysis of potential effects on minority and low-income populations. This demographic information is set forth in Section I.4, below.

I.4 PROJECT AREA DEMOGRAPHICS

To establish context for this environmental justice analysis, the race and income characteristics of the population in the vicinity of the North Link project alternatives were reviewed. 2000 Census data were used to identify the relative concentrations of minority and low-income individuals in these areas. Race data were analyzed at the Census Block level and income data were analyzed at the Census Block Group level as Block level information is not available. GIS maps depicting the distribution of minority and low-income individuals in the vicinity of the project alternatives are shown in Figures I-1 through I-6. The areas in the vicinity of the project alternatives shown in these Figures represent the areas that are likely to receive the greatest impact, but also the greatest benefit from the North Link Project.

As shown on Figures I-1 and I-2, most of the Census Blocks in the vicinity of the project alternatives have minority population percentages in the 0- to 25-percent range, and the 25- to 50-percent range. Noticeable aggregations of minority individuals adjacent to the project alternatives can be seen in the University District and in the Pike/Pine neighborhood areas. As shown on Figures I-3 and I-4, Hispanic representation in the Census Blocks adjacent to the project alternatives is quite low, with most Census Blocks reporting Hispanic population percentages in the 0- to 25- percent range. As shown on Figures I-5 and I-6, most of the Census Block Groups in the vicinity of the project alternatives have low-income population percentages in the 0- to 25-percent range. Higher aggregations of low-income individuals adjacent to the project alternatives can be seen in several Census Block Groups in the University District, South Lake Union, and in the Pike/Pine neighborhood areas. In these areas there are several Census Block Groups with low-income population percentages in the 25- to 50-percent range.

I.5 OUTREACH TO MINORITY AND LOW-INCOME POPULATIONS

Both EO 12898 and the DOT Order provide that federal agencies shall ensure meaningful participation of minority and low-income populations in the decision-making process. The implementation of appropriate public outreach activities and the provision of opportunities for public involvement is a key component of compliance with the Orders.

Throughout the project development of both the Central Link Project, of which the North Link Project is a component, and the North Link Project itself, Sound Transit has undertaken numerous public outreach efforts, many of which have been specifically targeted at minority and low-income populations. These activities are summarized below in three sections. The first section describes outreach beginning with the initial EIS process for the Central Link Project that ultimately resulted in selection of the original project between downtown Seattle and Northgate. The second section addresses outreach activities since the Sound Transit Board selected the area from downtown Seattle to the south as the Initial Segment and commenced the SEIS for the North Link Project. Finally, the third section addresses outreach activities that will occur in the future through project completion.

I.5.1 Outreach from 1997 through September 2001

The EIS process that began in 1997 for the Central Link Project included alternatives that are now known as the North Link Project from Convention Place Station north to Northgate Mall. The scoping and open house meetings held in November and December 1997 and the spring, summer, and winter of 2000 directly addressed the North Link project area, although new route options have since been introduced. These meetings were advertised via mailers sent to residences and businesses within approximately one-half mile of the proposed routes based on postal carrier routes. These carrier routes include areas of high minority concentrations as well as low-income areas according to the demographic data described above. In addition, Sound Transit held four workshops in March and April 1998 in the University District and surrounding the proposed Capitol Hill station. These meetings were also advertised through postcards sent to all addresses within postal carrier routes near the proposed stations. In 2001, the Northgate workshops and open house events were held in the summer. Again, these meetings were advertised broadly through mailings to all addresses in postal carrier routes near the proposed alignment.

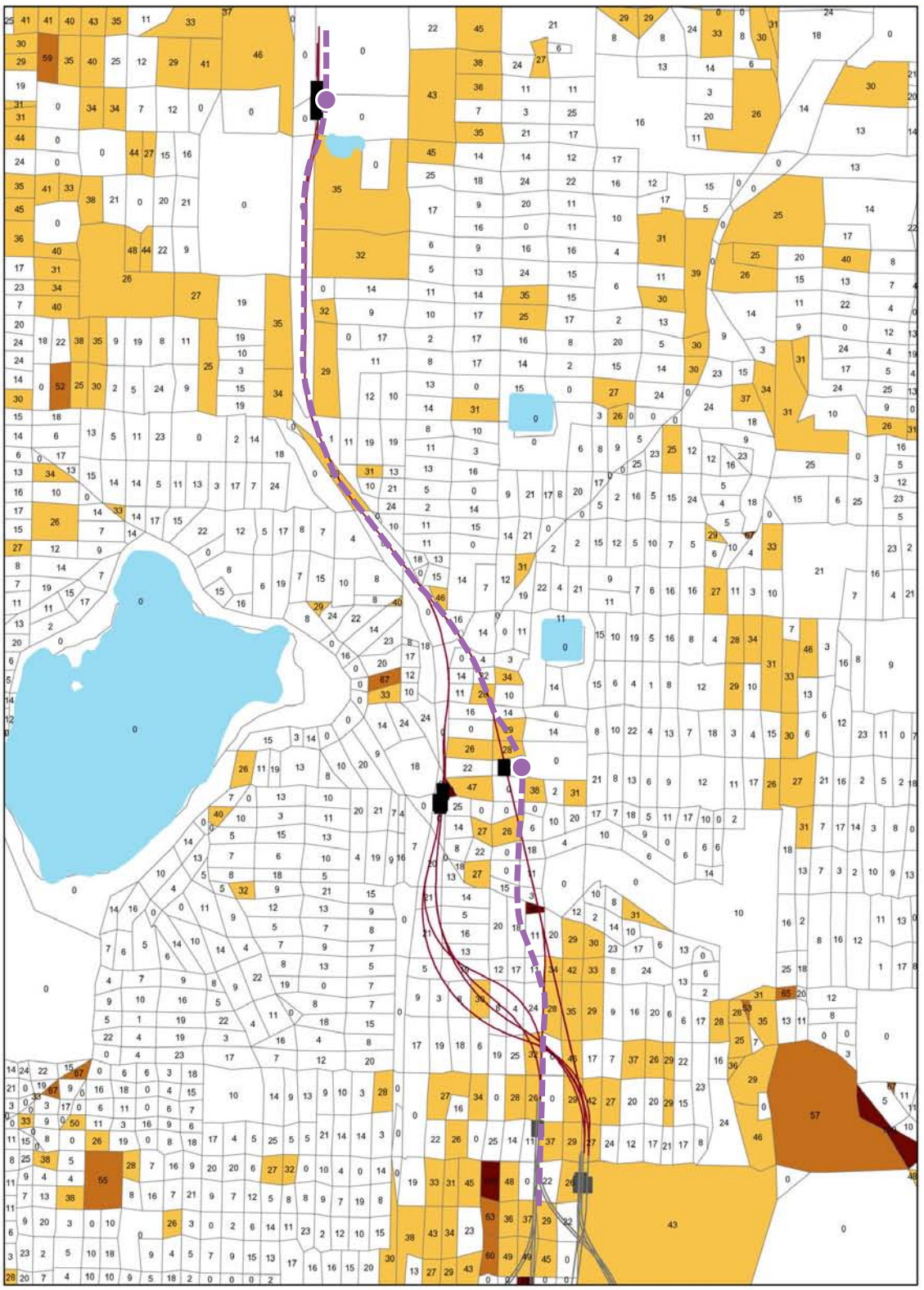

Figure I-1
Segment A – Minority Population
Census 2000 Blocks

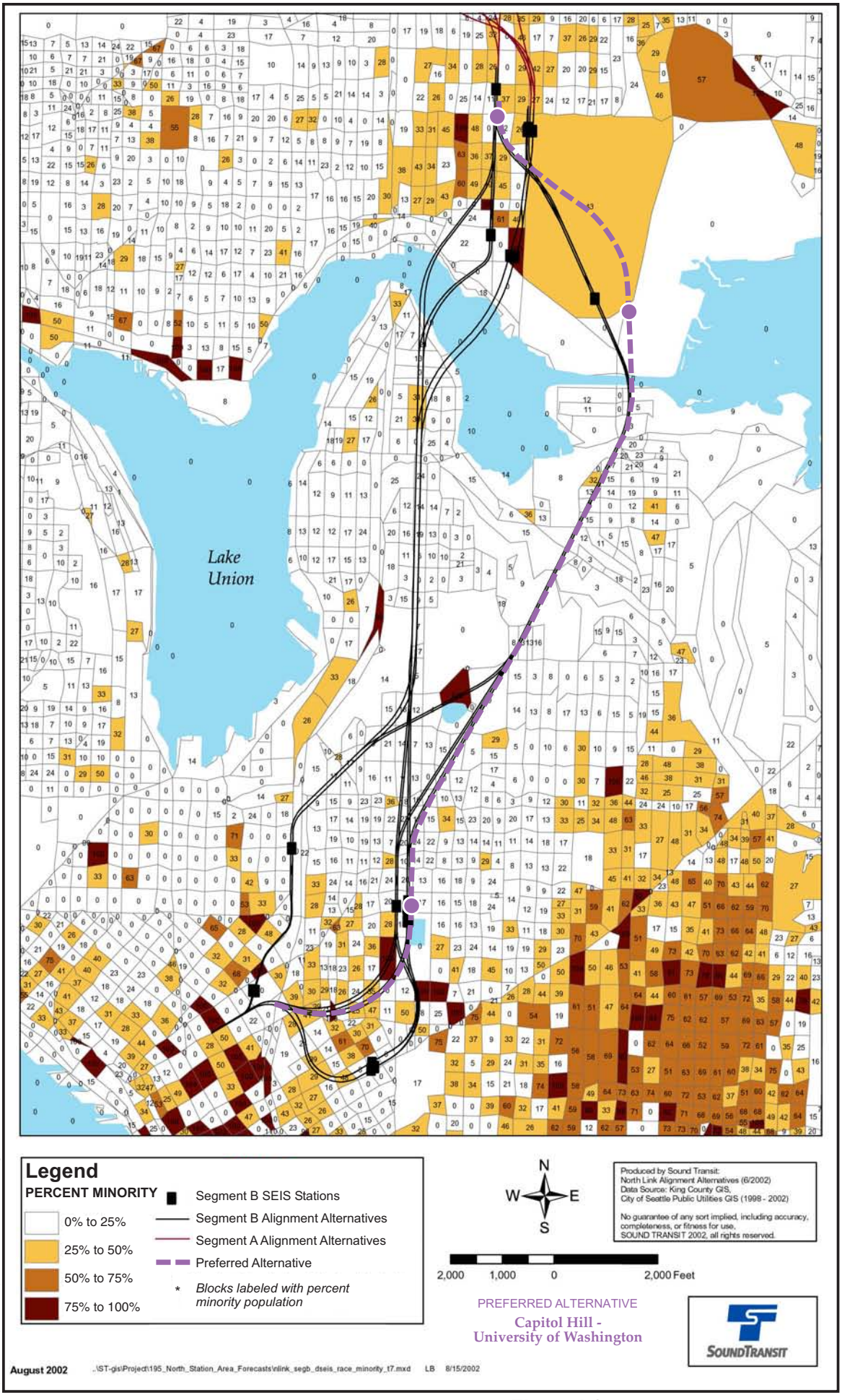

Figure I-2
Segment B – Minority Population
Census 2000 Blocks

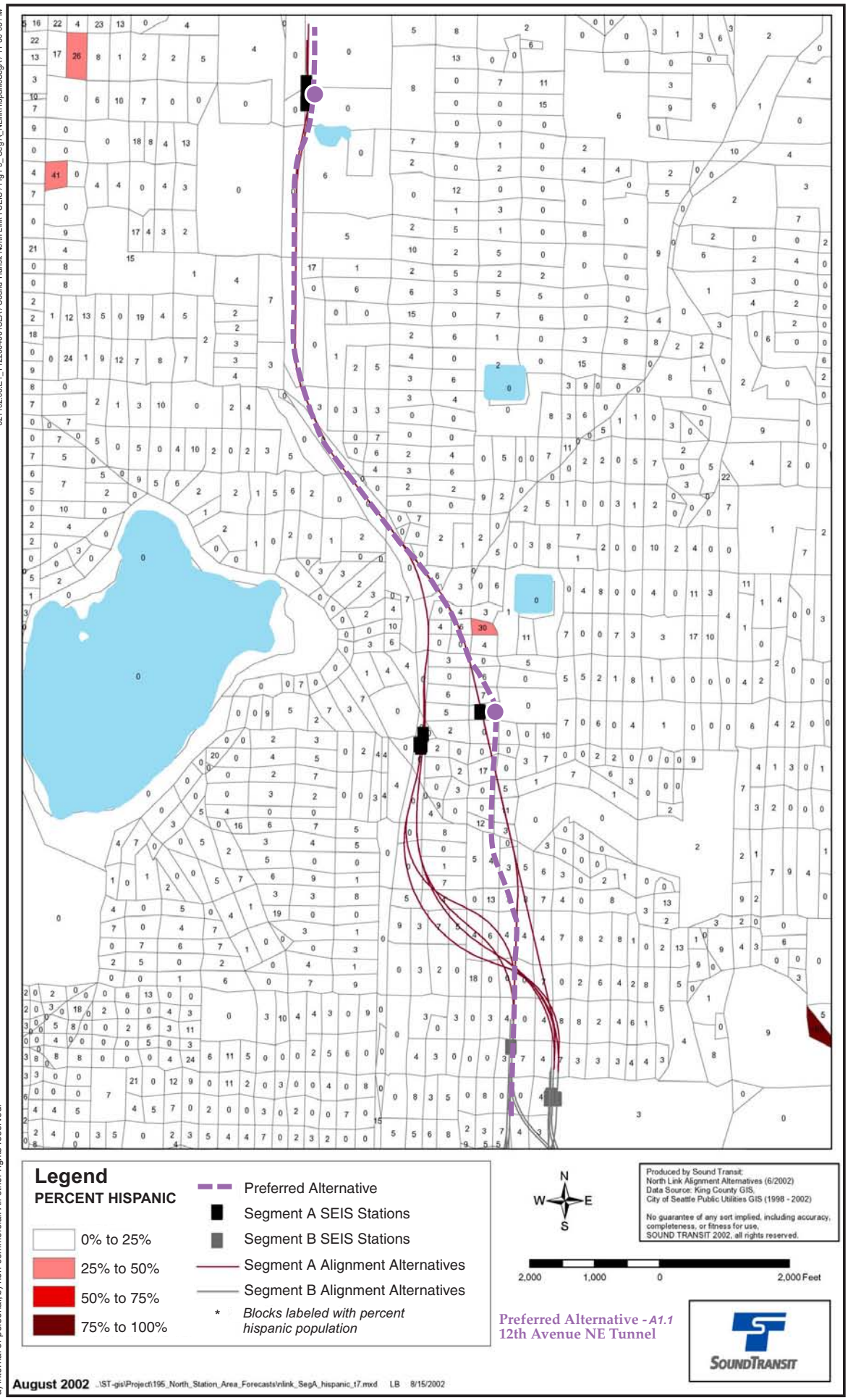

Figure I-3
Segment A – Hispanic Population
Census 2000 Blocks

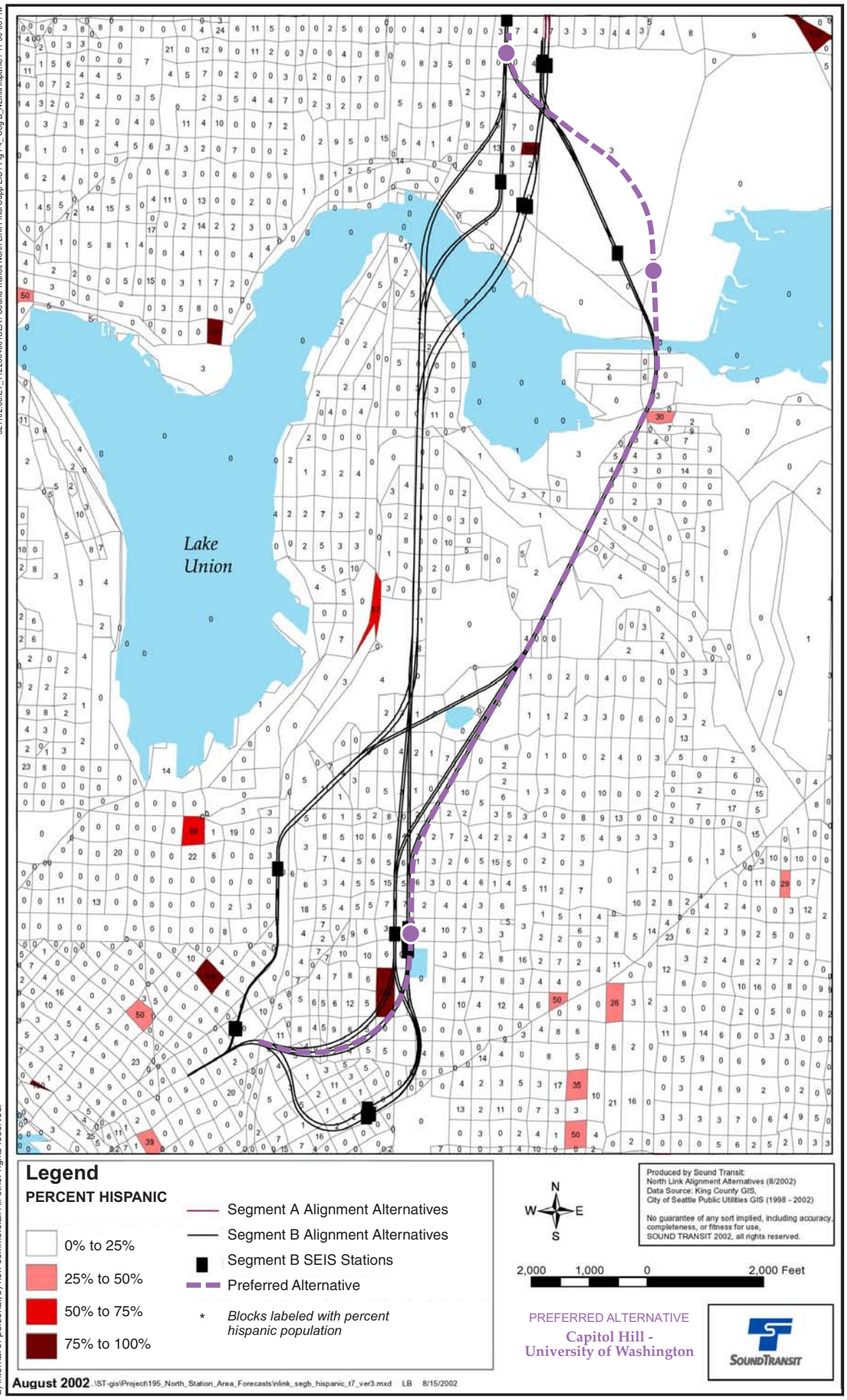

Figure I-4
Segment B – Hispanic Population
Census 2000 Blocks

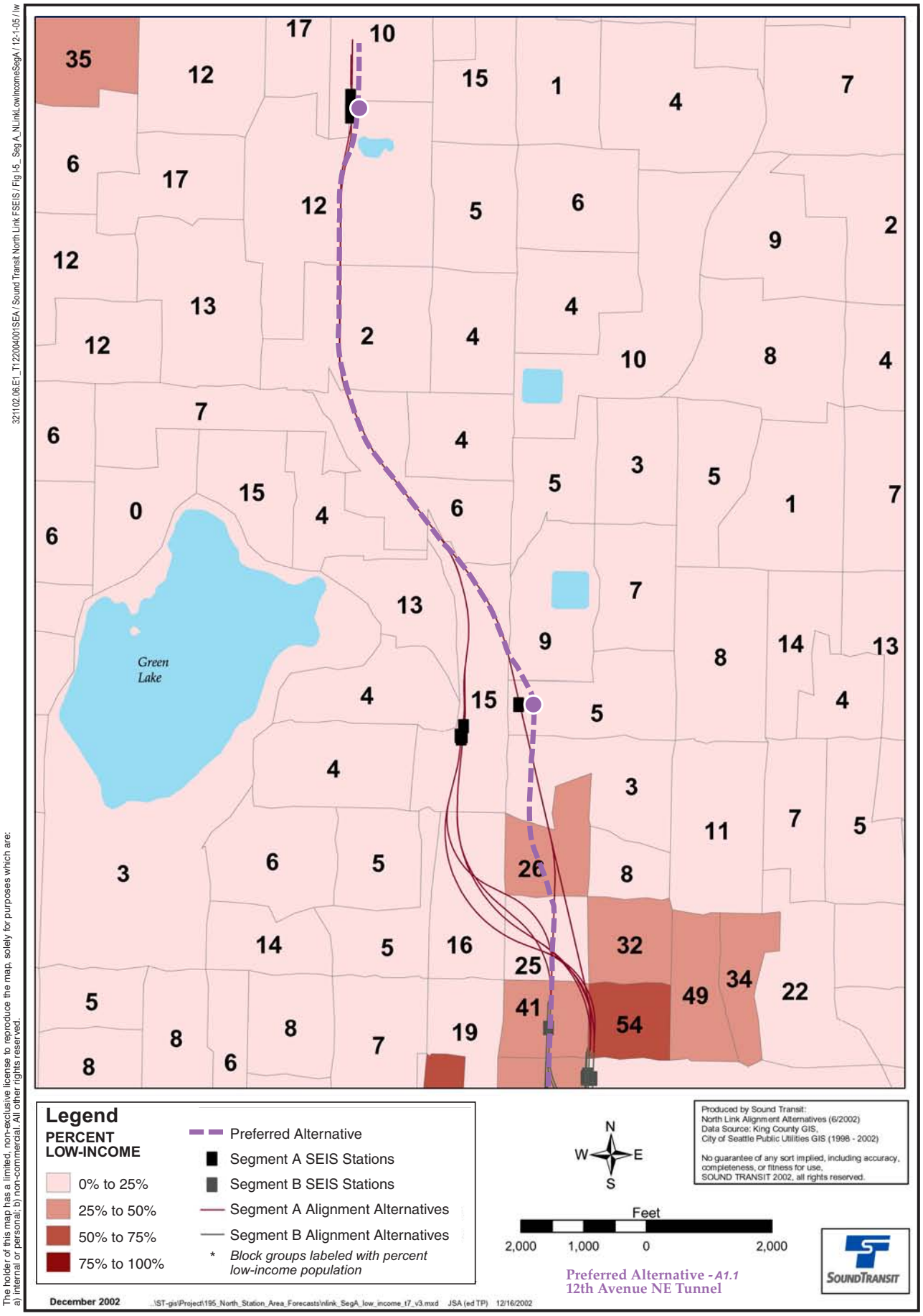

Figure I-5
Segment A –
Low-Income Population
Census 2000 Block Groups

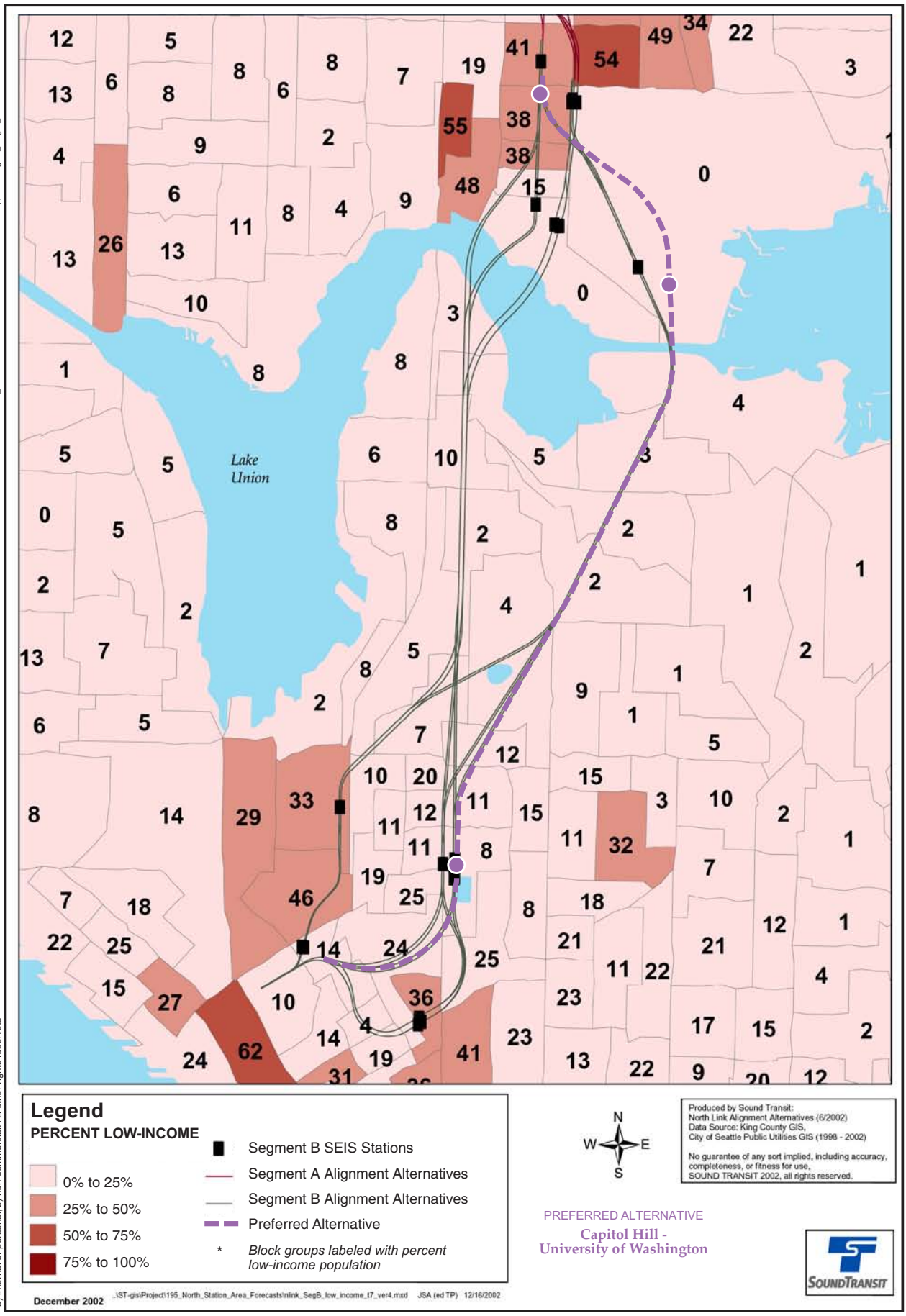

Figure I-6
Segment B –
Low-Income Population
Census 2000 Block Groups

During the period from 1997 through 2001, Sound Transit provided approximately 60 project updates at the regular meetings of numerous community groups and organizations within the North Link project area. During this same period, Sound Transit sponsored approximately 40 meetings with specific neighborhoods and organizations throughout the North Link project area. In addition, Sound Transit also participated in meetings of community groups that serve specific minority and ethnic groups. These groups include the Refugee Federation Service Center, the Eritrean Association of Greater Seattle, the Islamic Center, the Jewish Family Services/Multi-Ethnic Center, Ethiopian Community Mutual Association, the Tigraye Community Association, the Somali Community Center, and El Centro de la Raza. Several Asian newspapers also ran informational advertisements about the project.

I.5.2 Outreach from September 2001 to Present

In September 2001, the Sound Transit Board authorized the commencement of an SEIS process to evaluate the route options to the north of the Initial Segment. The scoping process for the draft SEIS, which included mailing over 70,000 postcards to residents and businesses within one-half mile of the corridor and two public scoping meetings, began in October 2001. Before these scoping meetings, a Northgate station area open house was held that provided additional opportunity to inform local residents about the project and upcoming meetings. Sound Transit also held station design workshops in South Lake Union, Capitol Hill, and the University District in March and April 2002. The open house and public hearings for the 2003 Draft SEIS occurred in January 2004. The Modified Montlake Route Addendum open house and public hearing was in February 2004. An additional series of design workshops occurred following the release of the 2003 Draft SEIS and Modified Montlake Route Addendum and subsequent advanced design efforts, including two series of open houses in the First Hill, Capitol Hill, Montlake, University District, and Roosevelt neighborhoods, held in October 2004 and February 2005. In winter 2004/2005, project development and outreach staff met on several occasions with the Calvary Christian Assembly in the Roosevelt neighborhood to discuss impacts to the church and to understand the church's different uses and needs. The 2005 Draft SEIS open house and public hearings were held in November 2005. Notice of these events was provided through postcards mailed to the businesses and residences of the surrounding areas based on postal carrier routes. These mailings included text instructing recipients on how to obtain interpreter services for the information on the postcard in nine different languages.

Specific outreach to groups providing services to low-income, minority, and disabled population in the project area was conducted around the release of environmental documentation and subsequent comment periods. For example, for the 2005 Draft SEIS, staff contacted such groups as the University District Food Bank, the Washington Coalition of Citizens with Disabilities, and the Community Coalition for Environmental Justice to walk them through the comment period process and make sure they received the documentation. Each group was sent a packet of materials that were also used at the public hearings/open houses. In addition to the processes described above, Sound Transit has met and continues to meet with community groups at their regularly scheduled meetings to provide updates on the project. Since the scoping phase for this SEIS began, Sound Transit has provided updates at hundreds of such meetings. In addition, Sound Transit staff met with potentially impacted property owners, including the manager of the Grandview Apartments, an affordably-priced rental community adjacent to the proposed Harrison Street station. A special meeting with the Cascade/South Lake Union community, much of which is low-income, was also held to provide an update on the project, answer questions, and receive comments and concerns. Sound Transit project development and outreach staff have met with potentially impacted owners and organizations throughout the alignment, such as apartment buildings and churches, to provide updates on the project, answer questions, and receive comments and concerns. Sound Transit representatives have also met with representatives from the City of Seattle Housing Authority to discuss the project and presented North Link project updates and explained public participation opportunities at several low income housing buildings. Sound Transit has provided an update on the project, described public input opportunities, and provided fact sheets for facilities to the managers of the area's food banks.

Further details regarding the public involvement process for the North Link Project is contained in Appendix B to the SEIS.

I.5.3 Outreach from Present through Project Completion

Sound Transit is committed to the continued implementation of public involvement opportunities in the environmental review and planning processes for the North Link Project. Public involvement actions targeted at minority and low-income populations include the following:

- Continued consultation with key community organizations for assistance in outreach to minority and low-income individuals.
- Provide agency and project-specific information to key community organizations that serve the minority and/or low-income populations prevalent in the areas to be served directly by the North Link Project and likely to be impacted by the project.
- Present project information at meetings at important community venues in areas with concentrated minority and/or low-income populations likely to be served by the North Link project and directly impacted by construction activities.
- Only hold public meetings in facilities that meet or exceed ADA accessibility requirements.
- Provide publication-specific translated language blocks on all outreach materials produced for the project.
- Offer interpretation services for all public meetings for deaf and non-English speaking community members.

In addition, Sound Transit will continue to provide on-call interpretation services for individuals who call in with questions or information requests and interpreter services at public meetings as requested, as well as effective notification of those services. Sound Transit will also maintain consistent contacts with key community organizations that serve the non-English speaking populations in the North Link Project area, and provide agency and project-specific information to these organizations.

I.6 PROJECT IMPACTS AND MITIGATION

The DOT Order requires agencies to explicitly consider human health and environmental effects related to transportation projects that may have a disproportionately high and adverse effect on minority or low-income populations. Under Section 8.b of the DOT Order, mitigation and enhancement measures may also be considered. Table I-1 below briefly summarizes the impacts identified in the SEIS analyses as well as proposed mitigation measures. Chapters 3 and 4 of this SEIS contain complete discussions of project impacts and proposed mitigation.

As detailed in the SEIS and summarized below in Table I-1, many of the impacts associated with the North Link Project are limited in scope. Other impacts would be mitigated through the implementation of effective mitigation measures. The project would not, therefore, result in disproportionately high and adverse effects under the Executive and DOT Orders.

Table I-1
Impacts and Mitigation Summary

Element of the Environment	Build Alternatives Impact Summary	Mitigation Summary
Transportation	• Improved transit travel times, reliability and convenience for all alternatives. • Segment A Preferred Alternative would displace 306 parking spaces at the Northgate park-and-ride, 74 spaces on other commercial property, and three on-street parking spaces. Approximately 410 spaces would be provided in a new park-and-ride structure. Some potential for hide-and-ride parking. • Other Segment A alternatives would have a loss of up to 964 transit-related parking spaces, up to 405 commercial off-street spaces, and 50 on-street parking spaces but 1,000 to 1,408 spaces created. • Segment B Preferred Alternative would permanently displace 9 on-street parking spaces and 100 to 135 off-street spaces on the University of Washington campus. • For other Segment B alternatives, 9 to 64 on-street and 0 to 24 off-street spaces would be removed. • All Segment A and B alternatives would have one intersection operating at LOS E in 2030 with delays higher than the No-Build. • For all Segment A alternatives in 2030, one intersection would operate at LOS F with delays higher than the No-Build. In Segment B, the Preferred Alternative would have one intersection impacts and the other Segment B alternatives would have 0 to 2 intersection impacts in 2030.	• Parking management measures to address "hide-and-ride" parking. • Direct compensation of businesses for parking loss. • Intersection signalization and capacity improvements to address decreased LOS.
Displacement and Relocation	• Segment A Preferred Alternative – 13 full property acquisitions (includes 8 residential units). • A2.1b – 27 full property acquisitions (includes 22 residential units); A2.1c – 39 full property acquisitions (includes 35 residential units). • Segment B Preferred Alternative – 30 full property acquisitions (including 82 residential units). • Segment B: B1.A – 17 to 23 full property acquisitions (includes 0 to 15 residential units); B1.D – 18 to 34 full property acquisitions (includes 0 to 36 residential units); B1.G – 26 to 33 full property acquisitions (includes 16 to 31 residential units); B3.D – 20 to 32 full property acquisitions (includes 1 to 21 residential units); B3.G – 27 to 29 full property acquisitions (includes 16 residential units); B4.D – 13 to 31 full property acquisitions (includes 0 to 37 residential units); B4.G – 20 to 28 full property acquisitions (includes 0 to 32 residential units).	• Residents and businesses displaced by the project would receive compensation and relocation assistance in accordance with the provisions of Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines.

Table I-1
Impacts and Mitigation Summary (continued)

Element of the Environment	Build Alternatives Impact Summary	Mitigation Summary
Land Use and Economic Activity	• Supports increased population and employment growth; consistent with local land use plans. • Residential and business displacements. • Beneficial effect of jobs creation.	• Residents and businesses displaced by the project would receive compensation and relocation assistance in accordance with the provisions of Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines.
Neighborhoods and Populations	• Consistent with existing and planned development. • Improved neighborhood connectivity and personal mobility. • Residential and business displacements.	• Implementation of proposed mitigation measures for displacements, traffic and parking, noise, and visual quality would help minimize potential negative impacts to neighborhoods.
Aesthetics	• Segment A: Minor for Preferred Alternative – Elevated structures with A2.1b and A2.1c would be a new element in the visual setting. Removal of mature trees on Ravenna Blvd. • Segment B: Minor for Preferred Alternative – Removal of mature trees with Capitol Hill, University of Washington, and NE 45th Stations. B3.D and B3.G include pedestrian bridge connecting Harrison Station and West Capitol Hill.	• Trees and vegetation would be replanted. • Project elements would be designed to preserve views and fit into the neighborhood character.
Air Quality	• No new violations of Federal air quality standards. • Slight decrease in regional air emissions.	• No mitigation is required or proposed.
Noise and Vibration	• The Segment A Preferred Alternative would have four light rail noise, 14 ground-borne noise, and two vibration impacts. Other alternatives have four to eight light rail noise, five to eight traffic noise, and seven to nine vibration impacts. • Under the Segment B Preferred Alternative, vibration levels after mitigation would affect 5 buildings with University of Washington criteria. Under the other alternatives vibration levels would affect 1 to 9 buildings with University of Washington criteria. • Segment B: No operation noise impacts. Preferred Alternative may produce ground-borne noise impacts at 13 properties, including 6 multifamily buildings near the Brooklyn Station, and 6 buildings at the University.	• Impacts can be mitigated by installation of noise walls or other measures, except for three residences, which could have residual ground-borne noise. • Special track fasteners would mitigate vibration impacts to non-University of Washington buildings. • Design modifications such as floating slabs, special track fasteners, and reducing speeds, would minimize vibration and ground-borne noise impacts to University of Washington buildings.
Ecosystems	• Segment A: Minor impacts related to shading, removal of vegetation, and increased impervious surface from above-ground facilities. No direct loss of critical habitat. • Segment B: Vegetation removal, and minor increase in impervious surface from above-ground facilities. No direct loss of critical habitat.	• Preservation of trees in construction staging areas where appropriate. • Removed trees and vegetation would be replanted where appropriate. • Implementation of water quality BMPs and stormwater detention facilities.

Table I-1
Impacts and Mitigation Summary (continued)

Element of the Environment	Build Alternatives Impact Summary	Mitigation Summary
Water Resources	• Minor increase in impervious surface from above-ground facilities. Park-and-ride or replacement parking may replace existing surfaces at Northgate and University of Washington.	• Implementation of water quality BMPs and stormwater detention facilities.
Energy	• Slight decrease in energy demand through decreased automobile use. • Slight increase in electrical energy demand to power the light rail system, but there is an overall reduction in total transportation energy demand.	• No mitigation is required or proposed.
Geology and Soils	• Segment A: All alternatives traverse small areas of steep slope hazards. • Segment B: B3.D and B3.G traverse a mapped landslide area, and may affect existing steep slopes.	• Measures to address steep slope and landslide hazards would be incorporated into the project design. No additional mitigation is required or proposed.
Hazardous Materials	• Segment A sites of highest concern (on alignment): The Preferred Alternative has three documented release sites and seven potential release sites; A2.1b has three and one, respectively; and A2.1c has four and three, respectively. • Segment B sites of highest concern (on alignment): The Preferred Alternative has 12 documented release sites and 29 potential release sites. Other Segment B alternatives have between five (B1.A) and 11 (B1.G) documented release sites and between 21 (B3.D) and 54 (B1.G) potential release sites.	• Avoid contaminated sites or portions of contaminated sites. • Clearly identify properties left with residual contamination in documentation sent to Ecology. • Perform cleanup or containment during construction.
Electromagnetic Fields	• No Segment A impacts. In Segment B, after mitigation, 3 University of Washington facilities would be impacted by the Preferred Alternative. Zero to 5 facilities would be impacted under the other alternatives.	• Modify electrification design to reduce fields and/or realign routes.
Public Services	• Demand for fire and emergency medical services and law enforcement would increase slightly.	• Develop a system safety and security program as part of emergency management plan and training plan. • Light rail stations and parking structures would be designed and operated with safety and security as a key concern.
Utilities	• No long-term impacts to natural gas, electricity, telephone and telecommunications, water, wastewater, or solid waste collection and disposal services are expected with any of the alternatives.	• Coordinate with utility providers, minimize the impact of stray current through design and replacement, reduce settlement by implementing industry-standard methods.

Table I-1
Impacts and Mitigation Summary (continued)

Element of the Environment	Build Alternatives Impact Summary	Mitigation Summary
Historic and Archaeological Resources	• Segment A: A2.1b and A2.1c would have minor impacts to Ravenna Blvd. with shading and tree removal. Alternative A2.1c could result in damage or destruction of two historic homes. There would be no adverse impacts with the Preferred Alternative. • Segment B: The Preferred Alternative could affect one residence (Felch House) which is eligible to be a Seattle Landmark. Alternatives B.1A, B1.D, B3.D, and B.4D could have impacts to Cal Anderson Park, a Seattle Landmark, from tree removal.	• Sound Transit would minimize the removal and relandscape disturbed areas near Ravenna Blvd. For Alternative A2.1c, homes could be moved, or repaired, or documented and demolished in coordination with SHPO. • The Felch House could be made available for relocation.
Parklands	• Segment A: A2.1b and A2.1c would have minor impact to Ravenna Blvd. with shading, tree removal and minor street modifications. • Segment B: All alternatives except B1.Ga, B3.Ga, and B4.Ga would have stations near the Burke-Gilman Trail creating potential pedestrian conflicts. The Capitol Hill (Nagle option) station would remove trees from Cal Anderson Park, and temporarily disrupt use of a portion of the park.	• Sound Transit would minimize tree removal and relandscape disturbed areas near Ravenna Boulevard. Sound Transit would also create additional open spaces or make other improvements. • Sound Transit would work with the City of Seattle and University of Washington to design station circulation to minimize conflicts with the Burke-Gilman Trail in the vicinity of the Montlake, Pacific, and Southwest Campus stations.
Construction	• All alternatives would have temporary street closures, traffic detours, and loss of parking and increased truck traffic would affect residents, businesses, and public service providers. The Preferred Alternative would close two blocks of Brooklyn Avenue NE. • Temporary neighborhood, business and residential disruption from proximity to construction activities, including construction traffic, noise, vibration, air quality, and visual impacts. These proximity impacts could also adversely affect the following historic resources or parklands listed below by alternative: The Preferred Alternative in Segment A would not affect historic resources. A2.1b would affect Rainbow Point Park and NE Ravenna Blvd. A2.1c would affect Rainbow Point Park, NE Ravenna Blvd., Homer Russell House, and Annie Russell House. The Preferred Alternative in Segment B would affect the Felch House, and Burke-Gilman Trail. B.1A would affect Cal Anderson Park and Boren-Pike-Pine Park. B1.D and B1.G would affect Cal Anderson Park, the Burke-Gilman Trail, and Boren-Pike-Pine Park. B3.D and B3.Gb would affect the Burke-Gilman Trail. B4.D would affect Cal Anderson Park, the Burke-Gilman Trail, and Boren-Pike-Pine Park. B4.G would affect Cal Anderson Park, the Burke-Gilman Trail, and Boren-Pike-Pine Park.	• Detailed construction monitoring and mitigation plans would be finalized in close coordination with City of Seattle, WSDOT, King County Metro, local public service and utility providers, and other affected agencies and organizations. • Compensation for property and relocation assistance would be provided for displaced residences and businesses. • Mitigation for short-term ecosystem impacts would be based on a hierarchy of avoiding and minimizing impacts and compensating for unavoidable adverse impacts. • Incorporate BMPs and City and state requirements and procedures into construction plans and design documents for air quality, ecosystem, water quality, geologic, utility, and archaeological resource impacts. • Aiming and shielding construction light sources and screening around construction sites and staging areas.

Table I-1
Impacts and Mitigation Summary (continued)

Element of the Environment	Build Alternatives Impact Summary	Mitigation Summary
	• Substantial volumes of soils removed, with potential for settlement. Vibration poses minor risk of structural damage or settlement to structures nearby. • Other impacts include the temporary disruption of utilities, air quality impacts from construction emissions, increased dust/particulate, and water quality and ecosystems impacts related to erosion and stormwater. Potential short term vibration impacts have the potential to disrupt research activities at University of Washington.	• For most areas of Segments A and B, vibration monitoring would be considered. Use of an augur to install piles could mitigate noise and vibration impacts related to pile driving. Nighttime construction noise levels would be mitigated by noise level limits and mandatory noise control measures such as noise walls or other shielding. Other vibration mitigation measures include relocation of limited highly sensitive research facilities, schedule coordination to allow for research during non-construction hours, and various means to minimize vibration of muck trains.
Construction (continued)		• Restoring construction sites to preproject conditions. This would involve re-landscaping disturbed areas and providing new vegetation. • Protecting facades of affected historic buildings from excessive dirt through the use of dust control measures. • Trail detours would be developed during work across the trails.

I.7 PROJECT BENEFITS

Under the DOT Order, a proposed transportation project's offsetting benefits to the affected minority and low-income populations may be taken into account when determining whether disproportionately high and adverse effects on minority and low-income populations will result. North Link would improve conditions and provide benefits to minority and low-income residents of the North Link project area as summarized below. These benefits further support the conclusion that the North Link Project would not result in disproportionately high and adverse effects under the Executive and DOT Orders.

I.7.1 Improved Access to Transit

The populations residing near the North Link station areas were examined to determine the distribution of increased access to transit benefits (as measured by access to a light rail station) to minority and low-income residents. The demographic makeup of ridership was estimated using the demographics of these nearby areas, which generally consisted of those areas located within roughly one-half mile of the stations (using the same methods as described on p.G-31 of the 1999 FEIS). Residents of these areas would have the highest improved access to transit benefit due to their close proximity to the stations. These estimates were based on a GIS extraction of U.S. Census data for Blocks and Block Groups within each station study area. The population data for individuals living within each Block and Block Group "cluster" around each station were then aggregated to create a demographic profile of the total population that would receive this high improved access to transit benefit. This calculation was conducted for the No-Build Alternative (the 14-mile Initial Segment and Airport extension to S. 200th Street) and for the following build alternatives:

- Preferred Alternative (B1.D): Downtown station cluster area plus Capitol Hill, University District, Roosevelt, and Northgate
- First Hill-15th Avenue (B1.A): Downtown station cluster area plus Capitol Hill/First Hill, University District, Roosevelt, and Northgate

- Capitol Hill - West Tunnel (two stations) (B4.G): Downtown station cluster area plus Capitol Hill/First Hill, University District, Roosevelt, and Northgate
- Eastlake -Montlake (B3.D): Downtown station cluster area plus South Lake Union, University District, Roosevelt, and Northgate
- Eastlake - West Tunnel (one station) (B3.G): Downtown station cluster area plus South Lake Union, University District, Roosevelt, and Northgate

These five build alternatives were selected as they represent the highest and lowest ridership alternatives, along with two alternatives representing midrange ridership. These alternatives also include all six of the major B segment alternatives: 15th Avenue, Montlake, West Tunnel, First Hill, Capitol Hill, and Eastlake. End-to-end rail run times of all the North Link route alternatives vary by less than three minutes, so these four alternatives cover the range of potential benefits. Table I-2 below summarizes the results of the improved access to transit benefit analysis for the North Link Project.

Table I-2
Access to Light Rail Stations of Select North Link Alternatives and Distribution to Minority and Low-Income Populations

Alternative	Total Number of North Link Stations	2000 Total North Link Population w/ Access[3]	2000 North Link Minority Population w/ Access[1]	Minority Access (%)[1]	2000 Total North Link Population w/ Access[2]	2000 North Link Low-Income Population w/ Access[2]	Low-Income Access (%)[2]
No-Build[4]	0	21,764	6,776	31	19,130	5,283	28
Preferred Alternative	*5*	*100,358*	*27,021*	*27*	*88,279*	*18,980*	*22*
First Hill – 15th Avenue (B1.A / A2.1)	6	100,358	27,021	27	88,279	18,980	22
Capitol Hill - West Tunnel (2 stations) (B4.G / A2.1)	5	100,358	27,021	27	88,279	18,980	22
Eastlake - Montlake (B3.D / A2.1)	6	78,200	20,504	26	67,007	14,352	21
Eastlake - West Tunnel (1 station) (B3.G / A2.1)	5	78,200	20,504	26	67,007	14,352	21

Note: Due to overlapping one-half mile radii the University District and Capitol Hill/First Hill cluster areas were defined to capture the whole urban center, and the effect of having one versus two stations inside that area is not represented above.

[1]Source: Census Year 2000 Block demographic data for North Link clusters.

[2]Source: Census Year 2000 Block Group income data for North Link clusters.

[3]Residents with access to the system in both build and no-build scenarios. With the No-Build Alternative, access to jobs is provided by the existing transit system (King County Metro Buses).

[4]With the No-Build Alternative, population within half-mile of DSTT stations is counted as the population with access.

As shown in Table I-2, the North Link Project would increase the total number of North Link project area residents with access to stations from 21,764 with the No-Build Alternative to between 78,200 and 100,358, depending on which alternative was selected. While the percentage distribution of these access benefits to minority and low-income residents would decrease somewhat, the actual number of minority and low-income residents receiving these benefits would increase from just 6,776 to between 20,500 and 27,000 and from 5,203 to between 14,400 and 19,000, respectively. Minority and low-income populations, therefore, would achieve substantial new access to transit benefits under the build alternatives. As previously reviewed in the 1999 FEIS (Appendix G, pp. G-25 to 26), both minority and low-income populations tend to make greater use of transit service than other groups, a phenomenon that suggests transit service improvements are generally more important to these communities than the population at large. For the North Link Project, route

alternatives serving the Capitol Hill/First Hill area serve more low-income and minority residents than the Eastlake routes, although on a percentage basis there is very little difference overall.

I.7.2 Transit Travel Time Savings

Another benefit of the North Link Project is the reduction in average transit travel time. The Sound Transit Ridership Model was used to calculate travel time savings associated with transit trips in the PM travel period. Trips originate from throughout the region and are destined for each station cluster in the afternoon peak period. As most trips in the PM peak period are made by individuals from the workplace to home, the outcome largely describes AM travel time savings also (only in the opposite direction) by people living in the station clusters. The results of this transit travel time savings analysis for residents in the North Link project area are summarized below in Table I-3.

Table I-3
Transit Travel Time Savings Benefits of Select North Link Alternatives by 2030

Alternative	Total Number of North Link Stations	2000 Total North Link Population with Access	Average Transit Travel Time[1] (minutes)	Total Travel Time Savings over No-Build (minutes)	Percent Improvement over No-Build
No-Build	0	21,764	40	na	na
Preferred Alternative	*5*	*100,358*	*35*	*5*	*12*
First Hill – 15th Ave (B1.A / A2.1)	6	100,358	36	4	10%
Capitol Hill - West Tunnel, 2 stations (B4.G/A2.1)	5	100,358	35	5	12%
Eastlake -Montlake Tunnel (B3.D / A2.1)	6	78,200	35	5	12%
Eastlake - West Tunnel, 1 station (B3.G / A2.1)	5	78,200	37	3	8%

Note: Due to overlapping one-half mile radii the University District and Capitol Hill/First Hill cluster areas were defined to capture the whole urban center, and the effect of having one versus two stations inside that area is not represented above.

[1]Weighted average PM peak door-to-door travel time for transit trips destined for neighborhoods (i.e., station cluster areas) within close proximity of the North Link stations comprising each scenario. [source: Sound Transit Ridership Model (2002)].

As shown in Table I-3, the North Link Project would improve the average transit travel time between 8 percent and 12 percent over the No-Build Alternative depending on which alternative was selected. Minority and low-income residents, who make up approximately 26 to 27 percent and 23 percent of the population (respectively) with access to the stations, would benefit substantially from this improvement in transit travel time. Indeed, the benefit is even more substantial than these demographics would suggest in light of the potentially greater use of transit by these residents.

I.7.3 Improved Access to Employment

Decreased transit travel times mean riders can travel longer distances in the same amount of time. As travel time decreases as a result of this project, access to new employment opportunities becomes available. This is particularly important for transit-dependent persons who cannot take the bus to many areas of the city because of extended trip times or inconvenient bus routes. Because the North Link Project will improve travel times over the No-Build case, its riders may seek employment in areas previously considered too far away. Similarly, people may benefit from having access to the services provided at some of these work sites (e.g., schooling or healthcare) that are easier to reach due to the project. For instance, some of the alternatives would connect to the University of Washington Medical Center. The Sound Transit Ridership Model was used to evaluate what geographic areas could be reached within 60 minutes from each station cluster, with and without the project. The number of existing jobs accessible to each cluster area within 60 minutes was then calculated again with and without the project (for more detail on the analysis methodology, see p. G.27-28 of Central Link FEIS). The results of this improved access to employment analysis are summarized in Table I-4.

As shown in Table I-4, the North Link Project would increase the number of jobs considered accessible by North Link residents by over two million (see Table I-4 footnote 2). However, because this is only a comparative measure, the most important point is how the various route alternatives vary in the degree of

improvement, which is represented by the job access index. Of the five Segment B routes analyzed, the Preferred Alternative and Alternative B3.D provide the greatest improvement in job accessibility. This is because a Montlake/University of Washington Station is near the University of Washington Medical Center, a major employer, and it also allows potential connections to SR 520 and destinations in east King County with particularly large numbers of jobs in Bellevue and Redmond.

In all cases however, the North Link Project substantially improves access to employment and services for study area residents. This benefit would be greatest to the populations within immediate reach of a station (i.e., those inside the station clusters). As discussed above, minority and low-income residents make up between 26 to 27 percent, and 23 percent of these populations, respectively. When the greater value of this improved access to minority and low-income residents is taken into account, the resulting benefit is even more substantial.

Table I-4
Job Access Benefits of Select North Link Alternatives by 2030

Alternative	Total Number of North Link Stations	2000 Total North Link Population w/ Access[1]	Total Jobs Accessible within 60 Minutes[2]	Total Job Access Index (million newly accessible jobs multiplied by the number of people directly served)
No-Build	0	21,764	689,383	na
Preferred Alternative	*5*	*100,358*	*2,994,298*	*4,801*
First Hill – 15th Ave (B1.A / A2.1)	6	100,358	2,955,532	4,283
Capitol Hill - West Tunnel, 2 stations (B4.G/A2.1)	5	100,358	2,956,525	4,289
Eastlake - Montlake Tunnel (B3.D / A2.1)	6	78,200	3,115,089	5,606
Eastlake - West Tunnel, 1 station (B3.G/A2.1)	5	78,200	2,997,562	3,463

Note: Due to overlapping one-half mile radii, the University District and Capitol Hill/First Hill cluster areas were defined to capture the whole urban center, and the effect of having one versus two stations inside that area is not represented above.

[1]Total shown represents the population living within the North Link study area that have direct, proximate access to a light rail station; as defined by roughly ½ mile station 'cluster' areas. Source: U.S. Census (2000).

[2]Total shown is a direct sum of the sub-totals for each station 'cluster' area. As such it double-counts jobs within the region because many job sites are accessible to more than one cluster area, e.g., downtown Seattle is within 60 minutes for all North Link cluster residents.

na = not applicable

Source: 2002 Washington State Employment Security database analysis by Puget Sound Regional Council, and Sound Transit Ridership Model.

I.8 CONCLUSION

As described above, the North Link Project would not result in high and adverse effects under the Executive and DOT Orders. Many project impacts are limited in scope and others would be mitigated through the implementation of effective mitigation measures. Further analysis of the race and income characteristics of impacted populations, therefore, is not warranted.

Moreover, as described above, the North Link Project would provide substantial benefits to minority and low-income residents in the areas surrounding the light rail stations. Project benefits to minority and low income populations include improved access to transit, transit travel time savings, and improved access to employment. These project benefits further support the conclusion that this project would not result in disproportionately high and adverse effects on minority or low-income populations under the Executive and DOT Orders.