Appendix C
Environmental Justice

Appendix C

Environmental Justice

C.1 Introduction and Regulatory Framework

This appendix describes the opportunities provided to minority and low-income populations to actively participate in the East Link Project planning process and evaluates whether the project would result in any disproportionately high and adverse effects on individuals in these populations. The 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 with the U.S. Department of Transportation (USDOT) Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order).

EO 12898, issued by President William 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." The executive order addresses the importance of public participation in the review process. USDOT issued the DOT Order, which establishes the procedures to use in order to comply with EO 12898 in order to avoid disproportionately high and adverse effects on minority and low-income populations. The DOT Order requires agencies to take two actions:

1. Explicitly consider human health and environmental effects related to transportation projects that may have disproportionately high and adverse effects on minority or low-income populations.
2. Implement procedures to provide "meaningful opportunities for public involvement" by members of minority or low-income 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 enhancement 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)).

The following definitions are from the DOT Order for disproportionately high and adverse effects, minority persons, and low-income persons:

1. Disproportionately high and adverse effect on minority and low-income populations means an adverse effect that: is predominately borne by a minority population and/or a low-income population, or would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population (DOT Order 5610.2, § Appendix 1(g)).
2. A minority is a person who is:
   - Black (a person having origins in any of the black racial groups of Africa)
   - Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)
   - Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands)
   - American Indian or Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition) (DOT Order 5610.2, § Appendix 1(c))
3. A low-income person is identified as a person whose median household income is at or below the Department of Health and Human Services poverty guidelines (DOT Order 5610.2, § Appendix 1(b)).

C.2 Methodology and Approach

The environmental justice analysis for the East Link Project was completed following the guidance

documented in Sound Transit's *Environmental Action Team Issue Paper No. 36 Implementing Environmental Justice Pursuant to Executive Order 12898 and the Department of Transportation Order to Address Environmental Justice in Minority Populations and Low-Income Populations* (Sound Transit, 2001). The issue paper was written to provide specific guidance about environmental justice methodology for impact assessment and public outreach. The issue paper describes the three processes to be used when implementing an environmental justice analysis: public involvement processes, analyzing potential disproportionate high and adverse effects, and documentation.

The environmental justice analysis describes the demographics of the East Link Project study area using the most recent U.S. census data (U.S. Bureau of the Census, 2002); provides information on the efforts that Sound Transit has made to involve minority and low-income populations in the East Link Project; and assesses whether the East Link Project would result in disproportionately high and adverse effects on minority and low-income populations, taking into consideration mitigation and enhancement measures and project benefits, as appropriate. The analysis of potentially disproportionate high and adverse effects is based upon the information developed in the Draft Environmental Impact Statement (Draft EIS) and the accompanying technical appendices in Appendix F and the technical reports in Appendix H.

C.3 Demographics of Study Area

The study area that was used for the environmental justice analysis is a one-half mile radius around the East Link Project alternatives. This radius was identified as the area most likely to receive the greatest impact, both positive and negative, as a result of the project. Sound Transit reviewed 2000 Census data to determine the demographic composition of minority and low-income populations located within the study area, then developed geographic information system (GIS) maps to illustrate the minority and income characteristics of the population in the study area. The study area includes census blocks or census block groups that are either located entirely or partially within the one-half mile radius. Minority populations were analyzed at the census block level, while income information was reviewed at the census block group level because income information is not available at the census block level. Exhibits C-1 and C-2 show minority percentages in the study area, and Exhibits C-3 and C-4 show percentages of the population below the poverty line.

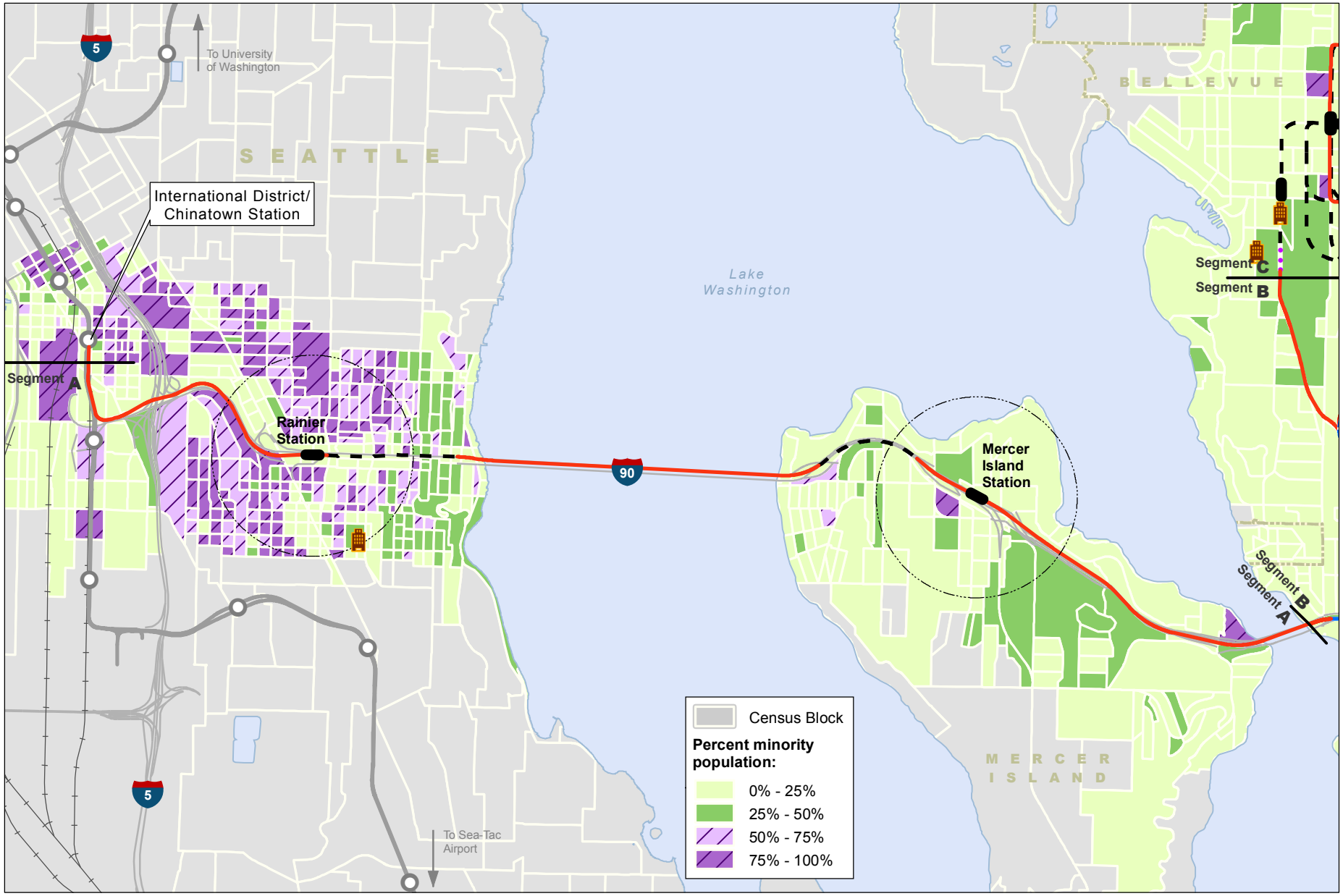
What are Census Tracts, Block Groups, and Blocks?

A census tract is a small subdivision of an urban area used by the U.S. Census Bureau to identify population and housing statistics. Census blocks are subdivisions of census tracts and are the smallest unit of census geography for which the Census Bureau collects data. The boundaries of census blocks are generally streets or other notable physical features and often correspond to a city block. A census block group is a combination of census blocks, typically encompassing two to four city blocks. The census collects some information at the block level, some at the block group level, and some at the tract level.

As shown in Exhibits C-1 and C-2, most of the census block groups and blocks in the study area have minority population concentrations in the 0 percent to 25 percent and 25 percent to 50 percent ranges. The higher concentrations of minority populations are located within Segment A in the City of Seattle, specifically in neighborhoods in the Chinatown/International District, Central Area, and North Rainier Valley. As shown in Exhibits C-3 and C-4, most of the low-income population concentrations within the Census Block Groups are in the 0 percent to 25 percent range. A higher concentration of low-income population is also located in the Chinatown/International District, Central Area, and North Rainier Valley neighborhoods of Seattle in Segment A, although these are largely in the 25 percent to 50 percent range. Additional information on the benefits of the project to these groups is discussed in Section C.6.

The 2000 Census data may no longer reflect current conditions in some areas within one-half mile of the East Link Project alternatives. For example, redevelopment within census block groups and census blocks in Downtown Bellevue and east of Downtown Redmond (Segments C and E) has resulted in areas where populations have been relocated and no residential populations exist. To supplement the Census data, Sound Transit collected and reviewed data for public elementary schools within attendance boundaries that cross the study area because such data is more current that Census data.

Elementary schools were used because their attendance boundaries tend to be more representative of the study area and are smaller than middle and high school boundaries. However, the attendance boundaries for these elementary schools do fall outside of the study area. Consequently, the minority and low-income population data in Table C-1 are representative of children who may live anywhere within the attendance boundaries and not necessarily within the study area. Although the school data do not provide for a direct comparison with the Census data, they are useful in giving a more recent general



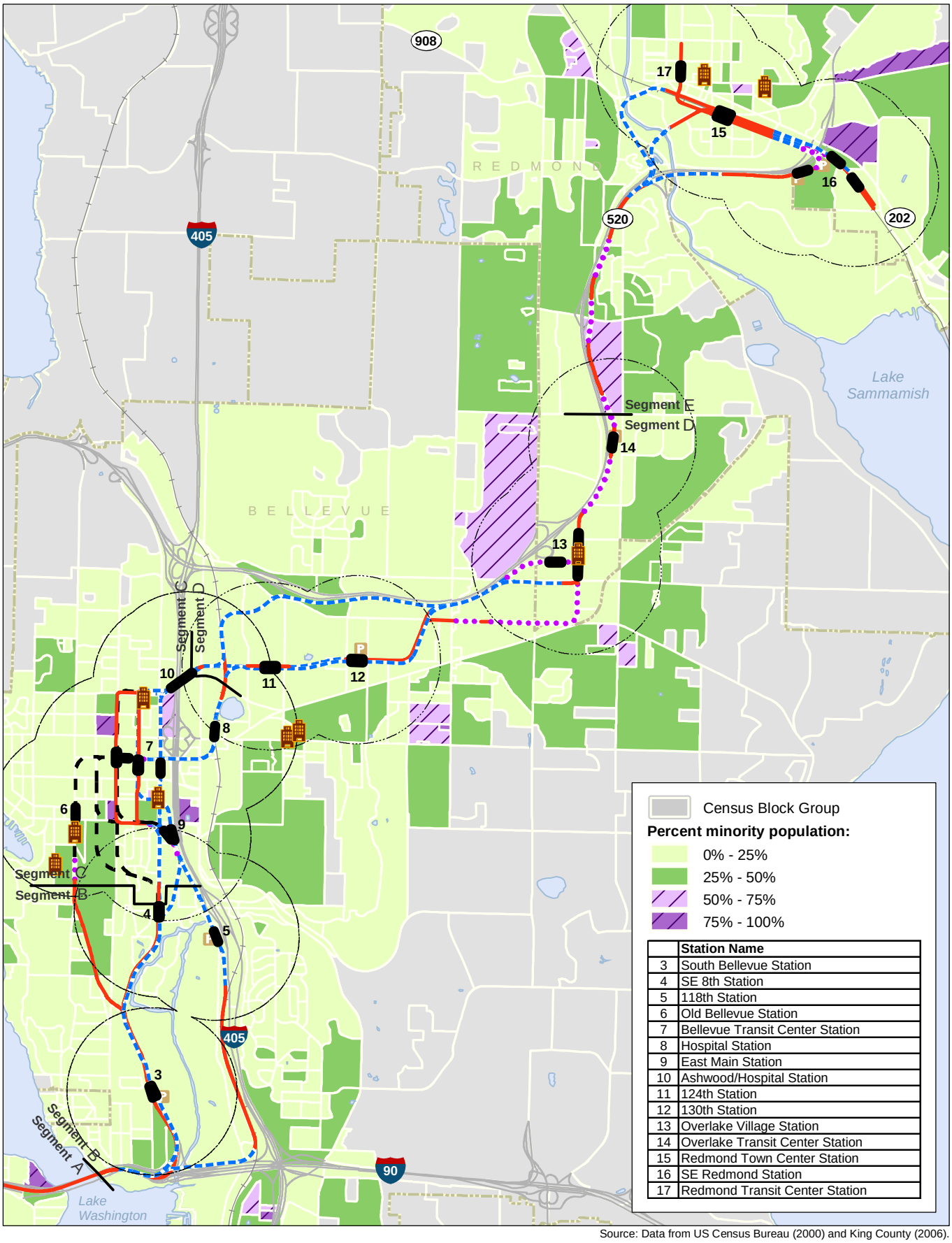
Source: Data from US Census Bureau (2000), King County (2006), and Sound Transit (2007).

Proposed Station
1/2-Mile Station Radius
Central Link Alignment and Station

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route

N
0 0.5 1 Mile

Exhibit C-1 **Minority Population Within Census Block Segment A**
East Link Project



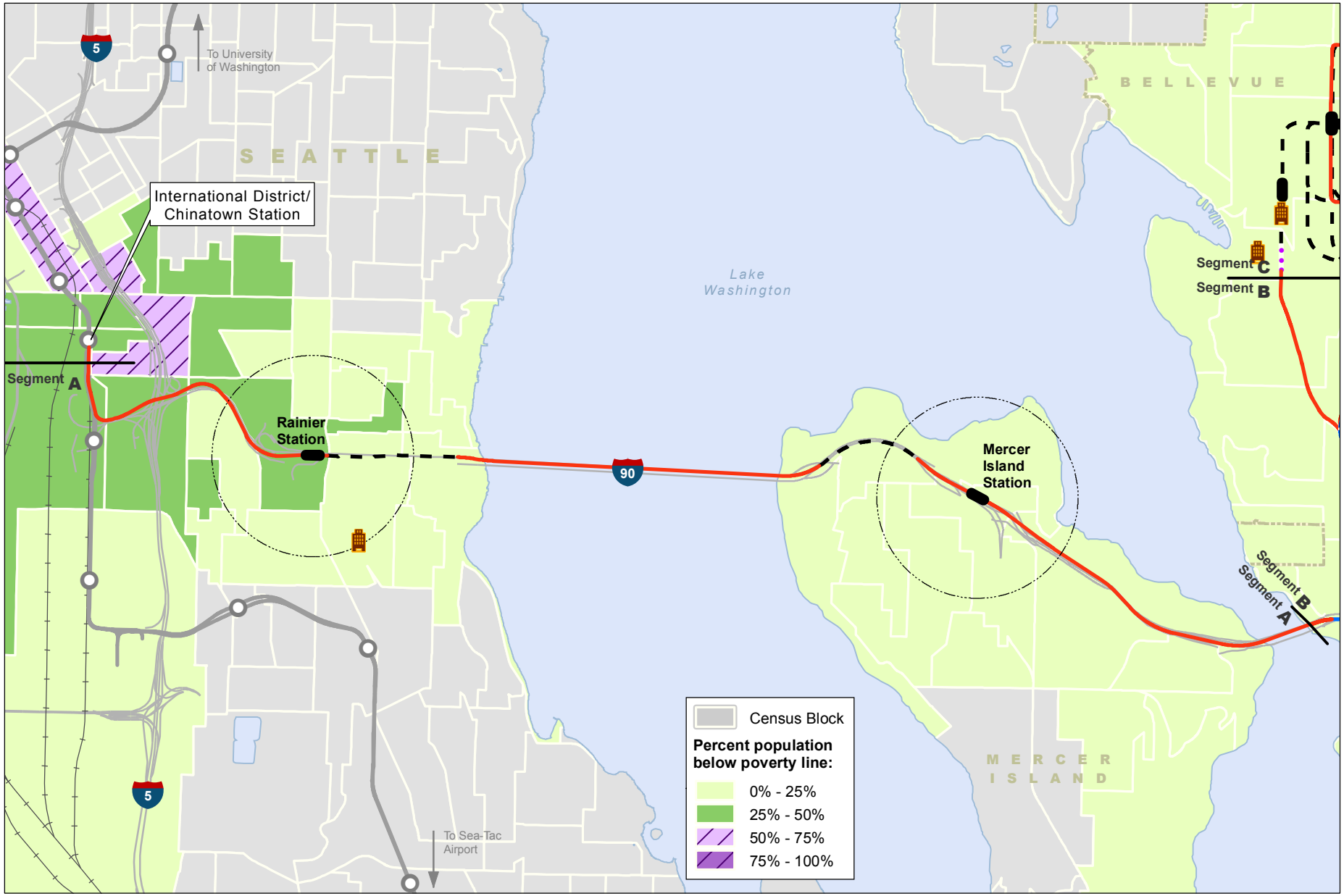
Source: Data from US Census Bureau (2000) and King County (2006).

Proposed Station
1/2-Mile Station Radius
New and/or Expanded Park-and-Ride Lot
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route

N

0 0.5 Mile

Exhibit C-2 **Minority Population Within Census Block Segments B,C,D, and E**
East Link Project



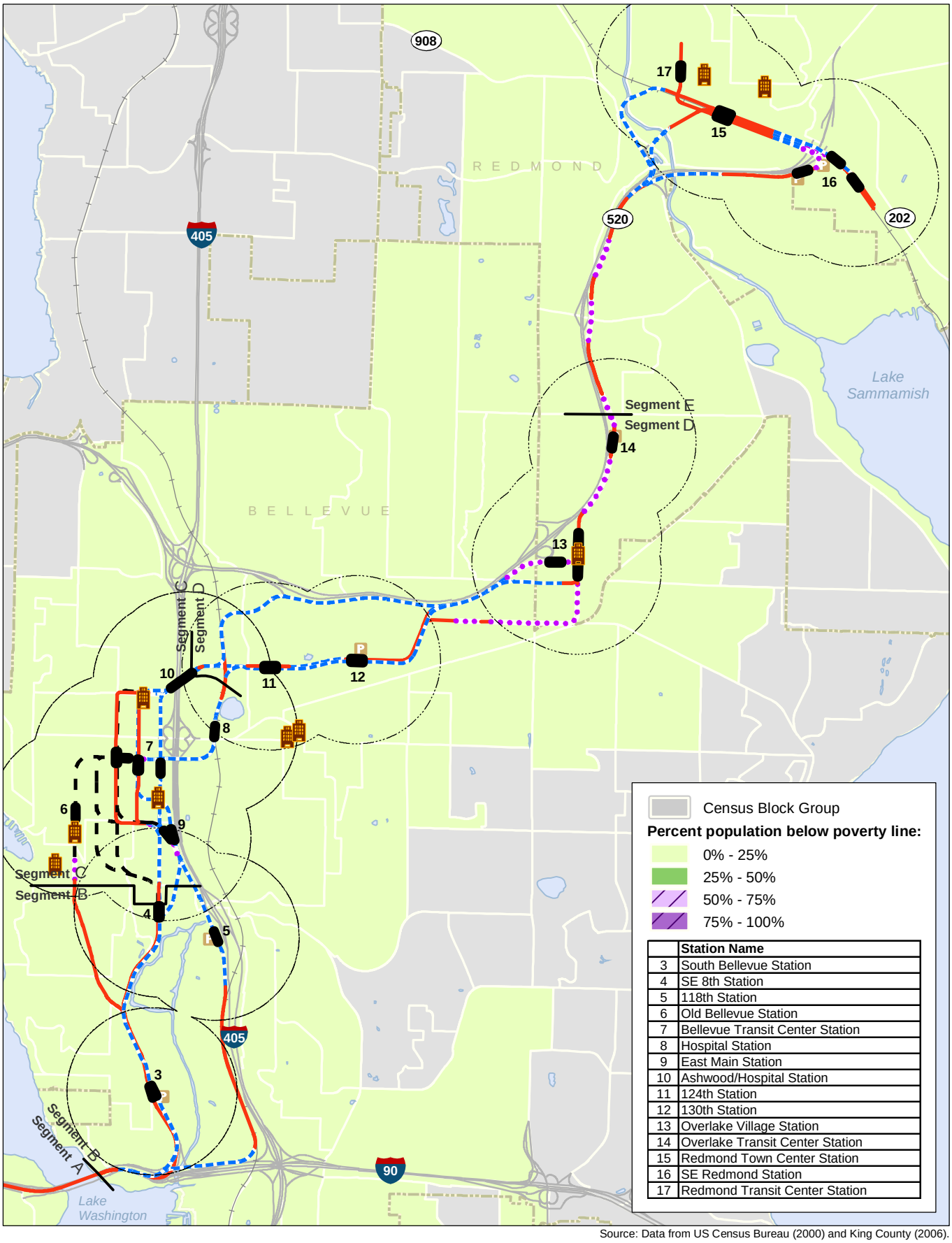
Source: Data from US Census Bureau (2000), King County (2006), and Sound Transit (2007).

Proposed Station
1/2-Mile Station Radius
Central Link Alignment and Station

At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route

N
0 0.5 1 Mile

Exhibit C-3 **Population Below Poverty Line Within Census Block Group Segment A**
East Link Project



Source: Data from US Census Bureau (2000) and King County (2006).

Proposed Station
1/2-Mile Station Radius
New and/or Expanded Park-and-Ride Lot
At-Grade Route
Elevated Route
Retained-Cut Route
Tunnel Route
N
0 0.5 Mile

Exhibit C-4 **Population Below Poverty Line Within Census Block Group Segments B,C,D, and E**
East Link Project

TABLE C-1
Public Elementary School Demographics

School	Total Students	Totals for Whom Minority Data Were Provided	American Indian/Alaskan Native	Asian/Pacific Islander	Black	Hispanic	White	Free Lunch
Segment A, Interstate 90								
Beacon Hill Elementary	365	365	3	199	34	97	32	194
Thurgood Marshall Elementary	292	289	1	35	192	52	9	221
Gatzert Elementary	348	348	13	72	176	71	16	277
West Mercer Elementary	606	606	5	112	12	12	465	10
Totals	1,611	1,608	22	418	414	232	522	702
Percent of Totals			1.4%	26.0%	25.7%	14.4%	32.5%	43.6%
Segment B, South Bellevue								
Enatai Elementary	412	366	2	53	10	37	264	60
Woodridge Elementary	383	342	3	98	11	22	208	59
Totals	795	708	5	151	21	59	472	119
Percent of Totals			0.7%	21.3%	3.0%	8.3%	66.7%	15.0%
Segment C, Downtown Bellevue								
Enatai Elementary	412	366	2	53	10	37	264	60
Woodridge Elementary	383	342	3	98	11	22	208	59
Clyde Hill Elementary	519	459	1	108	4	17	329	16
Totals	1,314	1,167	6	259	25	76	801	135
Percent of Totals			0.5%	22.2%	2.1%	6.5%	68.6%	10.3%
Segment D, Bel-Red/Overlake								
Stevenson Elementary	514	459	2	182	25	134	116	186
Admore Elementary	280	251	2	64	16	65	104	97
Totals	794	710	4	246	41	199	220	283
Percent of Totals			0.6%	34.6%	5.8%	28.0%	31.0%	35.6%
Segment E, Downtown Redmond								
Rush Elementary	405	395	1	92	11	26	265	17
Audubon Elementary	408	388	1	96	8	14	269	33
Redmond Elementary	352	343	2	47	26	58	210	105
Total	1,165	1,126	4	235	45	98	744	155
Percent			0.4%	20.9%	4.0%	8.7%	66.1%	13.3%

Source: National Center for Education Statistics, 2007

demographic characterization of the population of the study area because the U.S. Census data are almost 8 years old and despite the mismatch of the boundaries. In addition, student data for the Seattle Public Schools represents those students who attend the school and may not reside in the surrounding area due to the ability of parents to select which Seattle public school their children can attend. Data were collected from the U.S. Department of Education Common Core of Data for Seattle Public Schools, Mercer Island School District, Bellevue School District, and the Lake Washington School District and are based on the 2005-2006 school year. School data enrollment is characterized by race/ethnicity and as a result there may be differences in the demographic information as it relates to Census data, which includes separate tables for race and ethnicity. The low-income information collected is based on students who participate in a free-lunch program.

When the minority populations of the 2005-2006 school year data are compared to the 2000 Census data, most of the areas in the study area appear similar and there are no major differences except in the Seattle area. In the Seattle area, the school data indicate that approximately 95 percent of the elementary students are considered minority, which may indicate the overall population would be similar, whereas the Census data indicate the minority population to be approximately 56 percent, a 39-percent increase since the 2000 Census. The low-income data are similar for all areas except Segment D. In Segment D, the school data indicate that approximately 35 percent of the population (Table C-1) could be low income, and the 2000 Census data indicate that low-income population concentrations are in the 0 to 25 percent range. Because the elementary school information is based only on the portion of the general population that attends public schools, the data may not truly reflect the actual population that resides in the East Link Project study area. Therefore, as stated earlier, the school data and the Census data do not allow for direct comparisons, only for potential indicators in changing demographics.

The census data does not reflect the current conditions for the areas where the project would result in the relocation of residents. If the analysis of project effects, mitigation measures, and project benefits had indicated potential disproportionately high and adverse effects, additional demographic analysis in the areas discussed above would have been performed to determine with greater specificity the populations that would be affected. However, as describe below, no potential disproportionately high and adverse effects were identified

C.4 Outreach to Minority and Low-Income Populations

As part of East Link Project public outreach, Sound Transit has made it a priority to engage diverse populations early in the planning and development process by providing materials and making them available in multiple formats. Public participation is a key component of EO 12898 and the DOT Order. Sound Transit has developed numerous events and tools to successfully engage and communicate with the public, including scoping meetings, workshops, fact sheets/handouts, posters, display advertisements, stakeholder briefings, project information provided at community events and festivals, and a project website that is regularly updated throughout the project. General public involvement in the project is described in Appendix B, Public and Agency Involvement.

Before scoping, Sound Transit reviewed the minority and income characteristics of the population in the East Link Project vicinity to identify minority and low-income populations. Based on this information, public involvement has included, and will continue to include, outreach at key milestones specific to those groups, using the public involvement tools developed by Sound Transit. Initially, based on Census data, Sound Transit literature included a language block (i.e., text box on the literature) translated into Russian, Chinese, Spanish, and Tagalog regarding contacting and speaking with Sound Transit staff in those languages about the East Link Project. In 2008, based on community input, Vietnamese and Farsi were included in the language blocks.

During the period from August through December 2006, Sound Transit began the process of identifying organizations that serve minority, non-English speaking, or low-income populations within the East Link Project vicinity. An initial list of organizations was identified and entered into the project mailing list. These organizations were sent the scoping notification postcard and follow-up phone calls were made to find out whether the organizations needed any additional information about the East Link project, and they were reminded how they could submit public comments. Organizations were also asked if they would like project staff to sit down with members of their organization to review the scoping information. On October 13, 2006, staff met with and briefed the management team of Hopelink, which serves the greater Eastside community.

Public involvement and outreach actions targeted at minority and low-income populations, as defined under the DOT Order, include the following efforts:

- Perform 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 by or in the vicinity of the East Link Project.
- Present project information at meetings held at community venues in locations with minority and/or low –income populations likely to be served by the East Link Project and/or directly affected by construction activities.
- Provide publication-specific translated language blocks, in Russian, Chinese, Spanish, Tagalog, Vietnamese, and Farsi, on outreach materials produced for the East Link Project.
- Offer interpretation services for all public meetings for deaf and non-English speaking community members.
- If Sound Transit is contacted by anyone who has limited use of English, Sound Transit staff can access an immediate over-the-phone interpretation service provided by Telelanguage, a full-service language interpretation and translation company that provides interpretation in 150 languages, 24 hours a day and 7 days a week

Additional project specific processes related to outreach are discussed below.

C.4.1 Scoping Meetings

Sound Transit began the Draft EIS process for East Link in 2006 with four public scoping meetings that were held at locations throughout the East Link Project vicinity, providing a variety of locations and dates to maximize opportunity for attendance. The scoping meetings were advertised by sending postcards to over 150,000 residents and businesses in the project vicinity, including the list of organizations that served minority and low-income households. In addition, display advertisements with the scoping meeting details were placed in local publications. Sound Transit received approximately 300 written and oral comments, which included expressions regarding preferences for a particular alternative or addressing a specific segment or some larger concern for the East Link Project as a whole.

In addition to the public scoping meetings, Sound Transit held an agency scoping meeting and invited tribes with interests in the East Link Project vicinity. Sound Transit identified the Muckleshoot Tribe, Snoqualmie Tribe, Suquamish Tribe, Tulalip Tribe, Yakama Tribe, and Duwamish Tribe as those tribes with interests in the project vicinity. The project vicinity does not include any tribal lands, but the tribes are expected to have interests regarding natural and cultural resources. Communications and coordination with the tribes regarding cultural resources are documented in the Historic and Archaeological Resources Technical Report (Appendix H4).

C.4.1.1 Targeted Outreach January 2007 through September 2008

In early 2007, Sound Transit held a series of five East Link Project route and station workshops at locations throughout the project vicinity in order to educate workshop participants about the project. The workshops also were intended to obtain design feedback and community knowledge to assist in the development of station concepts, right-of-way requirements, and routes, and to identify any neighborhood-specific issues. Sound Transit mailed workshop notification flyers to over 85,000 residential and business addresses that were within one-half mile of all alternatives based on postal carrier routes, as well as all of Mercer Island. These carrier routes include minority and low income residents. Common themes at these workshops included preserving key community and environmental resources, minimizing changes in the character of neighborhoods, providing direct access to stations, and preventing noise and visual effects of an elevated guideway.

Advertisements for the scoping meetings and workshops included postings in a number of ethnic publications, such as *Chinese Post, El Mundo, Russian World*, and *The Skanner*. Notice of the meetings was also posted at community centers, public libraries, and post offices in Seattle, Mercer Island, Bellevue, and Redmond.

In mid-2007, Sound Transit expanded the list of organizations that serve minority, non-English speaking, low-income, and senior populations in East King County and mailed each (approximately 50 organizations) an outreach letter and a packet of East Link Project information. These organizations included service organizations (i.e., Bellevue Family YMCA, Department of Social and Health Services (DSHS) King Eastside Community Services Office, Eastside Refugee and Immigrant Coalition [ERIC], Hopelink, and Senior Services), ethnic churches (i.e., Holy Cross Chinese Lutheran Church, Bellevue First Romanian, and Highland Covenant Church), and foreign language schools (i.e., Northwest Chinese School and Bel-Red Bilingual Academy). The

information was sent to inform these organizations about the project as well as to learn about the populations they serve and obtain contact information of individuals who would like to be kept informed on the East Link Project. Offers were made in the letter to translate any of the project-related information into a different language to facilitate populations learning about the project. Sound Transit made followup telephone calls to each organization and asked if there were any questions or to inquire about meeting with the organization. Sound Transit will conduct additional followup with these organizations, and additional meetings are expected as the project continues. On September 7, 2007, Sound Transit staff met with Barb Tuininga, the coordinator the City of Bellevue Mini City Hall located in Crossroad Mall in northeast Bellevue to discuss Sound Transit's outreach to minority or low-income populations in east King County and to find out more information about the minority and low-income populations that use the Mini City Hall services.

In March 2008, a project update was mailed to over 85,000 businesses and residences located within one-half mile of the alternatives, including all of Mercer Island, and anyone who requested to be on the East Link mailing list. In addition, Sound Transit mailed the project update to the 50 community organizations previously identified. The project update provides information on the project status and next steps, as well as reminding the public that Sound Transit staff is available to meet with them to answer any questions they might have about the project.

Throughout this period, Sound Transit has maintained an up-to-date East Link Project webpage with project-related information, frequently asked questions (FAQs), a document library, and staff contact information.

C.4.1.2 Targeted Outreach for the Draft EIS Release

The release of the Draft EIS includes a public notice, request for comments, and public hearings and opportunities for comment. Additional targeted outreach to the 50 community groups and organizations serving low-income, minority and senior populations in the project vicinity will also be conducted around the release of the Draft EIS and the subsequent comment period. Sound Transit will prepare a Draft EIS Fact Sheet and translate the Draft EIS Fact Sheet into Russian, Chinese, Spanish, Tagalog, Vietnamese, and Farsi, then distribute these to the community groups and have them available on the project webpage and at the public hearings. The fact sheet and translations will be distributed at public places such as Bellevue's Mini City Hall, community centers, and public libraries. Staff will also translate the Fact Sheet into additional languages upon request.

Each of the community groups will be sent a letter with a packet of information to:

- Notify them that the Draft EIS is available
- Tell them where to find the Draft EIS online or how to request a hard copy
- Define what the comment period is
- Explain how to comment on the Draft EIS
- Provide details on the public hearings

Staff will follow up with a phone call to each group to answer questions, explain the comment period process, explain how they can provide comments, offer to provide a briefing to staff or clients, and ask whether they would like additional copies of the Draft EIS Fact Sheet or other materials in English or translated into the language they identify.

Sound Transit will translate articles announcing the release of the Draft EIS and comment period for publication in minority newspapers that serve the Eastside.

The East Link project webpage will be updated during this time with information on the Draft EIS process, a link to the electronic version of the Draft EIS document, the comment period, time and location of public hearings, how to request an interpreter at the meeting, and how to submit a comment.

C.4.1.3 Targeted Outreach for the Final EIS

After the Draft EIS comment period ends, Sound Transit will send out another project update to notify the public including community groups and organizations who serve them, informing them of the next steps and when the Final EIS is expected to be released. The Final EIS will be circulated as required under NEPA and the State Environmental Policy Act (SEPA) and will include the response to comments made on the Draft EIS.

Sound Transit staff will maintain contact with key community organizations that serve low-income and minority populations and offer to provide agency and project-specific information to these organizations. The East Link project webpage will be updated with project-related information and documents as they become available.

When the Final EIS is released, Sound Transit will send letters out to the identified community groups and organizations notifying them of Final EIS

availability and how they can review the document online or obtain a free hard copy. Sound Transit will produce a Fact Sheet on the Final EIS that will be included with the letter. The letter will offer to provide briefings and translations of material upon request. Staff will follow up with phone calls to answer any questions and offer to provide a briefing on the status of project and the EIS process.

C.5 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. Section 8.b of the DOT Order allows for mitigation and enhancement measures to be taken into consideration when determining project impacts. Table C-2 summarizes the impacts identified in the elements that have been analyzed for the Draft EIS and that can be differentially distributed, as well as any mitigation that would reduce or eliminate the impacts. Most impacts associated with the East Link Project would be effectively mitigated and the remaining impacts would be limited in scope and/or duration. Complete information on the project impacts and mitigation measures is provided in Chapters 3 and 4 of this Draft EIS.

Therefore, the East Link Project would not result in any effects that would be considered disproportionately high and adverse under EO 12898 and the DOT Order. In addition, as described in Section C.6, the East Link Project would result in a number of beneficial effects, particularly for minority and low-income populations. These benefits further support the conclusion that no disproportionately high and adverse effects would result.

TABLE C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
Transportation	• Improved transit travel times, reliability, and convenience. • Between a 0.2 and 0.6 percent reduction in vehicle miles traveled and vehicle hours traveled. • Impacts related to the loss of parking spaces and impacts on property access and circulation related to the loss of left-hand turn movements and turning restrictions of right in and right out.	• Provide turn pockets to increase capacity and improve intersection LOS. • Install traffic signals and intersection signalization improvements. • Provide for U-turn movements at intersection, where movement is allowed. • Compensate businesses for the loss of parking spaces. • Work with the local agencies regarding stations that are located within the median of roadways to ensure that appropriate treatments are provided for safe and effective pedestrian access.
Acquisitions, Displacements, and Relocations	• Segment A would have no impacts, but the other segments would require full property acquisitions and displacement of existing uses. Depending on the alternative and/or design option selected, full acquisitions range from 3 to 21 in Segment B, 3 to 36 in Segment C, 3 to 19 in Segment D, 8 to 19 in Segment E, and 3 to 17 for the Maintenance Facility. • Residential relocations would occur within Segments B, C, and E, where the minority and low-income concentrations are low.	• Residents and businesses displaced by the East Link 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 C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
Land Use	• Acquisitions in all the segments represent only a small portion of the land available in the study area, and some property acquired could be sold and redeveloped after construction. Land acquired would convert from existing use to a transportation-related use. • All alternatives would be consistent with regional and local plans and polices.	• No mitigation is required or proposed.
Economics	• Aside from Segment A, all segments would result in business and employee displacements; however it is expected that business displacements would be relocated, and, therefore, no long-term impacts on employees are anticipated. • Aside from Segment A, there would be temporary reduction in tax revenues due to property acquisitions and conversions of land; however, redevelopment is expected to offset the initial loss and the economic benefits from transit-oriented development could result in additional tax revenues and business and employment growth • Build alternatives could result in changes in access, circulation, and the loss of parking, which could result in economic impacts for some of the businesses in the project vicinity. • Based upon a review of the businesses that could be displaced, none were identified that provide any services that would be considered uniquely important to minority and/or low-income populations (e.g., ethnic grocery store or food bank). Businesses could be owned by minorities or employ minorities and/or low-income populations; however, it is expected that the businesses would be relocated and no jobs would be lost.	• Businesses displaced by the East Link 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.
Social, Neighborhoods, Community	• East Link would provide a reliable mode of transportation and improved transit accessibility. • East Link would not result in adverse effects on any of the identified neighborhoods in the project vicinity. • Project would not create any barriers to interaction and could enhance cohesion as new meeting points for adjoining neighborhoods. Increased transit access and transit-oriented development could also improve cohesion.	• No mitigation is required or proposed.
Visual and Aesthetic Resources	• Segments A and D would have no impacts, and Segments B, C, and E would experience adverse impacts on the existing visual quality. In general, these impacts are the result of vegetation removal, construction of retaining walls, and the introduction of an elevated structure. • Impacts that cannot be mitigated would result in unavoidable adverse visual impacts for the Bellevue Way (B1), 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) alternatives including vegetation removal, construction of retaining walls, and the introduction of an elevated structure; in Segment C, impacts include removal of mature vegetation in McCormick Park and the presence of the light rail transition for structure for the 108th NE Tunnel (C3T), Couplet (C4A), and 110th NE Elevated (C8E) alternatives; in addition C8E would have a visual impact on the pedestrian-oriented streetscape along 110th NE. Impacts in Segment E include removal of vegetation along Leary Way for the E4 alternative.	• Where applicable, Sound Transit would provide replacement landscaping and consult with affected jurisdictions to redevelop parks. For C8E, mitigation would minimize the bulk of the elevated structure and enhance pedestrian features on 110th NE.
Air Quality	• No new violations of federal air quality standards would occur, and a slight decrease in regional air emissions is anticipated.	• No mitigation is required or proposed.
Noise and Vibration	• Noise and/or vibration impacts would occur with most of the alternatives; however, noise impacts on living and sleeping quarters would be mitigated, along with most vibration impacts. • Most vibration impacts would be mitigated using ballasted mats and resilient rail fasteners, or with changes during final design. Residual vibration impacts that could not be mitigated would	• Noise and vibration impacts would be mitigated by installing residential sound insulation, noise walls, special trackwork, or other measures.

TABLE C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
	occur at one commercial location for the 106th NE Tunnel (C2T), the 108th NE Tunnel (C3T), and the 112th NE Elevated (C7E) alternatives; impacts to one multifamily residential and one residential unit in both the Couplet (C4A) and Marymoor (E2) alternatives may not be avoided through mitigation. These limited vibration impacts would occur in areas where minority and low-income concentrations are low. During final design, Sound Transit would evaluate opportunities to further avoid or minimize impacts.	
Ecosystems	• None of the alternatives in any of the project segments would result in any impacts on threatened or endangered species. • Segment A would not have any impacts. Segments B, C, D, and E would all have wetland impacts and/or the loss of high value habitat. • There would be no negative impacts on fish passages or fish habitat.	• Compensatory mitigation-to-impact ratios would be used for replacement of wetlands. • Improved habitat features would be provided to improve salmonid spawning and rearing functions.
Water Resources	• Overall, the East Link Project would increase the amount of impervious surface area by 22 to 25 acres depending on final route selected. • Alternatives would result in a reduction in groundwater recharge; however, because the project is linear, it is not expected to result in a substantial decline in groundwater level or other serious groundwater impacts.	• Stormwater would be managed according to applicable regulatory requirements • No additional mitigation would be required or proposed.
Hazardous Materials	• Use of and generation of hazardous materials would occur at the maintenance facility. • No known potential hazardous material sites would be impacted by Segment A or the Maintenance Facility sites. • All Segment D and E alternatives, as well as Alternatives B1 and B7 in Segment B and C1T, C2T, and C3T in Segment C have potential sites.	• Hazardous waste would be managed and contaminated sties cleaned up according to applicable regulatory requirements. • Engineering controls would be constructed to minimize and contain releases and spills.
Electromagnetic Fields	• Anticipated electromagnetic field intensities would not result in impacts that would negatively affect human health. Locations of human exposure within and adjacent to the light rail line are considerably below established exposure guidelines.	• No mitigation is required or proposed.
Public Services	• The alternatives are not expected to result in any negative effects on overall crime rates in the surrounding neighborhoods. • There is the potential for minor increases in response times due to loss of some left-hand turns, and access for fire and emergency medical services at elevated sections of the track and stations would be more difficult than on the at-grade sections. These situations would not result in any adverse impacts on public services since these situations are few and infrequent.	• Sound Transit would implement a Security and Safety Management Plan and a Fire and Life Safety Committee to address safety and security issues throughout design, construction, and operation. • Measures to minimize crime would include the use of equipment (e.g., CCTV, sealed fareboxes, and automatically sealed exits), the use of anti-crime programs such as anti-graffiti programs, and the use of security personnel.
Utilities	• No long-term impacts on natural gas, electricity, telephone, telecommunications, water, or wastewater are expected with any of the alternatives in any of the segments.	• No mitigation is required or proposed.
Historic and Archaeological	• Segment A, B, C, and D would not affect any historic properties. Alternative E4 in Segment E would result in potentially adverse impacts on the Justice William White House. Relocating the building to a nearby location would preserve the setting, feeling, and association with the BNSF Railway, thus avoiding an adverse impact from project operation. • No archaeological sites were encountered during	• A memorandum of agreement (MOA) would be enacted that will provide for relocating the Justice William White House to a site that preserves its setting, feeling, and association. • Sound Transit would work with the State Historic Preservation

TABLE C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
	investigations.	Office to determine what additional archaeological work needs to be performed before construction. If additional work encounters prehistoric or historic-period archaeological sites, Sound Transit would consult with the Washington Department of Archaeology and Historic Preservation (DAHP) and the interested Indian tribes about eligibility for listing in the National Register of Historic Places (NRHP), project impacts, and mitigation.
Parkland and Open Space	• Aside from Segment D, all segments require the acquisition of parkland and open space. Segment A requires 0.37 acre from three parklands, Segment B requires between 0.02 and 1.4 acres depending on alternative from two parklands, including the complete acquisition of the Bellevue Way Greenbelt (deemed an insignificant park resource by City of Bellevue) under the Bellevue Way Alternative (B1), Segment C would have a net gain of up to 1.51 acres for McCormick, and Segment E requires between 0.11 and 1.98 acres on up to six parklands, depending on alternative. Only B1 would result in the full acquisition of parkland and the other acquisitions would require only small portions of land and would not result in any parks or open space being close to the public.	• Sound Transit would restore disturbed parkland to pre-project parkland conditions after construction. • Sound Transit would work with parkland owners to determine replacement lands where applicable. Financial compensation may also be provided where appropriate.
Construction (Construction-related impacts are temporary and limited in duration)	• Aside from Segment A, there would be temporary lane closures, traffic detours, loss of parking, and increased truck traffic for all alternatives, which could negatively affect residents, businesses, and public service providers. • Temporary impacts on the quality of existing land uses due to construction-related activities including increases in noise levels, dust, traffic congestion, and increased access difficulty. • Adverse impacts on businesses due to lack of access, circulation, and parking. • Increased access and response times for public service providers (fire and emergency medical, police, school buses including King County Metro buses, and solid waste and recycling vehicles). • Temporary visual quality impacts due to the removal of vegetation and demolition of structures, • Potential release of hazardous materials during demolition of buildings. • Relocation of utilities in during construction in segments B through E. • Construction impacts on historic buildings, including include the temporary loss of access along with visual impacts, noise, vibration, and the dust and debris from construction activities. • For park users, increased noise, dust, and temporary access restrictions where alternatives are located adjacent to or on park property. • Construction easements and staging areas resulting in temporary impacts on parks within Segment B, C, and E, including the Mercer Slough Nature Park, the Surrey Downs Park, McCormick Park, and Marymoor Park.	• Develop haul routes as approved by local jurisdictions to avoid residential neighborhoods to the extent possible. • Maintain property access as much as possible. • Provide detour signage where needed. • Work with businesses to develop impact minimization efforts during construction. • Coordinate and work with public service providers on the development of any required detour routes and lane closures in order to minimize increases in travel and response times or interference with the collection of solid waste and recyclables or the transportation of students. • Maintain access and egress for fire and emergency medical at all times, which would minimize impacts on response and travel times within all project segments. • Provide noise and visual screening from adjacent land uses where appropriate. • Implement best management practices to control dust and stormwater runoff. • Conduct assessments of sites where contamination may be present, including survey of

TABLE C-2
Summary of Potential Impacts and Mitigation

Element of the Environment	Impact Summary for Build Alternatives	Mitigation Summary
		structures to determine whether they contain hazardous building materials. • Prepare a spill pollution control and countermeasure plan and a stormwater pollution prevention plan to prevent the release of pollution and hazardous substances to the environment.

C.6 Project Benefits

Under the DOT Order, the benefits of a proposed transportation project may be taken into account when determining whether any disproportionately high and adverse effects on minority and low-income populations would occur. Operation of the East Link Project would provide a number of benefits, including improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours. While all populations within the projects service area would realize these benefits to the same extent, they would accrue to a higher degree to minority and low-income populations as described in the following subsections. These transit benefits further support the conclusion that the East Link Project would not result in disproportionately high and adverse effects on minority and/or low-income populations.

C.6.1 Improved Access to Transit

Improved access to transit would result for all those populations within the service area and in particular for those populations residing within one-half mile of the stations, due to the proximity to the stations. In addition, the extended transit service hours, 20 hours per day, would also improve access to transit for all populations within the service area due to the longer service period. The demographic makeup of potential ridership was estimated using the demographics of the areas within one-half mile of the stations for each of the project alternatives. One-half mile was used because studies have shown residents would walk this distance to access transit. These estimates are based on a GIS extraction of 2000 Census data for the census blocks and census block groups within each station area, and the population data for residents living within the station areas were then aggregated to create a demographic profile of the total population that would have improved access to transit benefit. Table C-3 lists the populations that would have improved access to transit within a half mile of stations for each alternative within each segment.

Based on the information in Table C-3, Segment A would provide access to an area with over 50 percent minority population, which is primarily around the Rainer Station. The Rainier Station, bus routes serving this station, and the East Link connection to the Central Link system would provide greater access for residents of the Rainier Valley and Central District, which are also neighborhoods with minority populations over 50 percent. As shown in Table C-3, the most notable variation within a segment would occur in Segment B, where the BNSF Alternative (B7) would serve a low percentage of minority population compared to the other alternatives in this segment. In the other segments, the minority and low-income percentages of the population that would receive the benefit are similar; however, there are project alternatives that include a larger number of stations than other alternatives within a particular segment and therefore would have a larger population that would receive the benefit of improved transit access. This is not well reflected among the Segment D alternatives, where SR 520 Alternative (D5) has two fewer stations than the others, but the ridership is similar. This area is planned for high-density employment, not residents, and, therefore, access to job opportunities may not be as great with D5 for transit riders.

It has been documented in a number of studies that minority and low-income populations tend to make greater use of transit service than other groups, indicating that the transit service improvements are generally more important to these populations than to other members of the population. Data from the American Public Transportation Association (APTA, 2008) indicates that in 2007 approximately 60 percent of all transit passengers were minority. In addition,

data from the 2000 U.S. Census for King County (USDOT, 2004) indicate that 23 percent of all workers who take public transit to get to and from work are from households earning less than $30,000 per year. These same individuals comprise only about 12 percent of all workers in the county. In other words, the rate at which these individuals take public transit is almost twice their rate of occurrence in the county worker pool. With low-income populations taking public transit at a higher rate than their higher income counterparts, the transit operations benefits provided by the project would be key benefits to low-income populations.

C.6.2 Transit Travel Time Savings

Another benefit of the East Link Project would be a reduction in average transit travel times for users of East Link. Average transit travel time is the time that it takes someone to travel from door to door (i.e., from the front door of their home to the front door of their work) by a composite of modes (i.e., auto, bus, bicycle, pedestrian, and light rail). The Sound Transit Ridership Model was used to calculate the travel time savings with transit trips in the afternoon (PM) travel period. Trips originate from throughout the region and are destined for each station cluster in the PM peak period. Because most trips in the PM peak period are made by individuals from the workplace to home, the outcome largely describes morning (AM) transit travel time savings also (only in the opposite direction) by those who reside in the station clusters. The results of the transit travel time savings analysis for those who reside in the East Link Project study area are summarized in Table C-4.

As shown in Table C-4, the East Link Project would improve the average transit travel time between 9 and 25 percent over the No Build Alternative, depending on the station area cluster. In addition to these travel time savings, the extended transit service hours, 20 hours per day, would be another substantial transit benefit, particularly to transit users who work outside the 8:00 a.m. to 5:00 p.m. typical work day and may be faced with limited bus schedules. As described in Section C.6.1, these benefits are particularly important to low-income populations as well as minority populations, who tend to make greater use of transit than other groups.

C.6.3 Improved Access to Employment

With the improvements in travel times, users of East Link would be able to travel longer distances in the same amount of time, which could provide new employment opportunities. This benefit is particularly important for the transit-dependent populations that cannot use the bus to access many areas in the project vicinity because of the extended travel times or bus routes that do not serve their destinations well.

Because the East Link Project is expected to improve travel times over the No Build Alternative, users of East Link would have the opportunity to look for employment in areas that were previously considered too time-consuming or difficult to reach. The East Link Project would also provide reliable connections to the large employment centers of Seattle and Bellevue.

C.7 Conclusion

As described above, the East Link Project would not result in any effects that would be considered high and adverse under EO 12898 and the DOT Order. For the most part, project impacts are limited in scope and others would be mitigated through the implementation of effective mitigation measures. Because the project would not result in disproportionately high and adverse effects, further analysis of the minority and income characteristics of effected populations is not warranted.

The East Link Project would provide substantial benefits that would positively affect minority and low-income populations in the areas surrounding the light rail stations. These benefits include improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours. These offsetting benefits further support the conclusion that the East Link Project would not result in disproportionately high and adverse effects as defined in EO 12898 or the DOT Order.

TABLE C-3
Access to Light Rail Stations for Minority and Low-Income Populations

Project Alternative and Connection		Total Number of Stations	2000 Census Block Population with Access[b]	Minority Population w/ Access (%)	2000 Census Block Group Population[b]	2000 Low-Income Population with Access (%)
Segment A, Interstate 90						
A1, I-90	-	2	10,294	5,271 (51.2%)	11,653	1,441 (12.4%)
Segment B, South Bellevue						
B1, Bellevue Way	-	1	2,289	313 (13.7%)	2,980	121 (4.1%)
B2A, 112th SE At-Grade[a]	-	2	4,268	763 (17.9%)	5,773	359 (6.2%)
B2E, 112th SE Elevated[a]	-	2	4,268	763 (17.9%)	5,773	359 (6.2%)
B3, 112th SE Bypass	-	1	2,254	312 (13.8%)	2,980	121 (4.1%)
B7, BNSF	-	1	5,064	238 (4.7%)	5,064	238 (4.7%)
Segment C, Downtown Bellevue						
C1T, Bellevue Way Tunnel	-	3	14,641	1,024 (7.0%)	14,641	1,024 (7.0%)
C2T, 106th NE Tunnel	From B2A, 112th SE At-Grade/ B2E, 112th SE Elevated[a]	2	7,297	453 (6.2%)	7,297	453 (6.2%)
	From B3, 112th SE Bypass/ B7, BNSF[a]	3	8,311	603 (7.3%)	8,311	603 (7.3%)
C3T, 108th NE Tunnel	From B2A, 112th SE At-Grade/ B2E, 112th SE Elevated[a]	2	6,477	396 (6.1%)	6,477	396 (6.1%)
	From B3, 112th SE Bypass/ B7, BNSF[a]	3	7,491	546 (7.3%)	7,491	546 (7.3%)
C4A, Couplet	From B2A, 112th SE At-Grade/ B2E, 112th SE Elevated[a]	3	6,477	396 (6.1%)	6,477	396 (6.1%)
	From B3, 112th SE Bypass/ B7, BNSF[a]	3	7,491	546 (7.3%)	7,491	546 (7.3%)
C7E, 112th NE Elevated	From B2A, 112th SE At-Grade/ B2E, 112th SE Elevated[a]	2	6,477	396 (6.1%)	6,477	396 (6.1%)
	From B3, 112th SE Bypass B3/B7, BNSF[a]	3	7,491	546 (7.3%)	7,491	546 (7.3%)
C8E, 110th NE Elevated	From B2A, 112th SE At-Grade/ B2E, 112th SE Elevated[a]	2	6,477	396 (6.1%)	6,477	396 (6.1%)
	From B3, 112th SE Bypass B3/B7, BNSF[a]	3	7,491	546 (7.3%)	7,491	546 (7.3%)
Segment D, Bel-Red/Overlake						
D2A, NE 16th At-Grade/ D2E, NE 16th Elevated/ D3, NE 20th[a]	-	4	19,025	1,700 (8.9%)	19,025	1,700 (8.9%)
D5, SR 520	-	2	10,435	715 (6.9%)	10,435	715 (6.9%)
Segment E, Downtown Redmond						
E1, Redmond Way/ E4, Leary Way[a]	-	2	6,852	585 (8.5%)	6,852	585 (8.5%)
E2, Marymoor	-	3	6,965	582 (8.4%)	6,965	582 (8.4%)

[a] These alternatives contain the same population numbers, and, therefore, alternatives were combined.

[b] Population totals are for those census block groups and census blocks with more than 90 percent of the census area within the station radius. Overlapping station radii were clustered by alternative to capture the whole urban cluster and avoid double counts.

Source: U.S. Census, 2000.

TABLE C-4
Transit Travel Time Savings Benefits of Select East Link Alternatives by 2030[a]

Station Area Cluster	No Build Alternative Average Travel Time (minutes)	Average Travel Time with East Link (minutes)[b]	Average Travel Time Savings (minutes)	Travel Time Savings Relative to No Build Alternative (%)
Segment A, Interstate 90				
Rainer	53	46	7	14%
Mercer Island	50	43	7	14%
Segment B, South Bellevue				
South Bellevue	51	46	5	10%
118th	59	48	11	18%
SE 8th	57	48 - 50	7 - 9	12% – 16%
Segment C, Downtown Bellevue				
East Main	63	53	10	16%
Old Bellevue	61	52	9	14%
Bellevue Transit Center	61	52 - 54	7 - 9	10% - 14%
Hospital	64	56	8	12%
Ashwood/Hospital	60	51 - 54	6 - 9	10% - 15%
Segment D, Bel-Red/Overlake				
124th	63	50 - 57	6 - 13	10% - 21%
130th	65	50 - 59	6 - 15	9% - 23%
Overlake Village	66	51 - 58	8 - 15	12% - 23%
Overlake Transit Center	64	51 - 58	6 - 13	8% - 19%
Segment E, Downtown Redmond				
SE Redmond	64	45 - 49	15 – 19	23% - 30%
Redmond Town Center	71	51 - 55	16 - 20	22% - 28%
Redmond Transit Center	71	59	12	17%

[a] Travel time is a composite of all modes of transportation (i.e., auto, bus, walking, bicycle, light rail) used to complete the trip from door to door.

[b] Range of travel times shown is based on the slowest and fastest light rail routes possible with the East Link Project alternatives and is used to illustrate the range of potential time savings.