INTERSTATE 5 COLUMBIA RIVER CROSSING

Environmental Justice Technical Report

May 2008

Columbia River CROSSING

TO: Readers of the CRC Technical Reports

FROM: CRC Project Team

SUBJECT: Differences between CRC DEIS and Technical Reports

The I-5 Columbia River Crossing (CRC) Draft Environmental Impact Statement (DEIS) presents information summarized from numerous technical documents. Most of these documents are discipline-specific technical reports (e.g., archeology, noise and vibration, navigation, etc.). These reports include a detailed explanation of the data gathering and analytical methods used by each discipline team. The methodologies were reviewed by federal, state and local agencies before analysis began. The technical reports are longer and more detailed than the DEIS and should be referred to for information beyond that which is presented in the DEIS. For example, findings summarized in the DEIS are supported by analysis in the technical reports and their appendices.

The DEIS organizes the range of alternatives differently than the technical reports. Although the information contained in the DEIS was derived from the analyses documented in the technical reports, this information is organized differently in the DEIS than in the reports. The following explains these differences. The following details the significant differences between how alternatives are described, terminology, and how impacts are organized in the DEIS and in most technical reports so that readers of the DEIS can understand where to look for information in the technical reports. Some technical reports do not exhibit all these differences from the DEIS.

Difference #1: Description of Alternatives

The first difference readers of the technical reports are likely to discover is that the full alternatives are packaged differently than in the DEIS. The primary difference is that the DEIS includes all four transit terminus options (Kiggins Bowl, Lincoln, Clark College Minimum Operable Segment (MOS), and Mill Plain MOS) with each build alternative. In contrast, the alternatives in the technical reports assume a single transit terminus:

- Alternatives 2 and 3 both include the Kiggins Bowl terminus
- Alternatives 4 and 5 both include the Lincoln terminus

In the technical reports, the Clark College MOS and Mill Plain MOS are evaluated and discussed from the standpoint of how they would differ from the full-length Kiggins Bowl and Lincoln terminus options.

Difference #2: Terminology

Several elements of the project alternatives are described using different terms in the DEIS than in the technical reports. The following table shows the major differences in terminology.

DEIS terms	Technical report terms
Kiggins Bowl terminus	I-5 alignment
Lincoln terminus	Vancouver alignment
Efficient transit operations	Standard transit operations
Increased transit operations	Enhanced transit operations

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Difference #3: Analysis of Alternatives

The most significant difference between most of the technical reports and the DEIS is how each structures its discussion of impacts of the alternatives. Both the reports and the DEIS introduce long-term effects of the full alternatives first. However, the technical reports then discuss "segment-level options," "other project elements," and "system-level choices." The technical reports used segment-level analyses to focus on specific and consistent geographic regions. This enabled a robust analysis of the choices on Hayden Island, in downtown Vancouver, etc. The system-level analysis allowed for a comparative evaluation of major project components (replacement versus supplemental bridge, light rail versus bus rapid transit, etc). The key findings of these analyses are summarized in the DEIS; they are simply organized in only two general areas: impacts by each full alternative, and impacts of the individual "components" that comprise the alternatives (e.g. transit mode).

Difference #4: Updates

The draft technical reports were largely completed in late 2007. Some data in these reports have been updated since then and are reflected in the DEIS. However, not all changes have been incorporated into the technical reports. The DEIS reflects more recent public and agency input than is included in the technical reports. Some of the options and potential mitigation measures developed after the technical reports were drafted are included in the DEIS, but not in the technical reports. For example, Chapter 5 of the DEIS (Section 4(f) evaluation) includes a range of potential "minimization measures" that are being considered to reduce impacts to historic and public park and recreation resources. These are generally not included in the technical reports. Also, impacts related to the stacked transit/highway bridge (STHB) design for the replacement river crossing are not discussed in the individual technical reports, but are consolidated into a single technical memorandum.

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Cover Sheet

Interstate 5 Columbia River Crossing

Environmental Justice Technical Report:

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TABLE OF CONTENTS

List of Exhibits

Appendices

ACRONYMS

Acronym	Description
ADA	Americans with Disabilities Act
API	Area of Potential Impact
BRT	Bus Rapid Transit
CCC	Community Cycling Center
CDBG	Community Development Block Grant
CEJG	Community and Environmental Justice Working Group
CO	Carbon Monoxide
CRC	Columbia River Crossing
dB	Decibel
dBA	A-weighted Decibel
DEIS	Draft Environmental Impact Statement
DOJ	Department of Justice
DOT	Department of Transportation
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
HCT	High-Capacity Transit
HOT	High-Occupancy Tolling
HOV	High-Occupancy Vehicle
JARC	Job Access and Reverse Commute
JBMI	Jantzen Beach Moorage
L_{eq}	Energy Average Sound Levels
LRT	Light Rail Transit
MOS	Minimum Operable Segment
Mph	Miles per hour
MSA	Portland-Vancouver Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NO_x	Nitrogen Oxide
ODOT	Oregon Department of Transportation
ORT	Open Road Tolling
PM	Particulate Matter
PMSA	Primary Metropolitan Statistical Area
PSRC	Puget Sound Regional Council
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SRO	Single Room Occupancy
TDM	Transportation Demand Management
TSM	Transportation System Management
USDOT	U.S. Department of Transportation

Acronym	Description
VA	Veterans Administration
VHA	Vancouver Housing Authority
VOC	Volatile Organic Compounds
WSDOT	Washington State Department of Transportation

1. Summary

1.1 Introduction

Environmental Justice (EJ) acknowledges that the quality of our environment affects the quality of our lives, and that negative environmental impacts should not disproportionately burden low-income or minority populations. This analysis identifies and assesses the project impacts that could disproportionately affect low-income or minority populations, also referred to as EJ populations. Impacts associated with transportation projects may include disruptions in community cohesion, restricted commercial access, raised noise levels, increased water and air pollution, and other adverse impacts.

Pursuant to Title VI of the Civil Rights Act and the Civil Rights Restoration Act, recipients of Federal financial assistance must ensure nondiscrimination, on the basis of race, color, or national origin, in all of their programs and activities. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994) reinforces the considerations embodied in NEPA and Title VI by requiring each Federal agency to analyze the environmental impacts (including human health, economic and social) of Federal actions, including impacts on minority populations and low-income populations, when such an analysis is required by NEPA. The following represent the three major principles of environmental justice:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental impacts, including social and economic impacts, on minority populations and low-income populations.
- Ensure full and fair participation by all potentially affected populations in the transportation decision-making process.
- Prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

The U.S. Department of Transportation (USDOT) requires full consideration of environmental justice principles throughout planning and decision-making processes using the principles of NEPA, Title VI, the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 and other DOT statutes, regulations and guidance that addresses or affects infrastructure decision-making.

1.2 Description of the Alternatives

The alternatives being considered for the CRC project consist of a diverse range of highway, transit and other transportation choices. Some of these choices – such as the number of traffic lanes across the river – could affect transportation performance and impacts throughout the bridge influence area or beyond. These are "system-level choices." Other choices – such as whether to run high-capacity transit (HCT) on

Washington Street or Washington and Broadway Streets – have little impact beyond the area immediately surrounding that proposed change and no measurable impact on regional impacts or performance. These are "segment-level choices." This report discusses the impacts from both system- and segment-level choices, as well as "full alternatives." The full alternatives combine system-level and segment-level choices for highway, transit, pedestrian, and bicycle transportation. They are representative examples of combining project elements. Other combinations of specific elements are possible. Analyzing the full alternatives allows us to understand the combined performance and impacts that would result from multimodal improvements spanning the bridge influence area.

Following are brief descriptions of the alternatives evaluated in this report, which include:

- System-level choices,
- Segment-level choices, and
- Full alternatives.

1.2.1 System-Level Choices

System-level choices have potentially broad influence on the magnitude and type of benefits and impacts produced by this project. These options may influence physical or operational characteristics throughout the project area and can affect transportation and other elements outside the project corridor as well. The system-level choices include:

- River crossing type (replacement or supplemental)
- High-capacity transit mode (bus rapid transit or light rail transit)
- Tolling (no toll, I-5 only, I-5 and I-205, standard toll, higher toll)

This report compares replacement and supplemental river crossing options. A replacement river crossing would remove the existing highway bridge structures across the Columbia River and replace them with three new parallel structures – one for I-5 northbound traffic, another for I-5 southbound traffic, and a third for HCT, bicycles, and pedestrians. A supplemental river crossing would build a new bridge span downstream of the existing I-5 bridge. The new supplemental bridge would carry southbound I-5 traffic and HCT, while the existing I-5 bridge would carry northbound I-5 traffic, bicycles, and pedestrians. The replacement crossing would include three through-lanes and two auxiliary lanes for I-5 traffic in each direction. The supplemental crossing would include three through-lanes and one auxiliary lane in each direction.

Two types of HCT are being considered – bus rapid transit (BRT) and light rail transit (LRT). Both would operate in an exclusive right-of-way through the project area, and are being evaluated for the same alignments and station locations. The HCT mode – LRT or BRT – is evaluated as a system-level choice. Alignment options and station locations are discussed as segment-level choices. BRT would use 60-foot or 80-foot long articulated buses in lanes separated from other traffic. LRT would use one- and two-car trains in an extension of the MAX line that currently ends at the Expo Center in Portland.

Under the efficient operating scenario, LRT trains would run at approximately 7.5 minute headways during the peak periods. BRT would run at headways between 2.5 and 10 minutes depending on the location in the corridor. BRT would need to run at more frequent headways to match the passenger-carrying capacity of the LRT trains. This report also evaluates performance and impacts for an increased operations scenario that would double the number of BRT vehicles or the number of LRT trains during the peak periods.

Tolling options are also being considered.

1.2.2 Segment-Level Choices

Transit Alignments

The transit alignment choices are organized into three corridor segments. Within each segment the alignment choices can be selected relatively independently of the choices in the other segments. These alignment variations generally do not affect overall system performance but could have important differences in the impacts and benefits that occur in each segment. The three segments are:

- Segment A1 – Delta Park to South Vancouver
- Segment A2 – South Vancouver to Mill Plain District
- Segment B – Mill Plain District to North Vancouver

In Segment A1 there are two general transit alignment options - offset from, or adjacent to, I-5. An offset HCT guideway would place HCT approximately 450 to 650 feet west of I-5 on Hayden Island. An adjacent HCT guideway across Hayden Island would locate HCT immediately west of I-5. The alignment of I-5, and thus the alignment of an adjacent HCT guideway, on Hayden Island would vary slightly depending upon the river crossing and highway alignment, whereas an offset HCT guideway would retain the same station location regardless of the I-5 bridge alignment.

HCT would touch down in downtown Vancouver at Sixth Street and Washington Street with a replacement river crossing. A supplemental crossing would push the touch down location north to Seventh Street. Once in downtown Vancouver, there are two alignment options for HCT – a two-way guideway on Washington Street or a couplet design that would place southbound HCT on Washington Street and northbound HCT on Broadway. Both options would have stations at Seventh Street, 12th Street, and at the Mill Plain Transit Center between 15th and 16th Streets.

From downtown Vancouver, HCT could continue either north on local streets or turn east and then north adjacent to I-5. Continuing north on local streets, HCT could either use a two-way guideway on Broadway or a couplet on Main Street and Broadway. At 29th Street, both of these options would merge to a two-way guideway on Main Street and end at the Lincoln Park and Ride located at the current Washington Department of Transportation (WSDOT) maintenance facility. Once out of downtown Vancouver, transit has two options if connecting to an I-5 alignment: head east on 16th Street and then through a new tunnel under I-5, or head east on McLoughlin Street and then through

the existing underpass beneath I-5. With either option HCT would connect with the Clark College Park and Ride on the east side of I-5, then head north along I-5 to about SR 500 where it would cross back over I-5 to end at the Kiggins Bowl Park and Ride.

There is also an option, referred to as the minimum operable segments (MOS), which would end the HCT line at either the Mill Plain station or Clark College. The MOS options provide a lower cost, lower performance alternative in the event that the full-length HCT lines could not be funded in a single phase of construction and financing.

Highway and Bridge Alignments

This analysis divides the highway and bridge options into two corridor segments, including:

- Segment A – Delta Park to Mill Plain District
- Segment B – Mill Plain District to North Vancouver

Segment A has several independent highway and bridge alignment options. Differences in highway alignment in Segment B are caused by transit alignment, and are not treated as independent options.

The replacement crossing would be located downstream of the existing I-5 bridge. At the SR 14 interchange there are two basic configurations being considered. A traditional configuration would use ramps looping around both sides of the mainline to provide direct connection between I-5 and SR 14. A less traditional design could reduce right-of-way requirements by using a “left loop” that would stack both ramps on the west side of the I-5 mainline.

1.2.3 Full Alternatives

Full alternatives represent combinations of system-level and segment-level options. These alternatives have been assembled to represent the range of possibilities and total impacts at the project and regional level. Packaging different configurations of highway, transit, river crossing, tolling and other improvements into full alternatives allows project staff to evaluate comprehensive traffic and transit performance, environmental impacts and costs.

Exhibit 1-1 summarizes how the options discussed above have been packaged into representative full alternatives.

Exhibit 1-1. Full Alternatives

Full Alternative	Packaged Options				
	River Crossing Type	HCT Mode	Northern Transit Alignment	TDM/TSM Type	Tolling Method[a]
1	Existing	None	N/A	Existing	None
2	Replacement	BRT	I-5	Aggressive	Standard Rate
3	Replacement	LRT	I-5	Aggressive	Two options[b]
4	Supplemental	BRT	Vancouver	Very Aggressive	Higher rate
5	Supplemental	LRT	Vancouver	Very Aggressive	Higher rate

[a] In addition to different tolling rates, this report evaluates options that would toll only the I-5 river crossing and options that would toll both the I-5 and the I-205 crossings.

[b] Alternative 3 is evaluated with two different tolling scenarios, tolling and non-tolling.

Modeling software used to assess alternatives' performance does not distinguish between smaller details, such as most segment-level transit alignments. However, the geographic difference between the Vancouver and I-5 transit alignments is significant enough to warrant including this variable in the model. All alternatives include Transportation Demand Management (TDM) and Transportation System Management (TSM) measures designed to improve efficient use of the transportation network and encourage alternative transportation options to commuters such as carpools, flexible work hours, and telecommuting. Alternatives 4 and 5 assume higher funding levels for some of these measures.

Alternative 1: The National Environmental Policy Act (NEPA) requires the evaluation of a No-Build or "No Action" alternative for comparison with the build alternatives. The No-Build analysis includes the same 2030 population and employment projections and the same reasonably foreseeable projects assumed in the build alternatives. It does not include any of the I-5 CRC related improvements. It provides a baseline for comparing the build alternatives, and for understanding what will happen without construction of the I-5 CRC project.

Alternative 2: This alternative would replace the existing I-5 bridge with three new bridge structures downstream of the existing bridge. These new bridge structures would carry Interstate traffic, BRT, bicycles, and pedestrians. There would be three through-lanes and two auxiliary lanes for I-5 traffic in each direction. Transit would include a BRT system that would operate in an exclusive guideway from Kiggins Bowl in Vancouver to the Expo Center station in Portland. Express bus service and local and feeder bus service would increase to serve the added transit capacity. BRT buses would turn around at the existing Expo Station in Portland, where riders could transfer to the MAX Yellow Line.

Alternative 3: This is similar to Alternative 2 except that LRT would be used instead of BRT. This alternative is analyzed both with a toll collected from vehicles crossing the Columbia River on the new I-5 bridge, and with no toll. LRT would use the same transit alignment and station locations. Transit operations, such as headways, would differ, and LRT would connect with the existing MAX Yellow Line without requiring riders to transfer.

Alternative 4: This alternative would retain the existing I-5 bridge structures for northbound Interstate traffic, bicycles, and pedestrians. A new crossing would carry southbound Interstate traffic and BRT. The existing I-5 bridges would be re-striped to provide two lanes on each structure and allow for an outside safety shoulder for disabled vehicles. A new, wider bicycle and pedestrian facility would be cantilevered from the eastern side of the existing northbound (eastern) bridge. A new downstream supplemental bridge would carry four southbound I-5 lanes (three through-lanes and one auxiliary lane) and BRT. BRT buses would turn around at the existing Expo Station in Portland, where riders could transfer to the MAX Yellow Line. Express bus service and local and feeder bus service would increase to serve the added transit capacity.

Alternative 5: This is similar to Alternative 4 except that LRT would be used instead of BRT. LRT would have the same alignment options, and similar station locations and requirements. LRT service would be more frequent (approximately 3.5 minute headways during the peak period) compared to 7.5 minutes with Alternative 3. LRT would connect with the existing MAX Yellow Line without requiring riders to transfer.

1.3 Long Term Impacts and Final Determination

The summary of impacts and mitigations is included as Section 9 of this report.

2. Methods

2.1 Introduction

This section describes the methods used to gather information on the number and location of EJ populations in the study area and the methods used to analyze the potential impacts to EJ populations by each of the project alternatives and options. The methods also outline the public outreach strategy used to ensure the inclusion of EJ populations.

2.2 Study Area

The study area for this analysis consisted of the primary and secondary areas of potential impact (APIs) (Exhibit 2-1).

The primary API is the area most likely to experience direct impacts from construction and operation of the proposed project. The primary API extends about five miles from north to south. It starts north of the I-5/Main Street interchange in Washington, and runs to Victory Boulevard in Oregon. North of the Columbia River, the API extends west into downtown Vancouver, and east near Clark College to include potential high-capacity transit alignments and park and ride locations. Around the actual river crossing, the eastern and western sides each extend 0.25 mile from the I-5 right-of-way. South of the river crossing, this width narrows to 300 feet on each side. For the EJ evaluation, the primary API included all census boundaries that fell either completely or partly within the API boundary.

The secondary API represents the area where indirect impacts (e.g., traffic and development changes) could occur from the proposed project. The study team relied primarily on secondary data to evaluate the likelihood of indirect project impacts. This API includes the area bounded by I-5 to the west, I-205 to the north and east, and I-84 to the south. It extends up to one mile beyond these Interstates.

2.3 Data Collection Methods

Potential cumulative impacts from this project are evaluated in the Cumulative Impacts Technical Report. Please refer to this report for an evaluation of possible cumulative impacts.

The project team followed Federal Highway Administration (FHWA) and WSDOT guidance to identify EJ populations. Minority populations are individuals listed in the 2000 U.S. Census as considering themselves to be nonwhite (Black or African American, American Indian and Alaskan Native, Asian, Pacific Islander, or other race) or Hispanic or Latino (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

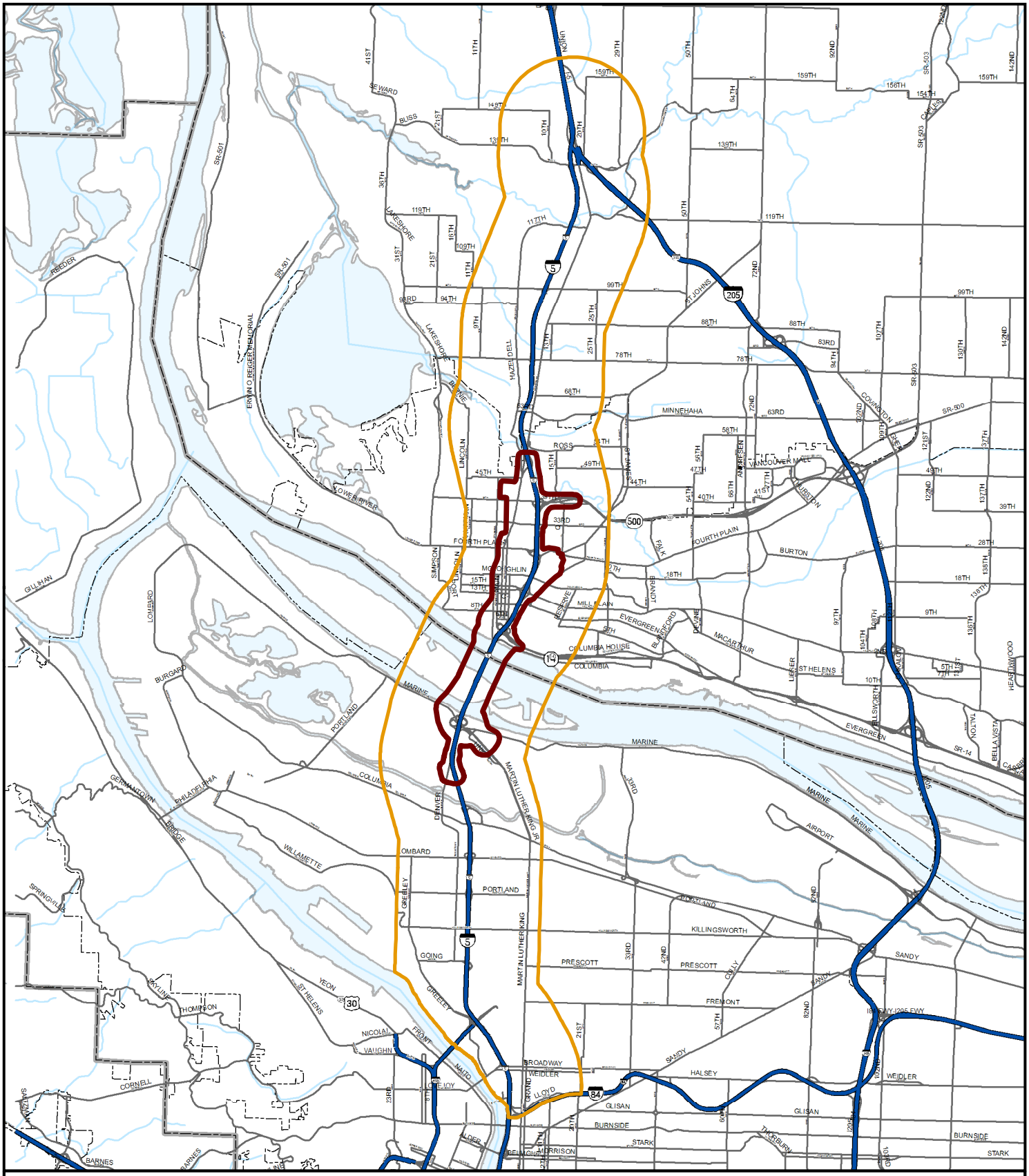

Exhibit 2-1: Area of Potential Impact

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A low-income person is someone living at or below the poverty line as defined by the U.S. Census poverty threshold.

The project team followed the steps listed below to analyze the impacts of the project alternatives and options on EJ populations.

The project team identified the API and conducted a demographic analysis, using geographic information systems (GIS) to identify and map 2000 US Census data for all block groups with low-income and minority populations entirely or partially in the primary API (Exhibits 2-2 and 2-3).

Information collected from other sources supplemented the Census data. Additional sources included the 2004 American Community Survey, Section 8 Housing Assistance data, and public school free and subsidized lunch program data. The project team contacted local social service agencies to identify recent development projects that serve EJ populations.

Information collected through field visits and public outreach events with community and stakeholder groups further supplemented and refined the above data. Information included attendance at meetings and events such as AsiaFest, Good in the Hood, Alberta Coop Farmers Market, Vietnamese New Year celebration, Say Hey! Partners in Diversity, Juneteenth Festival, and a Slavic Coalition meeting

Press releases advertising the fall 2005 and April 2006 open houses were translated into Spanish, Russian, and Vietnamese and distributed to the following newspapers. Advertisements for the open houses were also published in the same newspapers:

- The Asian Reporter
- El Hispanic News
- Portland Observer
- The Skanner

Prior to issuing the CRC project Notice of Intent (NOI), the project team identified limited English proficiency populations using geographic information systems (GIS) and the 2000 U.S. Census data. One data source used for limited English proficiency was "language spoken at home." The smallest geographic unit that "language spoken at home" data are available for is at the block group level. Because of data limitations and the importance of identifying those populations with the greatest likelihood of experiencing direct impacts (those in the primary API), "language spoken at home" data were collected for all census block groups entirely or partially in the primary API. The data showed that those speaking Spanish, Russian, German, and Vietnamese at home represented an average of at least 1 percent of the population in the study block groups. Because the early version of public involvement plan identified a likelihood that German speakers tended to have high levels of English language fluency, Spanish, Russian, and Vietnamese were chosen as the focus languages and German was not included.

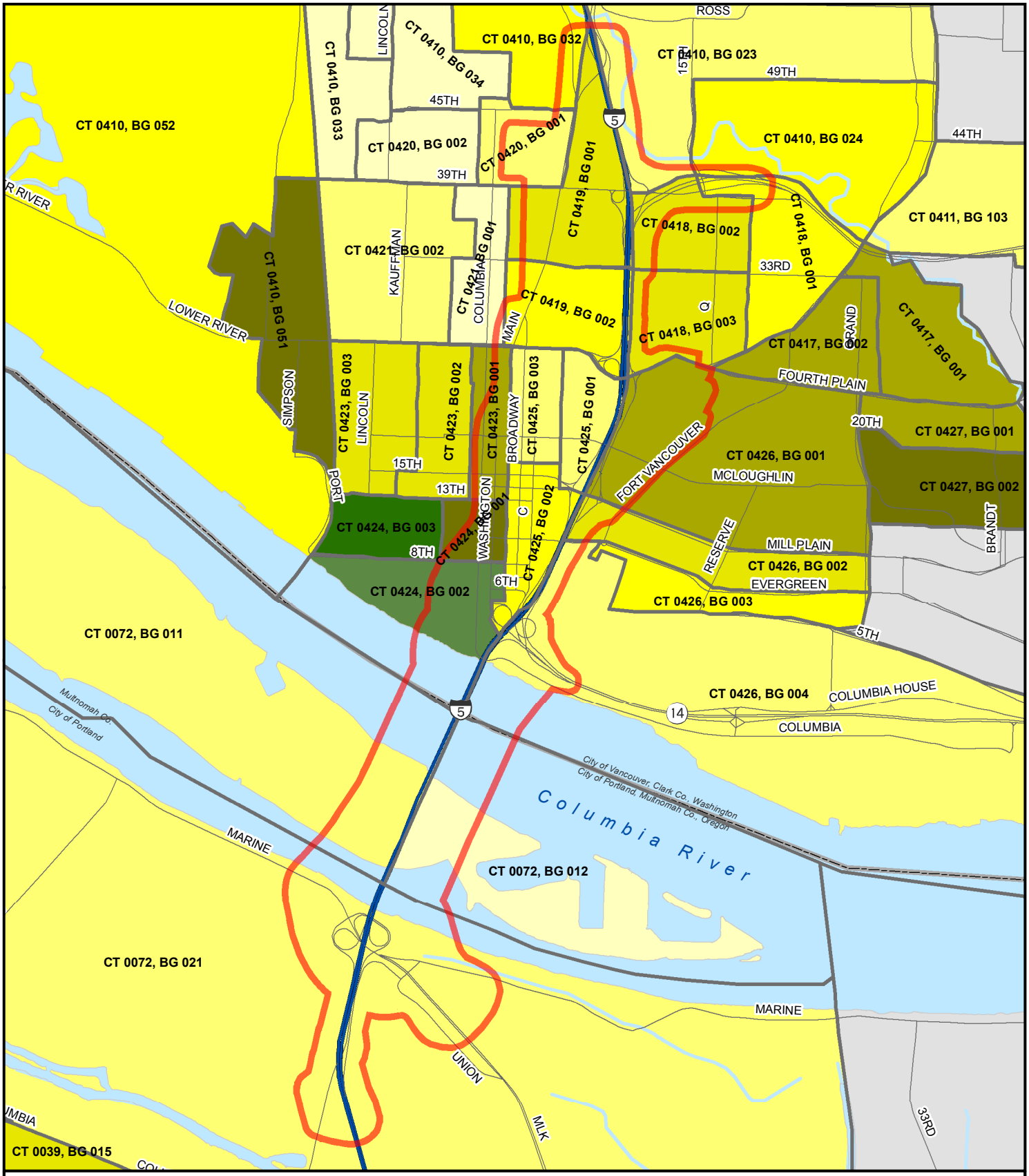

Exhibit 2-2. Percent Below the Poverty Line by Block Group

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Analysis by C.Hainey; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: EJ_LowIncomePop.mxd

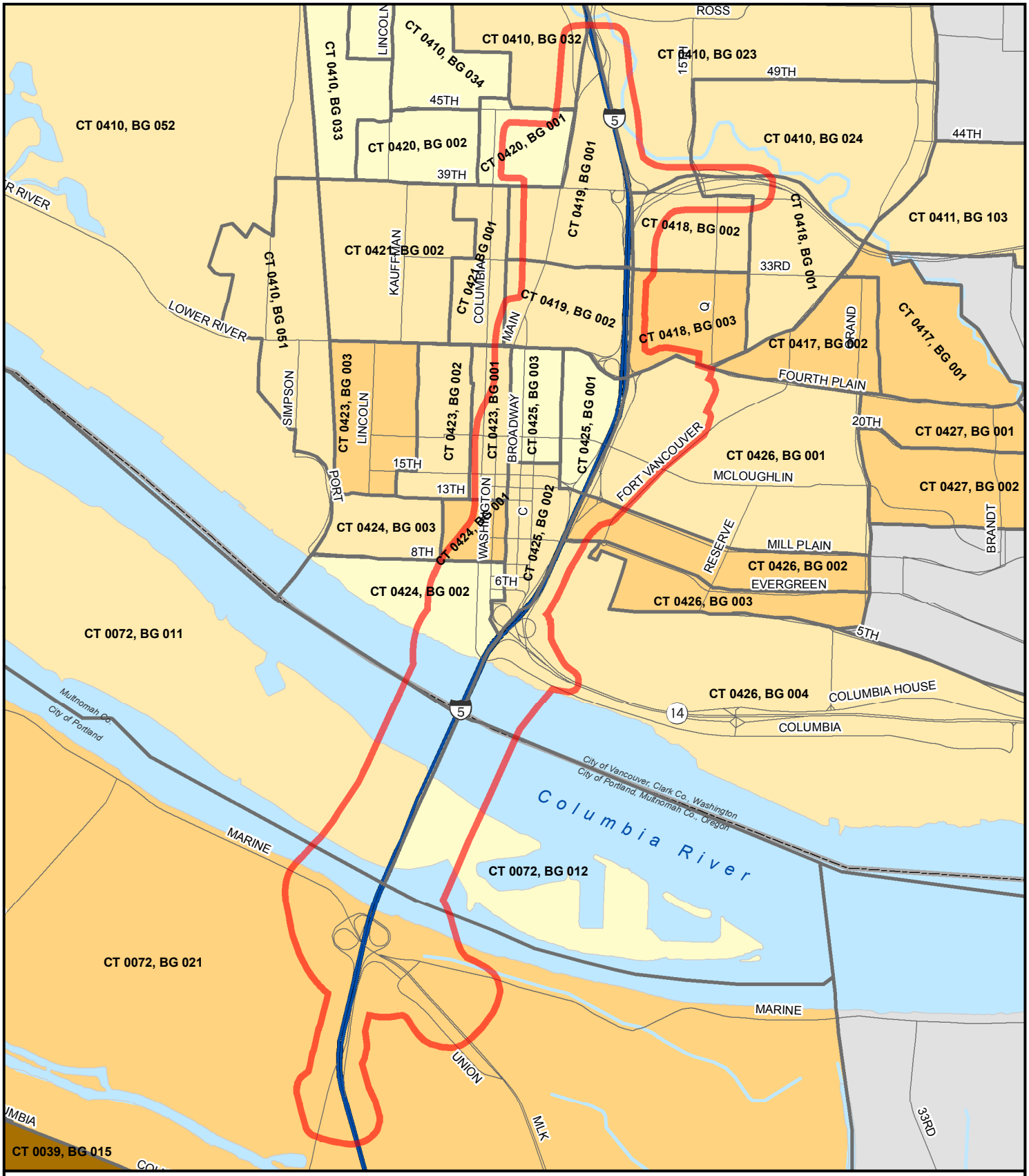

Exhibit 2-3. Percent Minority by Block Group

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Analysis by C.Hainey; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: EJ_LowIncomePop.mxd

Project information has been routinely translated into those languages, including project newsletters, relevant project documents, and portions of the project web site. Russian, Spanish, and Vietnamese interpreters have been made available at numerous public open houses. Russian and Spanish are the two most common languages, (except for English) spoken at home in Portland, Vancouver and Clark County. Vietnamese is the third most commonly spoken in Portland and Vancouver.

The project team reviewed relevant project technical reports to determine the location, intensity, and duration of potential project environmental impacts within the primary and secondary APIs, and to identify high and adverse impacts to EJ populations.

2.4 Analysis Methods

The major steps to the impact analysis of the project alternatives and options are presented below.

2.4.1 Identify the Area of Impact and Conduct a Demographic Analysis

Gathering data was the first major effort in conducting a demographic analysis and was largely completed prior to the impact analysis. The major aspects of this effort are listed above in Section 2.3. Additional baseline information included:

- Information relevant to EJ from the I-5 Strategic Plan
- Percentages of EJ populations in the primary and secondary APIs
- Existing community facilities and resources such as services, businesses, parks, and community centers
- Current noise, air quality, and transportation conditions

2.4.2 Conduct Public Outreach

The project team used public outreach to supplement or refine the information above. Outreach included coordination with project-specific community groups, the Metropolitan Planning Organizations in Portland (Metro) and Vancouver (Regional Transportation Council) and other stakeholders. This subject is more fully discussed in Section 3, Coordination, of this report. Other information came from project scoping comments, community meetings, open houses, coordination with community-based organizations, local school involvement, informational tables at community events, the project's Speaker's Bureau, and community media.

Populations with limited English proficiency were identified using information on race and ethnicity and guidelines from the U.S. Department of Justice (DOJ). DOJ recommends that agencies consider providing language translation services if an ethnic group with a primary language other than English composes 5 percent or more of an area or exceeds 1,000 persons. These findings were verified by using census information on linguistic isolation. The information on populations with limited English proficiency was used to determine translation needs for public outreach.

2.4.3 Review Potential Impacts and Benefits and Analyze Their Location in Relation to EJ Populations

Primary and Secondary APIs

The location, intensity, and duration of potential environmental impacts within the primary and secondary APIs (including operational, construction, indirect, and cumulative impacts) were reviewed from the following draft discipline technical reports:

- Acquisitions and Relocations
- Air Quality
- Economics
- Archaeological and Historic Resources
- Land Use
- Noise and Vibration
- Public Services and Utilities
- Section 4(f)
- Neighborhoods
- Transportation
- Visual Quality

The project team reviewed demographic data to assess whether impacts would disproportionately affect EJ populations.

The potential adverse and beneficial impacts of tolling on EJ populations were also assessed for all build alternatives and options. This evaluation included a literature review of the equity of tolling, a summary of concerns about tolling as collected from public outreach, and travel time savings and alternate routes impacts.

Technical reports on air quality, noise and vibration, and transportation provided data on the location, intensity, and duration of potential environmental impacts within the region. Where regional impacts were identified, demographic data for the affected areas were evaluated. Regional impacts on EJ populations were assessed in a manner similar to the analyses of primary and secondary API impacts.

2.4.4 Assess Whether the Project Would Result in Disproportionately High and Adverse Impacts on EJ populations

Using the results of the steps described above, the project team determined the likelihood that any of the project alternatives and options may have disproportionately high and adverse impacts on EJ populations. Six questions were discussed to help make this determination. They are based on guidance from FHWA.

- Question 1: Would the project result in disproportionately high and adverse impacts on EJ populations?

- Question 2: Does the project affect a resource that is especially important to an EJ population? For instance, does the project affect a resource that serves an especially important social, religious, or cultural function for a minority or low-income population?
- Question 3: Would the project result in disproportionately high and adverse impacts that would be predominately borne by an EJ population?
- Question 4: Would the project result in disproportionately high and adverse impacts on an EJ population that would be appreciably more severe or greater in magnitude than the impact that would be suffered by the non-minority and/or non-low-income population?
- Question 5: Does the project propose mitigation?
- Question 6: Are there project benefits that would accrue to EJ populations?

Following evaluation of these six questions, a final determination was made as to whether any of the build alternatives for the project would likely result in disproportionately high and adverse impacts on EJ populations.

3. Coordination

The U.S. Environmental Protection Agency (EPA) defines Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies.

Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected. To achieve the goal of meaningful public involvement, the Columbia River Crossing (CRC) thoughtfully structured a public involvement process as described in the previous chapter, coordinated with tribes and, in August of 2006 formed the Community and Environmental Justice Group (CEJG).

3.1 Community and Environmental Justice Group

The fifteen members of the CEJG come from neighborhoods in the project area and include members of the EJ populations, two liaisons from the CRC Task Force, and five at-large members. They represent the diverse interests and perspectives of Vancouver and Portland neighborhoods potentially affected by the project.

Reporting to the project team, the specific role of the CEJG is to:

- Conduct individual or group review of the CRC project materials.
- Identify issues and concerns in the project development or environmental process, and present recommendations at key milestones to the project team.
- Assist the project team in effectively engaging the public in the project by:
    - Reviewing and commenting on the outreach plan.
    - Identifying service providers and community based organizations in the project area.
    - Informing the project team of known changes in demographics within the API since the 2000 Census.
    - Assisting in identifying community reactions and issues of concern.

- Provide input to the project team into relevant areas of interest or potential impact (such as air quality, noise, highway interchange alignments and design features) to help inform the project's efforts to avoid, minimize, or mitigate potential impacts of the project to their community.
- Communicate frequently with their respective constituency groups to keep them informed of project information, bring their input to the project team, and help develop an understanding and support of project recommendations.
- Identify community concerns related to the project and communicate those concerns to the project team in a timely manner.
- Identify community resources.
- Provide input to the project team to assist with developing potential solutions as challenges arise on the project.
- Provide input to the project on balancing transportation, economic, and livability needs.
- Provide recommendations with regards to specific project elements to ensure there is a balance within impacted populations and that costs and benefits are reasonably distributed.

CEJG has met once a month since August 2006 and will continue to meet until the CRC project's Locally Preferred Alternative is selected. To date, CEJG has provided input on a wide variety of project related issues, including:

- Project background
- 12 preliminary alternative packages
- Staff Recommendation on alternatives to carry into the Draft Environmental Impact Statement (DEIS)

Between April and August 2007, the CEJG focused on the DEIS and potential project impacts to EJ populations in the bridge impact area.

3.2 Tribal Coordination

The CRC project team designated an American Indian tribal liaison, with the statewide tribal liaisons for both WSDOT and the Oregon Department of Transportation (ODOT) assisting in tribal coordination efforts, when necessary. Other DOT team members have participated in the on-going government-to-government dialogue. Consultants assisted in preparing for meetings with the tribes, but all contact was through DOT staff on the project. All communication with tribes was coordinated through the CRC tribal liaison to ensure that information is managed internally and integrated into the government-to-government dialogue with the tribes. All tribal consultation and the results from these efforts were documented in the project's administrative record.

The general approach to government-to-government consultation for the CRC project was as follows:

- Met with representatives of affected tribes to review broad issues. CRC staff met with interested tribes early in the environmental review process in order to establish the following information:
    - An understanding of the aspects of the CRC project likely to interest the tribes.
    - Preliminary information about the potential for the project to affect tribal land, historical or cultural resources, fishing and other aquatic resources, or any other issues of tribal concern.
    - An initial agreement regarding the process for the government-to-government consultations.
- Engaged in both formal and technical consultation with tribal staff. At the request of the tribes, project staff formally met with cultural and natural resource committees, and involved technical staff in working group meetings concerning applicable issues (e.g., identification of fish and wildlife habitat).
    - At the request of interested tribes, the project team met with the Tribal Council and appropriate committees at major project milestones.
    - Technical staff were invited to all working group meetings that the tribe may have an interest or expertise in.
    - The consultation process integrated both formal and informal contact with the Tribal Council and tribal staff, respectively.
- Sought to resolve issues in parallel with project planning and permitting activities. CRC staff kept the interested tribes fully informed throughout the project planning, permitting and development process. In acknowledgement that CRC must afford the interested tribes with more than the opportunity to participate as members of the general public in the planning and permitting process, CRC took the following actions to ensure there is effective government-to-government consultation:
    - Sought tribal input regarding alternatives and opportunities to avoid, reduce, or otherwise mitigate the impacts of the CRC project on tribal interests.
    - Sought tribal comment throughout the project's environmental review, permitting and regulatory review processes.

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4. Affected Environment

4.1 Introduction

The primary API is expected to experience direct impacts from the project, including potential acquisition of property and physical construction activities. This section addresses existing conditions in the primary and secondary APIs.

Some project activities would cause indirect impacts. These may be more distant from the actual construction areas. For this assessment, the project established a secondary API. In this area, there may be changes to traffic patterns, job growth, etc., that could impact EJ populations and other communities. The secondary API reaches from the Lloyd District/I-84 in Portland north to where the I-5 and I-205 highways merge in Washington. It is also possible that impacts are identified outside of the secondary API. For example, tolling I-205 may impact EJ populations on the east side of Vancouver. This area is not geographically restricted, and may extend far from the project.

4.2 Regional Conditions

4.2.1 Population, Households, and Employment

The Portland-Vancouver metropolitan area has experienced years of rapid growth, and is expected to continue growing. Exhibit 4-1 shows historical and forecast population and housing data for the Portland-Vancouver metropolitan area. Approximately 1.9 million people live in the five-county region (Multnomah, Washington, Clackamas, and Yamhill Counties in Oregon, and Clark County in Washington), an increase of about 400,000 people since 1990. Much of the increase in population during that time can be attributed to migration into the metropolitan area because of the dynamic economic conditions and available employment opportunities. By 2025, the population of the region is expected to grow to approximately 2.8 million. On a percentage basis, the population is projected to grow at a slightly slower rate than it has in recent years.

Exhibit 4-1. Population, Employment, and Housing

	Actual	Actual	Forecast	Average Annual Growth Rate	
Parameter	1990	2000	2025	1990-2000	2000-2025
Population	1,477,900	1,874,500	2,768,200	2.4%	1.6%
Households	575,500	725,400	1,104,200	2.4%	1.7%
Employment [a]	715,200	958,000	1,515,500	3.0%	1.9%

Source: Metro Regional Government.

[a] Employment is total salary and wage employment.

4.2.2 Economic Conditions

The greater Portland-Vancouver metropolitan area is a favorable location for companies serving major West Coast and international markets. Fueled by growth in the electronics manufacturing and warehousing/distribution sectors in the mid-1990s, the region experienced growth in population, employment, and housing. The recession in 2001 caused some of the higher unemployment rates in the nation. The economy has rebounded in recent years, and employment figures are back to pre-recession levels. The safe and efficient movement of people and goods to and from the area is an important factor in the continued long-term health of the local and regional economy.

Employment and Income

The Portland-Vancouver metropolitan area has current and projected job growth with employers that require efficient transportation systems for the movement of goods, services, and employees to and from their places of business. Exhibit 4-2 presents historic and projected employment in the Portland-Vancouver five-county region by industry sector for 1990, 2000, and 2025. Total jobs in the area increased from 715,200 jobs in 1990 to approximately 958,000 jobs in 2000. By 2025, businesses within the greater Portland-Vancouver metropolitan area are expected to employ over 1.5 million individuals.

From 1990 to 2000, all major industry sectors in the region experienced positive growth. The service sector industry and the construction/mining industry experienced the largest annual growth rates in the region. The growth in the manufacturing sector can be largely attributed to the Portland-Vancouver metropolitan area's strong semiconductor and electronics manufacturing industries. Average annual growth rates are projected to slow between 2000 and 2025 compared to the growth experienced between 1990 and 2000. The service sector is projected to grow faster than any other industry.

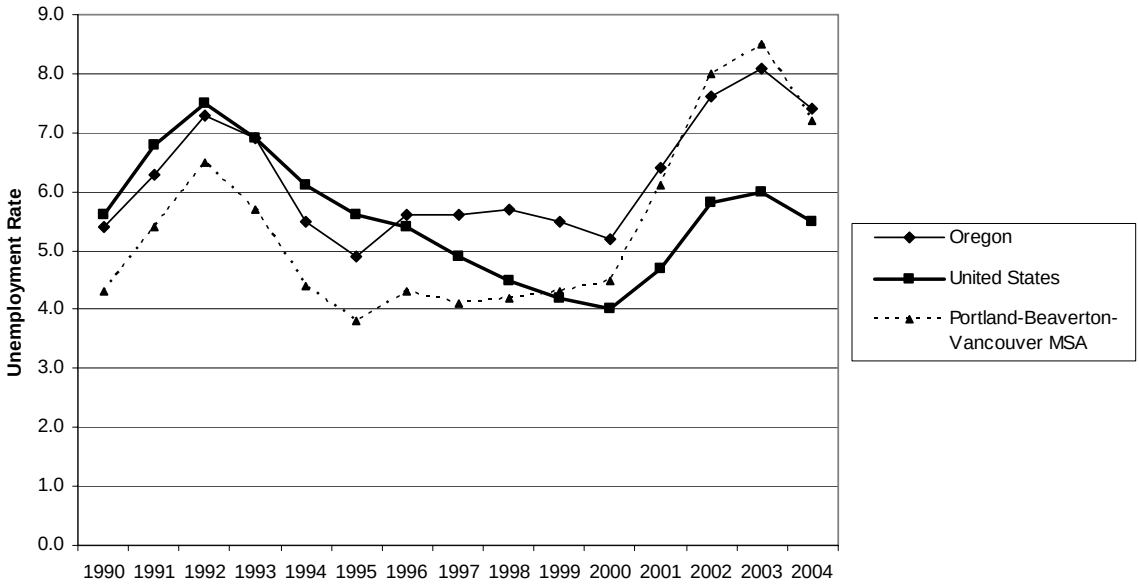
Exhibit 4-2. Employment by Industry

	Actual	Actual	Forecast	Average Annual Growth Rate	
Industry	1990	2000	2025	1990-2000	2000-2025
Manufacturing	121,700	145,500	177,200	1.8%	0.8%
Construction and Mining	36,300	53,900	81,000	4.0%	1.6%
Transportation, Communications, and Utilities	41,600	55,400	80,900	2.9%	1.5%
Retail and Wholesale Trade	183,400	235,400	367,900	2.5%	1.8%
Finance, Insurance, and Real Estate	52,100	64,500	90,200	2.2%	1.4%
Services	182,200	276,300	546,300	4.3%	2.8%
Federal, State, and Local Government	98,000	127,000	172,000	2.6%	1.2%
Total Employment	715,200	958,000	1,515,500	3.0%	1.9%

Source: Portland Metro.

Exhibit 4-3 shows unemployment rates for the Portland-Beaverton-Vancouver Primary Metropolitan Statistical Area (PMSA), Oregon, and the United States. From 1990 to 1998, the Portland-Beaverton-Vancouver PMSA unemployment rate was lower than both Oregon and the nation. By 2002, the regional unemployment rate was greater than the state and the nation. The relatively greater increase in the project area's unemployment rate was caused in part by the region's reliance on electronic and computer manufacturing, which was greatly impacted by the international economic downturn. Slow job growth continued through 2003. In 2004, job growth increased and the Portland-Vancouver-Beaverton PMSA unemployment rate dropped below the state average.

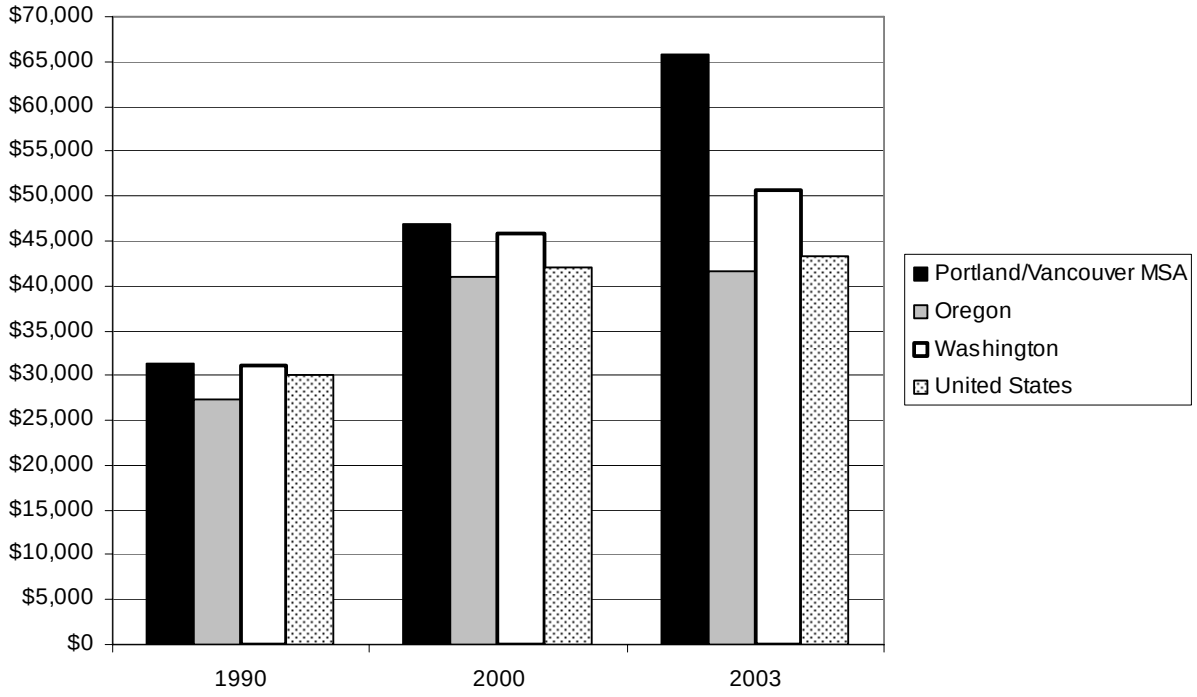
Exhibit 4-3. Unemployment Rate



Source: Bureau of Labor Statistics, 2005.

Median household incomes for the Portland-Vancouver Metropolitan Statistical Area (MSA), the states of Oregon and Washington, and the United States are presented in Exhibit 4-4. In 1990, the median household income of the greater Portland-Vancouver metropolitan area was approximately $31,000 and was relatively close to state and national averages. By 2003, the regional median household income, buoyed by the region's strong economic growth, was over $65,000. By comparison, median household income for Washington, Oregon, and the United States were $51,000, $42,000, and $43,000, respectively.

Exhibit 4-4. Median Household Income



Source: Portland Metropolitan Region Fact Book, Portland Development Council.

Salary Levels for Selected Local Jobs

During the analysis if impacts to local businesses, the project team gathered data on income levels. Later in the project planning process, specific data will be collected for specific businesses that are likely to be relocated or otherwise, significantly impacted. For this technical report, and in coordination with the acquisitions and economics analyses, it was determined that the largest potential-negative impact to employers was going to be on Hayden Island (see Section 5). In order to better understand potential EJ impacts related to the service-type businesses that are most likely to be acquired, the following data was gathered.

The service and sales sectors are major sources of employment for Hayden Island residents. Food preparation and service related employers are more likely to offer low-income positions (dishwashers, cooks, hosts, and counter attendants. The majority of food preparation and service jobs are provided by restaurants, fast food establishments, and hotels. According to the Oregon Employment Department, the average salaries of most food preparation and service workers within Multnomah and Washington Counties fall within the range of $18,000 and $23,000 per year.

The 2007 federal poverty level, established by the Department of Health and Human Services, is $10,210 for a one person household (Exhibit 4-5). The likelihood that a household would earn below federal poverty level increases with household size.

Eligibility for federal programs is often determined by using a multiplier of the federal poverty level. The CRC project analyzed low-income population distributions in order to determine the impacts to these persons.

Exhibit 4-5. Federal Poverty Level, 2007

Household Size (persons)	48 Contiguous States and D.C.
1	$10,210
2	$13,690
3	$17,170
4	$20,650
5	$24,130
6	$27,610
7	$31,090
8	$34,570

Source: Federal Register (2007)
http://aspe.hhs.gov/poverty/07poverty.shtml

4.2.3 Population Conditions

Minority Populations

According to the 2000 U.S. Census, 27 percent of the population in the secondary API is minority (Exhibit 4-6). Although minorities are located throughout the secondary API, the percentage of minority populations is higher in the Portland block groups (42 percent) than in the Vancouver block groups (15 percent). Exhibit 2-3 maps these block groups and Exhibit 4-7 shows the percentage of minority populations living in the secondary API. Table A-1 in Appendix A lists the percentage of minority populations living in the primary and secondary API by census block group.

Exhibit 4-6. EJ Populations

Area	Total Population	% Minority	% Low-Income
Portland Block Groups	62,264	42	17
Vancouver Block Groups	84,407	15	13
Secondary API Total	146,671	27	15

Source: US Census 2000, Tables P7, P8, and P88.

The names of ethnic and demographic categories used in this report are taken from those used by the U.S. Census Bureau. Because of rounding, exhibits in this report summarizing this data show rates of 0 when few individuals in a census category are part of a large population.

Exhibit 4-7. Minorities (Percent)

	Race							Ethnicity
Area	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Portland Block Groups	58	23	1	4	0	0	5	9
Vancouver Block Groups	85	2	1	2	0	0	3	7
Secondary API Total	73	11	1	3	0	0	4	8

Source: US Census 2000, Tables P7 and P8.

In Appendix A, Table A-2 shows the number and percent of each census race and ethnicity category by census block. Particularly high concentrations of minority populations (70 percent or over) can be found in 10 block groups in the Boise, King, Humboldt, Piedmont, Eliot, Irvington, and Woodlawn neighborhoods of Portland. Census Tract (CT) 33.01 Block Group (BG) 3 has the highest proportion of minority residents on the Oregon side of the Columbia River, in the Boise neighborhood of Portland. Exhibit 4-8 maps these data by neighborhood. Table A-2 shows that the block groups mentioned above are primarily African American, although many have substantial populations of Hispanics as well. The highest concentration of minorities in Vancouver is in block group CT 8.04 BG 1 in the NE Hazel Dell neighborhood (41 percent minority), where 30 percent of the block group is low-income.

Low-Income Populations

Low-income populations, which are those populations below the poverty line, are shown by neighborhood on Exhibit 4-9 and by block group on Exhibit 2-2. Table A-1 in Appendix A lists the percentage of low-income populations living in the secondary API by census block group.

Disabled Population

More people with disabilities live near the project than average for the Portland-Vancouver metropolitan area. The disabled population rates vary widely between neighborhoods. Esther Short reports a 45 percent disability rate, likely due to the senior housing located in the area. All other neighborhood disability rates fall between 16 and 30 percent.

The Washington State Schools for the Blind and the Deaf are near the study area. The School for the Blind is at 2214 E 13th Street near Mill Plain Boulevard and E Reserve Street. The School for the Deaf is at 611 Grand Boulevard, at Grand and Evergreen. The School for the Blind provides mobility classes with instruction on crossing the street, business area travel skills, and bus travel. The project team will need to work with City and school representatives to assure that the project does not result in unnecessary adverse impacts to roadways used for mobility training.

Exhibit 4-8: Percent Minority

Columbia River CROSSING

Analysis by C.Hainey; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: EJ_LowIncomePop.mxd

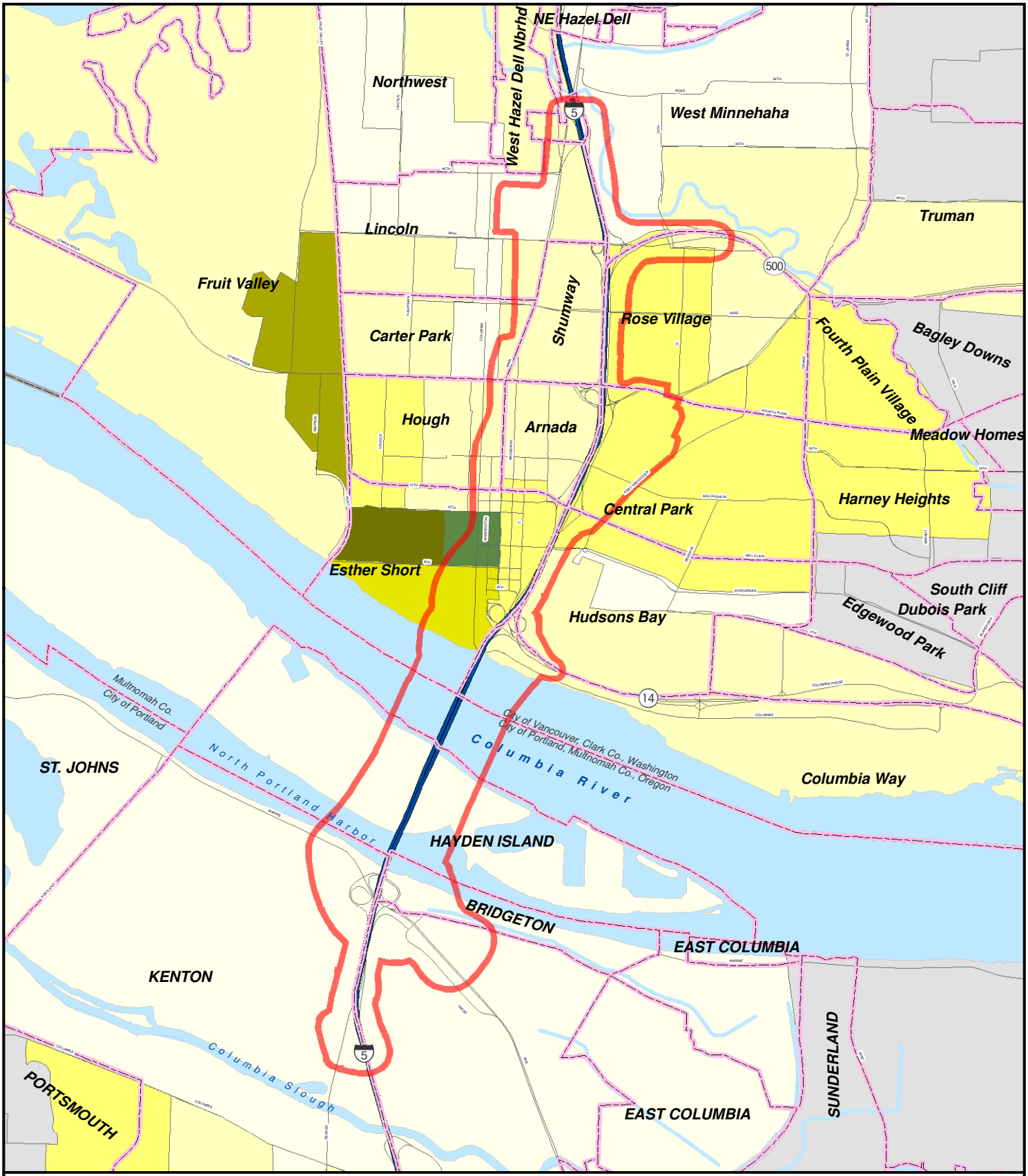


Exhibit 4-9: Percent of Population Below the Poverty Line

Columbia River CROSSING

Analysis by C.Hainey; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: EJ_LowIncomePop.mxd

In the secondary API, 15 percent of the population is low-income. Low-income populations are located throughout the secondary API, but these percentages are slightly higher in the Portland block groups (17 percent low-income) than in the Vancouver block groups (13 percent low-income). In Oregon, the following Portland neighborhoods contain block groups with greater than 20 percent of residents living below the federal poverty line (Exhibit 4-9):

- King
- Eliot
- Overlook
- Arbor Lodge
- Piedmont
- Humboldt
- Boise
- Kenton

In Washington, the following Vancouver neighborhoods contain block groups with greater than 20 percent of residents living below the federal poverty line (Exhibit 4-9):

- NE Hazel Dell
- Harney Heights
- Hudson's Bay
- Hough
- Rose Village
- Central Park
- Esther Short
- Fruit Valley

Transportation

Transportation used to travel to work can indicate how reliant the population is on transit and how much the population would benefit from improvements to transit. About 4 percent of the total population in the secondary API uses public transportation to travel to work (Exhibit 4-10). Table A-4 in Appendix A lists transportation mode data by census block group. Seven percent of people in the Portland block groups and 2 percent of people in the Vancouver block groups take public transportation to work. Several block groups (CT 21 BG 2, CT 24.02 Block Groups 2 and 3, and CT 25.02 BG 3) in the Kerns, Sullivan's Gulch, and Irvington neighborhoods of Portland and one (CT 24 BG 1) in the Esther Short neighborhood of Vancouver have 15 percent or more of the population using public transportation to travel to work.

Exhibit 4-10. Means of Transportation to Work

Area	People Taking Public Transportation to Work	% People Taking Public Transportation to Work
Portland Block Groups	4,659	7
Vancouver Block Groups	1,725	2
API Total	11,043	4

Source: US Census 2000, Table P 30.

Limited English Proficiency

People with limited ability to understand English are not always minority or low-income and therefore not necessarily EJ populations. Agencies try to understand the language needs of people in order to involve them in the project planning process. Information on race and ethnicity is useful in identifying populations with limited ability to understand English and the need for translation services to communicate project information.

Translation and interpretation services in Spanish, Vietnamese, and Russian have been provided to persons with limited English proficiency in order to include them in the project's recommendation-making process. The decision to provide these services is based on census data and information from previous studies, such as the I-5 Transportation and Trade Partnership Strategic Plan and the Delta Park Project Environmental Assessment. Data indicated that there are block groups in the secondary API with Hispanic and Asian populations that constitute 5 percent or more of the population. The recommendation to provide translation and interpreter services in Russian came from public outreach on the I-5 Transportation and Trade Partnership Project and the Delta Park Project. See Section 3, Coordination, for more information.

4.2.4 Community Conditions

Air Quality

Air quality has improved in the Portland-Vancouver metropolitan area since the early 1980s, and the area is currently designated as a maintenance area for CO and an attainment area for all other pollutants. The Air Quality Technical Report contains additional information on pollutants in the project area.

For transportation projects in the Portland-Vancouver metropolitan area, the main pollutants of concern are carbon monoxide (CO) and ozone. Volatile organic compounds (VOCs) and nitrogen oxides (NO_x) contribute to ozone formation. Particulate matter (PM) has also been raised as a pollutant of public concern for the CRC project. Highway vehicles are an important source of the pollutants of concern, which may contribute to smog and health problems in the primary and secondary APIs.

Noise

Sensitive noise receptors are, in general, those areas of human habitation or substantial use where the intrusion of noise has the potential to adversely impact the occupancy, use, or enjoyment of the environment. These can include residences, schools, hospitals, parks, and places of business requiring low levels of noise. The primary API is densely developed and contains many sensitive noise receptors. There is dense residential development in a number of areas, as well as sensitive uses such as parks, hospitals, schools, and cemeteries. Noise currently impacts substantial areas of the primary API adjacent to I-5. The project would mitigate noise, particularly in the sensitive areas. The Noise and Vibration Technical Report contains additional information on noise-related factors and impacts within the primary API.

Community Resources

The project team collected an inventory of community resources within each neighborhood. The team met with community members who identified resources that were important to them. In addition, the project team identified neighborhood resources within and near the study area that fit the following commonly accepted neighborhood resource categories: parks, schools, locally and nationally recognized historic structures, and emergency services. Project staff then created two draft neighborhood resource maps: one for Oregon and one for Washington. On September 14, 2006, CEJG reviewed the resource maps and identified additional resources. These maps were further reviewed and added to at neighborhood meetings and open houses.

The Neighborhoods Technical Report includes additional information on community resources. The neighborhood profiles provided in the following sections of this chapter also discuss these resources.

Transportation Assistance Programs

This section identifies several programs in the Portland-Vancouver metropolitan area that are designed to assist special groups of individuals with the costs and challenges of transportation.

C-TRAN offers programs that can assist low income populations. Low-income individuals can obtain identification cards for special/reduced fares (cash fares, tickets, or passes). C-TRAN verifies low-income through proof of current receipt of Washington State Medical Coupons or a Washington State Food Stamp ID card only. C-TRAN does not accept any other form of low-income qualification; their discount is on monthly passes only. Seniors also receive discounted rates with C-TRAN.

TriMet offers similar programs that can assist low-income populations. TriMet offers Honored Citizen Fares for seniors 65 and older, people on Medicare, and those who have a disability. These fares are accepted on buses, MAX, and streetcars for travel in all zones.

The Community Cycling Center (CCC) is a charitable nonprofit organization dedicated to reaching children, restoring communities, and recycling bicycles. The CCC offers after school riding and maintenance/safety programs, the Yellow Bike Project, and classes in safety, bike repair, commuting, and riding. The CCC also offers a Learn & Earn a Bike program for low-income youth and adults, as well as a low cost repair/vocational training and a used bike retail shop. The CCC is located at 1700 NE Alberta Street in Portland.

The Create a Commuter project uses Job Access and Reverse Commute (JARC) funds to make bicycles available to low-income individuals for their work trips. The Create a Commuter program gives bicycles to individuals who are referred by partner social services agencies. Bicycles are available at no charge to recipients. In addition to the bicycle, program participants receive safety equipment, including a helmet, lock, air pump, and patch kit. Individuals with children are eligible to receive a trailer, along with related training.

The JARC program provides transit services to assist low-income and unemployed persons in commuting to jobs and training and to develop transit services to transport workers to suburban job sites. Previously a discretionary grant program under SAFETEA-LU, JARC became a formula program that provides 60 percent of funding directly to large urban areas, with 40 percent going to states to split between small cities and rural areas. Examples of JARC projects include late-night and weekend service, Guaranteed Ride Home Programs, vanpools or shuttle services to improve access to employment or training sites, car-share or other projects to improve access to autos, access to child care and training

4.2.5 Findings from the Portland-Vancouver I-5 Transportation and Trade Partnership

The Portland-Vancouver I-5 Transportation and Trade Partnership studied EJ issues along the I-5 corridor and conducted outreach to involve EJ populations. The following statements are key findings from the Portland-Vancouver I-5 Transportation and Trade Partnership Final Strategic Plan:

- R 8.1.4. Highway and transit projects recommended by the I-5 Partnership Task Force are in or near low-income and/or minority populations both in Oregon and Washington.
- R 8.1.5. To begin defining how the draft recommendations for improvements to the I-5 Trade Corridor may impact and benefit low-income and minority residents, a series of meetings—two meetings in each state—were held with community stakeholders.

The Portland-Vancouver I-5 Transportation and Trade Partnership team made the following recommendations in the Final Strategic Plan:

- R 8.1. A community enhancement fund for use in the impacted areas in the I-5 Trade Corridor in Oregon and Washington should be established. Such a fund would be in addition to any impact mitigation costs identified through an EIS and would be modeled conceptually after the "1 percent for Arts" program, the I-405 Mitigation Fund and the St. John's Landfill Mitigation Fund. The Bi-State Coordination Committee may recommend the specific details in conjunction with the Environmental Justice Working Group noted in Section R8.6 below.
- R 8.2. Continued work should be done to complete a list of communities, organizations and agencies to outreach to low-income and minority communities during the EIS process.
- R 8.3. ODOT and WSDOT, in cooperation with the potentially impacted communities, should develop a methodology and criteria to map low-income and minority communities in areas potentially affected by the recommendations from the I-5 Partnership. The methodology and criteria will be applied to 2000 Census data for use in the EIS.
- R 8.4. A list of potential positive and negative community impacts were identified by the stakeholders and should be taken into the EIS process to be used as a beginning point to conduct further analysis on impacts.

- R 8.5. Should there be a finding during the EIS process that there are disproportionate impacts for environmental justice communities, the list of potential community benefits identified by the stakeholders should be a starting point for a community conversation about how to offset impacts and/or bring benefits to the impacted community.
- R 8.6. During the EIS process, special attention needs to be paid to conducting outreach to low-income and minority residents in the API. Community stakeholders generated a list of outreach and involvement ideas. This list should be taken into the EIS process and used as the basis to develop a public outreach and involvement plan that includes outreach to low-income and minority communities.
- R 8.7. A Public Involvement and Environmental Justice Working Groups should be formed at the beginning of the EIS. Work group membership should include representatives from environmental justice communities along the corridor. The Public Involvement working group should address public outreach. The Environmental Justice working group membership should include liaisons to the Public Involvement working group to ensure community concerns are incorporated into the EIS and that adequate emphasis is placed on the potential impacts and benefits to low-income and minority communities.

4.2.6 Conclusions

This report indicates that there are concentrations of EJ populations within the primary and secondary APIs. A large number of Portland block groups with high concentrations of EJ populations existing in the secondary API, the bulk of these block groups fall outside the primary API. Vancouver has lower percentages of EJ populations, though some of these populations may be concentrated areas within the primary API. Potential EJ populations within and near the primary and secondary APIs have been engaged to confirm the findings of this analysis and further identify EJ populations, community resources, and project concerns.

4.3 Portland

The following section provides an overview of EJ populations and specific neighborhood profiles for neighborhoods within or intersected by the primary API in Portland. Exhibit 4-8 shows the percentage of minority population by neighborhood.

4.3.1 Minority Populations

According to the 2000 U.S. Census, the secondary API in Portland has a higher percentage (42 percent) of minority populations than most of Vancouver (15 percent). Particularly high concentrations of minority populations (70 percent or higher) live in 10 block groups in the Boise, King, Humboldt, Piedmont, Eliot, Irvington, and Woodlawn. The minority populations in these block groups are primarily African American, although substantial Hispanic populations are present as well.

4.3.2 Low-Income Populations

The secondary API in Portland also contains slightly higher percentages of low-income residents (17 percent) than the Vancouver side. As a whole, 15 percent of the population within the secondary API is low-income. Eight neighborhoods within the Portland subareas contain block groups with greater than 20 percent of residents living below the federal poverty line. They are the King, Piedmont, Eliot, Humboldt, Overlook, Boise, Arbor Lodge, and Kenton neighborhoods. Exhibit 4-9 maps this information by neighborhood.

4.3.3 Transportation

Transportation used to travel to work can indicate how reliant the population is on transit and how much the population would benefit from improvements to transit.

TriMet provides bus and light rail transit services in the Portland metropolitan region. They operate the MAX and Portland Streetcar light rail service on three lines and bus service throughout the region. Just under one-third (33 percent) of transit riders use the bus or MAX for commuting to work, followed by recreation, shopping and other personal business uses. Fifty percent of TriMet riders use a combination of bus, MAX or Streetcar, 31 percent ride only MAX, 18 percent ride only busses and 1 percent only ride the Portland Streetcar. MAX only riders tend to live in Washington County, have the highest median income ($61, 800) and average 8.2 transit trips per month. Bus only and bus/MAX riders use transit more often at 15.4 and 17.4 trips per month respectively. These riders are more likely to live in Multnomah County and more likely to be transit dependent. (TriMet Attitude and Awareness Survey, 2004)

C-TRAN operates 27 bus routes throughout Vancouver and Clark County, and provides express service to downtown Portland. It also offers C-VAN, a curb-to-curb service for people who cannot access regular route service, and a Bike & Bus program. Half (52 percent) of C-TRAN's ridership is under age 35 and earns less than $30,000 annually. Sixty-five percent of riders are transit dependent and approximately 17 percent of riders are minority. C-TRAN riders use transit for a variety of uses including work (56 percent), shopping/errands (40 percent), going to appointments (39 percent), recreation (36 percent) and going to school (23 percent). (C-TRAN 2003 Rider Satisfaction Survey)

In the project API, transit usage is higher in the Portland subareas than in Vancouver. Seven percent of people in the Portland block groups take public transportation to work. Several block groups (CT 21 BG 2, CT 24.02 Block Groups 2 and 3, and CT 25.02 BG 3) in the Kerns, Sullivan's Gulch, and Irvington neighborhoods have 15 percent or more of the population traveling to work by public transportation. The Esther Short neighborhood in Vancouver also has a high percentage of persons traveling by transit with 34 percent of the population not even owning a car.

4.3.4 Neighborhood Profiles

The following neighborhood profiles include the relevant sections of more comprehensive neighborhood profiles found in the Neighborhood and Population Technical Report.

Hayden Island Profile—Segment A1

Minority demographic data for the Hayden Island neighborhood reveal differences from Multnomah County and Portland (Exhibit 4-11). The Caucasian percentage is higher than both the county and city rates, whereas the percentage of all other races and ethnicities is lower than both the county and the city, with the exception of Native Hawaiian and Other Pacific Islander alone. The percentage of African American, Some Other race Alone, Two or More Races, and Hispanic or Latino populations in the Hayden Island neighborhood is less than one-third the rates of the county or city.

Additional neighborhood demographic data shows further differences among the neighborhood, county, and city (Exhibit 4-12). Hayden Island has lower percentages of median home value, population below the poverty level, large households, and housing units with no vehicle compared to both the county and city. The median home value in Hayden Island is approximately 62 percent of the median home value in the county and approximately 63 percent of the median home value in the city. The percentage of population below the poverty level is slightly more than half the percentage in the county or city. No residents in the neighborhood are members of a large household, compared to 8 percent in both the county and city. Seventy-nine percent of Hayden Island residents live in owner-occupied housing compared to slightly more than half in the county and city. The number of housing units with no vehicle in Hayden Island is less than half the rates of the county and city.

Exhibit 4-11. Hayden Island Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hayden Island	716	94%	1%	0%	4%	0%	1%	1%	2%
Multnomah County	660,486	79%	5%	1%	6%	0%	4%	5%	7%
Portland	529,025	78%	6%	1%	6%	0%	4%	5%	7%

Exhibit 4-12. Hayden Island Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Hayden Island	$96,950	7%	25%	8%	0%	79%	5%
Multnomah County	$156,600	12%	19%	11%	8%	57%	13%
Portland	$154,700	13%	19%	12%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

Jantzen Beach Moorage Demographic Data

Early in the project planning, it was recognized that the 2000 Census was not a sufficient, single source of demographic data. As a result, the project team has also used data from Claritas[1], school lunch programs, affordable housing agencies, etc. As is described in Section 5, there are direct impacts to the floating home community on the south side of the island in the Jantzen beach Moorage. In order to better understand the impacts to the Jantzen Beach Moorage (JBMI), additional demographic data has been collected[2]. Surveys were sent to the residents and are summarized below.

A total of 129 surveys were returned (as of November 8, 2007) from 88 households. According to these surveys, the JBMI community is predominately two-person households, but ranges from one to five people.

Of the respondents who indicated their race (127 out of 129 returned surveys), 92 percent are White, while the remaining 8 percent includes four mixed-ethnicity individuals, one Native American, one Hispanic, one Pacific Islander, one "American," and two respondents who indicted "Other," but did not specify an ethnicity.

Exhibit 4-13 illustrates the range of ages reported by respondents that indicated their age. Of the 120 respondents, 18 percent are 44 years of age or younger, 83 percent are 45 years or older, and 60 percent are 55 years or older.

Exhibit 4-13. Age Data for Jantzen Beach Moorage Residents

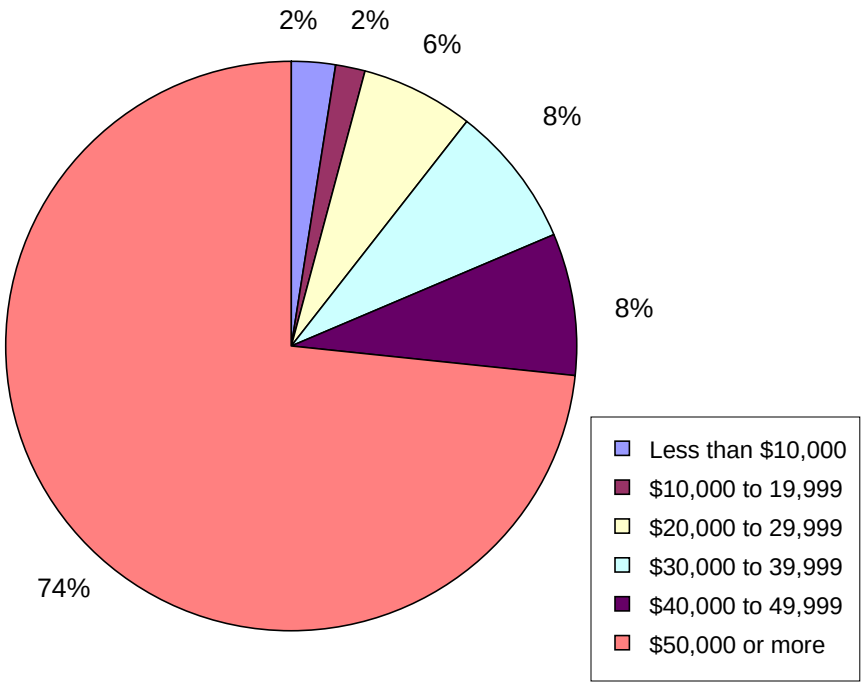
Age	18-24	25-34	35-44	45-54	55-64	65 years or more
Number of Respondents	2	9	10	28	50	21

Of the 129 returned surveys, 124 indicated household income in 2006. As shown in Exhibit 4-14, 74 percent of respondents indicated their annual household income is $50,000 or more, 16 percent indicated it is between $30,000 and $49,999, 10 percent indicated it is below $29,999, and 2 percent indicated that their annual household income is less than $10,000 a year.

[1] Claritas is a private source of up-to-date demographic data and projections

[2] JBMI is the corporation managing the floating home community on the south side of Hayden Island.

Exhibit 4-14. Household Income



All of the 129 respondents indicated the modes of travel they typically use to travel to work. While a majority specified a single mode of travel, up to four modes of travel were reported on a single survey. Of 129 responses, 98 indicated they travel by car, truck, or van, 17 indicated "Not applicable," likely showing that the responder does not work, and nine respondents indicated that they "work from home." Bicycling, walking, taking the bus, riding a motorcycle, using light-rail, taking the streetcar or trolley, or taking a taxi were also indicated as modes used to travel to work, but with less frequency (between one and six respondents indicated each mode).

Of the 141 responses, 117 respondents indicated the modes of travel they usually employ to leave Hayden Island. While the majority specified a single mode of travel, up to four modes of travel were reported on a single survey. One hundred twelve responses indicated they use a car, truck, or van, eight indicated they use a boat, and six use the bus. Walking, bicycling, taxi, and motorcycle were also indicated as modes of travel but with less frequency (between three to five respondents).

Bridgeton Profile—Segment A1

Minority demographics for the Bridgeton neighborhood reveal differences among the neighborhood, Multnomah County, and Portland (Exhibit 4-15). Note that as the Census reports, only 38 people living in Bridgeton; therefore, these percentages could change dramatically with changes to even one household. The percentage of Caucasian and Hispanic or Latino individuals is lower than in the county and city, while the percentage of African Americans is higher in comparison. The percentage of African Americans is

double that in Multnomah County and almost double the percentage in Portland. The percentage of Hispanic or Latinos is Multnomah County and Portland is seven times higher than in Bridgeton. Demographic data show that there are no residents reporting as Some Other Race Alone or Two or More Races.

Additional demographic data for Bridgeton illustrate differences among the neighborhood, county, and city (Exhibit 4-16). The number of those 65 years of age or older is one-third of the city rate and slightly more than one-third of the county rate. Additionally, 71 percent of Bridgeton residents live in owner-occupied housing, a higher rate than in the county or city. The percentage of housing units with no vehicles in Bridgeton is less than one-fourth of the county and city percentages.

Exhibit 4-15. Bridgeton Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Bridgeton	39	76%	11%	1%	7%	0%	0%	0%	1%
Multnomah County	660,486	79%	5%	1%	6%	0%	4%	5%	7%
Portland	529,025	78%	6%	1%	6%	0%	4%	5%	7%

Exhibit 4-16. Bridgeton Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Bridgeton	$134,500	9%	23%	4%	7%	71%	3%
Multnomah County	$156,600	12%	19%	11%	8%	57%	13%
Portland	$154,700	13%	19%	12%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

Kenton Profile—Segment A1

Minority demographics for Kenton reveal differences among the neighborhood, Multnomah County, and Portland (Exhibit 4-17). The percentage of Caucasians is lower than in the county or city, while the percentage of African Americans is more than double and the percentage of Two or More Races is double the percentages in the county and city. Additional demographic data show more similarities among the neighborhood, county, and city than in the race and ethnicity demographics (Exhibit 4-18). One exception is the percentage of Kenton residents 65 years of age or older, which is half the city percentage and slightly more than half the percentage of the county.

Exhibit 4-17. Kenton Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Kenton	7,086	64%	13%	2%	6%	0%	6%	10%	9%
Multnomah County	660,486	79%	5%	1%	6%	0%	4%	5%	7%
Portland	529,025	78%	6%	1%	6%	0%	4%	5%	7%

Exhibit 4-18. Kenton Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Kenton	$119,456	14%	26%	6%	11%	66%	14%
Multnomah County	$156,600	12%	19%	11%	8%	57%	13%
Portland	$154,700	13%	19%	12%	8%	56%	14%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

4.4 Vancouver and Clark County

4.4.1 Minority Populations

Approximately half of the minority populations in the Vancouver API are Hispanic. The highest concentration of minorities, at 41 percent, is located in Census Bureau block group (CT 8.04 BG 1) in the NE Hazel Dell neighborhood of Vancouver, north of the primary API. Thirty percent of this block group is low income. Exhibit 4-8 shows the distribution of census data minority population rates by neighborhood.

4.4.2 Low-Income Populations

Nine neighborhoods within the Vancouver subareas contain block groups with greater than 20 percent of residents living below the federal poverty line: Sherwood, NE Hazel Dell, Rose Village, Harney Heights, Central Park, Hudson's Bay, Esther Short, Hough, and Fruit Valley. Overall, 17 percent of the populations within the Vancouver subareas are low-income and 13 percent are very low-income. Exhibit 4-9 shows the distribution of census data low-income population rates by neighborhood.

4.4.3 Transportation

Transit usage is lower in Vancouver than in the Portland—2 percent of people living in the Vancouver block groups use public transportation to travel to work. The Esther Short neighborhood has 15 percent or more of the population using public transportation to travel to work.

4.4.4 Neighborhood Profiles

The following neighborhood profiles include the relevant sections of more comprehensive neighborhood profiles found in the Neighborhood and Population Technical Report.

West Hazel Dell Profile—Segment B

Minority demographic data for the West Hazel Dell neighborhood reveals that the neighborhood has similar characteristics as Clark County and Vancouver (Exhibit 4-19). When comparing West Hazel Dell to Clark County, the race and ethnicity percentages are within 1 percent for all attributes. The percentages for West Hazel Dell and City of Vancouver are all within 2 percent, with the exception of Caucasian. West Hazel Dell has a higher percentage of Caucasians as compared to Vancouver.

There is more variation among the West Hazel Dell neighborhood, Clark County, and Vancouver when looking at additional demographic data (Exhibit 4-20). Compared with Vancouver, West Hazel Dell has half the rates of population below the poverty level and housing units with no vehicles. Additionally, West Hazel Dell has almost one-fourth more owner-occupied housing than Vancouver and the median home value is approximately 18 percent higher than the city's median value.

The demographic trends of West Hazel Dell are similar when compared with Clark County. West Hazel Dell has lower percentages of population below the poverty level and housing units with no vehicles than Clark County. The percentage of owner-occupied housing and median home value are also greater in West Hazel Dell than in Clark County.

Exhibit 4-19. West Hazel Dell Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
West Hazel Dell	10,717	90%	2%	1%	2%	0%	2%	3%	4%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Tables 6 and 7

Exhibit 4-20. West Hazel Dell Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
West Hazel Dell	$165,263	6%	19%	7%	10%	75%	4%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Northwest Profile—Segment B

Minority demographic data for the Northwest neighborhood reveal similarities to Clark County and Vancouver (Exhibit 4-21). Race and ethnicity percentages are within 2 points for all attributes. Similarly, the percentages between Northwest and Vancouver are all within 2 percent, with the exception of Caucasian and Asian. The Northwest neighborhood has more Caucasians and fewer Asians than Vancouver as a whole.

When looking at additional demographic data, there is more variation between the Northwest neighborhood, Clark County, and Vancouver (Exhibit 4-22). Northwest has nearly twice the rate of housing units with no vehicle compared to Vancouver, and Clark County. The data also show that almost one-fourth more housing units are owner-occupied in the Northwest neighborhood compared with Vancouver. Additionally, Northwest has half the rate of residents below the poverty level compared to Vancouver. The median home value is higher in Northwest than in the city or county, although only slightly higher than Clark County.

Exhibit 4-21. Northwest Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Northwest	3,367	90%	2%	2%	1%	0%	3%	3%	4%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Tables 6 and 7.

Exhibit 4-22. Northwest Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Northwest	$154,425	7%	17%	10%	9%	79%	3%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

West Minnehaha Profile—Segment B

The minority demographics in the West Minnehaha neighborhood are similar to Clark County and Vancouver (Exhibit 4-23). The ethnicity population percentages for each attribute are within 1 percent, with the exception of Caucasians, Asians, and Two or more races. The percentage of Caucasians in West Minnehaha is slightly higher than in Vancouver and slightly less than Clark County. The percentage of Asians in West Minnehaha is half that of Vancouver. The percentage of Two or More Races residents in West Minnehaha is almost double the Clark County percentage.

Additional demographic data for the West Minnehaha neighborhood (Exhibit 4-24) reveal that the neighborhood falls between Clark County and Vancouver for median home value and the percentage of population below the poverty level. The median home value in West Minnehaha is approximately $10,000 more than in Vancouver, and is approximately $2,200 less than in Clark County. The percentage of owner-occupied housing in West Minnehaha is higher than in either Clark County or Vancouver, although only slightly higher than the county's rate. The percentage of population reporting a disability is higher in West Minnehaha compared with Clark County and Vancouver.

Exhibit 4-23. West Minnehaha Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
West Minnehaha	3,091	86%	3%	2%	2%	0%	2%	5%	6%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Source: U.S. Census Bureau, 2000. Summary Tape File 3, Tables 6 and 7.

Exhibit 4-24. West Minnehaha Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
West Minnehaha	$150,867	11%	26%	6%	9%	70%	6%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Lincoln Profile—Segment B

Minority demographics in the Lincoln neighborhood resemble those in Clark County. There are more differences between Lincoln and Vancouver (Exhibit 4-25). There is a slightly higher percentage of Caucasians and a lower percentage of Asian and Hispanic or Latino population in the Lincoln neighborhood compared to the county. In comparison to Vancouver, Lincoln has a higher percentage of Caucasians and lower rate of Asians, Native Hawaiian and Other Pacific Islander alone, Some Other Race Alone, and Hispanic or Latino populations.

The Lincoln neighborhood has a lower median home value, percentage of residents with a disability, and percentage of large families when compared with Clark County and Vancouver (Exhibit 4-26). Population below the poverty level and that living in owner-occupied housing falls between the rates in Clark County and Vancouver. Residents in Lincoln have fewer vehicles per housing unit in comparison to the county and city.

Exhibit 4-25. Lincoln Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Lincoln	3,440	90%	2%	1%	1%	0%	1%	4%	3%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-26. Lincoln Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Lincoln	$136,000	10%	15%	9%	7%	61%	11%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Shumway Profile—Segment B

Minority data for the Shumway neighborhood reveal that the neighborhood has similar demographics as Clark County, with the exception of percentage of Asian and Two or Mores Races populations (Exhibit 4-27). From rounding, Shumway shows 0 percent Asian population while Vancouver has 4 percent and Clark County has 3 percent. The remaining race and ethnicity rates are within 1 percentage point of the neighborhood and county rates.

When comparing Shumway with Vancouver, the neighborhood has a higher percentage of Caucasians and Two or More Races than the city. There are no Asian or Native Hawaiian and other Pacific Islander Alone residents in the Shumway neighborhood. Shumway and Vancouver have the same percentages of African American, American Indian and Alaska Native Alone, and Hispanic or Latino populations.

Additional demographic data (Exhibit 4-28) show that almost 20 percent of housing units in Shumway do not have cars and slightly fewer than half of the housing units are owner-occupied. The rate of housing units with no vehicle in Shumway is three times higher than Clark County's rate and more than twice as high as Vancouver's. The percentage of owner-occupied housing in Shumway is lower than those of both Clark County and Vancouver, although only slightly lower than in the city. The percentage of population below the poverty level is higher and the median home value is lower when compared to both Clark County and Vancouver.

Exhibit 4-27. Shumway Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Shumway	1,127	90%	2%	1%	0%	0%	2%	6%	6%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-28. Shumway Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Shumway	$126,000	14%	18%	10%	5%	46%	18%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Rose Village Profile—Segment B

Minority demographic data for the Rose Village neighborhood shows that the neighborhood has a lower percentage of Caucasians than either Clark County or Vancouver (Exhibit 4-29). In comparison, Rose Village has a higher percentage of American Indian and Alaska Native Alone, Some Other Race Alone, and Hispanic or Latino than the county or city. Rose Village residents reported three times the percentage of Some Other Race Alone than Vancouver.

Additional demographic data for the Rose Village neighborhood reveal several differences among Rose Village, Clark County, and Vancouver (Exhibit 4-30). Overall, the neighborhood has a higher percentage of population below the poverty level and lower percentage of owner-occupied housing and lower median home value. The percentage of population below the poverty level in Rose Village is almost double the percentage in the city, and more than double than the county percentage. Fewer than 50 percent of the housing units in Rose Village are owner-occupied, compared to slightly more than 50 percent in the city and almost 75 percent in the county. The median home value is approximately 40 percent lower than median home values in Clark County and approximately 33 percent lower than in Vancouver. Slightly over one-fourth of Rose Village residents report a disability, and slightly more than 10 percent of the housing units do not have a vehicle. In both cases, the rates in Rose Village are higher than rates in the county and the city.

Exhibit 4-29. Rose Village Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Rose Village	5,269	79%	3%	2%	2%	0%	9%	4%	14%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-30. Rose Village Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Rose Village	$95,425	23%	27%	6%	10%	42%	13%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Carter Park Profile—Segment B

The percentage of Caucasians in the Carter Park neighborhood is between that of Clark County and Vancouver (Exhibit 4-31). The percentage of Asian population in Carter Park is half that of Vancouver. The percentage of Two or More Races in Carter Park is slightly higher than in the county or city.

Additional demographic data further shows that demographics in Carter Park reflect city demographics, with the exception of age (Exhibit 4-32). The percentage of Carter Park residents 65 years of age or older is almost half that of Vancouver. Compared with both the county and city, Carter Park has a lower percentage of residents with a disability, a younger population, fewer large families, and more housing units without vehicles.

Exhibit 4-31. Carter Park Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Carter Park	1,722	87%	2%	1%	2%	0%	3%	5%	6%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-32. Carter Park Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Carter Park	$143,400	10%	16%	6%	7%	52%	10%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Hough Profile—Segment B

Minority demographics in the Hough neighborhood resemble those in Clark County and Vancouver (Exhibit 4-33). The rate of Asian population in Carter Park is one fourth of the city percentage. The percentage of Two or More Races in Carter Park is more than double that of the county, and almost double the city percentage.

Additional demographic data for the Hough neighborhood show several differences among Hough, the county, and city (Exhibit 4-34). Hough has a lower median home value, a higher percentage of population below poverty level, more residents with a disability, less owner-occupied housing, and fewer housing units with a vehicle. The median home value in Hough is approximately 22 percent lower than in Clark County and approximately 11 percent lower than in Vancouver. The percentage of population in Hough below the poverty level is more than twice that of Clark County, and almost twice that of the city. The percentage of population in Hough with a disability is approximately one-third more than either the county or city. The rate of owner-occupied housing is almost half that of Clark County and approximately one-third less than in Vancouver. One-fourth of the housing units in Hough do not have vehicles.

Exhibit 4-33. Hough Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hough	2,285	86%	2%	1%	1%	0%	3%	7%	7%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-34. Hough Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Hough	$125,400	20%	30%	8%	9%	36%	25%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Arnada Profile—Segment B

Minority demographics in the Arnada neighborhood reveal that the neighborhood has a higher percentage of Caucasians than either Clark County or Vancouver (Exhibit 4-35). Correspondingly, the percentages of all other races and ethnicities in the data set are lower than those of the county and city, with the exception of American Indian and

Alaska Native Alone, which is the same in all three jurisdictions. The percentages of African Americans, Asians, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, Two or More Races, and Hispanic or Latino in the Arnada neighborhood are all half or less those of the county and city.

Additional demographic data for Arnada show that the neighborhood has a slightly higher percentage of population below the poverty level, slightly more residents with a disability, and fewer housing units without vehicles than either Clark County or Vancouver (Exhibit 4-36). Larger demographic differences among the neighborhood and the county and city are found in the age and family size attributes. Arnada has almost half the rate of residents 65 years of age or older compared with the county and city. Similarly, there is less than half the rate of large families in Arnada compared with the city, and nearly one-third the rate of large families in Arnada compared with the county.

Exhibit 4-35. Arnada Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Arnada Neighborhood	984	98%	0%	1%	0%	0%	0%	1%	2%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-36. Arnada Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Arnada	$127,000	15%	20%	6%	4%	53%	11%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44. Clark County Tax Assessor's Property Information Center, last accessed July, 2007.

[a] Large family means five or more people per household.

Central Park Profile—Segment B

Minority in the Central Park neighborhood are similar to the demographics in Vancouver (Exhibit 4-37). Although both the neighborhood and the city have the same percentage of Caucasian population, the percentages of other races and ethnicities vary slightly. The percentage of African American population in Central Park is half that of the city, while the percentage of Native Hawaiian and Other Pacific Islander Alone population is double that of the city. The percentage of Hispanic or Latino population in Central Park is one-third higher than in the city. Compared with Clark County, the neighborhood has a lower percentage of African Americans, but a more than double the percentage of Native

Hawaiian and Other Pacific Islander Alone, and Some Other Race Alone. The percentage of Hispanic or Latino population in the Central Park neighborhood is almost double the percentage in the county.

Additional demographic data for the Central Park neighborhood reveal several differences among the neighborhood and the county and city (Exhibit 4-38). One-fourth of the Central Park population is below poverty level, which is more than double the percentage in the county or city. The percentage of population 65 years of age or older in Central Park is half the percentage in Clark County and slightly more than half that in Vancouver. Approximately one-fourth of Central Park residents live in owner-occupied housing, compared to approximately half of Vancouver residents and two-thirds of Clark County residents. Finally, one-fourth of housing units in Central Park do not have vehicles.

Exhibit 4-37. Central Park Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Central Park	2,091	84%	1%	1%	3%	2%	4%	4%	9%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-38. Central Park Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Central Park	$107,600	25%	27%	5%	7%	26%	25%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

Esther Short Profile—Segment A2

Minority demographics in Esther Short are similar to those of Clark County (Exhibit 4-39). Although both the neighborhood and the county have the same percentage of Caucasian population, the percentages of other races and ethnicities vary slightly. Compared with Vancouver, the neighborhood has a higher percentage of Caucasian and a lower percentage of American Indian and Alaska Native Alone, Asian, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, and Two or More Races.

Additional demographic data for Esther Short show that the neighborhood demographics differ from the county and city (Exhibit 4-40). The median home value in Esther Short is

approximately 61 percent of the median home value in Clark County and 67 percent the value in Vancouver. The percentage of the population below poverty level in the Esther Short neighborhood is almost four times as high as in Clark County and almost three times as high as in Vancouver. Almost half of Esther Short residents reported a disability, which is more than double the percentage reported for the county or city.

The percentage of large families in the neighborhood is one-third of the percentage in the city and almost one-fourth that of the county. The percentage of owner-occupied housing is more than four times lower than the percentage in Clark County and more than three times lower than percentage in Vancouver. Finally, 34 percent of housing units in Esther Short do not have vehicles. This rate is almost six times higher than in Clark County and slightly more that four times higher than in Vancouver.

Exhibit 4-39. Esther Short Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Esther Short	2,074	89%	2%	0%	3%	0%	2%	3%	6%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-40. Esther Short Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Esther Short	$93,750	35%	45%	8%	3%	15%	34%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

Hudson's Bay—Segment A2

Minority demographics for Hudson's Bay show that the neighborhood has a lower Caucasian population than Clark County or Vancouver (Exhibit 4-41). Correspondingly, some of the percentages for the other races and ethnicities are higher. The percentage of African American population is more than three times higher in the Hudson's Bay neighborhood compared to the county and the city. Additionally, the percentage of the Some Other Race Alone is more than double the Clark County percentage and almost double the Vancouver percentage. The Hispanic or Latino population in Hudson's Bay is double the county percentage and almost double the city percentage.

Further demographic data show additional differences when comparing Hudson's Bay to Clark County and Vancouver (Exhibit 4-42). The primary differences are the poverty level, large family rate, amount of owner-occupied housing, and number of housing units with no vehicle. The percentage of population below the poverty level in Hudson's Bay is more than twice that of the county. The percentage of large families in Hudson's Bay is almost four times lower than the percentage in the county and is three times lower than the city. The percentage of owner-occupied housing in the neighborhood is less than half that of the county and city. The rate of housing units with no vehicles in Hudson's Bay is twice that of Clark County.

Exhibit 4-41. Hudson's Bay Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Hudson's Bay	1,386	83%	7%	0%	1%	1%	5%	1%	10%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-42. Hudson's Bay Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Hudson's Bay	$132,350	19%	28%	8%	3%	24%	12%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

Columbia Way Profile—Segment A2

Minority demographic data for the Columbia Way neighborhood generally show similarities to the county and city, with the exception of Native Hawaiian and Other Pacific Islander alone and Hispanic or Latino (Exhibit 4-43). The percentage of Native Hawaiian and Other Pacific Islander alone is four times higher than the city rate (none are reported for Clark County). Hispanic or Latino population percentage is less than half that of the county and one-third that of the city.

Additional demographic data for Columbia Way generally show similar demographics as the county and city, with the exception of the percentage of population 65 years or older and the percentage of large families (Exhibit 4-44). The percentage of Columbia Way residents who are 65 years of age or older is more than twice as high as the county

percentage and almost twice as high as the city percentage. The percentage of large families in the Columbia Way neighborhood is less than half the percentage in the county and slightly more than half of the city percentage.

Exhibit 4-43. Columbia Way Minorities

Area	Total Population	Caucasian	African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino
Columbia Way	680	86%	3%	0%	3%	5%	0%	3%	2%
Clark County	345,238	89%	2%	1%	3%	0%	2%	3%	5%
Vancouver	143,226	84%	2%	1%	4%	1%	3%	4%	6%

Exhibit 4-44. Columbia Way Demographics and Characteristics

Area	Median Home Value	% of Population Below Poverty Level	% on Disability	% 65 Years of Age or Older	% of Large Families[a]	% Owner-Occupied Housing	% of Housing Units with No Vehicle
Columbia Way	$137,000	14%	22%	21%	5%	47%	10%
Clark County	$153,100	9%	18%	10%	11%	67%	6%
Vancouver	$140,800	12%	19%	11%	9%	53%	8%

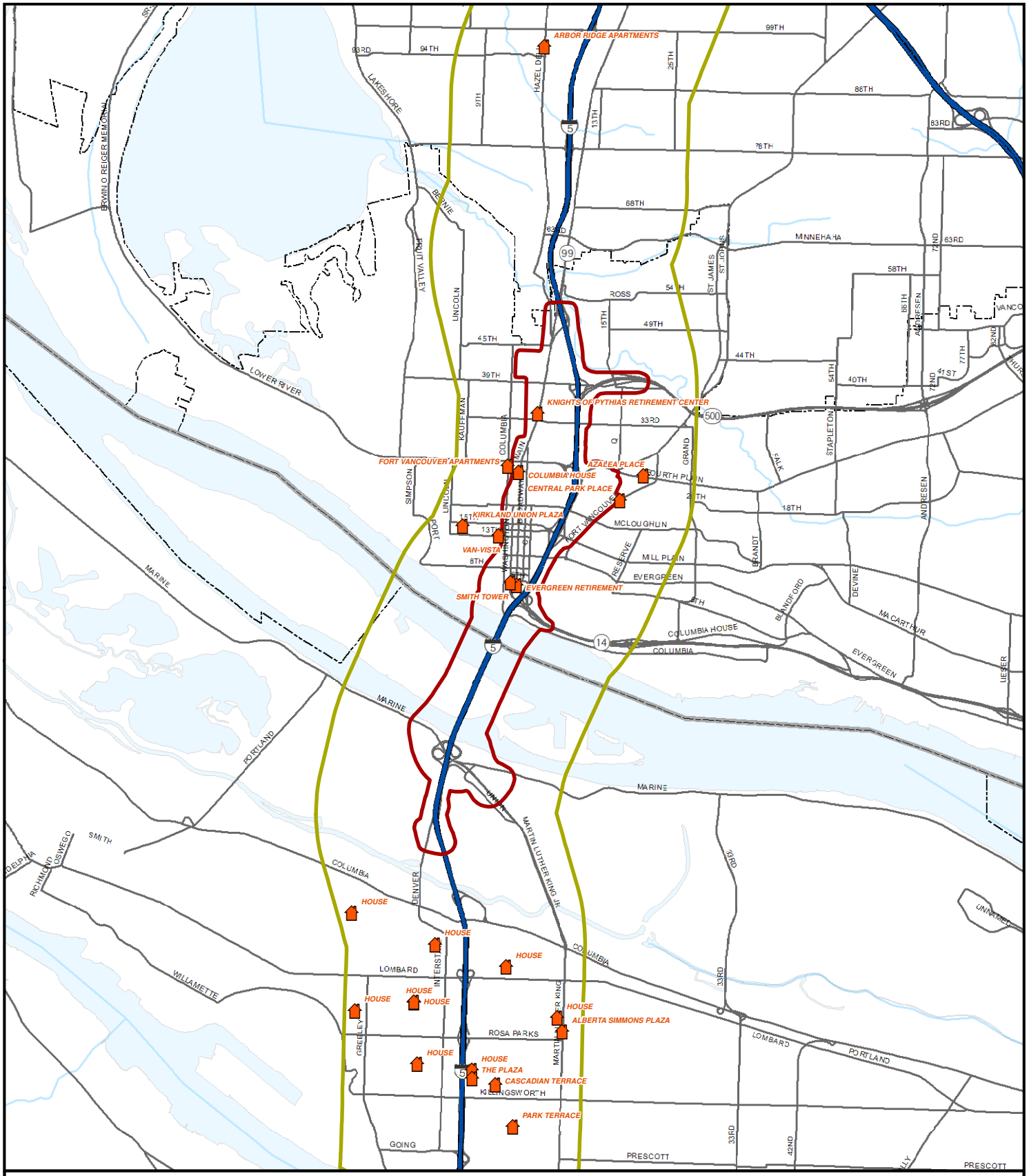
Sources: U.S. Census Bureau, 2000. Summary Tape File 3, Tables H85, P56, P88, P42, P8, H16, H7, and H44.

[a] Large family means five or more people per household.

4.5 Low-Income Housing

There are a number of subsidized housing units, public housing projects, and other low-income housing sites in the primary API. Exhibit 4-45 shows the locations of low-income housing in the primary and secondary APIs. This section lists these sites, and provides brief descriptions. Potential impacts to these sites are addressed in the Segment-level impacts (Section 5.3) section of this report.

No low-income housing sites are located within the Oregon portion of the API. However, there are a number of sites in Vancouver that are within the primary API, or near to it. These housing sites rely upon a number of different funding sources and programs, including housing vouchers, tax credits, and more.



Analysis by J. Koloszar; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: HUD_MT066.mxd

Housing Choices Vouchers, formerly referred to as Section 8 Vouchers, allow a household to rent a unit from a private landlord for 30 percent of their income. The Vancouver Housing Authority (VHA) pays the remainder of the rent to the landlord. These vouchers are only available to the elderly, disabled, or families with children.

Low-Income Housing Tax Credits are administered by the Washington State Housing Finance Commission and are allocated to developers creating affordable housing. By contract agreement, the developer provides housing that is affordable to households with incomes at or below 60 percent of the area's median income[3]. The contract stipulates that these affordability requirements stay in place for a minimum of 15 years.

4.5.1 Sites

Central Park Place

Central Park Place is Single Room Occupancy (SRO) building owned by the VHA. It is located on the southeast corner of the Department of Veterans Affairs (VA) Vancouver campus on Fort Vancouver Way, on the edge of the primary API. The VA campus is directly east of I-5, though Central Park Place on the opposite side of the campus.

Central Park Place is owned by the VHA and is a Single Room Occupancy (SRO) building on the VA Vancouver campus. The building provides 124 units for homeless veterans and non-veterans alike. Half of the residents are veterans, and half are referred by local nonprofit agencies. Central Park Place offers 88 SRO units, 35 studio apartments and a two-bedroom manager's unit. Eight of the units are fully accessible for people with disabilities. The 35 studios provide permanent housing for elders and people with chronic mental illnesses.

Evergreen Retirement Inn

The Evergreen Retirement Inn is within the primary API on the corner of Fifth and Main Streets in Vancouver's Esther Short neighborhood, one block from the proposed transit alignments through South Downtown Vancouver. This property receives low-income housing tax credits in exchange for providing affordable housing to the area's elderly population. There are 78 units at Evergreen, 70 of which are low-income units.

Van-Vista

Van-Vista is located on the western edge of the primary API the corner of on 13th and Daniels Street in the Esther Short neighborhood, two to three blocks from the proposed transit alignments on Washington or Broadway. This low-income rental property was developed by the VHA and receives tax credits in return for providing affordable housing. There are 98 one-bedroom units and 2 two-bedroom units at Van-Vista. Forty of these units are reserved for seniors, while the remaining 60 provide assisted living services.

[3] Affordable is defined as approximately one-third of the residents' income.

The Lewis and Clark Plaza

The Lewis and Clark Plaza is located within the primary API on 7th and Broadway in the Esther Short neighborhood, directly on or two blocks from the proposed transit alignments through south downtown Vancouver, at 621 Broadway. Completed in 2004, it is a four-story, 46-unit affordable senior housing project.

The Esther Short Commons

The Esther Short Commons is located within the primary API on Eighth and Esther, two-blocks away from the proposed transit alignments through south downtown Vancouver, and includes 139 work force apartments. The Workforce Housing initiative is the fastest growing segment of the VHA's portfolio of housing. Although income requirements vary, Workforce Housing offers rents that are affordable to families earning 60 to 80 percent of area median income.

Knights of Pythias Retirement Center

The Knights of Pythias Retirement Center is located in the primary API on 33rd and Main Street in the Shumway neighborhood, and is directly on the proposed Vancouver transit alignment. This site accepts Housing Choice vouchers and serves the area’s elderly population.

Smith Tower

Smith Tower is located within the Primary API on Sixth and Washington Street in the Esther Short neighborhood, and is directly on the proposed Vancouver transit alignment. This property is run by Manor Management services and accepts Housing Choice vouchers. Smith Tower is an elderly care facility that provides one-bedroom units.

Columbia House

Columbia House is located is located on the western edge of the primary API between 24th and Columbia in the Hough neighborhood, and is one to two blocks east of the proposed Vancouver transit alignment. This property is run by VHA and accepts Housing Choice vouchers. Columbia House offers 151 one- and two-bedroom units to the elderly.

Fort Vancouver Apartments

The Fort Vancouver Apartments are on the western edge of the primary API on 25th and Columbia Street in the Hough neighborhood, and is one to two blocks east of the proposed Vancouver transit alignment. This property is run by VHA and accepts Housing Choice vouchers. The Fort Vancouver Apartments provide 19 one-bedroom units for those with mental illness.

4.6 Subsidized and Free Lunch Programs in Schools

To supplement the 2000 Census data, the project team has analyzed additional data sets. Among these are the subsidized and free school lunch programs in Portland and Vancouver. The following section compares schools in the area, and the percentages of children who qualify for reduced price and free lunches. Identifying the number of students qualifying for these programs increases the understanding of low-income populations in the study area.

Portland Schools

During the 2004-2005 school year 40.0 percent of students in the Portland School District were on free lunch programs. As shown in Exhibit 4-46, the Portland School District average is above the Oregon average of 35.7 percent and slightly lower than the Multnomah County average of 41.9 percent. Over the same period, 7.9 percent of students in the Portland School District were on reduced lunch programs, which is lower than both the Multnomah County (8.9 percent) and the Oregon averages (9.3 percent).

Several Portland schools whose districts intersect or fall within the primary API have a higher percentage of students on free and reduced lunch programs than that of the Portland School District as a whole (Exhibit 4-47). Exhibit 4-48 shows the locations of the schools in the project area.

Exhibit 4-46. Portland School District

Boundary	% Students on Free Lunch	% Students on Reduced Lunch
Portland School District	40.0	7.9
Multnomah County	41.9	8.9
Oregon	35.7	9.3

Source: http://www.nces.ed.gov/ccd/schoolsearch/
(School lunch data is from the 2004-2005 school year)

Exhibit 4-47. Portland School Lunch Programs

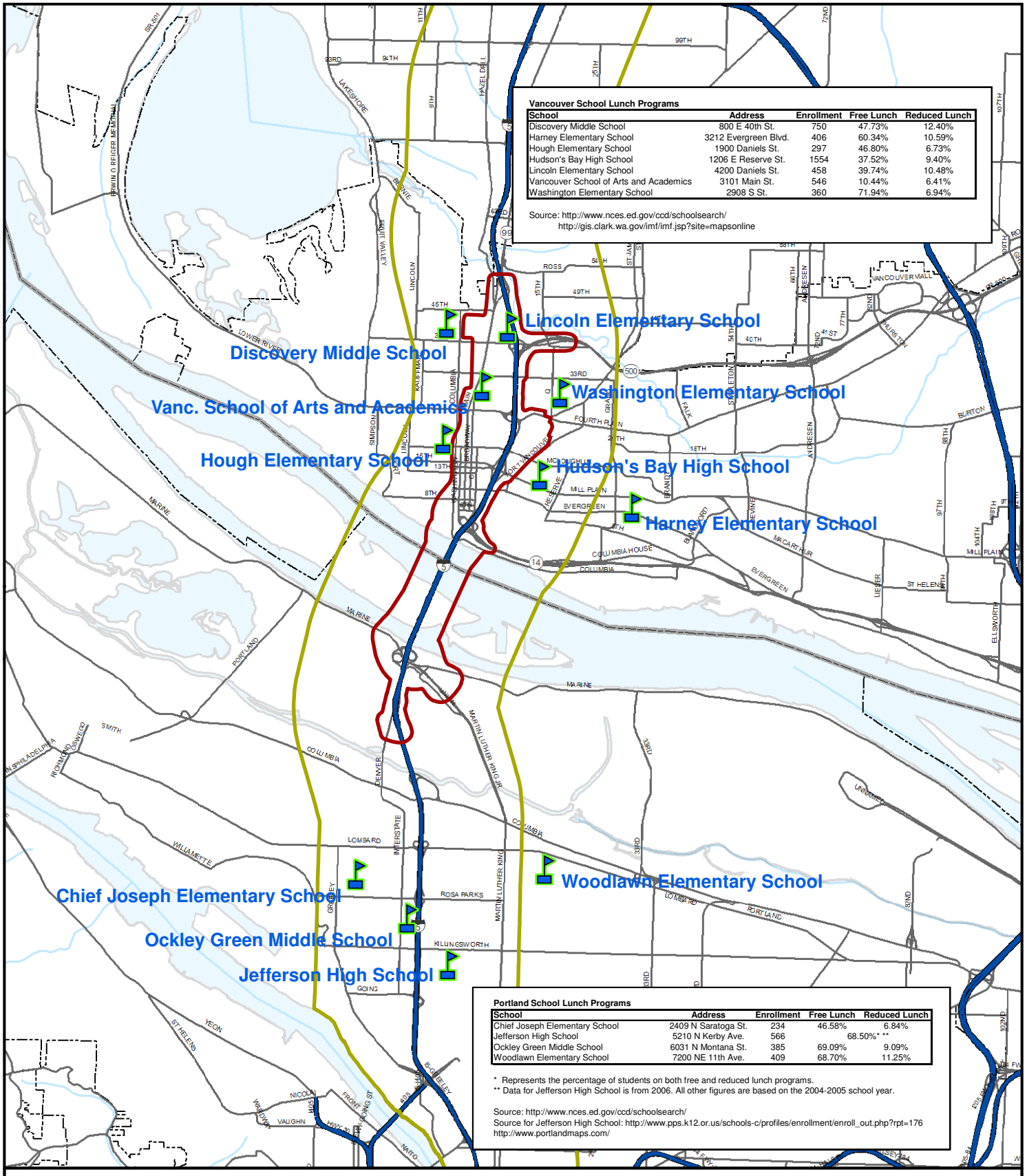
Percentage of Students on Free and Reduced Lunch Programs for Portland Schools Within the Primary API

School	Address	Property ID	Enrollment	Free Lunch	Reduced Lunch
Chief Joseph Elementary School	2409 N Saratoga St.	R146170	234	46.6	6.8
Jefferson High School	5210 N Kerby Ave.	R298127	566	68.5[a, b]	
Ockley Green Middle School	6031 N Montana St.	R315542	385	69.1	9.1
Woodlawn Elementary School	7200 NE 11th Ave.	R266355	409	68.7	11.3

[a] Represents the percentage of students on both free and reduced lunch programs.

[b] Data for Jefferson High School is from 2006. All others are based on the 2004-2005 school year.

Source: http://www.nces.ed.gov/ccd/schoolsearch/
Source for Jefferson High School: http://www.pps.k12.or.us/schools-c/profiles/enrollment/enroll_out.php?rpt=176
http://www.portlandmaps.com/



Vancouver School Lunch Programs

School	Address	Enrollment	Free Lunch	Reduced Lunch
Discovery Middle School	800 E 40th St.	750	47.73%	12.40%
Harney Elementary School	3212 Evergreen Blvd.	406	60.34%	10.59%
Hough Elementary School	1900 Daniels St.	297	46.80%	6.73%
Hudson's Bay High School	1206 E Reserve St.	1554	37.52%	9.40%
Lincoln Elementary School	4200 Daniels St.	458	39.74%	10.48%
Vancouver School of Arts and Academics	3101 Main St.	546	10.44%	6.41%
Washington Elementary School	2908 S St.	360	71.94%	6.94%

Source: http://www.nces.ed.gov/ccd/schoolsearch/
http://gis.clark.wa.gov/imf/imf.jsp?site=mapsonline

Portland School Lunch Programs

School	Address	Enrollment	Free Lunch	Reduced Lunch
Chief Joseph Elementary School	2409 N Saratoga St.	234	46.58%	6.84%
Jefferson High School	5210 N Kerby Ave.	566	68.50%* **	
Ockley Green Middle School	6031 N Montana St.	385	69.09%	9.09%
Woodlawn Elementary School	7200 NE 11th Ave.	409	68.70%	11.25%

* Represents the percentage of students on both free and reduced lunch programs.
** Data for Jefferson High School is from 2006. All other figures are based on the 2004-2005 school year.

Source: http://www.nces.ed.gov/ccd/schoolsearch/
Source for Jefferson High School: http://www.pps.k12.or.us/schools-c/profiles/enrollment/enroll_out.php?rpt=176
http://www.portlandmaps.com/

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Primary API

Secondary API

Exhibit 4-48: School Lunch Programs

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Aug-2007; Plot Date: Aug-2007; File Name: Schools_MT067.mxd

Woodlawn Elementary School, located east of I-5 and just south of Lombard Street, had 68.7 percent of students on a free lunch program, while 11.3 percent were on reduced lunch programs. Ockley Green Middle School, located just north of Ainsworth Street, between Interstate Avenue and I-5, had 69.1 percent of students on a free lunch program. This was 29 percent higher than the Portland School District average of 40.0 percent. Jefferson High School, located east of I-5 between Alberta and Killingsworth Streets, had 68.5 percent of its students on free and reduced lunch programs. Note that there were no available data for Jefferson High School that differentiated between the number of students on free lunch programs and those on reduced lunch programs.

4.6.1 Vancouver Schools

During the 2004-2005 school year, 32.8 percent of students within the Vancouver School District were on free lunch programs. As shown in Exhibit 4-49, this percentage is higher than both the Clark County average (23.3 percent) and the Washington State average (27.2 percent). Over the same period, 7.8 percent of students within the Vancouver School District were on reduced lunch programs, which is slightly lower than the Clark County average of 8.0 percent and the Washington State average of 8.1 percent.

Several Vancouver schools whose boundaries intersect or fall within the primary API had a considerably higher percentage of students on free and reduced lunch programs (Exhibit 4-50). Washington Elementary School, located east of I-5 between Fourth Plain Boulevard and SR 500, had 71.9 percent of students on a free lunch program during the 2004-2005 school year. This is 39 percentage points higher than the Vancouver School District average of 32.8 percent. Hough Elementary, located west of I-5 between McLoughlin and Fourth Plain Boulevards, had 46.8 percent of students on free lunch programs. Harney Elementary School is located east of I-5 between SR-14 and Mill Plain Boulevard. 60.3 percent of Harney Elementary students were on a free lunch program, while 10.6 percent of students were on a reduced lunch program. Discovery Middle School, located on 40th Street, just west of I-5, had 47.7 percent of students on a free lunch program and 12.4 percent of students on a reduced lunch program.

Exhibit 4-49. Vancouver School District

Boundary	% Students on Free Lunch	% Students on Reduced Lunch
Vancouver School District	32.8	7.8
Clark County	23.3	8.0
Washington	27.1	8.1

Source: http://www.nces.ed.gov/ccd/schoolsearch/
(School lunch data is from the 2004-2005 school year)

Exhibit 4-50. Vancouver School Lunch Programs

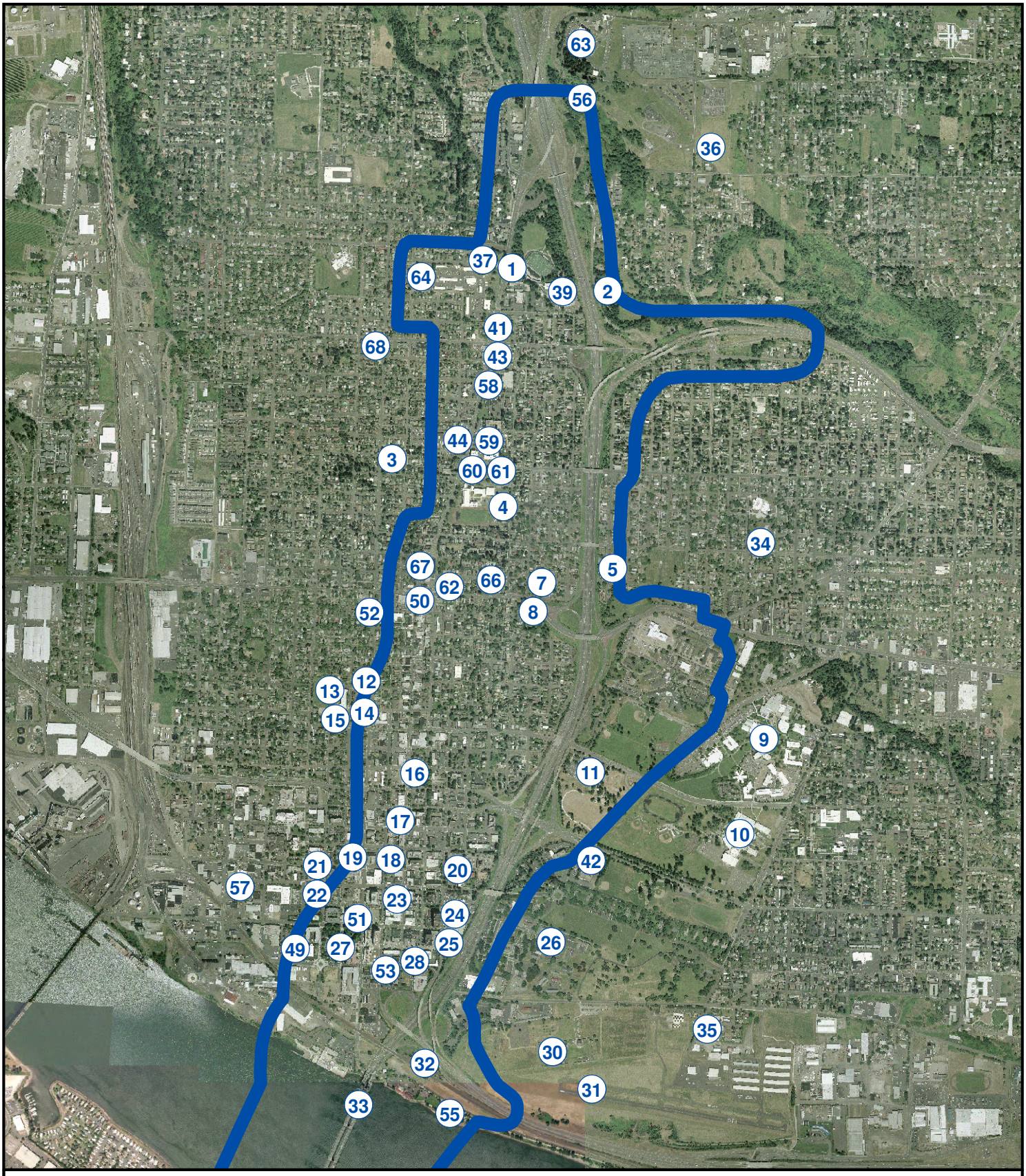
Percentage of Students on Free and Reduced Lunch Programs for Vancouver Schools Within the Primary API

School	Address	Tax Lot ID	Enrollment	Free Lunch	Reduced Lunch
Discovery Middle School	800 E 40th St.	12454005	750	47.7	12.4
Harney Elementary School	3212 Evergreen Blvd.	37560000	406	60.3	10.6
Hough Elementary School	1900 Daniels St.	46700000	297	46.8	6.7
Hudson's Bay High School	1206 E Reserve St.	38279910	1,554	37.5	9.4
Lincoln Elementary School	4200 Daniels St.	6632000	458	39.7	10.5
Vancouver School of Arts and Academics	3101 Main St.	11254000	546	10.4	6.4
Washington Elementary School	2908 S St.	22960000	360	71.9	6.9

Source: http://www.nces.ed.gov/ccd/schoolsearch/
http://gis.clark.wa.gov/imf/imf.jsp?site=mapsonli

4.6.2 Community Resources

The project team collected an inventory of community resources within each neighborhood in the project area. The team met with members of the community who identified the resources that were important to them and located on a map. Maps and legends of community resources for Washington and Oregon are provided on Exhibits 4-51, 4-52, and 4-53. For additional information on methods used to identify community resources and specific resources, see the Neighborhoods Technical Report.



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Primary API

Exhibit 4-51: Neighborhood Resources
Clark County, Washington (1 of 2)

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: 17/18/07; Plot Date: 1/3/08; File Name: NEIREsources_DC146075.mxd

1 **Covington House**
4201 Main Street
historical

2 **Leverich Park**
39th and M Street
park

3 **Carter Park**
33rd Street
park

4 **Shumway Park**
3014 F Street
park

5 **Leach Park**
28th and K Street
park

6 **2613 "H" Street House**
2613 H Street
historical

7 **Swan House**
714 E. 26th Street
historical

8 **Arnada Park**
W. 25th and G Street
park

9 **Clark College**
1800 E. Mcloughlin Bouleva
educational

10 **Hudson's Bay High School**
1206 E. Reserve Street
educational

11 **Marshall and Luepke Centers**
1009 E. McLoughlin Bouleva
community center

12 **Hough Elementary School**
1900 Daniels Street
educational

13 **Steffan House**
2000 Columbia Street
historical

14 **Charles Zimmerman House**
1812 Columbia Street
historical

15 **Hough Aquatic Center**
1801 Esther Street
recreational

16 **Carnegie Library**
1511 Main Street
educational

17 **Hidden, Lowell M. House**
100 W. 11th Street
historical

18 **Vancouver Telephone Exchange**
112 W. 11th Street
historical

19 **Chumasero-Smith House**
310 W. 11th Street
historical

20 **House of Providence (Academy)**
400 E Evergreen
historical

21 **Langsdorf House**
1010 Esther Street
historical

22 **Lloyd DuBois House**
902 Esther Street
historical

23 **Elks Building**
916 Main Street
historical

24 **Future Library**
educational

25 **Regal Cinema**
801 C Street
recreational

26 **National Historic Reserve**
East Reserve Street to I-5
historical

27 **Slocum House/Ester Short Park**
605 Esther Street
historical/park

28 **Heritage Building**
601 Main Street
historical

29 **Evergreen Hotel**
500 Main Street
historical

30 **Fort Vancouver**
612 E. Reserve Street
historical

31 **Pearson Field**
1115 E. 5th Street
historical

32 **Old Apple Tree Park**
East of I-5
historical/park

33 **I-5 Bridges**
historical

34 **Washington Elementary School**
2908 S Street
educational

35 **VA Medical Center**
1601 E. 4th Plain Boulevar
healthcare

36 **Dog Park**
Between 15th and 18th
park

37 **First Presbyterian Church**
4300 Main Street
religious institution

38 **Kiggins Bowl**
800 E. 40th Street
recreational

39 **Discovery Middle School**
801 E. 40th Street
educational

40 **Safeway**
3707 Main Street
shopping

41 **Community Wellness Center**
317 E. 39th Street
healthcare

42 **Fort Vancouver Regional Library**
1007 E. Mill Plain
educational

43 **Home Ownership Center**
3801-A Main Street
public service

44 **SW Washington Medical Center**
3400 Main Street
healthcare

45 **Arts & Academics School of Vancouver**
3101 Main Street
educational

46 **Vancouver Housing Authority**
2500 Main Street
public service

47 **YWCA**
3609 Main Street
community center

48 **Uptown Village**
Main Street
shopping

49 **Farmers Market**
555 W. 8th Street
shopping

50 **Starbucks**
2420 Main Street
community/recreation

51 **Starbucks**
304 W. 8th Street
community/recreation

52 **Columbia House**
33415 NW Lancaster Road
community/recreation

53 **Smith Tower**
515 Washington Street
senior/low income

54 **Pythian Home**
3409 Main Street
senior/low income

55 **Waterfront Park**
115 Columbia Way
senior/low income

56 **Discovery & Ellen Davis Trails**
Highway 99 and I-5
park

57 **Vancouver Fire Department, #82**
900 W. Evergreen Boulevard
public service

58 **Vancouver Fire Department, #86**
400 E. 37th Street
public service

59 **Vancouver Health and Rehabilitation Center**
400 E. 33rd Street
public service

60 **First United Methodist Church of Vancouver**
401 E. 33rd Street
religious institutio

61 **Evergreen Habitat for Humanity**
521 E. 33rd Street
public service

62 **First Church of Christ Scientist**
204 E. 4th Plain Boulevard
religious institution

63 **Bonneville Power, Ross Complex**
5411 NE Highway 99
public services

64 **City of Vancouver Water Tower**
42nd and NW Washington
historical

65 **WSDOT Service Center**
11018 NE 51st Circle
public service

66 **Saint Luke's Episcopal Church**
426 E. 4th Plain Boulevard
religious institution

67 **First Baptist Church**
108 W. 27th Street
religious institution

68 **Trinity Lutheran Church**
309 W. 39th Street
religious institution

Exhibit 4-52: Neighborhood Resources
Clark County, Washington (2 of 2)

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: 17/18/07; Plot Date: 1/3/08; File Name: NEIREsources_DC146075.mxd

1 **Private Community Center**
N. Arbor Avenue and Alder Street
recreational

2 **Former Hayden Is. Yacht Club**
120050 N. Jantzen Drive
community center

3 **Safeway**
11919 N. Jantzen Drive
shopping

4 **Lotus Isle Park**
N. Tomahawk and Island Drive
park

5 **Oregon Slough & Industrial Marinas**

natural resource/housing

6 **Expo Center**
2060 N. Marine Drive
recreational

7 **Vanport Wetlands**

natural resource

8 **Dog Run**

park

9 **Delta Park**
N. Martin Luther King Boulevard and Denver Avenue
park

10 **Portland International Raceway**
1940 N. Victory Boulevard
recreational

11 **Portland Meadows**
1001 N. Schmeer Road
recreational

12 **Columbia Slough**

recreational

13 **Columbia Cemetery**
1151 N. Columbia Boulevard
historical

14 **Paul Bunyan**
N. Denver Avenue and Interstate Avenue
historical

15 **Christmas Lights House (NRHP)**
1441 N. McClellan Street
historical

16 **Kenton Commerical Historic Destrict**
Denver Avenue
historical/shopping

17 **Kenton Community Policing Office**
8134 N. Denver Avenue
public service

18 **Jantzen Beach**

shopping

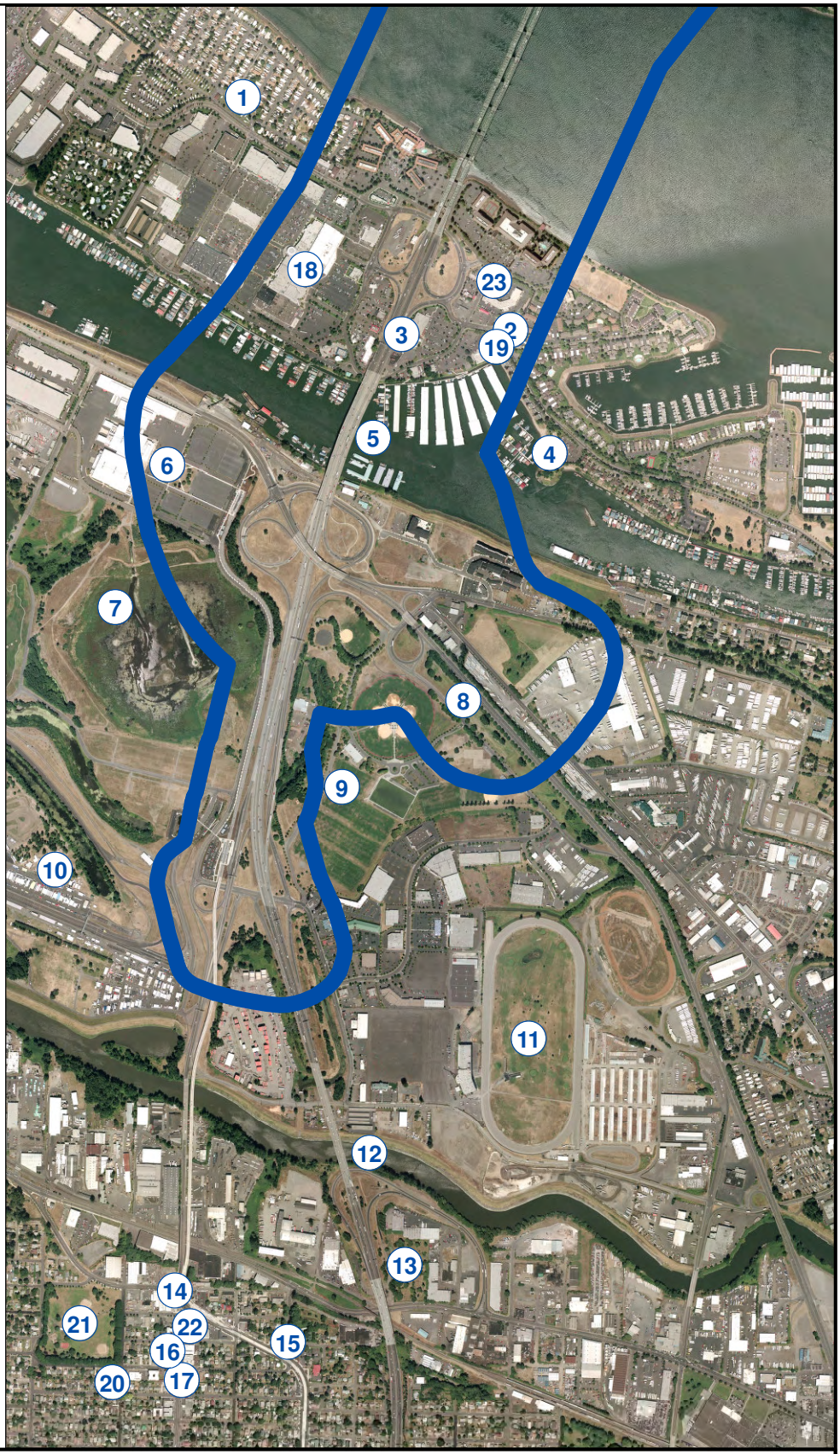
19 **Portland Fire and Rescue, Station #17**
848 North Tomahawk Drive
public service

20 **Historic Kenton Firehouse**
8105 N Brandon Avenue
community center

21 **Kenton Park**
8417 N Brwndon Avenue
park

22 **Wells Fargo Bank**
8324 N Denver Avenue
financial services

23 **Wells Fargo Bank**
12240 N Jantzen Drive
financial services



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Primary API

Exhibit 4-53: Neighborhood Resources
Multnomah County, Oregon

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: 17/18/07; Plot Date: 1/3/08; File Name: NEIREsources_DC146075.mxd

5. Long-Term Effects

5.1 How is this section organized?

This chapter describes the potential long-term impacts from the CRC alternatives and options. It first describes impacts from the four full build alternatives and No-Build Alternative. These are the five comprehensive alternatives that include specific highway, transit, bicycle, pedestrian and other elements. This discussion presents how these alternatives could affect corridor and regional impacts and performance.

The section then focuses on impacts that may occur with various design options at the segment level, for example, comparing the impacts of each alignment option in each segment. Finally, it provides a more comparative and synthesized summary of the impacts associated with the system-level choices. This three part approach provides a comprehensive description and comparison of (1) the combination of system-level and segment level choices expressed as five specific alternatives (2) discrete system-level choices, and (3) discrete segment-level choices.

It addresses both direct and indirect long-term impacts.

5.2 Impacts from Full Build Alternatives and the No-Build Alternative

This section describes the impacts from four full build alternatives and the No-Build Alternative. These most affect overall performance, impacts and costs. Analysis of the four full build alternatives and the No-Build Alternative is most useful for understanding the regional impacts, performance and total costs associated with the CRC project.

5.2.1 No-Build Alternative (Alternative 1)

The No-Build Alternative would avoid all direct displacement of residents, community resources, or jobs. Long-term indirect impacts for neighborhoods would include increased travel times for residents traveling within the I-5 corridor. The No-Build Alternative would not bring high-capacity transit (HCT) to Hayden Island or Vancouver. Low-income populations use transit proportionately more than other populations, and would be unable to benefit from HCT under the No-Build Alternative. There would be no toll for the No-Build Alternative; therefore, EJ populations would not have the expense of tolls or the need for a transponder.

5.2.2 Replacement Crossing with BRT and Standard Toll (Alternative 2)

The replacement crossing with bus rapid transit (BRT) would displace between 13 and 20 floating homes on Hayden Island, depending upon the transit design option on Hayden Island (offset or adjacent to I-5). The offset transit design option could affect the cohesion of the floating home community by separating some floating homes from the

larger community by placing them between the highway and the new transit guideway. The floating home community does not have a relatively high concentration of low-income or minority residents,[4] so these displacements would not be expected to incur an impact to EJ populations.

Environmental justice populations may be employed in service type businesses, at locations on Hayden Island that could be displaced by the replacement bridge.

The Vancouver alignment would displace the Wellness Project in the Lincoln neighborhood. The Wellness Project is important to low-income populations, as it provides free mental health services. The project would need to provide relocation assistance for the Wellness Project if it is displaced.

Neighborhood residents and EJ populations would benefit from the decreased traffic congestion from the increased capacity of the replacement crossing. In particular, the replacement river crossing would provide substantially improved access between Hayden Island and Marine Drive, with three separated auxiliary lanes in each direction between these two interchanges. These auxiliary lanes make short-distance trips between north Portland and Hayden Island much easier during peak periods because cars can make these trips without merging into mainline freeway traffic. Bus rapid transit would increase access to transit, and improve the existing level of transit service, but is not as consistent with some neighborhood plans that call specifically for light rail.

Air quality and noise levels would generally improve. Automotive air pollutants are projected to decrease between 30 and 90 percent by 2030 for all alternatives, including the No-Build Alternative, due to future improvements in auto emissions. Noise levels would increase in some areas, but anticipated mitigation measures (sound walls and residential sound insulation) would generally reduce noise to similar or lower levels than existing conditions. However, BRT is louder than light rail and would create louder ambient noise levels in local streets where sound walls are not practical.

Tolling has a likelihood of impacting EJ and in particular low-income populations. Impacts of tolling on EJ populations are addressed in the discussion of the tolling component. Potential mitigation measures then discussed at the end of this section.

5.2.3 Replacement Crossing with LRT and I-5 Standard Toll (Alternative 3)

This alternative would have effects similar to Alterative 2, with a two exceptions:

- Light rail would require expanding the existing TriMet maintenance facility in Gresham, displacing six or seven homes. Census data for this area indicates that 40 percent of residents are minority and 35 percent are below the poverty line. Specific house-by-house analysis is needed to determine the proportion of EJ residents on these parcels impacted.

[4] JBMI Demographic Survey, 2007.

- Light rail would be more consistent with some neighborhood plans that call specifically for light rail.

Alternative 3 would require the acquisition of the US Bank building, a potential community resource, between 16th and 17th Streets on Main Street in Vancouver. Alternative 3 would also require acquisition of the Wellness project, which is a community resource serving EJ populations.

5.2.4 Supplemental Crossing with BRT and LRT and I-5 Higher Toll (Alternatives 4 and 5)

Tolling has a strong likelihood of impacting low-income populations, and the higher toll associated with the supplemental crossing alternatives would likely have a higher impact. This impact will not likely be adversely high, as it is offset by beneficial improvements in travel time and transit service. This issue is discussed in detail in Section 5.5.5.

In addition, EJ populations may be employed in service type businesses at locations primarily on Hayden Island which could be displaced by the replacement bridge. As the supplemental bridge would acquire fewer commercial buildings than the replacement bridge, there is less chance of impacting EJ populations.

Based on current information, the supplemental crossing would displace up to 23 floating homes on Hayden Island. Though a substantial impact to the residents, it does not likely constitute a disproportionate impact to EJ populations. As discussed above, Hayden Island has a much lower percentage of EJ residents as compared other nearby areas. Also, a demographic survey conducted by this project indicates that the floating home community has lower rates of EJ residents (based on those that responded to the survey) than surrounding neighborhoods, and it is therefore less likely to impact a low-income or minority resident in this community. Specific house-by-house analysis is needed to determine the proportion of EJ residents on the floating homes impacted.

The supplemental crossing would require partial right-of-way acquisitions from residences in the Rose Village neighborhood. The Rose Village neighborhood has more EJ households that surrounding Vancouver neighborhoods, and therefore there is greater potential to impact EJ populations in Rose Village.

BRT and LRT would increase access to transit, and would improve the existing level of transit service. The increased capacity on the bridge would also improve travel times. However, the supplemental bridge would provide less new vehicular capacity than the replacement bridge options. The benefit to travel times, the local economy, and the transit travel times for buses would not be as strong as for the replacement options.

5.3 Impacts from Segment-level Options

This section describes and compares the impacts associated with segment level options, which are specific highway alignment and interchange options and specific transit alignments and options. They are organized by segment, including:

- Segment A: Delta Park to Mill Plain District
- Segment B: Mill Plain District to North Vancouver

For transit options, Segment A is divided into two sub-segments, each with a discrete set of transit choices:

- Sub-segment A1: Delta Park to South Vancouver
- Sub-segment A2: South Vancouver to Mill Plain District

Exhibit 5-1 shows the locations of the segments in the APIs. Impacts from highway alignment and interchange options are described separately from impacts from transit options.

5.3.1 No-Build Alternative

The No-Build Alternative would avoid all direct displacement of residents, community resources, or jobs. Long-term indirect impacts for neighborhoods would include increased travel times for residents traveling within the I-5 corridor. The No-Build Alternative would not bring high-capacity transit (HCT) to Hayden Island or Vancouver. Low-income populations use transit proportionately more than other populations, and would be unable to benefit from HCT under the No-Build Alternative. There would be no toll for the No-Build Alternative, so EJ populations would not have the expense of tolls, or the need for a transponder.

Traffic

Under the No-Build Alternative the length of time for southbound congestion on the Interstate Bridge would increase from 2 hours currently to over 7 hours in 2030. During the 2-hour morning peak, southbound I-5 travel times are forecast to increase by 3 minutes (20 percent) for a vehicle-trip along I-5 from SR 500 to Columbia Boulevard, and by 15 minutes (50 percent) for a vehicle-trip from 179th Street to I-84.

Under 2030 No-Build conditions, northbound congestion periods would increase from 4 hours to almost 8 hours. During the 2-hour afternoon peak, northbound I-5 travel times are forecast to increase by 2 minutes (15 percent) for a vehicle-trip from Columbia Boulevard to SR 500, and by 6 minutes (16 percent) from I-84 to 179th Street. The No-Build Alternative would only accommodate about 55,000 person-trips during peak periods, and is predicted to increase congestion to 15 hours/day by 2030.

Many intersection failures in both Portland and Vancouver would take place under the No-Build. In both cities, 17 intersections would not meet standards in the morning peak. During the afternoon peak, 33 intersections would no longer meet standards.

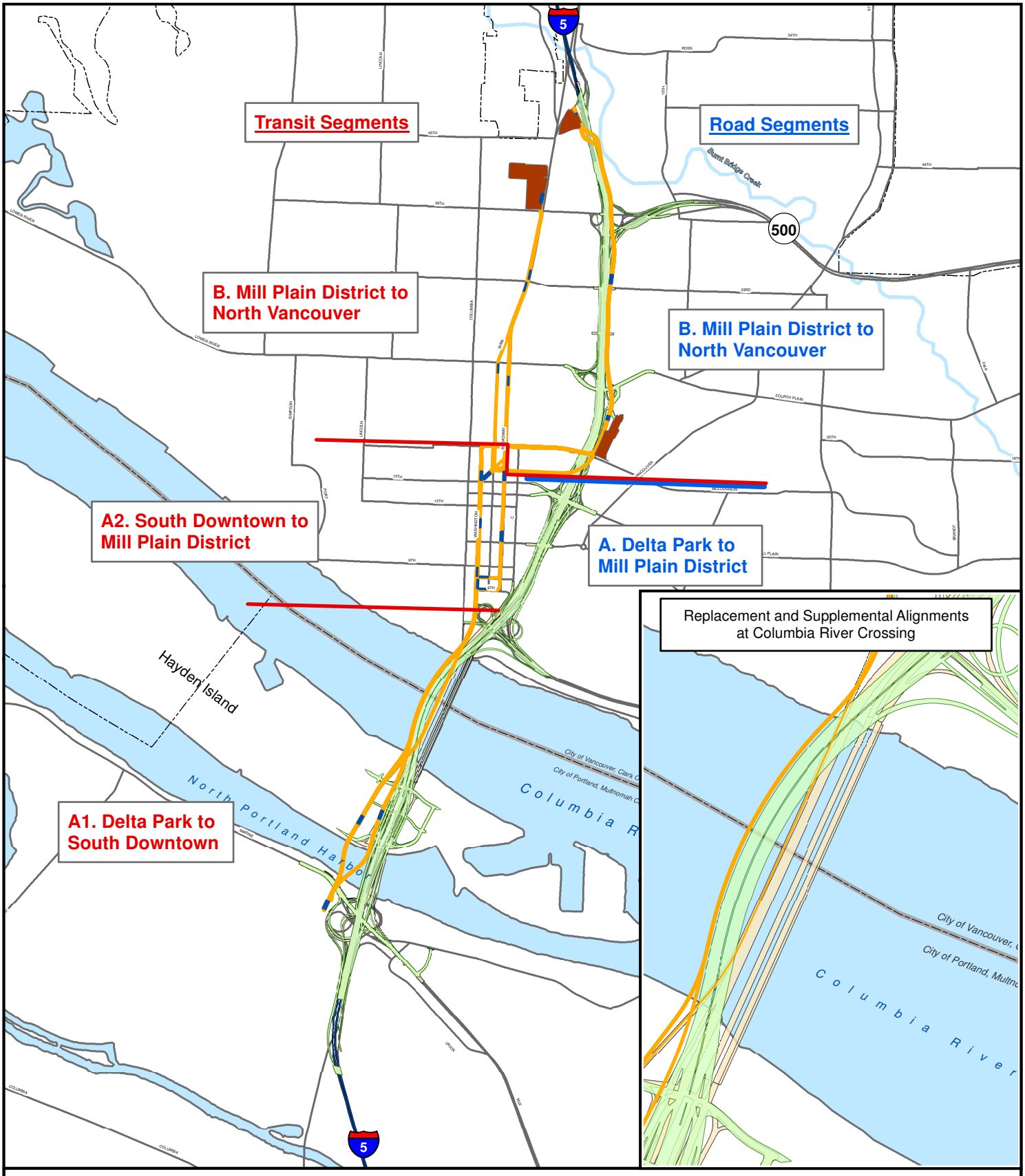


Exhibit 5-1: Project Area and Alternatives

Columbia River CROSSING

Analysis by J. Koloszar; Analysis Date: Aug.-2007; Plot Date: Dec.-2007; File Name: JH_014_8x11.mxd

Air Quality

An analysis was performed to estimate carbon monoxide (CO) concentrations near poorly performing intersections for the project alternatives. No violations of the NAAQS were shown for existing conditions under the No-Build Alternative.

Noise

Existing noise levels along the project corridors range from 47 to 74 decibels (dBA) L_{eq}. There are 211 noise-sensitive land uses that currently exceed the appropriate traffic noise criteria (65 dBA threshold in Oregon, and 66 decibels threshold in Washington). Under the No-Build Alternative, noise levels would increase by up to 4 dBA and the number of noise impacts would increase to 221 noise sensitive land uses.

With mitigation (i.e., noise walls), nearly all of the noise impacts resulting from build alternatives can be mitigated. There are a few notable exceptions along the project corridor in Vancouver. (See Highway Segment A and B discussion for more detail). The increased highway capacity and throughput would result in only a small increase in noise. However, updated technologies, design, and regulations would result in mitigations that would be much more effective than those existing currently. Therefore, as compared to the build alternatives, the No-Build Alternative would have the highest impacts from noise.

5.3.2 Build Alternatives

This section presents a summary of impacts from the build alternatives. As ODOT and WSDOT improve and maintain critical facilities throughout the region, such as I-5, users of this regional transportation system would benefit, regardless of their origin or destination. For example, any improvements made to I-5 would benefit users by reducing congestion on I-205, and possibly Highway 99 and 192nd Avenue in Vancouver because drivers would more frequently choose to use the improved I-5. In addition, improved and more consistent travel times throughout the system would increase transit system reliability, which benefits all users. Improvements and additions to transit service in other corridors would allow more people to access transit or access destinations with transit. The reductions in highway congestion also provide a project benefit.

Specific impacts from the build alternatives are addressed in the following sections.

Air

The U.S. Environmental Protection Agency (EPA) has developed National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants: carbon monoxide (CO), lead, ozone, nitrogen dioxide, sulfur dioxide, and particulate matter. Air quality specialists performed an analysis to estimate CO concentrations near poorly performing intersections for the project alternatives. No violations of the NAAQS were shown for existing conditions or any of the build alternatives. Therefore, air quality impacts would not be expected as a result of the project.

Air pollutant emissions would be expected to be substantially lower in the future than under existing conditions. For most pollutants of concern, future differences between build alternatives are small enough not to be meaningful within the accuracy of the estimation methods, and the differences are much smaller than the anticipated reductions with time. This is true both for the region and the subareas evaluated. CO does have meaningful variations among build alternatives for the area between SR 14 and 39th Street in Vancouver. The replacement options would result in higher emissions. Nonetheless, no air quality impacts, and few meaningful difference ere found as a result of the build alternatives.

Travel Demand and Traffic

A replacement crossing would provide more congestion relief than the supplemental crossing or No-Build Alternative The greater capacity of a replacement crossing—over 75,000 person-trips/day during peak commute periods, versus approximately 66,000 person-trips for a supplemental crossing—would reduce duration of congestion to 3.5 to 5.5 hours/day. A supplemental crossing would result in about 11 hours of congestion each day.

The replacement crossing, while serving substantially more traffic than the supplemental crossing, would also save 3 minutes of travel time in the bridge influence area for northbound traffic during the afternoon peak. During the morning peak, either the replacement or supplemental crossing would provide similar southbound travel times in the bridge influence area.

Safety and Reliability

The proposed project has several improvements to corridor safety and reliability for, transit, river navigation, and freight traffic. The most critical public safety benefit would be the replacement of the existing I-5 bridges (with the replacement alternatives). This would dramatically improve the substandard movements and features found with the existing bridges, thereby decreasing auto accidents on or near the bridges.

Pedestrians and Bicyclists

Currently, bicycle and pedestrian facilities on the I-5 bridge and connections to the regional bike and pedestrian transportation network are inadequate and substandard. The pathways on the bridge are dangerously narrow. When two cyclists approach each other on the bridge, or a cyclist approaches a pedestrian, one needs to stop and get out of the way to allow the other to pass. Additionally, the circuitous bike paths connecting to the bridge (especially on Hayden Island and near the Marine Drive interchange) are poorly lit, poorly maintained, inefficient, and include an uncontrolled traffic crossing. The project would provide greatly improved facilities for pedestrians and cyclists, including EJ populations, though more so with the replacement bridge.

Transit Service

Many of the previously discussed impacts would affect EJ populations; however, the improvement in transit travel times would be particularly beneficial to low-income populations. Transportation studies have indicated that low-income individuals tend to use transit proportionally more than higher-income individuals. For example, data from the 1995 Nationwide Personal Transportation Survey (FHWA 2001) demonstrated that low-income persons traveled 4.2 percent of their person miles on public transit, as compared with 2.1 percent of all person-miles traveled by the total population. Murakami and Young (1997), working with the same Nationwide Personal Transportation Survey dataset, demonstrated that low-income households are more than twice as likely to use transit to get to work compared to the general population—5 percent compared to 2 percent. Research and data collection by the project team demonstrate that this national trend is reflected in the CRC project area.

In Vancouver, the Central Park and Esther Short neighborhoods have the highest percentages of population below the poverty level and housing units with no vehicles. One-quarter of the residents in the Central Park neighborhood are below the poverty level. Additionally, one-quarter of the housing units in the Central Park neighborhood are without a vehicle. Many of these units may be occupied by Clark College students. From the 2000, Census it was found that approximately one-third of the residents in the Esther Short neighborhood are below the poverty level, while one-third of the housing units in the Esther Short neighborhood do not have vehicles. The proportion of Esther Short residents under the poverty line has likely been reduced by the construction and occupation of many new housing units, many of which are higher-end condominiums.

Among the five neighborhoods with the highest percentages of population below poverty level (Rose Village, Hough, Central Park, Esther Short, Hudson's Bay), three of those neighborhoods (Hough, Central Park, and Esther Short) also have the highest percentage of housing units with no vehicles.

Among the neighborhoods in the primary API, the Northwest neighborhood has the lowest percentage of population below the poverty level as well as the lowest percentage of housing units with no vehicles. Both of these percentages for the Northwest neighborhood are below Clark County and City of Vancouver percentages.

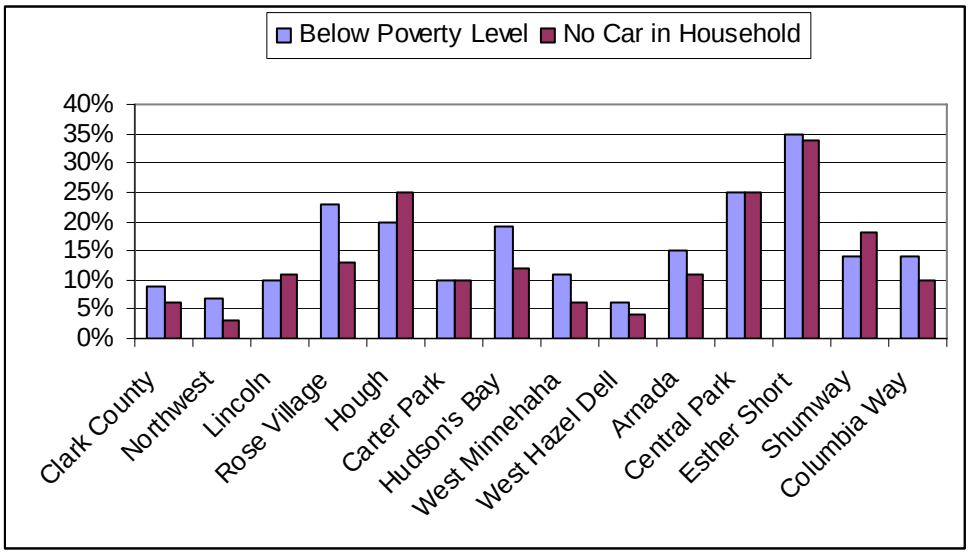
Among the four neighborhoods with the lowest percentage of population below the poverty level (Northwest, West Minnehaha, Lincoln, and Carter Park), two of those neighborhoods (Northwest and West Minnehaha) have the lowest percentage of housing units with no vehicle.

Exhibit 5-2 shows the rates of low-income population and households with no vehicle for the neighborhoods discussed above. The correlation between vehicle ownership (and consequently transit dependence) and income is clear in Exhibit 5-3, which charts the percentage of low-income households and households with no vehicle for Vancouver.

Exhibit 5-2. Correlation Between Vehicle Ownership and Income in Washington Neighborhoods

	Percentage of Population Below Poverty Level	Percentage of Housing Units with No Vehicle
Northwest	7	3
West Minnehaha	11	6
Lincoln	10	11
Shumway	14	18
Rose Village	23	13
Carter Park	10	10
Hough	20	25
Arnada	15	11
Central Park	25	25
Esther Short	35	34
Hudson's Bay	19	12
West Hazel Dell	6	4
Columbia Way	14	10
Clark County	9	6
Vancouver	12	8

Exhibit 5-3. Charted Correlation Between Vehicle Ownership and Income



All of these neighborhoods have a higher percentage of housing units with no vehicles than the county or city, with the exception of Northwest and West Minnehaha. Northwest has half the rate of housing units with no vehicle compared to the county and just over one-third the rate of the city. The West Minnehaha neighborhood has the same percentage of housing units without vehicles as the county.

The findings discussed above also hold true for the neighborhoods in the Oregon portion of the API (Exhibit 5-4). The Hayden Island and Bridgeton neighborhoods have a lower percentage of population below the poverty level and a lower percentage of housing units

with no vehicles than either Multnomah County or Portland. The Kenton neighborhood, on the other hand, has very similar percentages compared to Portland and slightly higher than rates in Multnomah County.

Exhibit 5-4. Correlation Between Vehicle Ownership and Income in Oregon Neighborhoods

	Percentage of Population Below Poverty Level	Percentage of Housing Units with No Vehicle
Hayden Island	7	5
Bridgeton	9	3
Kenton	14	14
Multnomah County	12	13
Portland	13	14

National surveys and research have found low-income populations to be, proportionately, more frequent users of transit. Data regarding vehicle ownership and income level, taken from Vancouver, Portland, and Clark County, suggests that the greater dependence on transit is also likely for this project area.

The build alternatives provide dramatically increased levels of service for transit, as is discussed in Section 5.3.5.

Noise

The following section describes noise impacts as a result of transit and traffic.

Transit Related Noise Impacts

Transit related noise impacts are described in two categories of severity, as determined by the Federal Transit Administration. **Severe** noise impacts are considered "significant" in terms of the National Environmental Policy Act (NEPA) and noise mitigation is normally specified, unless there is no practical method. **Moderate** noise impacts often require that other project-specific factors (e.g., increase over existing levels, type of land use affected, cost effectiveness of mitigation measures, etc.) be considered to determine the magnitude of the impact and the need for mitigation.

The Smith Tower, which accepts Section 8 Housing Choice Vouchers[5], is the only identified low-income housing that may experience noise impacts resulting from transit. The Smith Tower is an elderly-care facility with one-bedroom units located at 515 Washington Street in the Esther Short Neighborhood. Smith Tower would experience noise impacts as a result of BRT when paired with a supplemental river crossing. With this crossing, HCT descends into Vancouver from a higher point than with replacement

[5]The Section 8 Housing Choice Voucher Program is a federally funded program administered by the City of Vancouver Housing Authority. The program assists low-income households by subsidizing a portion of their rents.

crossing. Due to the grade threshold for HCT, the HCT bridge would not touch down until after 6th on Washington, putting the HCT ramp near the higher units of the Smith Tower Apartments. A noise impact would only occur with BRT, but could be completely mitigated through residential sound insulation.

Noise impacts would be most prevalent and severe with BRT, as compared to LRT (see Exhibit 5-5). Additionally, quieter residential areas along McLoughlin Boulevard, 16th Street and Broadway Street experience a more dramatic noise impact from the introduction of transit, than areas with higher noise levels such as in central or south downtown Vancouver.

Exhibit 5-5. Potential Transit-Related Noise Impacts by Neighborhood

Neighborhood	Percent Minority	Percent Low-Income		Total Noise Impacts[a]	Severe Noise Impacts	Noise Impacts After Mitigation	Total Noise Impactsa	Severe Noise Impacts	Noise Impacts After Mitigation
				Offset Alignment			Adjacent Alignment		
Hayden Island	7%	7%	BRT	42	21	0	35	7	0
			LRT	21	0	0	7	0	0
				Vancouver alignment			I-5 Alignment		
Arnada	2%	15%	BRT	40-47	1-30	0	31-49	17-31	0
			LRT	0-30	0	0	10-19	0	0
Carter Park	16%	10%	BRT	7-11	0-8	0	0	0	0
			LRT	0	0	0	0	0	0
Esther Short	11%	35%	BRT	0-20	0	0	0-20	0	0
			LRT	0	0	0	0	0	0
Rose Village	21%	23%	BRT	0	0	0	15	12	0
			LRT	0	0	0	0	0	0
Shumway	11%	14%	BRT	3-7	0	0	0	0	0
			LRT	0	0	0	0	0	0

[a] Includes "moderate" and "severe" impacts, as defined in the Noise and Vibration Technical Report

Residences experiencing transit noise impacts that could be mitigated to within HUD standards via residential sound insulation include floating homes in the North Portland Harbor, residences along Broadway Street, or 16th Street (all in the Arnada neighborhood), or in the Rose Village neighborhood, depending on transit sub-alignment. While only one of the residential structures along these alignments has been specifically identified as low-income housing, other units may also be residences for low-income or minority individuals. The following sections describe, by neighborhood, specific transit noise impacts and provide information about the general condition, possible tenure and use type (single family or multi family) on affected parcels.

Arnada

The likelihood, based on US Census data, that any impact in Arnada will affect minority populations is very small. Along McLoughlin Boulevard there are many potential

residences that could experience severe noise impacts from transit. The severe noise impacts along McLoughlin Boulevard affect, on the north side, one duplex and three houses. Along the south side of the street, the impacted properties stretch from D Street to I-5, including some professional offices in older houses and 10 single-family houses that appear to be predominantly single family residences. There are also non-severe noise impacts that would occur between G Street and I-5, along the north side of West Reserve Street. These non-severe impacts occur at two single family structures and at a small apartment complex (716 E McLoughlin Boulevard).

Along 16th Street, similar transit noise impacts are expected, but for fewer residences. Severe noise impacts would only occur south of 16th Street at a small triplex (or fourplex) at 1510 F Street. Additional severe impacts are excepted for two small businesses between C and E Streets on the north side of the street, and at the houses between D and E Streets. Non-severe impacts would occur at the small sign company located in a house next to the interstate and at the six houses stretching westward from there to the empty lot at 16th and E Streets. A small business and a Catholic organization are located in one of these houses.

Non-severe noise impacts to homes in Arnada would also be likely along Broadway Street. The impacts are expected at houses located at 201 E 19th Street, and 1925, 2217, 2215, and 2221 Broadway Street. Some of these houses have been divided into separate units.

Carter Park

Based on U.S. census data, any single household in Carter Park is less likely to be low income than in the other immediate neighborhoods. In Carter Park transit noise impacts occur along Main Street. There are non-severe impact at 2800 and 2804 Main Street. The house at 2800 Main Street is possibly divided into two units. There is a small apartment complex at Main and 29th Streets. The impacts to these apartments could be severe. Further north along Main Street, non severe impacts are expected for houses at 30th Street and 31st Street. Both appear to be residences, but the house at 31st Street also contains a small business.

Shumway

The transit noise impacts in the Shumway neighborhood occur along Broadway and Main Streets from Fourth Plain Boulevard to NE 38th Street. Near the southern edge of the neighborhood, non severe noise impacts have been found for the properties between 27th Street and E 28th Street. A single family house on this block (202 E 27th Street) faces 27th Street and is set back from Broadway Street. North of it there are two apartments at 15 E 28th Street. Further north, there is a new (completed in 2007) 3-unit multifamily structure with non-severe noise impacts at 2903 Main Street. The most northern impacted structure in Shumway is the fire station located at 400 E 37th Street, which would have non-severe impacts.

Rose Village

In the Rose Village neighborhood there is a greater statistical likelihood that any single residential impact may have EJ implications. The neighborhood is 21 percent minority (the highest in the immediate area) and 23 percent low income. The noise impacts in this area largely occur along the I-5 alignment where the HCT facility begins to rise and pass over the top of parts of the 39th Street/SR 500 interchange. There are non-severe noise impacts to two duplexes (1108 E 37th Street). There are 12 severe noise impacts that occur along K Street from NE 35th Street to NE 37th Street. There are duplexes on the north and south ends of the block with four single-family houses in between.

Traffic Related Noise Impacts

Traffic related noise impacts are not measured in the same way as transit related noise impacts. If traffic noise exceeds a certain number of decibels, depending on the FHWA, State and land use standards, it is considered a noise impact. As shown in Exhibit 5-6, the number of noise impacts does not differ between the replacement and supplemental crossings, except when structures previously being impacted are displaced by the alignment. In most cases noise impacts could be mitigated by the placement of new sound walls, or the replacement of old sound walls, resulting in an overall decrease in the number of noise impacts compared to the No-Build.

In a few locations, new and improved sound walls would not mitigate all traffic related noise impacts. These occur when sound walls cannot be built high enough to block impacts to upper floors of apartment buildings (as occurs in the Esther Short Neighborhood), or at the openings in sound walls at overpasses (in Rose Village and Shumway).

Exhibit 5-6. Potential Traffic-Related Noise Impacts by Neighborhood

Neighborhood	Percent Minority	Percent Low-Income	Total Noise Impacts	Total Noise Impacts	Noise Impacts After Mitigation	Total Noise Impacts	Noise Impacts After Mitigation
			No-Build	Replacement Crossing		Supplemental Crossing	
Arnada	2%	15%	30	35	0	35	0
Esther Short	11%	35%	42	48	24	48	24
Lincoln	10%	10%	12	12	0	12	0
Rose Village	21%	23%	12	33	4	33	4
Shumway	11%	14%	24	46	6	46	6
Hayden Island	7%	7%	47	47	0	45*	0
Kenton	37%	14%	3	3	0	0*	0

No low-income homes are located near the noise wall openings in Shumway or Rose Village. However, noise impacts in Rose Village, which has a higher proportion of low-income and minority households, may be more likely to impact these communities. Unmitigated noise impacts in the Esther Short Neighborhood are the most likely to impact low-income individuals, as this neighborhood has the highest proportion of low-income households in the project area. The noise impacts in the Esther Short

Neighborhood are limited to two apartment buildings: the Fort Apartments and the Normandy Apartments.

The three-story Normandy Apartments are located at 316 East 7th Street in Vancouver directly west of I-5. There are approximately 35 studio and one-bedroom apartments that rent for approximately $500 to $650 per month. Twelve units on the upper floors currently experience noise levels that exceed FHWA's traffic noise impacts criteria. While noise levels would decrease slightly under the build scenarios as compared to No-Build in this area, the same 12 households would continue to be impacted. Under current FHWA policy, which does not use residential sound insulation as a mitigation measure (a noise wall could not be built high enough to block these impacts), none of these impacts would be mitigated.

The Fort Apartments are located at 500 E 13th Street in Vancouver directly west of I-5. There are 49 newly remodeled studio, one-bedroom, and two-bedroom units in the Fort Apartments and rent ranges from $450 to $500 per month. As with the Normandy Apartments, 12 households on the upper floors of the Fort Apartments currently experience noise levels that exceed FHWA's traffic noise impacts criteria. Noise levels at these units increase slightly under both the Build and No-Build scenarios, but the same 12 units remain impacted.

Additional Impacts

The project would also have the following beneficial impacts:

- Improved response times for emergency service vehicles.
- Increased economic development opportunities near the Interstate and near transit stations with commercial, industrial, or mixed-use zoning, and jobs related to construction of new facilities.
- Improved noise levels over existing conditions and the No-Build Alternative.
- Improved Air Quality over existing conditions

5.3.3 Segment A: Delta Park to Mill Plain District - Highway Alternatives

Impacts resulting from the replacement or supplemental crossings in Segment A would be concentrated on Hayden Island, however they would also impact the Kenton, Bridgeton, Esther Short, Columbia Way, Hudson's Bay, and Central Park neighborhoods. These roadway options would require the acquisition of approximately 26[6] to 37[7] acres. Few of these would require the acquisition of the entire parcel or the business or residence, with the supplemental alternative requiring the least total parcels and acreage along I-5.

[6] This includes 2 acres of ODOT property.

[7] This includes 9.5 acres of ODOT property and right-of-way.

All options would primarily impact commercial parcels on Hayden Island and in southern Vancouver. Small portions of the Fort Vancouver Historic Reserve and Clark College, as well as vacant or unused lots, are the only acquisition impacts in the Hudson's Bay and Central Park neighborhoods. A few residential units would be impacted in Segment A, including the floating home community in North Portland Harbor, a house which appears to be used for office space in Kenton[8], and an apartment building in the Esther Short neighborhood. Neither of the options concentrates impact on one community over another, though the supplemental would have less impact along the I-5 corridor in Vancouver as it is narrower.

Residential Units

While the replacement crossing would impact a single-family home in Kenton and an apartment building in Esther Short, the supplemental option, being narrower, would avoid these impacts. Although the demographics of these residential units are unknown, Kenton does have a high proportion of minority residents (37 percent) and Esther Short has a high proportion of low-income residents (35 percent). Therefore it is more likely that the replacement option could impact EJ individuals at these two sites.

Both supplemental and replacement options would require the relocation of a number of floating homes in North Portland Harbor. Current designs indicate that the supplemental options would displace 15 floating homes and the replacement option would displace 13 floating homes.

Though a substantial impact to the residents, this does not likely constitute a disproportionate impact to EJ populations. According to the 2000 Census and other data, Hayden Island does not have a high rate of EJ residents as compared to surrounding Portland neighborhoods. A demographic survey conducted by this project indicates that the floating home community has notable lower rates of EJ residents (based on those that responded) than surrounding neighborhoods, and it is therefore less likely to impact an EJ resident in this community. Without site-specific demographic data, we cannot know whether the specific floating homes displaced contain EJ residents.

Low-Income Housing

While there would be no physical impacts to the Evergreen Retirement Inn under any of the options, there may be visual impacts, especially with double left loop design option, and the high ramps associated with the SR 14 interchange.

Traffic operations at local intersections have been assessed specifically for their impact to low-income housing and the centers for social service. These are discussed in the transit alignment sections of this report.

[8] It is not known whether this building is used as a SFR, a business, or both.

Community Resources

Safeway, the only grocery store on Hayden Island, could be displaced by all options, although recent design refinements show that the replacement option can avoid the Safeway. Displacing Safeway would separate the Hayden Island neighborhood from its only supermarket, and may affect cohesion because a gathering space would be lost. If not relocated on the Island, this would cause local customers to travel substantially further for groceries. Mobility impaired residents would likely be more impacted, and low-income populations that are transit dependent may also be more impacted by the loss of the local grocery store. Data gathered for the Island as a whole, and for the Jantzen Beach Moorage residences indicate a very low level of transit dependence among island and JBMI residents.

Another identified community resource, the former Hayden Island Yacht Club would be displaced under the replacement option. The Hayden Island Neighborhood network (HiNoon) holds meetings in this building. This displacement could impact members of the Hayden Island community if a new meeting location was not created nearby.

Impacts to prehistoric and historic archaeological resources resulting from the acquisition and excavation of portions of the Fort Vancouver National Historic Reserve parcel could potentially have a negative impact on the cultural heritage of communities descended from the creators of these resources.

Exhibit 5-7 summarizes impacts from the highway alternatives that may potentially affect EJ residents in Segment A.

Exhibit 5-7. Segment A: Delta Park to Mill Plain District Summary

Replacement	Supplemental
Potentially displaces SFR in Kenton, Apartment building in Esther Short	Avoids SFR in Kenton, Apartment building in Esther Short
Impacts less floating homes	Impacts more floating homes
Refined design may avoid Safeway on Hayden Island	Displaces Safeway on Hayden Island
Displaced Former Hayden Island Yacht Club	Avoids Former Hayden Island Yacht Club

Traffic

The build alternatives provide major improvements in travel congestion and dramatic reductions in travel times.

Replacement Alternatives

With mitigation, intersections near the Marine Drive interchange would function better with the build alternatives. Under the replacement alternatives, a connection between Martin Luther King Jr. Boulevard and Vancouver Way would be built east of the interchange. Also, under the replacement alternatives, the Hayden Island interchange would be completely reconstructed. All proposed intersections would operate with acceptable vehicle queuing and delay.

At the SR 14 interchange, when compared to the No-Build Alternative, 24 of the intersections would operate with acceptable vehicle queuing. Eight intersections would have queuing extending past turn lane storage capacities or to upstream intersections, which would not result under the No-Build Alternative. During the afternoon peak, 17 intersections would operate with acceptable vehicle queuing when compared to the No-Build Alternative. Fifteen would have queuing extending past turn lane storage capacities or to upstream intersections, which would not result under the No-Build Alternative.

Supplemental Alternatives

With the supplemental crossing, the Marine Drive interchange would have some acceptable and some unacceptable queuing conditions under this build alternative.

The Hayden Island interchange would be completely reconstructed. During the afternoon peak, four proposed ODOT intersections would experience queuing extending past turn lane storage capacities or to upstream intersections. Four proposed PDOT intersections would experience queuing extending past turn lane storage capacities or to upstream intersections.

Alternatives 4 and 5 (supplemental) would have impacts similar to that of Alternatives 2 and 3 (replacement) on local streets in Vancouver. All interchanges would have similar configurations with a few minor differences near SR 14's connections to downtown. By retaining the existing bridges, the connection at Main Street with SR 14 eastbound would not be possible under the supplemental crossing.

The supplemental crossing during the afternoon peak would shift an additional 600 vehicles southbound and 220 vehicles northbound to Columbia Way. This would double the number of vehicles making a southbound left at the intersection of Columbia Street at SR 14.

Noise

Without mitigation, noise impacts resulting from highway improvements would occur throughout the project corridor. With mitigation (i.e., the replacement of old noise walls, and construction of new noise walls), there are only a handful of properties that would continue to be affected by increased noise levels.

In Segment A, these properties include the Red Lion Hotel at Columbia Center, and the Federal Lands (FHWA) Building, as well as Two Hotels (EconoLodge on Fifth and Broadway, and Shilo Inn on 12th and D Streets) and two multi-story apartments (Normandy Apartments at Seventh and C Street, and Fort Apartments, previously the Fort Vancouver Motel, at the SW corner of the Mill Plain interchange). The Normandy Apartments are affordable and may include EJ households. The Fort Apartments are very inexpensive and are very likely to include EJ households.

More specifically, the upper stories are too high to be adequately and cost effectively mitigated with noise walls. Residential sound insulation could mitigate the indoor noise levels in these units.

5.3.4 Segment B: Mill Plain District to North Vancouver - Highway Alternatives

In Segment B, the highway alternatives are associated with between 2.0 and 2.7 acres of right-of-way acquisitions along the I-5 corridor. These acquisitions take place in the Arnada, Central Park, Rose Village, Shumway, Lincoln, and West Minnehaha neighborhoods. As in Segment A, the supplemental alternative is associated with the fewest building impacts and fewest total acquisitions, as it is narrower.

Acquisition impacts in the Central Park and West Minnehaha neighborhoods are largely limited small acquisitions of parks (i.e., Historic Reserve, Leverich Park), and other small acquisitions that do not impact any homes, businesses, or other used structures. Acquisitions in the remaining four neighborhoods—Arnada, Rose Village, Shumway and Lincoln—would impact single- and multi-family residences, vacant parcels, and undeveloped portions of the Discovery Middle School campus.

Residential Units

The replacement alternatives would require the displacement of two multi-family and one single-family residences in Lincoln directly south of Discover Middle School and one single-family residence in Shumway. The supplemental alignment avoids these impacts. Both neighborhoods have lower percentages of EJ residents than surrounding neighborhoods, but without site-specific demographic data, it is unknown whether these homes contain members of these communities.

Rose Village would be impacted most severely with the supplemental alignment. Though no homes are displaced with either alignment in Rose Village, the number of small right-of-way acquisitions is 22 with the supplemental alignment compared to four with the replacement alignment. The supplemental option does not shift the roadway west (away from Rose Village and into Shumway), and therefore all impacts from roadway widening are concentrated in Rose Village. As Rose Village has approximately twice the number of minority residents and one-third more low-income residents, concentrating impacts in this neighborhood increases the probability of impacting members of these communities.

Low-Income Housing

Under the replacement crossing option, slivers of the Veterans Administration (VA) parcel may be acquired, though none of the buildings located on this parcel, including Central Park Place would be impacted. Additionally, improvements to the Fourth Plain Blvd interchange may enhance access to I-5 and downtown Vancouver.

Community Resources

No known or identified community resources that specifically cater to EJ residents would be impacted by either alternative in Segment B.

Traffic

Near the Fourth Plain interchange, as compared to the No-Build Alternative, 10 intersections would operate acceptably with improved, similar, or slightly degraded

conditions during the southbound morning peak. Three would degrade from acceptable operations under the No-Build Alternative to unacceptable operations under Alternative 3. Six would operate with acceptable vehicle queuing when compared to the No-Build Alternative. Seven intersections without queuing problems under the No-Build Alternative would experience queuing extending past turn lane storage capacities or to upstream intersections.

Similarly mixed results would result in the northbound direction, afternoon peak. The replacement alternative would improve some intersections while others would degrade. Ten intersections would operate acceptably with improved, similar, or slightly degraded conditions. Three would degrade from acceptable or unacceptable operations under the No-Build Alternative to unacceptable operations under Alternative 3. Eight intersections would operate with acceptable vehicle queuing when compared to the No-Build Alternative. Five would experience queuing extending past turn lane storage capacities or to upstream intersections that would not result under the No-Build Alternative.

In the morning intersections at the SR 500/Main Street/39th Street interchange would operate acceptably with improved, similar, or slightly degraded conditions as compared to the No-Build Alternative. In the afternoon peak, six intersections would operate acceptably with improved, similar, or slightly degraded conditions as compared to the No-Build Alternative. Four would degrade from acceptable or unacceptable operations to unacceptable operations.

Congestion at these intersections will impact EJ populations, similar to how they would impact other populations. The Wellness Project, at 39th and Main Streets, provides low-income residents with mental health services. The intersections nearest the Center operate, on the whole, better with the build alternatives.

Noise

After the replacement of currently ineffective sound walls along I-5 in North Vancouver, residual noise impacts may still affect some homes primarily in the Shumway and Rose Village neighborhoods. Newer standards will result in the new sound walls being more effective than those in place today, both through higher walls in places as well as more subtle design treatments. At the I-5 overpasses in North Vancouver, openings in the proposed noise walls near Mill Plain, 29th Street, 33rd Street and 39th Street allow noise to reach some residential uses in North Vancouver. Despite this residual impact the project will result in an overall decrease in noise levels in the corridor. The Rose Village neighborhood, which has a high percentage of minority and low income residents would also benefit from the erection of new sound walls. Exhibit 5-8 summarizes impacts from the highway alternatives that may potentially affect EJ residents in Segment B.

Exhibit 5-8. Segment B: Mill Plain District to North Vancouver

Replacement	Supplemental
MFR and SFR displacements in Lincoln and Shumway	Concentrated partial acquisitions without building impact in Rose Village

5.3.5 Segment A1: Delta Park to South Vancouver - Transit Alternatives

In Segment A1, the two transit alignment options begin at the terminus of the MAX Yellow Line at the Expo Center and travel either adjacent or offset of I-5 on Hayden Island. As the adjacent HCT alignment travels directly adjacent to I-5, its footprint varies with the roadway alignment.

The transit alignments in Segment A1 would require the acquisition of 2.3 to 4.2 acres depending on transit alignment, roadway alignment, and HCT mode (BRT has a slightly wider guideway than does LRT). The adjacent transit alignment, when paired with the replacement crossing and LRT mode requires the least acreage. This does not hold true for the number of floating homes impacted (see below).

Residential Units

These acquisitions occur in the northern end of the Kenton neighborhood, on Hayden Island, and in the southern end of the Esther Short neighborhood. One potential single-family residence[9] (with a business on the same tax lot) on North Portland Harbor would be displaced in the Kenton neighborhood as a result of the transit alignments. Without site-specific demographic data, it is unknown if this property is home to EJ residents or if the business is minority-owned. The 2000 Census data indicates that this neighborhood does not have more EJ residents than surrounding Portland neighborhoods.

Impacts to the floating homes vary considerably depending on the pairing of the roadway alignment with the transit alignments. Therefore it is essential that the impacts are analyzed in combination (See Exhibit 5-9). While the adjacent transit alignment impacts fewer homes when paired with the replacement bridge, it displaces one more than offset when paired with the supplemental roadway alignment. Additionally, while the adjacent alignment impacts floating homes on the edge of the community, the offset alignment bisects the community, which may have impacts to community cohesion. ODOT, the City or Portland, and this project have begun exploring potential sites in North Portland Harbor where a new moorage can be created and the displaced floating homes relocated.

Exhibit 5-9. Impacts to Floating Homes

	Adjacent		Offset	
	Roadway	**Transit**	**Roadway**	**Transit**
Replacement	13	0	13	7
Supplemental	15	8	15	7
TOTALS	**Adjacent**		**Offset**	
Replacement	13		20	
Supplemental	23		22	

[9] It is not known whether this building is used as a SFR, a business, or both.

According to 2000 Census data, Hayden Island does not have a greater proportion of EJ residents than surrounding Portland neighborhoods. A demographic survey conducted by this project indicates that the floating home community has lower proportions of EJ residents (based on those that responded) than surrounding neighborhoods, and it is therefore less likely to impact EJ residents in this community. Without site-specific demographic data, we cannot know whether specific floating homes displaced contain EJ residents.

Low-Income Housing

There are no known low-income housing complexes identified in Segment A1.

Community Resources

On Hayden Island, the transit alignments would require the acquisition of predominantly commercial buildings adjacent or near to I-5, and floating homes in North Portland Harbor. None of the commercial buildings impacted by the transit alignments were identified as community resources in our preliminary analysis.

A handful of small businesses would be impacted by the transit alignments in the Esther short neighborhood. These are largely located in the southernmost blocks of Washington Street. Though 2000 Census data indicates that Esther Short has a greater proportion of low-income residents than surrounding Vancouver neighborhoods, it is unknown whether the businesses are low-income or minority-owned without site-specific information.

Transit Service

LRT provides better travel times and reliability than BRT (Exhibit 5-10). In addition, BRT buses travel with mixed traffic outside the project area, and are thus subject to congestion-induced delays before they enter the exclusive guideway in the project area. Such delays can cause the buses to miss their schedules and increase travel times. This introduces an element of unreliability that deters ridership. Increasing the frequency of buses (Increased Transit) further reduces BRT travel times by placing so many vehicles in the guideway that the buses cause congestion and slow down. The larger capacity of LRT trains allows lower overall frequencies while providing the same or greater capacity.

Exhibit 5-10. Transit Travel Times (minutes)

	BRT		LRT	
	Efficient Transit[a]	Increased Transit[b]	Efficient Transit	Increased Transit
Expo Center to Lincoln or Kiggins Park and Ride	13	25	12	12
Lombard Transit Center to Lincoln or Kiggins Park and Ride	25	34	18	18
Downtown Vancouver (7th St.) to Pioneer Square	35	33	32	32
Pioneer Courthouse to Lincoln or Kiggins Park and Ride	46	54	40	40

[a] "Efficient Transit" includes longer headways between transit vehicles, and requires purchase and operation of fewer buses or trains. This has been paired with replacement alternatives, but is an option for either river crossing.

[b] "Increased Transit" includes shorter headways between transit vehicles, and requires purchase and operation of fewer buses or trains. This has been paired with supplemental alternatives, but is an option for the river crossing.

All build options at least double transit ridership over the No-Build Alternative. LRT would attract approximately 30 – 40 percent more riders than BRT (Exhibit 5-11). Integration with the existing MAX system is important benefit of LRT that helps attract these additional transit riders. This integration would allow transit riders to travel between Vancouver and Portland without a transfer. Transfers add time and, more importantly, are perceived by potential transit riders as adding even more time, unreliability, and inconvenience to their commute.

Exhibit 5-11. Transit Riders over the Columbia River

		BRT		LRT	
	No-Build	Efficient Transit	Increased Transit	Efficient Transit	Increased Transit
Annual transit riders over the Columbia River Crossing	2.5 million	4.8 million	5.7 million	6.7 million	7.4 million

Noise

The floating home community in North Portland Harbor is the only residential community impacted by noise as a result of HCT mode and alignment in Segment A1. The adjacent transit alignment results in more noise impacts to this community than the offset. When paired with the BRT, the number and severity of these noise impacts increase. All of these noise impacts could be mitigated through the placement of sound walls along the HCT bridge over the Harbor.

Exhibit 5-12 summarizes impacts from the transit alternatives that may potentially affect EJ residents in Segment A1.

Exhibit 5-12. Segment A1: Delta Park to South Vancouver

Segment A1: Delta Park to South Vancouver	
Adjacent	**Offset**
Displacement of floating homes on the periphery of the floating home community	Displacement of floating homes in the middle of the floating home community
Displaces fewer homes when paired with the replacement alignment, but more when paired with supplemental	Displaces one less floating home when paired with supplemental, but more when paired with replacement

5.3.6 Segment A2: South Vancouver to Mill Plain District - Transit Alternatives

In Segment A2, transit would touch down on Washington Street between Fifth and Seventh Streets, depending on roadway alignment, and either travel up Washington or Washington and Broadway (as a couplet) to 16th Street. The transit options in Segment A2 result in approximately 0.4 to 1.3 acres right-of-way acquisition depending on the transit alignment in A2 and which transit alignment it connects to in Segment B (See the Acquisitions Technical Report for more information).

Residential Units

No known residences would be acquired under any transit alternative in Segment A2.

Low-Income Housing

Some low-income housing sites would benefit from improved access to public services. This includes the Evergreen Retirement Inn, which would have a transit station located one to two blocks away depending on transit alignment, and Smith Tower Apartments, which would have a transit station directly across the street.

Puchert and Renne (2003) found that EJ individuals represent 63 percent of all transit riders nationwide. The project team has found indicators of the same trend. Therefore, the placement of transit stops at or near subsidized housing would result in a benefit for these communities.

Traffic conditions near the Smith Tower would improve with LRT. BRT, with the replacement bridge, would block the secondary access on the north side of Smith Towers. However, the City of Vancouver has confirmed this access is not required by code or for fire safety. BRT would have a noise impact to Smith Towers as noted below.

Esther Short Commons (Eighth and Esther) and the Lewis and Clark Plaza (Seventh and Broadway) would also have a nearby high-capacity transit station (Seventh and Washington). The introduction of HCT would cause some traffic diversions. Generally, intersection operations near Esther Short Commons would improve. Changes resulting from the build alternatives are more complex near Lewis and Clark Plaza, with improvements in the morning, and worsened conditions in the afternoon.

Community Resources

The properties acquired include a vacant lot between 15th and 16th Streets on Main Street for the Mill Plain station, and with some combinations, the acquisition of US Bank between 16th and 17th on the other side of Main Street, and small right-of-way acquisitions of parcels on the block directly south of US Bank. These acquisitions occur in the Hough and Arnada neighborhoods, of which Hough has a higher percentage of low-income residents than surrounding Vancouver neighborhoods. However, the acquisitions impact in Hough consists of a vacant lot that would be turned into the Mill Plain station, which would increase access to transit and constitute a benefit to the low-income community.

Noise

Existing noise levels are already high along the HCT alignments in Segment A2, because of existing bus routes and truck traffic as well as the relatively high levels of automobile traffic. With the supplemental crossing, HCT descends into Vancouver from a higher point than with replacement. Due to the grade threshold for HCT, the HCT Bridge would not touch down until after Sixth on Washington, putting the HCT ramp higher, near the units of the Smith Tower Apartments. With BRT, this bridge alignment results in transit noise impacts to 20 of the units in this building. The building has over 100 units. These

impacts can be mitigated through residential sound insulation, which would be costly due to the size and age of the building.

Exhibit 5-13 summarizes impacts from the transit alternatives that may potentially affect EJ residents in Segment A2.

Exhibit 5-13. Segment A2: South Downtown to Mill Plain District

	2-way Washington	Broadway Washington Couplet
Impact	No major differences relevant to low-income or minority populations	

5.3.7 Segment B: Mill Plain District to North Vancouver - Transit Alternatives

Vancouver Transit Alignments

The Vancouver transit alignments travel on either Broadway or Broadway and Main (for the couplet) until 29th Street, where both directions of HCT transfer to Main Street. HCT would continue on Main Street to its terminus at the Lincoln Park and Ride. Differences in acquisitions are a result of the different transit alignment options.

The Vancouver transit alignments are associated with approximately 25 acres of acquisitions, 12 of which are for the WSDOT maintenance facility on 39th and Main that will be acquired for the Lincoln Park and Ride. These acquisitions occur in the Arnada, Shumway, Carter Park, and Lincoln neighborhoods. All of these neighborhoods have proportions of EJ households that are at or below the average of surrounding Vancouver neighborhoods.

Residential Units

In addition to the WSDOT maintenance facility, this alignment requires the full acquisition of 11 parcels in the Lincoln neighborhood that would displace seven residences. Though this neighborhood has a below average proportion of EJ residences compared to surrounding neighborhoods, the exact EJ status of these homes is unknown.

One multi-family residence on Main Street in the Shumway neighborhood would also be acquired for this alignment. Though Shumway has average to low rates of EJ residents (14 and 10 percent respectively) as compared to surrounding Vancouver neighborhoods, the exact low-income or minority status of the households in this building is not known.

Low-Income Housing

There would be not direct impacts to any identified affordable housing complexes in Segment B, though some may benefit from improved access to public services. A Vancouver transit alignment would put a transit station almost directly in front of the Pythias Retirement Center at 33rd and Main Street, likely improving this elderly community's access to public transportation.

This alignment is also likely to improve access for residents of Columbia House and Fort Vancouver Apartments, with a station two blocks away on 24th and Broadway

Residents at Central Park Place would have to be shuttled from the Clark College Park and Ride to the nearest HCT transit stop at the intersection of 16th and Main Street, nearly 10 blocks away and on the other side of I-5. Traffic conditions near Central Park Place (the Fourth Plain interchange), worsen with LRT options.

Puchert and Renne (2003) found that EJ individuals represent 63 percent of all transit riders nationwide. The project team has found indicators of the same trend locally. Therefore, the placement of transit stops at or near subsidized housing would result in an offsetting benefit for these communities.

Community Resources

Most of the acquisitions required for the Vancouver alignments occur on upper Main Street (north of 29th), and predominately occur on parcels that contain medical offices and commercial buildings. Some of the businesses could be owned by EJ residents, but this will not be known until site-by-site specific surveys can be done.

LRT, when paired with the Vancouver transit alignments would require the acquisition of the Wellness Project building, which provides free mental health-care for low-income and uninsured residents. This acquisition occurs to accommodate the approach of LRT into the Lincoln Park and Ride. This transit options would have an impact on low-income residents. BRT, which could make the higher degree turn directly into the park and ride, would not need to acquire the Wellness project. Traffic conditions near the Wellness Project, with BRT or LRT, would be appreciably improved.

Noise

In Segment B, HCT along the two-way Broadway, 16th, or McLoughlin alignments would result in noise impacts to residential units in the Arnada neighborhood. The largest impact occurs along 16th, which is currently a low-traffic, predominantly residential street. Though all of the noise impacts could be mitigated for the living spaces within the residences (via sound insulation), outside noise levels would remain high.

With the BRT mode choice, the number and severity of these noise impacts would increase. In addition to the alignments mentioned above, the use of BRT would result in noise impacts to residential units in Rose Village near the HCT flyover ramp over the SR 500 interchange to Kiggins Park and Ride. All of these impacts would be mitigated via residential sound insulation, and again, nothing would be done about the increased noise in the front yards of residences.

I-5 Transit Alignments

The North I-5 transit alignments would follow the east side of I-5 and terminate at the Kiggins Bowl Park and Ride. The east-west alignment would follow either 16th Street or McLoughlin across I-5 and then turn north. The differences in acquisitions are a result of

whether HCT heads west on 16th or McLoughlin, and which roadway alignment (replacement or supplemental) this transit alignment is paired with.

Approximately 9.5 to 11 acres would be acquired for the I-5 transit alignments. These acquisitions occur in the Arnada, Central Park, Rose Village, Shumway, and West Minnehaha neighborhoods. Of these neighborhoods, Central Park and Rose Village have a higher rate of EJ households than surrounding Vancouver neighborhoods. While acquisitions within Central Park are limited to predominately vacant or unused land (area acquired for the Clark College Park and Ride and small acquisitions along the edge of the VA parcel), Rose Village would experience residential acquisitions.

Residential Units

As seen in Section 5.3.4, while the replacement alignment would require more partial acquisitions (without building impact) in Shumway, the supplemental option would impact the Rose Village neighborhood more drastically. Routing HCT along I-5 would result in a similar pattern of acquisitions, though the alignment tends to increase not only the number, but the size of the acquisitions as well. Also, as mentioned in Section 5.3.4, Shumway has approximately half of the minority residents and approximately two-thirds the low-income residents as Rose Village. Exhibit 5-14 reports these results.

Exhibit 5-14. Acquisition Impacts to the Rose Village and Shumway Neighborhoods: Transit and Highway Impacts Combined

	Rose Village				Shumway			
	Replacement		Supplemental		Replacement		Supplemental	
	I-5	Vanc	I-5	Vanc	I-5	Vanc	I-5	Vanc
Residential displacement	0	1	1	0	8	2	0	2
Partial acquisitions w/o building impact	12	4	24	22	26	21-24	8	11-14

In the number of acquisitions, Shumway is impacted most severely by the I-5 transit alignment when paired with the replacement roadway alignment, while Rose Village is impacted most severely by the I-5 transit alignment when paired with the supplemental roadway alignment. The biggest increase in number and severity of acquisitions, when HCT is routed along I-5, occurs in the Shumway neighborhood. Therefore, HCT along I-5 would more severely impact the Shumway neighborhood, as compared to Rose Village.

In addition to the acquisitions in the Rose Village and Shumway neighborhoods, the I-5 transit alignment would require the acquisition of two residences, one of which is attached to a small business, at the Main and 45th Street intersection. These acquisitions are required for the widening of this intersection to accommodate increased traffic to the Kiggins Bowl Park and Ride. Though the exact EJ status of these residences is not known, the Lincoln neighborhood has an average number of EJ residents as compared to surrounding Vancouver neighborhoods.

Low-Income Housing

There would be not direct impacts to any identified affordable housing complexes in Segment B, though some may benefit from improved access to public services. Under the I-5 transit alignment, residents of Central Park Place would experience improved access to I-5 and HCT through enhanced vehicle and pedestrian circulation near the Clark College Park and Ride. This Park and Ride and associated transit stop, would be located close to Central Park Place near the southwest corner of the campus.

Puchert and Renne (2003) found that minority and low-income individuals represent 63 percent of all transit riders nationwide. The project team has found indicators of the same trend locally. Therefore, the placement of transit stops at or near subsidized housing would result in an offsetting benefit for these communities.

Exhibit 5-15 summarizes impacts from the transit alternatives that may potentially affect EJ residents in Segment B.

Community Resources

No known or identified community resources that specifically cater to EJ residents would be impacted by the I-5 transit alignment in Segment B.

Exhibit 5-15. Segment B: Mill Plain District to North Vancouver

I-5	Vancouver
8 residential displacements in Shumway, 1 is Rose Village	7 residential displacements in Lincoln
No known community resources impacted	Acquisition of the Wellness project
Improved direct access to HCT for fewer low-income housing complexes	Improved direct access to HCT for more low-income housing complexes

5.4 Impacts from Other Project Elements

5.4.1 Transit Maintenance Base Options

Alternatives utilizing the BRT option would require an expanded maintenance station in Vancouver. Alternatives utilizing the LRT option would require an expanded maintenance station in Gresham.

TriMet's existing Ruby Junction maintenance base in Gresham would be expanded to support the extra light rail service under all LRT options. The expansion of the current Ruby Junction maintenance facility would require the full acquisition of 14 parcels, and the partial acquisition of one parcel. This partial acquisition would be required for the construction of a cul-de-sac and would not displace the use on the property. In many cases there appears to be multiple uses occurring on a single property. Initial counts estimate that seven light industrial or manufacturing uses, not including one vacant factory, and seven single family residences (SFRs), not including a vacant SFR, would be displaced to make room for this expansion.

Census data for the area surrounding the site indicate that 40 percent of residents are minority and 35 percent have incomes below the poverty line. Specific house-by-house analysis is needed to determine the proportion of EJ residents on these parcels.

C-TRAN's existing maintenance base in east Vancouver, near the intersection of 18th Street and 65th Avenue, would be expanded to support the bus rapid transit alternatives. The maintenance facility would require the full acquisition of five parcels. The parcels currently support two single-family residences, one manufacturing business, and two vacant lots. Census data for this area indicate that 17 percent of residents are minority and 7 percent have incomes below the poverty line.

Initial observations indicate that the expansion of the Gresham maintenance facility could result in a disproportionate impact to low-income or minority populations. Census data for that specific area (covering 2,256 people) shows the area to have a high probability of low-income and/or minority residents. Specific house-by-house analysis is needed to determine the proportion of low-income or minority residents or business owners in the seven SFRs and businesses located on the parcels that will be fully acquired.

5.5 Impacts from System-Level Choices

5.5.1 River Crossing Type and Capacity: How does the supplemental crossing compare to the replacement crossing?

The supplemental crossing would require 12-18 more partial right-of-way acquisitions in the Rose Village neighborhood, depending on the transit alignment; however, only one acquisition would actually displace a residence. Rose Village has greater percentage of EJ households and therefore a greater possibility of impacting EJ members of this community in this neighborhood could exist.

Additionally, current designs indicate that the supplemental options would displace two more floating homes on Hayden Island than the replacement option. A survey completed by this project indicates that the floating home community has below average EJ residents, as compared to surrounding communities.

Both of these crossing options would acquire community resources as identified in the Neighborhoods Technical Report. Impacts to these community resources could result in an impact to low-income or minority populations. While both options could require the acquisition of Hayden Island's only grocery store, further design refinements of the replacement option may avoid the community resource. Additionally, the replacement crossing may require a full acquisition of the former Hayden Island yacht club, where the Hayden Island neighborhood Network holds their meetings.

With the replacement bridge, BRT alignments would close the access for Smith Tower on Sixth. The access appears underutilized and is often blocked from use. There would still be the main access on Washington.

5.5.2 Air Quality

Air pollutant emissions are expected to be substantially lower in the future than under existing conditions under all build alternatives. For most pollutants of concern, future differences between alternatives are small enough not to be meaningful within the accuracy of the estimation methods, and the differences are much smaller than the anticipated reductions with time. This is true both for the region and the subareas evaluated.

Emissions are highest when the vehicle throughput is highest (as with the replacement crossing). The difference in subarea emissions of CO between alternatives ranges up to approximately 30 percent. However, the local hot spot analysis of CO concentrations performed for the project indicates that no violations of the CO NAAQS are expected.

5.5.3 Noise

Currently, noise levels along the project corridors range from 47 to 74 decibels (dBA) L_{eq}. There are 211 noise sensitive land uses that currently exceed the appropriate traffic noise criteria. Under the No-Build Alternative, noise levels increase by up to 4 dBA and the number of noise impacts increases to 221.

Under the replacement alternatives, noise levels without mitigation would increase over the existing by up to 7 dBA, with some reduction at locations east of the relocated highway. The number of noise impacts would increase to 256. Noise impacts under the supplemental alternatives would be similar.

Noise will primarily be mitigated with sound walls. With mitigation, nearly all of the noise impacts resulting from build options can be mitigated. There are a few notable exceptions along the project corridor in Vancouver. For example, where the sound walls would need to be open for local street crossings (at 29th and 33rd Streets) more highway noise would *escape* into the neighborhoods. (See Highway Segment A and B discussion for more detail).

The Smith Tower provides affordable senior housing at Sixth and Washington in downtown Vancouver. With the supplemental bridge, BRT has noise impacts to 20 residences in Smith Tower. Sound dampening, new windows, and installation of air conditioners can mitigate for the higher noise levels. However, outdoor noise levels would still be high, as would indoor noise levels when windows are open.

5.5.4 Transit Mode: How does BRT compare to LRT?

Direct Impacts

The BRT alternatives are associated with acquisitions in east Vancouver for the expansion of the existing transit maintenance facility. The LRT options would contribute to the need for an expansion of an existing LRT maintenance facility in Gresham. Initial observations indicate that the expansion of the LRT maintenance facility could result in an impact to EJ households. Specific, house-by-house analysis is needed to determine the proportion of EJ residents on these 10 parcels.

BRT would adversely impact the residents of the Smith Tower apartments in two ways. The Smith Tower provides affordable senior housing at Sixth and Washington in downtown Vancouver. With the supplemental bridge, BRT has noise impacts to three residences in Smith Tower. Sound dampening, new windows, and installation of air conditioners can mitigate for the higher noise levels. However, outdoor noise levels would still be high, as would indoor noise levels when windows are open. With the replacement bridge, noise does not have an impact, but BRT alignments would close the access for Smith Tower on Sixth. The access appears underutilized and is often blocked from use. There would still be the main access on Washington.

Travel Times

LRT would provide better travel times and reliability than BRT (Exhibit 5-16). In addition, BRT buses travel with mixed traffic outside the project area, and are thus subject to congestion-induced delays before they enter the exclusive guideway in the project area. Such delays can cause the buses to miss their schedules and increase travel-times. This introduces an element of unreliability that deters ridership. Increasing the frequency of buses (Increased Transit) further reduces BRT travel times by placing so many vehicles in the guideway that the buses cause congestion and slow down. The larger capacity of LRT trains allows lower overall frequencies while providing the same or greater capacity.

Exhibit 5-16. Travel Times (minutes)

	BRT		LRT	
	Efficient Transit[a]	Increased Transit[b]	Efficient Transit	Increased Transit
Expo Center to Lincoln or Kiggins Park and Ride	13	25	12	12
Lombard Transit Center to Lincoln or Kiggins Park and Ride	25	34	18	18
Downtown Vancouver (7th St.) to Pioneer Square	35	33	32	32
Pioneer Courthouse to Lincoln or Kiggins Park and Ride	46	54	40	40

[a] "Efficient Transit" includes longer headways between transit vehicles, and requires purchase and operation of fewer buses or trains. This has been paired with replacement alternatives, but is an option for either river crossing.

[b] "Increased Transit" includes shorter headways between transit vehicles, and requires purchase and operation of fewer buses or trains. This has been paired with supplemental alternatives, but is an option for the river crossing.

All build alternatives at least double transit ridership over the No-Build Alternative. LRT attracts approximately 30 – 40 percent more riders than BRT (Exhibit 5-17). Integration with the existing MAX system is an important benefit of LRT that helps attract these additional transit riders. This integration allows transit riders to travel between Vancouver and Portland without a transfer. Transfers add time and, are perceived by potential transit riders as adding even more time, unreliability, and inconvenience to their commute.

Exhibit 5-17. Transit Riders over the Columbia River

	No-Build	BRT		LRT	
		Efficient Transit	Increased Transit	Efficient Transit	Increased Transit
Annual transit riders over the Columbia River Crossing	2.5 million	4.8 million	5.7 million	6.7 million	7.4 million

In conclusion, there is a potential for direct impacts to the Wellness project, the Smith Tower Apartments, and to residences near the HCT maintenance facilities. These potential impacts are split between the two modes and do not help to differentiate between the two.

There are several programs in the Portland-Vancouver metropolitan area that are designed to assist special groups of individuals with the costs and challenges of transportation. In order to further mitigate the impacts of the tolls, assistance will be provided to these programs, so that they could increase their levels of service and aid more people in taking transit or biking. Please refer to the mitigations section for further detail on transit programs.

The level of transit service would improve considerably with both BRT and LRT over existing conditions. LRT would have higher ridership with shorter travel times.

Noise

In general, the light rail alternatives have much lower noise impacts to the floating home and Vancouver communities than the BRT alternatives. In some cases, the noise impacts of BRT may double the number of noise impacts along the alignment. For more detailed information, see the Noise and Vibration Technical Report.

Nearly all of these noise impacts can be mitigated through residential sound insulation, or in some cases sound walls, though this would only lower noise levels to below the appropriate threshold within the residential units. Sound insulation would not decrease outside ambient noise levels, which could result in an impact to previously quiet residential communities, like the homes on 16th Street.

5.5.5 Balance of Transit vs. Highway Investment: Increased Transit System Operations with Aggressive TDM/TSM Measures, and Efficient Transit System Operations with Standard TDM/TSM Measures

As discussed elsewhere in this report, low-income populations use transit more than other income groups, and would benefit from increased transit service. Some of the additional TDM measures may also help low-income populations in avoiding tolls. For example, better promotion of ridesharing networks, would assist low-income commuters in findings alternatives to driving alone, and paying the toll.

5.5.6 Major Transit Alignment: How does the Vancouver alignment compare to the I-5 alignment?

The Vancouver alignment passes through the Arnada, Shumway and Lincoln neighborhoods. This alignment is adjacent to many high-density developments, some of which are designated low-income. The Vancouver transit alignment would provide improved access to certain neighborhood resources such as the SW Medical Center, social service facilities, and the only grocery store in downtown Vancouver.

The I-5 Alignment passes through the Central Park and Rose Village neighborhoods, which have proportionally more low income and minority residents than other neighborhoods in the project area. These neighborhoods are composed largely of single-family homes, making the number of residents within walking distance of the transit alignment lower than the Vancouver alignment. The I-5 transit alignment would provide improved access to Clark College and the Veterans Affairs complex, including the Central Park Place housing facility. Please refer to the Neighborhoods Technical Report for further information on demographics.

Vancouver Alignment

Overall, the Vancouver alignment would not have disproportionately high and adverse impacts on EJ populations. Though the exact EJ status of the residences and businesses that would be acquired for this alignment is not known, none of the neighborhoods that border the alignment—Hough, Arnada, Carter Park, Shumway, or Lincoln—have notably higher than average proportions of EJ residents (See Exhibit 4-8 and 4-9). It is less likely that this alignment will impact these populations, than the 1-5 alignment, which runs through neighborhoods with higher proportions of EJ residents.

However, one building of importance that may be impacted by the Vancouver alignment: the alignment may require a full acquisition of the Wellness Project building located at 317 E 39th Street in Vancouver's Lincoln neighborhood. Although not identified as a community resource in the community resource mapping process, the Wellness Project serves an important role in the community as a free mental health clinic that serves the needs of low-income and uninsured residents. The Wellness Project opened in January 2004 and aims to help decrease homelessness, unemployment, and the use of emergency rooms. From January 2004 to May 2006, the clinic treated more than 1,300 patients, and in 2005 alone, the clinic conducted approximately 4,500 appointments.

Several nearby sites present opportunities to relocate the Wellness Project. Upper Main Street has somewhat underutilized parcels covered in large parking lots, and single story development especially with the introduction of high-capacity transit stations, redevelopment may lead to mid-rise, mixed-use projects in the area. This should increase the available square footage for uses such as the medical offices and the Wellness Project.

The Vancouver alignment may also require partial acquisitions with impacts to two medical offices in the Lincoln neighborhood. These medical offices were not listed as community resources in the community resource mapping process. However, the medical offices provide important services to the Lincoln neighborhoods.

One building, located at 300 E 37th Street, houses a variety of businesses, including:

- General Surgery, private practice
- Clinical Psychologist, private practice
- Wellspring Clinic: Chiropractic, massage, counseling
- Acupuncture, Herbal Medicine, Massage, private practice
- Dentist, private practice

The other building, located at 3506 E Main Street, is called the Clinic for Optimal Health, and is an ear, nose, and throat clinic. Based on our preliminary research, none of these health businesses especially cater to low-income persons, only the Wellness Project seems to serve mainly low-income populations.

Additionally, under the Vancouver alignment, six residences may be acquired with impacts to buildings in the Lincoln neighborhood, including five single-family residences and one duplex. These residences would be acquired in order to build the Lincoln Park and Ride.

Traffic and Transit Operations

Both full-length transit alignments north of downtown Vancouver have distinct advantages and disadvantages.

Exhibit 5-18 shows that both full-length alignments operate comparably. The I-5 alignment provides similar travel times, despite a longer route, by providing a faster average speed. Ridership is also comparable.

Exhibit 5-18. Alignment Characteristics

	Vancouver Alignment	I-5 Alignment
Total Guideway length	3.43 miles	4.21 miles
Average Guideway speed	17.3 mph	21.5 mph
Expo Center to northern terminus	12.0 min	11.7 min
Pioneer Courthouse Square to northern terminus	39.9 min	39.6 min
Daily passenger trips on transit over I-5 crossing	20,800	21,000

Values provided are for LRT.

An important distinction is the effect of HCT on traffic on local streets through northern Vancouver. The Vancouver alignment would reduce automobile capacity on Main Street, a key north-south arterial, causing more congestion in this area. As seen in Exhibit 5-19 the I-5 alignment would have less effect on local streets because it is primarily within the I-5 right-of-way and does not reduce capacity of most streets. Note that the additional highway and transit capacity of the build alternatives substantially improves local street service during the afternoon peak period.

Exhibit 5-19. Count of Intersections Degraded to Unacceptable in the Build Alternatives

Vancouver Intersections Failing to Meet Service Standards	Existing Intersections	No-Build Alternative	Vancouver Alignment	I-5 Alignment
During AM peak period	2	14	20	15
During PM peak period	1	30	9	4

Vancouver and I-5 alignments are using LRT. BRT would differ slightly.

Another difference between the two alignments is that land use and zoning around the Vancouver alignment is more supportive of high-capacity transit. The Vancouver alignment has more conducive zoning (commercial or medium-density residential) and thus, greater opportunity for attracting economic investment around transit stations. Conversely, the I-5 alignment runs through the Rose Village neighborhood which is primarily a single-family residential area. Development around stations along the I-5 alignment would be constrained by zoning (low-density residential) and I-5, which runs immediately west of the guideway. The Vancouver alignment would place stations in areas more supportive of pedestrian use and that are more likely to develop greater concentrations of commercial and residential uses that take advantage of the improved access afforded by high-capacity transit.

I-5 Alignment

Overall, the I-5 alignment would not have disproportionately high and adverse impacts on low-income persons. The I-5 alignment may require acquisitions with impacts to buildings for seven residences, including six single-family residences and one duplex in the Shumway neighborhood. Though the exact EJ status of these residences is not known, the Shumway neighborhood has below average proportions of EJ residents as compared to surrounding Vancouver neighborhoods. It is therefore less likely that these specific populations would be impacted with these acquisitions.

Noise impacts are minor between HCT alignments for both BRT and LRT, and the difference between noise impacts for each alignment is not enough to determine that one HCT alignment will have more impacts than other. The I-5 alignment, when paired with the BRT mode, does result in a greater number and severity of noise impacts. The majority of impacts can be mitigated with noise walls. For the transit alignments, indoor impacts can be mitigated through residential sound insulation. Traffic conditions on local intersections would be better with the I-5 alignment, as explained above.

Although both the Vancouver and I-5 alignments impact homes and are inconsistent with selected neighborhood plan goals, the Vancouver alignment appears to have more impacts. It displaces the Wellness Project, and the US Bank building.

5.5.7 Tolling Options Comparison

As a part of the build alternatives, all motor vehicle users on the I-5 crossing would pay a toll. Open road tolling (ORT) technology would be used. ORT allows the collection of tolls without the use of lane dividing barriers or tollbooths. With ORT, users are able to

drive through at highway speeds without having to slow down at barriers or to physically pay a toll. Full use of ORT eliminates the need for toll plazas.

Tolls would be collected through the use of transponders affixed to vehicles. Motorists would establish a pre-paid account for their transponder. For those vehicles without a transponder, license plate images would be scanned and users would be mailed a bill. Due to the added operational cost associated with license plate scanning and bill collection, vehicles without transponders would pay a higher toll rate than vehicles with transponders.

Exhibit 5-20 summarizes the tolling rate structure for the replacement alternatives. For the supplemental alternatives, which include Increased Transit and transportation demand incentives compared to the replacement alternatives, the peak period toll for passenger vehicles would be higher. Vehicles with transponders would be charged $2.50 and vehicles without transponders would be charged $3.50).

Tolls would be administered for both directions of travel along I-5, e.g., a vehicle with a transponder traveling southbound across the bridge at 9 a.m. and then northbound across the bridge at 5 p.m. would pay a total of $4.00 in tolls. The toll rates are based on year 2006 dollars and have been assumed to increase at 2.5 percent per year, an assumed long-term inflation rate.

Exhibit 5-20. Toll Rate Structures Used for Evaluation

For Replacement Options							
		Passenger Car		Trucks with Transponders		Trucks w/o Transponders	
Start	End	w/Transp	No Transp	Med Truck	Heavy Truck	Med Truck	Heavy Truck
Midnight	5:00AM	$1.00	$2.00	$2.00	$4.00	$3.00	$5.00
5:00AM	6:00AM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
6:00AM	10:00AM	$2.00	$3.00	$4.00	$8.00	$5.00	$9.00
10:00AM	3:00PM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
3:00PM	7:00PM	$2.00	$3.00	$4.00	$8.00	$5.00	$9.00
7:00PM	8:00PM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
8:00PM	Midnight	$1.00	$2.00	$2.00	$4.00	$3.00	$5.00
For Supplemental/Increased Transit Options							
		Passenger Car		Trucks with Transponders		Trucks w/o Transponders	
Start	End	w/Transp	No Transp	Med Truck	Heavy Truck	Med Truck	Heavy Truck
Midnight	5:00AM	$1.00	$2.00	$2.00	$4.00	$3.00	$5.00
5:00AM	6:00AM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
6:00AM	10:00AM	$2.50	$3.50	$5.00	$10.00	$6.00	$11.00
10:00AM	3:00PM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
3:00PM	7:00PM	$2.50	$3.50	$5.00	$10.00	$6.00	$11.00
7:00PM	8:00PM	$1.50	$2.50	$3.00	$6.00	$4.00	$7.00
8:00PM	Midnight	$1.00	$2.00	$2.00	$4.00	$3.00	$5.00

Air Quality

Findings from the Air Quality Technical Report suggest there would be no impacts disproportionately borne by EJ populations. The emissions are highest when the vehicle throughput is highest (as with no-toll options). The difference in subarea emissions of CO between alternatives ranges widely, with no-toll options having the most significant emissions. However, the local hot spot analysis of CO concentrations performed for the project indicates that there will be no violations of the CO NAAQS.

Research on Tolling and Equity Issues

Tolling could have an adverse impact and bring benefits to EJ populations and in particular low-income populations. Several academic studies have been conducted on equity and tolling. WSDOT also conducted research on tolling equity for various projects. This research included reviews of case studies of tolled facilities throughout the United States that employ a variety of tolling schemes.

The proposed project will be used by residents of both Oregon and Washington. Commuter patterns and tax structures between the states differ, making evaluation of equity issues challenging. Some of the common findings of previous studies on equity issues in tolling are highlighted below.

Congestion on highways increases travel time for all road users. Overuse of roadways represents a collective inefficiency, as well as a loss of time and an increase in costs to those who use the congested roads. Congestion can also increase levels of air pollution, and traffic accidents. Tolling creates an incentive for drivers to switch their travel time, route, or mode in order to avoid or reduce the additional cost. The result can be reduced traffic and faster commutes for those drivers most willing to pay.

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

WSDOT published the Washington State Comprehensive Tolling Study Final Report in September 2006, which included Background Paper #4 – Equity, Fairness, and Uniformity in Tolling. The tolling report included a review of national policies on equity and fairness, including the following:

- Civil Rights Act of 1964;
- National Environmental Policy Act of 1969;
- Federal Aid Highway Act of 1970;
- Civil Rights Restoration Act of 1987;

- Executive Order 12898 of 1994; and
- U.S. Department of Transportation implementation actions.

A review of these policies includes a range of concepts regarding equity and fairness and the difficult questions that arise in implementation of equitable and fair projects, particularly for toll roads. Tolling projects are usually subject to public opposition based in part on perceptions of inequities, although there is limited technical data to back public fears. The study review included the following constructed and proposed types of tolling projects:

- Traditional flat-rate toll facilities
- Variable-rate tolls or value pricing
- Variable-rate tolls on express lanes
- Variable-rate on exclusive high-occupancy vehicle (HOV) lanes or high-occupancy toll (HOT) lanes

The impacts of tolling on EJ populations vary greatly depending on the specific tolling scheme. Research has been conducted on tolling schemes for bridges, dedicated parallel roadways, and variable timing toll roads (congestion pricing), among others.

The following types of equity issues were identified in the Washington tolling study:

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

The study identifies some situations that potentially may be burdensome on lower-income populations. These include the exclusive use of electronic tolling without measures to minimize financial hardships (requirement of credit cards or checking accounts), tolling an existing non-tolled roadway in such a way that requires greater out of pocket costs for lower-income populations, and allowing an "ability to pay" determination influence the decision to provide transportation improvements in lower-income populations.

WSDOT conducted earlier research on tolling equity issues for the SR 520 Bridge Replacement and HOV project (WSDOT 2006). This research addressed equity issues surrounding HOT lanes used in conjunction with adjacent non-tolled lanes, but WSDOT concluded that some of the findings from these studies could apply to equity issues pertaining to a fully tolled facility. Findings from this research are listed below:

The Colorado Department of Transportation found that equity and income issues are not obvious and public opinion is favorable when adequate information about avoiding tolls by taking public transit or carpooling is provided (Ungemah 2004).

Orange County, California found that drivers with higher incomes use the toll lanes on SR 91 for a proportionately greater number of trips (Sullivan 2004) possibly suggesting that cost or difficulty with purchasing transponders may inhibit or discourage lower income travelers from using the tolled facility. Other studies by Orange County showed most drivers, regardless of income, irregularly use the tolled facility, depending on when it is most advantageous to them. Groups that most frequently used the tolled facility included women with higher levels of education and middle aged travelers. The study found that while income is a moderately influencing factor for using the tolled road, drivers are much more influenced by current traffic conditions on the non-tolled road and personal trip needs.

The Puget Sound Regional Council (PSRC 2005) noted that community EJ leaders stressed that increased access to transit is critical to offset impacts of tolling on SR 520, and that electronic toll collection could represent one of the greatest hardships to lower-income populations.

In addition to review of these studies, the SR 520 Bridge Replacement and HOV Project Environmental Justice Report (WSDOT 2005) identified conclusions from its public outreach program, which correlated with the concerns noted by the PSRC. The report outlined how transportation improvements benefit users through safety, reliability, and mobility improvements. It also addressed improved benefits to pedestrians and bicyclists, as well as other benefits including improved response times for emergency vehicles, improved regional air quality, and improved water quality due to better stormwater treatment. The report identified alternatives to funding. It also identified likely impacts to low-income users and evaluated whether these impacts would be disproportionately high and adverse. Mitigation measures were identified, such as outreach to inform low-income users about changes they might face, subsidies or financial assistance to purchase transponders, accessible toll collection and monitoring to ensure effectiveness of mitigation measures.

Impacts for I-5 CRC

For most low-income populations, the impact of tolling would not be highly adverse due to the project benefits and the options to avoid the toll (e.g. transit) or minimize the toll's impacts (e.g., carpooling).

Depending on the transportation choices made, tolling could increase a low-income household's transportation costs. Low-income populations who choose to avoid the toll by taking alternate routes may be affected because they might spend additional time and vehicle operating costs on the alternate route compared to the tolled route. However, travel times will improve appreciably with the build alternatives, and will likely offset any increased travel chosen to avoid a toll.

Some low-income populations drive because they live in outlying areas with lower housing costs, but insufficient transit service. Others hold jobs that are not accessible by transit. The National Household Travel Survey found that increasing numbers of low-income individuals are auto-dependent (Loveless 2006). The addition of HCT not only improves transit service and provides a much more reliable transit option, it also is accompanied by additional park and ride facilities that can be used by people who want to use transit, but are dependent on private automobiles for a portion of their trip.

Without a toll, the demand for the bridge capacity would be very high. This demand would increase the bridge use to the point that congestion levels would increase.

HCT also allows commuters to avoid the cost of parking at their destinations. Park and ride lots will be free. Current transit pass costs and trip costs are far lower than the monthly or daily parking charges in the Portland Central City, and, to a lesser degree, in the Vancouver City Center.

Existing electronic toll collection systems with transponders present various hurdles for low-income users. One must normally either pay a deposit or link the account to a credit card or bank account (Parkany 2005). Some low-income populations may not be able to purchase a transponder (Parknay 2004). Not being able to purchase a transponder due to large set-up fees or lack of a credit card and bank account would potentially be an adverse impact on those low-income populations affected. A similar barrier may exist when new tolls are instituted in areas where some groups and individuals lack the English language skills to understand the complex tolling system. The impacts could be mitigated with a program established specifically to do so. The following are examples of how other jurisdictions have assisted EJ populations in overcoming disproportionately high and adverse impacts.

MDX SunPass Direct

The SunPass transponder for paying tolls was first accepted on MDX expressways in 1999, and currently two out of three drivers on MDX roadways pay for their tolls using a SunPass transponder. In addition to the ease of use, the SunPass transponder saves about 20% of the toll each time it is used. Personal Accounts can be established on-line, by phone, mail, fax, or in person at the Customer Service Center in Boca Raton. Information and forms are available in English and Spanish

The Miami-Dade Expressway Authority (MDX) has created the SunPass Direct program to issue a limited number of FREE SunPass transponders to low-income Miami-Dade County residents

Illinois Tollway, I-PASS

I-PASS transponders are sold for $50, which includes a $10 refundable deposit and $40 in pre-paid tolls. Purchasing I-PASS at 200 Jewel-Osco stores in Northern Illinois, Kenosha, Wisconsin and Northwest Indiana is the most popular and easiest way for Illinois Tollway customers to get a transponder. In addition, I-PASS is available at select Travel Mart convenience stores and seven Road Ranger Travel Centers. I-PASS transponders also can be ordered online at www.getipass.com or by calling.

The Illinois Tollway launched the I-PASS Assist program in coordination with the Illinois Secretary of State Jesse White, the Department of Aging and the Department of Public Aid. The I-PASS Assist program uses income-eligibility criteria, based on those used in the State's Circuit Breaker and Medicaid programs, to qualify people who can purchase an I-PASS at a reduced rate of $20 -- $10 for deposit and $10 in pre-paid tolls. Drivers with I-PASS Assist transponders are required to replenish their pre-paid toll accounts in increments of at least $20 to avoid toll violations. I-PASS Assist drivers opting to replenish manually need to maintain a $10 minimum account balance and can make cash or check payments of $20 at the Illinois Tollway headquarters, check payments through the mail, or credit or debit card payments by phone.

5.5.8 Transit Project Length: How do the full-length alternatives compare to the shorter length options?

The major differences of the project length (for EJ considerations) are the location of park and ride facilities and the consequent change in the HCT alignments and stations.

Park and Rides

There are four HCT terminus options being evaluated: Lincoln, Kiggins Bowl, Mill Plain, and Clark College. The choice of terminus location can substantially change the alignment of HCT through northern Vancouver.

North of the Mill Plain transit center between 15th and 16th Streets, HCT can turn east and then follow I-5 north, or can continue north on local streets. Routing HCT on I-5 would result in a terminus at Kiggins Bowl immediately south of the Main Street/I-5 overpass, whereas continuing on local streets would terminate HCT at the Lincoln Park and Ride at 39th Street and Main Street. The Clark College minimum operable segment (MOS) for HCT would use the I-5 alignment, but would be truncated further south at the Clark College park and ride. The Mill Plain MOS would end closer to downtown Vancouver at the Mill Plain Station between 15th and 16th Streets. The following sections discuss the characteristics of these end points.

Kiggins Bowl Park and Ride

The full length I-5 alignment would run 4.2 miles from the Expo MAX station in Portland to a new park and ride at Kiggins Bowl. A six-level parking structure at the Kiggins Bowl Park and Ride would accommodate 1,400 vehicles.

Lincoln Park and Ride

North of the Mill Plain transit center, the HCT line could continue north either via a couplet on Broadway and Main Streets or two-way on Broadway to 29th Street. North of 29th Street, HCT would continue north two-way on Main Street to the Lincoln Park and Ride at 39th Street for a complete length of 3.4 miles. The Lincoln Park and Ride would contain 2,400 parking spaces in a three level structure. This parking structure would have two levels below ground and one above ground, to give a similar appearance as a surface lot.

In order to serve a wide range of riders across Clark County, this terminus would also include a surface parking lot at Clark College with 460 parking spaces and another surface lot at Kiggins Bowl with 150 spaces. Riders using the Clark College parking lot could connect with the HCT line using local bus shuttles between Clark College and the Mill Plain Transit Center. The Kiggins Bowl parking lot would be connected to the Lincoln Park and Ride by a local bus shuttle.

Clark College MOS

The MOS would mimic the full-length I-5 alignment except that HCT would span only 2.7 miles to end at the Clark College Park and Ride rather than continue north to Kiggins Bowl Park and Ride. The Clark College Park and Ride would contain 1,100 parking spaces in a three level parking garage.

Demographic data for the Rose Village neighborhood reveal several differences among Rose Village, Clark County, and Vancouver (see Exhibit 4-30). Overall, the neighborhood has a higher percentage of population below the poverty level and lower percentage of owner-occupied housing and lower median home value. The percentage of population below the poverty level in Rose Village is almost double the percentage in the city, and more than double than the county percentage. The Rose Village neighborhood has a higher percentage of residents below the poverty line, and a higher percentage of minority residents than any other Vancouver neighborhood in the API. As can be seen in exhibit 4-30, the neighborhood also has a high rate of disabled residents and a high percentage of housing units without a vehicle. The transit components of the MOS options will not require displacements in the Rose Village neighborhood, but will also not provide HCT directly to the neighborhood. Census data suggests that this is a neighborhood that would have a high degree of demand for transit.

Mill Plain MOS

This Mill Plain minimum operable segment would end at the new Mill Plain transit center between 15th and 16th Streets. In the future, this MOS could be extended using either the Vancouver or I-5 alignment.

Conclusion

None of the park and ride facilities have been found to have a disproportionately high and adverse impact to EJ populations. The benefit of the northern transit stations to riders is evident. Since some of those riders would be part of EJ populations, the full project alternatives would provide a higher level of transit service to EJ populations.

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6. Temporary Effects

Construction of any of the project alternatives would require many years with intensive activities from months to one or more years in different segments of the corridor. Construction has the potential to be very disruptive in some locations. Construction impacts especially important to EJ populations include increased congestion, reduced mobility, reduced transit service, increased response time for emergency services, and increased noise. Specific impacts in these areas are described in detail in the respective Technical Reports (Noise and Vibration, Transportation, Public Services, etc).

Temporary congestion during construction may have an impact on the EJ populations in the project area and the organizations that serve them. These populations and organizations are heavily reliant on transit, whose service could be affected by construction-related congestion.

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7. Mitigation

Impacts to EJ populations may occur, as they will for many persons in the API. Many of the adverse impacts can be avoided, minimized, and mitigated. Discussions with service providers for EJ populations and in other public involvement forums (see Section 3, Coordination, for additional information on public involvement) will help enable identification of potential solutions to the identified adverse impacts.

7.1 Potential Mitigation for Long-Term Impacts

7.1.1 Potential Mitigation Common to All Build Alternatives

The following discussion addresses potential mitigation that would be common to all build alternatives.

Some potential mitigation measures are specific, such as relocating the Wellness Project so it will remain accessible to both clients and employees. Other solutions are more general and common to most service providers. These include maintaining access to transit, provisions for emergency services, and access for deliveries and employees. Currently, it is too early in the project planning and development process to do more than generally describe long-term impacts and how they can be avoided or mitigated. If the outreach efforts underway continue through the process of planning, evaluation, design, and construction, some impacts could be identifiable in advance. While not all impacts can likely be resolved, they can be minimized and substantially avoided. Where impacts cannot be avoided, mitigation would be developed based on the specific needs of the affected EJ population or community.

Most aspects of mitigation for property acquisition are addressed by federal and state regulations, which require that property be purchased at fair market value and that all residential displacements be provided with replacement housing and/or relocation assistance. Federal and state guidelines, such as the Uniform Relocation Act, determine the standards and procedures for providing such replacement housing, based on the characteristics of individual households. Relocation benefit packages usually include replacement housing for owners and renters, moving costs, and assistance in locating replacement housing.

Relocation benefits for businesses can include moving costs, site search expenses and business reestablishment expenses. As with residential displacements, relocation packages are determined on an individual basis based on ownership or tenant status. In general, an attempt would be made to minimize relocation impacts to residences, businesses, and public facilities. Eligibility and terms of relocation assistance will be determined during future project planning. The project team will consider options for relocating the Safeway grocery store on Hayden Island prior to demolition of the current

store, and has also identified highway alignment refinements that would avoid the Safeway. This would ensure that residents would have a grocery store in the future.

Displacement of residents and community resources could be mitigated by exploring relocation options within their neighborhoods. This could mitigate the impact to the residents and avoid the loss of these resources to their communities. This is especially important for neighborhood resources such as the Wellness Project, which serves minority and low-income clients.

The project team may consider helping the Hayden Island neighborhood Network find a similar location to hold their neighborhood meetings.

Residences impacted by transit noise could be mitigated using residential sound insulation.

Traffic related noise impacts may be mitigated depending on whether or not the decibel level exceeds FHWA and State standards for mitigation. New sound walls or the replacement of old sound walls may be recommended near residences and other noise sensitive locations.

7.1.2 Mitigation for Impacts from Tolling

Specific measures will be considered to mitigate any adverse impacts that tolling could potentially have on EJ populations. The measures fall into the categories of outreach, assistance, accessible toll collection methods, and monitoring. Additional mitigation may be needed if I-205 is tolled or if a regional tolling system is implemented. Inclusive, early public involvement could be implemented so that people can make choices based on the knowledge that transportation costs could increase if they use the I-5 bridge. Before and after the toll facility opens, ODOT and WSDOT will provide information on how to obtain transponders, and how to receive transportation assistance.

Some options for improving low-income drivers' access to the transponders include:,

- Locate venues for acquiring transponders near to lower income neighborhoods
- Enable people without credit cards or checking accounts to obtain a transponder
- Share information with and through other public service providers.
- Consider subsidizing or providing transponders to individuals and families below the poverty line. Alternately, transponders could be provided as an additional service, cooperatively with an existing public service provider (e.g., food stamps)
- Include rideshare opportunities such as those in CarpoolNW.com and vanpool providers.

7.1.3 Transportation Assistance Programs

Assistance programs that aid low-income populations with travel options, tolling assistance, bus passes, and bicycles will be analyzed, depending on which tolling options and high-capacity transit options are chosen. (See Section 4.2.4 for additional information on travel assistance programs.)There are several programs in the Portland-Vancouver

metropolitan area that are designed to assist special groups of individuals with the costs and challenges of transportation. In order to further mitigate the impacts of the tolls, assistance will be provided to these programs, so that they could increase their levels of service and aid more people in taking transit or biking. Options include the following.

- C-TRAN offers programs that may assist EJ populations. Identification cards are required for special/reduced fares (cash fares, tickets or passes). Low-income individuals can obtain a reduced fair. The discount is on monthly passes only.
- TriMet offers similar programs that may assist low-income populations. TriMet offers Honored Citizen Fares for seniors 65 and older, people on Medicare and people who have a disability.
- The Community Cycling Center (CCC) is a charitable nonprofit that is dedicated to reaching children, restoring communities and recycling bicycles. The CCC offers after school riding and maintenance/safety programs, the Yellow Bike Project, classes in safety, bike repair, commuting, and riding. The CCC also offers a Learn & Earn a Bike program for low-income youth and adults.
- The Create a Commuter project uses Job Access and Reverse Commute (JARC) funds to make bicycles available to low-income individuals for their work trips. The Create a Commuter program gives bicycles to individuals who are referred by partner social services agencies. Bicycles are made available at no charge to recipients.
- The JARC program provides transit services to assist low-income and unemployed persons in commuting to jobs and training and to develop transit services to transport workers to suburban job sites. Examples of JARC projects include: late night and weekend service, Guaranteed Ride Home Programs, vanpools or shuttle services to improve access to employment or training sites, car-share or other projects to improve access to autos, access to child care and training.

7.1.4 Public Outreach

In addition to mitigating specific impacts, general public outreach and involvement will continue, particularly with EJ populations. CEJG will continue to work together as the project moves towards construction (See Section 3 for additional information on public outreach and involvement).

7.1.5 Strategic Plan Recommendations

The Portland-Vancouver I-5 Transportation and Trade Partnership team studied EJ populations along the I-5 corridor and conducted outreach to involve EJ populations. The following statements are key findings from the Portland-Vancouver I-5 Transportation and Trade Partnership Final Strategic Plan. The Partnership team made the following recommendations:

- R 8.2. Continued work should be done to complete a list of communities, organizations and agencies to outreach to low-income and minority populations during the EIS process.

- R 8.6. During the EIS process, special attention needs to be paid to conducting outreach to low-income and minority residents in the Study Area. Community stakeholders generated a list of outreach and involvement ideas. This list should be taken into the EIS process and used as the basis to develop a public outreach and involvement plan that includes outreach to low-income and minority populations.

While efforts above have been ongoing, the effort should continue throughout construction. The information gathering and coordination will be structured so as to design the best mitigations possible based on the individual impacts to be mitigated.

7.2 Mitigation for Temporary Impacts

Temporary property acquisitions (construction easements) may occur on Hayden Island, due to construction of both the transit and highway alignments. The construction team will meet with property owners that would be affected by the temporary acquisitions to discuss details of the acquisition, such as duration of the acquisition as well as an operating schedule. For other mitigation measures for construction easements, are discussed in the Economics Technical Report.

Residents of Hayden Island are likely to experience noise and vibration impacts due to construction equipment, vibratory compaction equipment, and pile driving during bridge construction. Residents living in floating homes may be particularly susceptible to noise and vibration impacts due to their close proximity to both the highway and transit alignments. The construction team will comply with appropriate noise abatement measures. Potential measures are described in the Noise Technical Report.

Air quality may be affected on Hayden Island due to emissions from construction equipment. Residents living in floating homes and the mobile home park may be particularly susceptible to air quality impacts due to their close proximity to both the highway and transit alignments. Construction impacts to air quality could be minimized through measures discussed in the Air Quality Technical Report.

Construction activity for the highway and interchanges is expected to result in traffic delays on I-5 during construction. Depending on schedules and phasing, such delays could have greater impact on Hayden Island residents as they have no other access to the island. Construction impacts to transportation could be minimized through measures discussed in the Transportation and Transit Technical Reports.

Construction activities may have an adverse impact on commercial and public service activities in downtown Vancouver. Construction impacts could be minimized through measures discussed in the Economics, Public Services and Neighborhoods Technical Reports. Additionally, safe and accessible pathways could be maintained especially near public housing, senior housing, and public services.

8. Summary of Impacts and Final Determination

Using the methods described in Section 2 of this report, the project team determined the likelihood that the project may have disproportionately high and adverse impacts on EJ populations. Each alternative was analyzed for impacts using the methodology discussed in Section 2 of this report. Six questions were addressed and analyzed to help determine impacts. The questions are based on guidance from FHWA. More detailed information on these impacts is provided in Section 5 of this report.

Question 1: Would the project, using any of the alternatives, result in disproportionately high and adverse impacts?

No. The project would not likely result in disproportionately high and adverse impacts to EJ populations. The I-5 CRC project would result in a variety of environmental impacts throughout the project area, both positive and negative. This report has documented property acquisitions (including the Safeway, the Wellness Project, and the homes near the Gresham Maintenance Facility); secondary impacts as were identified in the economic, noise, and air quality analyses; and other potential issues for EJ populations such as tolling. For negative impacts, implementation of proposed mitigation measures would eliminate or substantially reduce the negative impacts.

Although impacts to EJ populations would occur, it appears they can be avoided, minimized, or mitigated. Where impacts cannot be avoided, mitigation would be developed based on the specific needs of the affected individuals or community.

Findings also suggest that impacts to EJ populations would not be disproportionately high and adverse. For instance, the proposed right-of-way acquisitions would require the relocation of homes and businesses. Based on an analysis of Census and other data, it is not likely that these are highly or disproportionately affecting EJ populations. As designs for the selected alternative are developed, household and business surveys will be completed and used to further assess the distribution of impacts.

Initial observations indicate that the expansion of the Gresham maintenance facility could result in a disproportionate impact to low-income or minority populations. Census data for that specific area (covering 2,256 people) shows the area to be 40 percent minority and have 35 percent below the poverty line. Specific house-by-house analysis is needed to determine the proportion of EJ residents on these 10 parcels.

The tolling associated with the build alternatives could negatively affect some low-income individuals. While these tolls would have to be paid by all drivers

using the new bridge, they would represent a proportionally greater expense burden for low-income individuals than for higher-income individuals. Options for avoiding the toll, or minimizing its impact, include traveling by transit, carpooling, or taking an alternate route. Project positive impacts to low-income populations include improvements in transit travel times; improvements in auto travel times; improvements in bicycle and pedestrian access; and improved access to regional jobs, education, housing, and services. The benefits of the high capacity transit improvements are of particular benefit to EJ populations.

Impacts of tolls could also be mitigated by measures such as financial assistance programs, outreach and education. It is particularly important to provide EJ populations with information on how to obtain transponders, and possible financial assistance.

Question 2: Does the project affect a resource that is especially important to a minority or low-income population? For instance, does the project affect a resource that serves an especially important social, religious, or cultural function for a minority or low-income population?

Yes, the project will affect one such resource in Washington. The Wellness Project in Vancouver is especially important to low-income persons with needs for mental health services. The Wellness Project does not "serve an especially important social, religious, or cultural function" but does provide a necessary service. Its relocation is included in the mitigation for this project. Plans will be made to relocate the facility to a site within the same general area that offers substantially the same accessibility to mental health clients as the current building. If the new Wellness Project location is served by high-capacity transit, persons traveling there would experience benefits from the CRC project.

Question 3: Would the project result in disproportionately high and adverse impacts that would be predominately borne by a minority or low-income population?

No, it is not likely that any high and adverse impacts would be disproportionately borne by EJ populations. The only potential disproportionate impacts are noise impacts. Specific low-income housing located near transit lines and housing near I-5 that may be affordable to low-income households could experience noise impacts that cannot be adequately mitigated. Most I-5 related noise can be reduced below existing levels. However, the noise impacts on upper stories of buildings adjacent to and above I-5 cannot be adequately mitigated by sound walls. Overall, low-income housing sites will experience generally improved travel conditions, noise, and air quality in the future build alternatives.

If the project's electronic toll collection method requires users to pay large set-up fees or own a credit card or bank account, some low-income populations may not be able to purchase a transponder (Parknay 2004). Not being able to purchase a transponder would potentially be a disproportionately high and adverse impact on those low-income populations. The impacts could be mitigated with a program established specifically to provide such assistance. The specific administrative

and operational details of the tolling system have not been developed, though they are planned to include transponder assistance programs.

Question 4: Would the project result in disproportionately high and adverse impacts on a minority or low-income population that would be appreciably more severe or greater in magnitude than the impact that would be suffered by the non-minority or non-low-income population?

No, there will not be disproportionately high and adverse impacts on an EJ population that would be appreciably more severe or greater in magnitude than would be suffered by the non-EJ population.

Question 5: Does the project propose mitigation?

Yes, please refer to Mitigations in Section 7 of this report.

Question 6: Are there project benefits that would accrue to EJ populations?

Yes, benefits that would accrue to EJ populations include new and reliable high-capacity transit service, improved travel times on I-5, improved vehicle, bicycle and pedestrian travel, and likely improvements in air quality and noise levels (in most locations). The decrease in transit travel time and increase in transit reliability would be a key benefit for all the traveling public, but particularly for low-income people who ride transit proportionally more than those with higher incomes.

A replacement crossing would provide more congestion relief than the supplemental crossing or No-Build Alternative. The No-Build Alternative would only accommodate about 55,000 person-trips during peak periods, and is predicted to increase congestion to 15 hours/day by 2030. The greater capacity and improved traffic operations of a replacement crossing would reduce duration of congestion to 3.5 to 5.5 hours/day. A supplemental crossing would result in about 11 hours of congestion each day.

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APPENDIX A

Data by Census Block Group

Table A-1. Minority and Low-Income Populations

CT & BG Names	Total Population	Minority	% Minority	Low-Income	Low-Income
Oregon					
CT 21 BG 1	444	121	24%	216	43%
CT 21 BG 2	1,030	232	24%	208	22%
CT 22.01 BG 1	339	271	70%	119	34%
CT 22.02 BG 1	204	91	43%	65	30%
CT 23.01 BG 1	663	212	37%	78	15%
CT 23.01 BG 2	947	526	54%	303	31%
CT 23.01 BG 3	1,068	589	60%	422	43%
CT 23.02 BG 1	1,189	410	34%	202	17%
CT 24.01 BG 1	654	170	25%	12	2%
CT 24.01 BG 2	736	141	22%	52	8%
CT 24.01 BG 3	771	229	28%	109	14%
CT 24.01 BG 4	517	276	42%	9	1%
CT 24.02 BG 1	1,144	338	30%	181	16%
CT 24.02 BG 2	1,002	172	16%	70	7%
CT 24.02 BG 3	938	229	23%	109	11%
CT 25.01 BG 4	712	36	5%	8	1%
CT 25.02 BG 3	1,284	399	32%	152	12%
CT 25.02 BG 4	1,083	173	16%	149	13%
CT 33.01 BG 2	1,157	873	82%	479	45%
CT 33.01 BG 3	1,033	749	80%	262	28%
CT 33.02 BG 1	1,126	447	38%	230	20%
CT 33.02 BG 2	1,356	846	61%	277	20%
CT 34.01 BG 1	681	379	58%	95	15%
CT 34.01 BG 2	903	640	71%	215	24%
CT 34.01 BG 3	768	450	66%	102	15%
CT 34.01 BG 4	1,021	809	75%	355	34%
CT 34.02 BG 1	1,050	576	66%	241	28%
CT 34.02 BG 2	759	688	81%	301	37%
CT 34.02 BG 3	1,031	674	64%	302	29%
CT 35.01 BG 1	837	573	76%	221	29%
CT 35.01 BG 2	671	366	58%	129	21%
CT 35.01 BG 3	873	235	27%	47	5%
CT 35.01 BG 4	1,051	384	37%	37	4%
CT 35.02 BG 1	851	361	40%	159	17%
CT 35.02 BG 2	681	118	24%	41	8%
CT 35.02 BG 3	712	114	17%	9	1%
CT 36.01 BG 1	549	279	54%	38	7%
CT 36.01 BG 2	1,036	708	73%	167	17%
CT 36.01 BG 3	1,115	522	52%	244	25%
CT 36.01 BG 4	1,077	757	71%	345	33%
CT 37.01 BG 1	1,074	647	59%	179	17%
CT 37.01 BG 2	1,007	527	55%	162	17%
CT 37.01 BG 3	1,408	576	50%	148	13%
CT 37.01 BG 4	827	300	39%	215	28%

CT & BG Names	Total Population	Minority	% Minority	Low-Income	Low-Income
CT 37.02 BG 1	682	359	52%	123	18%
CT 37.02 BG 2	608	274	47%	32	6%
CT 37.02 BG 3	890	402	41%	215	23%
CT 38.01 BG 1	961	288	30%	136	14%
CT 38.01 BG 2	765	261	33%	67	9%
CT 38.01 BG 3	1,160	363	35%	100	10%
CT 38.02 BG 1	1,193	513	46%	210	19%
CT 38.02 BG 2	1,023	278	28%	196	20%
CT 38.02 BG 3	856	114	14%	55	7%
CT 38.03 BG 1	802	683	78%	289	33%
CT 38.03 BG 2	458	179	35%	80	16%
CT 38.03 BG 3	1,513	574	38%	159	11%
CT 38.03 BG 4	1,161	118	10%	75	7%
CT 39.01 BG 1	1,266	779	62%	210	17%
CT 39.01 BG 2	913	302	35%	111	13%
CT 39.01 BG 3	1,453	256	18%	177	13%
CT 39.01 BG 5	1,953	1,328	67%	581	29%
CT 39.02 BG 1	662	102	17%	16	3%
CT 39.02 BG 2	792	180	23%	124	16%
CT 39.02 BG 3	839	177	21%	51	6%
CT 44 BG 1	131	24	18%	0	0%
CT 72.01 BG 1	1,204	130	11%	118	10%
CT 72.01 BG 2	932	49	5%	58	6%
CT 72.02 BG 1	2,360	485	24%	183	9%
Washington					
CT 4.04 BG 1	1,595	69	6%	57	5%
CT 4.04 BG 2	2,341	200	9%	5	0%
CT 4.04 BG 3	2,501	211	10%	110	5%
CT 4.04 BG 4	571	80	14%	22	4%
CT 8.03 BG 1	1,646	485	32%	438	29%
CT 8.03 BG 2	2,298	95	5%	50	3%
CT 8.03 BG 3	866	30	4%	8	1%
CT 8.04 BG 1	2,699	946	41%	676	30%
CT 8.04 BG 2	3,214	207	7%	119	4%
CT 8.04 BG 4	1,067	181	24%	224	31%
CT 8.05 BG 1	2,876	164	7%	42	2%
CT 9.04 BG 1	625	23	4%	19	3%
CT 9.04 BG 2	993	95	9%	81	8%
CT 9.04 BG 3	1,834	351	19%	371	20%
CT 9.04 BG 4	2,220	230	12%	105	6%
CT 9.06 BG 1	2,303	227	12%	10	1%
CT 9.06 BG 2	5,614	417	8%	305	6%
CT 9.08 BG 3	2,166	284	14%	36	2%
CT 10.02 BG 1	1,536	95	6%	328	23%
CT 10.02 BG 2	1,927	290	15%	199	10%
CT 10.02 BG 3	1,860	282	16%	170	9%

CT & BG Names	Total Population	Minority	% Minority	Low-Income	Low-Income
CT 10.02 BG 4	1,151	196	20%	111	11%
CT 10.03 BG 1	680	60	8%	29	4%
CT 10.03 BG 2	2,004	329	16%	262	13%
CT 10.03 BG 3	721	36	5%	37	5%
CT 10.03 BG 4	575	44	8%	0	0%
CT 10.05 BG 1	1,277	230	17%	585	44%
CT 10.05 BG 2	755	129	18%	122	17%
CT 10.07 BG 1	1,017	82	8%	7	1%
CT 10.07 BG 2	1,098	124	13%	143	15%
CT 10.07 BG 3	1,140	179	16%	146	13%
CT 10.08 BG 2	1,608	241	15%	70	4%
CT 10.08 BG 3	958	77	8%	26	3%
CT 10.09 BG 1	1,562	171	11%	113	8%
CT 10.09 BG 2	1,090	142	14%	182	18%
CT 10.09 BG 3	867	111	12%	37	4%
CT 11.10 BG 3	2,147	294	16%	207	11%
CT 17 BG 1	2,188	601	26%	471	21%
CT 17 BG 2	1,785	700	39%	459	26%
CT 18 BG 1	1,504	224	15%	219	15%
CT 18 BG 2	1,163	234	19%	281	23%
CT 18 BG 3	1,286	358	29%	363	30%
CT 19 BG 1	1,134	161	13%	128	11%
CT 19 BG 2	908	111	12%	150	16%
CT 20 BG 1	705	48	7%	71	10%
CT 20 BG 2	815	50	6%	72	9%
CT 21 BG 1	868	102	11%	28	3%
CT 21 BG 2	1,715	278	17%	209	12%
CT 23 BG 1	577	88	15%	106	18%
CT 23 BG 2	979	113	12%	124	14%
CT 23 BG 3	1,259	279	22%	312	24%
CT 24 BG 1	176	29	21%	68	64%
CT 24 BG 2	356	13	4%	109	35%
CT 24 BG 3	1,003	142	14%	188	54%
CT 25 BG 1	537	19	4%	71	13%
CT 25 BG 2	164	18	12%	41	27%
CT 25 BG 3	391	13	3%	68	16%
CT 26 BG 1	2,214	384	19%	493	25%
CT 26 BG 2	892	162	21%	203	27%
CT 26 BG 3	489	108	23%	42	9%
CT 26 BG 4	1,461	188	15%	143	14%
CT 27 BG 1	1,788	580	36%	441	27%
CT 27 BG 2	2,731	532	21%	675	27%
Total/Average for Secondary API		39,373	27%	21,817	15%

Source: US Census 2000.
CT: Census Tract, BG: Block Group.

Table A-2. Race and Ethnicity

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
Oregon									
CT 21 BG 1	497	376	46	0	0	0	8	67	36
	100%	76%	9%	0%	0%	0%	2%	13%	7%
CT 21 BG 2	965	801	47	25	36	0	25	31	93
	100%	83%	5%	3%	4%	0%	3%	3%	10%
CT 22.01 BG 1	387	116	187	6	12	0	15	51	39
	100%	30%	48%	2%	3%	0%	4%	13%	10%
CT 22.02 BG 1	214	134	48	0	27	0	0	5	16
	100%	63%	22%	0%	13%	0%	0%	2%	7%
CT 23.01 BG 1	566	354	162	5	5	10	5	25	0
	100%	63%	29%	1%	1%	2%	1%	4%	0%
CT 23.01 BG 2	983	491	312	0	13	10	0	157	34
	100%	50%	32%	0%	1%	1%	0%	16%	3%
CT 23.01 BG 3	984	432	377	15	47	0	39	74	116
	100%	44%	38%	2%	5%	0%	4%	8%	12%
CT 23.02 BG 1	1202	816	179	33	48	0	53	73	89
	100%	68%	15%	3%	4%	0%	4%	6%	7%
CT 24.01 BG 1	680	510	132	0	0	5	0	33	11
	100%	75%	19%	0%	0%	1%	0%	5%	2%
CT 24.01 BG 2	643	516	72	15	11	0	6	23	14
	100%	80%	11%	2%	2%	0%	1%	4%	2%
CT 24.01 BG 3	804	585	176	0	6	0	5	32	15
	100%	73%	22%	0%	1%	0%	1%	4%	2%
CT 24.01 BG 4	655	379	246	0	0	0	4	26	0
	100%	58%	38%	0%	0%	0%	1%	4%	0%
CT 24.02 BG 1	1124	824	214	19	34	0	12	21	45
	100%	73%	19%	2%	3%	0%	1%	2%	4%
CT 24.02 BG 2	1074	924	0	13	88	0	13	36	35
	100%	86%	0%	1%	8%	0%	1%	3%	3%
CT 24.02 BG 3	1003	792	99	0	0	5	26	81	72
	100%	79%	10%	0%	0%	0%	3%	8%	7%
CT 25.01 BG 4	706	670	12	16	3	0	0	5	0
	100%	95%	2%	2%	0%	0%	0%	1%	0%
CT 25.02 BG 3	1238	892	201	19	0	0	51	75	121
	100%	72%	16%	2%	0%	0%	4%	6%	10%
CT 25.02 BG 4	1106	933	100	0	0	0	0	73	22
	100%	84%	9%	0%	0%	0%	0%	7%	2%
CT 33.01 BG 2	1066	237	599	78	0	0	80	72	129
	100%	22%	56%	7%	0%	0%	8%	7%	12%

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
CT 33.01 BG 3	939	202	479	0	97	64	89	8	139
	100%	22%	51%	0%	10%	7%	9%	1%	15%
CT 33.02 BG 1	1168	721	328	26	12	0	9	72	46
	100%	62%	28%	2%	1%	0%	1%	6%	4%
CT 33.02 BG 2	1391	643	534	10	19	0	69	116	179
	100%	46%	38%	1%	1%	0%	5%	8%	13%
CT 34.01 BG 1	654	295	302	10	6	0	6	35	55
	100%	45%	46%	2%	1%	0%	1%	5%	8%
CT 34.01 BG 2	896	287	409	6	44	17	48	85	107
	100%	32%	46%	1%	5%	2%	5%	9%	12%
CT 34.01 BG 3	687	244	323	55	0	0	59	6	66
	100%	36%	47%	8%	0%	0%	9%	1%	10%
CT 34.01 BG 4	1072	406	401	0	71	47	54	93	206
	100%	38%	37%	0%	7%	4%	5%	9%	19%
CT 34.02 BG 1	872	312	459	0	53	4	8	36	24
	100%	36%	53%	0%	6%	0%	1%	4%	3%
CT 34.02 BG 2	851	203	502	0	0	0	117	29	173
	100%	24%	59%	0%	0%	0%	14%	3%	20%
CT 34.02 BG 3	1047	525	296	7	8	5	65	141	264
	100%	50%	28%	1%	1%	0%	6%	13%	25%
CT 35.01 BG 1	750	195	360	0	0	0	119	76	146
	100%	26%	48%	0%	0%	0%	16%	10%	19%
CT 35.01 BG 2	629	313	73	0	38	0	121	84	165
	100%	50%	12%	0%	6%	0%	19%	13%	26%
CT 35.01 BG 3	868	633	104	20	59	0	36	16	25
	100%	73%	12%	2%	7%	0%	4%	2%	3%
CT 35.01 BG 4	1045	686	94	64	50	0	40	111	55
	100%	66%	9%	6%	5%	0%	4%	11%	5%
CT 35.02 BG 1	912	642	124	17	93	0	17	19	113
	100%	70%	14%	2%	10%	0%	2%	2%	12%
CT 35.02 BG 2	484	380	52	12	0	0	23	17	14
	100%	79%	11%	2%	0%	0%	5%	4%	3%
CT 35.02 BG 3	680	600	60	0	0	0	20	0	54
	100%	88%	9%	0%	0%	0%	3%	0%	8%
CT 36.01 BG 1	515	258	242	6	0	0	9	0	31
	100%	50%	47%	1%	0%	0%	2%	0%	6%
CT 36.01 BG 2	970	297	526	0	16	0	69	62	128
	100%	31%	54%	0%	2%	0%	7%	6%	13%
CT 36.01 BG 3	999	498	342	23	16	0	101	19	130
	100%	50%	34%	2%	2%	0%	10%	2%	13%
CT 36.01 BG 4	1064	307	510	37	0	0	154	56	181

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
	100%	29%	48%	3%	0%	0%	14%	5%	17%
CT 37.01 BG 1	1101	490	451	0	89	0	0	71	36
	100%	45%	41%	0%	8%	0%	0%	6%	3%
CT 37.01 BG 2	958	431	340	4	53	0	90	40	96
	100%	45%	35%	0%	6%	0%	9%	4%	10%
CT 37.01 BG 3	1150	602	318	15	7	0	141	67	188
	100%	52%	28%	1%	1%	0%	12%	6%	16%
CT 37.01 BG 4	772	472	243	23	11	0	16	7	27
	100%	61%	31%	3%	1%	0%	2%	1%	3%
CT 37.02 BG 1	691	339	260	0	0	0	17	75	37
	100%	49%	38%	0%	0%	0%	2%	11%	5%
CT 37.02 BG 2	581	319	196	18	0	0	27	21	56
	100%	55%	34%	3%	0%	0%	5%	4%	10%
CT 37.02 BG 3	986	591	277	0	62	0	7	49	18
	100%	60%	28%	0%	6%	0%	1%	5%	2%
CT 38.01 BG 1	958	671	99	33	35	0	27	93	57
	100%	70%	10%	3%	4%	0%	3%	10%	6%
CT 38.01 BG 2	780	519	8	7	116	0	64	66	64
	100%	67%	1%	1%	15%	0%	8%	8%	8%
CT 38.01 BG 3	1038	693	128	32	11	23	8	143	96
	100%	67%	12%	3%	1%	2%	1%	14%	9%
CT 38.02 BG 1	1112	664	227	20	46	0	73	82	163
	100%	60%	20%	2%	4%	0%	7%	7%	15%
CT 38.02 BG 2	976	698	30	0	142	0	38	68	45
	100%	72%	3%	0%	15%	0%	4%	7%	5%
CT 38.02 BG 3	815	705	25	0	31	0	18	36	22
	100%	87%	3%	0%	4%	0%	2%	4%	3%
CT 38.03 BG 1	879	223	424	0	0	0	172	60	199
	100%	25%	48%	0%	0%	0%	20%	7%	23%
CT 38.03 BG 2	508	329	50	0	58	0	0	71	34
	100%	65%	10%	0%	11%	0%	0%	14%	7%
CT 38.03 BG 3	1506	937	230	26	142	0	85	86	105
	100%	62%	15%	2%	9%	0%	6%	6%	7%
CT 38.03 BG 4	1133	1018	9	0	20	0	3	83	29
	100%	90%	1%	0%	2%	0%	0%	7%	3%
CT 39.01 BG 1	1248	484	385	6	120	0	129	124	164
	100%	39%	31%	0%	10%	0%	10%	10%	13%
CT 39.01 BG 2	861	559	41	0	69	0	68	124	92
	100%	65%	5%	0%	8%	0%	8%	14%	11%
CT 39.01 BG 3	1395	1139	72	24	0	9	36	115	42
	100%	82%	5%	2%	0%	1%	3%	8%	3%

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
CT 39.01 BG 5	1991	814	586	75	134	0	252	130	418
	100%	41%	29%	4%	7%	0%	13%	7%	21%
CT 39.02 BG 1	614	512	62	5	21	0	0	14	0
	100%	83%	10%	1%	3%	0%	0%	2%	0%
CT 39.02 BG 2	779	612	48	16	35	0	50	18	63
	100%	79%	6%	2%	4%	0%	6%	2%	8%
CT 39.02 BG 3	825	680	38	0	52	0	49	6	81
	100%	82%	5%	0%	6%	0%	6%	1%	10%
CT 44 BG 1	136	112	24	0	0	0	0	0	0
	100%	82%	18%	0%	0%	0%	0%	0%	0%
CT 72.01 BG 1	1135	1014	31	6	43	0	22	19	62
	100%	89%	3%	1%	4%	0%	2%	2%	5%
CT 72.01 BG 2	936	897	0	0	39	0	0	0	10
	100%	96%	0%	0%	4%	0%	0%	0%	1%
CT 72.02 BG 1	2010	1525	232	12	136	0	0	105	12
	100%	76%	12%	1%	7%	0%	0%	5%	1%
Washington									
CT 4.04 BG 1	1089	1020	38	0	24	0	0	7	0
	100%	94%	3%	0%	2%	0%	0%	1%	0%
CT 4.04 BG 2	2168	1985	0	46	38	13	0	86	24
	100%	92%	0%	2%	2%	1%	0%	4%	1%
CT 4.04 BG 3	2127	1952	17	0	65	0	33	60	78
	100%	92%	1%	0%	3%	0%	2%	3%	4%
CT 4.04 BG 4	576	520	35	10	0	0	0	11	24
	100%	90%	6%	2%	0%	0%	0%	2%	4%
CT 8.03 BG 1	1538	1366	96	48	9	0	0	19	372
	100%	89%	6%	3%	1%	0%	0%	1%	24%
CT 8.03 BG 2	1977	1899	0	7	28	0	0	43	17
	100%	96%	0%	0%	1%	0%	0%	2%	1%
CT 8.03 BG 3	700	670	0	0	0	0	0	30	0
	100%	96%	0%	0%	0%	0%	0%	4%	0%
CT 8.04 BG 1	2307	1591	84	49	17	67	417	82	701
	100%	69%	4%	2%	1%	3%	18%	4%	30%
CT 8.04 BG 2	2855	2657	0	0	119	0	13	66	22
	100%	93%	0%	0%	4%	0%	0%	2%	1%
CT 8.04 BG 4	744	600	0	16	0	0	66	62	125
	100%	81%	0%	2%	0%	0%	9%	8%	17%
CT 8.05 BG 1	2283	2158	21	0	53	0	33	18	54
	100%	95%	1%	0%	2%	0%	1%	1%	2%
CT 9.04 BG 1	608	599	0	0	0	0	9	0	23

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
	100%	99%	0%	0%	0%	0%	1%	0%	4%
CT 9.04 BG 2	1042	947	0	0	19	6	33	37	33
	100%	91%	0%	0%	2%	1%	3%	4%	3%
CT 9.04 BG 3	1876	1608	50	23	69	15	26	85	109
	100%	86%	3%	1%	4%	1%	1%	5%	6%
CT 9.04 BG 4	1913	1721	58	0	90	0	17	27	38
	100%	90%	3%	0%	5%	0%	1%	1%	2%
CT 9.06 BG 1	1889	1725	0	0	48	0	22	94	96
	100%	91%	0%	0%	3%	0%	1%	5%	5%
CT 9.06 BG 2	5022	4655	11	29	215	6	5	101	74
	100%	93%	0%	1%	4%	0%	0%	2%	1%
CT 9.08 BG 3	2089	1906	0	128	0	0	17	38	130
	100%	91%	0%	6%	0%	0%	1%	2%	6%
CT 10.02 BG 1	1478	1416	43	0	0	0	0	19	33
	100%	96%	3%	0%	0%	0%	0%	1%	2%
CT 10.02 BG 2	1951	1736	50	25	35	0	42	63	145
	100%	89%	3%	1%	2%	0%	2%	3%	7%
CT 10.02 BG 3	1805	1562	58	50	21	0	57	57	107
	100%	87%	3%	3%	1%	0%	3%	3%	6%
CT 10.02 BG 4	992	839	42	0	26	4	0	81	43
	100%	85%	4%	0%	3%	0%	0%	8%	4%
CT 10.03 BG 1	715	659	9	21	0	6	5	15	31
	100%	92%	1%	3%	0%	1%	1%	2%	4%
CT 10.03 BG 2	2065	1744	64	15	17	0	121	104	136
	100%	84%	3%	1%	1%	0%	6%	5%	7%
CT 10.03 BG 3	690	677	0	7	0	0	6	0	29
	100%	98%	0%	1%	0%	0%	1%	0%	4%
CT 10.03 BG 4	557	513	0	33	11	0	0	0	0
	100%	92%	0%	6%	2%	0%	0%	0%	0%
CT 10.05 BG 1	1342	1136	12	0	22	0	56	116	112
	100%	85%	1%	0%	2%	0%	4%	9%	8%
CT 10.05 BG 2	713	584	0	5	0	0	57	67	57
	100%	82%	0%	1%	0%	0%	8%	9%	8%
CT 10.07 BG 1	977	895	7	7	17	0	20	31	20
	100%	92%	1%	1%	2%	0%	2%	3%	2%
CT 10.07 BG 2	958	852	42	10	0	0	15	39	49
	100%	89%	4%	1%	0%	0%	2%	4%	5%
CT 10.07 BG 3	1122	973	28	0	18	4	50	49	86
	100%	87%	2%	0%	2%	0%	4%	4%	8%
CT 10.08 BG 2	1649	1463	73	0	34	7	0	72	55
	100%	89%	4%	0%	2%	0%	0%	4%	3%

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
CT 10.08 BG 3	954	877	0	29	24	0	0	24	0
	100%	92%	0%	3%	3%	0%	0%	3%	0%
CT 10.09 BG 1	1500	1347	0	38	68	0	47	0	65
	100%	90%	0%	3%	5%	0%	3%	0%	4%
CT 10.09 BG 2	1039	950	38	6	0	8	0	37	64
	100%	91%	4%	1%	0%	1%	0%	4%	6%
CT 10.09 BG 3	937	840	15	0	7	0	42	33	56
	100%	90%	2%	0%	1%	0%	4%	4%	6%
CT 11.10 BG 3	1840	1587	30	60	40	0	0	123	41
	100%	86%	2%	3%	2%	0%	0%	7%	2%
CT 17 BG 1	2285	1786	45	38	25	0	241	150	373
	100%	78%	2%	2%	1%	0%	11%	7%	16%
CT 17 BG 2	1788	1184	61	39	124	20	293	67	419
	100%	66%	3%	2%	7%	1%	16%	4%	23%
CT 18 BG 1	1499	1334	22	23	0	0	82	38	157
	100%	89%	1%	2%	0%	0%	5%	3%	10%
CT 18 BG 2	1234	1009	52	4	0	8	68	93	77
	100%	82%	4%	0%	0%	1%	6%	8%	6%
CT 18 BG 3	1216	972	45	41	25	0	86	47	200
	100%	80%	4%	3%	2%	0%	7%	4%	16%
CT 19 BG 1	1239	1082	54	13	0	0	0	90	17
	100%	87%	4%	1%	0%	0%	0%	7%	1%
CT 19 BG 2	943	858	0	5	0	0	33	47	81
	100%	91%	0%	1%	0%	0%	3%	5%	9%
CT 20 BG 1	702	654	13	10	7	0	18	0	18
	100%	93%	2%	1%	1%	0%	3%	0%	3%
CT 20 BG 2	822	791	0	8	0	0	0	23	19
	100%	96%	0%	1%	0%	0%	0%	3%	2%
CT 21 BG 1	936	834	0	0	25	0	68	9	77
	100%	89%	0%	0%	3%	0%	7%	1%	8%
CT 21 BG 2	1676	1409	76	14	24	8	7	138	64
	100%	84%	5%	1%	1%	0%	0%	8%	4%
CT 23 BG 1	579	538	9	17	15	0	0	0	47
	100%	93%	2%	3%	3%	0%	0%	0%	8%
CT 23 BG 2	917	833	5	0	16	0	15	48	63
	100%	91%	1%	0%	2%	0%	2%	5%	7%
CT 23 BG 3	1286	1038	38	0	0	0	55	155	86
	100%	81%	3%	0%	0%	0%	4%	12%	7%
CT 24 BG 1	139	110	5	0	5	0	13	6	19
	100%	79%	4%	0%	4%	0%	9%	4%	14%
CT 24 BG 2	312	299	4	0	4	0	0	5	0

CT & BG Names	Total (persons/%)	Race							Ethnicity
		White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
	100%	96%	1%	0%	1%	0%	0%	2%	0%
CT 24 BG 3	991	891	26	0	26	0	25	23	67
	100%	90%	3%	0%	3%	0%	3%	2%	7%
CT 25 BG 1	531	512	0	10	0	5	0	4	0
	100%	96%	0%	2%	0%	1%	0%	1%	0%
CT 25 BG 2	154	136	0	0	18	0	0	0	0
	100%	88%	0%	0%	12%	0%	0%	0%	0%
CT 25 BG 3	431	431	0	0	0	0	0	0	13
	100%	100%	0%	0%	0%	0%	0%	0%	3%
CT 26 BG 1	1989	1679	10	22	53	52	84	89	169
	100%	84%	1%	1%	3%	3%	4%	4%	8%
CT 26 BG 2	769	647	56	0	0	0	52	14	92
	100%	84%	7%	0%	0%	0%	7%	2%	12%
CT 26 BG 3	466	378	46	0	13	7	22	0	42
	100%	81%	10%	0%	3%	2%	5%	0%	9%
CT 26 BG 4	1262	1090	33	0	32	69	6	32	22
	100%	86%	3%	0%	3%	5%	0%	3%	2%
CT 27 BG 1	1627	1162	28	0	108	0	276	53	414
	100%	71%	2%	0%	7%	0%	17%	3%	25%
CT 27 BG 2	2527	2058	155	8	59	0	87	160	187
	100%	81%	6%	0%	2%	0%	3%	6%	7%

Source: US Census 2000.
CT: Census Tract, BG: Block Group.

Table A-3. Claritas Race and Ethnicity Population Forecast Information

CT & BG Names	2005 Population	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two o more races	Hispanic or Latino	Minority	% Minority
Oregon											
CT 21 BG 1	444	348	34	21	0	0	2	21	18	96	22%
CT 21 BG 2	1,030	808	77	10	27	1	2	48	57	222	22%
CT 22.01 BG 1	339	70	189	13	5	6	0	30	26	269	79%
CT 22.02 BG 1	204	128	37	8	8	0	2	5	16	76	37%
CT 23.01 BG 1	663	385	199	2	4	10	0	21	42	278	42%
CT 23.01 BG 2	947	506	280	7	14	1	1	52	86	441	47%
CT 23.01 BG 3	1,068	526	276	8	6	2	11	97	142	542	51%
CT 23.02 BG 1	1,189	851	178	9	40	0	3	48	60	338	28%
CT 24.01 BG 1	654	545	70	0	4	0	1	22	12	109	17%
CT 24.01 BG 2	736	606	69	2	24	3	0	22	10	130	18%
CT 24.01 BG 3	771	557	162	2	6	0	0	23	21	214	28%
CT 24.01 BG 4	517	319	142	0	9	0	0	28	19	198	38%
CT 24.02 BG 1	1,144	829	146	11	43	0	3	39	73	315	28%
CT 24.02 BG 2	1,002	837	28	7	56	0	0	37	37	165	16%
CT 24.02 BG 3	938	734	71	6	21	2	3	34	67	204	22%
CT 25.01 BG 4	712	641	14	2	16	2	0	21	16	71	10%
CT 25.02 BG 3	1,284	890	185	6	29	0	3	42	129	394	31%
CT 25.02 BG 4	1,083	887	92	2	37	2	1	28	34	196	18%
CT 33.01 BG 2	1,157	284	618	16	19	13	2	57	148	873	75%
CT 33.01 BG 3	1,033	261	457	0	12	17	2	89	195	772	75%
CT 33.02 BG 1	1,126	609	319	12	9	0	9	69	99	517	46%
CT 33.02 BG 2	1,356	505	434	20	32	23	2	93	247	851	63%
CT 34.01 BG 1	681	248	284	3	7	4	3	12	120	433	64%
CT 34.01 BG 2	903	349	309	4	16	14	6	65	140	554	61%
CT 34.01 BG 3	768	304	314	2	9	11	0	26	102	464	60%
CT 34.01 BG 4	1,021	260	437	14	27	14	2	74	193	761	75%
CT 34.02 BG 1	1,050	368	379	4	20	11	4	42	222	682	65%
CT 34.02 BG 2	759	240	315	4	9	9	5	34	143	519	68%
CT 34.02 BG 3	1,031	356	355	4	17	9	0	68	222	675	65%
CT 35.01 BG 1	837	229	352	5	59	20	2	58	112	608	73%
CT 35.01 BG 2	671	247	142	7	14	2	0	40	219	424	63%
CT 35.01 BG 3	873	664	65	5	20	3	2	44	70	209	24%
CT 35.01 BG 4	1,051	731	65	26	59	6	2	31	131	320	30%
CT 35.02 BG 1	851	428	240	3	42	11	0	40	87	423	50%
CT 35.02 BG 2	681	579	23	10	17	5	0	20	27	102	15%
CT 35.02 BG 3	712	544	48	16	46	0	6	19	33	168	24%

CT & BG Names	2005 Population	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two o more races	Hispanic or Latino	Minority	% Minority
CT 36.01 BG 1	549	152	228	5	8	9	0	21	126	397	72%
CT 36.01 BG 2	1,036	347	423	10	13	16	2	40	185	689	67%
CT 36.01 BG 3	1,115	441	438	8	30	3	3	50	142	674	60%
CT 36.01 BG 4	1,077	398	382	21	7	5	0	58	206	679	63%
CT 37.01 BG 1	1,074	432	357	6	44	1	1	30	203	642	60%
CT 37.01 BG 2	1,007	408	438	3	38	0	3	61	56	599	59%
CT 37.01 BG 3	1,408	708	370	7	77	11	1	53	181	700	50%
CT 37.01 BG 4	827	434	229	13	34	0	0	71	46	393	48%
CT 37.02 BG 1	682	378	206	6	32	0	0	44	16	304	45%
CT 37.02 BG 2	608	371	166	3	14	7	1	21	25	237	39%
CT 37.02 BG 3	890	515	266	5	11	2	1	52	38	375	42%
CT 38.01 BG 1	961	651	104	6	49	15	0	69	67	310	32%
CT 38.01 BG 2	765	455	99	1	79	16	2	49	64	310	41%
CT 38.01 BG 3	1,160	746	149	17	49	10	2	78	109	414	36%
CT 38.02 BG 1	1,193	663	205	9	47	0	9	102	158	530	44%
CT 38.02 BG 2	1,023	703	91	2	98	2	0	51	76	320	31%
CT 38.02 BG 3	856	660	32	8	43	10	0	30	73	196	23%
CT 38.03 BG 1	802	204	351	11	21	0	6	109	100	598	75%
CT 38.03 BG 2	458	228	69	6	45	8	1	46	55	230	50%
CT 38.03 BG 3	1,513	852	242	19	115	22	9	113	141	661	44%
CT 38.03 BG 4	1,161	898	65	7	41	0	1	40	109	263	23%
CT 39.01 BG 1	1,266	559	218	45	85	20	3	91	245	707	56%
CT 39.01 BG 2	913	621	71	21	36	4	2	57	101	292	32%
CT 39.01 BG 3	1,453	898	200	9	73	12	1	70	190	555	38%
CT 39.01 BG 5	1,953	605	580	31	178	17	11	123	408	1,348	69%
CT 39.02 BG 1	662	475	30	4	34	2	1	15	101	187	28%
CT 39.02 BG 2	792	596	68	10	20	6	0	42	50	196	25%
CT 39.02 BG 3	839	692	36	17	23	10	0	15	46	147	18%
CT 44 BG 1	131	106	13	0	2	0	0	3	7	25	19%
CT 72.01 BG 1	1,204	1,077	31	23	16	0	0	26	31	127	11%
CT 72.01 BG 2	932	869	9	8	5	1	0	22	18	63	7%
CT 72.02 BG 1	2,360	1,695	242	15	206	12	7	79	104	665	28%
Washington											
CT 4.04 BG 1	1,595	1,468	16	6	37	0	3	27	38	127	8%
CT 4.04 BG 2	2,341	2,163	13	6	48	3	3	45	60	178	8%
CT 4.04 BG 3	2,501	2,243	41	5	73	4	0	61	74	258	10%
CT 4.04 BG 4	571	514	4	3	11	2	3	10	24	57	10%
CT 8.03 BG 1	1,646	987	50	6	21	0	2	31	549	659	40%

CT & BG Names	2005 Population	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two o more races	Hispanic or Latino	Minority	% Minority
CT 8.03 BG 2	2,298	2,156	16	5	41	2	0	33	45	142	6%
CT 8.03 BG 3	866	788	19	0	14	0	0	39	6	78	9%
CT 8.04 BG 1	2,699	1,305	181	16	26	19	2	86	1,064	1,394	52%
CT 8.04 BG 2	3,214	2,881	38	8	105	6	3	60	113	333	10%
CT 8.04 BG 4	1,067	827	13	10	13	1	0	52	151	240	22%
CT 8.05 BG 1	2,876	2,652	9	9	78	8	6	42	72	224	8%
CT 9.04 BG 1	625	548	2	1	11	0	2	28	33	77	12%
CT 9.04 BG 2	993	850	15	17	3	0	0	57	51	143	14%
CT 9.04 BG 3	1,834	1,493	47	15	47	5	8	83	136	341	19%
CT 9.04 BG 4	2,220	1,980	28	7	75	7	1	58	64	240	11%
CT 9.06 BG 1	2,303	2,096	33	11	21	0	0	61	81	207	9%
CT 9.06 BG 2	5,614	5,019	71	14	187	9	3	142	169	595	11%
CT 9.08 BG 3	2,166	1,955	26	19	32	2	1	52	79	211	10%
CT 10.02 BG 1	1,536	1,291	73	19	16	0	2	49	86	245	16%
CT 10.02 BG 2	1,927	1,540	110	23	34	6	0	84	130	387	20%
CT 10.02 BG 3	1,860	1,572	48	35	34	8	3	60	100	288	15%
CT 10.02 BG 4	1,151	992	12	4	32	9	0	41	61	159	14%
CT 10.03 BG 1	680	601	6	7	6	2	0	18	40	79	12%
CT 10.03 BG 2	2,004	1,619	71	20	28	4	0	93	169	385	19%
CT 10.03 BG 3	721	656	2	3	6	0	1	18	35	65	9%
CT 10.03 BG 4	575	515	6	4	22	0	0	11	17	60	10%
CT 10.05 BG 1	1,277	993	31	25	11	2	1	56	158	284	22%
CT 10.05 BG 2	755	614	8	0	2	0	0	33	98	141	19%
CT 10.07 BG 1	1,017	921	8	4	16	2	0	24	42	96	9%
CT 10.07 BG 2	1,098	934	28	6	37	2	2	31	58	164	15%
CT 10.07 BG 3	1,140	919	67	4	14	0	2	39	95	221	19%
CT 10.08 BG 2	1,608	1,466	12	9	15	2	8	55	41	142	9%
CT 10.08 BG 3	958	832	22	1	51	0	0	22	30	126	13%
CT 10.09 BG 1	1,562	1,346	46	10	44	5	2	31	78	216	14%
CT 10.09 BG 2	1,090	889	20	7	13	5	3	42	111	201	18%
CT 10.09 BG 3	867	781	15	1	7	1	0	21	41	86	10%
CT 11.10 BG 3	2,147	1,762	56	26	60	33	0	75	135	385	18%
CT 17 BG 1	2,188	1,361	86	49	62	5	13	97	515	827	38%
CT 17 BG 2	1,785	1,061	56	19	62	6	2	77	502	724	41%
CT 18 BG 1	1,504	1,179	41	18	15	1	0	61	189	325	22%
CT 18 BG 2	1,163	929	47	6	10	0	1	35	135	234	20%
CT 18 BG 3	1,286	928	38	17	22	4	0	47	230	358	28%
CT 19 BG 1	1,134	988	34	4	20	1	0	27	60	146	13%

CT & BG Names	2005 Population	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and other Pacific Islander alone	Some other race alone	Two o more races	Hispanic or Latino	Minority	% Minority
CT 19 BG 2	908	813	23	4	12	2	2	28	24	95	10%
CT 20 BG 1	705	607	20	8	8	0	3	13	46	98	14%
CT 20 BG 2	815	736	4	5	5	5	3	25	32	79	10%
CT 21 BG 1	868	794	9	1	18	2	0	16	28	74	9%
CT 21 BG 2	1,715	1,442	47	26	16	8	3	73	100	273	16%
CT 23 BG 1	577	488	12	11	11	2	0	10	43	89	15%
CT 23 BG 2	979	853	11	21	6	0	0	37	51	126	13%
CT 23 BG 3	1,259	961	15	15	1	0	0	68	199	298	24%
CT 24 BG 1	176	156	7	0	4	2	0	0	7	20	11%
CT 24 BG 2	356	322	10	3	7	0	0	8	6	34	10%
CT 24 BG 3	1,003	796	97	10	21	2	0	7	70	207	21%
CT 25 BG 1	537	456	7	2	4	15	0	7	46	81	15%
CT 25 BG 2	164	128	5	0	4	0	0	5	22	36	22%
CT 25 BG 3	391	340	2	2	6	1	0	22	18	51	13%
CT 26 BG 1	2,214	1,782	96	30	17	13	0	69	207	432	20%
CT 26 BG 2	892	689	47	9	18	1	2	29	97	203	23%
CT 26 BG 3	489	387	30	0	10	3	0	15	44	102	21%
CT 26 BG 4	1,461	1,207	61	15	46	24	0	49	59	254	17%
CT 27 BG 1	1,788	1,068	44	10	50	11	0	78	527	720	40%
CT 27 BG 2	2,731	2,028	148	42	36	13	24	147	293	703	26%
Total/Average	154,446	111,177	16,073	1,320	4,138	692	260	6,050	14,736	43,269	28%

Source: Claritas 2005.
CT: Census Tract, BG: Block Group.

Table A-4. Means of Transportation to Work

CT & BG Names	Public Transportation	% Public Transportation
Oregon		
CT 21 BG 1	72	14%
CT 21 BG 2	160	17%
CT 22.01 BG 1	25	6%
CT 22.02 BG 1	27	13%
CT 23.01 BG 1	47	8%
CT 23.01 BG 2	116	12%
CT 23.01 BG 3	101	10%
CT 23.02 BG 1	68	6%
CT 24.01 BG 1	30	4%
CT 24.01 BG 2	36	6%
CT 24.01 BG 3	69	9%
CT 24.01 BG 4	49	7%
CT 24.02 BG 1	157	14%
CT 24.02 BG 2	187	17%
CT 24.02 BG 3	150	15%
CT 25.01 BG 4	14	2%
CT 25.02 BG 3	186	15%
CT 25.02 BG 4	84	8%
CT 33.01 BG 2	32	3%
CT 33.01 BG 3	79	8%
CT 33.02 BG 1	88	8%
CT 33.02 BG 2	131	9%
CT 34.01 BG 1	89	14%
CT 34.01 BG 2	61	7%
CT 34.01 BG 3	37	5%
CT 34.01 BG 4	90	8%
CT 34.02 BG 1	75	9%
CT 34.02 BG 2	67	8%
CT 34.02 BG 3	101	10%
CT 35.01 BG 1	92	12%
CT 35.01 BG 2	72	11%
CT 35.01 BG 3	112	13%
CT 35.01 BG 4	39	4%
CT 35.02 BG 1	42	5%
CT 35.02 BG 2	6	1%
CT 35.02 BG 3	27	4%
CT 36.01 BG 1	35	7%
CT 36.01 BG 2	46	5%
CT 36.01 BG 3	34	3%
CT 36.01 BG 4	36	3%
CT 37.01 BG 1	19	2%
CT 37.01 BG 2	62	6%
CT 37.01 BG 3	142	12%
CT 37.01 BG 4	32	4%

CT & BG Names	Public Transportation	% Public Transportation
CT 37.02 BG 1	6	1%
CT 37.02 BG 2	52	9%
CT 37.02 BG 3	63	6%
CT 38.01 BG 1	63	7%
CT 38.01 BG 2	80	10%
CT 38.01 BG 3	115	11%
CT 38.02 BG 1	69	6%
CT 38.02 BG 2	42	4%
CT 38.02 BG 3	53	7%
CT 38.03 BG 1	89	10%
CT 38.03 BG 2	29	6%
CT 38.03 BG 3	121	8%
CT 38.03 BG 4	59	5%
CT 39.01 BG 1	72	6%
CT 39.01 BG 2	39	5%
CT 39.01 BG 3	44	3%
CT 39.01 BG 5	171	9%
CT 39.02 BG 1	46	7%
CT 39.02 BG 2	53	7%
CT 39.02 BG 3	46	6%
CT 44 BG 1	9	7%
CT 72.01 BG 1	36	3%
CT 72.01 BG 2	6	1%
CT 72.02 BG 1	72	4%
Washington		
CT 4.04 BG 1	10	1%
CT 4.04 BG 2	9	0%
CT 4.04 BG 3	55	3%
CT 4.04 BG 4	28	5%
CT 8.03 BG 1	67	4%
CT 8.03 BG 2	28	1%
CT 8.03 BG 3	10	1%
CT 8.04 BG 1	28	1%
CT 8.04 BG 2	56	2%
CT 8.04 BG 4	23	3%
CT 8.05 BG 1	16	1%
CT 9.04 BG 1	0	0%
CT 9.04 BG 2	14	1%
CT 9.04 BG 3	56	3%
CT 9.04 BG 4	18	1%
CT 9.06 BG 1	22	1%
CT 9.06 BG 2	68	1%
CT 9.08 BG 3	36	2%
CT 10.02 BG 1	18	1%
CT 10.02 BG 2	19	1%
CT 10.02 BG 3	29	2%

CT & BG Names	Public Transportation	% Public Transportation
CT 10.02 BG 4	7	1%
CT 10.03 BG 1	0	0%
CT 10.03 BG 2	76	4%
CT 10.03 BG 3	18	3%
CT 10.03 BG 4	4	1%
CT 10.05 BG 1	41	3%
CT 10.05 BG 2	0	0%
CT 10.07 BG 1	17	2%
CT 10.07 BG 2	28	3%
CT 10.07 BG 3	33	3%
CT 10.08 BG 2	24	1%
CT 10.08 BG 3	0	0%
CT 10.09 BG 1	29	2%
CT 10.09 BG 2	0	0%
CT 10.09 BG 3	27	3%
CT 11.10 BG 3	0	0%
CT 17 BG 1	91	4%
CT 17 BG 2	108	6%
CT 18 BG 1	18	1%
CT 18 BG 2	21	2%
CT 18 BG 3	40	3%
CT 19 BG 1	53	4%
CT 19 BG 2	18	2%
CT 20 BG 1	16	2%
CT 20 BG 2	11	1%
CT 21 BG 1	6	1%
CT 21 BG 2	35	2%
CT 23 BG 1	19	3%
CT 23 BG 2	37	4%
CT 23 BG 3	32	2%
CT 24 BG 1	24	17%
CT 24 BG 2	0	0%
CT 24 BG 3	0	0%
CT 25 BG 1	13	2%
CT 25 BG 2	0	0%
CT 25 BG 3	0	0%
CT 26 BG 1	55	3%
CT 26 BG 2	16	2%
CT 26 BG 3	5	1%
CT 26 BG 4	0	0%
CT 27 BG 1	80	5%
CT 27 BG 2	113	4%
Total	6384	4%

Source: US Census 2000.
CT: Census Tract, BG: Block Group.