Environmental Justice Discipline Report

Washington State
Department of Transportation

U.S. Department of Transportation
Federal Highway
Administration

SR 520: I-5 to Medina Bridge Replacement and HOV Project Supplemental Draft EIS

Environmental Justice Discipline Report

Prepared for

Washington State Department of Transportation
Federal Highway Administration

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Acronyms and Abbreviations

EA	environmental assessment
EBT	electronic benefit transfer
EIS	environmental impact statement
ESL	English as a second language
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GIS	geographic information system
HCT	high-capacity transit
HOT	high-occupancy toll lane
HOV	high-occupancy vehicle
I-5	Interstate 5
I-90	Interstate 90
I-405	Interstate 405
LEP	limited-English proficient/proficiency
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NCES	National Center for Education Statistics
NEPA	National Environmental Policy Act
PSRC	Puget Sound Regional Council
SDEIS	Supplemental Draft Environmental Impact Statement
SPUI	single-point urban interchange
SR	State Route
TOPS	The Option Program at Seward
TCP	traditional cultural property
TEA-21	Transportation Equity Act
UPA	Lake Washington Urban Partnership Agreement
USDOT	U.S. Department of Transportation
WSDOT	Washington State Department of Transportation

Introduction

Why is environmental justice considered in an environmental impact statement?

The U.S. Department of Transportation (USDOT) and the Washington State Department of Transportation (WSDOT) require that environmental justice be considered for all phases of transportation planning and development, including the preparation of an environmental impact statement (EIS). This section describes the regulatory background for an environmental justice analysis.

Environmental justice acknowledges that the quality of our environment affects our lives and that negative environmental effects should not disproportionately burden low-income or minority populations.

The concept of environmental justice is rooted in Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, or national origin. In response to a concern that low-income or minority populations bear a disproportionate amount of adverse health and environmental effects of public projects, and to reinforce the fundamental rights and legal requirements contained in Title VI, in 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." It directs each federal agency to make environmental justice a part of its mission.

A **low-income person** is an individual whose household income falls below the federal poverty guidelines, as defined by the U.S. Department of Health and Human Services.

For 2009, the federal poverty guideline for a household of four in one of the 48 contiguous states and Washington DC is $22,050.

Following Executive Order 12898, USDOT issued Order 5610.2, "USDOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations" (1997). It provided guidelines for how environmental justice analyses should be performed and how environmental justice should be incorporated into the transportation decision-making process. The USDOT Order requires federal agencies to do the following:

1. Explicitly consider human health and environmental effects related to transportation projects that may have a disproportionately high and adverse effect on low-income or minority populations; and
2. Implement procedures to provide "meaningful opportunities for public involvement" by members of those populations during project planning and development (USDOT 1997, §5[b][1]).

A **minority** is an individual who identifies himself as Black (a person having origins in any of the black racial groups of Africa); Hispanic (a person of Mexican, Puerto Rican, Cuban, Central American or South American, or other Spanish culture or origin, regardless of race); Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); American Indian/Alaskan Native (a person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition); or some other race.

The Federal Highway Administration (FHWA) issued a similarly worded order, Order 6640.23, "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (1998). According to this order, when determining whether a particular program, policy, or activity will have disproportionately high and adverse effects on minority and low-income populations, FHWA managers and staff should take into account mitigation and enhancements measures and potential offsetting benefits to the affected minority or low-income populations. Other factors that may be taken into account include design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non-low-income areas.

Title VI of the Civil Rights Act of 1964 compels WSDOT to examine the effects of projects on populations with limited-English proficiency (LEP), in order to avoid discrimination based on national origin.[1]

Other federal laws, such as the National Environmental Policy Act (NEPA); Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; the Civil Rights Restoration Act of 1987; and the Transportation Equity Act (TEA-21) also include the nondiscrimination requirements outlined in Title VI.

Negative environmental effects associated with transportation projects may include, among others: limited access to a publicly-funded facility, disruptions in community cohesion, presence of hazardous materials, raised noise levels, or increased air and/or water pollution. According to FHWA guidance, negative environmental effects could also result from the denial of, reduction in, or significant delay in the receipt of benefits of FHWA programs, policies, or activities.

A **limited-English-proficient** person is an individual who has difficulty speaking, reading, writing, or understanding the English language and whose difficulties may deny that individual the opportunity to meaningfully engage in the transportation decision-making process. This definition applies to an individual who:

- Was not born in the United States;
- Speaks a native language other than English and comes from an environment where a language other than English is dominant; or
- Comes from an environment where a language other than English has had a substantial effect on that individual's English-language proficiency.

What are the key points of this report?

- Low-income populations would experience disproportionately high and adverse effects because of tolling. The cost of the tolls would present a burden to low-income populations and social service agencies that serve those populations. However, if reasonable mitigation strategies such as those proposed in the Mitigation section of this report are adopted, they would minimize disproportionately high and adverse effects on low-income populations. Still, despite mitigation efforts undertaken by WSDOT, some low-income populations—especially car-dependent

[1] Typically, effects on LEP populations are documented in a social discipline report. In this case, however, because the potentially adverse effects of tolling are likely to be similar for low-income and LEP populations, this Environmental Justice Discipline Report documents effects on LEP populations.

populations and populations living in areas with limited transit service—would continue to experience disproportionately high and adverse effects.

Consistent with USDOT 5610.2 and FHWA Order 6640.23, however, analysts conclude that the project could still be implemented, for two reasons. First, there exists a substantial need for this project, based on the overall public interest. The aging floating bridge is vulnerable to catastrophic failure. Furthermore, forecasted demand for transportation along the already congested SR 520 corridor is expected to increase substantially, because of expected population and job growth.

Second, the potential catastrophic failure of the floating bridge would have substantially more severe impacts on all populations, including car-dependent low-income populations and low-income residents of communities that are not well-served by transit. In addition, unmitigated increases in congestion along the SR 520 corridor would create much more severe mobility challenges and air quality and noise concerns for all populations, low-income and minority populations.

Analysts identified four other effects that would have disproportionately high and adverse effect on low-income, minority, or LEP populations, all of which would be offset somewhat by mitigation:

- Native American tribes would experience disproportionately high and adverse effects because of construction activity on ancient tribal burial grounds on Foster Island. Option K would disturb a greater area on Foster Island than Options A or L, because Option K includes additional construction of a land bridge. WSDOT would require the contractor to take additional measures to avoid or minimize disruptions to Foster Island.
- Native American tribes would experience disproportionately high and adverse effects because of construction activity on usual and accustomed tribal fishing areas. However, WSDOT and the contractor would take measures to avoid or minimize adverse effects on tribal fishing areas. Furthermore, the 6-Lane Alternative would include treatment of stormwater runoff, which would improve fish habitat in tribal fishing areas.

In a usual and accustomed fishing area, Indian Tribes have a right to harvest fish free of state interference, subject to conservation principles; to co-manage the fishery resource with the state; and to harvest up to 50 percent of the harvestable fish. Judicial decisions made over the years have re-affirmed these rights.

WSDOT would continue to coordinate with tribes during construction of the 6-Lane Alternative to identify and address any concerns.

- Native American tribes would experience disproportionately high and adverse effects because the new bridges will have a substantially wider footprint than the existing Evergreen Point Bridge, reducing access to usual and accustomed tribal fishing areas. WSDOT would continue to coordinate closely with the Muckleshoot Tribe to understand the extent to which the wider bridges would affect access to their usual and accustomed fishing areas. WSDOT would also work with the Muckleshoot to develop a plan for mitigating adverse effects on access.
- The requirements of electronic tolling would present a burden to low-income and LEP populations, but the strategies outlined in the Mitigation section of this report would minimize those effects.

Additional key points related to environmental justice include:

- Analysts conclude that low-income, minority, and LEP residents of the affected neighborhoods would be affected the same as the general population. This is because the neighborhoods that would be most affected by project construction and operation do not have larger proportions of low-income, minority, or LEP populations than adjacent neighborhoods. However, it is important to note that even if low-income residents of affected neighborhoods are exposed to the same adverse effects as other residents, the impact of this exposure may represent a bigger hardship for them than other residents. For example, low-income residents may not have the resources to relocate for periods of nighttime construction. They may not be able to purchase an air conditioner to use when construction-related dust forces them to close their windows in the summertime.
- There are subtle differences between Options A, K, and L in how they affect low-income, minority, or LEP populations, but no substantial differences between the build options.

Under the Phased Implementation scenario:

- Tolling would be implemented; therefore, some car-dependent low-income populations and low-income populations living in areas

with limited transit service would still experience disproportionately high and adverse effects.

- Potential effects on tribal burial grounds on Foster Island would be delayed until later phases of the project are constructed.
- Effects on usual and accustomed tribal fishing areas would occur under the first phase. However, stormwater would also be treated at this point, offsetting some of the adverse effects.

What is the I-5 to Medina: Bridge Replacement and HOV Project?

The Interstate 5 (I-5) to Medina: Bridge Replacement and High-Occupancy Vehicle (HOV) Project is part of the State Route (SR) 520 Bridge Replacement and HOV Program (SR 520 Program) (detailed in the text box below) and encompasses parts of three main geographic areas—Seattle, Lake Washington, and the Eastside. The project area includes the following:

- Seattle communities: Portage Bay/Roanoke, North Capitol Hill, Montlake, University District, Laurelhurst, and Madison Park
- Eastside communities: Medina, Hunts Point, Clyde Hill, and Yarrow Point
- The Lake Washington ecosystem and associated wetlands
- Usual and accustomed fishing areas of tribal nations that have historically used the area's aquatic resources and have treaty rights

What is the SR 520 Program?

The SR 520 Bridge Replacement and HOV Program will enhance safety by replacing the aging floating bridge and keep the region moving with vital transit and roadway improvements throughout the corridor. The 12.8-mile program area begins at I-5 in Seattle and extends to SR 202 in Redmond.

In 2006, WSDOT prepared a Draft EIS—published formally as the SR 520 Bridge Replacement and HOV Project—that addressed corridor construction from the I-5 interchange in Seattle to just west of I-405 in Bellevue. Growing transit demand on the Eastside and structure vulnerability in Seattle and Lake Washington, however, led WSDOT to identify new projects, each with a separate purpose and need, that would provide benefit even if the others were not built. These four independent projects were identified after the Draft EIS was published in 2006, and these now fall under the umbrella of the entire SR 520 Bridge Replacement and HOV Program:

- I-5 to Medina: Bridge Replacement and HOV Project replaces the SR 520 roadway, floating bridge approaches, and floating bridge between I-5 and the eastern shore of Lake Washington. This project spans 5.2 miles of the SR 520 corridor.
- Medina to SR 202: Eastside Transit and HOV Project completes and improves the transit and HOV system from Evergreen Point Road to the SR 202 interchange in Redmond. This project spans 8.6 miles of the SR 520 corridor.
- Pontoon Construction Project involves constructing the pontoons needed to restore the Evergreen Point Bridge in the event of a catastrophic failure and storing those pontoons until needed.
- Lake Washington Congestion Management Project, through a grant from the U.S. Department of Transportation, improves traffic using tolling, technology and traffic management, transit, and telecommuting.

The SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement (EIS), published in August 2006, evaluated a 4-Lane Alternative, a 6-Lane Alternative, and a No Build Alternative. Since the Draft EIS was published, circumstances surrounding the SR 520 corridor have changed in several ways. These changes have resulted in decisions to forward advance planning for potential catastrophic failure of the Evergreen Point Bridge, respond to increased demand for transit service on the Eastside, and evaluate a new set of community-based designs for the Montlake area in Seattle.

To respond to these changes, the Washington State Department of Transportation (WSDOT) and the Federal Highway Administration (FHWA) initiated new projects to be evaluated in separate environmental documents. Improvements to the western portion of the SR 520 corridor—known as the I-5 to Medina: Bridge Replacement and HOV Project (the *I-5 to Medina project*)—are being evaluated in a Supplemental Draft EIS (SDEIS); this discipline report is a part of that SDEIS. Project limits for this project extend from I-5 in Seattle to 92nd Avenue NE in Yarrow Point, where it transitions into the Medina to SR 202: Eastside Transit and HOV Project (the *Medina to SR 202 project*). Exhibit 1 shows the project vicinity.

Exhibit 1. Project Vicinity Map

What are the project alternatives?

As noted above, the Draft EIS evaluated a 4-Lane Alternative, a 6-Lane Alternative (including three design options in Seattle), and a No Build Alternative. In 2006, following Draft EIS publication, Governor Gregoire identified the 6-Lane Alternative as the state's preference for the SR 520 corridor, but urged that the affected communities in Seattle develop a common vision for the western portion of the corridor. Accordingly, a mediation group convened at the direction of the state legislature to evaluate the corridor alignment for SR 520 through Seattle. The mediation group identified three 6-lane design options for SR 520 between I-5 and the floating span of the Evergreen Point Bridge; these options were documented in a Project Impact Plan (Parametrix 2008). The SDEIS evaluates the following:

- No Build Alternative
- 6-Lane Alternative
  - Option A
  - Option K
  - Option L

These alternatives and options are summarized below. The 4-Lane Alternative and the Draft EIS 6-lane design options have been eliminated from further consideration. More information on how the project has evolved since the Draft EIS was published in 2006, as well as more detailed information on the design options, is provided in the Description of Alternatives Discipline Report (WSDOT 2009a).

What is the No Build Alternative?

Under the No Build Alternative, SR 520 would continue to operate between I-5 and Medina as it does today: as a 4-lane highway with nonstandard shoulders and without a bicycle/pedestrian path. (Exhibit 2 depicts a cross section of the No Build Alternative.) No new facilities would be added to SR 520 between I-5 and Medina, and none would be removed, including the unused R.H. Thomson Expressway ramps near the Washington Park Arboretum. WSDOT would continue to manage traffic using its existing transportation demand management and intelligent transportation system strategies.

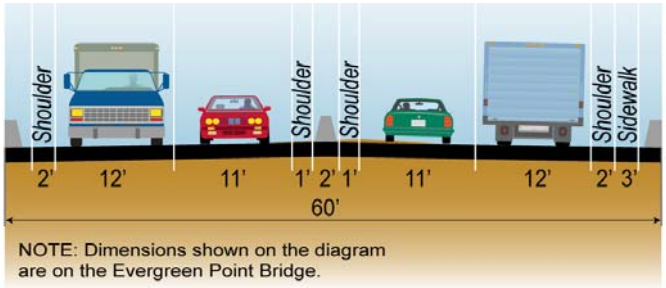


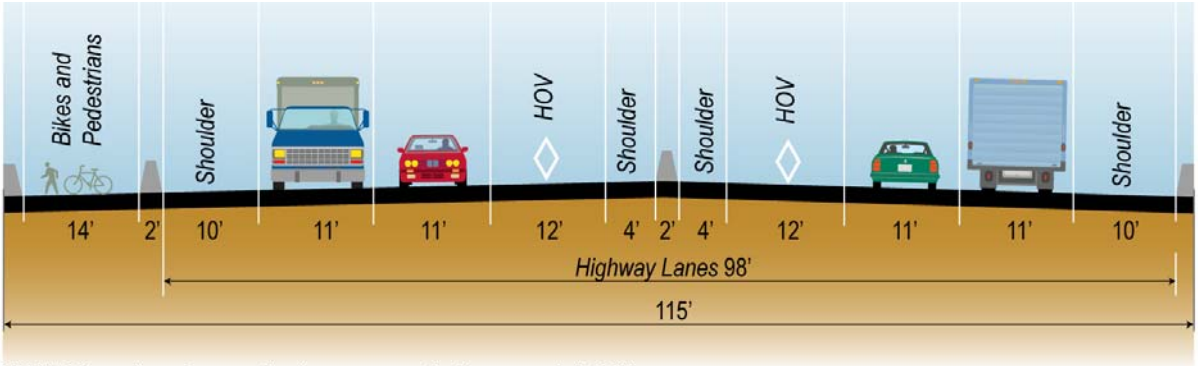
Exhibit 2. No Build Alternative Cross Section

The No Build Alternative assumes that the Portage Bay and Evergreen Point bridges would remain standing and functional through 2030 and that no catastrophic events, such as earthquakes or extreme storms, would cause major damage to the bridges. The No Build Alternative also assumes completion of the Medina to SR 202 project as well as other regionally planned and programmed transportation projects. The No Build Alternative provides a baseline against which project analysts can measure and compare the effects of each 6-Lane Alternative build option.

What is the 6-Lane Alternative?

The 6-Lane Alternative would complete the regional HOV connection (3+ HOV occupancy) across SR 520. This alternative would include six lanes (two 11-foot-wide outer general-purpose lanes and one 12-foot-wide inside HOV lane in each direction), with 4-foot-wide inside and 10-foot-wide outside shoulders (Exhibit 3). The proposed width of the roadway would be approximately 18 feet narrower than the one

described in the Draft EIS, reflecting public comment from local communities and the City of Seattle.



NOTE: Dimensions shown on the diagram are on the Evergreen Point Bridge.

Exhibit 3. 6-Lane Alternative Cross Section

SR 520 would be rebuilt from I-5 to Evergreen Point Road in Medina and restriped and reconfigured from Evergreen Point Road to 92nd Avenue NE in Yarrow Point. A 14-foot-wide bicycle/pedestrian path would be built along the north side of SR 520 through the Montlake area and across the Evergreen Point Bridge, connecting to the regional path on the Eastside. A bridge maintenance facility and dock would be built underneath the east approach to the Evergreen Point Bridge.

The sections below describe the 6-Lane Alternative and design options in each of the three geographical areas the project would encompass.

Seattle

Elements Common to the 6-Lane Alternative Options

SR 520 would connect to I-5 in a configuration similar to the way it connects today. Improvements to the I-5/SR 520 interchange would include a new reversible HOV ramp connecting the new SR 520 HOV lanes to existing I-5 reversible express lanes. WSDOT would replace the Portage Bay Bridge and the Evergreen Point Bridge (including the west approach and floating span), as well as the existing local street bridges across SR 520. New stormwater facilities would be constructed for the project to provide stormwater retention and treatment. The project would include landscaped lids across SR 520 at I-5, 10th Avenue East and Delmar Drive East, and in the Montlake area to help reconnect the communities on either side of the roadway. The project would also remove the Montlake freeway transit station.

The most substantial differences among the three options are the interchange configurations in the Montlake and University of Washington areas. Exhibit 4 depicts these key differences in interchange configurations, and the following text describes elements unique to each option.

Option A

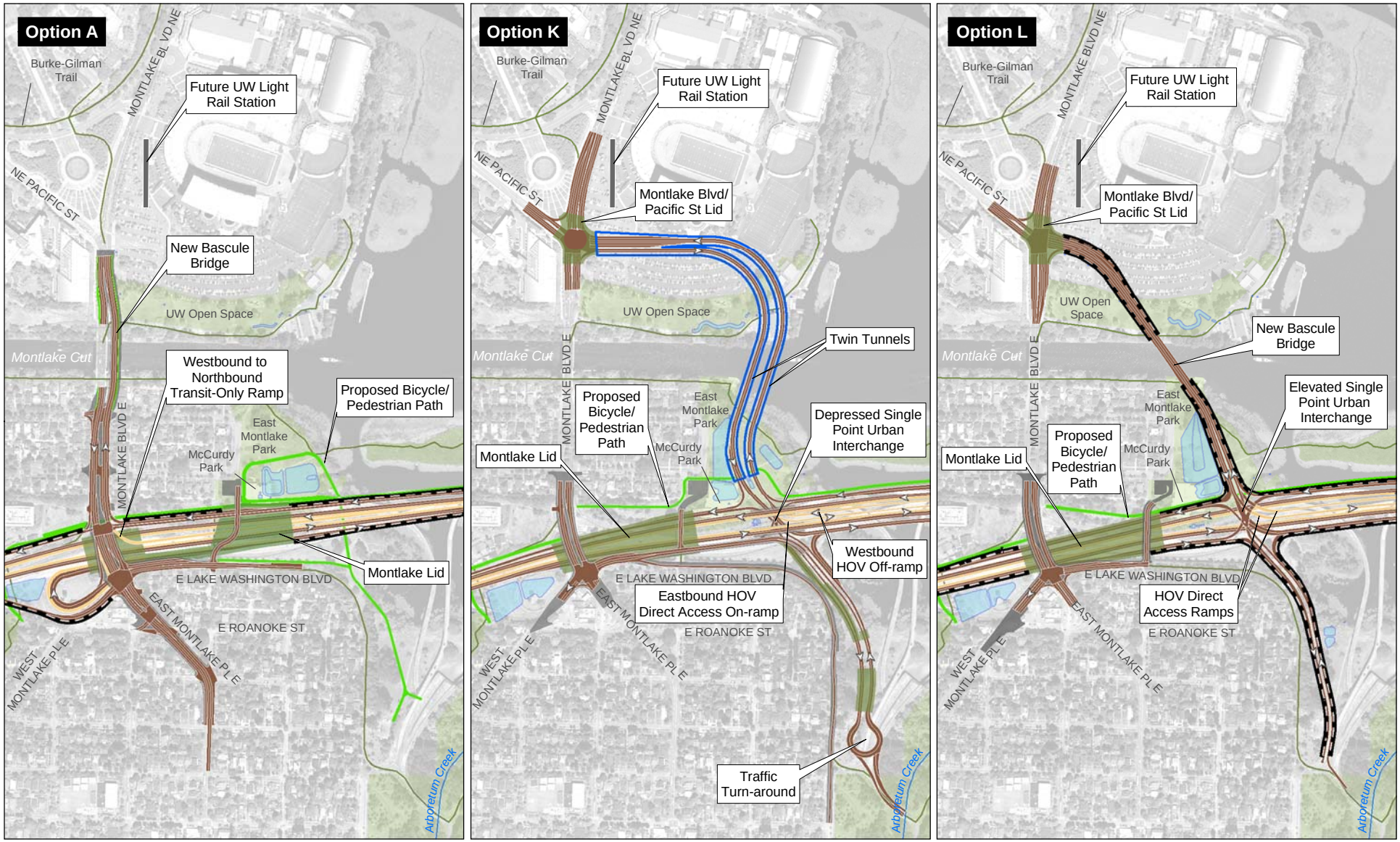
Option A would replace the Portage Bay Bridge with a new bridge that would include six lanes (four general-purpose lanes, two HOV lanes) plus a westbound auxiliary lane. WSDOT would replace the existing interchange at Montlake Boulevard East with a new, similarly configured interchange that would include a transit-only off-ramp from westbound SR 520 to northbound Montlake Boulevard. The Lake Washington Boulevard ramps and the median freeway transit stop near Montlake Boulevard East would be removed, and a new bascule bridge (i.e., drawbridge) would be added to Montlake Boulevard NE, parallel to the existing Montlake Bridge. SR 520 would maintain a low profile through the Washington Park Arboretum and flatten out east of Foster Island, before rising to the west transition span of the Evergreen Point Bridge. Citizen recommendations made during the mediation process defined this option to include sound walls and/or quieter pavement, subject to neighborhood approval and WSDOT's reasonability and feasibility determinations.

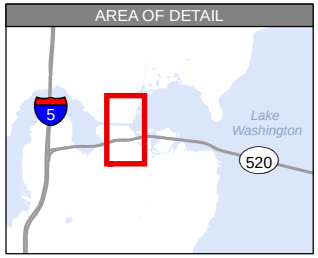
Is it a highrise or a transition span?

A transition span is a bridge span that connects the fixed approach bridge to the floating portion of the bridge. The Evergreen Point Bridge has two transition spans, one at the west end of the floating bridge transitioning traffic on and off of the west approach, and one on the east end of the floating bridge transitioning traffic on and off of the east approach. These spans are often referred to as the "west highrise" (shown) and the "east highrise" during the daily traffic report, and the west highrise even has a traffic camera mounted on it.

Today's highrises have two characteristics—large overhead steel trusses and navigation channels below the spans where boat traffic can pass underneath the Evergreen Point Bridge. The new design for the floating bridge would not include overhead steel trusses on the transition spans, which would change the visual character of the highrise. For the SDEIS, highrise and transition span are often used interchangeably to refer to the area along the bridge where the east and west approach bridges transition to the floating bridge.

Suboptions for Option A would include adding an eastbound SR 520 on-ramp and a westbound SR 520 off-ramp to Lake Washington Boulevard, creating an intersection similar to the one that exists today but relocated northwest of its current location. The suboption would also include adding an eastbound direct access on-ramp for transit and HOV from Montlake Boulevard East, and providing a constant slope profile from 24th Avenue East to the west transition span.





- Potential Sound Wall
- Existing Regional Bicycle/Pedestrian Path
- Tunnel
- Lid or Landscape Feature
- Proposed Bicycle/Pedestrian Path
- Stormwater Facility
- General-Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lane
- Future UW Light Rail Station
- Park

N

0 250 500 1,000 Feet

Source: King County (2006) Aerial Photo, King County (2005) GIS Data (Streams), City of Seattle (1994) GIS Data (Bike/Ped Trail), Seattle Bicycle Map (2008) GIS Data (Bike/Ped Trail) CH2M HILL (2008) GIS Data (Park). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 4. **Options A, K, and L: Montlake and University of Washington Areas**

I-5 to Medina: Bridge Replacement and HOV Project

Option K

Option K would also replace the Portage Bay Bridge, but the new bridge would include four general-purpose lanes and two HOV lanes with no westbound auxiliary lane. In the Montlake area, Option K would remove the existing Montlake Boulevard East interchange and the Lake Washington Boulevard ramps and replace their functions with a depressed, single-point urban interchange (SPUI) at the Montlake shoreline. Two HOV direct-access ramps would serve the new interchange, and a tunnel under the Montlake Cut would move traffic from the new interchange north to the intersection of Montlake Boulevard NE and NE Pacific Street. SR 520 would maintain a low profile through Union Bay, make landfall at Foster Island, and remain flat before rising to the west transition span of the Evergreen Point Bridge. A land bridge would be constructed over SR 520 at Foster Island. Citizen recommendations made during the mediation process defined this option to include only quieter pavement for noise abatement, rather than the sound walls that were included in the 2006 Draft EIS. However, because quieter pavement has not been demonstrated to meet all FHWA and WSDOT avoidance and minimization requirements in tests performed in Washington State, it cannot be considered as noise mitigation under WSDOT and FHWA criteria. As a result, sound walls could be included in Option K. The decision to build sound walls depends on neighborhood interest, the findings of the Noise Discipline Report (WSDOT 2009b), and WSDOT's reasonability and feasibility determinations.

A suboption for Option K would include constructing an eastbound off-ramp to Montlake Boulevard East configured for right turns only.

Option L

Under Option L, the Montlake Boulevard East interchange and the Lake Washington Boulevard ramps would be replaced with a new, elevated SPUI at the Montlake shoreline. A bascule bridge (drawbridge) would span the east end of the Montlake Cut, from the new interchange to the intersection of Montlake Boulevard NE and NE Pacific Street. This option would also include a ramp connection to Lake Washington Boulevard and two HOV direct-access ramps providing service to and from the new interchange. SR 520 would maintain a low, constant slope profile from 24th Avenue East to just west of the west transition span of the floating bridge. Noise mitigation identified for this option would include sound walls as defined in the Draft EIS.

Suboptions for Option L would include adding a left-turn movement from Lake Washington Boulevard for direct access to SR 520 and adding capacity on northbound Montlake Boulevard NE to NE 45th Street.

Lake Washington

Floating Bridge

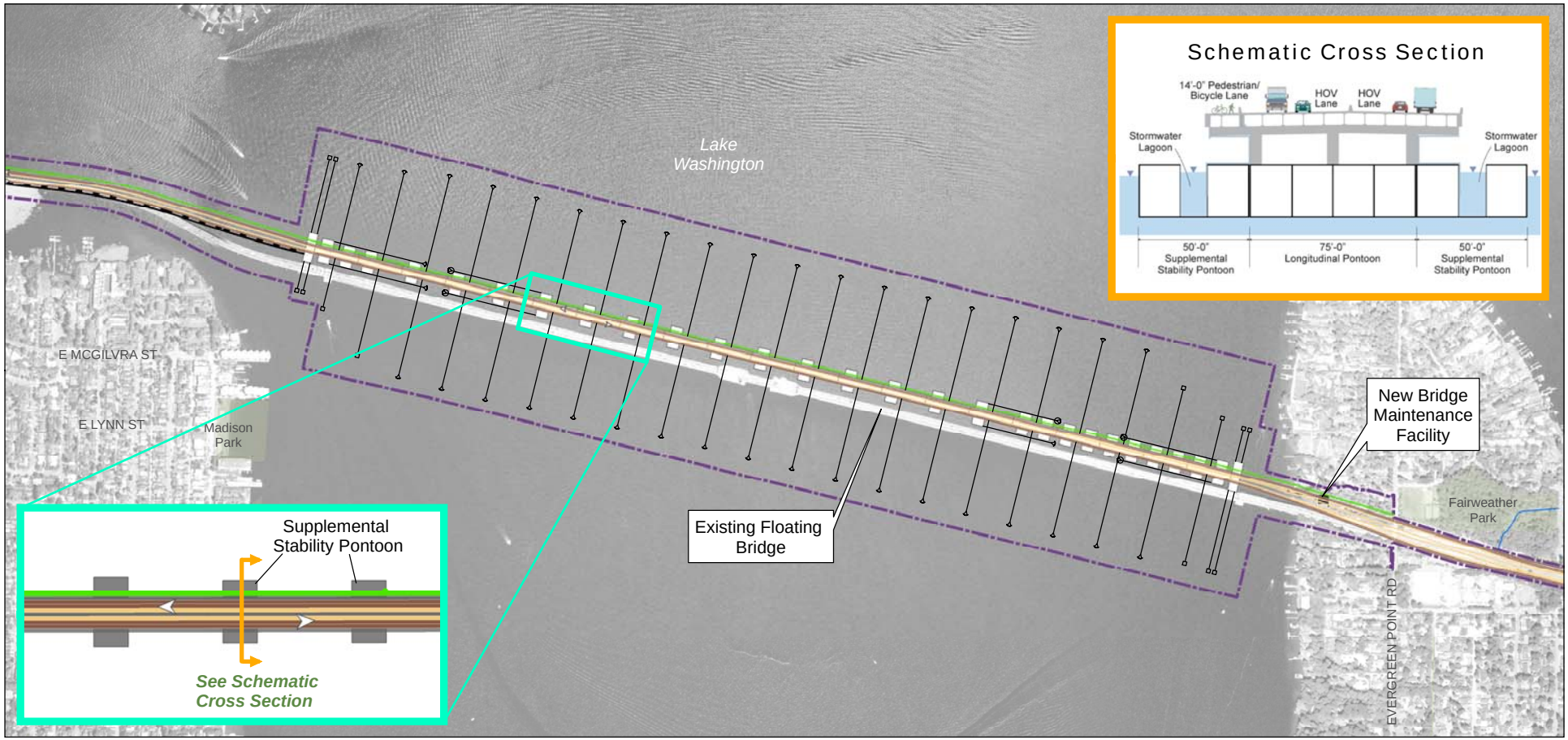
The floating span would be located approximately 190 feet north of the existing bridge at the west end and 160 feet north at the east end (Exhibit 5). Rows of three 10-foot-tall concrete columns would support the roadway above the pontoons, and the new spans would be approximately 22 feet higher than the existing bridge. A 14-foot-wide bicycle/pedestrian path would be located on the north side of the bridge.

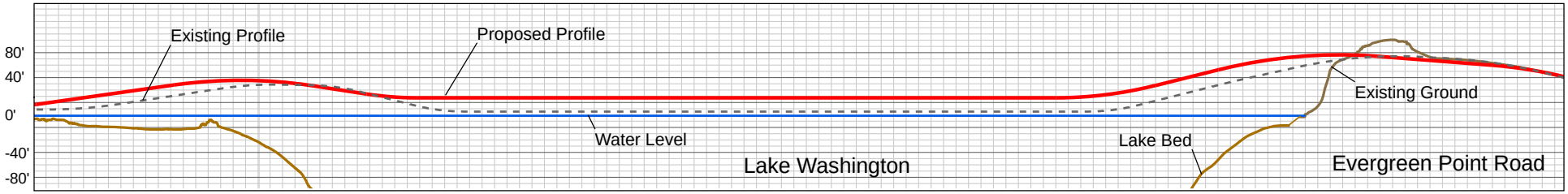
The design for the new 6-lane floating bridge includes 21 longitudinal pontoons, two cross pontoons, and 54 supplemental stability pontoons. A single row of 75-foot-wide by 360-foot-long longitudinal pontoons would support the new floating bridge. One 240-foot-long by 75-foot-wide cross-pontoon at each end of the bridge would be set perpendicularly to the longitudinal pontoons. The longitudinal pontoons would be bolstered by the smaller supplemental stability pontoons on each side for stability and buoyancy. The longitudinal pontoons would not be sized to carry future high-capacity transit (HCT), but would be equipped with connections for additional supplemental stability pontoons to support HCT in the future. As with the existing floating bridge, the floating pontoons for the new bridge would be anchored to the lake bottom to hold the bridge in place.

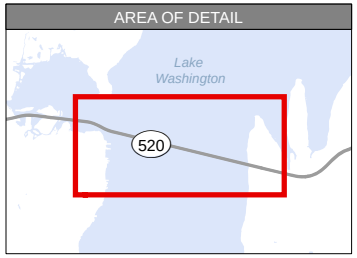
Near the east approach bridge, the roadway would be widened to accommodate transit ramps to the Evergreen Point Road transit stop. Exhibit 5 shows the alignment of the floating bridge, the west and east approaches, and the connection to the east shore of Lake Washington.

Bridge Maintenance Facility

Routine access, maintenance, monitoring, inspections, and emergency response for the floating bridge would be based out of a new bridge maintenance facility located underneath SR 520 between the east shore of Lake Washington and Evergreen Point Road in Medina. This bridge maintenance facility would include a working dock, an approximately 7,200-square-foot maintenance building, and a parking area.







- Anchor and Cable
- Pontoons
- Limits of Construction
- Proposed Bicycle/Pedestrian Path
- General-Purpose Lanes
- HOV, Direct Access, and/or Transit-Only Lane
- Park

Source: King County (2006) Aerial Photo, CH2M HILL (2008) GIS Data (Park). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

N

0 250 500 1,000 Feet

Exhibit 5. **6-Lane Alternative at the Evergreen Point Bridge (Common to All Options)**

I-5 to Medina: Bridge Replacement and HOV Project

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Eastside Transition Area

The I-5 to Medina project and the Medina to SR 202 project overlap between Evergreen Point Road and 92nd Avenue NE in Yarrow Point. Work planned as part of the I-5 to Medina project between Evergreen Point Road and 92nd Avenue NE would include moving the Evergreen Point Road transit stop west to the lid (part of the Medina to SR 202 project) at Evergreen Point Road, adding new lane and ramp striping from the Evergreen Point lid to 92nd Avenue NE, and moving and realigning traffic barriers as a result of the new lane striping. The restriping would transition the I-5 to Medina project improvements into the improvements to be completed as part of the Medina to SR 202 project.

Pontoon Construction and Transport

If the floating portion of the Evergreen Point Bridge does not fail before its planned replacement, WSDOT would use the pontoons constructed and stored as part of the Pontoon Construction Project in the I-5 to Medina project. Up to 11 longitudinal pontoons built and stored in Grays Harbor as part of the Pontoon Construction Project would be towed from a moorage location in Grays Harbor to Puget Sound for outfitting (see the sidebar to the right for an explanation of pontoon *outfitting*). All outfitted pontoons, as well as the remaining pontoons stored at Grays Harbor would be towed to Lake Washington for incorporation into the floating bridge. Towing would occur as weather permits during the months of March through October. Exhibit 6 illustrates the general towing route from Grays Harbor to Lake Washington, and identifies potential outfitting locations.

> What is Outfitting?
>
> Pontoon outfitting is a process by which the columns and elevated roadway of the bridge are built directly on the surface of the pontoon.

The I-5 to Medina project would build an additional 44 pontoons needed to complete the new 6-lane floating bridge. The additional pontoons could be constructed at the existing Concrete Technology Corporation facility in Tacoma, and/or at a new facility in Grays Harbor that is also being developed as part of the Pontoon Construction Project. The new supplemental stability pontoons would be towed from the construction location to Lake Washington for incorporation into the floating bridge. For additional information about pontoon construction, please see the Construction Techniques Discipline Report (WSDOT 2009c).

Exhibit 6. Possible Towing Route and Pontoon Outfitting Locations

Would the project be built all at once or in phases?

Revenue sources for the I-5 to Medina project would include allocations from various state and federal sources and from future tolling, but there remains a gap between the estimated cost of the project and the revenue available to build it. Because of these funding limitations, there is a strong possibility that WSDOT would construct the project in phases over time.

If the project is phased, WSDOT would first complete one or more of those project components that are vulnerable to earthquakes and windstorms; these components include the following:

- The floating portion of the Evergreen Point Bridge, which is vulnerable to windstorms. This is the highest priority in the corridor because of the frequency of severe storms and the high associated risk of catastrophic failure.
- The Portage Bay Bridge, which is vulnerable to earthquakes. This is a slightly lower priority than the floating bridge because the frequency of severe earthquakes is significantly less than that of severe storms.

- The west approach of the Evergreen Point Bridge, which is vulnerable to earthquakes (see comments above for the Portage Bay Bridge).

Exhibit 7 shows the vulnerable portions of the project that would be prioritized, as well as the portions that would be constructed later. The vulnerable structures are collectively referred to in the SDEIS as the Phased Implementation scenario. It is important to note that, while the new bridge(s) might be the only part of the project in place for a certain period of time, WSDOT's intent is to build a complete project that meets all aspects of the purpose and need.

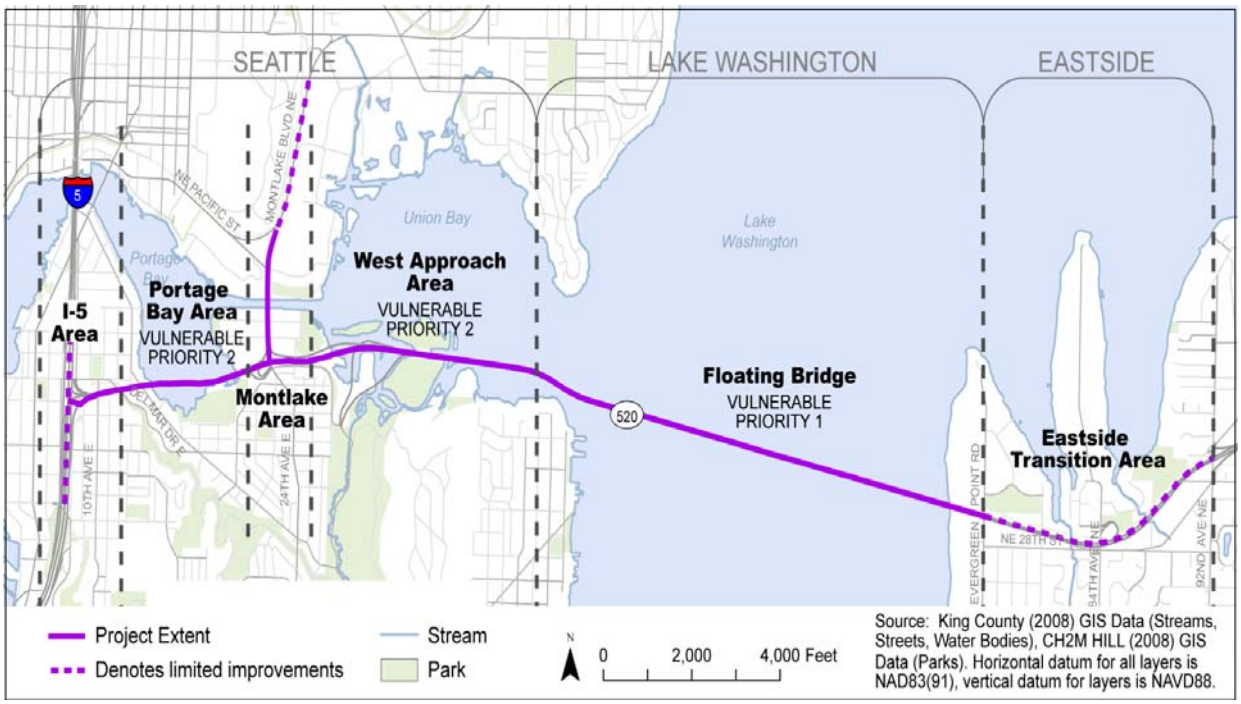


Exhibit 7. Geographic Areas along SR 520 and Project Phasing

The Phased Implementation scenario would provide new structures to replace the vulnerable bridges in the SR 520 corridor, as well as limited transitional sections to connect the new bridges to existing facilities. This scenario would include stormwater facilities, noise mitigation, and the regional bicycle/pedestrian path, but lids would be deferred until a subsequent phase. WSDOT would develop and implement all mitigation needed to satisfy regulatory requirements.

To address the potential for phased project implementation, the SDEIS evaluates the Phased Implementation scenario separately as a subset of the "full build" analysis. The evaluation focuses on how the effects of

phased implementation would differ from those of full build and on how constructing the project in phases might have different effects from constructing it all at one time. Impact calculations for the physical effects of phased implementation (for example, acres of wetlands and parks affected) are presented alongside those for full build where applicable.

How would tolling be incorporated into the project?

When the Evergreen Point Bridge was opened to drivers in 1963, tolls were collected to pay off the bonds that had been issued to fund bridge construction. The last toll on the Evergreen Point Bridge was collected in 1979. Under the 6-Lane Alternative, drivers would again pay a toll to drive across the replacement bridge.

The following bullets outline the recent history of the state's evaluation of tolling on SR 520:

- House Bill 3096, which the Washington State Legislature passed in 2008, authorized tolls on SR 520 and created a Tolling Implementation Committee to work with the public to evaluate a variety of tolling scenarios.
- In July 2008, WSDOT began conducting this Supplemental Draft EIS, which includes an analysis of the effects of tolling on low-income, minority, and LEP populations.
- Around the same time, the federal government, WSDOT, King County, and the Puget Sound Regional Council (PSRC) formed the Lake Washington Urban Partnership Agreement (UPA) to use technology and tolling to relieve congestion across and around Lake Washington. The SR 520 Variable Tolling Project is part of that effort. The project would implement a new variable tolling system to improve traffic flow on the existing SR 520 corridor and provide up to $500 million to replace the Evergreen Point Bridge. In August 2008, WSDOT began conducting an environmental assessment (EA) of the project. The EA included an analysis of the effects of tolling on low-income, minority, and LEP populations.
- In May 2009, Governor Gregoire signed House Bill 2211, which authorizes tolling on the Evergreen Point Bridge to begin in 2010. Early tolling would allow WSDOT to secure revenue for beginning

pontoon construction in 2010, which is critical for replacing the Evergreen Point Bridge by 2014.

- In March 2009, FHWA reviewed the *SR 520 Variable Tolling Project Environmental Assessment* (WSDOT 2009d) and signed a Finding of No Significant Impact (FONSI) in June 2009, which allows the Urban Partnership to move forward with the project.

When WSDOT began this Supplemental Draft EIS, the Urban Partnership SR 520 Variable Tolling Project did not have legislative approval. For that reason, WSDOT did not assume that tolls would be implemented in advance of construction of the I-5 to Medina project. Exhibit 8 outlines the tolling assumptions for each project, as well as the assumptions if the project is not built (the No Build Alternative).

Exhibit 8. Tolling Assumptions

Project	Build Alternative	No Build Alternative	Timeline
SR 520 Variable Tolling Project Environmental Assessment	Variable tolling on SR 520 only through 2016	No tolls	EA March 2009 FONSI June 2009
I-5 to Medina: Bridge Replacement and HOV Project SDEIS and Final EISs	Tolling from I-5 to I-405	No tolls modeled in SDEIS. ESHB 2211, signed by Governor Gregoire in May 2009, authorizes tolling on the SR 520 bridge beginning in 2010. WSDOT will decide later whether the No Build Alternative in the Final EIS will include tolling.	SDEIS late 2009 Final EIS late 2010

How would tolls be collected?

Modern toll-collection technology has made tollbooths a thing of the past. Drivers would pay tolls without stopping, using a vehicle-mounted transponder and electronic overhead readers mounted in roadway structures over each lane. The readers would recognize individual transponders and deduct the toll from the driver's prepaid account. Cameras equipped with license-plate reading technology would be used to collect tolls from vehicles that were not equipped with transponders. Transit and vehicles with three or more passengers would not be required to pay the tolls.

Transponder technology and cameras that recognize license plates are currently being used as part of WSDOT's Good to Go! ™ program to toll the Tacoma Narrows Bridge.

Affected Environment

How was the information collected?

Environmental justice analysts used six approaches to collect information on low-income and minority populations:

- Travelshed determination
- Demographic analysis
- Surveys of Evergreen Point Bridge users
- Focus groups and Spanish-language telephone interviews with Evergreen Point Bridge users
- Public involvement activities
- Windshield surveys
- This Environmental Justice Discipline Report uses three study areas: the project study area, the Evergreen Point Bridge travelshed study area, and the Pontoon Construction and Transport study area.
- Analysts used the project study area to determine the effect of project construction and operation on the human environment within a specified distance of the construction limits, including the effects on residents and people who work in the project study area. The project study area includes the area within an approximately 0.5-mile radius of the construction limits of the 6-lane alternative, from I-5 in Seattle to 92nd Avenue in Yarrow Point.
- Analysts used the Evergreen Point Bridge travelshed study area to understand the effects of tolling on bridge users. The Evergreen Point Bridge travelshed study area includes the geographic area from which traffic on the Evergreen Point Bridge originates.
- The Pontoon Construction and Transport study area includes the sites WSDOT is evaluating for construction of the supplemental stability pontoons required for a new 6-lane floating bridge. The Pontoon Construction and Transport study area also includes the haul route that will be used to transport the pontoons from the production site to the bridge construction site.

A **travelshed** refers to the geographic area from which traffic on a given facility originates.

Travelshed Determination

To identify SR 520 users who would be affected by tolling, environmental justice analysts examined the communities from which trips on the Evergreen Point Bridge originated (that is, the Evergreen Point Bridge travelshed).

To determine the Evergreen Point Bridge travelshed, WSDOT placed video cameras on SR 520 in May 2008. WSDOT placed cameras at on- and off-ramps and on the mainline during the morning and evening peak periods, as well as midday and weekends. The Washington State Department of Licensing provided WSDOT with the addresses associated with the registered owners of each videotaped vehicle. (No other identifying information—such as the vehicle owner's name—was released to WSDOT.) Using those addresses, analysts developed a map of the Evergreen Point Bridge travelshed. The Exhibit 9 map shows where WSDOT placed cameras.

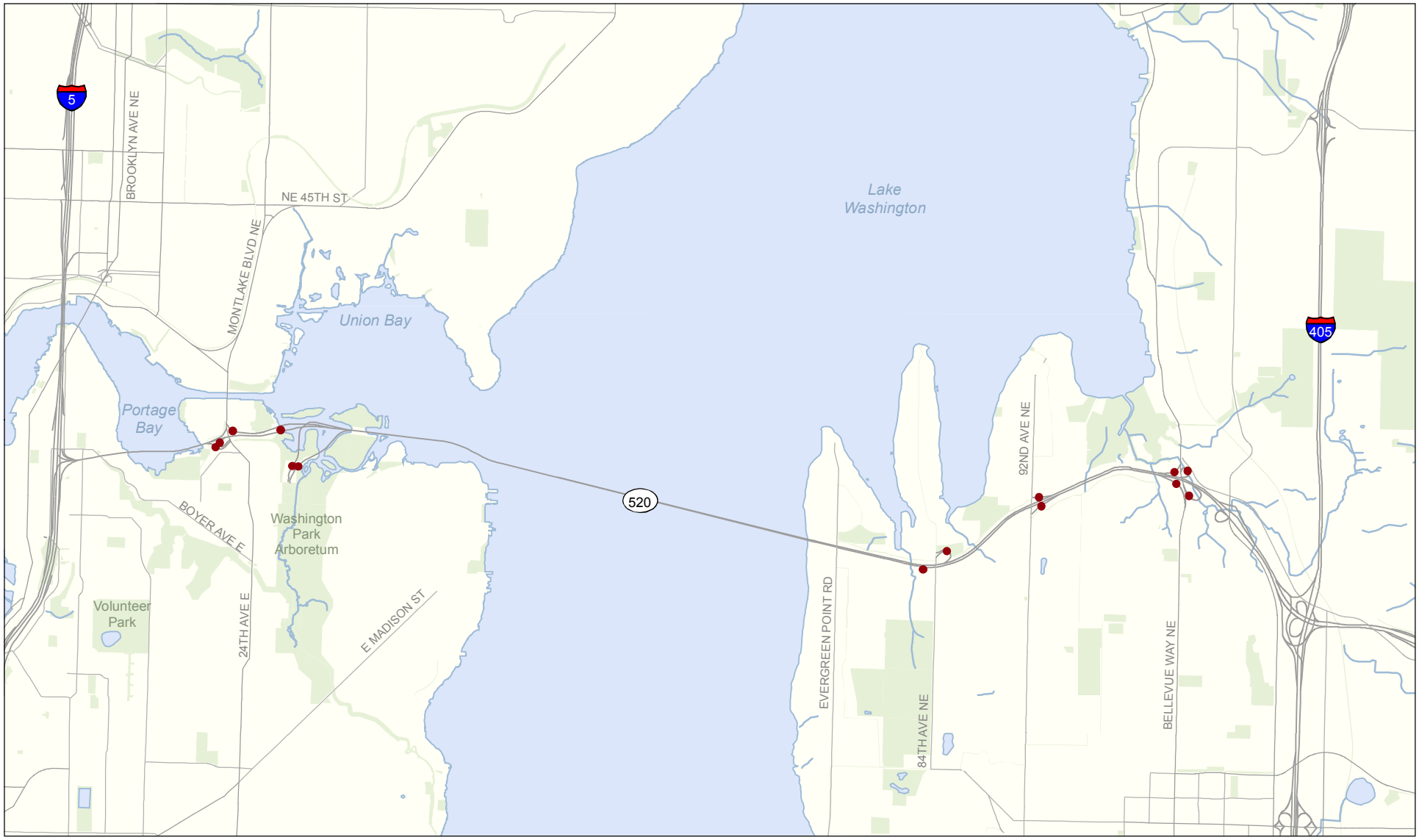
Demographic Analysis

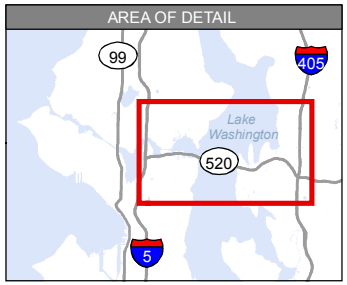
Analysts used data from the 2000 U.S. Census to collect information on demographic characteristics of populations in the project study area, Evergreen Point Bridge travelshed study area, and the Pontoon Construction and Transport study area. The U.S. Census Bureau provides statistics on minority and poverty status, English proficiency, and the primary language spoken at home for populations in the study areas.

In accordance with WSDOT standards, analysts verified findings with the National Center for Education Statistics (NCES) demographic data on students enrolled in schools in the study area for the 2006-2007 school year. The section titled *What are the existing environmental justice characteristics of the study area?* contains detailed discussions of U.S. Census and NCES findings.

Surveys of Evergreen Point Bridge Users

To understand how tolling of the existing Evergreen Point Bridge might affect low-income or minority populations, environmental justice analysts conducted a telephone survey of 685 individuals who use the Evergreen Point Bridge two or more days a week. Three hundred and eighteen respondents qualified as a member of a population protected under environmental justice laws and guidance. In other words,





License Plate Videotaping Location

Stream

Park

N

0 0.25 0.5 1 Miles

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2004) GIS Data (City Limits), WSDOT (2009) GIS Data (License Plate Videotaping Locations), and CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 9. **License Plate Videotaping Locations**

I-5 to Medina: Bridge Replacement and HOV Project

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318 respondents either identified themselves as Black, Hispanic, Asian or Pacific Islander, American Indian, or Alaskan Native, or indicated that their household income fell below the federal poverty level.

Surveys were translated into Spanish to identify Evergreen Point Bridge users who are LEP. There was no need to translate surveys into other languages because only very small concentrations of survey respondents spoke other languages.

In addition to demographic questions, survey respondents were asked how their travel behavior would be affected by a toll on the Evergreen Point Bridge. Questions about the effects of a toll on SR 520 included the following:

- Would they continue to use the bridge if they had to pay the toll?
- Would they choose an alternate route?
- Would they change their time of travel to a time when the toll would be less expensive?
- Would they use transit or rideshare?
- Would they forgo the trip altogether?

The survey moderator explained that tolls would be collected by a transponder or "card" that would be read by an electronic card reader. The moderator indicated that one of two types of transponders could be used to collect the toll—either a transponder that would attach permanently to a vehicle's windshield or a portable transponder that could be transferred among multiple vehicles. Respondents were asked to indicate if they would be likely to have difficulty obtaining a transponder.

Because the license-plate videotaping did not capture regular transit users who travel across the Evergreen Point Bridge, analysts conducted a transit intercept survey in June 2008. The survey was conducted before the University of Washington finished its regular session to capture responses from students, faculty, and staff who use transit to travel across the Evergreen Point Bridge. Transit-intercept survey questions were similar to those asked during the telephone survey. Attachment 1 contains the *SR 520 Environmental Justice Survey Final Report* (PRR 2009a).

Focus Groups and Spanish-Language Telephone Interviews with Evergreen Point Bridge Users

To collect more detailed information about how tolling might affect low-income or minority populations, analysts conducted two focus groups comprised of survey respondents who indicated a willingness to participate and others who were recruited through social service agencies that serve environmental justice populations in the Evergreen Point Bridge travelshed study area. The first focus group included English-speaking, low-income bridge users. The second included English-speaking individuals who are not in low-income or minority populations.

To collect information on how tolling might affect LEP populations, researchers conducted six telephone interviews in Spanish with Evergreen Point Bridge users. Two of the six interviewees had household incomes below the federal poverty level. The remaining four interviewees had household incomes below 130 percent of the federal poverty level. (Note that researchers opted to include Spanish speakers with incomes slightly higher than the federal poverty level because it is typically more difficult to recruit low-income interview participants than general-population interview participants.)

Attachment 2 contains the *SR 520 Environmental Justice Focus Groups and Spanish Language Interviews Summary Report of Findings* (PRR 2009b), including the moderator guide for the focus groups and the interview guide used for the Spanish-language telephone interviews.

Public Involvement Activities with Low-income, Minority, or LEP Populations

Public involvement and consultation with tribes has influenced the project's scope, design choices, and the range of alternatives that WSDOT is considering in this EIS. Analysts reviewed public comment summaries and identified issues of concern for low-income, minority, and LEP populations to explore further in this environmental justice analysis. The public involvement process also informed the development of mitigation strategies included in the Mitigation section of this report.

Two teams conducted public involvement activities related to this project:

- I-5 to Medina: Bridge Replacement and HOV Project public involvement team
- Tolling Implementation Committee
- In addition, WSDOT consulted with Native American tribes that could be affected by the project.
- The following paragraphs describe the activities of each of these teams, as well as tribal outreach activities. Please refer to the I-5 to Medina project Agency Coordination and Public Involvement Discipline Report (WSDOT 2009e) for additional information about public involvement activities for this project.

I-5 to Medina: Bridge Replacement and HOV Project Public Involvement Team

From 2000 to the present, the I-5 to Medina: Bridge Replacement and HOV Project public involvement team conducted outreach activities to provide the public with information about the project and engage them in identifying potential adverse effects and benefits of the project. This section focuses on public involvement activities that were designed specifically to engage low-income, minority, or LEP populations.

Analysts reviewed public and social service agency comments from the Draft EIS (WSDOT 2006) that pertained specifically to tolling. In addition, analysts examined the outcomes of public outreach conducted since 2006 for the I-5 to Medina project SDEIS and the *SR 520 Variable Tolling Project Environmental Assessment* (WSDOT 2009d).

In 2004 and 2006, as part of outreach for the Draft EIS (WSDOT 2006), the public involvement team met with social service agencies throughout the Evergreen Point Bridge travelshed. The objective of the meetings was to understand how many customers or clients drive on the Evergreen Point Bridge and how proposed tolling might affect social service agencies and their clients. The public involvement team also asked for suggestions of how potential adverse effects of tolling could be mitigated. The public involvement team met with the following organizations, which were selected based on consultation with local jurisdictions and social service providers, and on demographic analysis to identify concentrations of low-income, minority, and LEP populations:

- Catholic Community Services of Western Washington, which provides services to low-income families and individuals, children

and youth, seniors, people with disabilities, and immigrants and refugees

- Circle of Friends, a nonprofit senior care facility for Russian immigrants
- City of Bellevue Office of Cultural Diversity
- Foundation for International Understanding through Students, which is based at the University of Washington Seattle campus and fosters cultural exchange between international students, faculty, and U.S. nationals
- Fremont Public Association (now called Solid Ground), which provides shelter, food, home care, transportation, and other basic services to 38,000 families and individuals throughout King County
- Hopelink, which serves homeless and low-income families, seniors, and people with disabilities throughout north and east King County
- King County Metro ACCESS Transportation Program, which provides shared ride van transportation to eligible riders throughout King County
- University of Washington Ethnic Cultural Center and Theater Complex, which provides resources and a social network to students of color

Throughout the Evergreen Point Bridge travelshed, the public involvement team staffed project information booths at local fairs, festivals, and farmers markets that cater to low-income or minority populations. These included:

- Beacon Hill Festival, Seattle[1]
- Central Area Community Festival, Seattle
- Chinatown-International District Summer Festival, Seattle
- Chinese Culture and Arts Festival, Seattle Center, Seattle
- Dia de los Muertos Festival, Seattle Center, Seattle

[1] Outreach conducted prior to 2007 to support the release of the Draft EIS (WSDOT 2006). These events are included in this analysis because this outreach generated public comment relevant to the issue of tolling.

- Fremont Fair, Seattle[1]
- Lunar New Year Celebration, Seattle Center, Seattle
- Pagdiriwang Philippine Festival, Seattle Center, Seattle[1]
- Renton River Days, Renton[1]
- Seattle Fiestas Patrias, Seattle Center, Seattle
- Seafair Marathon, Seattle[1]
- Farmers markets, including Lake City, Columbia City, Phinney Ridge, University District, Wallingford, Broadway, West Seattle, and Madison Valley in Seattle, and Lake Forest Park, Crossroads (Bellevue), Kirkland, and Redmond.

The public involvement team also hosted public information meetings throughout the Evergreen Point Bridge travelshed. To announce meetings, the team posted flyers at transit stops and placed advertisements in publications that cater to low-income, minority, or LEP populations:

- *Colors NW*, a magazine that serves communities of color. *Colors NW* was a print publication at the time that the public involvement team placed advertisements, but it no longer publishes a print edition. It is available as an online magazine.
- *International Examiner*, a biweekly English-language publication that serves Asian- and Pacific-American audiences.
- *Phuong Dong Times*, a weekly newspaper that caters to Vietnamese-American audiences. The *Phuong Dong Times* is published in English and Vietnamese. The advertisement was translated into Vietnamese.
- *Siete Dias*, a Spanish-language publication. The advertisement was translated into Spanish.
- *Northwest Asian Weekly*, an English-language publication that serves an Asian-American audience.

[1] Outreach conducted prior to 2007 to support the release of the Draft EIS (WSDOT 2006). These events are included in this analysis because this outreach generated public comment relevant to the issue of tolling.

- *The Facts*, a weekly publication that targets African-American audiences.
- *The Seattle Medium*, a weekly publication that targets African-American audiences.

In addition, the public involvement team placed unstaffed information kiosks throughout the Evergreen Point Bridge travelshed at locations that serve low-income, minority, or LEP populations. The team maintained kiosks for 3 to 4 weeks at each of the following locations:

- Ballard Community Center, Seattle
- Bellevue Community College Library, Bellevue
- Latino/Hispanic Cultural Celebration, Bellevue City Hall, Bellevue
- Capitol Hill Library, Seattle
- Circle of Friends, Seattle
- Crossroads Mall, Bellevue
- Douglass-Truth Library, Seattle
- International District-Chinatown Community Center, Seattle
- International District Library, Seattle
- New Holly Neighborhood Campus, Seattle
- North Bellevue Senior Community Center, Bellevue
- Rainier Community Center, Seattle
- Seattle Central Community College Library, Seattle
- University of Washington HUB, Seattle
- Urban League of Metropolitan Seattle, Seattle

The public involvement team provided project materials in several different languages, including Spanish, Russian, Chinese, Japanese, and Vietnamese. Some materials were also translated into Amharic (Ethiopia), Laotian, Somali, and Tigrinya (Ethiopia and Eritrea). The team sent general mailings to minority-owned businesses from a purchased mailing list. The public involvement team also offered to give briefings to minority-owned business coalitions.

The **Tolling Implementation Committee** was created by the Washington State Legislature in 2008. It was charged with evaluating tolling for financing the 520 Bridge Replacement and HOV Project, engaging citizens and regional leadership in the evaluation, and enhancing understanding of tolling alternatives. The Tolling Implementation Committee reported to the governor and state legislature in January 2009.

Tolling Implementation Committee

The Tolling Implementation Committee and its staff conducted public outreach in 2008 to evaluate tolling as a means of financing a portion of the SR 520 Bridge Replacement and HOV Program.

Public outreach activities included hosting open houses, conducting telephone and Web surveys, attending public Committee meetings, and maintaining a project Web site. The Tolling Implementation Committee hosted two rounds of open houses—five open houses in July and August 2008 and three open houses in November 2008. To promote the meetings, the Tolling Implementation Committee placed paid advertisements in *Northwest Asian Weekly, Siete Dias, The Seattle Medium*, and the *Northwest Observer*, which targets an African-American audience. They also placed placards advertising the open houses on 1,300 King County Metro and Sound Transit buses.

In November and December of 2008, the Tolling Implementation Committee interviewed staff from agencies that serve low-income, minority, or LEP populations, including the following:

- Catholic Community Services
- King County Housing Authority
- YWCA of East King County

Outreach to Native American Tribes

Native Americans are a minority population, so coordination with tribes that the project could affect is part of WSDOT's environmental justice outreach. Furthermore, a WSDOT Executive Order signed in 2003 directs WSDOT to enter consultation with tribes who have ancestral homelands in affected areas. To make sure that tribal concerns are properly considered and addressed, outreach to tribes is based on a process of early and continuous communication with tribes as a project progresses.

WSDOT engages with tribes through government-to-government consultation and conducts outreach through correspondence, individual meetings, and resource agency meetings. The Muckleshoot Indian Tribe and Snoqualmie Nation serve as cooperating agencies for the SR 520: I-5 to Medina Bridge Replacement and HOV Project. In accordance with Section 106 of the National Historic Preservation Act, WSDOT consults with the Confederated Tribes and Bands of the Yakama Nation, the Muckleshoot Tribe, Snoqualmie Tribe, the Tulalip Tribes, the Suquamish Tribe, and the Duwamish Tribe. WSDOT has met with these tribes eight times in 2008 and 19 times since 2004. WSDOT will continue to coordinate with the tribes throughout planning of the project. These tribes may have crucial information on natural,

As **cooperating agencies**, the Muckleshoot Indian Tribe and Snoqualmie Nation have been involved in the following activities:

- Participated in agency coordination meetings, joint field reviews, and public involvement events, as appropriate
- Identified issues of concern regarding the project's environmental and socioeconomic effects and provided timely input on technical issues as they have arisen
- Provided comments on the range of alternatives, methodologies for analysis, technical studies, discipline reports, and the preliminary SDEIS

cultural, and archaeological resources in the study area that WSDOT would incorporate into the environmental and design process.

Tribes are also invited to attend and participate in Regulatory Agency Coordination Process and Technical Working Group meetings, along with regulatory agencies. These meetings serve as multi-agency forums for exchanging information and developing strategies to advance technical permitting work on various project topics. Representatives from the Muckleshoot Indian Tribe have regularly attended these meetings and representatives from the Snoqualmie Nation have occasionally attended.

The I-5 to Medina project Agency Coordination and Public Involvement Discipline Report (WSDOT 2009e) provides more details about outreach to tribes and the tribal consultation process.

Windshield Surveys

Environmental justice analysts reviewed phone books and Web sites to generate a list of additional social resources, businesses, and public services that serve low-income, minority, or LEP populations. For example, analysts looked for ethnic churches or churches that provided community services to low-income populations. Analysts also consulted comprehensive plans developed by the cities of Bothell, Seattle, Bellevue, Kirkland, and Renton for specific information about low-income and minority populations in these cities. Lastly, they drove through neighborhoods in the study area to validate and add to their findings. The *Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Project Study Area* and *Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Evergreen Point Bridge Travelshed Study Area* subsections provide more information.

What public involvement efforts to reach low-income, minority, or LEP populations are ongoing?

WSDOT would continue outreach throughout project planning, construction, and operation. Ongoing public involvement activities would include the following:

- Using correspondence, individual meetings, and resource agency meetings to provide ongoing consultation with tribes that this project could affect.

- Providing opportunities for residents to comment on the I-5 to Medina project Supplemental Draft EIS. This would include at least one open house and formal hearing.
- Hosting a speakers' bureau to make presentations on tolling, how to obtain a transponder, and set up an account.
- Distributing project materials (including materials in other languages) through businesses, social service agencies, libraries, community groups, and schools.
- Maintaining a Web site about tolling with information in multiple languages.
- Providing information booths at community events.
- Sharing information in newspaper and newsletter advertisements and radio spots.
- Placing articles in newsletters, magazines, and newspapers.

What are the existing environmental justice characteristics of the study area?

This Environmental Justice Discipline Report uses three study areas: the project study area, the Evergreen Point Bridge travelshed study area, and the Pontoon Construction and Transport study area.

Project Study Area

To conduct an environmental justice analysis on most highway projects, analysts examine the effects of the project on the human environment within a specified distance from the construction limits. The effects of constructing and operating a project—such as increased noise or traffic—typically do not extend farther than this.

To determine the effects of project construction and operation of the 6-Lane Alternative, the project study area includes the area within an approximately 0.5-mile radius of the construction limits of the 6-Lane Alternative, from I-5 in Seattle to 92nd Avenue NE in Yarrow Point. (Note that major construction and improvements would end at Evergreen Point Road on the east side of the lake. From Evergreen Point Road to 92nd Avenue NE, the improvements would be limited to

restriping and other minor changes within the existing WSDOT right-of-way.)

The project study area includes seven neighborhoods within Seattle (Eastlake, North Capitol Hill, Roanoke/Portage Bay, University District, Montlake, Madison Park, and Laurelhurst) and portions of Medina, Hunts Point, and Yarrow Point. This environmental justice project study area, which is the same as the study area used for the I-5 to Medina project Social Discipline Report (WSDOT 2009f), includes the Census block groups. Exhibit 10 lists the census block groups; Exhibit 11 shows their locations.

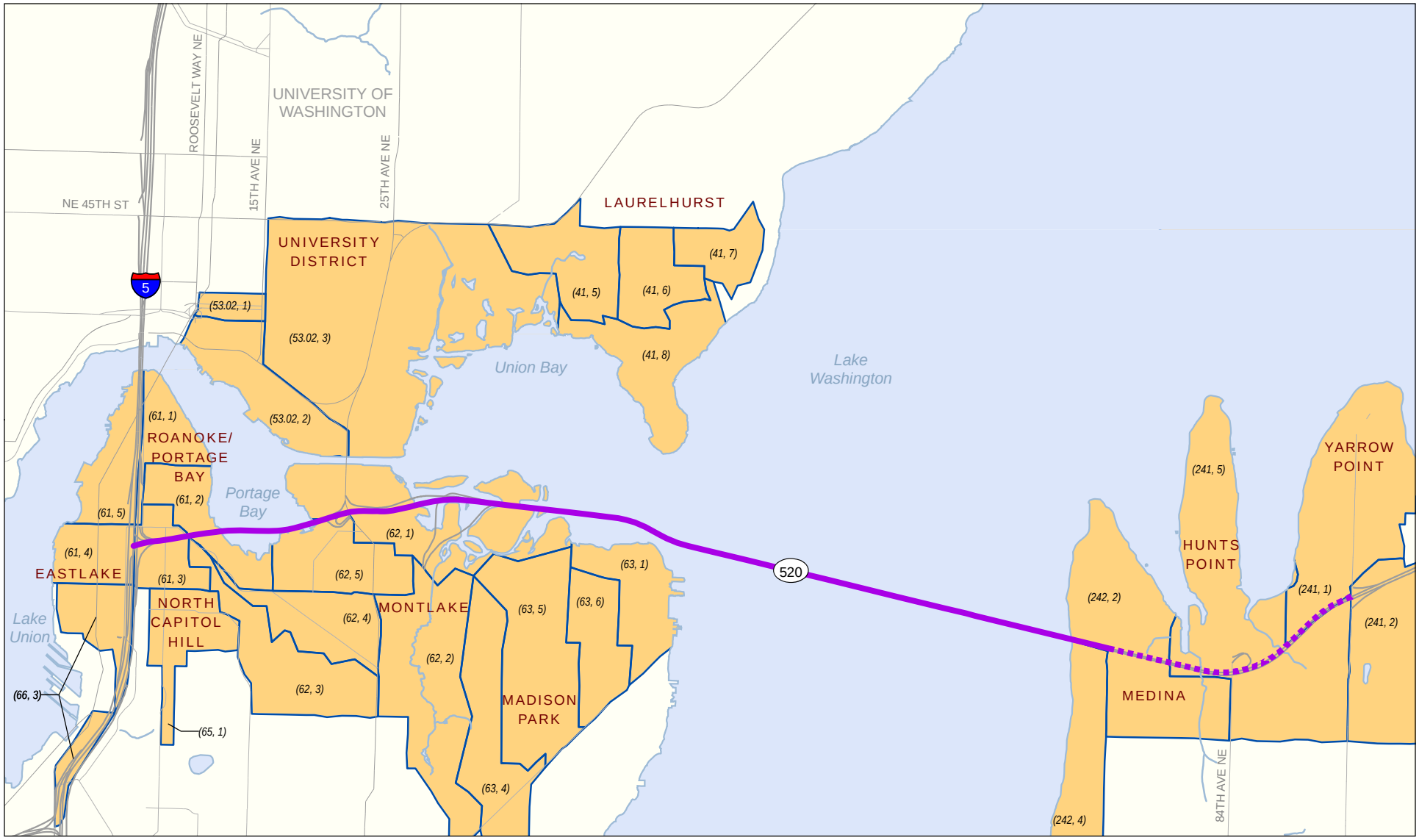
The U.S. Census divides geographic areas into **Census tracts**. Census tracts are subdivided into **block groups**. In urban areas, a block group typically encompasses two to four city blocks.

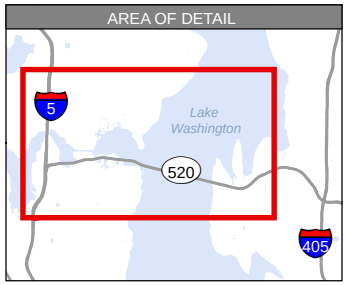
Exhibit 10. Project Study Area Census Information

Census Tract	Block Group	Neighborhoods
41	5, 6, 7, and 8	Laurelhurst
53.02	All	University District
61	All	Roanoke/Portage Bay and Eastlake
62	All	Montlake
63	1, 4, 5, and 6	Madison Park
65	1	North Capitol Hill
241	1, 5	Yarrow Point and Hunts Point
242	2	Medina

When a Census block group fell partially within the 0.5-mile radius, analysts modified the study area boundaries to include the entire block group. When only a small portion of the Census block group fell within the 0.5-mile radius, analysts excluded that block group from the study area boundaries.

According to the 2000 U.S. Census, just over 5 percent of the population of the study area in total has a household income at or below the federal poverty level. Exhibit 12 shows the percentage of the population in each Census block group with household incomes at or below the federal poverty level. The highest concentrations of residents living in poverty in the project study area are in parts of the University District, Laurelhurst, and Roanoke/Portage Bay neighborhoods.





Project Extent

Limited Project Improvement

(#,#) Census Block Group (Census Tract, Block Group)

Project Study Area

N

0 750 1,500 3,000 Feet

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), and US Census (2000) GIS Data (Demographics). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 11. **Project Study Area**

I-5 to Medina: Bridge Replacement and HOV Project

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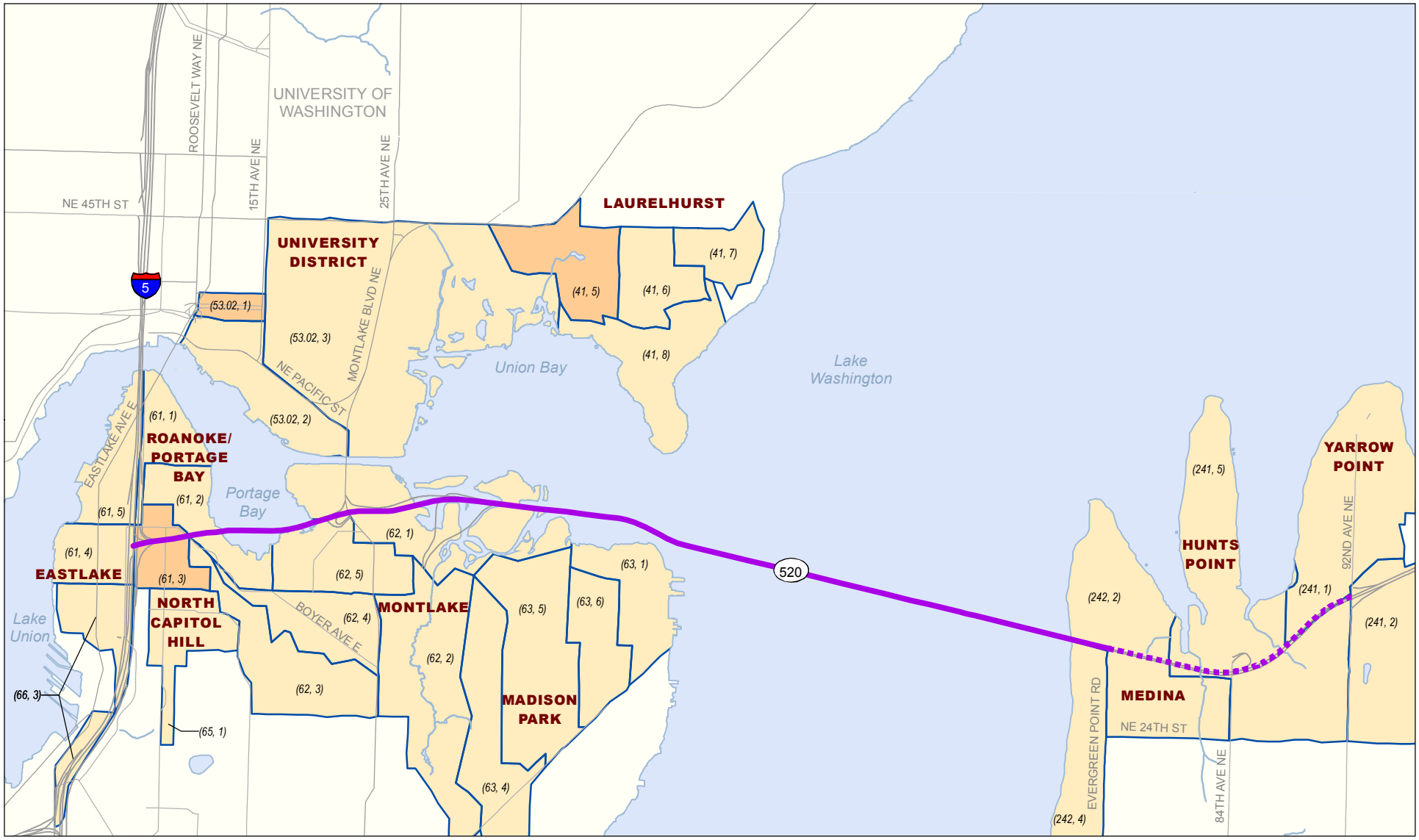

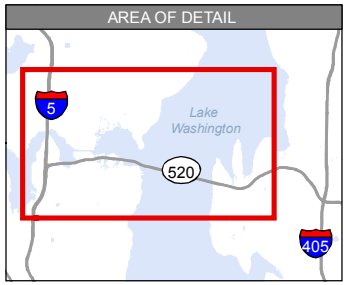

Percent at or below Poverty Level by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

- Project Extent
- Limited Project Improvement
- (#,#) Census Block Group (Census Tract, Block Group)

N

0 750 1,500 3,000 Feet

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), and US Census (2000) GIS Data (Demographics). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 12. **Percent below Poverty Level in the Project Study Area**

I-5 to Medina: Bridge Replacement and HOV Project

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Just over 15 percent of all residents in the project study area are part of a minority population. Exhibit 13 shows the percentage of the population in each Census block group that is part of a minority population. The highest concentrations of minority populations in the project study area are in the University District. Minority populations also live in parts of the Laurelhurst, Montlake, Roanoke/Portage Bay, and Eastlake neighborhoods.

Nearly 2 percent of residents in the project study area are LEP. Exhibit 14 shows the percentage of the population that is LEP in each Census block group. The highest concentrations of residents who are LEP live in the University District and in parts of Laurelhurst.

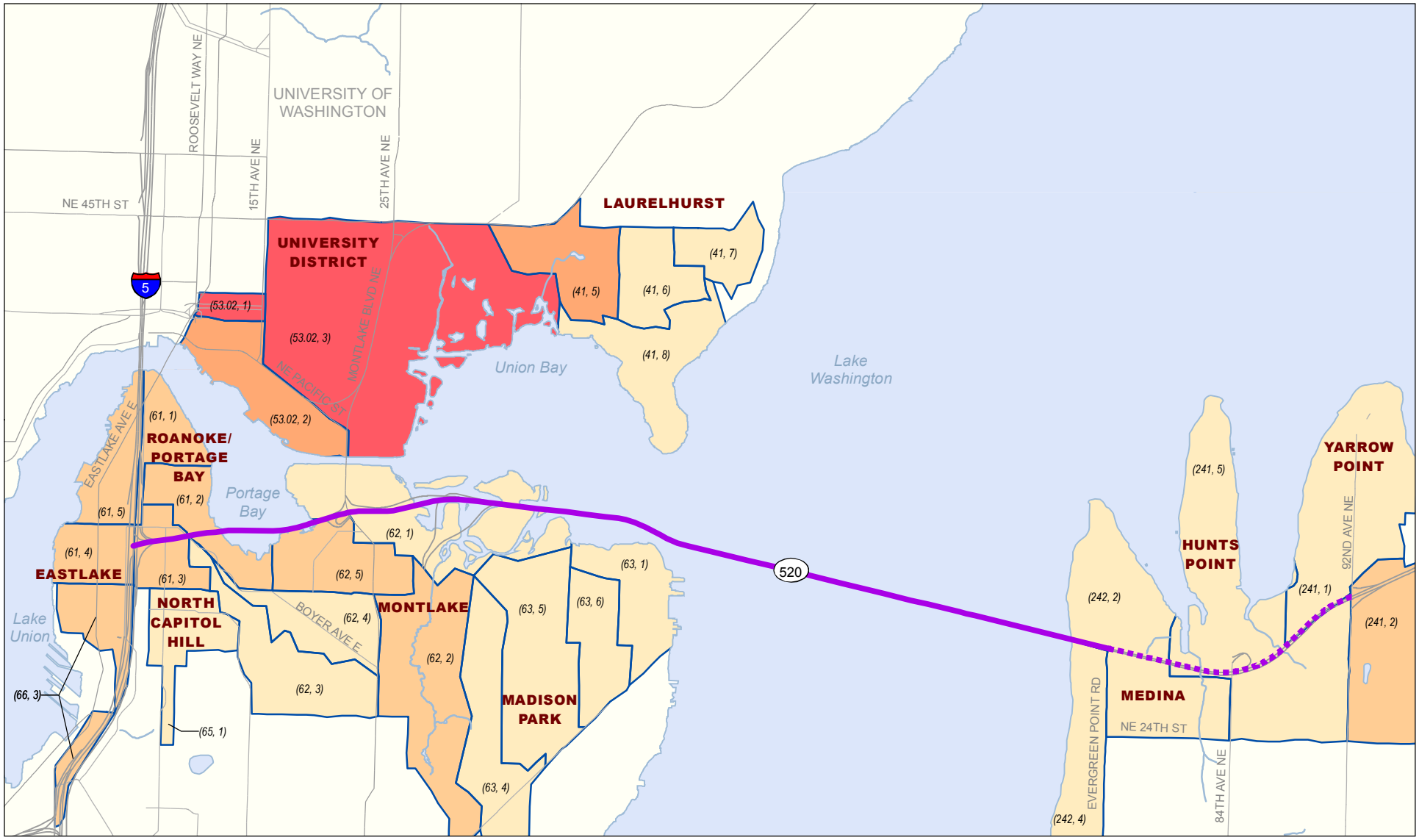
Analysts verified the presence of minority and low-income populations in the project study area by obtaining data from the NCES for the 2006–2007 school year. Analysts determined that the following elementary schools serve the neighborhoods adjacent to SR 520 in the project study area: John Stanford International, Laurelhurst, Montlake, McGilvra, and The Option Program at Seward (TOPS) elementary schools in the Seattle Public School district and Medina and Clyde Hill elementary schools in the Bellevue School District.

Nine percent of all students in the project study area schools were eligible to participate in the Free Lunch Program (which means they come from families with household incomes below 130 percent of the federal poverty level), and 35 percent of students were minority.

NCES collects LEP data only at the district level. Twelve percent of students in the entire Seattle Public School district and 10 percent of Bellevue School District students were LEP.

The NCES data confirms the presence of low-income, minority, and LEP populations in the project study area. It is important to note, however, that NCES data cannot be compared directly with 2000 U.S. Census data for the following reasons:

- School district boundaries encompass an area larger than the project study area, so the data include some students who came from households outside the project study area.
- NCES does not collect data on the percentage of students who come from families below the federal poverty level. The closest measure is the percentage of students eligible for the Free Lunch Program. Income eligibility for the Free Lunch Program is higher than the



Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), and US Census (2000) GIS Data (Demographics). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 13. **Percent Minority in the Project Study Area**

I-5 to Medina: Bridge Replacement and HOV Project

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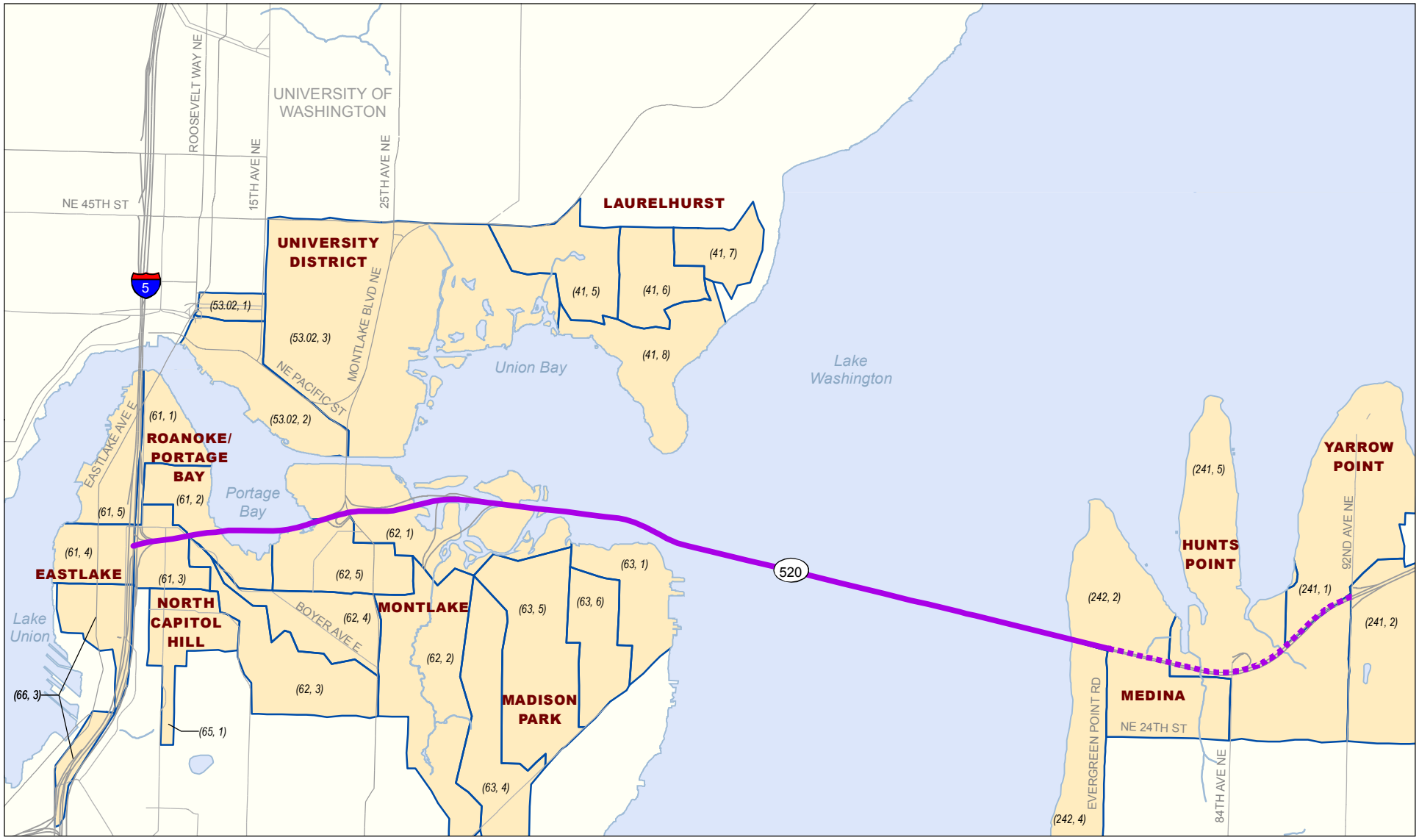
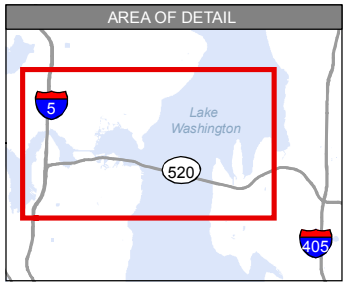




Percent Limited-English Proficient by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

Project Extent

Limited Project Improvement

(#,#) Census Block Group (Census Tract, Block Group)

N

0 750 1,500 3,000 Feet

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), and US Census (2000) GIS Data (Demographics). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 14. **Percent Limited-English Proficient in the Project Study Area**

I-5 to Medina: Bridge Replacement and HOV Project

\\SIMBA\PROJ\PARAMETRIX\180171\GIS\MAPFILES\SDEIS\ENVIRONMENTALJUSTICE\SDEIS_DR_EJ_STUDYAREA_MINORITYPOVERTY.MXD 10/16/2009

low-income threshold for environmental justice.

- NCES data report the demographics of students rather than households.

According to the I-5 to Medina project Social Discipline Report (WSDOT 2009f), the neighborhoods in the project study area have a relatively high degree of community cohesion. The neighborhoods are well established and walkable. There are religious institutions, community centers, and recreational facilities where community members can interact with one another. However, construction of I-5 in the 1950s and SR 520 in the 1960s bisected some neighborhoods, especially Montlake and portions of Medina and Hunts Point, which affected community cohesion in those neighborhoods.

Community cohesion is defined as the linkages that people in a community have with their neighbors and social resources like schools, community centers, recreational facilities, and churches. It is important to examine the level of community cohesion in an affected neighborhood and determine the extent to which the project might adversely affect or improve that cohesion.

Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Project Study Area

Environmental justice analysts reviewed the Social Discipline Report (WSDOT 2009f) to identify social services, transit facilities, community centers, recreational facilities, religious organizations, schools, and other resources that are of particular importance to low-income, minority, or LEP populations in the project study area. They also looked for any businesses that are owned by, cater to, or employ a number of low-income, minority, or LEP individuals. The following sections identify these resources of particular importance. The I-5 to Medina project Social Discipline Report (WSDOT 2009f) provides information about resources in the project study area of importance to the general population.

Social Services

Two social service agencies in the project study area serve low-income, minority, or LEP populations (Exhibit 15).

Exhibit 15. Social Service Organizations in the Project Study Area that Are of Particular Importance to Low-income or Minority Populations

Agency	Service	Constituents
University District Food Bank	Provides groceries to more than 900 low-income families in Northeast Seattle.	Low-income families
University District Service Providers Alliance	Coalition of nonprofit organizations in the University District. Some affiliates are located within the project study area. Member organizations provide for basic service such as meals, shelter, and hygiene resources and programs that provide transitional or support services, such as art therapy, mental health and chemical dependency counseling, and educational and employment resources.	Homeless and street-involved youth and young adults

Transit Facilities

As discussed earlier in this report, data collected for this analysis suggest that, unlike along other transit corridors, minorities and lower-income residents may not use transit along the SR 520 corridor as much as the general population. However, national and regional research suggest that minorities and lower-income residents are more likely than the general population to use transit, so transit facilities are of particular importance to low-income and minority populations. According to the 2006 King County Metro Rider/Non-Rider Survey (King County Department of Transportation 2007), which collects data on transit use in King County, regular transit riders are more likely than infrequent and non-riders to be minorities. Twenty-five percent of regular riders who participated in the survey have household incomes below $35,000, compared to 12 percent of non-riders. The survey does not collect information about whether respondents have household incomes at or below the federal poverty level.

Sound Transit routes 540, 545, 555, and 556; King County Metro Transit routes 167, 242, 243, 250, 252, 255, 256, 257, 260, 261, 265, 266, 268, 271, 272, 277, and 311; and Community Transit route 424 use the Evergreen Point Bridge.

In addition, there are three freeway transit stops in the project study area that serve multiple transit routes: the Montlake Freeway Station on the west side of Lake Washington and the Evergreen Point Freeway Station and Yarrow Point Freeway Station on the east side of the Lake Washington.

Sound Transit is expected to begin construction on the University Link, an extension of the light rail system from downtown Seattle, in 2009. The line will travel in tunnels from downtown Seattle to the University of Washington. There will be stations at Capitol Hill and near Husky Stadium on the University of Washington campus. Service to the University of Washington campus is expected to begin in 2016.

Community Centers

One community center in the project study area serves low-income, minority, or LEP populations (Exhibit 16).

Exhibit 16. Community Centers in the Project Study Area that Are of Particular Importance to Low-income or Minority Populations

Agency	Service	Constituents
University of Washington Ethnic Cultural Center and Theater Complex	Provides resources and a social network to students of color	Minority populations

Recreational Facilities

The analysts looked for, but did not identify, any recreational facilities in the project study area that are of particular importance to low-income, minority, or LEP populations. Religious Organizations

Three religious organizations in the project study area provide social services to or have congregations comprised primarily of low-income, minority, or LEP populations (Exhibit 17).

Exhibit 17. Religious Organizations in the Project Study Area that Are of Particular Importance to Low-income or Minority Populations

Organization	Location	Constituents
St. Demetrios Greek Orthodox Church	2100 Boyer Avenue East, Seattle	Low-income, minority, and LEP populations
St. Patrick's Catholic Church	2702 Broadway Avenue East, Seattle	Low-income, minority, and LEP populations
Vedanta Society of Western Washington	2716 Broadway East, Seattle	Low-income, minority, and LEP populations

Businesses

The analysts looked for, but did not identify, any businesses in the project study area that are owned by, employ, or cater to substantial proportions of low-income, minority, or LEP populations.

Schools

- The University of Washington is located in the project study area and serves thousands of students, including low-income, minority, and LEP students.
- TOPS is a public magnet school that serves diverse populations, including many low-income and minority students.

Other Resources of Particular Importance

Foster Island retains significance as an important place to the people of Duwamish descent. Furthermore, the Muckleshoot Indian Tribe, Snoqualmie Tribe, Suquamish Tribe, and Confederated Tribes and Bands of the Yakama Nation have indicated interest in Foster Island because many tribal members are descended from families who lived near the Evergreen Point Bridge.

The construction limits for the 6-Lane Alternative would be within the usual and accustomed fishing areas of federally recognized Native American tribes. The Muckleshoot Tribe may harvest salmon from the study area pursuant to judicially recognized treaty rights, as interpreted

by the Boldt Decision of 1974. The Boldt Decision provided the Yakama Tribe "the right to enjoy all these fisheries as they had beforehand." In effect, the Boldt Decision affirmed that tribes had retained the right to fish at "usual and accustomed" fishing areas when they signed treaties with the U.S. government in 1854 and 1855, according to the Web site Historylink.org.

Evergreen Point Bridge Travelshed Study Area

To examine the effects of tolling, the study area is defined as the Evergreen Point Bridge travelshed, which is the geographic area from which traffic (that is, bridge users who would be affected by a toll) on the Evergreen Point Bridge originates.

Exhibit 18 shows the Evergreen Point Bridge travelshed study area.

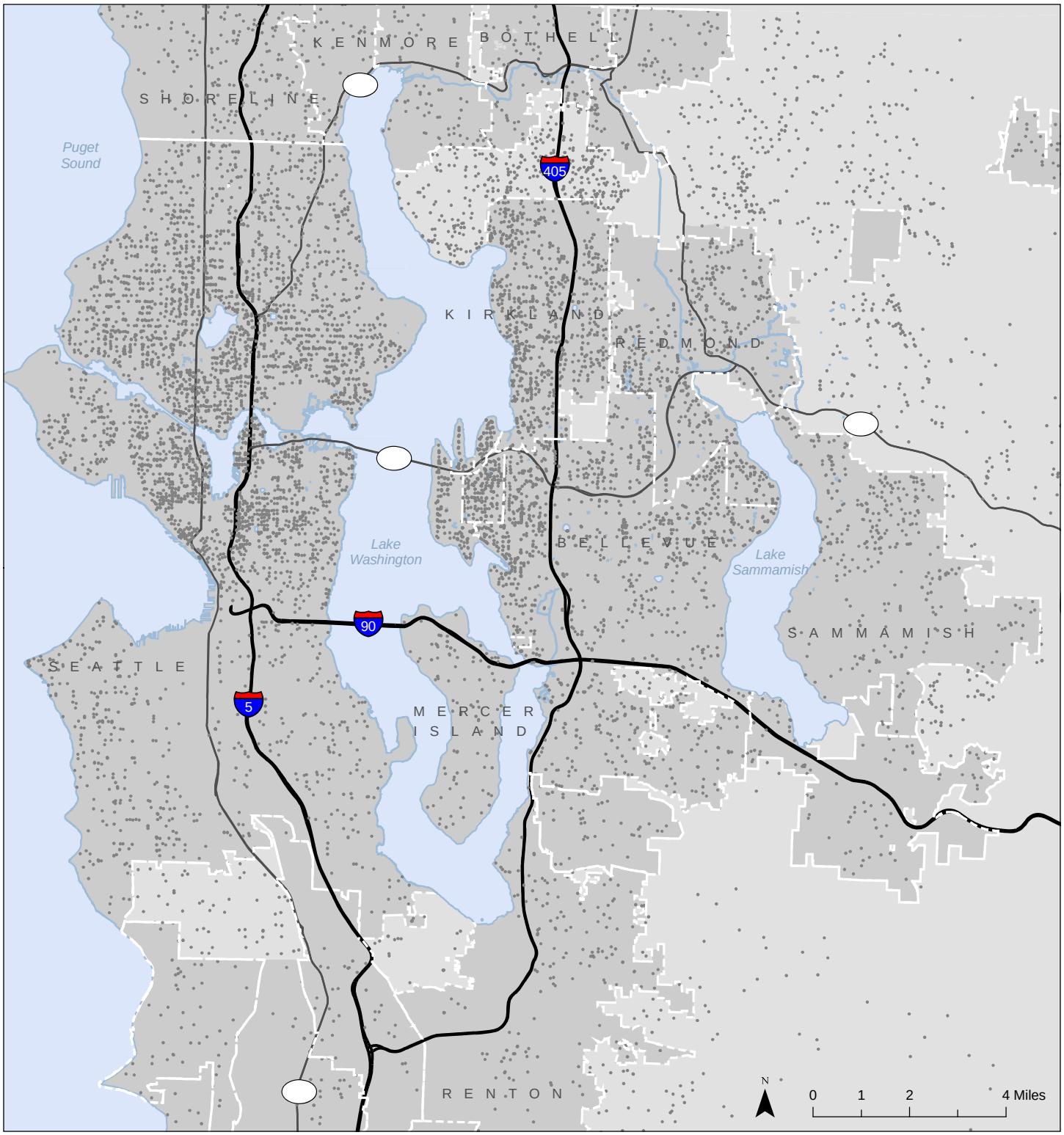
SR 522 and the I-90 Bridge are non-tolled alternate routes to the Evergreen Point Bridge. Low-income, minority, and LEP populations live in the neighborhoods surrounding these alternate routes. Because a potential effect of tolling the 6-Lane Alternative is that traffic might increase on non-tolled alternate routes around or across Lake Washington (that is, SR 522 or the Interstate 90 [I-90] Bridge), the SR 520: I-5 to Medina Bridge Replacement Project Indirect and Cumulative Effects Discipline Report (WSDOT 2009g) describes these neighborhoods, potential effects of diversion from SR 520, and mitigation strategies.

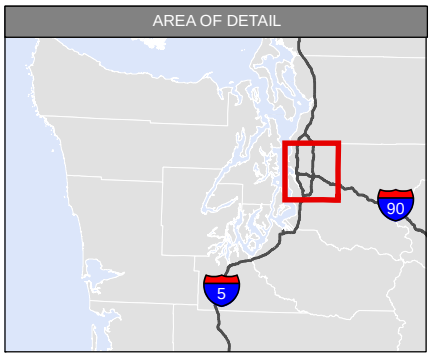
Populations that Use the Evergreen Point Bridge

There is no feasible way to determine exactly what percentage of Evergreen Point Bridge users are low-income, minority, or LEP. However, based on surveys of Evergreen Point Bridge users and the demographic analysis of the Evergreen Point Bridge travelshed, it appears that these populations do use the Evergreen Point Bridge.

In a telephone survey of 685 Evergreen Point Bridge users, 10 percent of respondents had household incomes at or below the federal poverty level, 43 percent were minorities, and 9 percent spoke a language other than English at home. Based on these results, the analysts concluded that at least some Evergreen Point Bridge users are low-income, minority, or LEP. Note that because the researchers oversampled low-income and minority respondents, it is not possible to extrapolate the telephone survey findings and determine the exact percentage of Evergreen Point Bridge users who are low-income, minority, or LEP.

Oversampling is a technique that allows researchers to give some members of the population a better chance of being surveyed. Researchers may oversample a particular sub-group (for example, people of a certain income level) because the subgroup makes up only a small proportion of the general population or because the response rate for the subgroup is lower than for the population as a whole.





● Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

Source: King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 18. **Evergreen Point Bridge Travelshed Study Area**

I-5 to Medina: Bridge Replacement and HOV Project

In an intercept survey of 422 transit users on the Evergreen Point Bridge, nearly 3 percent of respondents had household incomes below the federal poverty level and nearly 23 percent of the respondents were minority. Six percent spoke a language other than English at home.

In an **intercept survey**, the researcher goes to a central location—in this case, a transit center—and either distributes paper surveys to be completed and mailed back later or conducts a one-on-one interview.

Attachment 1 provides detailed survey results. Survey results are also discussed later in the "Potential Effects of the Project" section.

According to the 2000 U.S. Census, nearly 9 percent of households in the Evergreen Point Bridge travelshed study area have incomes below the federal poverty level, and 28 percent are minority. More than 18 percent speak a language other than English at home. This information supports the analysts' conclusion that low-income, minority, and LEP populations use the Evergreen Point Bridge.

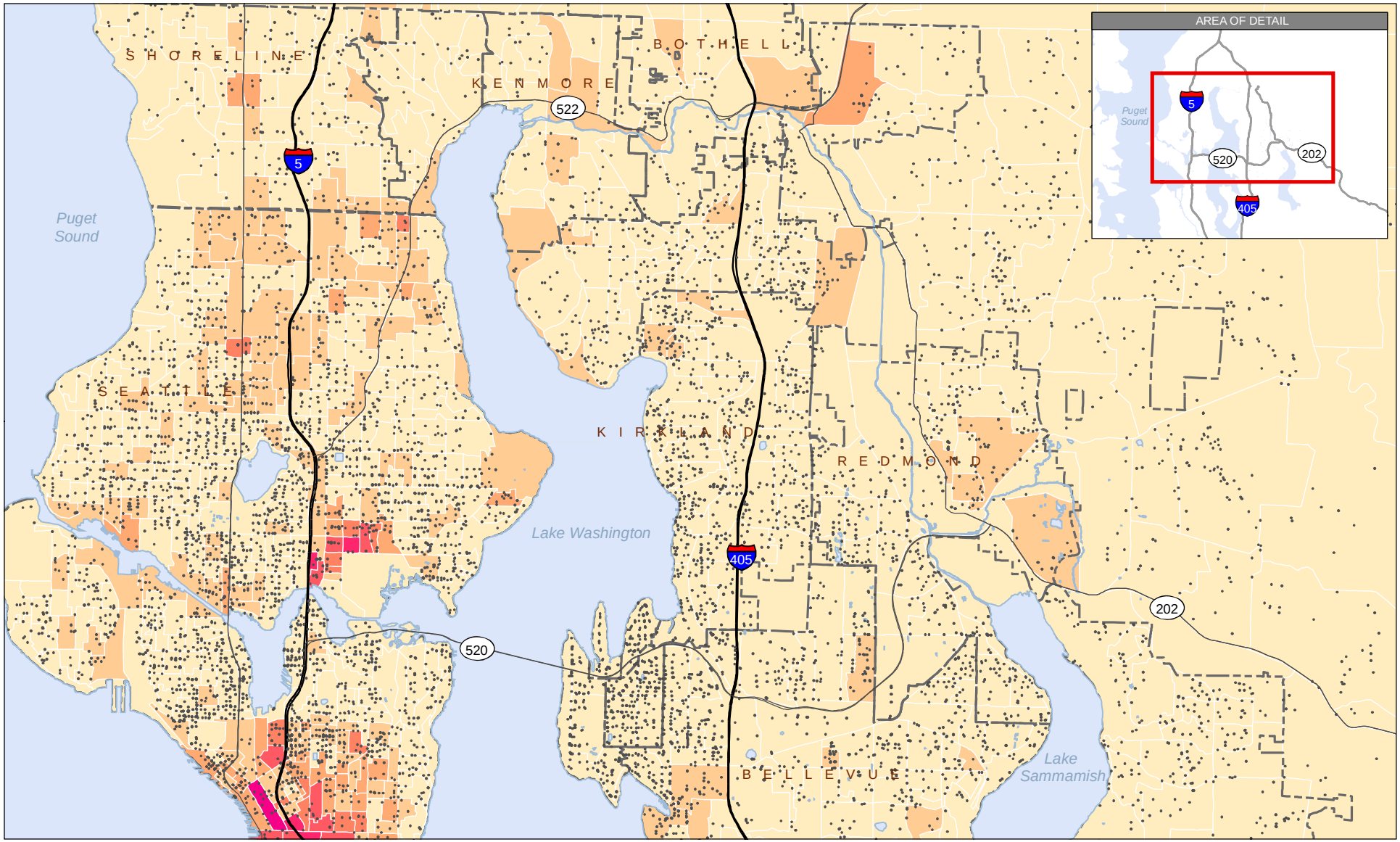
Exhibit 19 summarizes the demographic characteristics of telephone survey respondents, transit intercept survey respondents, and 2000 U.S. Census demographic data for the Evergreen Point Bridge travelshed study area.

Exhibit 19. Demographic Comparison of Telephone Survey Respondents, Transit Intercept Survey Respondents, and Population of the Evergreen Point Bridge Travelshed Study Area

	Low-income	Minority	Speaks Language Other than English at Home
Telephone Survey	10%	43%	9%
Transit Intercept Survey	3%	23%	6%
2000 U.S. Census	9%	28%	18%

Exhibits 20a and 20b show the percentage of individuals with incomes at or below the federal poverty level for each Census block group in the Evergreen Point Bridge travelshed study area. Exhibits 21a and 21b show the percentage of residents who are in a minority population within each Census block group in the Evergreen Point Bridge travelshed study area.

Approximately 5 percent of residents in the Evergreen Point Bridge travelshed study area are linguistically isolated. In other words, they indicated in the Census survey that they speak English "not well" or "not at all." Exhibits 22a and 22b show the percentage of residents who are linguistically isolated for each Census block group in the Evergreen Point Bridge travelshed study area.



Percent at or below Poverty Level by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 20a. **Percent of Population at or below Poverty Level in the Evergreen Point Bridge Travelshed Study Area - North**

I-5 to Medina: Bridge Replacement and HOV Project

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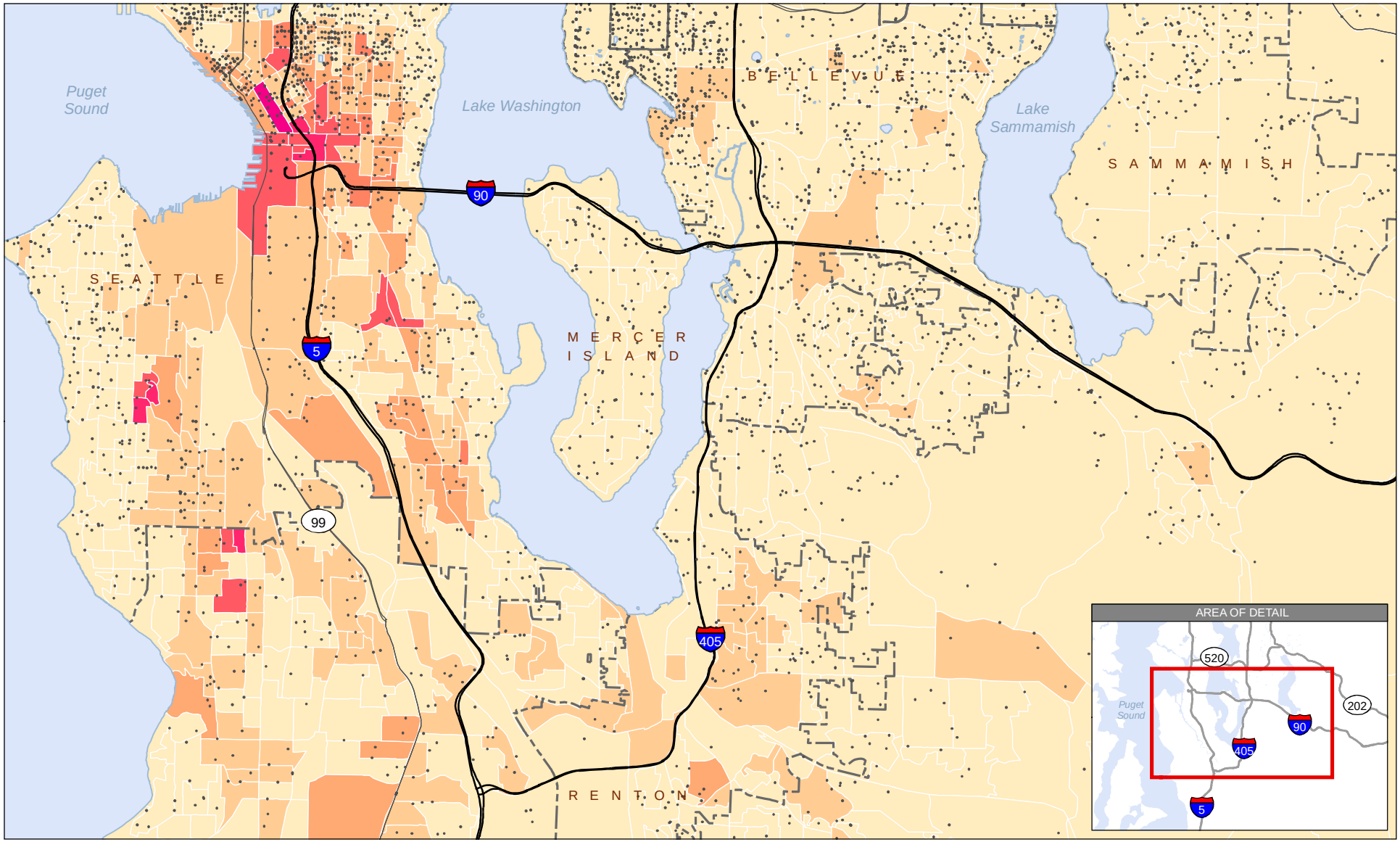

Percent at or below Poverty Level by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

- Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps
- City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 20b. **Percent of Population at or below Poverty Level in the Evergreen Point Bridge Travelshed Study Area - South**

I-5 to Medina: Bridge Replacement and HOV Project

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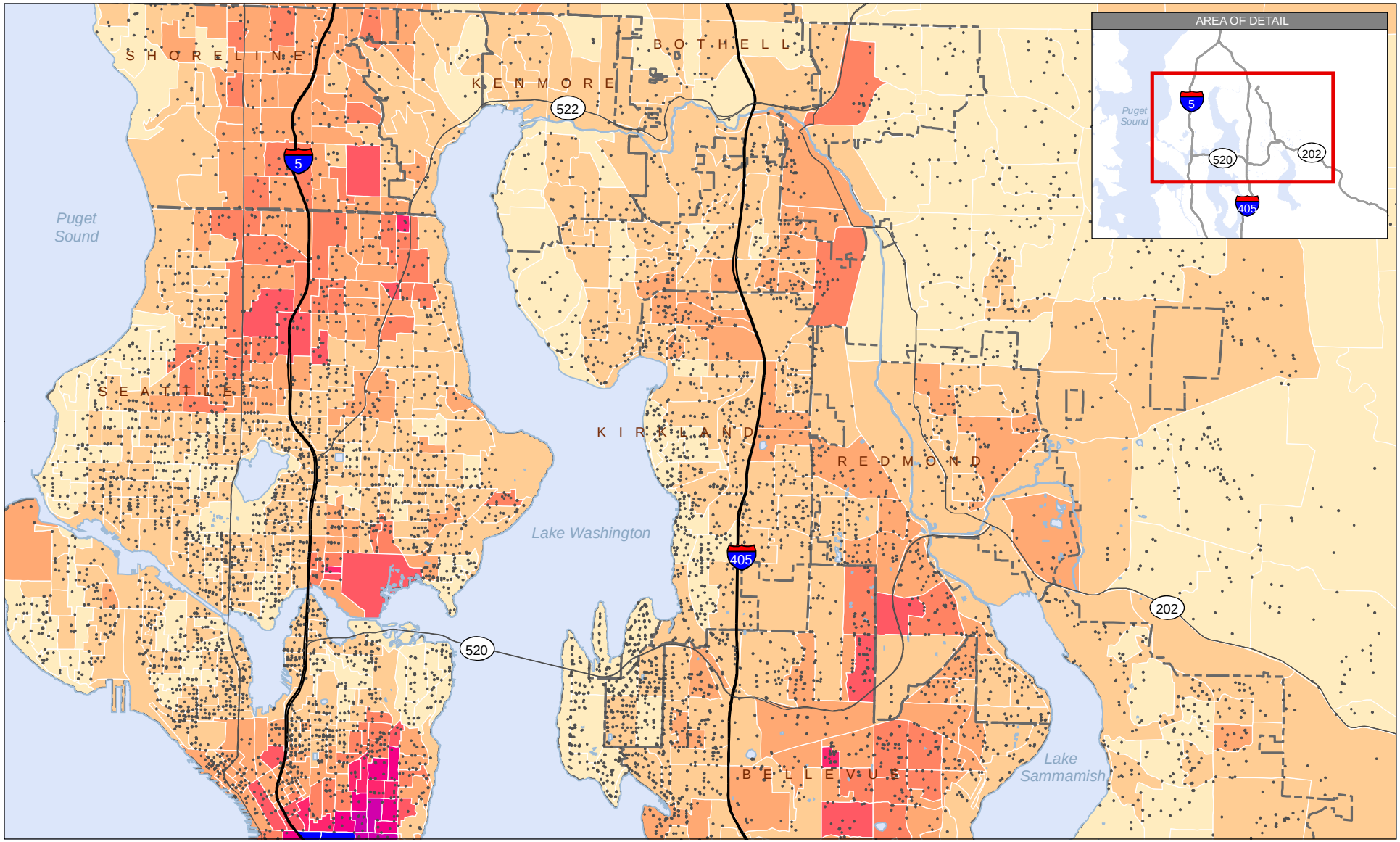

Percent Minority by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

- Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps
- City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 21a. **Percent Minority in the Evergreen Point Bridge Travelshed Study Area - North**

I-5 to Medina: Bridge Replacement and HOV Project

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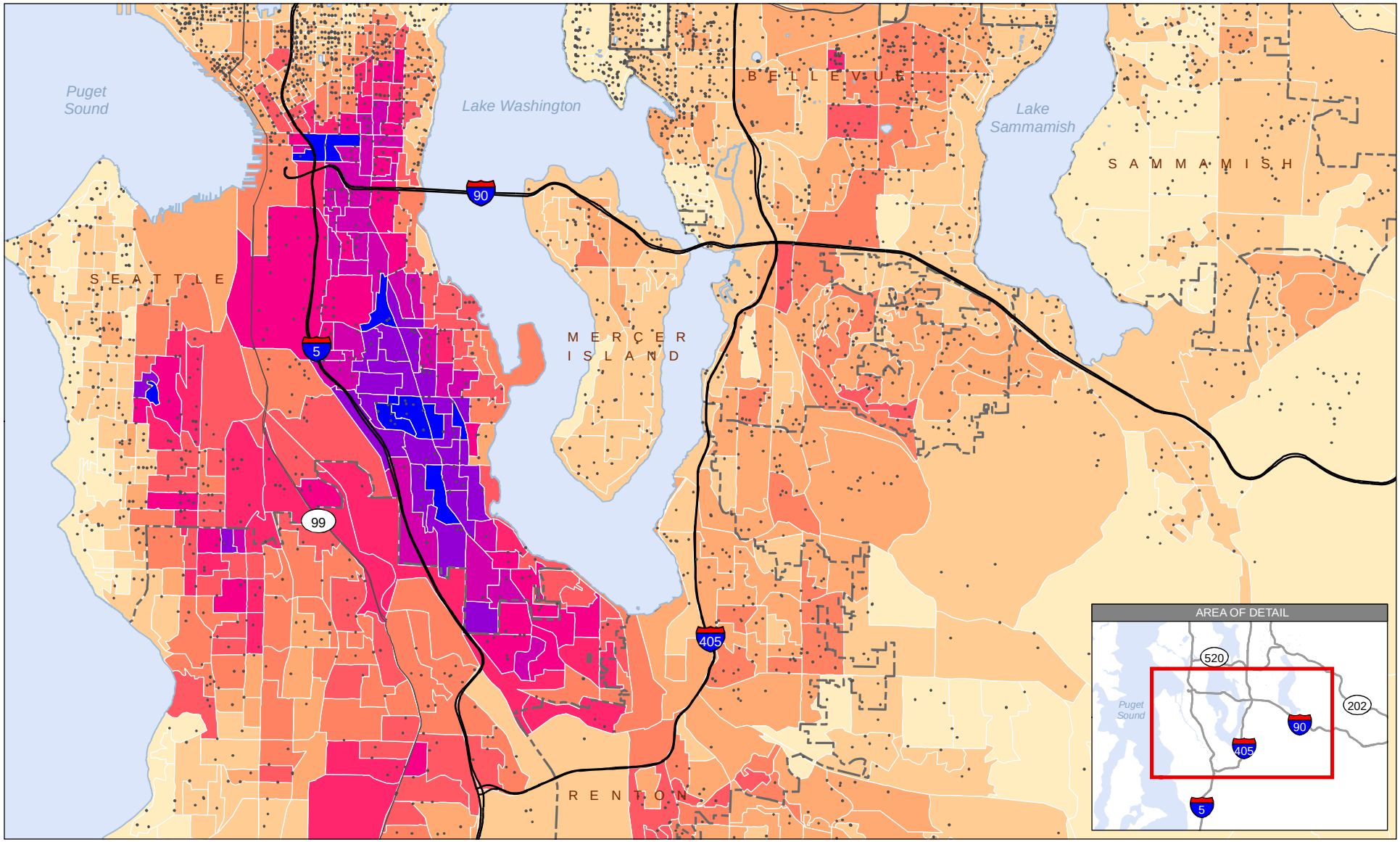

Percent Minority by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

● Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 21b. **Percent Minority in the Evergreen Point Bridge Travelshed Study Area - South**

I-5 to Medina: Bridge Replacement and HOV Project

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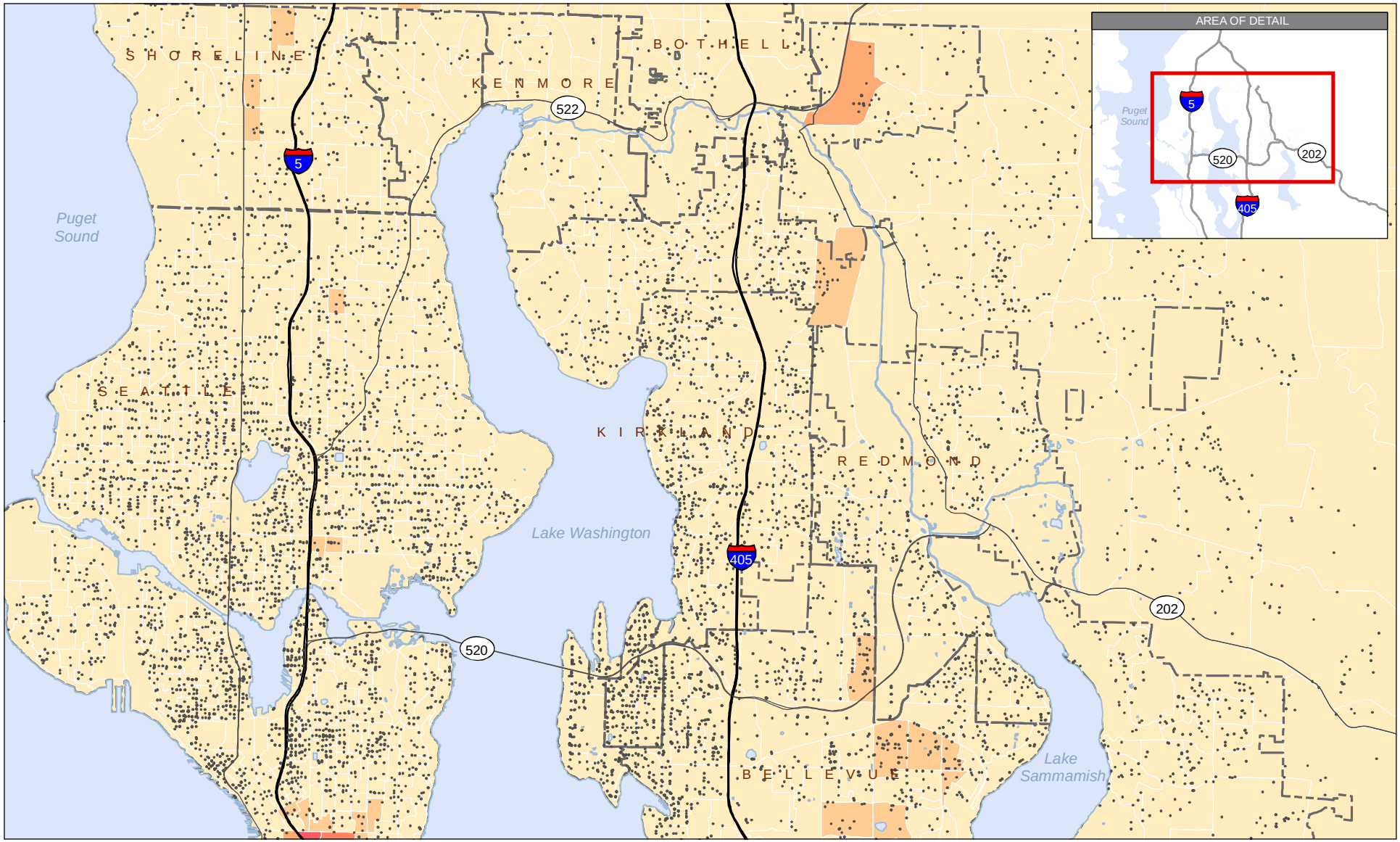

Percent Limited-English Proficient by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

● Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 22a. **Percent Limited-English Proficient in the Evergreen Point Bridge Travelshed Study Area - North**

I-5 to Medina: Bridge Replacement and HOV Project

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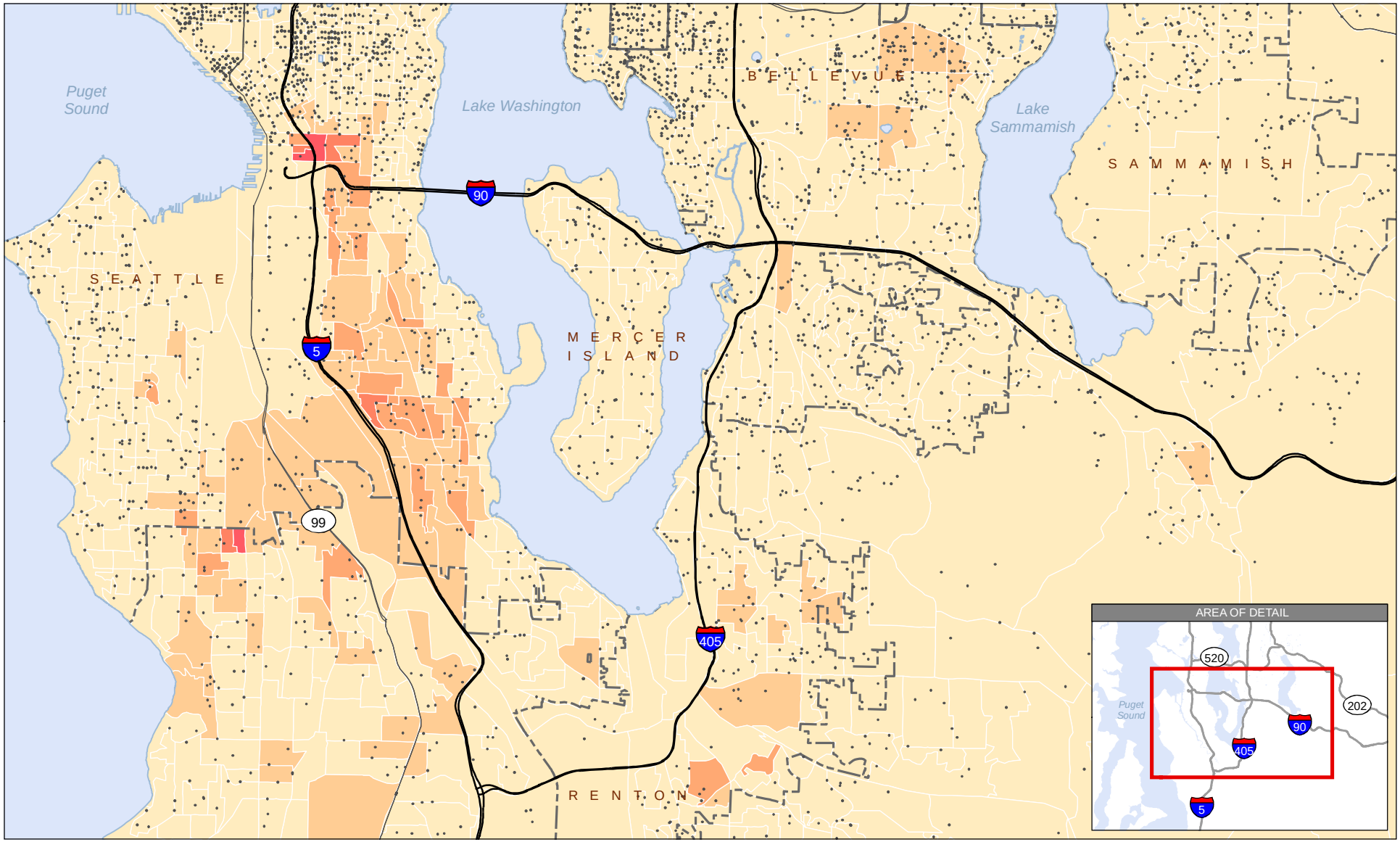

Percent Limited-English Proficient by 2000 Census Block Group

- Less than 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 22b. **Percent Limited-English Proficient in the Evergreen Point Bridge Travelshed Study Area - South**

I-5 to Medina: Bridge Replacement and HOV Project

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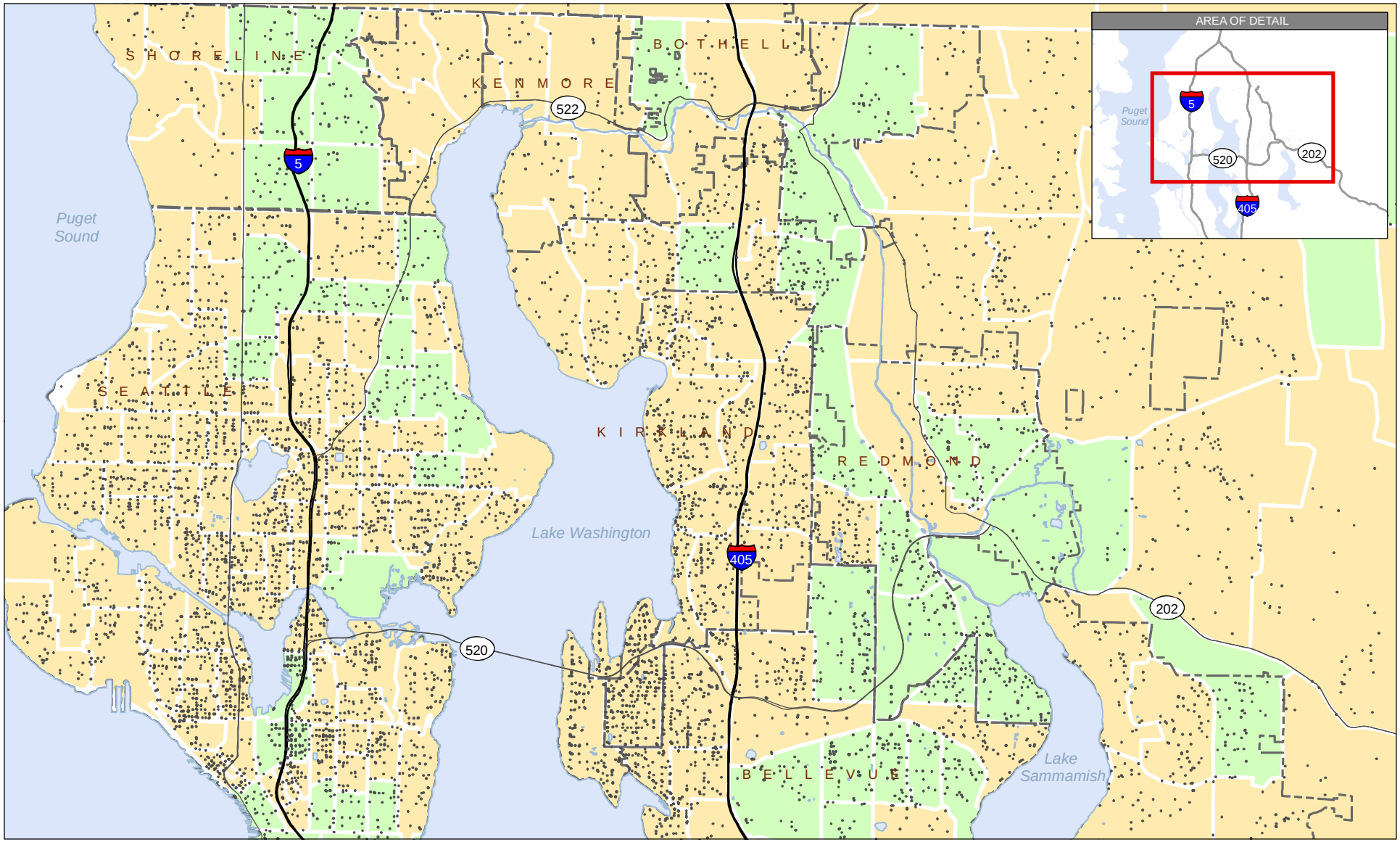
Information on the specific languages that residents speak at home is available at the Census tract level. Exhibits 23a and 23b show the Census tracts in the Evergreen Point Travelshed study area in which 5 percent or more of the population belongs to an ethnic group with a primary language other than English. WSDOT refers to the U.S. Department of Justice guidelines in deciding when to translate documents into other languages. The Department of Justice recommends that if an ethnic group with a primary language other than English comprises 5 percent or more of an area or 1,000 or more persons in an area, project materials should be translated into that language. For example, if 5 percent or more of an area's population is Hispanic, there is a strong possibility that some individuals may have limited understanding of English. Therefore, project materials should be translated into Spanish. The following languages are spoken at home by more than 5 percent of the population in Census tracts in the Evergreen Point Travelshed study area:

- African languages
- Cambodian
- Chinese
- Korean
- Other Asian languages
- Other Pacific Island languages
- Persian
- Serbian/Croatian
- Spanish
- Tagalog
- Vietnamese

As described earlier, analysts obtained school data from the NCES for the 2005–2006 school year to confirm the presence of low-income, minority, and LEP populations in the Evergreen Point Bridge travelshed study area. For the six school districts represented in the study area, more than 18 percent of students were eligible to participate in the Free Lunch Program (which means they came from families with household incomes below 130 percent of the federal poverty level); more than 39 percent of students were in a minority population; and nearly 8 percent of students were LEP. The NCES data confirms the



Language Other Than English Is Spoken at Home by 5% or More of Population

Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 23a. **Languages Other than English Spoken in the Evergreen Point Bridge Travelshed Study Area - North**

I-5 to Medina: Bridge Replacement and HOV Project

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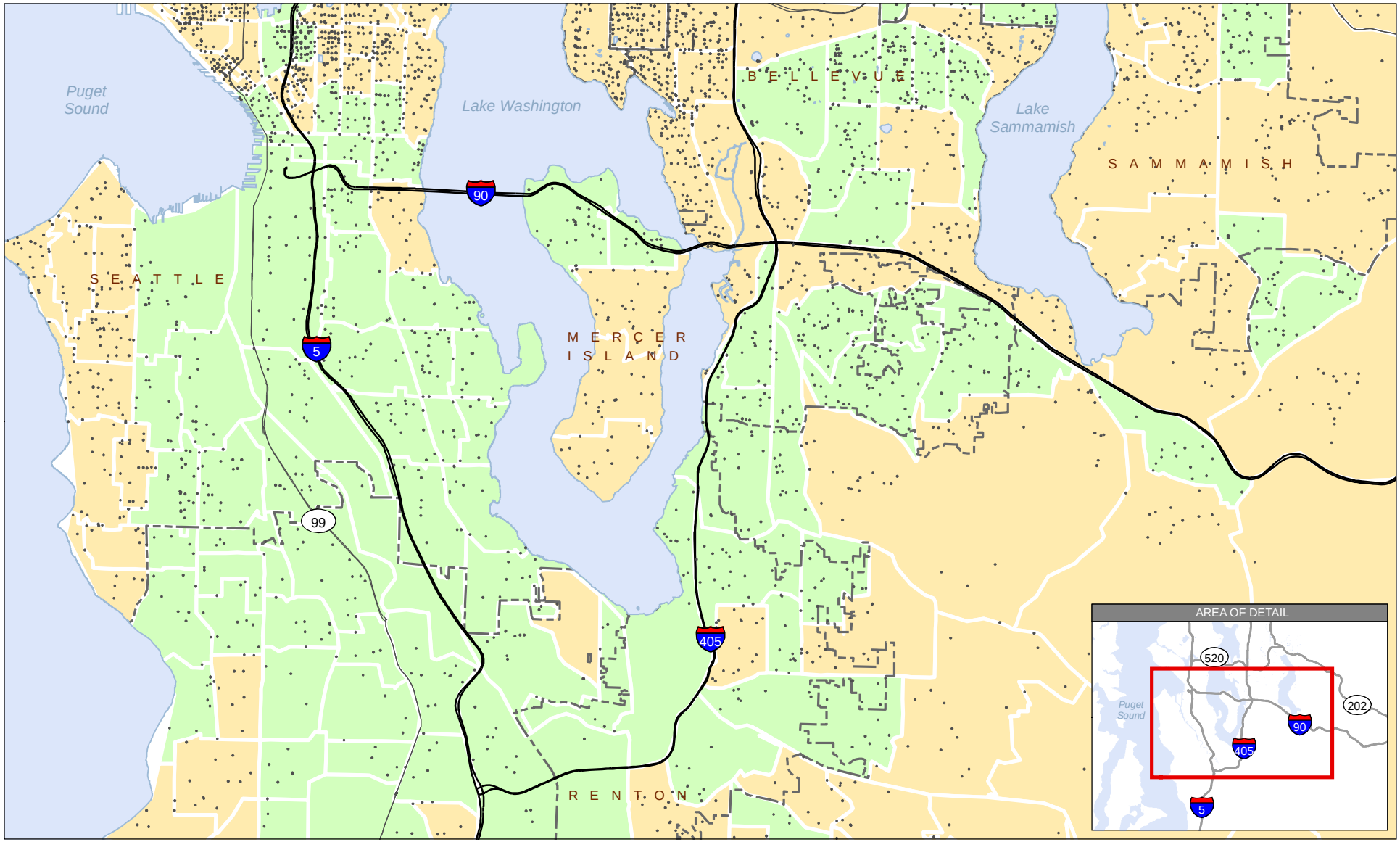

Language Other Than English Is Spoken at Home by 5% or More of Population

Registered Addresses of Vehicles that were Videotaped at Evergreen Point Bridge On- and Off-Ramps

City Limits

N

0 0.5 1 2 Miles

Source: King County (2005) GIS Data (Streams), King County (2007) GIS Data (Water Bodies), WSDOT (2004) GIS Data (State Routes), City of Bellevue (1999) GIS Data (City Limits), King County (2004) GIS Data (City Limits), US Census (2000) GIS Data (Demographics), and WSDOT (2009) GIS Data (Registered Addresses). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 23b. **Languages Other than English Spoken in the Evergreen Point Bridge Travelshed Study Area - South**

I-5 to Medina: Bridge Replacement and HOV Project

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presence of low-income, minority, and LEP populations in the Evergreen Point Bridge travelshed study area. For the reasons described earlier, it is important to note that NCES data cannot be compared directly with 2000 U.S. Census data.

Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Evergreen Point Bridge Travelshed Study Area

To determine whether there are resources of particular importance to low-income, minority, or LEP populations in the Evergreen Point Bridge Travelshed study area that might be affected by tolling, environmental justice analysts identified resources that either depend on the Evergreen Point Bridge to reach clients or whose constituents or customers use the Evergreen Point Bridge to reach them.

To identify these resources of particular importance, environmental justice analysts reviewed the Social Discipline Report (WSDOT 2009f) and consulted with the Tolling Implementation Committee and I-5 to Medina project outreach teams, who interviewed social service agencies that depend on the Evergreen Point Bridge. Analysts also searched in telephone books and on the Internet to locate ethnic religious organizations and businesses. They contacted several to inquire whether their constituents or customers and employees depend on the Evergreen Point Bridge to reach them.

Social Services

Eight social service agencies in the Evergreen Point Bridge travelshed study area serve low-income, minority, or LEP populations and depend on the Evergreen Point Bridge for access to clients (Exhibit 24).

Transit Facilities

King County Metro ACCESS uses contractors to provide van transportation to people with disabilities throughout King County. Eligible riders phone the call center from one to three days in advance of their trip and request a ride.

Transit routes that use SR 520 were discussed earlier in this section, under *Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Project Study Area*.

Community Centers

Seattle Center, which is about 2 miles from the west end of the SR 520 corridor, hosts ethnic and cultural events that draw people from all over the region.

Exhibit 24. Social Service Organizations in the Travelshed Study Area that Are of Particular Importance to Low-income or Minority Populations and Depend on the Evergreen Point Bridge

Agency	Service	Constituents
Asian Counseling and Referral Services (King County)	Offers human services and behavioral health programs to Asian residents of King County.	American-born residents of Asian descent, Asian immigrants, Asian refugees.
Catholic Community Services (Redmond)	Services to help families transition from homelessness and to help families with basic needs.	Low-income families.
Chinese Information and Service Center (CISC)	CISC provides information, referral, advocacy, social, and support services to Chinese and other Asian immigrants throughout King County	Asian immigrants.
Circle of Friends—Adult Day Health Center (Bellevue and Seattle)	Services to Russian seniors on the east and west sides of the Evergreen Point Bridge.	Russian senior citizens, some of whom are low-income.
Foundation for International Understanding through Students (University of Washington Campus, Seattle)	Programs to support international students and help them interact with the community.	International students, especially those of Chinese, Korean, and Indian origin.
Fremont Public Association (Seattle)	Provider for King County Access transportation program.	Low-income, elderly, and disabled populations.
Hopelink Transportation Program (Bellevue)	In partnership with the Department of Social and Health Services, Hopelink's transportation program serves people on Medicaid in King County. They also provide rides for elderly or disabled clients. Hopelink transports clients to and from doctor's appointments.	Low-income, elderly, and disabled populations.
YWCA (East King County)	A variety of services for low-income and homeless populations.	Low-income populations.

Recreational Facilities

Analysts looked for, but did not identify, any recreational facilities that are dependent on the Evergreen Point Bridge that are of particular importance to low-income, minority, or LEP populations in the Evergreen Point Bridge travelshed study area.

Religious Organizations

University Unitarian Church at 6556 35th Avenue NE in Seattle serves a congregation of people from diverse ethnic and socio-economic backgrounds from all parts of King County. Many of its constituents depend upon the Evergreen Point Bridge.

Businesses

The analysts looked for, but did not identify, any businesses in the Evergreen Point Bridge travelshed study area that are owned by, employ, or cater to substantial proportions of low-income, minority, or LEP populations and whose customers or employees depend on the Evergreen Point Bridge.

Schools

Cascadia Community College and the University of Washington, Bothell Campus are located in Bothell, just northwest of the intersection of SR 522 and I-405.

Pontoon Construction and Transport Study Area

In addition to the existing Concrete Technology Corporation graving dock facility in Tacoma, WSDOT would be constructing a new casting basin facility in Grays Harbor. The Construction Techniques Discipline Report (WSDOT 2009c) evaluates two waterfront sites in Grays Harbor: the Anderson & Middleton property in Hoquiam and the Aberdeen Log Yard property in Aberdeen. The following information describes each property.

- The 105-acre Anderson & Middleton Alternative site is on the north shore of Grays Harbor in Hoquiam, Washington. Some residential communities are within the study area, which was defined by the Pontoon Construction Project Social, Recreation, and Environmental Justice Technical Memorandum (WSDOT 2009h) as 0.25 mile in all directions from the Aberdeen & Middleton site. Within 0.25 mile of the site, the low-income population is nearly 20 percent, the minority population is just over 10 percent, and the LEP population is 2 percent.
- The 44-acre Aberdeen Log Yard Alternative site lies on the north shore of Grays Harbor in Aberdeen, Washington, near the mouth of the Chehalis River. Within 0.25 mile of the site, the low-income population is 19 percent, the minority population is nearly 14 percent, and the LEP population is just under 2 percent.

Both the Anderson & Middleton and Aberdeen Log Yard alternatives are within the federally protected usual and accustomed fishing area of the Quinault Indian Nation. The usual and accustomed fishing area includes Salmon Management Area 29 within Grays Harbor and its tributaries. The Confederated Tribes of the Chehalis and other Native American tribes have gathering interests in federally owned upland

areas. The Tribes that are participating in the environmental review of the pontoon construction project are the Confederated Tribes of the Chehalis Reservation, the Hoh Tribe, The Quileute Tribe, the Quinault Indian Nations, the Shoalwater Bay Tribe, the Skokomish Tribal Nation, and the Squaxin Island Tribe.

Resources of Particular Importance to Low-income, Minority, or LEP Populations in the Pontoon Construction and Transport Study Area

Environmental justice analysts reviewed the Pontoon Construction Project Social Elements Technical Memorandum (WSDOT 2009i) to identify social services, transit facilities, community centers, recreational facilities, religious organizations, schools, and other resources that are of particular importance to low-income, minority, or LEP populations in the Pontoon Construction and Transport study area. The environmental justice analysts also looked for any businesses that are owned by, cater to, or employ a number of low-income, minority, or LEP individuals.

This analysis is based upon the assumption that construction of one of the Grays Harbor alternatives would occur as part of the Pontoon Construction Project. Since the facility would already have been constructed and operational, analysts examined only those resources that would be affected by construction of additional supplemental stability pontoons.

Analysts identified resources adjacent to the haul route that could be affected by transportation of cement and other materials to the project site. This is different from the pontoon-towing route, which is the route used to tow the pontoons by barge from the casting basin to the bridge construction site.

The following section identifies these resources of particular importance. For more information, please refer to the Pontoon Construction Project Social Elements Technical Memorandum (WSDOT 2009i).

Anderson & Middleton Site

Social Institutions

Social institutions include facilities such as food banks, community centers, and transitional housing. There are eight social institutions in the Anderson & Middleton study area or adjacent to the haul route that serve low-income, minority, and LEP populations (Exhibit 25).

Exhibit 25. Social Institutions in the Anderson & Middleton Study Area or Next to Haul Route

Name	Location	Services	Next to Haul Route
Hoquiam Food and Clothing Bank	720 K Street	Food bank and clothing bank	No
Harbor Manor Apartments	411 10th Street	Low-income housing for senior and disabled residents	No
Emerson Manor	703 Simpson Avenue	Low-income housing for senior and disabled residents; also the location of the Hoquiam Senior Center	Yes
YMCA of Grays Harbor	2500 Simpson Avenue	Programs for residents, including health and fitness, child care, and senior-companion programs	Yes
Grays Harbor Public Health and Social Service Department	2109 Sumner Avenue	Information and access to a number of services, including women's health and mothers and children health care and nutrition programs	Yes
Salvation Army Family Store	118 West Wishkah Street	Thrift store and donation center	Yes
Aberdeen Community Services Office	415 West Wishkah Street	Services, including child support, food programs, and medical assistance	Yes
Union Gospel Mission	405 East Heron Street	Services, including a men's shelter, food program, showers, and a clothing store	Yes

Source: Pontoon Construction Project Social Elements Technical Memorandum (WSDOT 2009i)

Transit Facilities

No transit facilities are located next to the Anderson & Middleton Alternative site. Grays Harbor Transit provides daily bus service in Hoquiam, and route 20 has four stops between Hoquiam and Aberdeen. In addition, four regional Grays Harbor Transit buses stop in Hoquiam on their way west to the Washington coast and east as far as Olympia. The Downtown Hoquiam Station, located at Seventh Avenue and J Street in downtown Hoquiam, provides connections to most of the Grays Harbor Transit routes. All of the bus routes use portions of the Anderson & Middleton haul route.

Recreational Facilities

No recreation facilities are located in the Anderson & Middleton study area. There are eight parks adjacent to the haul route, but none appear to be of particular importance to low-income or minority populations.

Religious Organizations

There are ten religious institutions in the Anderson and Middleton study area or next to the haul route. Analysts looked for, but did not identify, any religious organizations that appear to be of particular importance to low-income or minority populations.

Businesses

The Pontoon Construction Project environmental justice analyst did not identify any businesses that are owned by, cater to, or employ a number of low-income, minority, or LEP individuals in the Anderson & Middleton study area.

Schools

No schools (public, post-secondary, or private) are located within the Anderson & Middleton study area. However, three schools are operated by the Hoquiam School District are adjacent to the haul route. None of these schools are of particular importance to low-income or minority populations.

Aberdeen Log Yard Site

There are no social institutions in the Aberdeen Log Yard study area. However, there are three social institutions adjacent to the haul route that serve low-income, minority, or LEP populations (Exhibit 26).

Exhibit 26. Social Institutions next to the Aberdeen Log Yard Haul Route

Name	Location	Services	Next to Haul Route
Salvation Army Family Store	118 West Wishkah Street	Thrift store and donation center	Yes
Aberdeen Community Services Office	415 West Wishkah Street	Services, including child support, food programs, and medical assistance	Yes
Union Gospel Mission	405 East Heron Street	Services, including a men's shelter, food program, showers, and a clothing store	Yes

Source: Pontoon Construction Project Social Elements Technical Memorandum (WSDOT 2009i)

Transit Facilities

Grays Harbor Transit provides service to the study area, and route 20 provides limited daily service along Port Industrial Road, which is next to the Aberdeen Log Yard study area. Bus routes 10A, 10B, and 20 are located along the haul route.

Recreational Facilities

There are no recreational facilities in the Aberdeen Log Yard study area. While there is one recreational facility adjacent to the haul route – Finch Playfield – this facility does not appear to be of particular importance to low-income, minority, or LEP populations.

Religious Organizations

There are no religious organizations in the Aberdeen Log Yard study area. While there are three religious institutions adjacent to the haul route, none appears to be of particular importance to low-income, minority, or LEP populations.

Businesses

The Pontoon Construction Project environmental justice analyst did not identify any businesses that are owned by, cater to, or employ a number of low-income, minority, or LEP individuals in the Anderson & Middleton study area.

Schools

There are no schools located within the Aberdeen Log Yard study area or haul route.

Potential Effects of the Project

The 6-Lane Alternative evaluated in the SDEIS is a 6-lane corridor that has three different designs (Options A, K, and L) for the Seattle portion of the project (see Description of Alternatives [WSDOT 2009a]). The 6-Lane Alternative includes six lanes (two 11-foot outer general-purpose lanes and one 12-foot inside HOV lane in each direction), as shown in Exhibit 3. SR 520 would be rebuilt from I-5 to Evergreen Point Road in Medina, and restriped and reconfigured from Evergreen Point Road to 92nd Avenue NE in Yarrow Point.

Options A, K, and L describe three different designs for the 6-Lane Alternative between I-5 and the floating portion of the Evergreen Point Bridge. For each option, a set of suboptions might be included if further analysis suggests the suboptions would improve the operation of SR 520 and/or local streets. The following sections describe the elements common to all of the design options. They also focus on unique elements of the options and suboptions. The effects of tolling are discussed later in this section.

What methods were used to evaluate the potential effects?

To identify the ways in which the project would specifically benefit or adversely affect low-income or minority populations in the study area, environmental justice analysts examined the following documents for the I-5 to Medina project:

- Air Quality (WSDOT 2009i)
- Construction Techniques and Activities (WSDOT 2009c)
- Cultural Resources (WSDOT 2009k)
- Ecosystems (WSDOT 2009l)
- Hazardous Materials (WSDOT 2009m)
- Land Use, Economics, and Relocations (WSDOT 2009n)
- Navigable Waterways (WSDOT 2009o)
- Noise (WSDOT 2009b)
- Recreation (WSDOT 2009p)

- Social (WSDOT 2009f)
- Transportation (WSDOT 2009q)
- Visual Quality and Aesthetics (WSDOT 2009r)

Analysts also reviewed outcomes from the public involvement process conducted for this project specifically and for tolling implementation in general.

After identifying adverse effects and benefits, analysts isolated project effects that would affect people differently. For example, analysts examined the effects of construction on air quality, because people living or working closer to project construction are likely to be affected more than people living farther away. Because land and housing in close proximity to large transportation facilities tend to be much less expensive, there have been serious concerns that communities with larger proportions of low-income and minority populations bear a disproportionate size of the burden associated with transportation-related air pollution. For that reason, it is particularly important to examine the effects of this project on air quality.

Next, analysts determined whether low-income or minority populations would experience disproportionately high and adverse effects because of the project. USDOT Order 5610.2 and FHWA Order 6640.23 (described in the Introduction section) direct WSDOT to apply two criteria to determine whether low-income or minority populations would experience a disproportionately high and adverse effect:

1. Low-income or minority populations would predominately bear the effect; or
2. Low-income or minority populations would suffer the effect, and the effect would be considerably more severe or greater in magnitude than the adverse effect suffered by the general population.

For the effects of project construction and operation on the project study area, analysts used geographic information system (GIS) data to map the adverse effects over Census block groups in the project study area. This allowed a comparison of the poverty and minority status of those who would be affected by the project with those who would not be affected by the project. The analysts also assessed the possibility that LEP populations would be disproportionately affected.

In addition, analysts considered the following:

- Would measures to avoid or minimize high and adverse disproportionate effects be implemented?
- Are there any project benefits that would affect low-income or minority populations? According to the FHWA implementing order, to offset disproportionate adverse effects on low-income or minority populations, project benefits also would have to disproportionately benefit low-income or minority populations.
- Did WSDOT modify the project to avoid or minimize high and adverse disproportionate effects?
- The Mitigation section of this report documents the answers to these questions.

What concerns did the public raise regarding this project's potential effects on low-income, minority, or LEP populations?

This section discusses outcomes from public involvement as they relate to effects on low-income, minority, or LEP populations. For a more detailed discussion of public involvement for the I-5 to Medina project, refer to the Agency Coordination and Public Involvement Discipline Report (WSDOT 2009e).

Public Comments on the Draft EIS Related to Tolling (August 18 to October 31, 2006)

- The most frequently heard comment regarding the effects of tolling on low-income, minority, or LEP populations was the concern that tolls would present a financial burden to low- and middle-income users that would limit their access to SR 520.

Public Comments Received at Open Houses, Fairs, and Festivals in 2007 and 2008

- In 2008, WSDOT sponsored the SR 520 Health Impact Assessment, prepared by the Puget Sound Clear Air Agency and Public Health—Seattle & King County. The health impact assessment was presented at subsequent open houses. Individuals who commented on the health impact assessment focused on concerns about the

effects of noise during construction and operation of the project, especially for residents living adjacent to the project. This includes low-income, minority, and LEP residents.

- Some commenters also expressed concerns about the project's effects on Foster Island. They had concerns that construction of the bridge would disrupt ancient burial grounds. These commenters requested that WSDOT take measures to avoid or minimize impacts on Foster Island.

Outcomes from Meetings with Social Service Agencies

As described earlier in this report, WSDOT interviewed representatives from social service agencies as part of its public involvement efforts for the Draft EIS. In addition, the Tolling Implementation team conducted interviews with social service agencies in 2008. Interviewees raised four specific concerns about the effects of the project—specifically tolling—on low-income, minority, or LEP populations:

- Several social service agencies expressed concern that their clients would not be able to afford a toll. They also believed that transit would not be a viable alternative for many of their clients, and non-tolled alternate routes would likely add too much time, distance, and cost to the trip.
- Social service agencies expressed concerns about how the tolls would affect their ability to provide services to low-income, minority, and LEP populations. WSDOT interviewed Hopelink staff in February 2006. Hopelink, which coordinates transportation to and from medical appointments for low-income residents who are on Medicaid assistance, is concerned that the toll would make it prohibitively expensive to provide transportation services to clients. The taxis that Hopelink uses to transport clients would not be able to use the toll-free HOV lane if there are fewer than three people in the car (including the driver). The budget for this service is already very tight, and adding the cost of the toll could make it very difficult for Hopelink to maintain the current level of service.
- WSDOT interviewed King County Metro Accessible Transportation staff in January 2006. King County Metro ACCESS provides van transportation to people with disabilities. ACCESS operates similar to the King County Metro Transit system in that it accepts bus passes as fares. However, ACCESS is considered paratransit

because it uses vans and picks up riders at their homes, instead of at a bus stop. If paratransit services like ACCESS are not classified as transit, they would not be able to use the toll-free HOV lane unless three or more people were in the vehicle.

- Some of the organizations that work with minority and low-income populations wanted assurance that transit services would be improved and expanded because transit is an important form of transportation for those populations.

Outcomes from Outreach to Native American Tribes

During the Regulatory Agency Coordination Process (RACp) meetings and briefings with tribal leaders, the SR 520 team solicited comments regarding proposed plans for the I-5 to Medina project. Tribal leaders and stakeholders weighed in on the environmental and cultural concerns associated with the proposed construction plans, and offered their thoughts on proposed mitigation activities. Review of meeting agendas and summaries highlights three specific concerns of tribes:

- The effect of the project on the fish habitat, environment, and fishing capabilities. Tribal representatives raised specific concerns about the effects of the I-5 to Medina project on water quality and fish habitat in usual and accustomed tribal fishing areas. This chapter discusses the potential effects of the project on water quality and fish habitat in detail. The next chapter addresses strategies to avoid or minimize adverse effects on usual and accustomed tribal fishing areas.

- The effect of I-5 to Medina project options on Foster Island. Tribal leaders and stakeholders from one tribe indicated that they prefer to avoid the disturbance of Foster Island altogether. However, they acknowledged that some effect on Foster Island is essential for the project to move forward. Tribal leaders and stakeholders from multiple tribes raised serious concerns about Option K because it would create the most disturbance for Foster Island. They felt that an acceptable solution would be to move the project north of the south island to avoid the two historic islands.

- Design and construction of fish passable structures. As part of the Medina to SR 202 project, WSDOT proposes to replace selected fish passage structures. Some tribal representatives have concerns about WSDOT's proposed approach. The Medina to SR 202 project

Ecosystems Technical Memorandum (WSDOT 2009s) and Environmental Justice Technical Memorandum (WSDOT 2009t) provide detailed information about tribal concerns, an evaluation of the effects of this project on fish passable structures, and proposed mitigation.

In addition, representatives from one tribe expressed general concerns about protecting the environment, preventing the degradation of cultural and natural resources, and honoring and respecting the tribes. They also emphasized the importance of enhancing and protecting fisheries, habitats, and water quality to Tribes and to all individuals.

How would construction of the project affect low-income, minority, or LEP populations?

This section describes the potential effects of construction of the 6-Lane Alternative on low-income or minority residents of neighborhoods in the project study area. It also describes effects of construction on resources in the project study area that are of particular importance to low-income, minority, or LEP populations. The I-5 to Medina project Social Discipline Report (WSDOT 2009f) provides a more detailed discussion of the effects of project construction on residents of neighborhoods in the project study area.

No Build Alternative

The No Build Alternative assumes that existing infrastructure would remain mostly the same as it is today, with a few exceptions. Under the No Build Alternative:

- Low-income, minority, and LEP residents of the project study area neighborhoods would not be affected by increased levels of noise, dust, and traffic congestion, or by degraded visual quality.
- Access to Foster Island would not be limited by construction, and potential human remains of importance to Native American tribes would not be disturbed.
- Access to tribal fishing areas would not be limited by project construction, and fish in tribal fishing areas would not be adversely affected by construction.

6-Lane Alternative

Seattle

Effects on Low-income, Minority, and LEP Residents

In neighborhoods in the project study area, construction effects common to Options A, K, and L include increased noise and dust, degraded visual quality, and increased traffic congestion.

This would have an adverse effect on community cohesion for the duration of construction. Exhibit 27 shows the expected duration of construction activities and the demographics of affected neighborhoods.

According to the I-5 to Medina project Air Quality Discipline Report (WSDOT 2009j), soil-disturbing activities, heavy-duty equipment, commuting construction workers, and the laying of asphalt may generate emissions that can affect air quality for the duration of construction. The total emissions and the timing of the emissions from these sources would vary depending on the phasing of the project and options chosen.

During demolition and construction, crews could encounter contaminated soil, sediment, or groundwater; release hazardous materials used at construction sites; generate hazardous building materials through demolition; or create accidental spills. Any of these situations could adversely affect human health, especially for construction workers, residents living in close proximity to the construction site, and workers in close proximity to the construction site. The number of potential sites where hazardous materials could be encountered varies slightly, depending on whether Option A, K, or L is constructed. For all potential sites, WSDOT would either use standard mitigation measures as described in Attachment 5 of the I-5 to Medina project Hazardous Materials Discipline Report (WSDOT 2009m), or would employ specific mitigation plans described in more detail in the Hazardous Materials Discipline Report.

It is difficult to determine whether any single affected household is low-income, minority, or LEP. However, by using GIS to overlay anticipated construction effects with demographic data from the U.S. Census, the analysts were able to determine that construction is unlikely to disproportionately affect low-income, minority, and LEP residents in the project study area. The following paragraphs describe our demographic analysis in detail.

According to the I-5 to Medina project Social Discipline Report (WSDOT 2009f), the majority of construction effects associated with Options A, K, and L would occur within the Montlake neighborhood, as shown in Exhibit 27. The Montlake neighborhood has relatively low percentages of low-income, minority, and LEP residents compared to adjacent neighborhoods: 3 percent low-income, 13 percent minority, and less than 1 percent LEP. As shown in Exhibit 27, the project would have fewer construction-related effects in neighboring block groups with higher percentages of minority, low-income, and LEP populations (the University District, Laurelhurst, and Roanoke/Portage Bay neighborhoods). This suggests that adverse construction-related effects would not fall disproportionately on low-income, minority, or LEP populations or be appreciably more severe than for the general population.

The University District, which has less than 1 percent low-income, 44 percent minority, and just over 3 percent LEP, would also experience effects of construction. However, because no residences would be in close proximity to the construction activities, the analysts do not anticipate negative effects on residents of those neighborhoods under any of the build options.

Residents of Eastlake, Laurelhurst, Madison Park, and Portage Bay/ Roanoke living in close proximity to construction activities would experience some noise, dust, and traffic congestion associated with construction. Residents of Laurelhurst, Madison Park, and North Capitol Hill might have to take longer routes because of detours and might lose some on-street parking during construction. Low-income, minority, and LEP residents of these neighborhoods would be affected in the same way as other residents. As shown in Exhibit 27, these neighborhoods have relatively low percentages of low-income, minority, or LEP populations.

However, it is important to note that even though low-income residents of the affected neighborhoods would be exposed to the same adverse effects as other residents, the impact of this exposure may represent a bigger hardship for them than other residents. For example, low-income residents may not have the resources to relocate for periods of nighttime construction. They may not be able to purchase an air conditioner to use when construction-related dust forces them to close their windows in the summertime.

Exhibit 27. Estimated Construction Durations for the 6-Lane Alternative Options A, K, and L[a]

Element	Option A (Montlake interchange with bascule bridge across Montlake Cut)	Option K (Depressed SPUI with twin tunnels under Montlake Cut)	Option L (Elevated SPUI with bascule bridge across Montlake Cut)	Affected Neighborhoods	Percent Poverty	Percent Minority	Percent LEP
I-5/SR 520 Interchange	21 months	21 months	21 months	Eastlake	8%	16%	7.65%
				North Capitol Hill	5%	10%	<1%
				Portage Bay/ Roanoke	4.50%	13%	<1%
10th Ave & Delmar Lids	27 months	27 months	27 months	North Capitol Hill	5%	10%	<1%
				Portage Bay/ Roanoke	4.50%	13%	<1%
Portage Bay Bridge (north half—4 lanes)	30 months	30 months	30 months	Montlake	3%	13%	0.41%
				Portage Bay/ Roanoke	4.50%	13%	<1%
Portage Bay Bridge (south half—widen to 6 lanes, including demolition of existing structure)	42 months	42 months	42 months	Montlake	3%	13%	0.41%
				Portage Bay/ Roanoke	4.50%	13%	<1%
Montlake Interchange & Lid	45 months	*Not Applicable*	*Not Applicable*	Montlake	3%	13%	0.41%
				Portage Bay/ Roanoke	4.50%	13%	<1%
Single Point Urban Interchange (SPUI), Montlake Lid; Lake Washington Boulevard South of SR 520	*Not Applicable*	78 months	60 months	Montlake	3%	13%	0.41%
Pacific Street/Montlake Boulevard Intersection with Lid	*Not Applicable*	18 months	18 months	Montlake	3%	13%	0.41%
				University District	<1%	44%	3.13%

Exhibit 27. Estimated Construction Durations for the 6-Lane Alternative Options A, K, and L[a]

Element	Option A (Montlake interchange with bascule bridge across Montlake Cut)	Option K (Depressed SPUI with twin tunnels under Montlake Cut)	Option L (Elevated SPUI with bascule bridge across Montlake Cut)	Affected Neighborhoods	Percent Poverty	Percent Minority	Percent LEP
New Bascule Bridge	27 months	*Not Applicable*	30 months	Laurelhurst (Option L only)	7.83%	14%	1.36%
				Montlake	3%	13%	0.41%
				University District (Option L only)	<1%	44%	3.13%
Tunnel from SR 520 to Pacific Street/Montlake Boulevard E	*Not Applicable*	45 months	*Not Applicable*	Montlake	3%	13%	0.41%
				University District	<1%	44%	3.13%
West Approach (north half—4 lanes, includes work in Union Bay)	30 months	54 months *(Includes Foster Island lid)*	30 months	Laurelhurst	7.83%	14%	1.36%
				Madison Park	4.67%	5%	0.95%
				Montlake	3%	13%	0.41%
West Approach (south half—widen to 6 lanes, includes demolition of existing structure)	30 months	30 months	30 months	Laurelhurst	7.83%	14%	1.36%
				Madison Park	4.67%	5%	0.95%
				Montlake	3%	13%	0.41%
Floating Bridge & East Approach (includes towing, outfitting, and installing pontoons for constructing a 6-lane bridge)	54 months	54 months	54 months	Laurelhurst	4.94%	12%	0.96%
				Madison Park	4.67%	5%	0.95%
				Medina	0.50%	9%	0.76%
				Montlake	3%	13%	0.41%
Bridge Maintenance Facility	24 months	24 months	24 months	Medina		9%	0.76%

[a] Construction durations include testing of new systems and facilities. However, they do not include mobilization or closeout activities. Mobilization includes material procurement, preparing construction staging areas, and moving equipment to the site. Closeout includes demobilization of staging areas and final roadside planting.

Source: WSDOT (2009q).

0.50%

The analysts do not anticipate any additional effects on low-income, minority, or LEP residents of neighborhoods in the project study area under Options A, K, or L.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

Social Services

Construction-related congestion would affect access to affiliates of the University District Service Providers Alliance that are located within the project study area. The analysts do not anticipate any additional effects under Options A, K, or L.

Transit Facilities

Construction-related traffic congestion might affect transit operations along the SR 520 corridor and adjacent roadways. Occasional lane closures on SR 520 would affect transit. Transit riders would also experience noise, dust, and visual effects at any of the transit stops in close proximity to construction activities.

Under all the build options, construction activities at the Montlake interchange would require the closure of the Montlake transit station under the Montlake interchange. Users would need to transfer at a different location (such as the Evergreen Point Freeway Transit Station further east) or ride a different bus route. The SR 520 project team would continue to coordinate with local and regional transit agencies regarding the closure of the Montlake station. The I-5 to Medina project Transportation Discipline Report (WSDOT 2009q) provides detailed information about the effects of the project on transit.

The analysts do not anticipate any additional effects on transit under Options A, K, or L.

Community Centers

Construction-related traffic congestion might affect access to the University of Washington Ethnic Cultural Center and Theater Complex.

The analysts do not anticipate any additional effects on community centers of particular importance to low-income, minority, or LEP populations under Options A, K, or L.

Religious Organizations

Congregants of Vendanta Society of Western Washington and St. Patrick's Catholic Church in the Montlake neighborhood might have to take longer routes because of construction-related detours. Increased noise and dust could also affect congregants.

The analysts do not anticipate any additional effects on religious organizations of particular importance to low-income, minority, or LEP populations under Options A, K, or L.

Schools

Increased noise, dust, and traffic congestion would affect students attending TOPS Seward School in Eastlake, because the school is close to construction associated with the I-5 lid. The required Traffic Management Plan would identify measures to minimize effects on local streets and ensure the safety of students.

Students who use SR 520 or Montlake Boulevard to travel to the University of Washington would experience longer travel times to and from campus.

Option A

The analysts do not anticipate any additional effects on schools of particular importance to low-income, minority, or LEP populations under Option A.

Option K

Under Option K, the southeast area of the University of Washington campus would experience more construction effects than under Option A, due to construction of the Montlake Boulevard/Pacific Street intersection improvements and the tunnel between Husky Stadium and the Museum of History and Industry site. Tunnel construction could create longer and more intense construction effects of noise, dust, vibration, construction traffic, and visual changes for the University of Washington campus and the neighborhood between the Montlake Cut and SR 520.

Option L

More construction effects would occur in the southeast area of the University of Washington campus under Option L, due to the construction of the Montlake Boulevard/Pacific Street intersection improvements and a second bridge across the Montlake Cut.

Other Resources of Particular Importance

- Parts of Foster Island may contain important archaeological deposits and Native American artifacts that could be uncovered during new excavations. Construction would require closures of the Washington Park Arboretum trail, which would limit access to Foster Island. Furthermore, noise, dust, and visual effects would affect visitors to Foster Island during construction.

During construction of the project, three effects on Lake Washington could prevent or limit access to usual and accustomed tribal fishing areas, according to the I-5 to Medina project Navigable Waterways Discipline Report (WSDOT 2009o):

- Existing navigation channels would be partially obstructed
- Navigation channels would close during construction of the bridge's new spans and demolition of the existing bridge spans over the navigation channels
- Construction from work vessels would have the potential to conflict with tribal fishing in Portage Bay, Union Bay, and Lake Washington

The following construction effects might create negative conditions for fishing and fish populations in usual and accustomed tribal fishing areas in Lake Washington and nearby waterways, according to the I-5 to Medina project Ecosystems Discipline Report (WSDOT 2009u):

- In-water construction could harm fish. Driving steel piles with an impact hammer might injure or kill some fish.
- Fishers could be displaced or lose fishing gear because of construction activities or vessel movements.
- During construction, unintentional discharge of sediment from the permanent support column installation and falling debris during construction of the new bridge and demolition of the existing bridge deck could affect fish.
- Accidental spills of hazardous materials or pollutants in the water could kill or threaten fish.
- According to the I-5 to Medina project Ecosystems Discipline Report, WSDOT will need to build construction work bridges along both sides of the existing bridge structures. These work bridges would result in shading of open water in usual and accustomed tribal fishing areas for the duration of construction. Areas under the center of the existing bridge structure would likely not provide optimal conditions for aquatic plant growth because of light limitations. This could directly or indirectly affect fish—including native salmonids—by reducing the growth of aquatic vegetation in shallower areas, as well as potentially affecting salmonid migration and the distribution of predators. Construction barges temporarily anchored in deeper water areas would also create shading.

- Use of best management practices during construction would minimize the potential for the abovementioned effects.

Option A

- According to the I-5 to Medina project Cultural Resources Discipline Report (WSDOT 2009k), construction-related activities under Option A might affect Foster Island. Option A would result in .02 acre of clearing and filling on Foster Island to accommodate placement of 15 pilings. This is a similar level of clearing and filling as Option L (.03 acre), and substantially less than Option K (1.2 acres).
- Option A would have less construction shading than Option K, but slightly more than Option L.

Option K

- According to the I-5 to Medina project Cultural Resources Discipline Report (WSDOT 2009k), construction-related activities under Option K might affect Foster Island. Option K requires the greatest amount of clearing and filling on Foster Island, 1.2 acres, because of construction of the land bridge over SR 520 on Foster Island.
- Option K would result in closure during construction of the portion of the Foster Island trail that travels under the existing Evergreen Point Bridge. This would further limit access to Foster Island, according to the I-5 to Medina project Recreation Discipline Report (WSDOT 2009p).
- Compared to Option A, Option K would include substantially more in-water and overwater work, which might create more opportunities for harming fish.
- Option K would include construction of twin tunnels under the Montlake Cut. Tunnel construction, which is complex, has the potential to adversely affect fish and aquatic resources in Montlake and the Union Bay area.
- Option K would require more ground-disturbing work along the Washington Park Arboretum and Lake Washington shoreline, which increases potential hazards for water quality and runoff contaminations that could adversely affect fish populations.
- Option K would have more construction shading effect than Options A and L.

Option L

- According to the I-5 to Medina project Cultural Resources Discipline Report (WSDOT 2009k), construction-related activities under Option L might affect Foster Island. Option L requires .03 acre of construction clearing and filling on Foster Island to accommodate placement of eighteen pilings. This is a similar level of clearing and filling as Option A (.02 acre), and substantially less than Option K (1.2 acres).
- Option L would require more pile-driving activities in the riparian areas and shallow-water habitat near the southeast corner of the Montlake Cut. This could injure fish.

Lake Washington

Effects on Low-income, Minority, and LEP Residents

Construction effects along the Lake Washington portion of the project include activities associated with barges, bridges that would be in place for the duration of construction, and cranes. These would result in noise and degraded visual quality for the Laurelhurst, Madison Park, and Medina neighborhoods. These effects would affect low-income, minority, and LEP residents of these neighborhoods in the same way that they would affect other residents. However, as noted earlier, even if low-income populations experience the same exposure to adverse effects as other residents, the impact of that exposure may be more severe.

As noted in the previous section, project construction in the Lake Washington portion of the project could prevent or limit access to usual and accustomed tribal fishing areas.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

- Usual and accustomed fishing areas in the Lake Washington portion of the project would experience similar effects on those described in the Seattle portion of the project. In addition, disruption of lakebed sediment during installation or removal of bridge anchors could affect fish in usual and accustomed tribal fishing areas.

Eastside Transition Area

Effects on Low-income, Minority, and LEP Residents

Construction effects on Medina, Hunts Point, and Yarrow Point residents would be similar to those experienced by residents in Seattle

neighborhoods. Low-income, minority, and LEP residents of Medina, Hunts Point, and Yarrow Point would experience these effects in the same way as other residents.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

According to the I-5 to Medina project Transportation Discipline Report (WSDOT 2009q), WSDOT would close the Evergreen Point transit facility for a relatively short duration during construction of the east approach. However, the 92nd Avenue transit facility would remain open during that time.

Pontoon Construction and Transport

Effects on Low-income, Minority, and LEP Residents

The casting basins for constructing the additional pontoons required to build the 6-Lane Alternative would be built by the Pontoon Construction Project. The effects of that project on low-income, minority, and LEP residents are being evaluated in the Pontoon Construction Project Social Elements Technical Memorandum (WSDOT 2009i). The Social Elements Technical Memorandum concluded that neither project construction nor project operation at either of the Build Alternative sites would have any disproportionately high and adverse effects on minority and low-income populations. The analysts do not anticipate additional effects on low-income, minority, or LEP residents because of pontoon construction and transport for the I-5 to Medina project.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

- Construction of the additional pontoons required to build the 6-Lane Alternative could adversely affect fish populations in tribal fishing areas.

  After a pontoon is constructed, crews would flood the construction site (also known as the casting basin) to float the pontoon. Then it would be released into Grays Harbor and towed to Lake Washington. When the casting basin gate is opened to release the pontoon, fish could be trapped in the casting basin. However, use of best management practices during construction would minimize the potential for fish entrapment.

- Construction would involve towing pontoons from Grays Harbor to Lake Washington. Pontoon and barge movement could possibly delay or interfere with the movement of tribal fishing vessels,

particularly in the Ballard Locks, Ship Canal, and Montlake Cut areas. These would affect fishers in the Muckleshoot, Confederated Tribes of the Chehalis Reservation, the Hoh Tribe, The Quileute Tribe, the Quinault Indian Nations, the Shoalwater Bay Tribe, the Skokomish Tribal Nation, and the Squaxin Island Tribe. However, according to the Pontoon Construction Project Social, Recreation, and Environmental Justice Technical Memorandum (WSDOT 2009h) and the Pontoon Construction Project Ecosystems Discipline Report (WSDOT 2009u), the transportation of pontoons from Grays Harbor to the Port of Seattle would only have a minimal effect on access to tribal fishing grounds, as the travel route already experiences a good deal of vessel traffic.

Phased Implementation Scenario

Effects on Low-income, Minority, and LEP Residents

Under the Phased Implementation scenario, construction would not take place in the I-5/SR 520 interchange area or portions of the Montlake neighborhood until funding is available. There are likely to be time gaps in between construction of the different projects. According to the I-5 to Medina project Social Discipline Report (WSDOT 2009f), residents of Eastlake, North Capitol Hill, Montlake, and Portage Bay/Roanoke neighborhoods would experience less noise, dust, and traffic congestion initially.

However, because the Phased Implementation scenario might require a second mobilization of construction and some demolition of structures built during the initial phases, residents of the Eastlake, North Capitol Hill, Portage Bay/Roanoke, Montlake, and University District neighborhoods might experience more prolonged construction effects with the Phased Implementation scenario than under the full-build 6-Lane Alternative. Low-income, minority, and LEP residents of the Montlake neighborhood would be affected in the same way as other residents.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

Under the Phased Implementation scenario, construction-related effects on the TOPS school would be delayed into the future.

Option A

Under Option A, the second bridge across the Montlake Cut would not be constructed until a later phase. Therefore, adverse construction effects associated with bridge construction would be delayed. Low-

income, minority, and LEP residents in close proximity would be affected in the same way as other residents.

Option K

Under Option K, the tunnel would not be constructed until a later phase, and associated adverse construction effects would be delayed. Low-income, minority, and LEP residents in close proximity would be affected in the same way as other residents.

Option L

Under Option L, the elevated interchange would not be constructed until a later phase and associated adverse construction effects would be delayed. Low-income, minority, and LEP residents in close proximity would be affected in the same way as other residents.

The I-5 to Medina project Construction Techniques and Activities Discipline Report (WSDOT 2009c) provides more detailed information about construction activities.

How would operation of the project affect low-income, minority, or LEP populations?

This section describes the potential effects of operation of the 6-Lane Alternative on low-income, minority, and LEP residents of neighborhoods in the project study area. It also describes effects on resources in the project study area that are of particular importance to low-income, minority, or LEP populations.

No Build Alternative

The No Build Alternative assumes that existing infrastructure would remain mostly the same as it is today, with a few exceptions. Under the No Build Alternative, low-income, minority, and LEP populations would be affected by project operation in the following ways:

- More residences, including those occupied by low-income, minority, and LEP populations, would be affected by noise: 319 residences under the No Build Alternative by 2030, compared to 261 residences today.
- Fish in tribal fishing areas would not be adversely affected by increased shading associated with the replacement bridge structure. However, stormwater runoff from the Evergreen Point Bridge

would not be treated and would continue to adversely affect fish in tribal fishing areas.

- Transit travel times would not improve because the continuous HOV lanes and direct connection to the I-5 reversible Express Lanes would not be constructed.
- Access to the University of Washington, the Arboretum, and other resources within the project study area would not be improved under the No Build Alternative.

6-Lane Alternative

Seattle

Effects on Low-income, Minority, and LEP Residents

Operation of the project would result in a number of effects—both beneficial and adverse—for residents of neighborhoods in the Seattle portion of the project. According to the demographic analysis of the study area, low-income, minority, and LEP residents of those neighborhoods would experience the same effects as other residents. However, as noted earlier, even if low-income populations experience the same exposure to adverse effects as other residents, the effects of that exposure may be more severe.

- Shifts in traffic patterns could result in localized increases in concentrations of pollutants from motor vehicles. To forecast concentrations of air pollutants, air quality analysts examined intersections in the project study area and found that operation of the Build Alternative would neither cause new violations of National Ambient Air Quality Standards (NAAQS) in future years, nor would it increase the frequency or severity of any existing violations. Air quality analysts also forecasted concentrations of air pollutants for Options A, K, and L. Although analysts predict an increase in carbon monoxide concentrations for some options, the project is not expected to cause a violation of the NAAQS for any option or analysis year. Refer to the I-5 to Medina project Air Quality Discipline Report (WSDOT 2009j) for a more detailed analysis of the effects of project operation on local air quality.

> The Environmental Protection Agency (EPA) sets limits on concentration levels of critical pollutants. These limits are called the National Ambient Air Quality Standards (NAAQS). The NAAQS consist of two sets of standards: the primary standards, which are intended to protect human health; and the secondary standards, which are intended to protect the natural environment.

- Community cohesion would improve because the lids that would be constructed as part of the 6-Lane Alternative would reconnect the neighborhoods bisected by SR 520 in the 1960s. The addition of continuous bicycle and pedestrian paths would also contribute to

improved community cohesion by enhancing non-vehicular modes of travel within and between neighborhoods in the project area. The I-5 to Medina project Social Discipline Report (WSDOT 2009f) provides more information about improvements to community cohesion because of this project.

- In general, the project study area would be quieter than it is today. Overall, the number of residences or other qualified locations (see sidebar) that exceed noise abatement criteria (NAC) would decrease from 340 today to 81 to 103, depending on whether Option A, K, or L is selected. Under the No Build Alternative, 399 residences would exceed NAC. WSDOT has also committed to installing sound walls wherever needed to reduce noise levels in neighborhoods adjacent to the facility. The I-5 to Medina project Noise Discipline Report (WSDOT 2009b) provides more information about the noise analysis for this project.

The Federal Highway Administration (FHWA) **Noise Abatement Criteria (NAC)** set maximum decibel levels for exterior noise that affects residences, parks, schools, religious facilities, and similar properties. If computer models find that predicted noise levels approach or exceed NAC, WSDOT concludes that there is a noise effect and considers measures to minimize these effects, such as installing a sound wall if doing so is reasonable and feasible.

- Landscaped lids over the highway and the removal of unused ramps would improve visual quality for many residents. However, some residents would experience diminished visual quality, because sound walls might block their views. The I-5 to Medina project Visual Quality and Aesthetics Discipline Report (WSDOT 2009r) provides a complete analysis of the effects of the project on visual quality.

- Neighborhoods would lose some recreational facilities as a result of project operation. Other recreational facilities would experience more noise and diminished visual effects. The I-5 to Medina project Recreation Discipline Report (WSDOT 2009p) provides an analysis of the effects of the project on recreational facilities.

- Although WSDOT would need to relocate up to five residences, one business, and five civic and quasi-public places, analysts do not anticipate an adverse effect on community cohesion. This is because relatively few relocations would be associated with this project, and the households that would need to be relocated are not concentrated in one neighborhood. To the knowledge of the analysts at the time of publication, no low-income, minority, or LEP households would be relocated. The I-5 to Medina project Land Use, Economics, and Relocations Discipline Report (WSDOT 2009n) provides more information about relocations.

Option A

Low-income, minority, and LEP residents would experience the same effects of Option A as other residents, including the following:

- Of the three options, Option A, would require the most residential relocations. However, relocation of the two additional residences would not adversely affect community cohesion in the Montlake neighborhood. The I-5 to Medina project Land Use, Economics, and Relocations Discipline Report (WSDOT 2009n) provides additional information.
- With Option A, the highest local roadway congestion would result because the Lake Washington Boulevard ramps would not be constructed.
- With Option A, the fewest number of residences would exceed the NAC. The I-5 to Medina project Noise Discipline Report (WSDOT 2009b) provides more information.
- Montlake residences near the second bridge across Montlake Cut would experience additional noise and visual effects from traffic traveling across the new bridge.
- Neighborhoods would experience the lowest loss of parklands (5.65 acres) under Option A. The I-5 to Medina project Recreation Discipline Report (WSDOT 2009p) provides additional information.

Option K

Low-income, minority, and LEP residents would experience the same effects of Option K as other residents, including the following:

- Residents would experience improved visual quality as a result of the two additional lids that Option K would construct. The I-5 to Medina project Visual Quality and Aesthetics Discipline Report (WSDOT 2009r) provides more information.
- Under Option K, the greatest number of residences would exceed the NAC. The I-5 to Medina project Noise Discipline Report (WSDOT 2009b) provides more information.
- Neighborhoods would experience the greatest loss of parklands under Option K (7.55 acres). The I-5 to Medina project Recreation Discipline Report (WSDOT 2009p) provides additional information.

Option L

Low-income, minority, and LEP residents would experience the same effects of Option L as other residents, including the following:

- Residents would experience slightly more noise than with Option A and slightly less noise than with Option K. The I-5 to Medina project Noise Discipline Report (WSDOT 2009b) provides more information.
- Neighborhoods would lose 7.05 acres of parkland—more than with Option A and slightly less than with Option K. The I-5 to Medina project Recreation Discipline Report (WSDOT 2009p) provides more information.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

- According to the I-5 to Medina project Ecosystems Discipline Report (WSDOT 2009l), stormwater would be treated under the 6-Lane Alterative, which would improve fish habitat in tribal fishing areas. WSDOT does not currently treat stormwater that runs off the Evergreen Point Bridge.
- Where new bridges are elevated over existing water bodies, the resulting shading could affect fish in tribal fishing areas, especially in shallow habitats near the shore. All options and suboptions would approximately double the amount of overwater and in-water shading. This may directly or indirectly affect fish—including native salmonids—by reducing the growth of aquatic vegetation in shallower areas, as well as potentially affecting salmonid migration and the distribution of predators. The intensity of the shade would vary based on the height of the overwater structure. In general, however, a design that increases the overwater height would at least partially compensate for the increased bridge width.
- The new bridges will have a substantially wider footprint than the existing Evergreen Point Bridge, reducing access to usual and accustomed tribal fishing areas for the Muckleshoot Tribe. The wider bridge deck, supplemental stabilization pontoons, and anchor cables will span from 450 to 600 feet wider than the existing Evergreen Point Bridge. In addition, the alignment of the new bridges will shift north. Although all of Lake Washington is considered a usual and accustomed fishing ground for the Muckleshoot Tribe, most tribal fishing takes place north of the Evergreen Point Bridge.

- Transit mobility would improve with the addition of HOV lanes in both directions and a direct connection to the reversible express lanes on I-5. However, the freeway transit stop in the median near Montlake Boulevard East would be removed under all of the options. With the removal of the Montlake Freeway Station, buses destined for or originating from I-5 would continue on SR 520 without exiting at the SR 520/Montlake Boulevard interchange. University District bus routes would continue to operate with direct service as they do today. The Sound Transit Link rail project would eventually provide service between the University area and downtown Seattle. All connections that are made today would be accommodated under all options. The I-5 to Medina project Transportation Discipline Report (WSDOT 2009q) provides more information.

- Transit, bicycle, and pedestrian improvements would make it easier to reach the University of Washington campus and other community resources within the project study area, including those resources that are of particular importance to low-income and minority populations. HOV improvements to the SR 520 corridor would improve transit reliability and travel times. With Option K or L, the HOV direct-access ramps at the new single-point urban interchange at Montlake Boulevard would improve travel times and reliability for local buses, compared to the No Build Alternative. The I-5 to Medina project Transportation Discipline Report (WSDOT 2009q) provides more information.

Option A

- According to the I-5 to Medina project Ecosystems Discipline Report (WSDOT 2009l), Option A would produce less shading effect on fish in tribal fishing areas than Option K and more than Option L.

- According to the Ecosystems Discipline Report, under Option A, spacing of columns for the bridge structures would be increased and bridge spans would be longer, which would reduce the number of columns in fish habitats in tribal fishing areas.

Option K

- According to the I-5 to Medina project Ecosystems Discipline Report (WSDOT 2009l), Option K has the fewest overwater structures that could cause shading. However, because of its lower

profile, it will produce the greatest effect from shading, compared to the other options.

- Option K would fill 2.5 acres of the Montlake Cut, limiting access to usual and accustomed tribal fishing areas.

Option L

- According to the I-5 to Medina project Ecosystems Discipline Report (WSDOT 2009l), Option L has the most overwater structures that could cause shading. However, because it has the highest bridge profile of the options, it would produce the least amount of shading effect on aquatic habitat or species in tribal fishing areas.
- According to the Ecosystems Discipline Report, under Option L, spacing of columns for the bridge structures would be increased and bridge spans would be longer, which would reduce the number of columns in fish habitats in tribal fishing areas.

Lake Washington

Effects on Low-income, Minority, and LEP Residents

Some Medina residents living near the bridge maintenance facility on Lake Washington would experience diminished visual quality and increased noise, affecting low-income, minority, and LEP residents of Medina the same as other residents.

Eastside Transition Area

Effects on Low-income, Minority, and LEP Residents

Effects on low-income, minority, and LEP residents would be similar to those described earlier in this section.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

Effects on resources of particular importance to low-income, minority, and LEP populations would be similar to those described earlier in this section.

Phased Implementation Scenario

Effects on Low-income, Minority, and LEP Residents

Residents of the Eastlake, North Capitol Hill, Portage Bay/Roanoke, and Montlake neighborhoods—including low-income, minority, and LEP residents—would experience the following effects of a Phased Implementation scenario:

- Benefits of the lids to community cohesion, visual quality, noise abatement, and pedestrian and bicycle mobility would be delayed.
- Traffic congestion at the Montlake interchange might worsen because interchange improvements would be delayed, while population and job growth would lead to more cars on the road.

Resources of Particular Importance to Low-income, Minority, or LEP Populations

The analysts do not anticipate any additional effects on resources of particular importance to low-income, minority, or LEP populations under a Phased Implementation scenario.

How would tolling affect low-income, minority, or LEP populations?

No Build Alternative

Under the No Build Alternative, tolling would not be implemented on the Evergreen Point Bridge. Exhibit 8 describes the tolling assumptions that were used for this analysis.

- It is expected that traffic volumes across Lake Washington on the Evergreen Point Bridge would increase and speeds would decrease, including speeds for transit, as population and job growth lead to more cars on the road. Drivers and transit riders, including low-income, minority, and LEP populations, would not benefit from a faster, more reliable trip.
- Under the No Build Alternative, tolls would not adversely affect low-income drivers. Low-income and LEP drivers would not be adversely affected by the need to purchase a transponder and set up an account with WSDOT.

6-Lane Alternative

Effects on Low-income, Minority, and LEP Users of SR 520

Tolls may not benefit low-income, minority, and LEP users of SR 520 as much as they would benefit the general population. Traffic analysts expect reductions in vehicle volumes across the Evergreen Point Bridge as a result of the tolls because some drivers would choose not to pay the toll to drive alone across the bridge. Instead, they would take alternate routes, form a carpool with three or more passengers in the vehicle, use transit, or forgo the trip altogether. Coupled with improved traffic

operations on the replacement bridge because of more lanes, wider shoulders, and better operating ramps, this should translate to faster speeds and better trip reliability for drivers and transit users, including low-income, minority, and LEP populations. However, results from the surveys, focus groups, and Spanish-language interviews suggest that many low-income users would take measures to avoid the toll. For that reason, analysts conclude that the tolls may not be as beneficial to low-income users as the general population.

Exhibit 28 shows the peak travel-time comparisons on SR 520. Note that the model used to generate the data in the table assumes that the travel-time reductions are partially a result of the tolling.

Exhibit 28. Peak-Period Travel Times on SR 520 between I-5 (Seattle) and SR 202 (Redmond) by 2030

Travel period	Existing Conditions	No Build Alternative (2030)	6-Lane Alternative (2030)
General Purpose Travel			
AM Peak			
Westbound	19 minutes	20 minutes	18 to 19 minutes
Eastbound	22 minutes	22 minutes	15 minutes
PM Peak			
Westbound	32 minutes	49 minutes	41 minutes
Eastbound	17 minutes	21 minutes	17 minutes
HOV/Transit Travel			
AM Peak			
Westbound	16 minutes	16 minutes	15 minutes
Eastbound	22 minutes	22 minutes	14 minutes
PM Peak			
Westbound	22 minutes	20 minutes	15 to 16 minutes
Eastbound	17 minutes	15 minutes	15 minutes

Source: WSDOT (2009r)

The I-5 to Medina project Transportation Discipline Report (WSDOT 2009q) provides more information about the traffic analysis.

According to results from focus groups, Spanish-language interviews, and a telephone survey conducted for this project, many low-income drivers consider a faster, more reliable trip across Lake Washington to be worth the cost of a toll. Two of the four low-income focus group participants and five of the six Spanish-language interview participants indicated that they would be willing to pay a toll for a faster, more reliable trip. According to the telephone survey, 42 percent of low-

income survey respondents indicated that a $3.50 toll would be worth it for a faster, more reliable trip.

This is consistent with other studies on the equity of high-occupancy toll (HOT) lanes, which found that many lower-income people supported tolling if it would ensure a faster, more reliable trip (Ungemah 2004, Sullivan 2004, Victoria Transport Policy Institute 2004, PSRC 2005). Researchers hypothesized in these studies that lower-income people who work for hourly wages or those who are dependent on childcare would choose to pay a toll to avoid losing wages or paying high late fees at their childcare facilities. For many lower-income people who are juggling multiple jobs and childcare, traffic delays might pose an even bigger burden than a toll.

For some low-income drivers, however, the toll would present a burden. The toll would be the same amount for all users, regardless of income, which means that low-income users would have to spend a higher proportion of their income on the toll.

To illustrate this, consider two fictional commuters who drive alone across the Evergreen Point Bridge five days a week, fifty weeks a year. The first commuter works as a software developer and makes $65,000 a year. The second commuter works at a retail store and makes $17,600, which is at the poverty level for a family of three. If the toll is an average of $3.50 per day for these commuters, both commuters would spend roughly $875 a year on tolls. This represents only slightly more than 1 percent of the higher-income driver's income but nearly 5 percent of the low-income driver's income.

As mentioned earlier, researchers conducted surveys, focus groups, and one-on-one interviews with Evergreen Point Bridge users to find out how a toll on the replacement bridge would affect them. All four participants in the low-income focus group and three of the six Spanish-language interview participants indicated that a toll would present a burden to their families. Although survey respondents were not asked specifically if tolls would present a burden, 68 percent of respondents indicated they would change their travel behavior to avoid a toll.

When presented with options for avoiding a toll, more than 64 percent of low-income respondents said they would use a non-tolled route. However, of those low-income respondents who said they would use a non-tolled route, 67 percent said it would greatly increase their travel time. Nearly 97 percent said it would greatly increase their travel

distance, which would add to the cost of their trip in the form of additional fuel and wear and tear on their vehicles.

In the telephone survey, nearly 51 percent of low-income respondents said they would not use transit to avoid paying the toll. More than 53 percent of those who said they would not use transit indicated that transit service is not frequent enough on their routes. Nearly 56 percent said they live or work too far from transit. Of those low-income respondents who said they would use transit to avoid paying the toll, 63 percent said that it would greatly increase their travel time. It is important to note that transit is still a viable option for a large minority of low-income respondents: 49 percent of respondents indicated that they would use transit to avoid the toll.

Effects on Social Service Agencies

As described earlier in this chapter, social service agencies expressed concerns about how the tolls would affect their ability to provide services to low-income, minority, and LEP populations. Most social service agencies operate under very tight budgets, and the tolls would add to the cost of delivering services to their clients.

Regarding the effects of tolls on paratransit services like King County Metro Transit ACCESS, at the time of publication of this document, the Washington State Transportation Commission, which serves as the State Tolling Authority, has not made a policy decision about whether ACCESS would be classified as transit for tolling purposes.

Effects of Payment Method

As explained in *How would tolls be collected?*, there would be no tollbooths on SR 520. Instead, tolls would be primarily collected using a transponder unit that drivers would install in their vehicle windows.

To use the transponder, drivers would need to set up a prepaid account from which tolls would be deducted. Drivers would need to deposit money to activate the account, the amount of which has not yet been determined. Accounts could be prepaid online with a credit or debit card or with cash at a WSDOT customer service center.

SR 520 drivers who do not set up a prepaid account would be billed by mail. A surcharge would be added to the bill, the amount of which has not yet been determined.

This system could limit access to SR 520 for people who do not have a credit or debit card. These people would either have to travel to a

customer service center to set up an account with cash or pay a surcharge on their toll when they were billed by mail. *The Seattle Times* has reported that 52,000 households in King County do not have traditional banking services, according to an estimate by the City of Seattle (Heim 2008). In the telephone survey conducted for this report, more than 25 percent of low-income respondents indicated that they would not be able to use a credit, debit, or checking account to prepay their account. Furthermore, coming up with the required initial deposit to put toward the prepaid account might be difficult for low-income drivers.

The system could also limit access to the SR 520 for people in LEP populations, who might also have difficulty understanding how to purchase a transponder and set up an account.

Phased Implementation Scenario

Under the Phased Implementation scenario, tolling would be implemented in the early phase. Therefore, low-income and LEP populations would experience the same effects as described previously in the early phase. However, they would also experience the benefit of tolling—a faster, more reliable trip across Lake Washington—in the early phase.

Would low-income or minority populations experience disproportionately high and adverse effects as a result of the project?

As mentioned earlier, USDOT Order 5610.2 and FHWA Order 6640.23 direct WSDOT to apply two criteria to determine whether an effect would be disproportionately high and adverse:

- Low-income or minority populations would predominantly bear the effect; or
- Low-income or minority populations would suffer the effect, and the effect would be considerably more severe or greater in magnitude than the adverse effect suffered by the general population.

Effects in the Project Study Area

Most adverse construction and operation effects of the project on neighborhoods in the project study area, including increased noise and traffic congestion, would not have a disproportionately high and adverse effect on low-income or minority populations, nor would they have adverse effects on LEP populations. According to demographic analysis, the neighborhoods in the project study area have relatively low proportions of low-income, minority, or LEP populations compared to adjacent, unaffected neighborhoods. Therefore, low-income or minority populations would not predominately bear the effects, nor would LEP populations.

However, if not avoided or minimized, some construction effects would have high and adverse disproportionate effects on a minority population.

- Because project construction would adversely affect ancient burial grounds of significance to Native American tribes, a minority population would predominately bear construction effects on Foster Island.
- Because project construction and operation would adversely affect the usual and accustomed fishing areas of tribes, a minority population would experience the adverse effect on fishing and the effect would be appreciably more severe than effects on the general population.

Effects of Tolling

When applying USDOT and FHWA criteria to determine whether an effect would be disproportionately high and adverse, analysts determined that the effects of the tolls do not meet the first criterion. Low-income, minority, or LEP populations would not predominately bear the effects of tolls, because the toll would be charged to all bridge users, and all bridge users would need either to purchase transponders or be billed for the toll. As explained earlier in this document, analysts cannot determine the exact proportion of bridge users who are low-income, minority, or LEP. However, after overlaying the Evergreen Point Bridge travelshed study area map with U.S. Census data (as discussed in *Populations that use the Evergreen Point Bridge* in the Affected Environment section), it does not appear that more bridge users come from Census block groups with higher proportions of low-income, minority, or LEP residents.

However, the effects of the tolls do meet the second criterion in the USDOT and FHWA guidance. The tolls on SR 520 would be appreciably more severe for low-income users, however, because low-income users would have to spend a greater proportion of their income on tolls than the general population.

As mentioned earlier, in determining whether the project would have disproportionately high and adverse effects on low-income, minority, or LEP populations, analysts considered whether any benefits would at least partially offset the adverse effects. While it is important to note that many low-income populations would benefit greatly from a faster, more reliable trip, the FHWA implementing order holds that to offset a disproportionately adverse effect on low-income populations, the benefit also needs to have a disproportionate positive effect on low-income populations. In this case, the benefits of a faster, more reliable trip apply to all populations, not just to low-income populations.

Analysts also considered measures to mitigate for adverse effects, such as transit options along the SR 520 corridor. However, based on the results of the surveys, focus groups, and one-on-one interviews conducted for this project, it appears that many low-income SR 520 users do not feel that transit service, as it exists today, would be a viable alternative to paying the toll. Either they believe that it is too infrequent or that it is too far from where they live or work. Furthermore, although some national and regional studies suggest that low-income populations use transit at a higher rate than the general population, results from the transit intercept survey suggest that low-income users do not use transit service on SR 520 at a higher rate than the general population. As reported earlier, less than 3 percent of respondents to the transit survey were low-income.

Furthermore, although many survey respondents indicated that they would use non-tolled routes as an alternative to paying the toll, these routes would add substantial time, distance, and cost to the trip. Carpools with three or more passengers will not be required to pay the toll. However, only 4 percent of low-income telephone survey respondents indicated they would carpool to avoid paying the toll. For that reason, analysts do not believe that carpooling will be a viable alternative to paying the toll for low-income users.

The burden of purchasing a transponder and setting up a prepaid account would also be appreciably more severe for low-income bridge users, because they are more likely to be without a credit or debit card

and would need to prepay their accounts with cash. Low-income populations are also less likely to have the initial deposit that might be required to prepay an account.

The burden of purchasing a transponder and setting up a prepaid account or paying a surcharge would also be appreciably more severe for LEP bridge users, who might have difficulty understanding how to use the system.

Mitigation

What has been done to avoid or minimize negative effects?

WSDOT has already taken measures to minimize adverse effects of the project on low-income, minority, or LEP populations:

- WSDOT has implemented measures to reduce the likelihood of conflict with tribal fishing. WSDOT is coordinating with the Muckleshoot Tribe to document important access points to usual and accustomed fishing areas in areas where proposed structures would be built. There would be additional coordination to avoid construction conflicts with tribal fishers harvesting salmon in Portage Bay, Union Bay, and Lake Washington.
- Stormwater treatment facilities would be constructed as part of the project to treat roadway runoff before it discharges into the water and adversely affects fish habitat in tribal fishing areas.
- During construction, contractors would be required to use best management practices to minimize the potential adverse effects of pile drivers, falling debris, unintentional discharge of sediment, and other construction effects that could harm fish habitat.
- WSDOT is in the process of implementing a system that would allow low-income drivers to establish and replenish their prepaid accounts with their electronic benefit transfer (EBT) cards. EBT cards function like debit cards and allow recipients who receive federal benefits to pay for products and services, such as groceries and health care. However, EBT recipients would have to use their existing benefits to establish or replenish their accounts; no additional funds would be added to their EBT accounts to cover tolls.

What could be done to mitigate effects that could not be avoided or minimized?

Construction Mitigation

Because low-income, minority, and LEP residents of neighborhoods within the project study area would not experience disproportionately high and adverse effects as a result of project construction, the analysts have not identified additional mitigation for construction effects on neighborhoods. The I-5 to Medina project Social Discipline Report (WSDOT 2009f) provides an outline of mitigation measures for construction effects on neighborhoods.

The following sections describe measures to mitigate for disproportionately high and adverse effects of construction on low-income, minority, or LEP populations.

Measures to Mitigate for Effects on Ancient Burial Grounds

At the time of publication of this document, WSDOT was conducting additional oral history interviews with tribes. One of the objectives of those interviews was to determine if there is sufficient reason to consider Foster Island a traditional cultural property (TCP). Although previously conducted oral history interviews indicate that Foster Island does not meet the criteria for TCP, if future oral history interviews demonstrate otherwise, WSDOT would develop mitigation measures in consultation with tribes and the State Historic Preservation Officer. The I-5 to Medina project Cultural Resources Discipline Report (WSDOT 2009k) provides more information.

Regardless of whether or not Foster Island is determined to be a TCP, if construction unearths any physical evidence of the burial ground on Foster Island, those remains would be considered an archaeological resource. WSDOT would consult with the Washington State Department of Archaeology and Historic Preservation and the tribes to create and implement a treatment plan. The preferred mitigation strategy would be to take measures to avoid unearthing any additional remains.

If construction unearths any additional archaeological resource types on Foster Island, they would be evaluated to assess its historical significance. If the archaeological resource type is determined to be of

historical significance, and further avoidance of that resource is unavoidable, WSDOT would propose and implement mitigation for any adverse effects.

Measures to Mitigate for Effects on Usual and Accustomed Tribal Fishing Areas

WSDOT might implement the following measures to avoid or minimize negative construction effects on usual and accustomed tribal fishing areas:

- Restrict in-water work that has potential to have an adverse effect on fish populations or habitat to authorized construction periods that exclude periods when juvenile salmon are likely to be present in substantial numbers.
- When developing the construction schedule, coordinate closely with tribes on to minimize construction activities that will have adverse effects on fish habitat or access to usual and accustomed tribal fishing areas during fishing season.
- Undertake activities to restore shorelines, floodplain areas, wetlands, or riparian vegetation or remove existing shoreline structures such as bulkheads or piers.

Operation Mitigation

Because low-income, minority, and LEP residents of neighborhoods within the project study area would not experience disproportionately high and adverse effects as a result of project operation, the analysts did not identify additional mitigation for operation effects on neighborhoods. The I-5 to Medina project Social Discipline Report (WSDOT 2009f) provides an outline of mitigation measures for operation effects on neighborhoods.

The following measures mitigate for disproportionately high and adverse effects of operation and tolls on low-income, minority, or LEP populations.

Measures to Mitigate for Effects on Usual and Accustomed Tribal Fishing Areas

WSDOT will continue to coordinate closely with the Muckleshoot Tribe to understand the extent to which the wider bridges will affect access to their usual and accustomed fishing areas. WSDOT will also work with the Muckleshoot to develop a plan for mitigating adverse effects on access.

Measures to Mitigate for the Burden that Tolls Would Present to Low-income or LEP Drivers

To mitigate the burden that tolls would present to low-income or LEP drivers, WSDOT might target transit improvements to increase service, routes, and frequency along SR 520 routes used by low-income populations. The routes could be identified by overlaying the Evergreen Point travelshed study area map with King County Metro and Sound Transit route maps. Targeted transit improvements are not part of the I-5 to Medina project and would require authorization by the Washington State Legislature.

- In 2009, the Washington State Legislature passed Senate Bill 5433, which gives King County the authority to raise property taxes to fund transit. A portion of revenues will be dedicated to increasing service along the SR 520 corridor. However, the intention of Senate Bill 5433 is to help meet the projected 15 to 35 percent growth in transit demand resulting from tolling and enhance transit capacity as part of the Lake Washington Urban Partnership. Although some low-income SR 520 users will benefit from enhanced transit across Lake Washington, Senate Bill 5433 is not specifically intended to mitigate for the effects of tolling on low-income populations.

Measures to Mitigate for the Burden that Electronic Tolling Options Would Present to Low-income or LEP Drivers

The SR 520 Variable Tolling Project, which is described in the Introduction of this discipline report, would implement several measures to mitigate for the burden that electronic tolling would present to low-income and LEP drivers. Those same measures would also mitigate for the effects of electronic tolling to low-income and LEP populations documented in this report. For that reason, we list those measures below.

- Establish a permanent customer service center at either end of the replacement bridge. Both locations would be transit accessible. Drivers would be able to purchase transponders and establish prepaid accounts with cash at these centers.
- Exploring the possibility of establishing permanent transponder retail outlets at convenient locations, such as grocery stores, convenience stores, or pharmacies throughout the Evergreen Point Bridge travelshed. Low-income focus group participants and Spanish-speaking interview participants indicated that this would

make it much easier for them to purchase transponders and set up prepaid accounts with WSDOT.

- Conduct outreach in multiple languages to provide information about how to purchase a transponder, establish an account, and use the system. Target languages would be the same languages that the Washington Department of Licensing uses for its translation: Chinese, Korean, Japanese, Russian, Spanish, and Vietnamese. Tactics would include using pictograms whenever possible to explain the system; distributing information about the new tolling system and transponders throughout the travelshed via community-based organizations, social service offices, churches, and schools; purchasing advertising in ethnic newspapers and radio stations; and establishing hotlines with multi-lingual customer service agents well in advance of tolling.
- Train social service workers by providing social service agencies with information about tolling and options to avoid the tolls. This would assist social service workers in sharing accurate information with clients.

Measures to Mitigate for the Burden that Tolls Would Present to Social Service Agencies

WSDOT might implement the following measures to mitigate the burden that tolls would present to social service agencies. Some of these measures might require authorization by the Washington State Legislature or agencies other than WSDOT.

- Provide refunds to social service agencies that broker transportation for low-income and disabled populations. The Washington State Legislature might consider allocating funding for this mitigation measure.
- The Washington State Transportation Commission, which is the State Tolling Authority, could classify paratransit as transit—including King County Metro ACCESS vans and other paratransit vehicles—for the purposes of tolling. This would allow them to travel on SR 520 without paying a toll, even if there are less than three passengers (including the driver).

What negative effects would remain after mitigation?

Most of the negative effects that would have a disproportionately high and adverse effect on low-income or minority populations, as well as LEP populations, would be avoided or minimized by the mitigation strategies outlined in this section.

However, even with mitigation measures, some low-income populations—especially car-dependent populations or populations living in areas without adequate transit service—would experience a disproportionately high and adverse effect as a result of tolling.

According to USDOT 5610.2 and FHWA Order 6640.23, a USDOT or FHWA program that has disproportionately high and adverse effects on low-income or minority populations may be carried out only if:

- A substantial need for the program, policy or activity exists, based on the overall public interest; and
- Alternatives that would have less adverse effects on protected populations have either:
  - adverse social, economic, environmental, or human health impacts that are more severe; or
  - would involve increased costs of an extraordinary magnitude.
- As described in the Introduction section of this report, the aging floating bridge is vulnerable to catastrophic failure. Furthermore, forecasted demand for transportation along the already congested SR 520 corridor is expected to increase significantly because of expected population and job growth. Given these factors, the analysts conclude that there is a substantial need for this project, based on the overall public interest.
- Analysts also conclude that potential catastrophic failure of the floating bridge would have substantially more severe impacts on all populations, including car-dependent low-income populations and low-income residents of communities that are not well-served by transit.
- Unmitigated increases in congestion along the corridor would create much more severe mobility challenges and air quality and noise concerns for all populations, including low-income and minority populations.

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Attachment 1

SR 520 Environmental Justice Survey
Final Report

SR 520 Environmental Justice Survey

Final Report

PRR
VISION + VOICE

January 20, 2009

Executive Summary

Environmental justice acknowledges that the quality of our environment affects our lives and negative environmental effects should not disproportionately burden low-income or minority communities.

Negative environmental effects associated with transportation projects may include, among others: limited access to a publicly funded facility, disruptions in community cohesion, presence of hazardous materials, raised noise levels, or increased water and/or air pollution.

As part of the Washington State Department of Transportation's (WSDOT) efforts to evaluate the potential effects of tolling the SR 520 Bridge on low-income or minority populations, WSDOT engaged PRR, a multi-disciplinary public affairs firm to conduct a transit intercept survey and telephone survey of SR 520 Bridge users. The objectives of the surveys were to understand the potential effects of tolling the SR 520 Bridge on low-income and minority people, as well as how tolling is likely to affect the travel behavior of SR 520 Bridge users.

Key findings from the survey results are:

- Most SR 520 Bridge users who currently drive across the bridge report that they are likely to change their travel behavior when tolling begins.
- Most SR 520 Bridge users who currently drive across the bridge do not believe that transit will be a viable un-tolled alternative for them. Most who say they will not use transit report that it is not frequent enough or close enough to where they live or work.

- More SR 520 Bridge users who currently drive across the bridge would use an un-tolled route to avoid paying the toll. However, many respondents said that using an un-tolled route would greatly increase their travel time and distance.
- Most respondents, regardless of ethnicity or income, agree that it is important to provide toll discounts, make public transit available, and maintain un-tolled routes for tolling to be fair.
- Most non-Environmental Justice respondents supported variable tolling. However, just under half of low-income respondents supported variable tolling.
- Most respondents indicated that they could afford to purchase the $12 transponder.

Introduction

Survey Purpose

The purpose of these surveys was to better understand the potential effects of tolling on environmental justice populations. When we say "environmental justice populations" in this report, we are referring to low-income and minority people.

In order to assess the potential effects of tolling the SR 520 Bridge on environmental justice groups, as well as attitudes toward tolling, PRR conducted two surveys. The first was an intercept survey of those who use transit over the SR 520 Bridge. The second was a telephone survey of those who drive their personal vehicles across the SR 520 Bridge. PRR used data from both surveys in an environmental justice analysis to identify the potential effects of tolling the SR 520 Bridge on minority or low-income populations.

Other goals of these surveys included learning:

- How much respondents are willing to pay to cross the SR 520 Bridge one-way
- If respondents support different toll rates for different times of day (variable tolling)
- If respondents support tolling accommodations for low-income travelers
- If respondents will change their travel behavior because of tolling
- Whether non-tolled options – such as transit or alternate routes – are viable alternatives to paying the toll
- Understanding respondents' current travel and commuting behaviors

Methodology

PRR used data from both surveys to conduct an analysis of the potential effects of tolling the SR 520 Bridge on environmental justice (EJ) populations. Table 1 describes the characteristics of those in the EJ by low-income group and those in the EJ by race group. All other respondents in this study are considered non-EJ.

Table 1: Characteristics of Respondents in the EJ Group[1]

EJ by INCOME (N=83)	EJ by Race Group (N=400)
Income and Household Size	**Ethnicity/Minority Status**
1 HH member and HH Income less than $10,400	White/Caucasian (Hispanic/Latino Background)
2 HH members and HH income less than $14,000	Black/African American
3 HH members and HH income less than $17,600	Hispanic/Latino
4 HH members and HH income less than $21,200	Asian/Pacific Islander
5 HH members and HH income less than $24,800	Native American
6 HH members and HH income less than $28,400	Other
7 HH members and HH income less than $32,000	
8 HH members and HH income less than $35,600	
9 HH members and HH income less than $39,2001	

For the telephone survey, the respondents were identified as:

- Environmental justice income group (n=71)
- Environmental justice race group (n = 292)
- Non-environmental justice group (n = 367)

For the transit survey the respondents were identified as:

- Environmental justice income group (n=12)
- Environmental justice race group (n =108)
- Non-environmental justice group (n =341)

In several cases, respondents qualify as environmental justice by both income and race.

1 The total number of household members (HH) includes the respondent, a spouse, children (including full-time students under age 23 even if they do not live at home), and any legal dependents. Total household income was before taxes for 2007.

Transit-Intercept Survey

In consultation with WSDOT and the SR 520 Tolling Implementation Committee, PRR conducted a transit-intercept survey that included the following activities:

- The process for developing survey questions involved review and editing of several drafts of questions. The final survey was formatted into a paper survey capable of electronic scanning for efficient and cost-effective data entry. The survey had a postage-paid mail-back panel so bus riders could complete the survey while in transit and then mail it without needing to pay for postage or affix a stamp.
- A sufficient number of surveys were printed for distribution at the following six Park-and-Ride lots and transit centers. These locations were chosen because of their greater likelihood to service environmental justice populations:
    - Overlake Transit Center
    - Bellevue Transit Center
    - Northgate Transit Center
    - Eastgate Park and Ride
    - Downtown Seattle Transit Tunnel
    - Evergreen Point
    - Montlake Freeway Station
- Staff provided survey forms and pencils to riders on the following routes, all of which crossed the SR 520 Bridge during the morning and evening peak travel times on one weekday in June 2008: King County Metro Transit Routes 167, 242, 243, 250, 252, 255, 256, 257, 260, 261, 265, 266, 268, 271, 272, 277; Community Transit Route 424; and Sound Transit Routes 540, 545, 555, and 556.
- A total of 1,051 surveys were distributed and 447 completed surveys were returned, for a response rate of 47%.

Telephone Survey

In consultation with the WSDOT and the SR 520 Tolling Implementation Committee, PRR conducted a telephone survey that included the following activities:

- Development of a statistically-valid telephone survey. This process involved review and editing of several drafts of survey questions. The final survey was programmed into Computer-Assisted Telephone Interviewing (CATI) software.
- The following sampling frames were used as a basis for the random selection of potential respondents:
  - A list of SR 520 Bridge users obtained through videotaping of vehicle license plates in May 2008.
  - Random digit dial list of telephone numbers from within zip codes in the SR 520 travel shed that were likely to have a higher concentration of low-income or minority households.
- Pre-testing the survey. The survey questions were pre-tested and monitored on the first night of the survey fielding. The pre-testing indicated that the survey questions were working well and no changes were made to the questions.
- Administration of the survey to a disproportionate stratified random sample of 659 respondents. The sample was stratified relative to qualifying as an environmental justice population respondent. Respondents could qualify as an environmental justice group member by virtue of belonging to a race other than white (not Hispanic background). This sampling approach provided adequate numbers of cases within each group for statistical analysis purposes.
- To reduce sample bias, a minimum of four attempts per potential respondent were made to establish telephone contact at different times of the day and days of the week.
- Using the very strict CMOR formula for computing the response rate, which includes in its formula the inclusion of "no answers, busy signals, and answering machines", this survey had a response rate of 18%[3]. However, the "cooperation rate" (defined as the percent of qualified respondents who were contacted and who completed the survey) was 76%.

3 Using the approved CMOR approach, response rate is defined as the number of completed surveys plus partial or suspended divided by the number of completed surveys, plus partial or suspended surveys, plus qualified refusals, plus break-offs, plus no answer, plus busy signal, plus answering machine, plus soft refusals, plus hard refusals, plus scheduled callbacks, plus unspecified callbacks.

Data Processing and Analysis

Data processing consisted of coding and entering quantitative and qualitative responses with the use of a CATI system. Qualitative variables were coded to convert them to quantitative measures. Response range and logic checks were performed to ensure the data was clean before data analysis was conducted. Data analysis was conducted with SPSS (Statistical Packages for the Social Sciences).

Data analysis involved the use of appropriate descriptive statistical techniques (frequencies, percentages and means) and explanatory statistical techniques (in this case t-test, Pearson's r, Phi, and logistical regression) to test for the statistical significance of relationships between and among variables, particularly to test differences between those who qualified as an environmental justice race group member and those not who did not.[4] Since the number of EJ by income respondents was relatively low (n=83), creating a high margin of error (+/-11%), and was disproportionate to the number of non-EJ respondents (n=1025), we did not conduct bivariate analysis between EJ by income and non-EJ respondents. A separate descriptive analysis is conducted on those who qualify for EJ by income.

Throughout this report, relationships between variables that are statistically significant at the .05 level or better, and that are meaningful to an understanding of the data are reported. Multivariate logistical regression was performed to assess the full relationship of all the demographic variables (including income) with each other.

How to Read this Report

This report is divided into three main sections. In the first section, we report on our analysis of environmental justice by income respondents.

In the second section, we report on our analysis of EJ by race respondents compared to non-EJ respondents.

In the third section, we report on our multivariate analysis. Variables include whether or not the respondent qualified as low-income, as well as other demographic characteristics such as ethnicity, education, and current SR 520 Bridge commuting patterns.

4 Phi is a measure of the relationship between two variables and is appropriate to use with 2 X 2 categorical variables. Phi ranges from -1 to +1 and indicates the strength and direction of a relationship. Pearson r is another test of the relationship (correlation) between two variables that is appropriate with continuous and dichotomous variables. The accompanying "p" scores presented in this report indicate the level of statistical significance. Logistical regression was used to identify predictor variables that are closely related to support for tolling and for the likelihood to pay the toll.

Section 1: Results from Environmental Justice by Income group

This section provides results on demographics, commuting patterns, toll acceptance, and toll avoidance for those participants that qualified as environmental justice by income. The following data provides percentages on the total data from both surveys, unless otherwise stated.

Participant Demographics

Table 2: Demographics of Low-Income Respondents

	Low Income
Total Participants	**n = 83**
Telephone Survey	n = 71
Transit Survey	n = 12
Ethnicity	
White/Caucasian	53%
Caucasian (Hispanic Background)	2%
Black African American	6%
Asian/Pacific Islander	20%
Hispanic/Latino	5%
Native American	2%
Other	2%
Refused	9%

	Low Income
Employment Status	
Employed full-time	39%
Employed part-time	19%
Student full-time	11%
Student part-time	9%
Homemaker	4%
Retired	11%
Unemployed	2%
Refused	3%
Education Level	
Less than HS	1%
HS	16%
Some/technical/ AA	20%
BA	23%
Post Grad	17%
Graduate Degree	19%
Refused	3%
Age	
18-24	17%
25-34	13%
35-44	8%
45-44	28%
55-64	18%
65 and older	13%
Refused	2%
Gender	
Male	42%
Female	58%
Household Size	
Average household size	3.02

Participant Commuting Patterns

Low-income respondents had traveled across the bridge in a personal vehicle an average of 2.9 times in the previous week, and they usually conduct this travel during peak times and mid-day. They most often use the bridge to travel to and from work or school and they are driving alone.

Table 3: Commuting Patterns

	Low Income
Average days travel across SR 520 Bridge in personal vehicle	**2.9**
Time of day travel	
AM Peak	35%
Mid-day	27%
PM Peak	28%
Night time	9%
Main travel purpose	
Travel to and from work school	43%
Errands/shopping	14%
Non-commute work related	13%
Recreational	13%
Visit family or friends	16%
Other	3%
Main mode used to cross bridge last week	
Drive alone	56%
Carpooled w/HH members	23%
Carpooled w/non HH members	14%
Took the bus	6%
Vanpooled	1%

Tolling Acceptance

Low income participants on the average are willing to pay a toll of $1.80 to cross the SR 520 Bridge, and 42% are willing to pay $3.50 one-way for a faster more reliable trip across the bridge.

Table 4: Tolling Acceptance

	Low Income
Average toll amount willing to pay	$1.80
Yes, would pay $3.50 toll one-way (Telephone survey only)	42%

Toll Avoidance

Low income respondents (68%) would consider changing their travel behavior to avoid paying a toll to cross the bridge, particularly by taking the bus (22%) or using I-90 (24%). However, just over half (51%) indicated they would take transit to avoid the toll. The main reason these respondents would not take the bus is because transit is not frequent enough and too far away. Most low income respondents (64%) would also consider taking an un-tolled route to avoid paying a toll on the SR 520 Bridge.

Table 5: Toll Avoidance

	Low Income
Yes, would change travel behavior to avoid toll (Telephone survey)	**68%**
One thing I would do to avoid toll	
Take the bus	22%
Pay the toll	2%
Change travel to lower toll time	7%
Use I-90	24%
Use SR 522	4%
Use I-5 to I-405, etc	5%
Carpool	4%
Forgo trip	2%
Yes, use transit to avoid toll (Telephone survey)	**49%**
For the *those who would not use transit,* the main reason is: (Telephone survey)	
Not frequent enough	53%
Live too far from transit	56%
Too expensive	25%
Not convenient/hassle	17%
Using transit would greatly increase my travel time (Telephone survey)	**65%**
Yes, would use un-tolled route to avoid paying toll (Telephone survey)	**64%**
Using another route would greatly increase travel time	67%
Using another route would greatly increase travel distance	97%

Tolling Fairness

Environmental justice by income respondents to the telephone survey agree it is important to provide toll discounts for low-income drivers, to have public transit available, and to have un-tolled roads available in order for tolling to be fair. More than 69% of EJ by income respondents indicate that toll discounts for low-income drivers was somewhat or very important to making tolling fair. Nearly 58% indicated that available transit was somewhat or very important to making tolling fair. And, more than 65% indicated that maintaining un-tolled routes was somewhat or very important to making tolling fair.

Just over 42% of EJ by income respondents indicated *medium* to *strong* support for variable tolling, such as charging higher tolls during commute times and lesser tolls during non-commute times.

Tolling Transponder

Most EJ by income respondents (81%) indicated that they could afford a $12 transponder.

Section 2: Results from Environmental Justice by Race Group and Non-Environmental Justice Group

This section provides results on demographics, commuting patterns, toll acceptance, and toll avoidance for those participants that qualified as environmental justice by race, compared to non-EJ respondents.

Participant Demographics

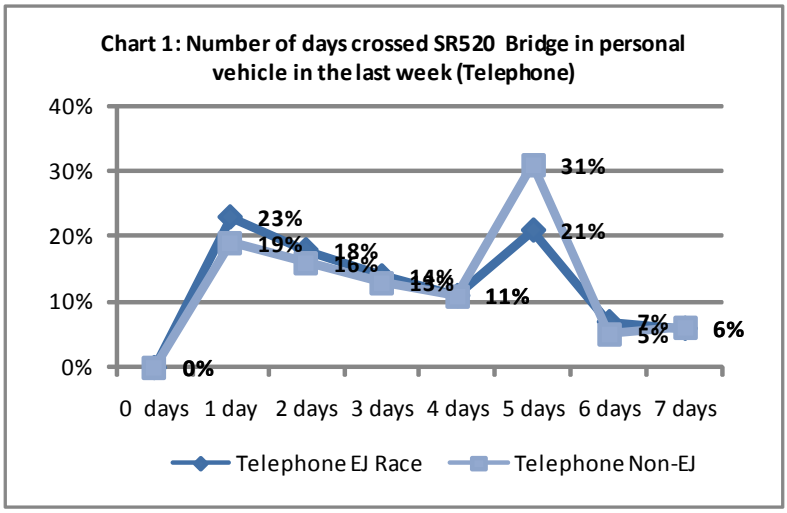
Table 6: Participant Demographics (N=1,108)

	Telephone		Transit	
	EJ Race	Non-EJ	EJ Race	Non-EJ
Total Participants	**292**	**367**	**108**	**341**
Ethnicity				
White/Caucasian	8%	100%	6%	100%
Caucasian (Hispanic Background)	21%		14%	
Black African American	8%		11%	
Asian/Pacific Islander	44%		67%	
Hispanic/Latino	10%		6%	
Native American	6%		4%	
Other	6%		1%	
Refused	6%		0%	
Language Spoken				
English	78%	98%	76%	97%
Russian	3%	0%	0%	1%
Chinese	4%	0%	10%	0%
Spanish	2%	0%	2%	0%
Vietnamese	3%	0%	2%	0%
Korean	1%	0%	3%	0%
Other	9%	2%	8%	2%
Employment Status				
Employed full-time	65%	68%	78%	87%
Employed part-time	12%	12%	9%	7%
Student full-time	9%	11%	1%	2%
Student part-time	3%	4%	14%	6%
Homemaker	3%	2%	2%	2%
Retired	11%	11%	0%	0%
Unemployed	2%	3%	0%	0%
Refused	1%	0%	0%	0%

	Telephone		Transit	
	EJ Race	Non-EJ	EJ Race	Non-EJ
Education Level				
Less than HS	2%	1%	0%	0%
HS	7%	6%	12%	2%
Some/technical/ AA	20%	18%	15%	20%
BA	27%	32%	42%	43%
Post Grad	14%	10%	7%	10%
Graduate Degree	29%	32%	24%	25%
Refused	1%	1%	0%	0%
Age				
18-24	5%	2%	16%	10%
25-34	13%	12%	27%	25%
35-44	30%	22%	26%	21%
45-44	27%	31%	19%	18%
55-64	16%	22%	9%	23%
65 and older	8%	11%	2%	2%
Refused	2%	0%	0%	0%
Gender				
Male	58%	49%	46%	52%
Female	42%	51%	54%	48%
Household Size				
Average Household size	3.07	2.8	2.8	2.3
Median Household size	3		2	
Percent at or below the median	64%		65%	

Participant Commuting Patterns

The data in Chart 1 indicates that non-EJ group respondents in the telephone survey travel the SR 520 Bridge more days a week, particularly for those that traveled five days a week (31% non-EJ vs. 21% for EJ). However, the average days traveled per week is 3.4 days for respondents in an EJ race group and 3.6 days for those not in an EJ group. Further analysis shows no statistical difference in the number of days traveled across the bridge between those qualifying for EJ by race and those who do not.



Respondents from the transit survey obviously ride the bus frequently, with 83% from the EJ race group and 78% from the non-EJ group, riding four or more days a week. Further analysis shows this difference is statistically significant (t-test, p=.01), but the correlation is very weak (r=-.05). Thus it is possible respondents from the transit survey in the EJ race group ride transit slightly more often than those in the non-EJ group.

Participants using their personal vehicles to cross the bridge (telephone survey) not only do so more often, but also report driving alone more often. When asked what modes of transportation (all types) they used in the last week to cross the bridge about three-fourths (73% EJ by race and 78% non-EJ) of respondents report driving alone. However, it should be noted that regardless of EJ group status, almost 40% of these participants also report carpooling with either household or non-household members.

Table 7: Transportation modes to cross the SR 520 Bridge in the last week (Telephone survey)

	Telephone	
	EJ Race	Non-EJ
Drive alone	73%	78%
Carpooled with HH members	26%	24%
Carpooled w/ non HH members	12%	12%
Took the bus	7%	5%
Vanpooled	1%	2%
Motorcycled	1%	1%
Other	0%	0%

When it comes to the time of day participants travel across the SR 520 Bridge there is little difference between those in an EJ race group and those not in a EJ group. However, Table 8 shows that those who typically ride transit across the bridge do so during peak commuting hours (6am to 9am and 3pm to 7pm). Participants using their personal vehicles to cross the bridge (telephone survey) seem to travel more evenly throughout the day.

Table 8: Typical travel times

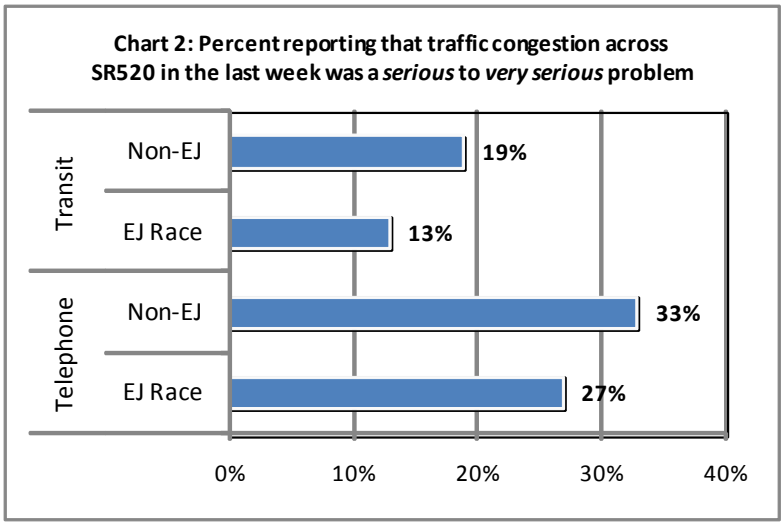
	Telephone		Transit	
	EJ Race	Non-EJ	EJ Race	Non-EJ
AM peak 6am to 9am	54%	56%	91%	91%
Mid-day after 9am- before 3pm	38%	42%	9%	9%
PM peak 3pm to 7pm	45%	47%	81%	87%
Night time (after 7pm - before 6am	16%	17%	7%	5%

As expected, the main reason for traveling across the SR 520 Bridge is for travel to and from work or school (see Table 9). This is even more true for participants from the transit survey, where almost all the participants (96% or more) report traveling across the bridge for work or school. About one-fifth of the participants who use personal vehicles (telephone survey) report using the bridge for errands/shopping, non-commute work related activities, recreational activities, and visiting family or friends.

Table 9: Purpose for traveling across SR 520 Bridge

	Telephone		Transit	
	EJ Race	Non-EJ	EJ Race	Non-EJ
Travel to and from work/school	56%	55%	98%	97%
Errands/shopping	15%	21%	7%	5%
Non-commute work related	19%	22%	1%	1%
Recreational activities	19%	15%	10%	10%
Visit family or friends	19%	18%	9%	5%
Other	3%	2%	1%	1%
Don't know	0%	0%	0%	0%

Traffic congestion is reported as more of a serious problem from participants who use their personal vehicle to cross the SR 520 Bridge (telephone survey). Overall, more than a quarter (27% EJ by race, 33% non-EJ) of these participants report that traffic congestion in the last week was serious to very serious, whereas less than one-fifth of transit survey participants report serious congestion. Further analysis of those who use their personal vehicles (telephone survey), shows a statistically significant difference (t-test, p=.05) between those in an EJ race group and those not in an EJ group but the correlation is again weak (r=-.08). Thus those not in EJ groups might be slightly more likely to report serious to very serious traffic congestion.



Tolling Acceptance

Respondents are willing to pay an average of $2.00 to cross the SR 520 Bridge each way, with those in non-EJ groups willing to pay more ($2.20 and $2.40) than those in an EJ race group. Further analysis shows a statistical difference (t-test, p=.000) in the average toll participants are willing to pay between EJ race and non-EJ groups for those that use personal vehicles (telephone survey), but not for those that use transit (transit survey). The correlation (r=-.21) for this finding is also somewhat noteworthy, thus those that use personal vehicles in non-EJ groups are willing to pay a higher toll than those in an EJ race group to cross the SR 520 Bridge.

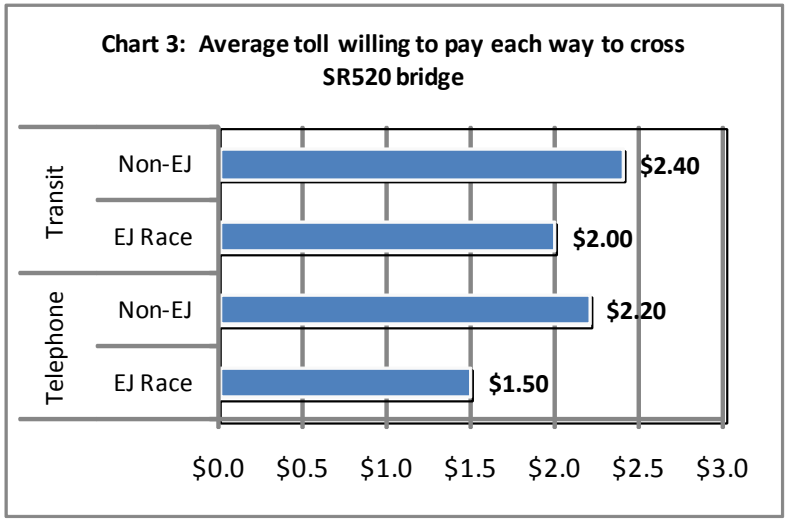
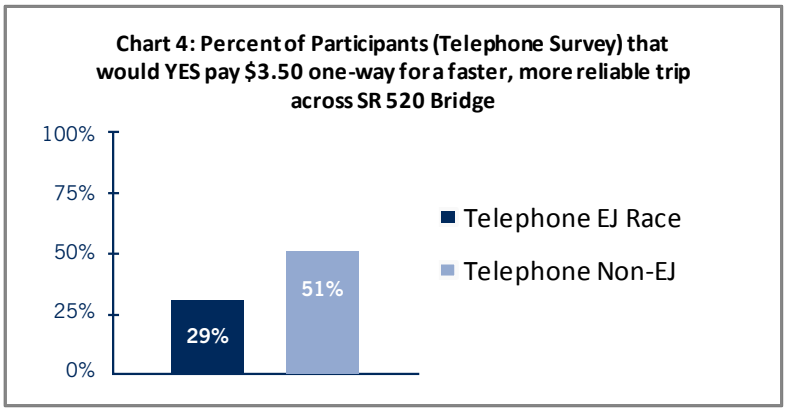


Table 10: Median toll willing to pay to cross SR 520 Bridge each way

	Telephone		Transit	
	EJ Race	Non-EJ	EJ Race	Non-EJ
Median Toll Willing to Pay	$1	$2	$1.5	$2
Percent at or below Median	55%	64%	51%	64%

Participants who generally use their personal vehicle to cross the SR 520 Bridge (telephone survey) were specifically asked if they would be willing to pay a toll of $3.50 one-way for a faster, more reliable trip across the bridge. Overall a little more than one-third (40%) of these participants would be willing to pay this toll. However participants not in an EJ group report more willingness (51% say "yes") than those in an EJ race group (29% say "yes). Further analysis shows that this difference is statistically significant (Chi-square, p=.000) with an adequate correlation (Phi=-.21). Thus, those in a non-EJ group are more willing to pay a flat toll of $3.50 each way to cross the SR 520 Bridge.



Toll Avoidance

When asked if they would change their travel behavior when a toll is charged to cross the bridge, almost three-fourths (70%) of all telephone survey respondents indicated they would. In the EJ race group, even more (79%) reported they would change their travel behavior if a toll is charged. Further analysis shows this difference is statistically significant (Chi-square, p=.000) with an adequate correlation (Phi=.18). Thus indicating those in an EJ race group are slightly more likely to change their travel behavior because of a toll.

When asked specifically what they would do to avoid paying a toll, participants in EJ race and non-EJ groups indicated they would take the bus and use I-90 most often. Those in the non-EJ group indicated using I-90 and SR 522 as more likely, and those in EJ race groups reported they would probably use the bus more.

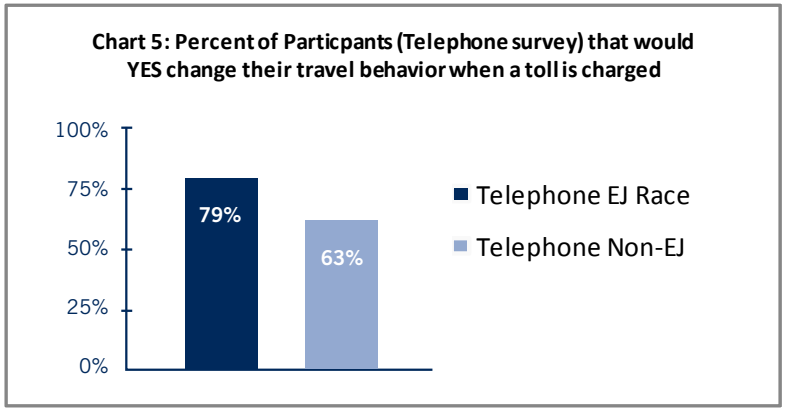


Table 11: One thing most likely do to avoid paying toll on SR 520 Bridge (Telephone Survey)

	Telephone	
	EJ Race	Non-EJ
Take the bus	34%	10%
Change Travel Time to lower toll time	7%	15%
Use I-90	30%	38%
Use SR-522	7%	11%
Use I-5/I-405	8%	8%
Carpool with non-family to share toll	3%	5%
Vanpool	0%	2%
Forgo trip	5%	7%
Other	4%	3%

When asked specifically if they would use transit to avoid a toll almost half (43%) of telephone survey participants indicated they would. A slight difference, but not statistically significant, is found for those in EJ race and non-EJ groups, where those in the EJ race group report a slightly higher willingness to use transit (46% vs. 42%). The main reason respondents would not use transit to avoid a toll is because it is not frequent enough and it is too far away from where they live or work, particularly for those in an EJ race group. Those in an EJ race group also feel transit is too expensive, whereas those in a non-EJ group just don't like transit or feel it is a hassle.

Table 12: Reason WHY will not use transit to avoid toll (Telephone Survey)

	Telephone	
	EJ Race	Non-EJ
Not frequent enough	69%	40%
I live/work too far from transit	62%	21%
Expensive	31%	3%
Don't like	8%	11%
Hassle/not convenient	5%	14%

For those respondents from the telephone survey that would use transit to avoid a toll on SR 520 many (70% +) indicate that this would greatly increase their travel time, and slightly more so for those in an EJ race group.

Table 13: Would use transit but it would…. (Telephone Survey)

	Telephone	
	EJ Race	Non-EJ
Greatly increase travel time	74%	71%
Greatly increase distance	32%	24%
Neither	22%	27%

When those from the telephone survey were asked specifically if they would use an alternate route to avoid a toll, almost three-fourths (73%) of all participants indicated they would. Further analysis shows a statistically significant difference (Chi-square, p=.003) is found for those in EJ race and non-EJ groups and the correlation is somewhat adequate (Phi= -.16). Thus, even though those in the EJ race group report a willingness to use an alternate route more (83% vs. 68%), it is likely a small difference.

Those who are not willing to use an alternate route indicate it would greatly increase their travel time and distance, particularly for those in a non-EJ group (see table 14). For respondents willing to use an alternate route it will also increase travel time and distance for at least half of them.

Table 14: Using an alternate route will… (Telephone Survey)

	Telephone	
	EJ Race	Non-EJ
Won't use alternate route because it will…	62%	74%
Greatly increase travel time		
Greatly increase distance	28%	49%
Neither	23%	14%
Using an alternate route will…		
Greatly increase travel time	44%	54%
Greatly increase distance	64%	47%
Neither	21%	38%

Tolling Fairness

Overall participants in both EJ race and non-EJ groups from the telephone survey agree it is important to provide toll discounts for low-income drivers, to have public transit available, and to have un-tolled roads available in order for tolling to be fair.

More than half (60%) of all respondents also indicate medium to strong support for variable tolling, such as charging higher tolls during commute times and lesser tolls during non-commute times. This support remains strong between the EJ groups for respondents of the transit survey, but for those who travel alone across the bridge (telephone survey) there is a statistical significant difference (t-test, p=.000) between the EJ race and non-EJ group. However the correlation is weak (r=-.14), suggesting that those in the EJ race group support variable tolling slightly less than those in the non-EJ group.

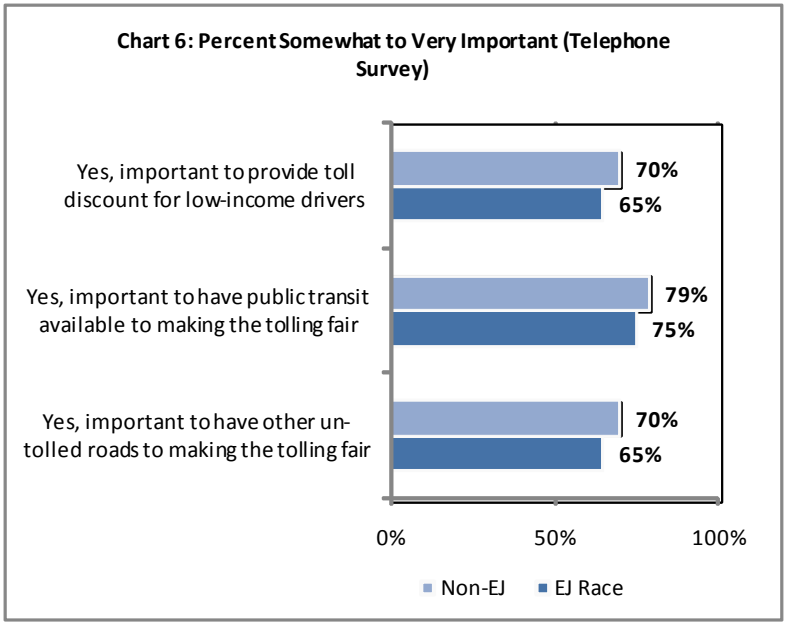


Chart 6: Percent Somewhat to Very Important (Telephone Survey)
Yes, important to provide toll discount for low-income drivers
70%
65%
Yes, important to have public transit available to making the tolling fair
79%
75%
Yes, important to have other un-tolled roads to making the tolling fair
70%
65%
0%
50%
100%
Non-EJ
EJ Race

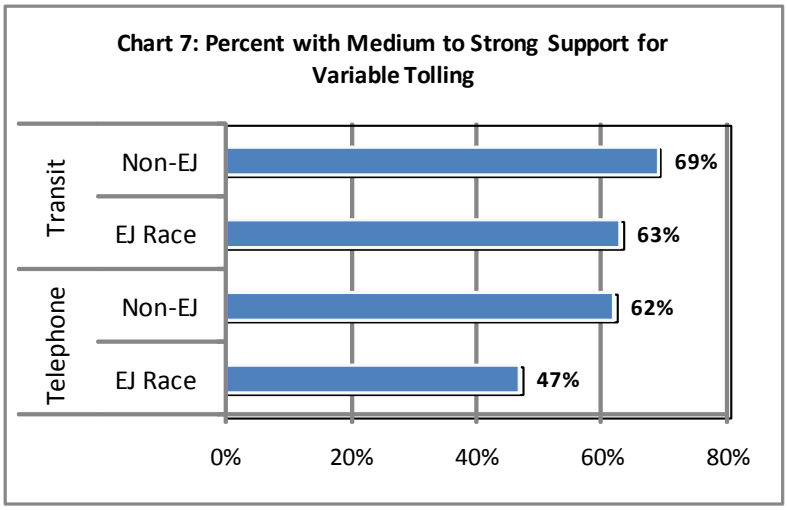
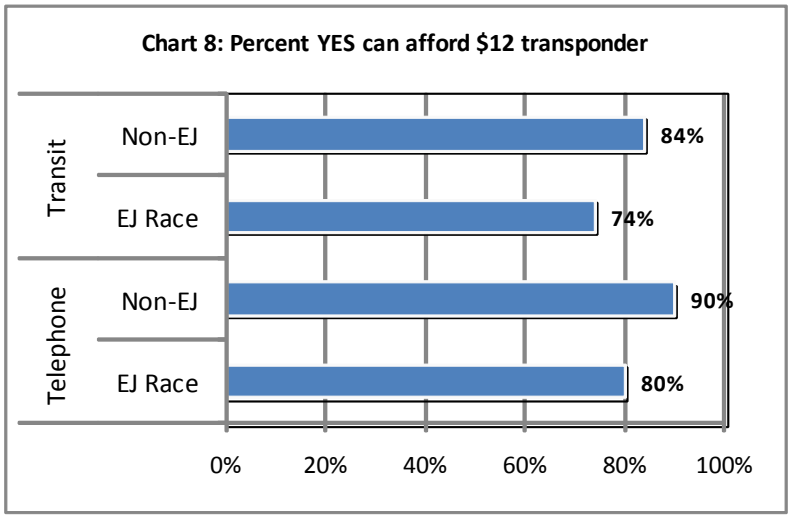


Chart 7: Percent with Medium to Strong Support for Variable Tolling
Transit
Non-EJ
69%
EJ Race
63%
Telephone
Non-EJ
62%
EJ Race
47%
0%
20%
40%
60%
80%

Tolling Transponder

Overall most of the respondents can afford the $12 transponder to pay the toll to cross the SR 520 Bridge. However, further analysis confirms a statistically significant difference, albeit slight, between those in the EJ race group and those not in an EJ group. Compared to the non-EJ group those in the telephone survey EJ race group (Chi square p=.01, Phi=-.14) and those in the transit EJ race group (Chi square p=.05, PHI=-.11) are slightly less able to afford the $12 transponder.



Section 3: Results from Multivariate analysis

Findings from bivariate correlational analysis indicate that respondents (particularly those that use their personal vehicle to cross SR 520) in a non-EJ group are more willing to pay tolls, and those in an EJ race group are more likely to avoid them by changing their travel behaviors (i.e. using an un-tolled route). Since bivariate analysis only investigates the relationship between these specific attitudes and whether or not a respondent is in an EJ race group (2 variables), we conducted multivariate logistic regression analysis to fully understand the relationship of all the demographic and commuting characteristics with attitudes towards tolling.

Four overall models were analyzed and tested on respondents who use their personal vehicles (telephone survey) to specifically predict the following:

- Willingness to pay $3.50 one-way toll for faster more reliable trip across SR 520 Bridge (Yes/no)
- Would change travel behavior when a toll is charged on the SR 520 Bridge (Yes/no)
- Would use transit to avoid paying a toll (Yes/no)
- Would use an alternate route to avoid paying a toll (Yes/no)

The demographic variables/characteristics included in these models included:

- Household size
- Ethnicity (white vs non-white) as well as ethnicity specific (Asian, Hispanic, other Ethnicity)
- Age
- Whether or not the respondent qualifies as EJ by income
- Gender
- SR 520 usage (average # of days)
- Support for variable pricing at different times of day

Being able to predict whether someone will use an alternate route to avoid a toll was the only viable model ($p > .05$).[5] Multivariate logistic models for predicting willingness to pay $3.50 toll, to change travel behavior in general, and to use transit to avoid a toll had significant predictors but the overall models were weak (Chi-square, $p<.05$). Thus only the results for predicting the use an alternate route are discussed and are also presented in Table 15.

After controlling for all the demographic covariates listed above in the telephone survey sample (except for EJ group status, which was tested in a separate model) the most significant predictors of *using an alternate route to avoid paying a toll* are:

- Being non-white (significantly more likely to use un-tolled route---2.2 times more likely).
    - In fact, being Hispanic and in the "other race" category more likely to use un-tolled route (Hispanic 2.8 times more likely and Other 2.3 times more likely).
- Level of support for variable tolling—for each level of support increase (4 levels) they are .699 times less likely to use un-tolled route/

When a separate model is tested using EJ group status to predict the use of an alternate route, whether they are in an EJ group or not is not significant, and neither is income or ethnicity. The only variable remaining significant is support for variable tolling. So it

5 For overall and goodness of fit testing for logistic regression models a low Chi-square with a $p > .05$ is preferred (Peng et al, 2002, An Introduction to Logistic Regression Analysis and Reporting, The Journal of Educational Research).

seems that ethnicity alone, particularly if Hispanic or Other, is a stronger predictor of un-tolled route usage than is whether or not someone is in an EJ group.

When it comes to predicting willingness to pay a $3.50 toll, ethnicity and variable tolling support are also key predictors, but the overall models are weak (p< .05). Age is the only significant predictor found for predicting transit use to avoid a toll (younger more likely), but again this overall model is weak (p<.05).

Table 15: Predicting use of un-tolled route to avoid paying toll on SR 520 Bridge

	Predicting use of un-tolled route (without EJ interaction)			Predicting use of un-tolled route (Ethnicity Specific Model)		
Predictors	B± (S.E.)	df	Odds Ratio	B± (S.E.)	df	Odds Ratio
Constant	2.515 (.690)	1	12.361	2.548 (.702)	1	12.786
# Days travel across SR520	-.085 (.057)	1	.919	-.093 (.057)	1	.911
Ethnicity (1 = non-white)	.786 (.231)***	1	2.195			
Age	-.158 (.084)	1	.854	-.182 (.085)	1	.833
Income	.320 (.328)	1	.1.377	.364 (.345)	1	.1.440
Gender	.076 (.205)	1	1.079	.115 (.207)	1	1.121
HH size	.060 (.078)	1	.942	-.062 (.078)	1	.940
Support Variable tolling	-.354 (.087)***	1	.702	-.341 (.088)***	1	.711
EJ Group						
Hispanic				1.039 (.406)*	1	2.826
Asian				.511 (.333)	1	1.667
All other ethnicity				.843 (.395)*	1	2.323
	Goodness of fit Statistics					
Hosmer and Lemeshow Chi-square			df			df
		10.060	8		7.531	8
Hosmer and Lemeshow Sig.		.261			.481	
Cox & Snell R Sqr		.067			.068	
Nagelkerke R Sqr		.097			.098	
Percentage Predicted Correctly		74%			74%	

± Significant values *<.05, **=<.01, *** =<.001

Limitations

In order to provide adequate numbers of cases within each group for statistical analysis a disproportionate stratified sample of those in environmental justice groups was taken. Without adequate geographic information on respondents, weighting the data to adjust for this sampling technique was not possible. This could possibly influence the environmental justice effect that was found from the bivariate and multivariate analysis.

The respondents in this study also represented a particularly high income bracket with 93% of all the respondents from both survey samples not meeting EJ income group requirements because their income was too high. Thus, most of the respondents in this study met EJ group requirements because of ethnicity, which supports the multivariate findings that ethnicity alone is a stronger predictor of tolling acceptance. However, because of income disparity in the data the true effect of income and its relationship to other demographic variables in predicting tolling support or travel changing behaviors may be under represented.

Appendix A: Telephone Survey

TOLLING SURVEY

Hello, my name is _____ and I'm calling for the Washington State Department of Transportation to get opinions on travel on State Route 520. This is not a sales call. It's an opportunity to express your opinion. May I please speak with the person in your household who drives across the SR 520 Bridge most often? Would that be you? (IF NO, ASK TO SPEAK WITH THE QUALIFIED PERSON AND REPEAT INTRO SECTION)

I'd like to ask you some questions on a strictly confidential basis. The questions will take about 10 minutes of your time.

1. **Screener/Quota Questions**

   - Do you or does anyone in your household work for a transportation agency?
   - No
   - Yes (thank and terminate)
   - Don't know/refused (thank and terminate)

2. **How many days in the last week did you travel in your personal vehicle across the SR 520 Bridge, also known as the Evergreen Point floating bridge?**

   0 (thank and terminate)
   1 (defined as less frequent user)
   2 (defined as less frequent user)
   3 (3 days or more defined as frequent user)
   4
   5
   6
   7

Quota for EJ population based on answers to Q3 and Q4 is 300.

Quota for non-EJ population is 300.

I now have a question about the number of people in your household and your household income. Please remember that all your answers are strictly confidential.

3. **What is the number of people in your family? Number of family members includes you, your spouse, your children (including full-time students under age 23 even if they do not live at home), and any legal dependents.**

   1 - Then ask if total income before taxes for 2007 was more than $10,400. If no, qualifies as EJ population.

   2 - Then ask if total income before taxes for 2007 was more than 14,000. If no, then qualifies as EJ population.

   3 - Then ask if total income before taxes for 2007 was more than $17,600. If no, then qualifies as EJ population.

   4 - Then ask if total income before taxes for 2007 was more than $21,200. If no, then qualifies as EJ population.

   5 - Then ask if total income before taxes for 2007 was more than $24,800. If no, then qualifies as EJ population.

   6 - Then ask if total income before taxes for 2007 was more than $28,400. If no, then qualifies as EJ population.

   7 - Then ask if total income before taxes for 2007 was more than $32,000. If no, then qualifies as EJ population.

   8 - Then ask if total income before taxes for 2007 was more than $35,600. If no, then qualifies as EJ population.

   9 – Then ask if total income before taxes for 2007 was more than $39,200. If no, then qualifies as EJ population.

   (For each additional person, add $3,600.)

4. **Which of the following best describes your ethnic/racial background? (multiple responses allowed)**

   - White/Caucasian (not Hispanic/Latino background)
   - White/Caucasian (Hispanic/Latino background)
   - Black/African American
   - Asian/Pacific Islander
   - Hispanic/Latino
   - Native American

- Other (specify)
- Refused

I. Travel Behavior

5. What time of the day do you typically travel across the SR 520 Bridge? Would you say: (choose all that apply)

- AM peak (6 am to 9 am)
- Mid-day (after 9 am to before 3 pm)
- PM peak (after 3 pm to 7 pm)
- Night time (after 7 pm to before 6 am)

6. For what trip purposes did you use SR 520 Bridge in the last week? Would you say: (rotate and read; multiple choices allowed)

- Travel to and from work or school (if chosen, indicate zip code of work or school location)
- Errands/shopping
- Non-commute work-related travel
- Recreational activities
- Visit family or friends
- Other (specify)
- Don't know (do not read)

7. Which of the following did you use to cross the SR 520 Bridge in the last week? (read; multiple responses allowed)

- Drove alone
- Carpooled with household members
- Carpooled with non-household members
- Took the bus
- Vanpooled
- Motorcycled
- Other (please specify)

8. **In general, how much of a problem was traffic congestion when you drove across the SR 520 Bridge during the last week? Would you say:**

- Not a problem at all
- Moderate problem
- Serious problem
- Very serious problem
- Don't know (do not read)

II. Tolls for SR 520

I'd like to ask you a few questions now about tolls and the construction of a new SR 520 Bridge.

You may know that the Dept. of Transportation is proposing to replace the SR 520 Bridge and improve SR 520 from I-5 to I-405. Tolls for the bridge will be collected electronically as vehicles travel across the bridge at regular highway speeds. There will be no toll booths.

9. **If tolls are charged on the bridge, what is the most you would be willing to pay to cross the bridge each way? $_____**

10. **If you knew the toll would be $3.50 one-way for a faster, more reliable trip across the SR 520 Bridge would you pay the toll?**

- No
- Yes
- Don't know

11. **Toll amounts on the bridge may vary by time of day – higher for morning and evening commute times, lower for other times of the day? How much would you support that? Would you say:**

- No support at all
- Low support
- Medium medium support
- Strong support
- Don't know

12. **When a toll is charged to use the SR 520 Bridge, would you change your travel behavior?**

- No, I would pay the toll (skip to Intro before Q14)
- Yes

13. **If so, what is the ONE thing you would most likely do? Would you say: (ROTATE and READ; choose just one)**

- Use transit
- Change travel time to a period when the toll amount is lower
- Use I-90
- Use SR 522
- Use I-5 to I-405 or I-405 to I-5
- Carpool with non-family members to share the toll with other passengers
- Vanpool
- Forgo the trip altogether
- Other (specify)

There would not be any toll booths on SR 520. Instead, all tolls would be collected electronically. Therefore, you would need to buy a transponder and put it on your vehicle's windshield. Your toll would be collected automatically from your pre-paid transponder account as your vehicle travels through the toll area.

14. **If the cost to buy the transponder is about $12, would you able to afford the purchase of the transponder?**

- No
- Yes

15. **The toll is automatically deducted from your transponder account. In order to put funds into your transponder account you would need to use one of the following methods. Which ONE would you be most likely to use? Would you say: (ROTATE and READ)**

- Credit card
- Debit card
- Checking account
- Cash (in person only)
- I would not be able to use any of these methods (DO NOT READ)

16. **Which of the following do you have? (ROTATE and READ) (Multiple responses allowed)**

    - Credit card
    - Debit card
    - Checking account
    - None of these

17. **If you wanted to avoid paying the toll would you (Multiple responses allowed)**

    a. Use public transit
        - No – if no, ask if this is because:
            a. transit service is not frequent enough on my route
            b. I live or work too far from transit
            c. it is too expensive
            d. Don't like buses or trains
        - Yes – if yes, ask if this would:
            a. greatly increase travel time
            b. greatly increase travel distance

    b. Use another un-tolled route
        - No – if no, ask if this is because it would:
            a. greatly increase travel time
            b. greatly increase travel distance
        - Yes -- if yes, ask if this would:
            a. greatly increase travel time
            b. greatly increase travel distance

18. **When tolls are charged on SR 520, how important are each of the following to make tolling fair? (Rotate and read a-c)**

    a. Other un-tolled highways that you could use instead. How important is this to making the tolling fair? Would you say:
        - Very unimportant
        - Somewhat unimportant
        - Somewhat important
        - Very important
        - Don't know (do not read)

b. Availability of public transit to be used instead of paying the toll. How important is this to making the tolling fair? Would you say:

- Very unimportant
- Somewhat unimportant
- Somewhat important
- Very important
- Don't know (do not read)

c. Providing a toll discount for some low-income drivers. How important is this to making the tolling fair? Would you say:

- Very unimportant
- Somewhat unimportant
- Somewhat important
- Very important
- Don't know (do not read)

III. Demographics

We have a few questions about you and your household. Your answers will be strictly confidential and will be combined with other's answers for statistical analysis purposes.

19. What is your home zip code?

20. What is the main language you speak at home? (Accept just one)

- English
- Spanish
- Russian
- Vietnamese
- Chinese
- Korean
- Somali
- Other (please specify)

21. **Which of the following best describes your work situation? Would you say: (multiple responses allowed)**

- Employed full-time
- Employed part-time
- Student full-time
- Student part-time
- Homemaker
- Retired
- Unemployed
- Refused

22. **What is the highest level of education you have completed? Would you say:**

- Less than high school
- High school
- Some college/technical school/Associates degree
- Bachelor degree
- Post graduate work
- Graduate degree
- Refused

23. **Which of the following broad ranges includes your age?**

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and older
- Refused

24. **Which of the following income categories applies to your household's total annual income (before taxes) for 2007?**

- Under $20,000
- $20,000 to less than $35,000
- $35,000 to less than $50,000
- $50,000 to less than $75,000
- $75,000 to less than 100,000

- $100,000 to less than $125,000
- $125,000 to less than $150,000
- $150,000 and above
- Refused

25. Would you be willing to be part of a discussion group or other efforts to help the Department of Transportation learn more about opinions of people like you regarding tolling?

- NO (skip to Q27)
- YES
- DK/REF (skip to Q27)

26. Could I have your name, phone number and email address so that you can be contacted again.

Name: _____

Phone: _____

Email address: _____

27. Gender: (interviewer enter)

- Male
- Female

Those are all the questions I have for you. Thank you very much for your participation!

Appendix B: Transit Intercept Survey

See following pages

19. Which of the following best describes your work situation? (Check all that apply)

Employed full-time ☐ Student full-time ☐
Employed part-time ☐ Student part-time ☐
Retired ☐ Homemaker ☐
Unemployed ☐

20. What is the highest level of education you have completed?

Less than high school ☐
High school ☐
Some college/technical school/Associates Degree ☐
Bachelor degree ☐
▲ Graduate degree ☐
Post graduate work ☐

21. Which of the following ranges includes your age?

Less than 18 ☐ 25-34 ☐ 45-54 ☐
18-24 ☐ 35-44 ☐ 55-64 ☐
65 and older ☐

22. Which of the following income categories applies to your household's total annual income (before taxes) for 2007?

Under $20,000 ☐
$20,000 to less than $35,000 ☐
$35,000 to less than $50,000 ☐
$50,000 to less than $75,000 ☐
$75,000 to less than 100,000 ☐
$100,000 to less than $125,000 ☐
$125,000 to less than $150,000 ☐
$150,000 and above ☐

23. Gender: Male ☐ Female ☐

▲ **Thank you for your participation!** ▲

Washington State Department of Transportation

TRANSIT RIDERS SURVEY – SR 520 CORRIDOR

The Washington State Department of Transportation is interested in the opinions of transit riders regarding travel across the SR 520 Bridge.

This survey will take only about five minutes of your time and your answers are completely anonymous. When finished, simply fold so that the return address to PRR shows, tape closed, and drop in the mail. No postage is required. Please mail your completed survey by June 12, 2008.

Thank you for taking the time to complete this survey and assist with transportation planning efforts in the Puget Sound region.

If you have questions, please contact:

- **Phone: 1-800-520-NEWS (6397)**
- **E-mail: SR520Bridge@wsdot.wa.gov**
- **Web site: www.wsdot.wa.gov/projects/SR520Bridge**

▲

I. Travel Behavior

1. How did you get to your bus stop today? (check all that apply)

Drove alone ☐ Motorcycle ☐
Carpooled ☐ Rode bicycle ☐
Vanpooled ☐ Walked ☐
Ferry ☐ Train ☐
Other (please specify)_____ ☐

2. Please check the transit agency and indicate the route number of the bus you were boarding when you received this survey?

King County Metro ☐ Route # _____
Sound Transit Express ☐ Route # _____
Community Transit ☐ Route # _____

3. How did you pay the fare for your bus ride today?

Cash – full fare ☐
Cash – Reduced Fare Employer Provided ☐
Puget Pass ☐
Employer Provided Flex pass ☐
▲ Flexpass ☐
Transfer ☐
Visitor pass ☐
Other (please specify)_____ ☐

4. How many days *in the last week* did you use the following methods to travel across the SR 520

Bridge (also known as the Evergreen Point floating bridge)?

	0	1	2	3	4	5	6	7
Bus	☐	☐	☐	☐	☐	☐	☐	☐
Car/truck	☐	☐	☐	☐	☐	☐	☐	☐
Vanpool	☐	☐	☐	☐	☐	☐	☐	☐
Motorcycle	☐	☐	☐	☐	☐	☐	☐	☐

5. What time of the day do you typically travel across the SR 520 Bridge? (Check all that apply)

AM peak (6 am to 9 am) ☐
Mid-day (after 9 am to before 3 pm) ☐
PM peak (3 pm to 7 pm) ☐
Overnight (after 7 pm to before 6 am) ☐

6. For what trip purposes did you use the SR 520 Bridge in the last week? (Check all that apply)

Travel to and from work or school ☐
Errands/shopping ☐
Non-commute work-related travel ☐
▲ Recreational activities ☐
Visit family or friends ☐
Other (please specify) _____ ☐

7. In general, how much of a problem was traffic congestion when you rode the bus across the SR 520 Bridge during the last week?

Not a problem at all	Moderate problem	Serious problem	Very serious problem	Don't know
☐	☐	☐	☐	☐

II. Tolls for SR 520 Bridge

You may be aware that the Dept. of Transportation is proposing to replace the SR 520 Evergreen Point Bridge and improve the SR 520 corridor from I-5 to 108th Avenue NE in Bellevue. When the SR 520 Bridge is tolled, transit buses and vanpools would not be tolled. Also, the collection of tolls from cars would NOT use toll booths – instead, the toll would automatically be collected through an electronic transponder placed on the vehicle's windshield as the vehicle traveled through the toll area at regular highway speeds.

▲

8. If tolls were charged on the bridge, what is the most you would be willing to pay to cross the bridge each way when you were not riding the bus? _____

9. What if the toll for a one-way trip during the peak travel time was approximately $4.00, would you be able to afford to pay this toll?

▲ No ☐ Yes ☐

10. Toll amounts on the bridge may vary by time of day according to the typical amount of traffic present – higher for morning and evening commute times, lower for other times of the day. How much would you support that?

No support at all	Low support	Medium support	Strong support	Don't know
☐	☐	☐	☐	☐

11. Tolling may provide a faster trip for transit users, because buses may not be delayed in congestion as much as they are now. How much do you think these potential improvements in transit time reliability will benefit you?

Will not benefit me at all	Will benefit me somewhat	Will benefit me a lot	Don't know
☐	☐	☐	☐

12. When a toll is charged to use the SR 520 Bridge, what is the one thing you are most likely to do for your trips when you do not use the bus? (Check just one)

I always use the bus ☐
(if you checked this box, skip to question 15)
Pay the toll ☐
Change travel time to a period when the toll amount is lower ☐
Use I-90 ☐
Use SR 522 ☐
Use I-5 to I-405 or I-405 to I-5 ☐
Carpool with non-family members to share the toll with other passengers ☐
Vanpool ☐
Forgo the trip altogether ☐
Other (please specify) _____ ☐

If you choose to drive alone or carpool across the SR 520 Bridge after it is tolled, you would need to purchase an electronic transponder and place it on your vehicle's windshield. Your toll would be collected automatically from your transponder account as your vehicle travels through the toll area at regular highway speeds.

13. If the cost for the transponder was about $12, would you be able to afford the cost of the transponder? No ☐ Yes ☐

14. The toll is automatically deducted from your transponder account. In order to put funds into your transponder account you would need to use one of the following methods. Which ONE would you be most likely to use? (Check just one)

▲

Credit card ☐
Debit card ☐
Checking account ☐
Cash (in person only) ☐

III. Demographics

We have a few questions about you and your household. Your answers will be completely anonymous and combined with those of other respondents for statistical analysis purposes.

15. What is your home zip code?_____

16. Which of the following best describes your ethnic/racial background? (Check all that apply.)

White/Caucasian (not Hispanic/Latino background) ☐
White Caucasian (Hispanic/Latino background) ☐
Black/African American ☐ Asian/Pacific Islander ☐
Hispanic/Latino ☐ Native American ☐
Other (please specify) _____ ☐

17. What is the main language you speak at home? (Check just one)

English ☐ Russian ☐ Chinese ☐
Spanish ☐ Vietnamese ☐ Korean ☐
Somali ☐ Other (please specify) _____ ☐

18. For this question, please check the number of people in your household AND tell us if your total income before taxes for 2007 was MORE than the amount indicated for that household size. The number of family members includes you, your spouse, your children (including full-time students under age 23 even if they do not live at home), and any legal dependents.

▲

# of household members	2007 Household Income	Yes	No
1 ☐	More than $10,400	☐	☐
2 ☐	More than $14,000	☐	☐
3 ☐	More than $17,600	☐	☐
4 ☐	More than $21,200	☐	☐
5 ☐	More than $24,800	☐	☐
6 ☐	More than $28,400	☐	☐
7 ☐	More than $32,000	☐	☐
8 ☐	More than $35,600	☐	☐
9 ☐	More than $39,200	☐	☐
10+ ☐		☐	☐

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Attachment 2

SR 520 Environmental Justice Focus Groups and Spanish Language Interviews Summary Report of Findings

SR 520
Environmental Justice

Focus Groups and Spanish Language Interviews Summary Report of Findings

PRR
VISION + VOICE

January 16, 2009

Introduction & Methodology

The Washington State Department of Transportation (WSDOT) will be replacing the SR 520 Bridge, which is vulnerable to windstorms and earthquakes and at risk of collapse if not replaced. WSDOT has already determined that it will implement tolls to pay for the bridge replacement. It is also evaluating the possibility of implementing tolls in advance of replacing the bridge, both to manage congestion on the bridge and help pay for replacement costs.

WSDOT will implement electronic tolling to collect the tolls. Drivers will need to purchase $12 transponders and affix them to their windshields. They will also need to set up prepaid accounts with WSDOT using a debit or credit card online. Alternatively, they will be able to visit a WSDOT customer service center and prepay in cash.

WSDOT hired PRR, multi-disciplinary public affairs and market research firm to conduct research on the potential effects of the tolling on low-income and minority people. PRR developed a three pronged approach that included a transit-intercept survey of people who use transit routes that cross the SR 520 Bridge, a telephone survey of SR 520 Bridge users, and focus groups with SR 520 Bridge users.

PRR planned to conduct four focus groups to obtain in-depth information about how tolling on the SR 520 Bridge will affect low-income people. PRR planned one focus group with people who do not qualify as low-income or minority, two focus groups with low-income English speakers, and one focus group with low- to moderate-income Spanish speakers.

Recruiting

PRR recruited focus group participants from the pool of people who responded to the SR 520 Environmental Justice telephone survey. PRR also contacted people on a purchased telephone list of low-income people who live in King County. In addition, PRR contacted several social service agencies and asked them to recommend clients who might be interested in participating. Social service agencies hung flyers at their sites inviting clients to participate.

Because turnout for focus groups amongst low-income and limited-English proficient people is typically low, PRR made every effort to recruit additional participants. PRR recruited twelve people to participate in the non-EJ focus group, eight people for the English-speaking low-income focus group, and nine people to participate in the Spanish-speaking group. PRR cancelled the second English-speaking low-income focus group because of low interest.

Only one of the nine people recruited for the Spanish-speaking focus group attended. As a contingency plan, PRR conducted six telephone interviews in Spanish with the people who did not show up for the focus group. The questions asked during the interviews were similar to the questions asked during the focus group, but PRR eliminated some questions in order to keep the interviews to 30 minutes.

Approach

PRR and WSDOT developed a moderator guide to learn more about the following:

- The impact of tolling on people's current and future travel choices,
- Whether or not the tolling would create a burden for SR 520 Bridge users, especially those who are low-income and limited-English proficient,
- People's attitudes toward bridge replacement and traffic congestion,
- People's attitudes toward tolling the SR 520 Bridge, and
- People's ideas on what (if anything) would make tolling fair.

Participants

In the end, PRR conducted two focus group discussions, each of which lasted two hours. The first group (referred to as the non-EJ group) consisted of eight non-minority participants with household incomes above the federal poverty level. The second group (referred to as the low-income group) consisted of four English-speaking participants with household incomes below the federal poverty level. Two of these participants were students and single parents.

The moderator guide (see Appendix A) was used to structure the discussions. PRR conducted audio and video recordings of both groups.

Six Spanish-language interviews were completed; each lasting approximately 30 minutes. Results of the focus group and Spanish-language interviews follow. Two of the interviewees had household incomes below the federal poverty level and four of the interviewees had household incomes below 130% of the federal poverty level.

Focus Group Findings

Attitudes toward Bridge Replacement and Traffic Congestion

Participants were asked to indicate their support for replacing the existing SR 520 Bridge and their thoughts about traffic congestion on the bridge.

The non-EJ group supports the replacement of the SR 520 Bridge and the low-income group does not. Spanish-speaking interviewees had not heard about the replacement.

While all the participants in the non-EJ group expressed support for replacing the existing bridge, three out of the four participants in the low-income group did not support replacing the bridge.

Those who supported the replacement thought the bridge was old and needed expansion to handle the region's growing traffic needs. These participants expressed concern about the existing bridge's structural integrity and its ability to withstand future earthquakes or forceful winds and storms.

Those who did not support the replacement were surprised that a definite decision to replace the bridge had been already reached.

Participants posed several questions regarding the new design of the bridge. They wanted to know whether planning for the new bridge had taken into consideration factors such as increasing traffic, moving HOV lanes to the inside (they are currently on the outside), adding more lanes, and making sure that the bridge is sturdy enough to survive natural calamities.

"It's reaching its life span."

"It has to be replaced… it's old."

"It's prone to earthquake and winds."

"There are safety issues considering the impending quake."

"Going into Seattle is crazy"

"It's backed up!"

"HOV issues: it is on the outside."

All of the participants in both focus groups agreed that the traffic congestion had increased over the years. The reasons they stated for increased traffic congestion included population growth and more job opportunities on both sides of the bridge. Some of the participants in both groups also cited the lack of efficient mass transit options as a big contributor to traffic congestion on the bridge.

Participants from both focus groups suggested that traffic congestion on the bridge could be alleviated by expanding the bridge to include more lanes, providing more mass transit options, and promoting mass transit options and carpooling. Interestingly, only one participant in the non-EJ group recommended tolling of the bridge as a means to controlling traffic on the bridge.

When asked about replacement of the SR 520 Bridge, four Spanish-language interview participants had not heard anything about the proposed replacement. One interviewee responded "too much traffic, too few lanes," and the other had heard that tolling could encourage greater bus use.

Attitudes toward Tolling the SR 520 Bridge

Participants were asked to indicate what they *thought, felt* and *would say to others* about tolling of the SR 520 Bridge. A group discussion followed in which they were asked to share their thoughts on the following issues:

- Why they thought the SR 520 Bridge was going to be tolled,
- What were their previous experiences with paying bridge and road tolls, including whether or not they had used the new Tacoma Narrows Bridge,
- What they thought about flat rate versus variable rate tolling,
- When they thought tolling on SR 520 Bridge should start, and
- Whether or not they supported tolling on the I-90 Bridge in addition to tolling on the SR 520 Bridge.

The non-EJ group thought that tolling was a good idea and the low-income group and Spanish-language interviewees expressed mixed thoughts and feelings about tolling of the SR 520 Bridge.

The majority of the participants in the non-EJ group thought that tolling was a good idea. They felt excited about the faster commute that tolling might bring. They also considered tolling to be a progressive solution to the current traffic situation. However, a minority of participants in the non-EJ group reported feeling "annoyed", "irritated", and "rushed" into paying for using the bridge.

Some participants in the non-EJ group reported thinking about the cost of the toll and its impact on the cost of their trip, whether or not employers would reimburse their employers for the tolls, and the extent to which people could use HOV and other alternate travel options instead of driving alone.

The low-income group reported mixed feelings about tolling the SR 520 Bridge. Two of the four participants reported feeling "mad" and "dreadful" the tolling, but the other two participants reported feeling "interested" and "hopeful" that the tolling would translate to better traffic movement and less stress.

One low-income participant thought of tolling as a necessary inconvenience. Another said she might not be willing to travel on the bridge once tolling began. One participant reported worrying about the cost of the trip, the travel time, and the time and methods to pay the toll. Low-income participants also felt that students and senior citizens should be provided with a discounted toll rate.

When asked if the toll was worth the faster trip, five of the six Spanish-language interview participants responded that the toll was worth the faster trip. One did not support the toll.

"This is necessary."

"I don't want to travel on the bridge anymore."

"I am thinking of methods of payments…what's the technology?"

"I wonder what the toll would be."

"What is the impact on my expenditure?"

"Toll both bridges."

"If you toll just one, the traffic would be heavy on the other."

"Give people a choice."

"If it is the law I will have to pay, but I will try to drive less on it because I'd rather not pay; everybody is going to suffer, companies and businesses in Seattle, because people would prefer to stay in Bellevue for their shopping and other errands; I'd rather take the bus."

Both of the focus groups understood the reasons for tolling the SR 520 Bridge, but some of the Spanish-language interviewees did not understand.

When asked what they thought were the were the reasons for tolling the SR 520 Bridge, the non-EJ group quickly identified safety, bridge replacement, continued maintenance, and traffic management as the main reasons. In comparision, the low-income group took more time and prodding in identifying these reasons.

When asked if they knew that tolls can be used to help traffic move better and how they think that might work, three Spanish-language interviewees responded that they knew that tolls can be used to help traffic move better and three said they did not know that tolls can be used to manage traffic. One interviewee said that if the toll is paid on only one bridge, it would not help traffic.

Both focus groups have previous experience with paying at automated tolling receptacles.

When asked about their previous experience with paying tolls, participants in both focus groups recalled going through and paying at manned tolling booths and tossing money into unmanned tolling receptacles. Both of these methods involved stopping at the toll booth to pay the toll. Participants unanimously expressed discomfort over "looking for" and/or "not having sufficient change" to pay for the toll.

We did not have responses to this question from the Spanish-language interview participants.

While none of the participants have used the new Tacoma Narrows Bridge, the non-EJ group was familiar will transponders and the low-income group and Spanish-speaking interviewees were not.

While none of the participants in the focus groups and interviews had used the new Tacoma Narrows Bridge, the participants in the non-EJ focus group said they were familiar with or had heard about using transponders for paying tolls.

None of the low-income group participants were familiar with transponders. After the moderator explained how transponders will be used to pay for tolls on the SR 520 Bridge, one participant expressed concern about having to purchase a transponder.

None of the Spanish-speaking interviewees had used Tacoma Narrows Bridge or had first-hand experience with paying tolls using a transponder. Four of the interview participants thought that the toll collection method used on the new Tacoma Narows Bridge was a good idea. One participant was not sure if it was a good idea.

Focus groups differ in their opinions with regard to flat versus variable toll rates.

With regard to whether the tolls should be the same price at all times or if they should vary at different times of the day, three out of the four participants in the low-income focus group supported a flat rate. Low-income group participants believed that people who use the bridge to commute to and from work should not be penalized by having to pay a higher toll during peak commute times.

In contrast, six out of the eight participants in the non-EJ group supported a variable rate tolling scheme, as they believe that the variable rate scheme would help to control traffic on the SR 520 Bridge during rush hours.

Responses in the Spanish-language interview group were divided. Half supported a flat toll rate. One participant remarked that having a flat toll rate is easy to remember. One interviewee supported a variable rate. One participant remarked that drivers should not have to pay tolls during rush hour. One participant said that drivers should not have to pay tolls at all.

Opinions were divided on early tolling.

Opinions were divided in both focus groups and amongst Spanish-language interviewees on the issue of whether or not tolling should begin in 2010 (early tolling) or in 2016 (when the new bridge opens).

Those who supported early tolling felt that it was better to spread the costs out over time, and that since construction costs are expected to increase with time, paying for it earlier translates into lower toll charges.

Those who supported later tolling felt that it would give people the time to prepare themselves to change their habits, and provide employers with time to decide whether or not to reimburse employees for the cost of tolls.

The low-income group supports the tolling of the I-90 Bridge while the non-EJ group does not. The Spanish-language interviewees' opinions were divided.

With regard to whether or not the I-90 bridge should be tolled, initially the participants in the low-income group were not very forthcoming with their opinions. After further questioning and prodding at the end of the focus group discussion, the group unanimously supported tolling of the I-90 bridge. They decided that the toll needs to be perceived as the cost of crossing the lake, rather than a toll on a specific route. Participants also thought that tolling both bridges would balance traffic on both bridges.

One of the interview participants supported tolling of the I-90 bridge, because she was concerned that traffic would otherwise divert to I-90.

In contrast, all but one of the non-EJ group participants were opposed to tolling the I-90 bridge, based on the belief that drivers should be able to choose whether or not to pay a toll to travel from one side of the lake to the other.

Spanish language interview participants were also asked about potential new congestion on I-90 when SR 520 is tolled and how that would affect them. Interestingly, once this issue was raised, five out of six respondents agreed that both bridges should be tolled.

Impact of Tolling on Current and Future Travel Behavior

In this part of the discussion, the participants were asked

- Whether they would pay the toll once the SR 520 Bridge is tolled,
- Alternatives they would use if they did not want to pay toll,
- What they thought was a reasonable toll to pay,
- Whether they would be able to afford purchasing the transponder, and
- Whether they would like to replenish their transponder account using a Web site, by phone, through the mail or in person at a customer service center.

They were also asked which of the following strategies would be useful and which they would be most likely to use to set up a transponder account:

- Online, using a credit card,
- Visiting a customer service center near their home or work,
- Visiting a mobile customer service center that travels around the region, or
- Establishing an account at a local retailer, such as a grocery or drug stores.

The non-EJ group and Spanish-language interviewees are willing to pay toll while the low-income group shows hesitation.

The majority of the participants in the non-EJ group and interviewees thought they would pay the toll once tolling started. One Spanish-language interviewee indicated a willingness to pay the toll because it will result in a faster trip, while another responded that she would pay the toll because it is important to be able to drive.

The participants in the low-income group were uncertain if they would pay the toll. They said they would modify their travel by limiting trips or by taking an alternate route. One interviewee indicated that she would try to drive less if tolls were implemented.

Participants in both focus groups reported that their willingness to pay the toll was also dependent on the urgency of the trip and the fluctuating price of gas.

"They will be forcing us to take the bus; the Express is the best option because it is very convenient; Sunday's schedule is pretty bad and for many of us Sunday is like any other work day"

"The bus is too slow; it would be better if it were Express without so many stops."

"Only if there is an Express bus (currently there is no direct service to where I need to go; I need to take more than one bus); also at the time I need to take it is too crowded."

Most felt that the bus was not a good alternative to paying the toll, but un-tolled routes were viable.

When asked to identify alternate methods they would use if they did not want to pay the toll, participants in the non-EJ group stated that they would use an alternate route or mass transit to travel across the bridge.

The participants in the low-income group stated that they would reduce their trip frequency or use alternate routes to avoid the toll. When asked if they thought taking a bus was a viable option, the low-income group participants stated that the current transportation system was inefficient (took longer, required transfers, insufficient coverage) and required serious improvement in order for them to consider using it.

Three of the Spanish-language interview participants were receptive to the idea of taking the bus as an alternative to paying the toll. One participant was undecided, and one said that it would not be an option. Interview participants echoed the focus group comments that the bus system is inefficient and would add time/distance to their trip, with one participant indicating that improved bus service was necessary in order for the bus to be a viable option

When asked whether using an un-tolled road would work and whether it would add a lot of time or distance, five of the six Spanish-language interview participants responded that using an alternate route would work for them. One participant commented that while she would save money, it would take longer. Another interviewee responded that taking an alternate route would not affect time or distance much. A third interviewee indicated that the toll amount would determine if she would use an alternative route. Another participant indicated that using an un-tolled route would be better despite the fact it would add time and distance.

Tolling is a burden for the low-income group and for some interview participants

Low-income group participants said that paying the toll and purchasing the transponder would be a burden, and were resistant to discussing what they saw as a "reasonable" toll amount.

Non-EJ focus group participants did not feel that the toll would be a burden. When asked what a reasonable toll would be for a faster trip across SR 520 Bridge, participants in the non-EJ group suggested the maximum per trip toll rate they were willing to pay was $2.00 during non-rush hours and $5.00 during rush hour.

Two of the Spanish-language interview participants said that the toll would be a burden. A third interviewee responded that whether or not the toll would be a burden would depend upon the toll level, remarking that if the toll amount was too expensive, she would have to cut spending in other areas. One interviewee suggested that the toll should be paid in part by employers, while another remarked that the toll should not be a permanent toll, and charged only during construction. When asked what a reasonable toll amount would be interviewee responses ranged from $0 to $4 per round trip. When asked if $12 transponder would be affordable, two of the interviewees said yes, two said no, and one would not provide an answer.

The non-EJ group indicated a preference for online account setup while the low-income group and Spanish-language interviewees indicated a preference for setting up accounts at local retailers

When asked which method they would use to establish a transponder account, seven out of eight participants in the non-EJ group reported that they would establish their account online. They also responded well to the idea of setting up their account at a local retailer, such a grocery or drug store.

Five out of six Spanish-language interview participants indicated they would establish their account at a local retailer. Most of the low-income group participants also liked the idea of setting up their account at local retailers and said it would the option they would be most likely to use.

Interestingly, participants in both focus groups did not like the idea of a mobile customer service center. They thought it would lead to long lines once the mobile center arrived in their neighborhood and would be a waste of state funds.

Making Tolling Fair or Acceptable

In this section of the discussion, the participants were asked about how tolling could be made fair or acceptable.

Both focus groups and interviewees expressed a need for better transit system. Low-income participants said tolling discounts for low-income people would make tolling fair.

In order to make the tolling fair, all focus group participants and some interviewees said that the transit system needed improvement so that buses would be more frequent and require fewer transfers.

A few participants in the non-EJ group supported the idea of having other un-tolled highways so that people would be able to choose whether or not to pay the toll, but others felt that tolling should be extended to any highway that was used to cross the lake. Low-income group participants they thought that both of the cross-lake highways needed to be tolled in order for the toll to be fair.

Low-income group participants indicated support for offering toll discounts for lower income drivers, as did many Spanish-language interview participants. Participants in the non-EJ group did not support the idea of extending toll discounts to lower income drivers, saying that everyone should to pay the same toll for it to be fair.

Appendix A: Moderator Guide

I. Introduction (10 minutes)

- [Moderator introduces herself/himself.]
- [Explain:] A focus group is a group discussion where we can learn more in-depth about peoples' ideas and opinions (compared to telephone or written surveys).
- My job is to facilitate the discussion and make sure that everyone has an opportunity to speak **and to make sure that no one dominates the conversation**.
- [Mention facility, audio recording equipment (so I do not have to take notes)]
- Housekeeping – Toilets and refreshments.
- [Mention ground rules.]
    - There are no right or wrong answers; we're interested in your honest and candid opinions and ideas.
    - Our discussion is totally confidential. We will not use your names in any report. During this discussion, we will only use first names.
    - Our discussion today is being recorded. These recordings allow us to write a more complete report, and to make sure we accurately reflect your opinions. However, please only speak one at a time, so that the recorder can pick up all your comments.
    - It is important to tell YOUR thoughts, not what you think others will think, or what you think others want to hear.
    - Please turn off cell phones
    - Your stipend will be provided as you leave.
    - Relax and enjoy

- [When Applicable] I am working with some other people on this project, and they will be observing our conversation from the other side of this mirror. Offer to show them the observation room and introduce them to the observers to put their minds at ease. Mention that I will occasionally go into the observation room to see if the observers have any additional questions.

- We're going to spend our time today talking about your ideas about tolls on the SR 520 Bridge. Any questions about the purpose of our focus group or the ground rules before we begin?
- I'd like you each to introduce yourselves. Please tell us:
  - Your FIRST name (no last names, please)
  - On average, how many days a week do you travel across the SR 520 Bridge?
  - What time of the day do you typically travel across the bridge?
  - For what purpose do you typically cross the bridge?

II. Attitudes Toward Bridge Replacement and Traffic Congestion (10 minutes)

1. Do you support the replacement of the existing bridge? Why or why not?
2. What have you heard are the reasons why the SR 520 Bridge being replaced? (Probe on concerns with bridge withstanding earthquake, ability to handle current traffic volumes, etc.)
3. Is traffic getting better or worse on the SR 520 Bridge? [After discussion show photo of traffic congestion on SR 520 Bridge and ask if this looks like what they experience. Probe on why or why not.]
4. What causes traffic to be so bad on SR 520 Bridge?
5. What can be done to relieve traffic on SR 520 Bridge? (Listen for, BUT DO NOT MENTION AT THIS TIME, more lanes, HOV lanes, tolling, variable rate tolling.)

III. Attitudes Toward Tolling the SR 520 Bridge (30 minutes)

6. Provide participants with Word Bubbles form and ask them to **individually** write down what they ***think***, what they ***feel***, and what they would ***say*** to someone else about tolling the SR 520 Bridge (max 3 minutes to do this). Then open up to discussion and write common themes on flip-chart.(NOTE TO MODERATOR:

IF THE WRITING EXERCISE IS NOT WORKING WELL, SWITCH TO JUST AN OPEN DISCUSSION ON THESE ISSUES.)

7. So, why do you think the SR 520 Bridge is going to be tolled? (Listen for raise funds for bridge replacement, manage congestion, safety, continued maintenance.)
8. How many of you have used a bridge or highway with a toll? Where was that and what was your experience like? (Listen for issues regarding having to stop and manually pay the toll.)
9. Have you used the new Tacoma Narrows Bridge? What was that experience like? (Listen for experience with the automated toll system.) Ask how many have a Good to Go account. Because of advances in technology, no toll booths would be necessary on the SR 520 Bridge, so you don't have to slow down to pay. What do you think about that idea? (Listen for concerns about "what do I do if I don't have a transponder".)
10. Did you know that tolls can be used to help traffic move better? Can anyone think of how that would work? How can tolling help traffic move better? (Listen for diversion to other routes, times of day, bus, carpooling, cancelled trips.)
11. Should tolls be the same at all times or should it vary? (Show of hands pre- and post- discussion). Why? (Prompt for benefits of variable rate.)
12. When should tolling start? Should it start in 2010 as a way to help traffic on the bridge move better and raise some money to build a new bridge, or should tolling start only after the new bridge is open? Why?
13. What if I-90 also had a toll? (Show of hands pre- and post-discussion on whether I-90 should be tolled). Why or why not?

Check with client to see of there are any other questions before moving on.

IV. How Will Tolling Impact You And What You Will Do? (50 minutes)

14. Once the SR 520 Bridge is tolled, do you think you will pay the toll? Why or why not?
15. If not, what is the one thing you are most likely to do instead? (Listen for take alternate routes, change time of travel, cancel trips, take bus, carpool, combine trips, change job, forgo other expenses, etc.) (For those who say they will take another route, ask which routes.)
16. [If some people are saying they will use I-90, we need to probe here.] If many people switched to the I-90 Bridge, traffic congestion on I-90 will likely increase. How will that affect you? If there is also a toll on I-90, what will you do?
17. Probe on how much of a burden the toll is going to be.

18. Would taking a bus be an option for you? Why or why not? Would it add a lot of time or distance to your trip? What would you need for the bus to work for you?
19. Would using an un-tolled road work for you? Why or why not? Would it add a lot of time or distance to your trip?
20. What would be a reasonable toll to pay for a faster trip across the SR 520 Bridge?

    (Info for facilitator if needed –Tacoma Narrows Bridge is $4 round trip. In other places, variable rate tolls range from 50 cents to $9, depending on the time of day.)

    What price would make you change your travel behavior?
21. The way the toll is automatically collected is through the use of what is called a transponder. [Show picture of transponder and explain that it attaches to the windshield] If the cost to buy the transponder is about $12, would you able to afford the purchase of the transponder?
22. The toll is automatically deducted from your transponder account. In order to put funds into your transponder account you would need to set up an account. Would you most likely do that on the website, by phone, through the mail, or in person at a customer service center? If using cash you would have to go to a customer service center. Would that present a problem for you? Why is that?
23. How helpful would each of the following strategies be?
    - Having a website where you could set up an account using a credit card
    - Having a customer service center near your home or work to set up your transponder account
    - Having a mobile customer service center that travels around the region to sign people up
    - Having agreements with local retailers, such as grocery or drug stores, where you could set up your account

    Which of these would you be most likely to use? Why is that?

V. What Would Make Tolling Fair/Acceptable (15 minutes)

24. What are some things that could be done to make tolling the SR 520 Bridge fair for all users? (Listen for bus and alternate route availability, lower toll rates over long periods, subsidized for lower income travelers.)
25. When tolls are charged on 520, how important are each of the following?

- Having other un-tolled highways that you could choose to use. Why is that important or not important?
- Having public bus available instead of paying the toll. Why is that important or not important?
- Toll discount for some lower income drivers. Why is that important or not important? What if I told you that such discounts would mean that other drivers would have slightly higher tolls? What do you think about such discounts now?

VI. Wrap Up (5 minutes)

26. Was there anything that was NOT said that you think is important for us to know?

Appendix B: Spanish Language Interview Script

I. Introduction (1minute)

Thank you for agreeing to be interviewed for the 520 Bridge Tolling project. Out interview will last about 30 minutes and you will be compensated for your time and opinions with $75 which we will mail to you. We're going to spend our time today talking about your ideas about tolls on the 520 Bridge.

- [Mention ground rules.]
  - There are no right or wrong answers; we're interested in your honest and candid opinions and ideas.
  - Our discussion is totally confidential. We will not use your names in any report.

Warm Up Questions (1 minute)

- On average, how many days a week do you travel across the 520 Bridge?
- What time of the day do you typically travel across the bridge?
- For what purpose do you typically cross the bridge?

II. Attitudes Toward Bridge Replacement and Traffic Congestion (1 minute)

1. What have you heard are the reasons why the 520 Bridge being replaced? (Probe on concerns with bridge withstanding earthquake, ability to handle current traffic volumes, etc.)

III. Attitudes Toward Tolling the 520 Bridge (3 minutes)

1. Have you used the new Tacoma Narrows Bridge? What was that experience like? (Listen for experience with the automated toll system.) Ask if have a Good to Go account. Because of advances in technology, no toll booths would be necessary on the 520 Bridge, so you don't have to slow down to pay. What do you think about that idea? (Listen for concerns about "what do I do if I don't have a transponder".)
2. Did you know that tolls can be used to help traffic move better? Can you think of how that would work? How can tolling help traffic move better? (Listen for diversion to other routes, times of day, bus, carpooling, cancelled trips.)
3. Should tolls be the same at all times or should it vary? Why? (Prompt for benefits of variable rate.)
4. When should tolling start? Should it start in 2010 as a way to help traffic on the bridge move better and raise some money to build a new bridge, or should tolling start only after the new bridge is open in 2016? Why?
5. Should I-90 also have a toll? Why or why not?

IV. How Will Tolling Impact You And What You Will Do? (20 minutes)

1. Has the downturn in the economy changed your attitude toward tolls on the bridge? How does the cost of gasoline affect your attitude toward tolls on the bridge?
2. Once the 520 Bridge is tolled, do you think you will pay the toll? Why or why not?
3. If yes, is the toll worth the faster trip to get you where you need to be (such as work)?
4. If yes, is it because using the bus or taking alternate routes won't work for you?
5. If not, what is the one thing you are most likely to do instead? (Listen for take alternate routes, change time of travel, cancel trips, take bus, carpool, combine trips, change job, forgo other expenses, etc.) (For those who say they will take another route, ask which routes.)
6. If many people switched to the I-90 Bridge, traffic congestion on I-90 will likely increase. How will that affect you? If there is also a toll on I-90, what will you do?
7. Probe on how much of a burden the toll is going to be. Will they need to give up other things to be able to afford the toll (such as groceries, prescription drugs, etc.)?

8. Would taking a bus be an option for you? Why or why not? Would it add a lot of time or distance to your trip? What would you need for the bus to work for you?
9. Would using an un-tolled road work for you? Why or why not? Would it add a lot of time or distance to your trip?
10. What would be a reasonable toll to pay for a faster trip across the 520 Bridge?

    (Info for facilitator if needed –Tacoma Narrows Bridge is $4 round trip. In other places, variable rate tolls range from 50 cents to $9, depending on the time of day.)

    What price would make you change your travel behavior?
11. The way the toll is automatically collected is through the use of what is called a transponder. Explain that it attaches to the windshield] If the cost to buy the transponder is about $12, would you able to afford the purchase of the transponder?
12. The toll is automatically deducted from your transponder account. In order to put funds into your transponder account you would need to set up an account. Would you most likely do that on the website, by phone, through the mail, or in person at a customer service center? If using cash you would have to go to a customer service center. Would that present a problem for you? Why is that?
13. How helpful would each of the following strategies be?
    - Having a website where you could set up an account using a credit card
    - Having a customer service center near your home or work to set up your transponder account
    - Having a mobile customer service center that travels around the region to sign people up
    - Having agreements with local retailers, such as grocery or drug stores, where you could set up your account
14. Which of these would you be most likely to use? Why is that?

V. What Would Make Tolling Fair/Acceptable (3 minutes)

1. When tolls are charged on 520, how important are each of the following?
    - Having other un-tolled highways that you could choose to use. Why is that important or not important?
    - Having public bus available instead of paying the toll. Why is that important or not important?

- Toll discount for some lower income drivers. Why is that important or not important? What if I told you that such discounts would mean that other drivers would have slightly higher tolls? What do you think about such discounts now?

VI. Wrap Up (1 minute)

1. Was there anything that was NOT said that you think is important for us to know?

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