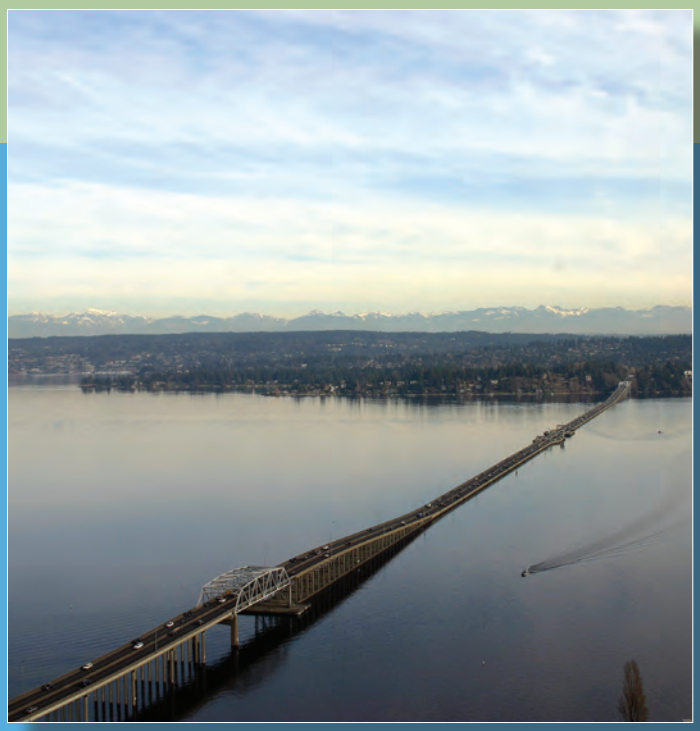
FINAL ENVIRONMENTAL IMPACT STATEMENT and SECTION 4(f) and 6(f) EVALUATIONS SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM

JUNE 2011

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



U.S. Department of Transportation
Federal Highway Administration

Washington State Department of Transportation

Executive Summary

Note: This signature page is from the Final EIS, which can be viewed on the attached DVD.

FHWA-WA-EIS-06-02-F

SR 520 Bridge Replacement and HOV Program

SR 520, I-5 to Medina: Bridge Replacement and HOV Project Final Environmental Impact Statement and Final Section 4(f) and 6(f) Evaluations

ABSTRACT

The existing Portage Bay and Evergreen Point bridges on SR 520 are at the end of their useful life and must be replaced. The Federal Highway Administration (FHWA) and Washington State Department of Transportation (WSDOT) plan to replace the existing facilities in order to provide structures capable of withstanding windstorms and earthquakes and to improve mobility and access for people and goods along the corridor.

The August 2006 Draft Environmental Impact Statement (EIS) for the SR 520 Bridge Replacement and HOV Program evaluated the No Build Alternative and two build alternatives, the 4-Lane Alternative and the 6-Lane Alternative. The January 2010 Supplemental Draft EIS and Section 4(f)/6(f) Evaluation evaluated the effects of a No Build Alternative and three design options for the 6-Lane Alternative for the SR 520, I-5 to Medina project. These design options were developed through a mediation process established as part of Engrossed Substitute Senate Bill 6099, enacted during the 2008 session of the Washington State Legislature.

Based on findings of the SDEIS and comments submitted, a Preferred Alternative was identified in 2010. This Final EIS analyzes the direct, indirect, and cumulative effects of the Preferred Alternative compared to the No Build Alternative and the three SDEIS design options. No decision will be made on the proposed action prior to July 18, 2011. For information about the project, contact Margaret Kucharski, WSDOT Environmental Lead, 600 Stewart Street, Suite 520, Seattle, Washington 98101, (206) 770-3500.

SUBMITTED PURSUANT TO:
National Environmental Policy Act, 42 USC 4332(2)(C)
State Environmental Policy Act, Chapter 43.21C,
Revised Code of Washington & Chapter 197-11, Washington Administrative Code 468-12
Section 4(f) (49 USC § 303 and USC § 138)

Daniel M. Mathis — 05/26/2011

Daniel M. Mathis, P.E.
Washington Division Administrator
Federal Highway Administration

Date of Approval

Megan White — 5/26/2011

Megan White, P.E.
Director, Environmental Services Office
Washington State Department of Transportation

Date of Approval

Page left intentionally blank

Table of Contents

Page left intentionally blank



Introduction and Project Overview

The State Route (SR) 520, Interstate 5 (I-5) to Medina: Bridge Replacement and High-Occupancy Vehicle (HOV) Project (also referred to as the SR 520, I-5 to Medina project) is located at the western end of the SR 520 corridor (Exhibit ES-1). It begins at SR 520's interchange with I-5, the main north-south artery through Seattle, and ends at Evergreen Point Road in Medina, east of Lake Washington. In addition to the I-5 interchange, the 5.2-mile-long corridor currently includes an interchange at Montlake Boulevard and ramps connecting to Lake Washington Boulevard, both in Seattle.

SR 520 is a critical link connecting the major population and employment centers of the Puget Sound region on either side of Lake Washington. The floating span of the Evergreen Point Bridge, opened in 1963, now carries approximately 115,000 vehicles per day across the lake, providing east-west access for commuters, freight, transit, and general-purpose traffic. The aging floating bridge is vulnerable to failure in a severe windstorm, and the fixed bridges along the corridor do not meet current seismic standards and could collapse in an earthquake. In addition, the corridor currently carries nearly twice as many vehicles as it was originally designed for, resulting in extended congestion and impaired mobility.

The uninterrupted movement of people and goods across SR 520 and the floating bridge is essential to the region's economic vitality and quality of life. The proposed project would improve safety and mobility in the SR 520 corridor by replacing the vulnerable bridges and adding eastbound and westbound HOV lanes to move people more efficiently in transit and carpools. It would ensure the continued availability of SR 520 as a key corridor for transportation and commerce.

What is the purpose of this document?

This document is an executive summary of the Final Environmental Impact Statement (Final EIS) for the SR 520, I-5 to Medina project. The Final EIS was issued on June 17, 2011, by the Washington State Department of Transportation (WSDOT) and the Federal Highway Administration (FHWA). This Executive Summary of the Final EIS provides an overview of the project background, design features, impacts, and mitigation measures. Additional detail can be found in the complete Final EIS, which is on the DVD attached to this document.

Why is the Final EIS being prepared?

Environmental review for this project began in July 2000, when the FHWA and WSDOT filed a Notice of Intent to issue an environmental impact statement under the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA). Both NEPA and SEPA require that an EIS be prepared when an undertaking is likely to result in significant adverse impacts on the natural and/or built environment.

In August 2006, FHWA and WSDOT issued a Draft EIS evaluating the effects of the No Build, 4-Lane, and 6-Lane Alternatives, as well as several design options for the 6-Lane Alternative. The Draft EIS covered improvements in the SR 520 corridor from I-5 in Seattle to just west of I-405 in Bellevue. WSDOT received over 1,700 comment letters, emails, and oral testimonies during the public comment period on the Draft EIS.

Exhibit ES-1. **Project Vicinity Map**

Following the issuance of the Draft EIS, FHWA and WSDOT determined that the portion of the corridor east of Evergreen Point Road had independent utility and should be evaluated as a separate project. In addition, a legislatively mandated mediation group was formed to develop new design options for the 6-Lane Alternative in Seattle. As a result, in January 2010, FHWA and WSDOT issued a Supplemental Draft EIS (SDEIS) for the SR 520 corridor from I-5 to Medina that evaluated three new 6-Lane Alternative design options generated by the mediation group. The SDEIS generated over 400 comment letters, emails, and oral testimonies, comprising thousands of individual comments from the public, regulatory agencies, and Native American tribes, totaling more than 8,000 individual comments.

After publishing the SDEIS and evaluating the comments received, FHWA and WSDOT identified a Preferred Alternative in April 2010. The Preferred Alternative is most similar to SDEIS Option A, but includes a number of features to reduce neighborhood and park effects, improve regional and local transit connections, and enhance compatibility with potential future light rail transit in the corridor. A description of the Preferred Alternative can be found in the Alternatives section of this Executive Summary, and a more detailed description is provided in Chapter 2 of the Final EIS.

NEPA requires that FHWA and WSDOT prepare a Final EIS to respond to comments received on the Draft EIS and SDEIS and to identify a preferred alternative. NEPA also requires FHWA and WSDOT to discuss at appropriate points in the Final EIS "any responsible opposing view which was not adequately discussed in the draft statement" and indicate their responses to the issues raised. Preparing the Final EIS provides FHWA and WSDOT the opportunity to respond to comments from agencies, tribes, and the public; to further evaluate the Preferred Alternative identified in April 2010; to supplement, improve, and modify previous analyses as appropriate; and to make corrections to previous environmental documentation. The Final EIS and attachments, including the Draft EIS and SDEIS, are provided on the DVD included with this document.

What is the project purpose?

In 2000, the Trans-Lake Washington Study Committee developed the project's statement of purpose, which has guided the environmental review process since that time:

The purpose of the project is to improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating impacts on affected neighborhoods and the environment.

The statement of purpose—part of a longer purpose and need statement also adopted in 2000—has helped the project team develop and evaluate alternatives for the EIS analysis by defining the objectives that the alternatives must meet. Although the project limits have changed since the original statement was adopted, the project still has the purpose of improving mobility within the SR 520 corridor, and its transportation performance is evaluated on a corridor-wide basis. The I-5 to Medina project also serves another important purpose: to replace the aging and vulnerable Evergreen Point, Portage Bay, and west approach bridges. The following section describes the need for the project in terms of both mobility and safety.

Why is the project needed now?

The Evergreen Point Bridge is a critical component of the Puget Sound region's transportation infrastructure. It is one of only two connections across Lake Washington that link urban centers in Seattle and the Eastside. The SR 520, I-5 to Medina project addresses two key issues facing the SR 520 corridor: 1) bridge structures that are vulnerable to catastrophic failure and 2) worsening traffic levels and congestion due to growth in jobs and housing over the last two decades.

SR 520's bridges are vulnerable to catastrophic failure.

The Evergreen Point Bridge and its approaches are in danger of structural failure. Recent WSDOT studies have demonstrated that the floating span of the Evergreen Point Bridge is highly vulnerable to windstorms, while the Portage Bay Bridge and the east and west approaches to the Evergreen Point Bridge are vulnerable to earthquakes. In 1999, WSDOT estimated the remaining service life of the floating portion of the Evergreen Point Bridge to be 20 to 25 years, based on its structural condition and the likelihood of severe windstorms. Its life expectancy now is only 10 to 15 years.

The floating span was originally designed for a sustained wind speed of 57.5 miles per hour (mph). In 1999, WSDOT rehabilitated the bridge to allow it to withstand sustained winds up to 77 mph. This still falls well short of the current design standard of 92 mph. Moreover, some bridge mechanisms have been damaged in recent storms. The floating pontoons currently float about 1 foot lower than originally designed, increasing the likelihood of waves breaking onto the bridge deck. Cracks in the structure leak water that WSDOT must pump out on a regular basis. The probability that the bridge will sustain serious structural damage (i.e., sink or become impassable to traffic) over the next 15 years is extremely high. To bring the Evergreen Point Bridge up to current design standards and eliminate the risk of its catastrophic failure, the existing span must be completely replaced. Exhibit ES-2 shows the vulnerable sections of SR 520.

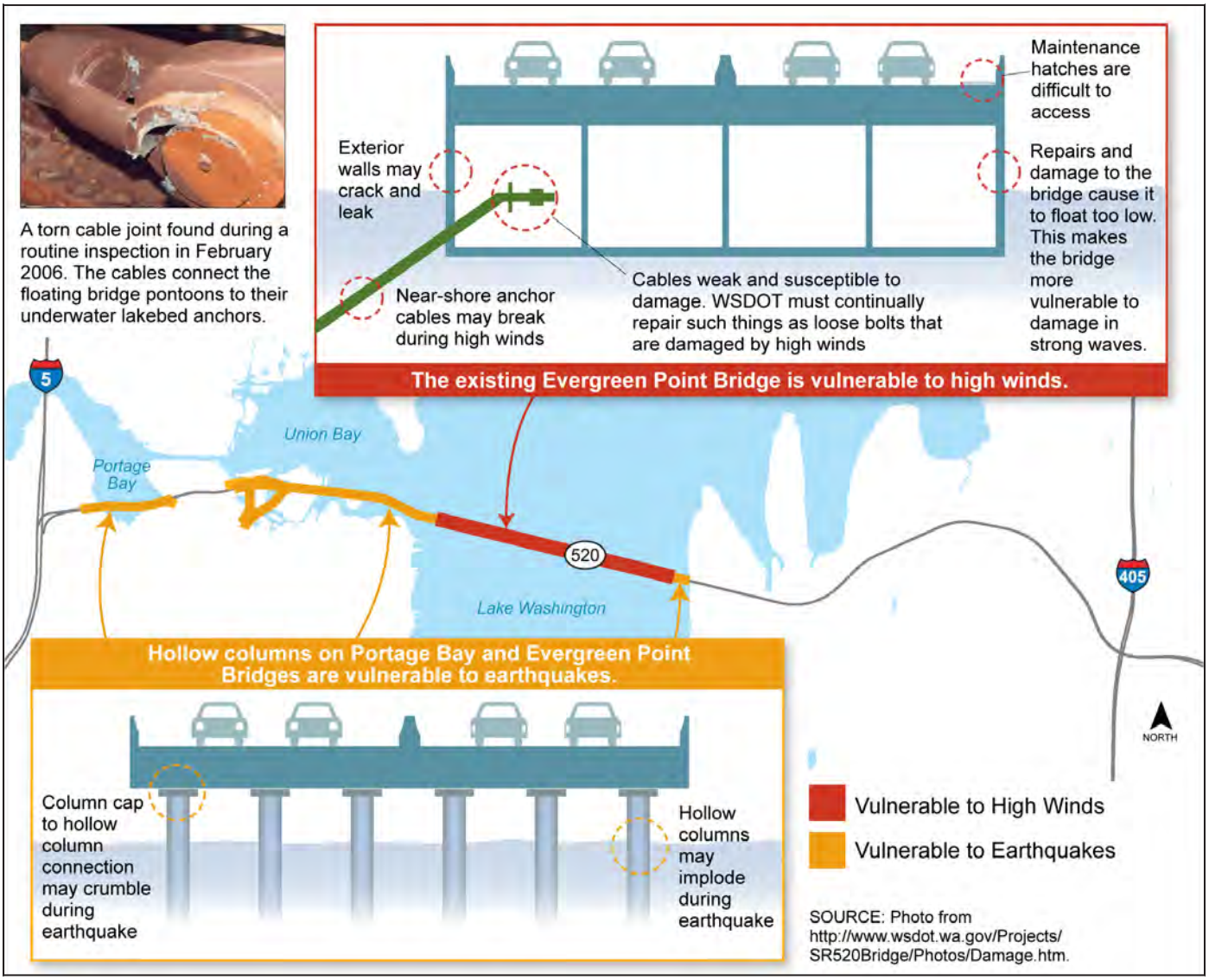
The ever-present possibility of an earthquake in the Seattle area poses additional risks to other bridges in the SR 520 corridor. The columns of the Portage Bay Bridge and both the west and east approaches to the Evergreen Point Bridge are hollow and do not meet current seismic design standards. Hollow-core columns are difficult and costly to retrofit to today's accepted seismic protection levels; WSDOT studies indicate that such retrofitting would cost nearly as much as building new structures, and would have similar environmental effects. WSDOT estimates that over the next 50 years, there is a 20 percent chance of serious damage to these structures in an earthquake.

SR 520 is congested and unreliable, and does not encourage maximum transit and carpool use.

A second key reason for implementing this project now is the severe traffic congestion in the SR 520 corridor, which was the reason for initiating the original Trans-Lake Washington Study in 1997. The traffic demand in both directions exceeds the highway's capacity, creating several hours of congestion every weekday. The corridor was not built to handle as many vehicles as currently want to use it. Today, seven times more vehicles cross SR 520 each day than when the bridge first opened in 1963; traffic during peak hours is nearly equal in each direction. All of these vehicles result in frequent breakdown of the traffic flow and long backups of vehicles traveling at very slow speeds.

Beyond the number of people and cars, another important factor causing today's congestion is the design of the Evergreen Point Bridge. By today's engineering standards, the bridge is too narrow. The narrow shoulders provide no room for vehicles to pull over after an accident or breakdown. Instead, disabled vehicles must stay in the

Exhibit ES-2. **Points Along SR 520 Vulnerable to Earthquake and Windstorms**



through lane and block other traffic, immediately rendering a full lane of traffic unusable. This slows down traffic and impedes emergency vehicle response. In addition, the westbound HOV lane on the Eastside ends at the bridge, creating congestion as westbound HOV traffic is forced to merge with general-purpose traffic.

Together, growth and physical limitations will make the future traffic situation on SR 520 worse if the corridor is not improved. Under average evening peak-hour conditions today, a single-occupant vehicle traveling westbound takes approximately 39 minutes to travel SR 520 from SR 202 in Redmond to I-5 in Seattle—a distance of about 13 miles. By 2030, if the project is not built, this same trip will take over an hour. This makes it imperative that commuters be provided with travel choices that allow them to avoid driving alone, and that the proposed project be built to support increased use of transit and HOVs.

What would happen if the project were not built?

If the project were not built, the section of SR 520 between I-5 and Evergreen Point Road would not be improved, and these critical needs would not be met:

- The risk of bridge failure in a storm or earthquake would increase as the structures continued to age, with consequences ranging from severe traffic congestion to loss of life. As the floating bridge becomes more fragile, it would require more frequent closures to protect its components from damage.
- Planned growth in the project area over time would cause continued growth in traffic volumes on SR 520, increasing congestion and raising the potential economic and social cost of traffic closures and/or bridge failures.
- Transit vehicles and carpools would remain in congested general purpose lanes, increasing travel time, reducing reliability, and discouraging commuters from choosing transit.
- The facility's narrow shoulders would continue to result in blocked lanes and long delays when accidents occur.
- Without lids, SR 520 would continue to serve as a barrier between neighborhoods.
- Pedestrians and bicyclists would remain limited to I-90 as a choice for crossing Lake Washington.
- Stormwater discharging from SR 520 into Portage Bay and Lake Washington would remain untreated.

Who has been involved in the environmental process?

Who are the lead agencies?

For environmental review of this project, FHWA is the federal lead agency under NEPA, and WSDOT is the project proponent and the state lead agency under SEPA. FHWA is providing highway design guidance and environmental oversight. WSDOT is leading the highway design efforts and development of the EIS. The lead agencies also give close consideration to public, agency, and tribal comments on the project.

Who are FHWA and WSDOT's cooperating agencies for this project?

Staff from the affected jurisdictions, representatives of state and federal natural resource agencies, and tribes have provided advice and recommendations to the lead agencies about the scope and content of environmental analysis. These "cooperating agencies" are defined under NEPA as those that have an interest in a proposed project for which environmental documents are being prepared. Most cooperating agencies issue or contribute to permit decisions for a project, and will adopt the SR 520, I-5 to Medina project Final EIS under NEPA or SEPA in support of these decisions.

WSDOT worked with the cooperating agencies through a forum known as the Regulatory Agency Coordination process (RACp). All agencies with jurisdiction over the project were invited to attend, as were all tribes with fishing rights and/or cultural resource interests in the project area. While the RACp itself was primarily focused on sharing of information, smaller technical working groups (TWGs) met more often to focus on topics of specialized interest, including natural resource effects,

in-water construction, mitigation, stormwater, parks, Endangered Species Act compliance, and the design of the bridge maintenance facility. In the TWGs, agency and tribal staff worked closely with WSDOT to collaborate on methods for impact assessment and mitigation planning. WSDOT also met regularly with resource agency directors to keep them apprised of the project status.

How have FHWA and WSDOT consulted with Native American tribes?

FHWA and WSDOT have engaged with affected tribes through government-to-government consultation and conducted outreach through correspondence, individual meetings, and resource agency meetings. The Muckleshoot Indian Tribe and the Snoqualmie Indian Tribe are cooperating agencies under NEPA for the SR 520, I-5 to Medina project. In this role, they had the opportunity to review discipline reports for the SDEIS and other environmental documents prior to public release.

The Muckleshoot Indian Tribe is the only tribe with usual and accustomed treaty fishing rights in Lake Washington and its tributaries. FHWA and WSDOT have coordinated and are continuing to coordinate with the tribe on effects on fishing access and fish habitat. Formal government-to-government consultation is ongoing between FHWA, WSDOT, and the Muckleshoot Tribe to determine appropriate mitigation for the project's effects on resources protected by treaty fishing rights. A draft agreement identifying formal commitments is expected to be completed in summer 2011, with a final agreement in late 2011.

Section 106 of the National Historic Preservation Act and its implementing regulations require federal agencies to consult with tribes when proposed projects could affect properties with historic, religious, or cultural significance to those tribes. Tribes may have input on these cultural resources regardless of whether they have court-affirmed treaty rights or are federally recognized. FHWA and WSDOT have consulted with tribes whose cultural resources might be affected by the project, including the federally recognized Muckleshoot Indian Tribe, Snoqualmie Tribe, Suquamish Tribe, Tulalip Tribes, and Yakama Indian Nation, as well as the non-federally-recognized Duwamish Tribe. The results of tribal consultation under Section 106, including mitigation measures to which WSDOT has agreed, are memorialized in the Section 106 Programmatic Agreement (PA) between FHWA, WSDOT, the tribes, the consulting parties, and the Washington State Department of Archaeology and Historic Preservation (DAHP). Through the PA, WSDOT has committed to develop a Foster Island Treatment Plan to mitigate for adverse effects to this traditional cultural property. FHWA and WSDOT will continue to coordinate with tribal nations throughout project design to implement the mitigation measures committed to in the PA and

Cooperating Agencies

- Federal Transit Administration
- National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries)
- National Park Service
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Muckleshoot Indian Tribe
- Snoqualmie Indian Tribe
- Washington State Department of Archaeology and Historic Preservation
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- Washington State Department of Natural Resources
- Washington State Recreation and Conservation Office
- Sound Transit
- Puget Sound Clean Air Agency
- Puget Sound Regional Council
- King County
- City of Medina
- City of Seattle

A list of cooperating agencies for the SR 520, I-5 to Medina project is shown in the box above.

to ensure that construction activities are monitored as necessary to ensure that any unanticipated discoveries of cultural resources are addressed appropriately.

More information on how FHWA and WSDOT have coordinated with Native American tribes can be found in Section 1.6 of the Final EIS.

How is the SR 520, I-5 to Medina project related to other projects and processes in the SR 520 Program?

The Draft EIS for the SR 520 HOV and Bridge Replacement Project, published in August 2006, evaluated the SR 520 corridor from I-5 in Seattle to 108th Avenue NE in Bellevue as a single project. Since that time, in response to changing conditions, WSDOT has worked with FHWA to develop new projects within the context of an overall SR 520 corridor program. Each project has a separate purpose and need; each provides independent benefit to the region. The four projects in the SR 520 program, and their review status under NEPA, are:

- SR 520, I-5 to Medina: Bridge Replacement and HOV Project (Final EIS published June 2011)
- SR 520, Medina to SR 202: Eastside Transit and HOV Project (Medina to SR 202 project) (Finding of No Significant Impact issued in May 2010)
- SR 520 Pontoon Construction Project (Record of Decision issued in January 2011)
- SR 520 Variable Tolling Project (Finding of No Significant Impact issued in June 2009)

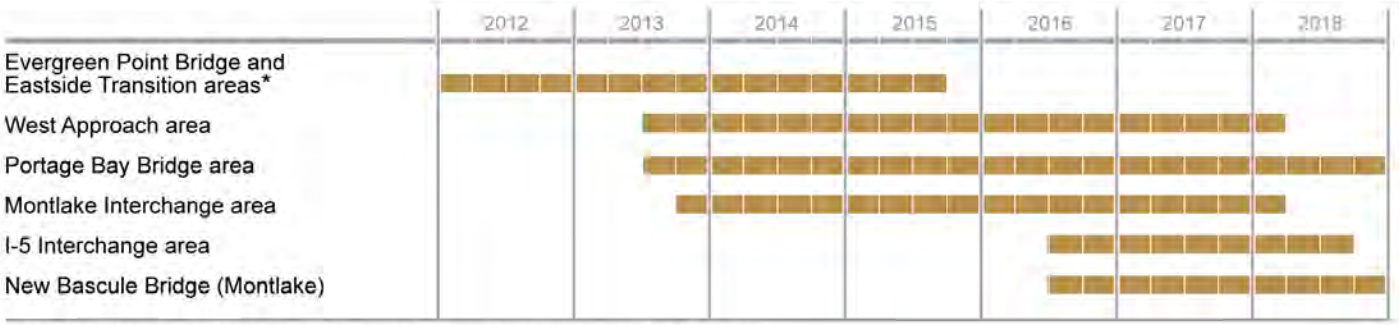
Section 1.7 of the Final EIS briefly describes each of the other projects in the SR 520 Bridge Replacement and HOV Program and how they meet FHWA's criteria for independent utility and logical termini under NEPA.

When would the project be built?

Construction is planned to begin in 2012, after project permits are received. The floating bridge would open to traffic as early as 2014. If full funding is identified by 2012, the rest of the project is currently planned for completion in 2018. As described in Section 2.8 of the Final EIS, construction may be phased if full funding is not available.

The most vulnerable structures (the Evergreen Point Bridge and east approach) would be built in the first stage of construction. The remaining components of the project would be built in subsequent stages. Exhibit ES-3 provides an overview of the anticipated construction stages and durations identified for the SR 520, I-5 to Medina project. For more information on construction sequencing, please see Chapter 3 of the Final EIS.

Exhibit ES-3. **Preferred Alternative Construction Stages and Durations**



Note: Completion dates shown for construction stages assume full finding.

* Bridge opening as early as 2014; construction finalized in 2015.

Table ES-1. **Cost Estimates for SR 520 Corridor Projects (millions of dollars)**

	SR 520, I-5 to Medina Project[a]	Most Likely Total SR 520 Corridor Cost[b]
Preferred Alternative[c]	$3,419	$4,615
6-Lane Alternative with Option A	$3,392 to 3,668	$4,526 to 4,802
6-Lane Alternative with Option K	$5,440 to 5,538	$6,574 to 6,672
6-Lane Alternative with Option L	$3,932 to 4,012	$5,066 to 5,146

Note: Estimates are adjusted to account for risk and inflation using the Cost Estimate Validation Process® method. All estimates include anticipated mitigation costs.

[a] The ranges shown for Options A, K, and L reflect the cost of potential suboptions for each option. No suboptions are evaluated for the preferred alternative, therefore a cost range is not provided.

[b] Total corridor cost includes the Pontoon Construction Project and the SR 520, Medina to SR 202 Project.

[c] Costs were estimated for the Preferred Alternative during a 2010 Cost Estimate Validation Process® workshop.

How much would the project cost, and how much has been funded?

The total cost to construct the SR 520, I-5 to Medina project includes the costs of the Seattle portion, the Eastside (Medina) portion, the floating bridge (including the east approach and transition section), and 44 additional pontoons that are needed for a 6-lane bridge and are not included in the SR 520 Pontoon Construction Project. As shown in Table ES-1, these costs are estimated to total approximately $3.42 billion for the Preferred Alternative and between $3.39 and $5.54 billion for the SDEIS options, depending upon the suboptions chosen. Table ES-1 also compares the overall costs estimated in 2008 for the SR 520 Bridge Replacement and HOV Program—including the I-5 to Medina, Pontoon Construction, and Medina to SR 202 projects—to program costs estimated in 2010 after identifying the Preferred Alternative. WSDOT continues to pursue cost savings in the form of contract delivery, cost estimate refinement, and design refinements wherever feasible.

The budget established by the state legislature in 2009 for the overall SR 520 program (including the I-5 to Medina, Medina to SR 202, and Pontoon Construction projects) is $4.65 billion. As shown in Table ES-2, WSDOT has secured a variety of state and federal funding sources to help pay for the SR 520 program. However, the funding for the full corridor program falls approximately $2.03 billion short of the $4.65 billion total. WSDOT and the legislature are working to identify additional funding sources to fill the gap. The legislature has allocated toll revenues from the Lake Washington Variable Tolling Project to allow WSDOT to move forward with the following components of the Bridge Replacement and HOV Program, pending completion of environmental review and permitting:

- Building a new pontoon construction facility in Grays Harbor and producing pontoons at that facility
- Beginning construction of the Medina to SR 202 project
- Constructing a new floating bridge and approaches
- Advancing design on the Seattle side of the corridor

As shown in Exhibit ES-3, WSDOT has proposed project construction for completion in 2018, based on the assumption that full funding will be provided by 2014. Should full funding not be available, the project would be phased, with the floating bridge and landings comprising the initial construction phase. For more information on the potential for phased construction, please see Section 2.8 of the Final EIS.

Table ES-2. **Committed Funding Sources for SR 520 Bridge Replacement and HOV Program**

Funding Source	Amount
State gas tax	$550 million
Federal funds	$70 million
SR 520 Account (tolling and future federal funding)	$1,850 million
Sales tax deferral	$150 million
Total funding identified to date	**$2,620 million**
Total program cost[a]	**$4,650 million**
Unfunded portion of program cost	**$2,030 million**

[a]Total program cost is based on Engrossed Substitute House Bill (ESHB) 2211 legislation

Source: Washington State Legislature 2011 Legislative Budget.

How will tolling be used on SR 520?

Tolling is currently slated to begin on the existing Evergreen Point Bridge in summer 2011 as part of the implementation of the Lake Washington Congestion Management Program. Tolling is also planned on the new 6-lane Evergreen Point Bridge once it is completed. The assumptions made for tolling the new bridge are somewhat different from the toll program for the existing bridge. Details on the near-term tolling are provided below. The assumptions used for tolling the new bridge are discussed in the Alternatives section below and in Section 1.11 of the Final EIS.

Under the Lake Washington Congestion Management Program, users of the existing bridge will be charged a toll whose amount will vary based on time of day. The toll is designed to maintain travel time, speed, and reliability while generating revenue to fund improvements in the SR 520 corridor. Tolls will be completely automated, with no toll booths. All vehicles will be charged a toll to cross the Evergreen Point Bridge except transit, registered vanpools, maintenance vehicles, and tow trucks responding to blocking incidents. Users who are required to pay the toll will have transponders (Good To Go! passes; www.goodtogo.org) that are read by an electronic reader. Cars without transponders will have their license plates photographed and be billed by mail, at a higher fee to defray the cost of processing and mailing.

The Lake Washington Congestion Management Program includes tolling as a key component of the SR 520 program's financing plan, which is consistent with previous assumptions in the Draft EIS and the SDEIS. Tolling has been authorized by the legislature, with variable toll rates established by the State Transportation Commission. Any future changes to the toll rate structure will be determined by the Transportation Commission.

What has happened since publication of the SDEIS?

Since the SDEIS was published, WSDOT has coordinated with agencies, tribes, and the public to develop and refine the Preferred Alternative and to meet requirements for consultation and mitigation. Some key activities (described further in Section 1.12 of the Final EIS) include:

- Collaboration with the City of Seattle, the University of Washington, and transit agencies on design refinements, transit connections, and transit planning and financing under Engrossed Substitute Senate Bill (ESSB) 6392, passed by the Washington State Legislature in March 2010. A full report was prepared and submitted to the legislature on Oct. 1, 2010.
- Coordination with natural resource agencies and the Muckleshoot Indian Tribe Fisheries Division in the Natural Resources Technical Working Group to identify impacts, mitigation sequencing strategies, avoidance and minimization measures, and appropriate compensatory mitigation for the Preferred Alternative.
- Coordination with the Arboretum and Botanical Garden Committee to develop a mitigation plan for the Washington Park Arboretum, as directed by ESSB 6392. The plan, which includes a list of mitigation measures agreed upon by all parties, was submitted to the legislature in December 2010; a MOU to define roles and responsibilities for implementation was executed in April 2011.
- Extensive work under Section 106 of the National Historic Preservation Act, including outreach to and

engagement with nearly two dozen consulting parties, coordination with DAHP, and development of a Programmatic Agreement that identifies the avoidance, minimization, and mitigation activities WSDOT will undertake. Tribal issues have been addressed in a separate memorandum of understanding that is included in the Programmatic Agreement by reference.

- Consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act, with a Biological Assessment submitted in November 2010 and a Biological Opinion issued by each agency in April/May 2011.
- Issuance in late 2010 of a solicitation for design-build proposals for construction of the floating portion of the Evergreen Point Bridge and landings. Three teams submitted qualifications and were invited to submit proposals; WSDOT plans to select a contractor in mid-2011. Final design under the contract will take place following the issuance of the Record of Decision.

How did WSDOT respond to public comments received on the SDEIS?

WSDOT read and assessed all of the comments received from the public, agencies, and tribes. Each comment is responded to in Attachment 11 to the Final EIS. As needed, some factual corrections, additional analysis, and language clarifications have been included in the Final EIS and/or the discipline report discussions to address topics raised in the comments. Where changes in the documents have been made as a result of comments submitted, this is noted in the response.

WSDOT continues to inform and engage the public through venues such as community council briefings, fairs and festivals, the project and program websites, press releases, emails, and the project dialogue center. WSDOT has also committed to involving public stakeholders in processes to refine project design and construction methods, as appropriate. In addition to involving the public, WSDOT has worked with a large number of local, state, and federal jurisdictions and agencies that are involved in transportation, parks and natural resource issues around the SR 520 corridor. WSDOT's work with these groups and agencies is outlined below and described in Chapters 1 and 2 of the Final EIS.

Topics most frequently noted in public and agency comments on the SDEIS are summarized in Chapter 11 of the Final EIS, and can be found in the Supplemental Draft EIS Summary of Comments – April 28, 2010 (WSDOT 2010b).

How has the public been involved during the preparation of the Final EIS?

A regional transportation facility like SR 520 affects a large number of people—those who travel on it, those who live and work near it, and, in a broader sense, any person or business that depends upon the region's ability to move people and goods across Lake Washington. WSDOT developed appropriate outreach methods to reach these different public audiences, which include the Cities of Seattle and Medina; specific neighborhoods in Seattle, including Montlake, Portage Bay/Roanoke, North Capitol Hill, Madison Park, University District, Laurelhurst, and Eastlake; and major institutions such as the University of Washington and NOAA Northwest Fisheries Science Center.

The outreach also extended to a broader set of public audiences, which included:

- Commuters who use the corridor to travel via bus or car to and from Seattle and the Eastside
- Businesses that rely on the corridor for movement of employees, goods, and customers
- Chambers of commerce that are interested in transportation issues
- Minority, low-income, and limited-English-proficiency users of the corridor
- Social service and advocacy organizations that work with minority and low-income communities
- Other interested groups such as bicycle, environmental, and neighborhood organizations

WSDOT's ongoing program to engage the public and to provide information about the project has remained active throughout the NEPA process. Some of the activities and resources to encourage public engagement are as follows:

- Community and agency briefings, including nearly 40 open houses and public meetings, more than 140 meetings and workshops related to legislation, and more than 140 community group meetings and briefings
- Project website
- Newsletters and monthly email updates
- Outreach to minority and low-income populations, including translated project materials and interviews with social service providers
- Outreach to the business community

Additional information on how the public has participated in the SR 520, I-5 to Medina project is found in Section 1.13 of the Final EIS.

Alternatives

How were the alternatives and design options for the project developed and evaluated?

Planning for the SR 520 corridor began in 1998 with the work of the Trans-Lake Washington Study, initiated by the state legislature to explore ways of improving mobility across and around Lake Washington. Many potential solutions for the corridor have been developed and evaluated since that time. Table ES-3 summarizes how WSDOT, FHWA, and numerous stakeholders have worked through the years to identify and screen potential alternatives and design options. A more in-depth overview of the project's NEPA process and the alternatives and design options that have been evaluated can be found in Chapter 2 of the Final EIS. The Range of Alternatives and Options Evaluated report (Attachment 7 to the Final EIS) provides additional detail on alternatives analysis.

Table ES-3. **History of SR 520, I-5 to Medina Project NEPA Process and Alternatives**

Trans-Lake Washington Study (1998 –1999)		
NEPA/Project Element	Goal	Address traffic congestion across and around Lake Washington.
	Screening	47-member study committee identified and evaluated potential solutions.
	Alternatives	Seven "solution sets" were developed representing different mixes of roadway, transit, transportation demand management, and transportation systems management solutions.
Process	Activities	Identified and evaluated potential solutions: new corridors, new modes (ferry, high-capacity transit), increased capacity on existing corridors, crossing methods (tubes, tunnels), demand management.
	Recommendations and Outcomes	Move forward with improvements to SR 520. Prepare EIS to evaluate the following alternatives: No Build, 4-Lane, 6-Lane (with and without high-capacity transit [HCT]), 8-Lane (with and without HCT).
EIS Initiation and Alternatives Screening (2000 – 2002)		
NEPA/Project Element	Project Purpose and Need	Improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating impacts on affected neighborhoods and the environment.
	Screening	Two levels of screening criteria developed from Purpose and Need and applied to Trans-Lake alternatives.
	Alternatives	Project corridor alternatives evaluated: No Build, 4-Lane, 6-Lane, 8-Lane.
Process	Activities	Developed Purpose and Need statement based on Trans-Lake findings. Established and applied screening criteria.
	Recommendations and Outcomes	Evaluate No Build, 4-Lane, and 6-Lane Alternatives in Draft EIS. Do not further evaluate 8-Lane Alternative. Do not further evaluate new corridors and crossing methods due to risk, impacts, and cost. Affirm regional planning assumption of I-90 as initial HCT corridor. Defer HCT on SR 520 in near term, but provide long-term compatibility.

Table ES-3. **History of SR 520, I-5 to Medina Project NEPA Process and Alternatives** (continued)

Draft EIS (Released August 2006)		
NEPA/Project Element	Goal/Purpose and Need	Improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating impacts on affected neighborhoods and the environment.
	Screening	New design options proposed by community members were screened using original criteria, resulting in the 6-Lane design options (see below).
	Alternatives	Project corridor alternatives evaluated: No Build, 4-Lane, 6-Lane, 8-Lane (described rationale for dropping).
Process	6-Lane Design Options	Evaluated in Draft EIS: Pacific Street Interchange, Second Montlake Bridge, No Montlake Freeway Transit Stop.
	Activities	Conducted coordination and outreach with local jurisdictions, resource agencies, and the public. Prepared and published Draft EIS incorporating evaluation of No Build, 4-Lane, and 6-Lane Alternatives and 6-Lane design options.
	Recommendations and Outcomes	Traffic modeling identified 6-Lane Alternative as better meeting Purpose and Need. 4-Lane would provide safety, but would not improve mobility, while 6-Lane Alternative would improve both safety and mobility. The Pacific Street Interchange option would provide best local mobility in Seattle, but with greater impacts to wetlands, aquatic habitat, and parks compared to 6-Lane base. Gov. Gregoire's findings on Draft EIS identified 6-Lane Alternative as "best serving needs of regional transportation system," but identified the need for additional design refinement in Seattle portion of project area.
Supplemental Draft EIS (Released January 2010)		
NEPA/Project Element	Goal/Purpose and Need	Improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating impacts on affected neighborhoods and the environment.
	Screening	Mediation group identified shortlist of options (A, K, L); FHWA and WSDOT agreed to evaluate.
	Alternatives	Draft EIS "base" 6-Lane Alternative and design options dropped from further analysis. SDEIS evaluated: No Build, 4-Lane (traffic analysis only), 6-Lane with design options noted below.
Process	6-Lane Design Options	Evaluated: Option A (improvements to Montlake interchange plus second Montlake bascule bridge); Option K (tunnel under the Montlake Cut and lowered interchange east of Montlake); Option L (diagonal bridge over the Montlake Cut and elevated interchange east of Montlake).
	Activities	Legislation (ESSB 6099) directed development of a 6-lane corridor interchange design for the Montlake area through a mediated community involvement process. Mediation explored 12 design options but did not reach a consensus solution, electing further study of Options A, K, and L. WSDOT prepared discipline reports and Supplemental Draft EIS to evaluate the impacts of these options, and conducted coordination and outreach with agencies and the public. A legislative workgroup created by ESHB 2211 recommended Option A with suboptions as the preferred alternative.
	Recommendations and Outcomes	4-Lane Alternative not further considered after updated traffic analysis confirmed it failed to meet Purpose and Need. Mediation participants agreed on three options to carry forward: A, K, and L. WSDOT evaluated A, K, and L in the SDEIS; legislative workgroup recommended Option A with suboptions.

Table ES-3. **History of SR 520, I-5 to Medina Project NEPA Process and Alternatives** (continued)

Final EIS (Released July 2011)		
NEPA/Project Element	Goal/Purpose and Need	Improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating impacts on affected neighborhoods and the environment.
	Alternatives	No Build, Preferred Alternative, and Options A, K, and L.
Process	6-Lane Design Options	Options A, K, and L compared to Preferred Alternative.
	Activities	In April 2010, following evaluation of comments on SDEIS, Gov. Gregoire announced selection of a Preferred Alternative (similar to Option A, but with design refinements) by FHWA and WSDOT. WSDOT prepared final evaluation of Preferred Alternative with comparisons to SDEIS design options. FHWA and WSDOT consulted with tribal governments, Section 106 consulting parties, resource agencies, and other project stakeholders to identify effects of the Preferred Alternative and determine appropriate mitigation.
	Recommendations and Outcomes	Proceed with preparation of Record of Decision.

Were any additional alternatives considered after publication of the SDEIS?

NEPA requires that if new reasonable alternatives are proposed via comments on a draft (or supplemental draft) environmental document, they must be fully analyzed. Commenters on the SDEIS suggested two alternatives that they believed should have been evaluated further:

- A "transit-optimized" 4-Lane Alternative
- An alternative that would include light rail transit on SR 520 when it opened, rather than accommodating it as part of a future project

Although both the 4-Lane Alternative and a multimodal alternative including light rail transit were evaluated and eliminated earlier in the NEPA process, WSDOT re-evaluated both to determine whether changed conditions might result in their being considered "reasonable alternatives" as defined by NEPA (40 Code of Federal Regulations [CFR] Section 1502.14(c)). The evaluation confirmed that these alternatives were not reasonable. The analysis used to reach this conclusion is discussed in Section 2.4 of the Final EIS.

Although there was not a formal request for its analysis in the SDEIS comments, several comments suggested that Option M, which was proposed by the former supporters of Option K during the legislative workgroup process, had been dropped without sufficient consideration. Option M had a similar alignment to Option K, but substituted a dredged tunnel across the Montlake Cut for the excavated tunnel included in Option K. WSDOT's evaluation of Option M at that time indicated that it was not a reasonable alternative. A brief discussion of the factors considered in this conclusion is also provided in Section 2.4 of the Final EIS.

What is evaluated in the Final EIS?

The Final EIS evaluates a Preferred Alternative and three design options (Options A, K, and L) for the SR 520, I-5 to Medina project. The Preferred Alternative and all the design options include a number of common features. All would widen the SR 520 corridor to six lanes (Exhibit ES-4) from I-5 in Seattle to Evergreen Point Road in Medina and would restripe and reconfigure the lanes in the corridor from Evergreen Point Road to 92nd Avenue Northeast in Yarrow Point. The vulnerable Evergreen Point Bridge, Portage Bay Bridge, and west approach bridge would be replaced with new structures designed to withstand windstorms and earthquakes. The project would complete the regional HOV lane system across SR 520, as called for in regional and local transportation plans.

Across the floating bridge, SR 520 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 shoulders and 10-foot-wide outside shoulders and a 14-foot-wide regional bicycle/pedestrian path (Exhibit ES-4). The typical roadway cross-section would be approximately 116 feet wide, compared to the existing width of 60 feet. The additional width is needed for the new HOV lanes and bicycle/pedestrian path and to accommodate wider, safer travel lanes and shoulders. It has, however, been reduced by 18 feet from what was shown in the Draft EIS to respond to community concerns. Exhibit ES-5 illustrates the major features of the Preferred Alternative and Options A, K, and L in Seattle. In areas where there are ramps and/or gaps between lanes, the overall width of the roadway would be greater; Exhibits ES-6 through ES-9 and Chapter 2 of the Final EIS provide cross sections at various locations in the corridor. Key features common to the Preferred Alternative and the SDEIS design options are described below.

Lids and Landscape Features

The Preferred Alternative includes lids at the following locations:

- 10th Avenue East and Delmar Drive East
- Montlake Boulevard

The following lids were included in Options A, K, and/or L, but are not part of the Preferred Alternative (see Exhibit ES-5):

- I-5/East Roanoke Street (Options A, K, and L)
- Montlake Boulevard NE and NE Pacific Street (Options K and L only)
- Foster Island "land bridge" (Option K only)

The lids would reconnect neighborhoods, enhance movement of pedestrians and cyclists, restore and create views, and provide access to existing and new transit stops.

Regional Bicycle/Pedestrian Path

The project includes a 14-foot-wide bicycle/pedestrian path along the north side of SR 520 through the Montlake area and across the Evergreen Point Bridge to the Eastside. In the Montlake area, the path would connect to the existing Bill Dawson Trail that crosses underneath SR 520 near the eastern shore of Portage Bay. It would also connect to the Montlake lid and East Montlake Park. On the Eastside, the path would connect to the bicycle/pedestrian path proposed as part of the SR 520, Medina to SR 202: Eastside Transit and HOV Project.

A new path beginning in East Montlake Park would pass under the west approach bridge at Montlake to connect to a proposed new trail in the Arboretum. The portion of the existing Arboretum Waterfront Trail that crosses SR 520 at Foster Island would also be restored or replaced after construction of the SR 520 west approach structure. There would be no new bicycle/pedestrian path along SR 520 west of Portage Bay.

Exhibit ES-4. **6-Lane Alternative Floating Bridge Roadway Cross Section**

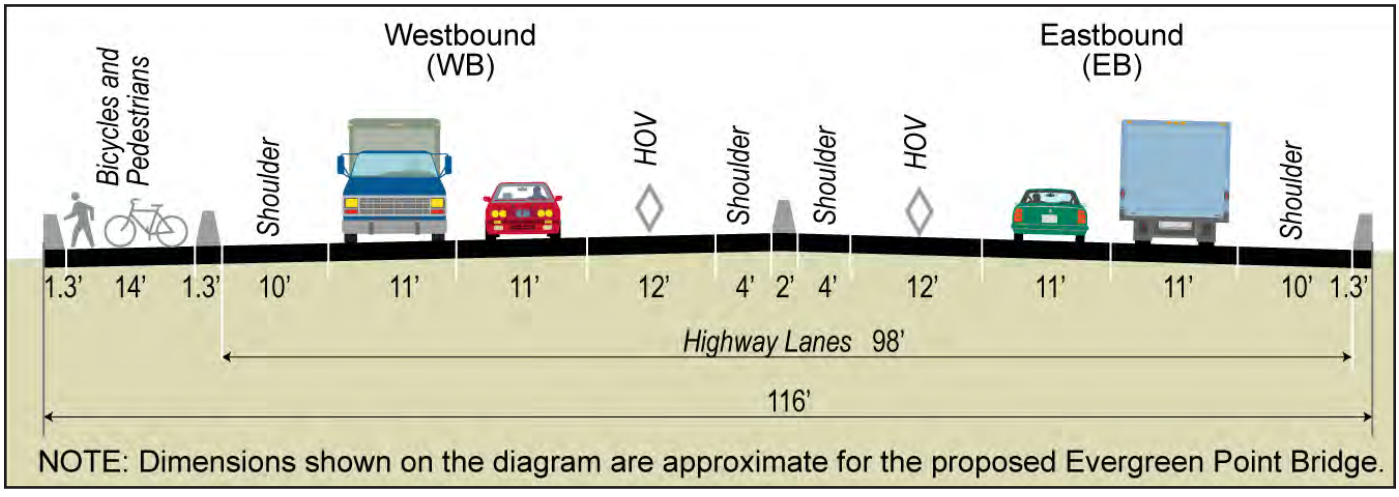
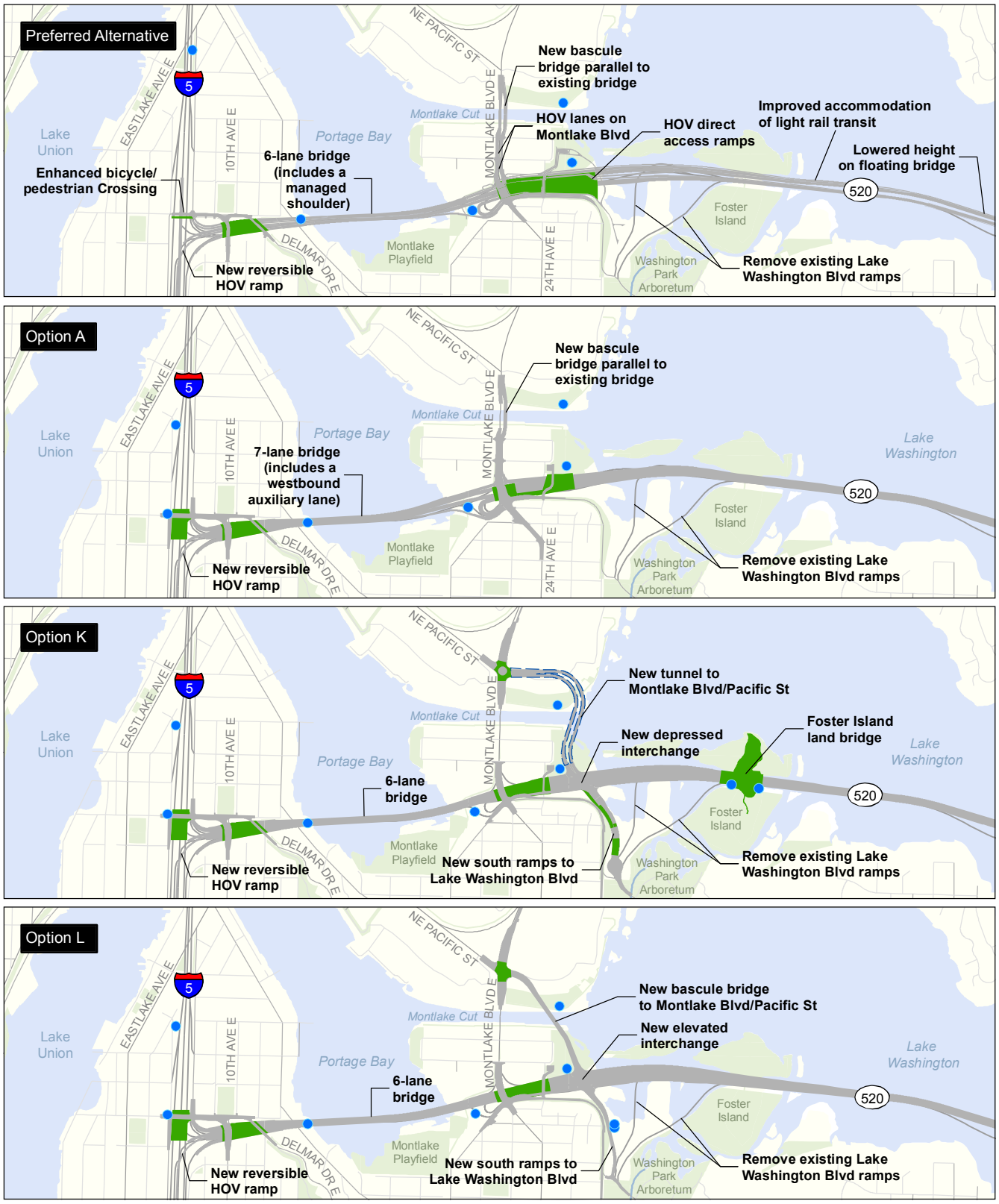


Exhibit ES-5. **Preferred Alternative and Options A, K, and L**



Noise Reduction

Under FHWA regulations (23 CFR Part 772), noise abatement measures must be considered when highway noise levels approach or exceed the thresholds set in FHWA's noise abatement criteria, as they currently do along much of the SR 520 corridor and would continue to do under the No Build Alternative. (See Section 4.7 of the Final EIS for information on existing noise levels and the FHWA criteria.) Such measures must meet FHWA and WSDOT guidelines for feasibility and reasonableness. The SDEIS evaluated traffic noise reduction measures for each design option. Option A was defined as including noise walls and/or quieter rubberized asphalt pavement; Option K was defined as including only quieter rubberized asphalt pavement for noise reduction; and Option L included noise walls along most of the corridor. However, because the effectiveness these types of pavements has not been demonstrated in this region, it is not considered a mitigation measure, and no noise reduction benefits were assumed from their use in the project noise analysis.

The Preferred Alternative includes several design elements and general corridor improvements that were added as a result of recommendations from the SR 520 Noise Expert Review Panel and in response to community input. The design includes 4-foot concrete traffic barriers and noise-absorptive material on the traffic barriers and around the lid portals and expansion joints. Additionally, posted speeds on the Portage Bay Bridge between I-5 and the Montlake lid would be reduced to 45 mph. These measures, coupled with project design features such as a higher profile in the west approach area, would collectively reduce noise levels throughout the SR 520, I-5 to Medina corridor. Quieter concrete pavement would also be used throughout the corridor in response to public input. As noted above, quieter concrete pavement is not an approved mitigation measure and was not accounted for in the noise model.

The noise reduction measures outlined above were incorporated into the Preferred Alternative in response to strong opposition to noise walls expressed in SDEIS comments and in community forums. However, as required, noise walls were evaluated for the Preferred Alternative, as they were for Options A, K, and L, to determine if they would meet the feasibility and reasonableness criteria. By reducing noise levels, the design refinements of the Preferred Alternative would reduce the number of recommended noise walls compared to those recommended for Options A, K, and L.

Stormwater Treatment

The project includes the installation of stormwater treatment facilities to collect and treat stormwater runoff. Three facility types incorporating stormwater best management practices approved by the Department of Ecology have been identified for the project: biofiltration swales, constructed stormwater treatment wetlands, and media filter vaults (Option K only). Table ES-4 identifies which facility types are proposed for each project area drainage basin.

Biofiltration swales are vegetation-lined channels designed to remove suspended solids from stormwater. They offer basic water quality treatment to remove pollutants such as metals, suspended solids, and nutrients from contaminated stormwater.

Table ES-4. **Proposed Stormwater Treatment Facilities – Preferred Alternative and SDEIS Options**

Drainage Basin	Type of Proposed Facility
Lake Union	Biofiltration swale
Portage Bay	Constructed stormwater treatment wetland and biofiltration swale
Union Bay	Constructed stormwater treatment wetlands and biofiltration swale Media filter vaults (Option K only)
Lake Washington	Biofiltration swale; high-efficiency sweeping in conjunction with modified catch basins and stormwater lagoons on the new floating bridge and approach structures

Stormwater treatment wetlands offer enhanced treatment, achieving greater removal of dissolved metals from stormwater than basic treatment. These wetlands provide enhanced treatment by using multiple cells and wetland vegetation to reduce the amount of these pollutants in runoff.

Media filter vaults, a basic treatment method, are enclosed treatment facilities (usually underground) that provide stormwater filtration. The vault channels the collected stormwater through filtering cartridges that trap particulates and dissolved pollutants. For the SR 520, I-5 to Medina project, media filter vaults are only included as part of Option K to address stormwater needs at Foster Island.

Enclosed spill containment lagoons are also part of the proposed floating bridge design. Surface pollutants would be removed on a periodic basis under normal monitoring and maintenance activities. The lagoons would also allow dilution of remaining pollutants prior to mixing with lake waters beneath the bridge.

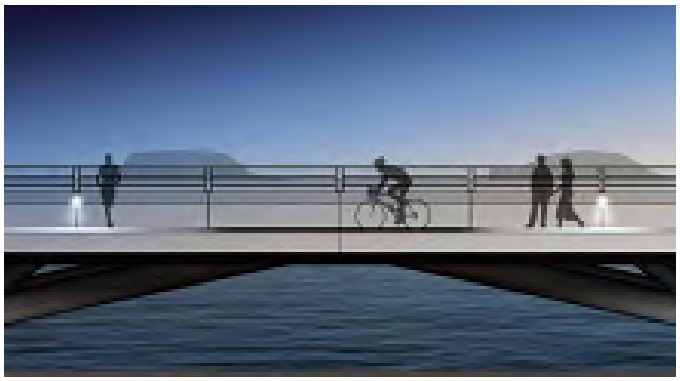
Lighting

Similar to today's roadway lighting configuration, continuous lighting would be provided along the SR 520 corridor from I-5 to Foster Island and on bridge structures crossing the Montlake Cut. Recessed lighting as shown in the adjacent sidebar would illuminate the proposed bicycle and pedestrian path along the west approach structure and the Evergreen Point Bridge. Lighting would be designed to minimize effects on aquatic habitat, likely through the use of downlights similar to those on the I-90 floating bridges.

Tolls

The Final EIS traffic analysis made the following assumptions for how the new 6-lane SR 520 would be tolled:

- Single-point tolling at one location for vehicles crossing the Evergreen Point Bridge
- Variable toll rates depending on the time of day and whether trips are taken on a weekday or a weekend
- A peak toll rate of $3.81 (year 2007 dollars) for all vehicle types for the bridge crossing, with exemptions for transit and HOVs with three or more riders



Example of recessed downlighting which is proposed for use in the bicycle and pedestrian path along the west approach structure and the Evergreen Point Bridge

These assumptions are used as a basis for comparison among the design options. Actual toll rates will be determined by the Transportation Commission, based upon legislative direction, and the application of the tolls will be determined by the legislature. Since the traffic modeling assumptions were applied consistently across the alternatives, they show the relative performance of each in comparison to No Build. See Chapter 1 of the Final EIS for a discussion about what legislation has been passed to authorize tolling.

Tolling Assumptions

Tolling assumptions included in the transportation model for the Final EIS are:

- Single-point tolling implemented on SR 520 between I-5 and I-405
- Variable toll rates depending on the time of day and whether trips are taken during a weekday or during the weekend
- A maximum toll rate of $3.81, with exemptions for transit and HOVs with three or more riders

Like the SDEIS, the Final EIS assumes that the 2030 No Build Alternative would not include tolls. For more information on how tolling was evaluated, please see Chapter 5.1 and the Final Transportation Discipline Report (Attachment 7).

The Final EIS assumes that all vehicles with one or two occupants would be charged a toll to cross the Evergreen Point Bridge. Users who are required to pay the toll would have transponders that would be read by an electronic reader. Transponders allow drivers to pay tolls without stopping at a toll booth. Drivers who do not purchase a transponder would have their license plates photographed as they crossed the tolling point, and bills would be sent by mail to the address at which the vehicle is registered.

How was the Preferred Alternative developed?

The Preferred Alternative is similar to SDEIS Option A, but includes a number of refinements that respond directly to stakeholder comments and concerns. During and after the SDEIS comment period, FHWA and WSDOT carefully reviewed all public, tribal, and agency comments. Comments on the SDEIS (summarized in Section 2.3 of the Final EIS) were a key consideration in developing the Preferred Alternative. Table ES-5 identifies how design elements of the Preferred Alternative respond to specific themes in the SDEIS comments.

How does the Preferred Alternative compare with SDEIS Options A, K, and L?

The greatest physical differences between the Preferred Alternative and the SDEIS design options are in the location and lid configuration of the interchange in the Montlake area and in the profile of the west approach. The differences between the Preferred Alternative and the SDEIS options can be summarized as follows:

Preferred Alternative

The Preferred Alternative is similar to today's configuration in terms of its geometry, although wider, and the west approach profile is taller. It maintains the existing location of the Montlake interchange, but changes the westbound off-ramp so that it connects to 24th Avenue East first, followed by a connection to Montlake Boulevard (Exhibit ES-6). It adds a new bascule bridge over the Montlake Cut, parallel to the existing Montlake Bridge. It includes a 1,400-foot lid over Montlake Boulevard with landscaping, ramps, transit facilities, and pathways, and provides near-term transit enhancements along with the ability to accommodate potential future light rail on SR 520. It does not include a lid in the I-5 / Roanoke area.

Option A

Option A was also similar to a widened version of today's configuration. It maintained the existing location of the Montlake interchange and added a new bascule bridge over the Montlake Cut, parallel to the existing Montlake Bridge. It included a partial landscaped lid over Montlake Boulevard (Exhibit ES-7).

Option K

Option K included a new single-point urban interchange about a half mile east of the existing Montlake interchange. The new interchange ramps would pass below the SR 520 roadway, with the northern leg of the interchange crossing beneath the Montlake Cut in a tunnel (Exhibit ES-8).

Option L

Option L also included a single-point urban interchange with a similar alignment to that in Option K. However, instead of being beneath the SR 520 main line, the interchange ramps would rise above it. The northern leg of the interchange would cross the Montlake Cut on a new bascule bridge (Exhibit ES-9).

The Preferred Alternative, like the SDEIS options, places an emphasis on multimodal transportation by decreasing reliance on single-occupant vehicle travel, facilitating transit connections, and improving the overall flow of SR 520 traffic compared to No Build. Like the SDEIS options, the Preferred Alternative includes lids and landscaped features, stormwater treatment, and a regional bicycle/pedestrian path, although the specific details of those features differ. The key differences between the Preferred Alternative and the SDEIS options are in the larger size of the Montlake lid, the increased emphasis on transit access and reliability in the Montlake interchange vicinity, the proposed noise reduction measures, and the fact that access to and from Lake Washington Boulevard would be via 24th Avenue East instead of separate Lake Washington Boulevard ramps. Table ES-6 compares the Preferred Alternative to the SDEIS options by geographic area.

Table ES-5. **Design Elements in Preferred Alternative that Respond to Public, Agency and Tribal Comments**

SDEIS Comment	Source of Comment	How Preferred Alternative Responds to Comment
Project design is not compatible with addition of light rail.	Seattle Mayor's Office, community groups, individuals	Although project has always been designed to accommodate future light rail, modifications have been made to better facilitate potential future light rail connections to University Link station, either within HOV lanes or on separate structure.
New floating bridge would be too high compared to existing conditions and would block views.	Community groups, individuals	Height of bridge has been lowered from approximately 30 feet (in Draft EIS and SDEIS) to approximately 20 feet above lake surface.
Footprint across Arboretum and Foster Island is too wide.	Tribes, Seattle Parks, Arboretum Foundation, individuals	Footprint in Arboretum has been further refined, with right-of-way acquisition reduced from SDEIS options.
West approach bridge should be as high as possible to minimize shading.	Resource agencies, tribes	Preferred Alternative includes a constant slope profile slightly higher than that of SDEIS Option L.
Noise in the corridor should be reduced using methods other than walls, e.g., innovative methods identified by a noise Expert Review Panel (ERP).	Community groups, individuals	As recommended by the ERP, the Preferred Alternative includes 4-foot concrete traffic barriers, noise-absorptive coatings on barriers and lid portals, and lower speed limit west of Montlake lid; as a result, fewer noise walls are warranted. Quieter concrete pavement is also included, although its effectiveness is still being evaluated and it is not an approved noise mitigation measure.
Portage Bay Bridge should be as narrow as possible (6 lanes maximum).	City of Seattle, community groups, individuals	Portage Bay Bridge includes 6 lanes plus a managed shoulder to improve traffic operations during peak hours; overall width is 7 feet less than SDEIS Option A.
The Option A Montlake lid is discontinuous and would not effectively reconnect communities.	Community groups, individuals	Montlake lid has been lengthened to approximately 1,400 feet and extended across SR 520.
Option A with Lake Washington Boulevard ramps would increase wetland impacts and create more traffic in the Arboretum.	Community groups, individuals	Lake Washington Boulevard ramps have been removed, and access to Lake Washington Boulevard has been consolidated with Montlake interchange; traffic through Arboretum is projected to decrease compared to No Build.
Construction of Option K tunnel would have severe impacts on aquatic habitat and species.	Resource agencies, tribes	Preferred Alternative does not include a tunnel.
Mitigation measures are not adequately defined.	Resource agencies, tribes, City of Seattle, community groups, individuals	Detailed mitigation measures and implementation steps have been developed and are included in this Final EIS and its attachments.

Exhibit ES-6. **Montlake Area (Preferred Alternative)**

Exhibit ES-7. **Montlake Area (Option A)**

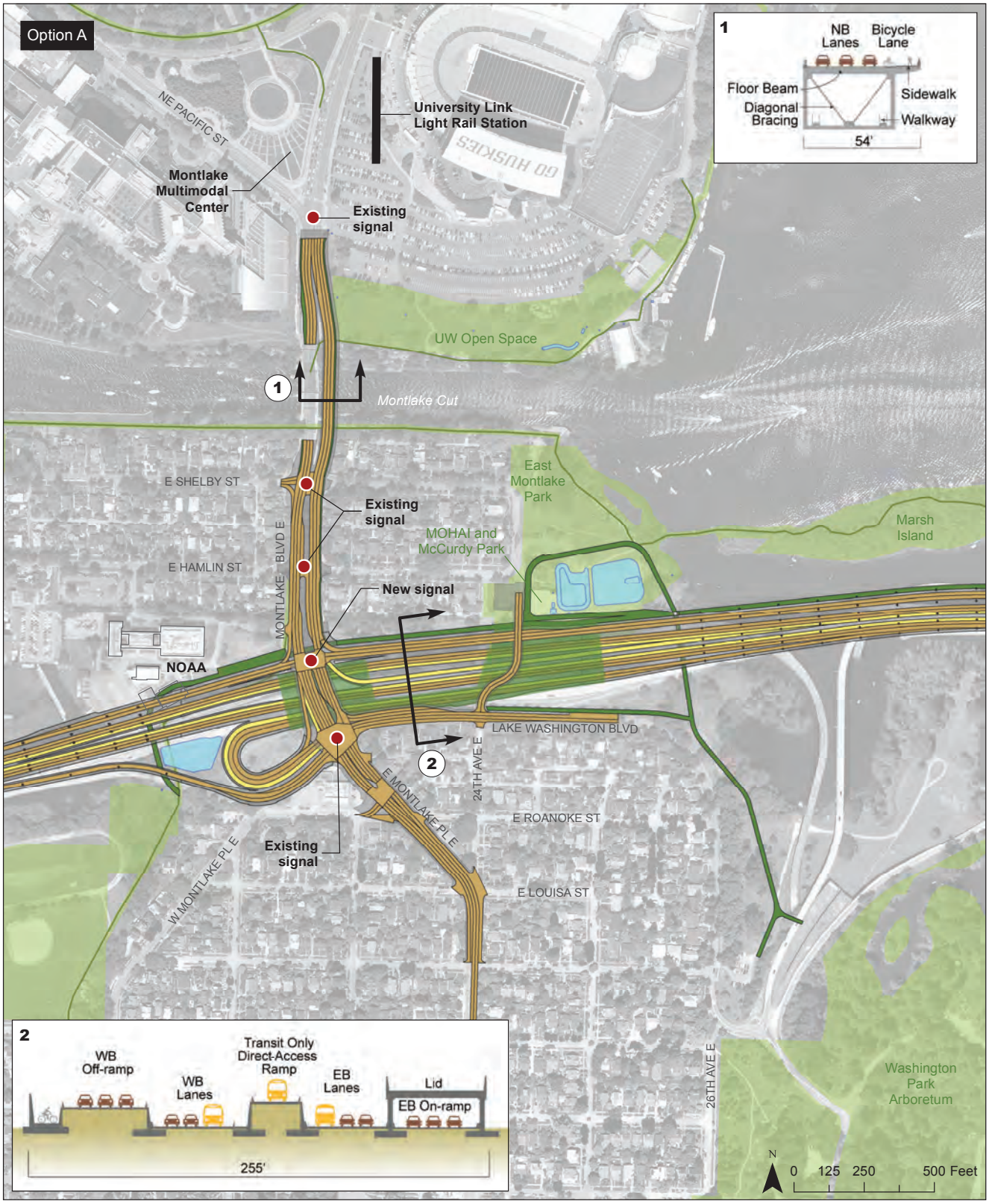


Exhibit ES-8. **Montlake Area (Option K)**

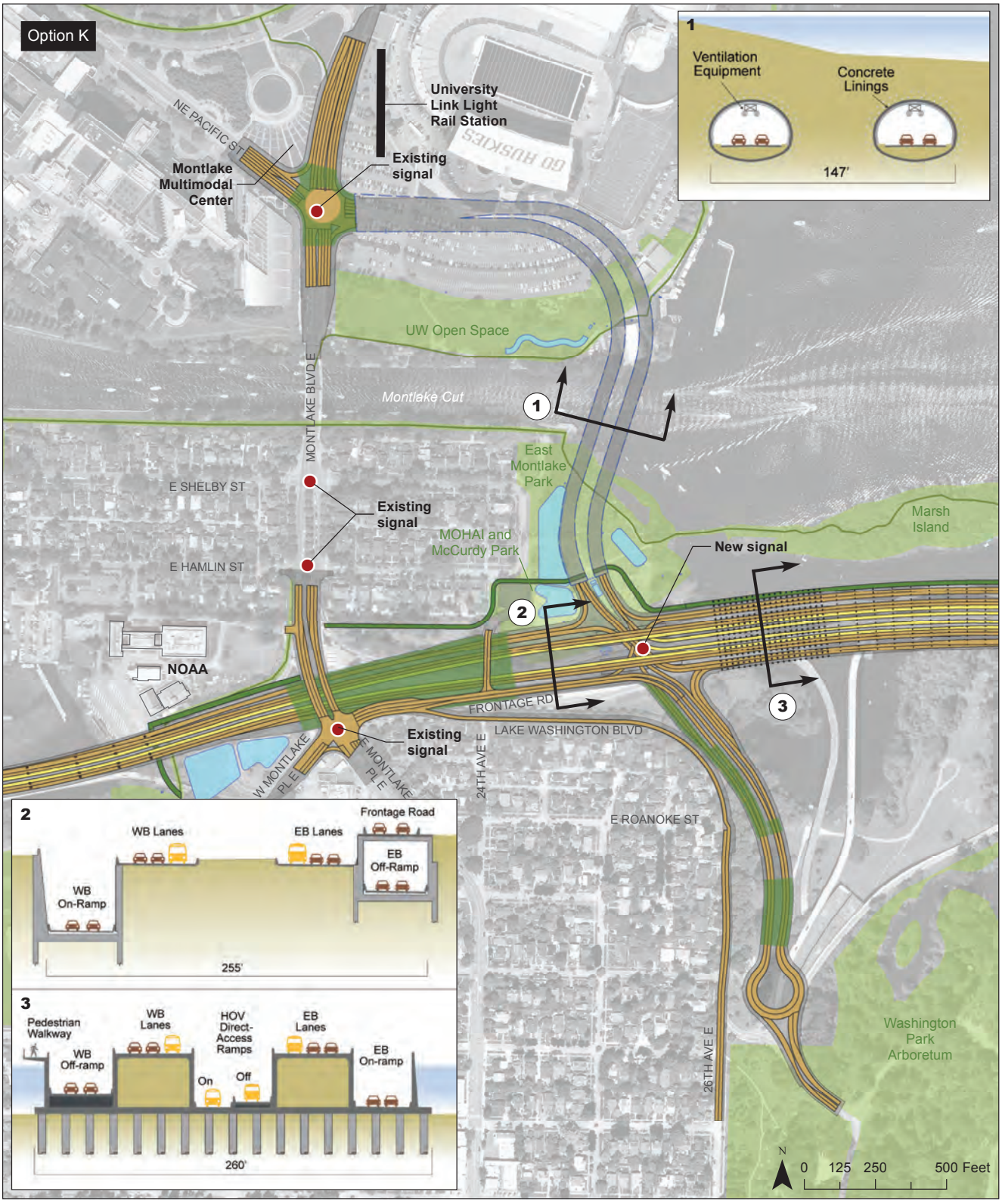
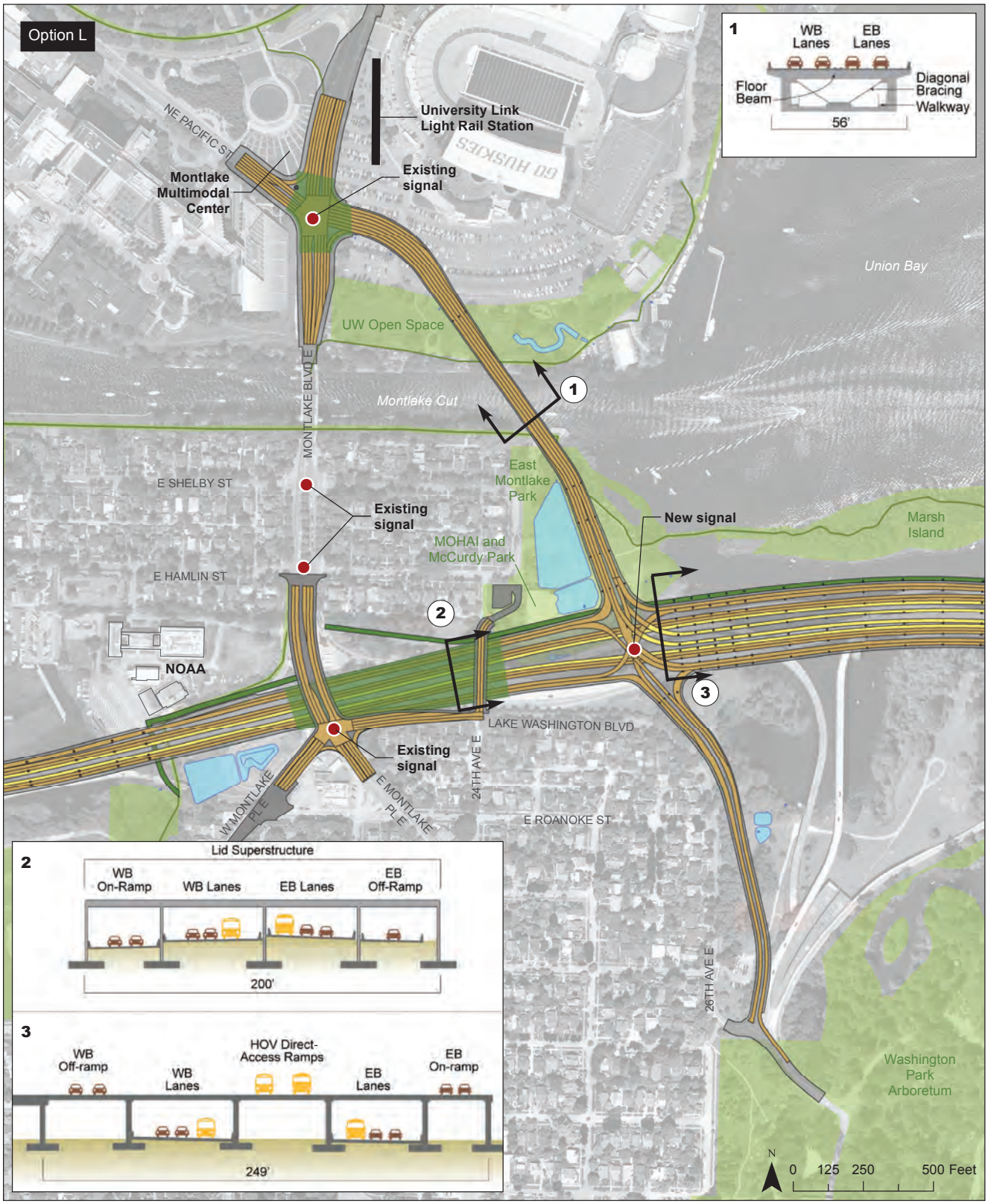


Exhibit ES-9. **Montlake Area (Option L)**



- Columns
- Signalized intersection
- Existing regional bicycle/pedestrian path
- General-purpose lane
- HOV, direct-access and/or transit-only lane
- Proposed bicycle/pedestrian path
- Lid or landscape feature
- Stormwater treatment facilities
- Pavement

How was the Preferred Alternative refined based on ESSB 6392?

As described in Chapter 1 of the Final EIS, during the 2010 legislative session, the Washington State Legislature passed ESSB 6392. Signed into law by Governor Gregoire, the bill outlined specific areas and elements of the Preferred Alternative to be refined through a multi-agency process. In response to this direction from the legislature, WSDOT led a workgroup process in collaboration with the City of Seattle, King County, the University of Washington, and Sound Transit. The ESSB 6392 workgroup was informed by two technical coordination teams established by WSDOT and the Seattle Department of Transportation, one on design refinements and transit connections and the other on transit planning and finance. These teams reported technical findings to the ESSB 6392 workgroup. In addition, the bill directed WSDOT to work with the Arboretum governing board to develop a mitigation plan, and established various reporting timelines for the different work efforts.

The legislature directed that design refinements to the Preferred Alternative be "consistent with the current environmental documents prepared by the department for the supplemental draft environmental impact statement," so as to accommodate a "timely progression" of the SR 520, I-5 to Medina project. Accordingly, the ESSB 6392 workgroup recommendations included only design refinements that were within the range of impacts studied in the SDEIS and would not require additional supplemental analysis.

Some specific recommendations from the workgroup included in the Preferred Alternative are:

- Enhance bicycle and pedestrian connections
- Design the Portage Bay Bridge to include a planted strip and managed shoulder
- Modify bus stops in the Montlake Triangle area to accommodate more users and minimize pedestrian and transit travel times
- Implement transit/HOV lanes on Montlake Boulevard
- Identify proposed traffic calming and traffic management strategies in the Arboretum
- Implement noise reduction strategies throughout the corridor
- Accommodate future light rail transit on the floating bridge and approach structures

The full reports from each workgroup contain additional recommendations and detailed descriptions of their processes. The Arboretum Mitigation Plan can be found in Attachment 9 and the ESSB 6392: Design Refinements and Transit Connections Workgroup Recommendations Report can be found in Attachment 16. The High Capacity Transit Planning and Financing Findings and Recommendations Report is located on the WSDOT website at www.wsdot.wa.gov/Projects/SR520Bridge/6392workgroup.htm.

Table ES-6. **Preferred Alternative compared to SDEIS**

Geographic Area	Preferred Alternative	Comparison to SDEIS Options A, K, and L
I-5/Roanoke Area	The SR 520 and I-5 interchange ramps would be reconstructed with generally the same ramp configuration as the ramps for the existing interchange. A new reversible transit/HOV ramp would connect with the I-5 express lanes.	Similar to all options presented in the SDEIS. Instead of a lid over I-5 at Roanoke Street, the Preferred Alternative would include an enhanced bicycle/pedestrian path adjacent to the existing Roanoke Street Bridge.
Portage Bay Area	The Portage Bay Bridge would be replaced with a wider and, in some locations, higher structure with six travel lanes and a 14-foot-wide westbound managed shoulder.	Similar in width to Options K and L, similar in operation to Option A. Shoulders are narrower than described in SDEIS (2-foot-wide inside shoulders, 8-foot-wide outside shoulder on eastbound lanes), posted speed would be reduced to 45 mph, and median plantings would be provided to create a boulevard-like design.
Montlake Area	The Montlake interchange would remain in a similar location as today. A new bascule bridge would be constructed over the Montlake Cut. A 1,400-foot-long lid would be constructed between Montlake Boulevard and the Lake Washington shoreline, and would include direct-access ramps to and from the Eastside. The Lake Washington Boulevard ramps would be removed, and access would be provided to Lake Washington Boulevard via a new intersection at 24th Avenue East.	Interchange location similar to Option A. Lid would be approximately 75 feet longer than previously described for Option A, and would be a complete lid over top of the SR 520 main line, which would require ventilation and other fire, life, and safety systems. Transit connections would be provided on the lid to facilitate access between neighborhoods and the Eastside. Montlake Boulevard would be restriped for two general-purpose lanes and one HOV lane in each direction between SR 520 and the Montlake Cut.
West Approach Area	The west approach bridge would be replaced with wider and higher structures, maintaining a constant profile rising from the shoreline at Montlake out to the west transition span. Bridge structures would be compatible with potential future light rail through the corridor.	Bridge profile similar to and higher than Option L; structure types similar to Options A and L. The gap between the eastbound and westbound structures would be wider than previously described to accommodate light rail in the future.
Floating Bridge Area	A new floating span would be located approximately 190 feet north of the existing bridge at the west end and 160 feet north of the existing bridge at the east end. The floating bridge would be approximately 20 feet above the water surface (about 10 to 12 feet higher than the existing bridge deck).	Similar to design described in the SDEIS. The profile of the bridge would be approximately 10 feet lower than described in the SDEIS, and most of the roadway deck support could be constructed of steel trusses instead of concrete columns.
Eastside Transition Area	A new east approach to the floating bridge, and a new SR 520 roadway would be constructed between the floating bridge and Evergreen Point Road.	Same as described in the SDEIS.

Project Effects and Mitigation

This section of the Executive Summary provides an overview of how the SR 520, I-5 to Medina project would affect the built and natural environment. There is a separate summary of project effects and mitigation for each environmental discipline evaluated during the NEPA process. The summaries compare the Preferred Alternative and Options A, K, and L with the No Build Alternative. Tables and graphics are used wherever possible to provide these comparisons in an easy-to-understand format. Generally, each discipline discusses effects common to all options first, followed by effects unique to the Preferred Alternative or Options A, K, or L. For each environmental discipline evaluated in the following sections, mitigation measures are outlined for construction and operational effects. In some cases, no mitigation measures are indicated if they are not warranted under NEPA or other applicable regulations.

As its name suggests, this Executive Summary provides a high-level overview of key study results that differentiate the alternatives and options. Readers who are interested in more detailed analysis should refer to the full text of the Final EIS, where project operational effects and mitigation are described in Chapter 5 and construction effects and mitigation in Chapter 6. Those who want to delve even more deeply into specific aspects of the analysis can consult the discipline reports and addenda in Attachment 7 to the Final EIS, which can be found on the project website (www.wsdot.wa.gov/projects/SR520bridge) and on a DVD included with this document. These reports, which are more complex and lengthy than the EIS discussion, provide the technical basis for findings presented in this document and the Final EIS.

Transportation

The Preferred Alternative and the SDEIS options are designed to improve safety and mobility in the SR 520 corridor by facilitating traffic flow and operations on SR 520, as well as access between the freeway and the local road system. The project would improve transit connections and reliability, and would provide new facilities and connections for nonmotorized transportation (bicycles and pedestrians). This section provides a summary of findings from the updated Final EIS No Build Alternative and Preferred Alternative analyses and compares them with the findings from the SDEIS, which included an analysis of the No Build Alternative and Options A, K, and L.

Transportation benefits of the Preferred Alternative include:

- Completes the SR 520 transit and HOV lane system from I-5 to SR 202.
- Moves nearly 4,000 more people across SR 520 daily in 5 percent fewer vehicles than the No Build Alternative.
- Reduces traffic volumes on Lake Washington Boulevard by up to 32 percent through the Washington Park Arboretum.
- General-purpose and transit travel times on SR 520 would be up to 24 minutes faster from Seattle to Bellevue during the morning commute.
- Travel times on I-5 would improve by up to 24 minutes as a result of the SR 520 project improvements.

Table ES-7. **Commute Peak Period Travel Times (minutes), I-5 to SR 202 (2030)**

		AM Peak Period			PM Peak Period		
Direction	**Lane**	**Existing**	**No Build Alternative**	**Preferred Alternative**	**Existing**	**No Build Alternative**	**Preferred Alternative**
Westbound	General Purpose	19	27	15	33	39	17
	HOV	16	16	14	23	18	15
Eastbound	General Purpose	22	23	16	18	20	20
	HOV	22	22	14	18	16	14

Exhibit ES-10. **Daily Vehicle Demand Volumes on SR 522, SR 520, and I-90**

SR 522 West of 61st Ave NE		
ALTERNATIVE	VEHICLES	% CHANGE
Existing Conditions	49,000	
Year 2030 No Build Alternative	53,200	9%[1]
Year 2030 Preferred Alternative	54,400	2%[2]

SR 520 at Mid-span		
ALTERNATIVE	VEHICLES	% CHANGE
Existing Conditions	115,000	
Year 2030 No Build Alternative	127,400	11%[1]
Year 2030 Preferred Alternative	120,900	-5%[2]

I-90 at West Bridge		
ALTERNATIVE	VEHICLES	% CHANGE
Existing Conditions	149,000	
Year 2030 No Build Alternative	149,400	0%[1]
Year 2030 Preferred Alternative	151,500	1%[2]

[1] Compared to existing conditions
[2] Compared to year 2030 No Build Alternative

Source: King County (2008) GIS Data (Streams, Streets, Water Bodies), CH2M HILL (2008) GIS Data (Park). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Operational Effects

Traffic Volumes and Travel Times

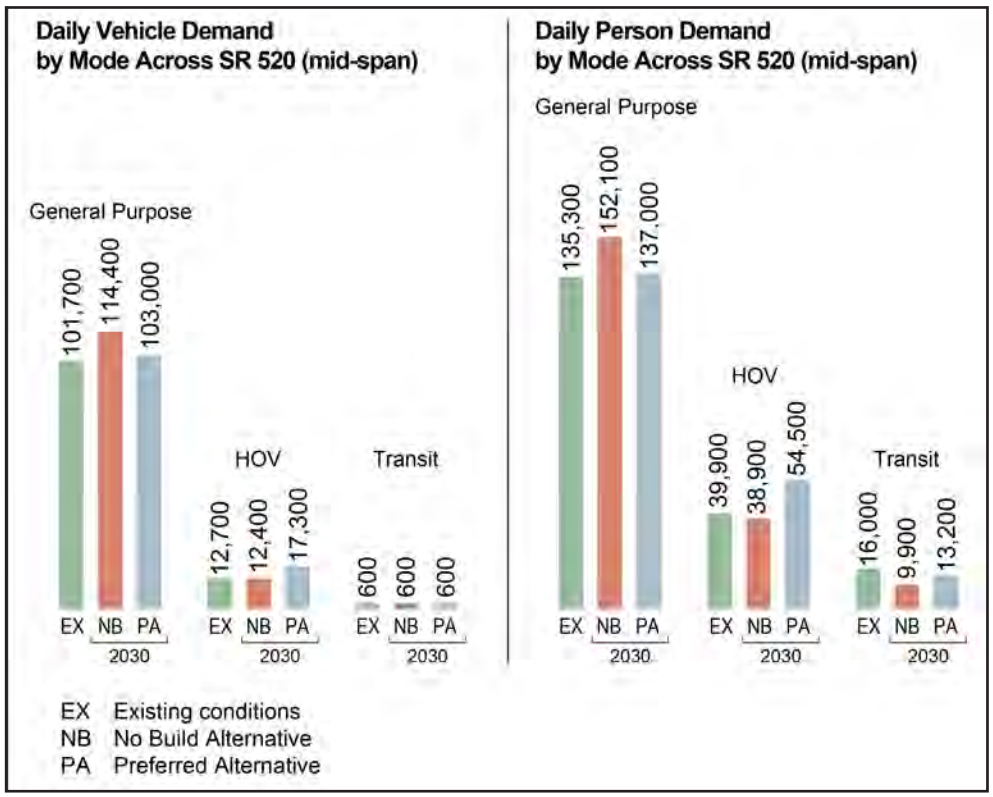
The Preferred Alternative and all SDEIS options include HOV lanes in both directions, an HOV direct-access ramp to the I-5 express lanes, and HOV bypass lanes on all on-ramps. These improvements would allow more people to move through the corridor in fewer vehicles than the No Build Alternative (Exhibit ES-10), reducing congestion and improving travel times for general-purpose vehicles, transit, and HOVs. As shown in Exhibit ES-11, general-purpose trips for both vehicles and people would be reduced compared to No Build, while carpooling and transit use would increase substantially. Travel times would improve during the morning commute peak period for both the eastbound and westbound directions. During the evening commute, westbound travel times under the Preferred Alternative would improve for both general-purpose and HOV traffic; eastbound HOV travel times would improve slightly, while eastbound general-purpose traffic would see no change in travel times (Table ES-7). Similar results would occur with SDEIS Options A, K, and L.

Local Street Operations

The Preferred Alternative and all the SDEIS options would improve local street operations compared to No Build by providing additional capacity across the Montlake Cut and reducing congestion that currently spills back from westbound SR 520 onto southbound Montlake Boulevard. Exhibit ES-10 compares local street operations and traffic volumes under the Final EIS No Build Alternative and the Preferred Alternative, while Exhibit ES-11 shows the results for the SDEIS No Build Alternative and design options A, K, and L.

Under the Preferred Alternative, travel patterns on local streets in the area would change due to the direct-access HOV ramp from SR 520, the removal of the Lake Washington Boulevard ramps, and the addition of a new bascule bridge adjacent to the existing bridge on Montlake Boulevard. The new bascule bridge and the addition of a second general-purpose lane to the SR 520 eastbound on-ramp would reduce congestion and delay for both transit and general-purpose traffic in both directions on Montlake Boulevard between East Roanoke Street and NE Pacific Street. Removal of the Lake Washington Boulevard ramps would result in lower traffic volumes through

Exhibit ES-11. **SDEIS Analysis – Traffic Volume Changes During the PM Peak Period**



the Arboretum compared to the No Build Alternative, improving conditions for park users.

As shown in Exhibit ES-11, SDEIS Option A would remove the Lake Washington Boulevard ramps that exist today, provide direct transit access from the westbound SR 520 HOV lane, and add a new Montlake bridge. These changes would also improve traffic flow on Montlake Boulevard compared to No Build. Traffic in the Arboretum would be less than with No Build unless the suboption to include the Lake Washington Boulevard ramps were implemented.

Option K would include a new lowered single-point urban interchange that would combine the functions of the existing SR 520/Montlake Boulevard and Lake Washington Boulevard ramps. Traffic volumes in the Montlake Boulevard interchange area are forecasted to increase under Option K compared to the No Build Alternative because drivers would take advantage of the capacity associated with the new interchange and crossing of the Montlake Cut. Traffic volumes through the Arboretum would increase compared to No Build.

Traffic forecasts, travel patterns, and operations would be the same under Options K and L, except that vehicles would not be able to access the new interchange from Lake Washington Boulevard southbound. Instead, drivers would go north on Montlake Boulevard to the Montlake Boulevard/ NE Pacific Street intersection and would turn right to access the new bridge connection to the new interchange. As a result, Montlake Boulevard traffic volumes under Option L would not decrease as much as under Option K compared to the No Build. However, they would still be substantially less than under the No Build Alternative between Lake Washington Boulevard and NE Pacific Street in the morning and afternoon peak hours.

Bus Facilities and Service

The Preferred Alternative and the SDEIS options would all provide improved access for HOV and transit in the Montlake interchange area, but design details would vary. As shown in Exhibit ES-12, the Preferred Alternative and the SDEIS options would all result in the following changes to bus operations:

- Add HOV lanes in both directions across SR 520 from Evergreen Point Road to I-5.

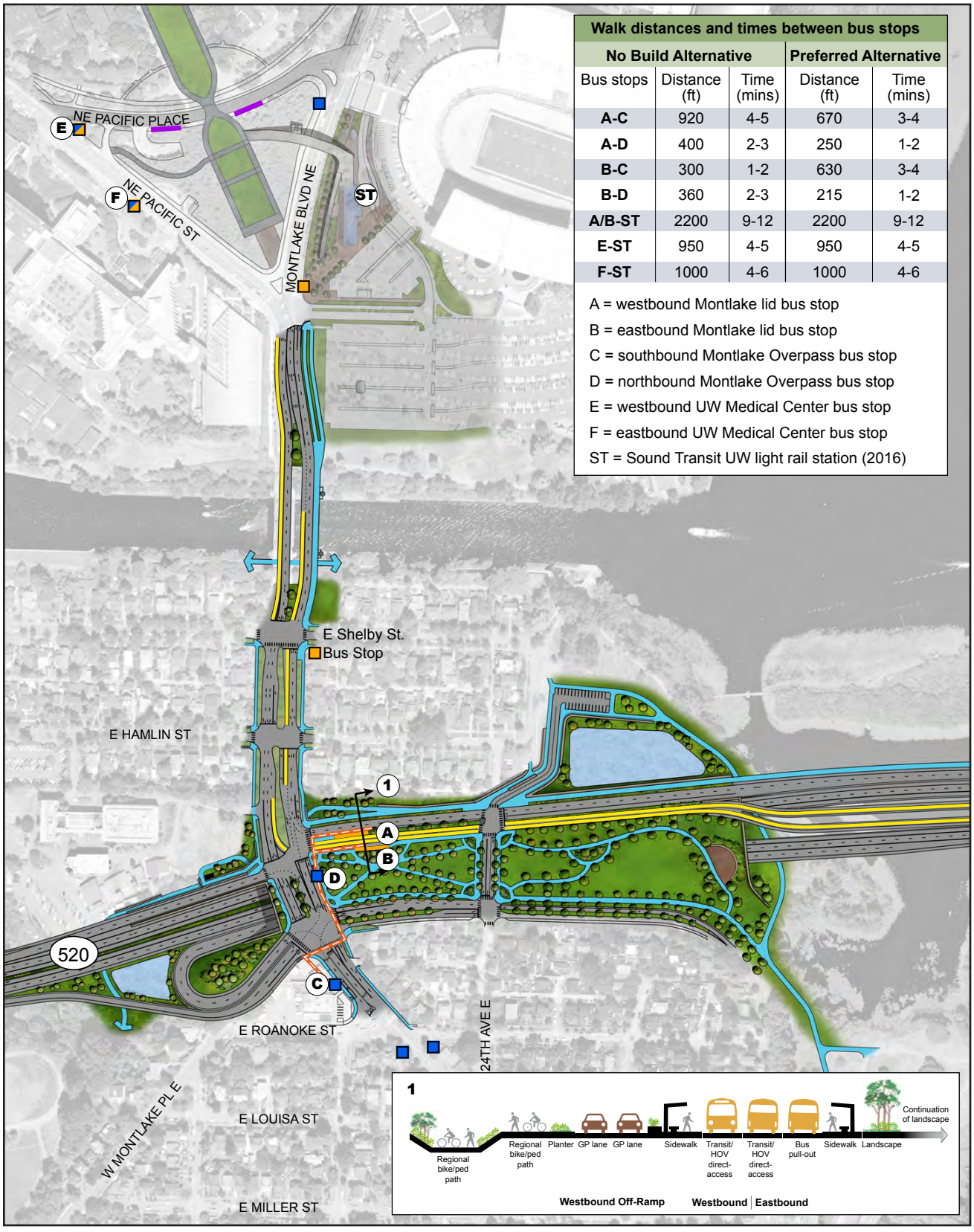
- Add an HOV direct connection to the I-5 express lanes that would operate westbound-to-southbound in the morning and northbound-to-eastbound in the afternoon.
- Add HOV direct-access ramps to the Montlake interchange area, connecting with SR 520 to and from the east. Option A is the only exception because it did not provide direct access from Montlake to the east.
- Remove the Montlake Freeway Transit Station, with connections provided at a new multimodal facility at Montlake Boulevard and NE Pacific Street.
- As shown in Exhibit ES-13, the Preferred Alternative would also include:
  - Bus stops on the new Montlake lid to help replace the function of the Montlake Freeway Transit Station.
  - HOV lanes to Montlake Boulevard NE from SR 520 (southbound between NE Pacific Street and East Shelby Street and northbound between SR 520 to the Montlake Cut).
  - Signal priority at the interchange area.

Transit benefits of the Preferred Alternative include:

- The direct-access ramp on the Montlake lid, a second Montlake bridge, and transit/HOV lanes on Montlake Boulevard all contribute to improving off-peak travel time for local buses between 7 and 12 minutes.
- In the peak periods, transit traveling between the Montlake Triangle area and the Montlake interchange area would save approximately 5 minutes.
- A new bus-only lane and northbound bus stop on Montlake Boulevard improve reliability for local transit routes.
- New Montlake lid bus stops would remain open for all buses in the off-peak period, allowing the flyer stop functions to remain as they are today.
- Most transit riders would have a 1- to 2-minute shorter transfer time due to short walking distances and no stairs between local and SR 520 bus stops. Transit stops will be located on a landscaped lid instead of adjacent to the freeway lanes.
- Transit signal priority is accommodated at key intersections.

Exhibit ES-12. **HOV and Transit Improvements Along SR 520 with the Preferred Alternative**

Exhibit ES-13. **Preferred Alternative Transit and HOV Facilities Within Montlake Area**



Walk distances and times between bus stops				
	No Build Alternative		Preferred Alternative	
Bus stops	Distance (ft)	Time (mins)	Distance (ft)	Time (mins)
A-C	920	4-5	670	3-4
A-D	400	2-3	250	1-2
B-C	300	1-2	630	3-4
B-D	360	2-3	215	1-2
A/B-ST	2200	9-12	2200	9-12
E-ST	950	4-5	950	4-5
F-ST	1000	4-6	1000	4-6

A = westbound Montlake lid bus stop
B = eastbound Montlake lid bus stop
C = southbound Montlake Overpass bus stop
D = northbound Montlake Overpass bus stop
E = westbound UW Medical Center bus stop
F = eastbound UW Medical Center bus stop
ST = Sound Transit UW light rail station (2016)

Parking

The Preferred Alternative would have fewer parking effects than SDEIS options A, K, and L. Option L would have the greatest overall effect on parking due to construction of the northern interchange ramps across the Montlake Cut, which would pass through the Husky Stadium's south parking lot.

All options would require removal of most or all of the parking provided at the Museum of History and Industry (MOHAI) facility, and the existing lot at Bagley Viewpoint Park due to construction of the 10th and Delmar lid. At NOAA Northwest Fisheries Science Center (NWFSC), only the portion of the facility parking lot located on WSDOT right-of-way under the Portage Bay structure would be removed under the Preferred Alternative. Under Option A, roughly 12 spaces could be removed from the portion of the parking lot that is not under the existing structure due to column placement. Options K and L would not affect parking at this location. WSDOT continues to work with NOAA to minimize or mitigate parking effects. Total parking effects of each option are as follows:

Preferred Alternative
The Preferred Alternative would remove approximately 172 parking spaces in the project area (this number includes 124 spaces from the MOHAI location).

Option A
Option A would remove approximately 196 parking spaces in the project area (this number includes 150 spaces from the MOHAI location).

Option K
Option K would remove approximately 211 parking spaces in the project area (this number includes 150 spaces from the MOHAI location).

Option L
Option L would remove approximately 337 parking spaces in the project area (this number includes 150 spaces from MOHAI and 171 spaces from the University of Washington (UW) Husky Stadium lot).

Pedestrian and Bicycle Traffic

The Preferred Alternative and the SDEIS options would meet the project goals of providing mobility benefits in the SR 520 corridor and to the region as a whole. The Preferred Alternative and Options A, K, and L include a new regional bicycle/pedestrian path across the bridge, improvements to intersection connections on the 10th Avenue East and Delmar Drive East lid, and pedestrian and bicycle improvements and connections to trails in the Montlake area.

The Preferred Alternative would add a path on the Roanoke Street bridge over I-5 and new crosswalks at the Harvard Avenue East/Roanoke Street intersection. Under Options A, K, and L, a lid over I-5 would be provided at the existing East Roanoke Street crossing over I-5, extending to the north and south.

The Preferred Alternative and Option A would improve connectivity for bicyclists and pedestrians with other modes of transportation via the Montlake Multimodal Center and University Link light rail station by expanding the pedestrian facilities across the Montlake Cut. Under Options K and L, there would be a lid over the NE Pacific Street/Montlake Boulevard intersection that would provide nonmotorized connections between local bus services and regional bus services.

The Preferred Alternative and SDEIS Options A, K, and L would result in the loss of 54 bicycle locker spaces and 53 bicycle rack spaces near the existing Montlake Freeway Transit Station due to construction of the SR 520 westbound off-ramp. WSDOT, King County Metro, and Sound Transit are working together to determine the best way to replace these bicycle parking facilities.

Mitigation

The project would improve mobility on SR 520 and would meet local traffic concurrency standards. WSDOT has identified several potential intersection improvements that may benefit local traffic operations and will work with the Seattle Department of Transportation to determine their potential effectiveness (see Section 5.1 of the Final EIS for more details).

Construction Effects

The Preferred Alternative and SDEIS options would have similar construction effects on transportation through most of the project area, with differences in the vicinity of the Montlake Boulevard interchange. Most

intersections would operate similarly to existing conditions, with localized areas of reduced or increased congestion during certain parts of the construction period. Options K and L would result in more effects than the Preferred Alternative and Option A because of the amount of truck traffic required for construction of the new single point urban interchange (SPUI) and the traffic effects during the closure of NE Pacific Street.

Temporary Road Cosures and Detours

During weekday peak periods, WSDOT would maintain two through lanes on SR 520 in each direction. The on- and off-ramps at Montlake Boulevard would remain open, or temporary ramp connections would be constructed. The Preferred Alternative and SDEIS options would close the Lake Washington Boulevard ramps for some period of time during construction (Exhibit ES-14). Traffic that currently uses the Lake Washington Boulevard ramps would be detoured to use the ramps at Montlake Boulevard. The ramp closures would mostly affect local street operations and are not expected to have a substantial effect on SR 520 operations. A number of improvements would be made to the ramps at Montlake Boulevard in order to accommodate the detour traffic. Refinements to construction sequencing since the SDEIS have eliminated the need for the closure of Delmar Drive East.

Preferred Alternative and SDEIS Options

The Preferred Alternative and all SDEIS options would require the closure of the 24th Avenue East bridge across SR 520 north of Lake Washington Boulevard for approximately one year while the bridge is demolished and reconstructed.

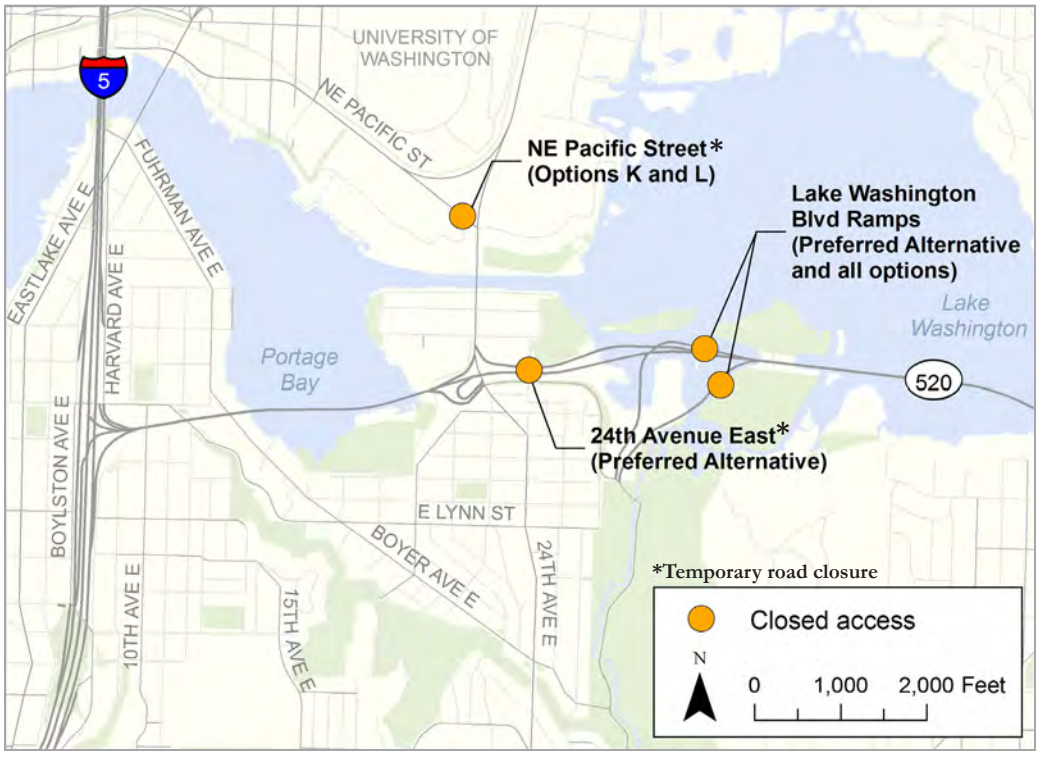
Options K and L

Options K and L would close NE Pacific Street for 9 to 12 months. During this closure, detour traffic would turn at the Montlake Boulevard NE/NE Pacific Place intersection. Even with improvements to accommodate the additional detour traffic, the intersection would be severely congested.

Haul Routes

Exhibit ES-15 shows the potential primary and secondary truck haul routes evaluated for the Preferred Alternative and SDEIS design options. The majority of haul route

Exhibit ES-14. **Road Closures for Preferred Alternative and Options A, K, and L**



traffic would be on I-5 and SR 520, these main routes would be more efficient for contractors to access work sites. Whenever possible, crews will work from the WSDOT right of way or build temporary direct-access connections to work sites and staging areas from SR 520. Most of the construction truck trips would use Montlake Boulevard to access SR 520. A few other arterials would be affected, but the estimated number of construction truck trips along these arterials would be relatively low compared to existing overall traffic volumes.

Transit

The Montlake Freeway Transit Station would remain open during construction, with closures for short periods of time to accommodate construction activities. During closures, riders would make their transfers along Montlake Boulevard or on the Eastside, depending on where their trips started and ended. The two bus stops along Montlake Boulevard nearest the SR 520 interchange would be temporarily relocated during construction. Midday transit travel times during construction on routes that use Montlake Boulevard would be between 3 minutes faster and 4 minutes slower than existing travel times, depending upon the stage of construction and the specific bus route used.

Parking

The Preferred Alternative and Options A, K, and L would temporarily affect parking at the Bagley Viewpoint (10 spaces), along 24th Avenue East (5 spaces), and along Lake Washington Boulevard (35 spaces).

The Preferred Alternative and SDEIS options would also affect parking in the UW E-11 and E-12 lots, the NOAA NWFSC, MOHAI, the WSDOT public lot on East Lake Washington Boulevard though the effects would differ with each option. MOHAI operations would not be affected because operations would be moved prior to the start of construction.

Pedestrian and Bicycle Traffic

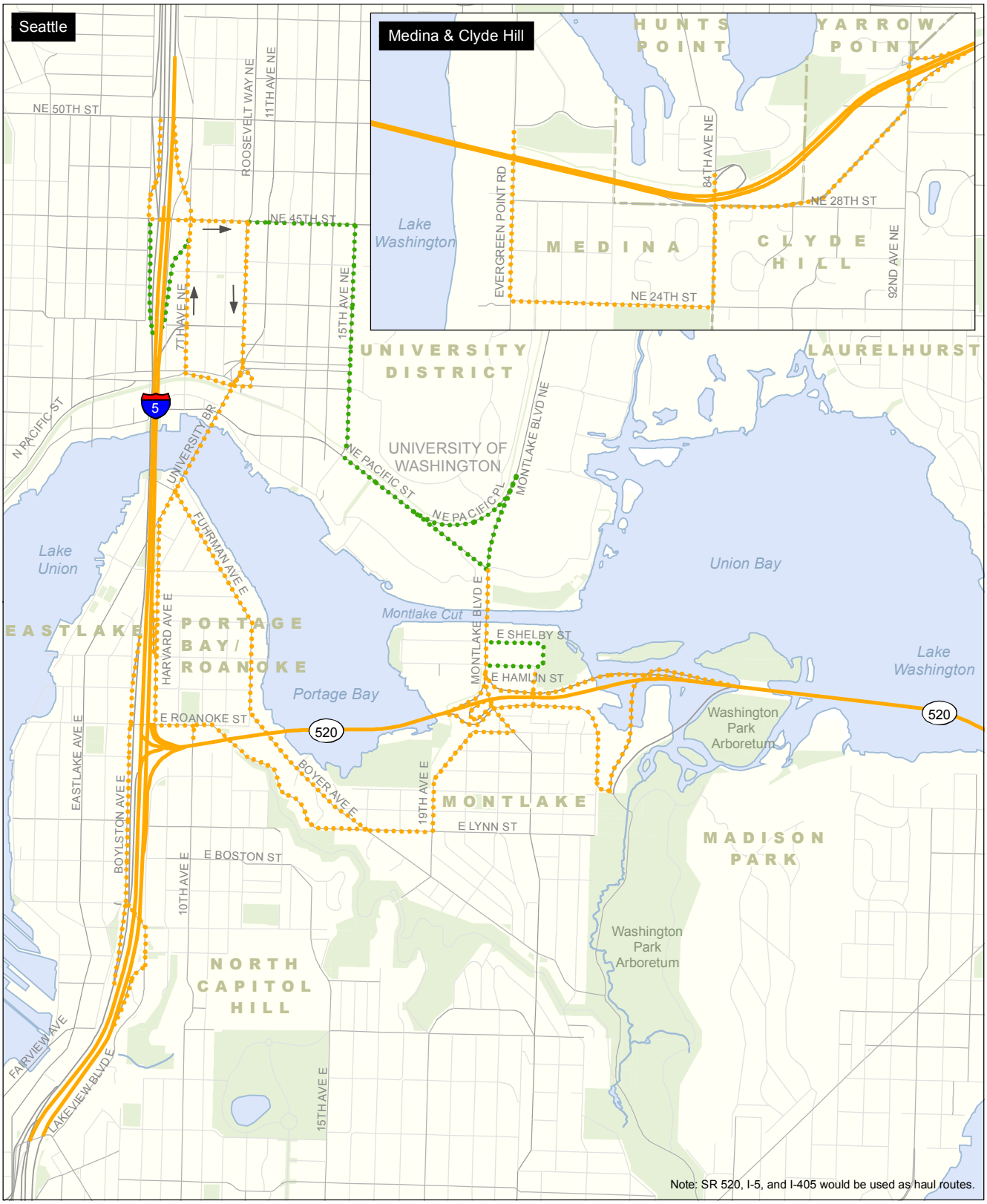
The Preferred Alternative and SDEIS options would close the 24th Avenue East bridge and the Bill Dawson Trail for most of the construction duration, leaving only Montlake Boulevard open to pedestrian and bicycle traffic. Bicycle and pedestrian access may be restricted to one side of Montlake Boulevard.

The NE Pacific Street intersection would be affected by Options K and L due to reconstruction of the intersection at NE Pacific Place and Montlake Boulevard NE. The Preferred Alternative is similar to Option A, and would not substantially affect this intersection.

Mitigation

WSDOT will develop a construction traffic management plan to ensure that construction effects on local streets, property owners and businesses are minimized. This plan will involve coordination with the Seattle Department of Transportation and transit agencies. WSDOT may also implement travel demand management measures to provide additional travel options during construction. Please see Section 6.1 of the Final EIS for more information.

Exhibit ES-15. **Potential Haul Routes for Preferred Alternative and Options A, K, and L**



Potential primary haul route (Preferred Alternative and Options A, K, and L)

Potential secondary haul route (Preferred Alternative and Options A, K, and L)

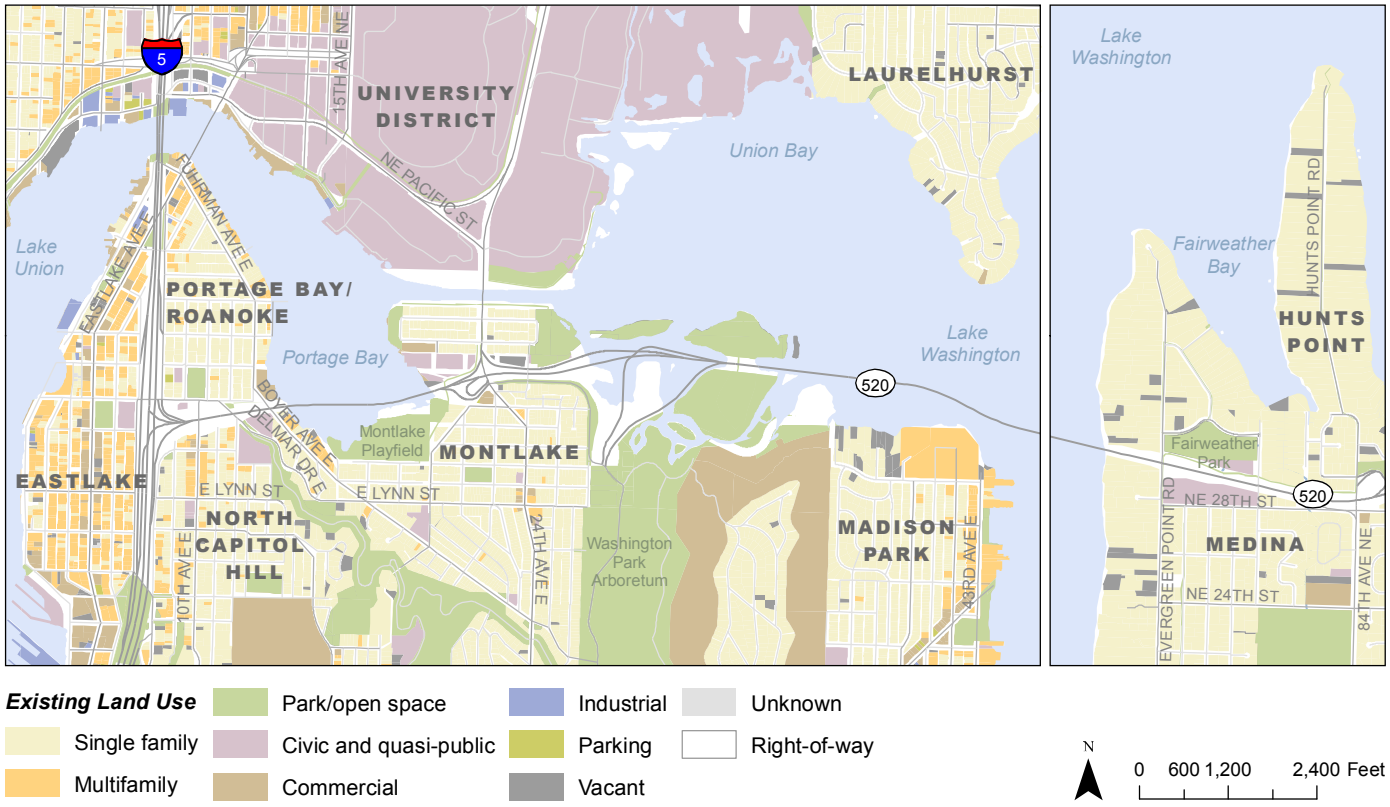
Potential secondary haul route (Options K and L)

N

0 1,000 2,000 Feet

Land Use, Economics, and Relocations

Exhibit ES-16. **Existing Land Use**



Operational Effects

WSDOT would acquire some of the land adjacent to the existing corridor for new permanent right-of-way in order to accommodate alignment and interchange improvements. The number of acres that would be converted to right-of-way and the number of structures affected would differ slightly with the Preferred Alternative and Options A, K, and L. The estimated property tax effects from these land acquisitions would be similar between the Preferred Alternative and SDEIS options, and would result in a less than 0.01 percent decrease in overall tax revenue. Property acquisition and relocations will be completed in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Preferred Alternative

The Preferred Alternative would require the least amount of new right-of-way (10.6 acres). This alternative would result in 9 full parcel acquisitions, and would remove 6 residential structures and the MOHAI building.

Option A

Option A would require 11.1 acres of new right-of-way. This option would result in 7 full parcel acquisitions, and would remove 6 residential structures, the MOHAI building, the Montlake 76 gas station, and 9 of the 11 buildings on the south campus of the NOAA NWFSC.

Option K

Option K would require the most new right-of-way (15.7 acres). This option would result in 6 full parcel acquisitions, and would remove 4 residential structures and the MOHAI building.

Option L

Option L would require 11.9 acres of new right-of-way. This option would result in 5 full parcel acquisitions and would remove 4 residential structures and the MOHAI building.

The Preferred Alternative and all design options would be consistent with local and regional land use plans and policies.

Construction Effects

For the Preferred Alternative and SDEIS options, construction would occur within existing WSDOT right-of-way, adjacent to SR 520, to the greatest extent possible. However, in some places within the project area, land now used for other purposes would be used for construction. Construction easements would affect a portion of the Seattle Fire Station 22 property on East Roanoke Street. During construction, the station would be fully operational, access would be maintained, and emergency response would not be affected.

Preferred Alternative

The Preferred Alternative would require construction easements on land in the UW Open Space (immediately north of the Montlake Cut); within East Montlake Park; east of the new Montlake Boulevard bascule bridge; along East Lake Washington Boulevard and East Montlake Boulevard; and at the existing SR 520/East Montlake Boulevard interchange.

Option A

Construction effects with Option A would be similar to the Preferred Alternative; however, Option A would permanently remove the Montlake 76 gas service station on Montlake Boulevard East at the SR 520 ramps. Although some of the parcel would be converted to WSDOT right-of-way, most of the parcel would be used for construction staging, vacated by WSDOT after construction, and available for development after construction.

Options K and L

Options K and L would relocate the UW's Waterfront Activities Center throughout the construction duration.

The loss of parking near Husky Stadium could inconvenience UW Medical Center employees, event attendees, and campus visitors.

In Portage Bay, the boat slips on the south side of the southernmost dock at the Queen City Yacht Club and all slips at the Bayshore Condominiums would be removed to accommodate construction of the Portage Bay Bridge. These moorages would be replaced after construction was completed.

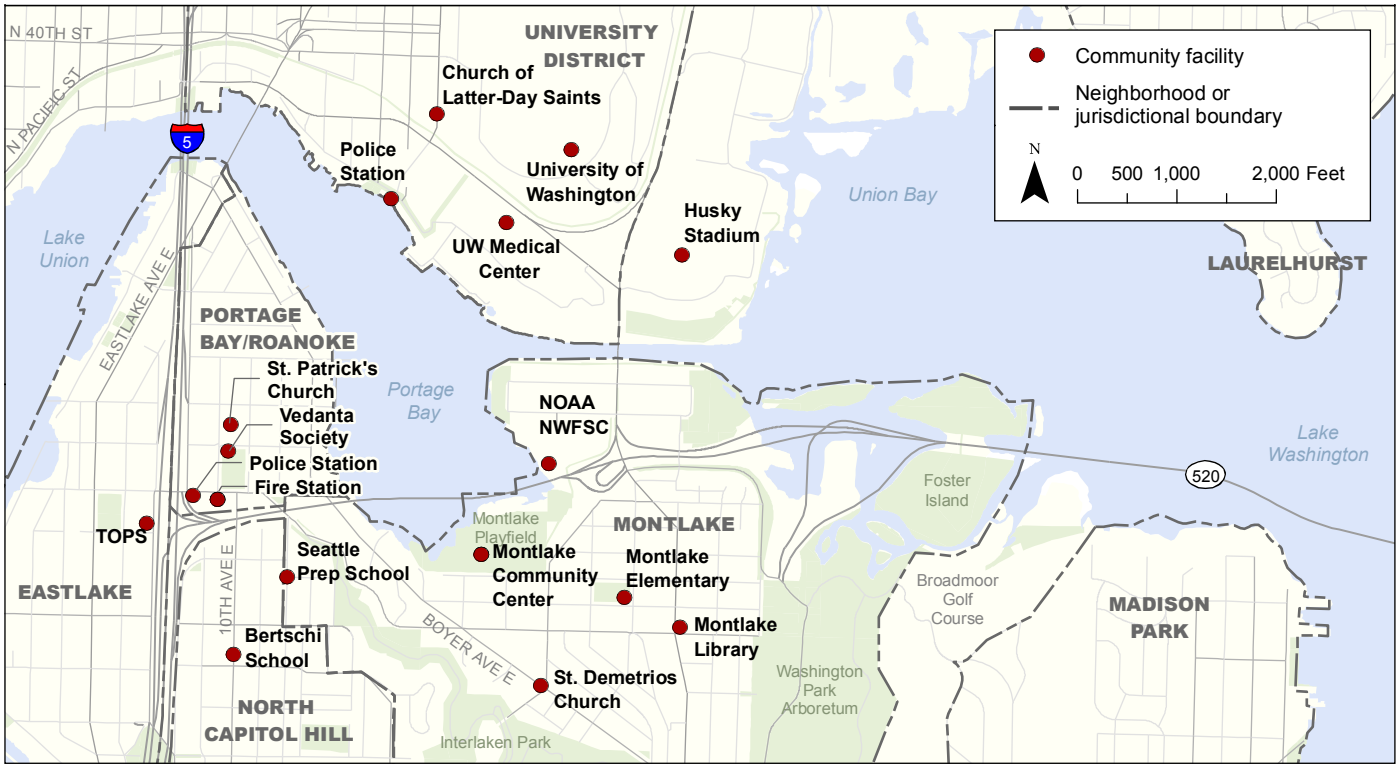
The positive effects of construction-related jobs, spending (e.g., project spending and spending by construction workers), and resulting sales tax revenues would be widely dispersed through the local and regional economies.

Mitigation

WSDOT will coordinate with business owners to provide alternative access and appropriate detour signage. The temporary loss of boat moorage at Queen City Yacht Club and the Bayshore Condominiums would be mitigated through relocation of boats to temporary moorages. If Option K or L were selected, WSDOT would coordinate with the UW to temporarily relocate the functions of the UW Waterfront Activities Center and to address reduced parking availability and associated revenues at Husky Stadium lots. Specific mitigation measures have not been determined at this time.

Social Elements

Exhibit ES-17. **Neighborhoods and Community Facilities**



Operational Effects

The Preferred Alternative and the SDEIS options include lids that would benefit community cohesion by reconnecting neighborhoods originally bisected by SR 520 and/or I-5, providing linkages between adjacent and nearby parks, improving views toward the highway from nearby residences, and providing safe passage across I-5 and SR 520. In addition, the project would reduce noise at many locations near SR 520, improve local traffic circulation, reduce air pollutant emissions, add new park land, and enhance the Washington Park Arboretum. The overall effect of project operation on social elements is therefore expected to be positive.

However, the environmental justice analysis concluded that, after mitigation, the project would not have a disproportionately high and adverse effect on minority or low-income populations. Tolling for the project would adversely affect low-income populations; in addition, construction of the new Evergreen Point and west approach bridges would have adverse effects on tribal treaty fishing and on the Foster Island traditional cultural property. See Section 5.3 of the Final EIS for a discussion of the environmental justice analysis.

Mitigation

Environmental justice effects are being addressed through a variety of measures described in Section 5.3 of the Final EIS, including:

- Outreach to low-income and minority populations regarding tolling on SR 520, along with increases in transit service that will provide benefit to low-income users of SR 520.
- Consultation with the Muckleshoot Indian Tribe, Suquamish Tribe, Snoqualmie Tribe, and Tulalip Tribes to mitigate for effects on the Foster Island traditional cultural property through a Foster Island Treatment Plan.

- Government-to-government consultation between FHWA, the Muckleshoot Indian Tribe, and WSDOT that describes commitments made to address the project's effects on treaty fishing and natural resources.

Construction Effects

The Preferred Alternative and SDEIS options would affect adjacent neighborhoods during construction, resulting in negative effects from detours, haul truck traffic, relocated bus stops, and utility service disruptions. Construction would also increase noise, dust, and visual clutter in residential, business, and park areas adjacent to construction zones. These effects could reduce residents' quality of life and limit connections to community resources, patronage at neighborhood businesses, or use of recreational amenities. Partial closures of sidewalks, bicycle routes, trails, and park areas could discourage neighborhood activity and use of community resources.

The Preferred Alternative and SDEIS options would have similar effects in all areas except Montlake and the UW south campus, where the scale and intensity of construction would differ. The scale and intensity of construction-related effects within these areas would be greatest with Option K.

Construction of the project would affect access to tribal fishing areas within the usual and accustomed fishing areas of the Muckleshoot Indian Tribe, although with mitigation these effects would not be disproportionately high and adverse. Transporting 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 large amount of vessel traffic.

Effects on the University District and Montlake neighborhoods under Options K and L would include longer and more intense noise, dust, vibration, construction traffic, and visual changes due to construction of the tunnel (Option K) or new bascule bridge and SPUI ramps (Option L).

Closure of NE Pacific Street associated with Options K and L could affect response times and emergency access to UW Medical Center.

Mitigation

WSDOT will continue to work with the project area neighborhoods to keep residents informed of project changes, and to develop neighborhood-specific measures to address anticipated construction effects. WSDOT is developing a community construction management plan (CCMP) to keep residents informed and to help minimize the effects of construction activities on affected communities. A traffic management plan will be prepared that will identify measures and practices to minimize construction effects on local streets, transit and transit users, property owners, and businesses (see Section 6.1, Transportation in the Final EIS). WSDOT will work with utility service providers to prepare a consolidated utility engineering plan that will include sequenced and coordinated schedules for utility work and descriptions of potential service disruptions. WSDOT will work with affected communities to provide advance notice of any service disruptions.

Recreation

Exhibit ES-18. **Parks and Recreational Facilities**

Operational Effects

Under the Preferred Alternative and all SDEIS options, WSDOT would acquire all or part of up to six recreational properties (depending on the alternative) for new permanent right-of-way in order to accommodate alignment and interchange improvements. The Preferred Alternative would result in the least acquisition of park land. The largest acquisitions would occur at McCurdy and East Montlake Parks. The Preferred Alternative and all SDEIS options would also acquire Bagley Viewpoint in its entirety. In addition to land acquisition, the greater width and higher profile of the west approach bridge across Foster Island would change park users' experience in this area.

Removal of the Lake Washington Boulevard ramps under the Preferred Alternative and Option A would benefit the Arboretum by reducing traffic and improving views. The landscaped lids at 10th Avenue East and Delmar Drive East and in the Montlake area would provide new areas for passive recreation. Trails across these lids would further improve connectivity for bicyclists and pedestrians. In addition, the proposed regional bicycle/pedestrian path across SR 520 would provide a new connection between the City of Seattle's bicycle and pedestrian system and the Points Loop Trail in Medina.

Preferred Alternative
The Preferred Alternative would acquire a total of 6.7 acres of park land from Bagley Viewpoint, Montlake Playfield, the UW Open Space, East Montlake Park, McCurdy Park, and the Washington Park Arboretum.

Option A
Option A would acquire 7.5 acres of park land from Bagley Viewpoint, the UW Open Space, East Montlake Park, McCurdy Park, and the Washington Park Arboretum.

Option K
Option K would acquire 9.1 acres of park land from the same parks as for Option A. The land bridge located on the north portion of Foster Island would change the island from a wetland viewing area to a more landscaped upland setting.

Option L
Option L would acquire 7.6 acres of park land from the parks listed for Option A.

Mitigation

Mitigation for park effects is required by Section 4(f) of the Department of Transportation Act and Section 6(f) of the Land and Water Conservation Fund Act. WSDOT worked extensively with the City of Seattle, the UW, FHWA, the National Park Service, and the Washington State Recreation and Conservation Office to ensure that all regulatory requirements were met. Mitigation measures that WSDOT has committed to include:

- Funding for a 3.9 acre new public park at the Bryant Building property on the Lake Washington Ship Canal.
- Funding for projects at the Washington Park Arboretum as part of an Arboretum Mitigation Plan.
- Restoration of all park properties affected by construction.
- Replacement of the Bagley Viewpoint on the new lid at 10th Avenue East and Delmar Drive East.

Section 5.4 and Chapters 9 and 10 of the Final EIS provide more detail on WSDOT's park mitigation commitments.

Construction Effects

The Preferred Alternative and SDEIS options would affect adjacent parks during construction, with negative effects including temporary easements, construction-related truck traffic, construction noise, dust, and visual clutter. The scale and intensity of construction near these parks would vary among the options. Construction staging would take place in the portion of East Montlake and McCurdy Parks acquired for right-of-way, and also in the WSDOT-owned peninsula adjacent to the Arboretum.

The Preferred Alternative and SDEIS options would require periodic closure and detours of the Ship Canal Waterside Trail and the Arboretum Waterfront Trail, and would affect trail access from Montlake Boulevard and in East Montlake Park. The kayak and canoe launch point at East Montlake Park would also be periodically inaccessible.

Preferred Alternative
The Preferred Alternative would require 7.4 acres of parks for construction easements.

Option A
Option A would require 5.9 acres of parks for construction easements.

Option K
Option K would require 9.0 acres of parks for construction easements.

Option L
Option L would require 6.9 acres of parks for construction easements.

Mitigation

Best management practices will be implemented to protect recreational resources from construction-related effects such as dust, vibration, glare, and accidental damage from construction equipment. Detour routes and traffic control measures will allow continued access to parks and to UW recreational activities. Construction closures will be timed to minimize effects during major events. WSDOT, the City of Seattle, the UW, and appropriate regulatory agencies will evaluate how best to protect specimen trees and important vegetation in the Arboretum.

Visual Quality

Operational Effects

The Preferred Alternative and SDEIS options would affect visual quality as a result of the new lids and wider bridges and roadways that would be shifted in some areas and raised or lowered in other areas. The new lids and wider column spacing on bridges would improve views from many locations in the project area, although the increased width and height of new structures would be very noticeable in the west approach area, including the Arboretum.

Preferred Alternative

A larger lid over Montlake Boulevard would improve views for residences north and south of SR 520. Removal of the Lake Washington Boulevard ramps would reduce visual clutter in the west approach area. Although the crossing of Foster Island would be higher and wider than it is today, the path beneath SR 520 would offer a more open and pleasant experience. The planted median along Portage Bay Bridge would be designed to create a "boulevard" effect.

Exhibit ES-19. **View of Portage Bay Bridge Columns**

Existing View

- 4-lane bridge
- Column spacing at 100 feet on center

Preferred Alternative

- 6-lane bridge with eastbound off-ramp to Montlake
- Bridge re-aligned 40 feet north
- Bridge design and aesthetic treatments to be determined

Option A

- 6-lane bridge with westbound auxiliary lane
- No noise walls
- Bridge design and aesthetic treatments to be determined

Option K

- 6-lane bridge
- No noise walls
- False arches

Option L

- 6-lane bridge
- Noise walls
- False arches

Exhibit ES-20. **Looking Northeast from Lake Washington Boulevard toward MOHAI and McCurdy Park Trees**

Existing View

- 4-lane roadway with transit-only on ramp
- Unused R.H. Thomson Expressway ramps in distance
- 20-foot-high retaining wall on north side of corridor

Preferred Alternative

- Montlake Boulevard lid with westbound off-ramps (white barrier in middle distance)
- Transit stop on lid (green and yellow bus at far left)

Option A

- Partial lid from Montlake Boulevard East to 24th Avenue East
- Landscaping not shown

Option K

- Full lid from Montlake Boulevard to beyond 24th Avenue East
- Vent tower for twin tunnels under Montlake Cut
- Depressed SPUI east of 24th Avenue East
- Landscaping not shown

Option L

- Full lid from Montlake Boulevard to 24th Avenue East
- Bridge over East Montlake Park
- Elevated SPUI east of 24th Avenue East
- HOV direct-access ramps

Option A

Effects of Option A would be similar to those of the Preferred Alternative, except that the lid would not be as large and the crossing of Foster Island would be somewhat lower.

Option K

Tall retaining walls at the tunnel entrance and columns to support the main line over the interchange would affect views dramatically. The land bridge at Foster Island would remove naturalized woodlands on both sides of SR 520. Additional structures required in the McCurdy Park and East Montlake Park areas would be visible to motorists and park users.

Option L

The new diagonal bridge across the Montlake Cut would cross East Montlake Park at an angle, significantly affecting

Exhibit ES-21. Looking Northwest from Edgewater Apartments toward SR 520 West Approach and Husky Stadium

Existing View

- 4-lane bridge
- View of south Union Bay
- Column spacing at 100 feet on center
- Husky Stadium in distance (left of center)
- Boat traffic

Preferred Alternative

- Wider and higher 6-lane bridge
- More open view into north Union Bay
- Column spacing at 250 feet on center
- Gantry (visible in front of Husky Stadium roof line
- Transit bus on bridge (center)

Option A

- 6-lane bridge
- Column spacing at 250 feet on center

Option K

- 6-lane bridge
- Column spacing at 250 feet on center

Option L

- 6-lane bridge
- Column spacing at 250 feet on center
- Noise walls

views for park users and some residents in the Shelby-Hamlin neighborhood as well as users of Husky Stadium and the UW Open Space. The Foster Island crossing would be similar to Option A.

Mitigation

Many of the features already incorporated into the project will enhance visual quality, and WSDOT has already undertaken several initiatives to work with community members in developing context-sensitive designs for features that are in or near their neighborhoods. Development of specific aesthetic treatments and landscaping plans will occur in conjunction with final design for the project. WSDOT has initiated discussions with the Seattle Design Commission to develop urban design guidelines for the project in collaboration with community members, and will continue to update and expand these guidelines as design progresses.

Construction Effects

Vegetation removal, large construction equipment, earthwork and grading, and work bridges would all

Exhibit ES-22. **Looking Northeast across Lake Washington at Evergreen Point Bridge**

Existing View

- Shoreline park in Madison Park
- Evergreen Point Bridge and East Approach
- Medina shoreline in distance
- Cascade Mountains far in distance

Options A, K, and L

- Evergreen Point Bridge and East Approach
- Bridge height at mid-span approximately 30 feet above water

Preferred Alternative

- Evergreen Point Bridge and East Approach
- Bridge height at mid-span approximately 20 feet above water

contribute to changes in visual quality during construction. Views from some homes that are currently screened by trees would overlook ongoing construction. Construction equipment and activities would be visible from homes along adjacent roadways. All in-water and upland activities associated with replacing the Portage Bay Bridge would result in substantial degradation of visual character and quality in the south part of Portage Bay. The viewers most affected would be motorists crossing the bridge, residents on houseboats near the bridge's west end, park users at Montlake Playfield, and patrons of the Queen City and Seattle yacht clubs.

A considerable amount of earthwork is required for widening SR 520 and grading for the stormwater ponds. Construction work bridges would clutter views, especially for SR 520 motorists and boaters in Portage and Union bays, and they would be highly visible at breaks in the tree line in the Arboretum and from various locations along the Arboretum Waterfront Trail. Staging areas in East Montlake Park and on the WSDOT-owned peninsula adjacent to the Arboretum would also be visible to park users.

Preferred Alternative and Option A

Construction would require the removal of a band of mature, dense trees along the Montlake Cut as well as the removal of two single-family residences; which would eliminate a buffer for nearby homes from construction activities on Montlake Boulevard.

Option K

The greatest effect on views would be from the extensive excavation and construction activity in the MOHAI area for the interchange and tunnels. A temporary detour bridge south of the existing west approach would add to the clutter.

Option L

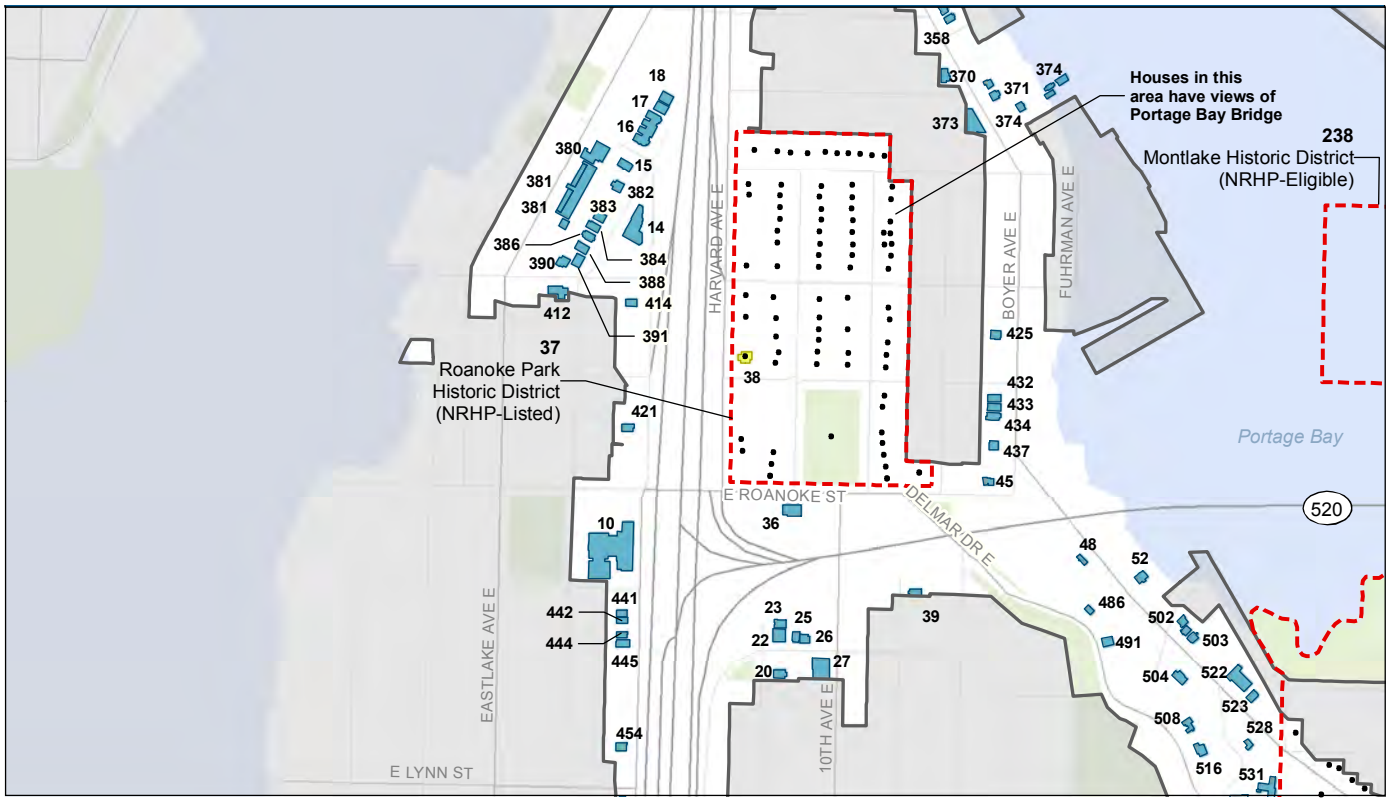
Views would be greatly affected at the east end of the Montlake Cut, the east Shelby-Hamlin neighborhood, and East Montlake Park area due to construction of the new interchange and bascule bridge.

Mitigation

Best management practices (BMPs) such as construction screening, standardized work hours, and low-impact construction methods, materials, and tools will be used to reduce construction effects on surrounding neighborhoods. All disturbed areas will be restored and revegetated as soon as possible after construction. Section 5.5 in the Final EIS provides more information on the revegetation and landscaping activities that will occur for the project.

Cultural Resources

Exhibit ES-23 **Historic Properties Within the I-5 and Portage Bay Area**



NRHP Eligibility of Surveyed Resources

- Contributing
- Listed
- Eligible
- Area of potential effects
- Historic district boundary

Note: All resources are mapped and described in detail in the Final Cultural Resources Assessment and Discipline Report. See Table 4.6-1 for a list of properties that correspond to the ID numbers shown above.

N

0 250 500 1,000 Feet

The project area includes a number of historic and cultural resources, including two historic districts (Roanoke Park and Montlake), that are listed on, eligible for, or contributing to a district's eligibility for the National Register of Historic Places (NRHP). In addition, although there are no known archaeological resources in the project area, Foster Island is a traditional cultural property that retains ongoing significance to members of Native American tribes. Exhibits ES-23 and ES-24 show the locations of these resources within the project's Area of Potential Effect (APE).

Operational Effects

WSDOT and FHWA evaluated the project's potential effects on these properties using the Criteria of Adverse Effect (36 CFR 800.5) outlined in Section 106 of the National Historic Preservation Act. This legislation states that a project would have an adverse effect on a historic property if it results in changes to the property's characteristics that qualify it for inclusion on the NRHP. Examples of potential adverse effects include the physical destruction of an entire historic property; damaging, altering, or removing a portion of a historic property; and introducing environmental factors that are out of character with the historic property and diminish its setting and integrity (for example, visual intrusions). In consultation with the Washington State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation, FHWA and WSDOT have determined that operation of the SR 520, I-5 to Medina project would have an overall adverse effect on historic properties.

Mitigation

FHWA and WSDOT have consulted with the SHPO and other "consulting parties" (tribes, organizations and individuals with stewardship interests in historic properties) to seek resolution of the adverse effect from the project. This work culminated in a Programmatic Agreement, completed in May 2011, that memorializes the stipulations agreed upon to avoid, minimize, and mitigate adverse effects on historic properties located within the APE. See Attachment 9 of the Final EIS for a copy of the Programmatic Agreement. Potential effects on historic properties from operation of the Preferred Alternative and Options A, K, and L are described in more detail in Final EIS Section 5.6.

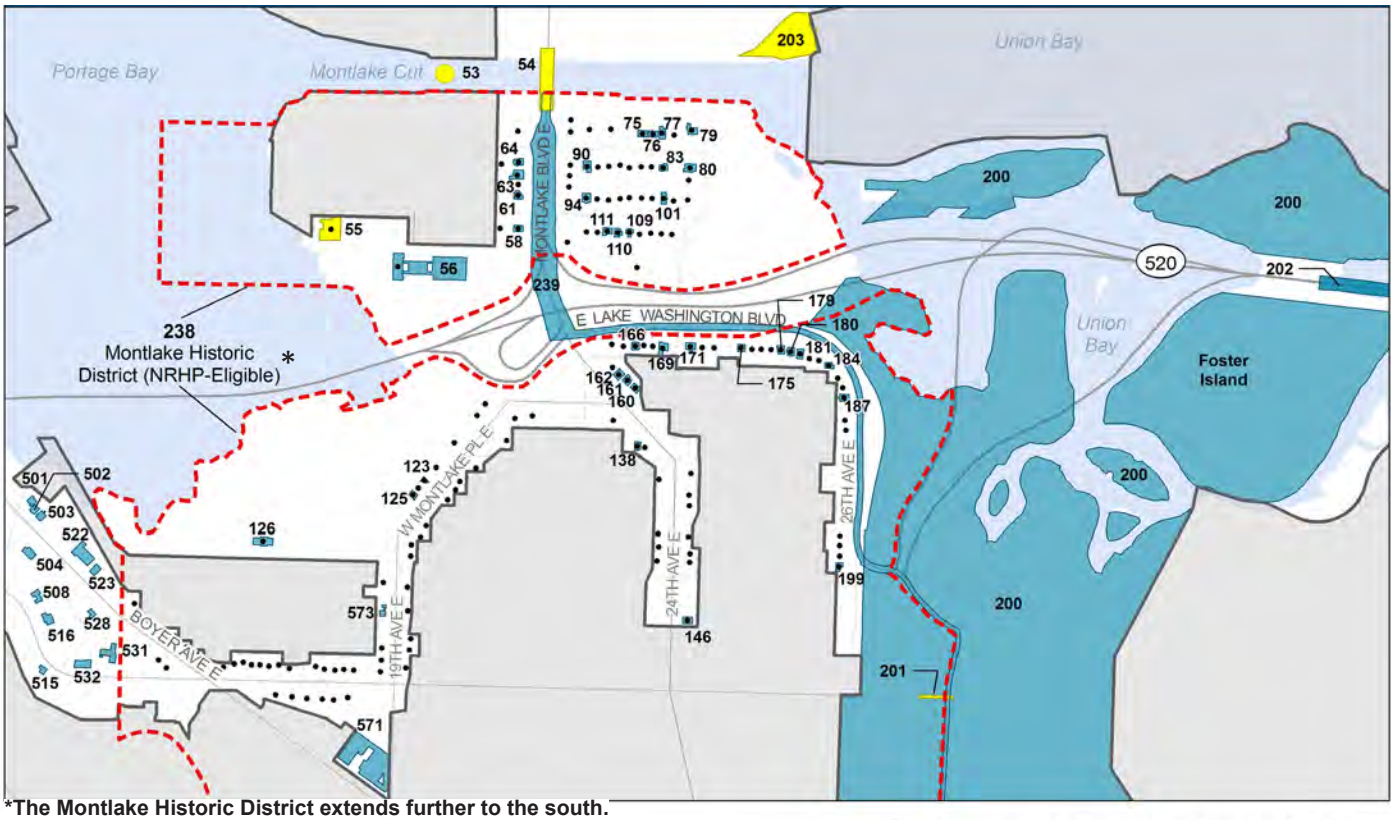
Construction Effects

Construction of the Preferred Alternative and all SDEIS options would affect a number of historic properties in the APE, and would result in an adverse effect. Although some effects would be avoided and minimized throughout the construction period through implementation of a CCMP (described below) and use of construction best management practices, not all effects from construction could be avoided. These effects include noise, dust, and visual intrusion from the presence of construction activities and haul routes within or adjacent to historic districts and individual properties.

Mitigation

Even with WSDOT and FHWA's ongoing efforts to avoid effects to the greatest extent feasible, it will not be possible to avoid all effects on historic properties from construction of the SR 520, I-5 to Medina project. As described above under Operational Effects, the adverse effect will be mitigated, and the mitigation measures are stipulated in the Section 106 Programmatic Agreement. As

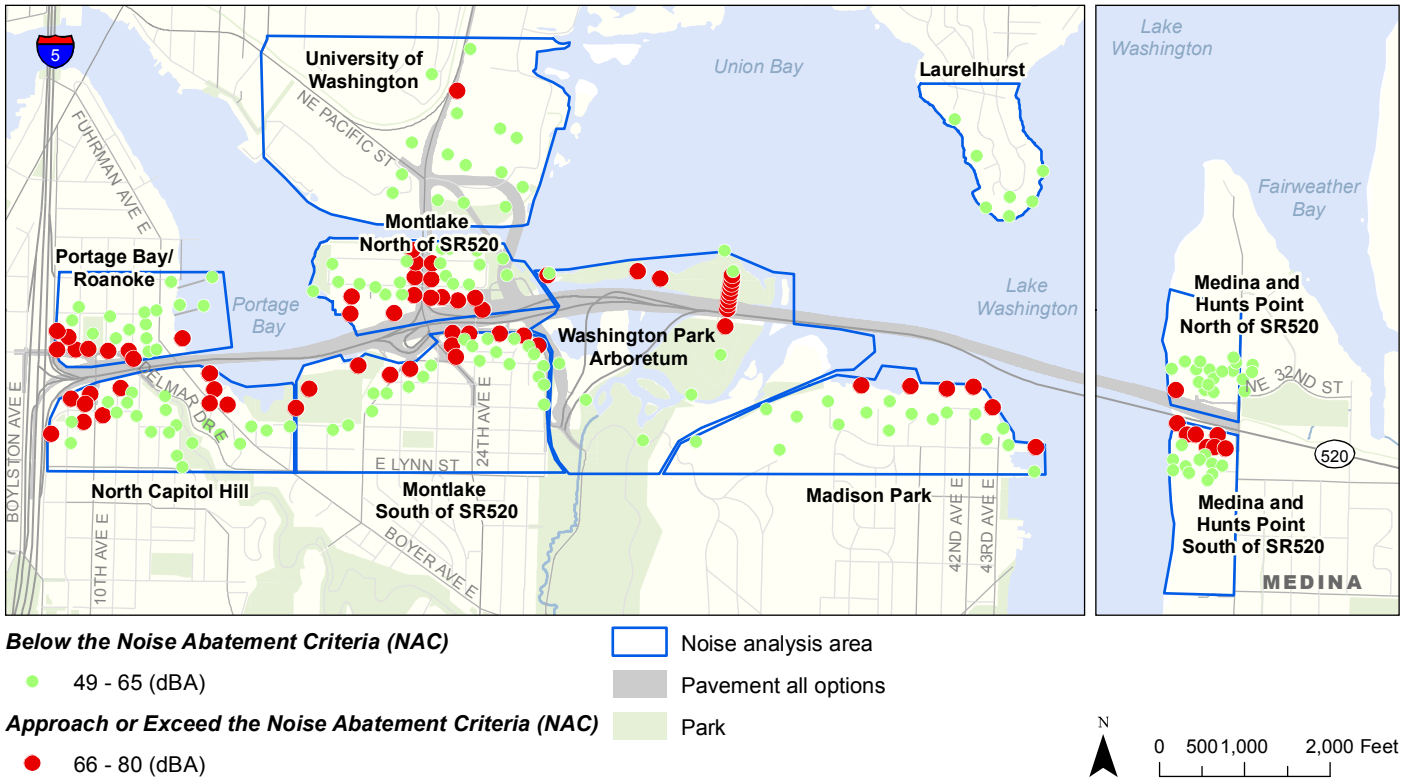
Exhibit ES-24. **Historic Properties Within the Montlake Area**



part of the Programmatic Agreement, in consultation with the Section 106 consulting parties, affected community groups, and the City of Seattle, WSDOT will develop a CCMP. The CCMP will contain specific measures designed to protect historic properties in the APE and to address quality of life issues. The CCMP will be designed as an adaptable plan so that it can handle unanticipated issues that may arise during construction.

Noise

Exhibit ES-25. **Existing Noise Levels in the Project Area**



FHWA and WSDOT evaluate the effects of highway noise using FHWA's Noise Abatement Criteria (NAC). These criteria set acceptable noise levels based on the type of property receiving the noise. As shown in Exhibit ES-25, existing noise levels in the Seattle study area approach or exceed the NAC in many locations, including the neighborhoods of Portage Bay/Roanoke, North Capitol Hill, Montlake, and Madison Park as well as in the Washington Park Arboretum.

Operational Effects and Mitigation

Because many members of the public have expressed concerns about the aesthetic effects of noise walls, noise modeling for the project was done both without noise walls and with noise walls where they are warranted by WSDOT and FHWA guidance. Even without noise walls, the Preferred Alternative and all the SDEIS options would decrease overall noise levels in the SR 520 corridor and reduce the number of residences that exceed the NAC. This reduction results from features that are part of the project design, such as lids, depressed or elevated roadway sections, and different alignments.

The Preferred Alternative achieves greater overall noise reduction than the SDEIS design options without noise mitigation (Table ES-8). This is due to design features such as the larger Montlake lid, the raised profile through the west approach, and lower speed limits west of the Montlake interchange. The largest number of residences with reduced noise would be in North Capitol Hill and in the portion of Montlake south of SR 520.

Mitigation for noise under the SDEIS design options included only noise walls in areas where they were determined to be feasible and effective under FHWA

Table ES-8. **Number of Residences where Noise Levels would Exceed NAC**

	NAC Exceedences Without Noise Mitigation	NAC Exceedences With Noise Mitigation
Preferred Alternative	207 Residences	143 Residences
Option A	249 Residences	94 Residences
Option K	256 Residences	123 Residences
Option L	235 Residences	119 Residences
No Build	287 Residences	N/A

and WSDOT guidelines. The Preferred Alternative differs from the SDEIS options in that it was designed to incorporate measures recommended by a Noise Expert Review Panel to reduce noise without the use of walls. (These measures are shown in the text box on this page.) Some measures (such as 4-foot traffic barriers) provide predictable noise reductions, and can therefore be modeled. Others (such as quieter concrete pavement) can't be modeled quantitatively because there is not yet enough data available on their effectiveness. Noise walls are recommended throughout most of the corridor for the SDEIS design options. Because of the Preferred Alternative's innovative noise reduction measures, walls are considered reasonable and feasible only in Medina, where they would adjoin the walls being built as part of the SR 520, Medina to SR 202 project.

With mitigation included in the model, the Preferred Alternative and the SDEIS options all achieve substantial additional reductions in noise compared to No Build. Because the Preferred Alternative does not include noise walls in Seattle, it would reduce noise at somewhat fewer residences along the corridor than Options A, K, or L with noise walls. However, it would still provide significant reductions in noise while avoiding the aesthetic effects of the walls. Noise reduction effects not included in the model, such as noise-absorptive coatings and quieter concrete pavement, may provide greater benefits than are shown in the model results.

Construction Effects

Activities such as new bridge construction, roadway paving, and structure demolition would result in noise levels ranging from 83 to 94 A-weighted decibels (dBA) at 50 feet from the construction site. Pile-driving for the Portage Bay and west approach bridges would be the loudest single source of noise during construction, producing short-term noise levels of 99 to 105 dBA at 50 feet. Noise levels can vary depending on the distance, topographic conditions between the pile-driving location and receiver, frequency of pile-driving, and the number of pile-drivers operating at one time. While the duration of pile-driving activities would be relatively short, noise levels could be as high as 75 to 80 dB in areas within 1,000 feet of construction, affecting residents of the Portage Bay/Roanoke and Montlake neighborhoods as well as recreational boaters and Arboretum users.

Vibration from construction—particularly pile-driving—can affect receivers that use vibration-sensitive medical or scientific equipment. The only such known receiver located close to construction activities is the NOAA Northwest Fisheries Science Center, which uses equipment sensitive to vibration in its research. Major vibration-producing activities would occur primarily during demolition and preparation for the new bridges. While pile-driving or vibratory sheet installation may occur within 50 to 100 feet of sensitive receivers, it is unlikely that vibration levels would exceed 0.5 inch per second at distances greater than 100 feet from the construction sites.

Mitigation

State regulations restrict noise from construction activities by imposing noise limits based on the type of activity, time of day, and property type, with less noise allowed for residential than for commercial and industrial receivers and lower allowable noise levels at night. WSDOT will

Noise Expert Review Panel recommendations included in the Preferred Alternative:

- 4-foot traffic barriers with noise-absorptive coating
- Noise-absorptive materials at lid portals
- Quieter concrete pavement
- Encapsulated bridge expansion joints

follow state noise control regulations and will employ other methods of mitigating noise, such as limiting construction hours within 500 feet of any occupied dwelling to minimize effects on receivers. Vibration monitoring may also be required during pile-driving near the NOAA facility.

Several construction noise and vibration abatement methods—including operational methods, equipment choice, or acoustical treatments—could be implemented to limit the noise effects of construction. The use and effectiveness of these methods depends on a number of factors such as topography, the amount of space available for construction staging, and the distance of the noise-producing activity from sensitive receivers. WSDOT will work with its contractors and with community members during the ongoing refinement of the CCMP (discussed above under Cultural Resources) to identify appropriate measures for mitigating construction noise.

Air Quality

Operational Effects

Under the Preferred Alternative and all SDEIS options, reduced congestion and improved traffic speeds would result in a slight improvement in air pollutant emissions compared to No Build. The project would not result in any violations of the National Ambient Air Quality Standards (NAAQS); modeled concentrations of air pollutants are well below the 1-hour and 8-hour NAAQS for the Preferred Alternative and all SDEIS options. The project would meet air quality conformity requirements and is consistent with the State Implementation Plan for carbon monoxide emissions.

Mitigation

No mitigation measures for operational effects are warranted because the project would improve air quality compared to No Build.

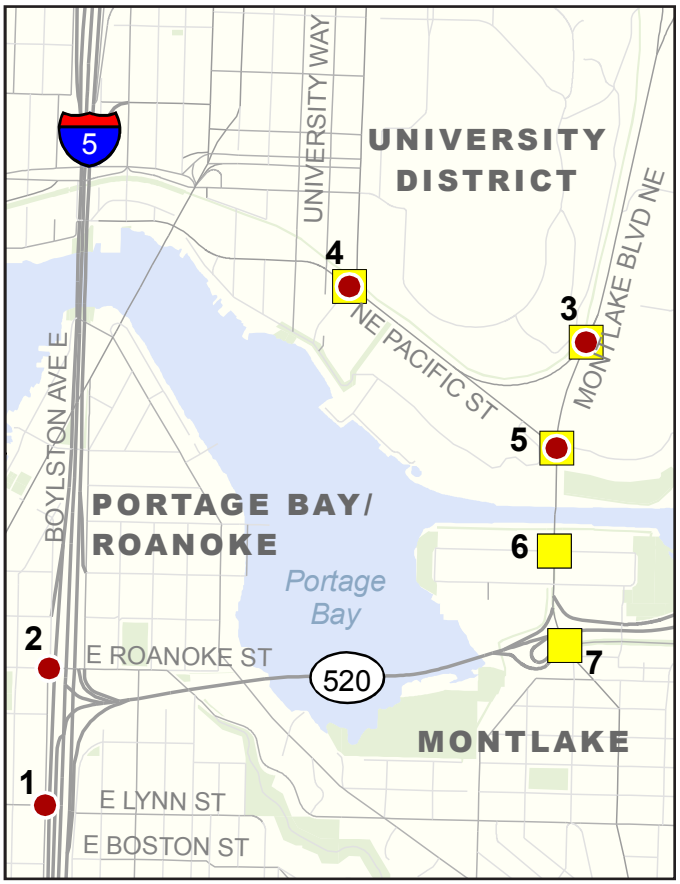
Construction Effects

Soil-disturbing activities, exhaust from diesel equipment, traffic congestion, and paving with asphalt would generate emissions that may temporarily affect air quality in the vicinity of the construction activity. Engine and motor vehicle exhaust would result in emissions of volatile organic compounds, oxides of nitrogen, particulate matter, and air toxics. Air quality would be most affected in localized areas close to the active construction sites.

Mitigation

Best management practices will be used to control emissions related to construction. These can include measures such as dust suppression, requiring contractors to turn off idling vehicles and equipment, use of emission controls, and encouraging carpooling by construction workers. WSDOT would comply with procedures outlined in the Memorandum of Agreement between WSDOT and the Puget Sound Clean Air Agency for controlling fugitive dust.

Exhibit ES-26. **Intersections Evaluated for CO**



Study Intersection (SDEIS Options)

Study Intersection (Preferred Alternative)

1 - Boylston Ave/E Lynn St

2 - Boylston Ave/E Roanoke St

3 - Montlake Blvd/Pacific Pl

4 - Pacific S/15th Ave. NE

5 - Montlake Blvd/Pacific St

6 - Montlake Blvd/Lake Washington Blvd/SR 520 EB ramps

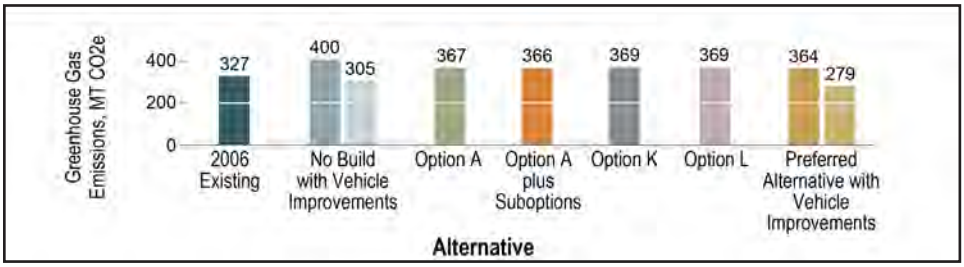
7 - Montlake Blvd/E Shelby St

N

0 1,000 2,000 4,000 Feet

Energy and Greenhouse Gases

Exhibit ES-27. **Weekday Peak Period Greenhouse Gas Emissions**



Operational Effects

As a result of tolling and improvements in traffic flow, the Preferred Alternative and all SDEIS options would reduce annual vehicle-miles traveled (VMT) and energy consumption in the SR 520 corridor by 4 to 8 percent (depending on the option) compared to the No Build Alternative. For the same reason, greenhouse gas (GHG) emissions in the SR 520 corridor would decrease by nearly 10 percent over No Build as a result of the project. At a regional level, there would be little difference between the build and No Build alternatives in VMT and GHG emissions.

Mitigation

No mitigation measures for operational effects are warranted because the project would reduce energy use and GHG emissions in the SR 520 corridor compared to No Build.

Construction Effects

During construction, the primary source of GHG emissions would be fuel combustion, with the GHG emissions being proportional to the amount of energy used. To be conservative, the analysis assumed that construction vehicles and equipment would use only diesel fuel. The results are intended to show relative differences between the options.

Mitigation

WSDOT will work with the project contractor(s) to implement measures to conserve energy during project construction. Such measures could include limiting idling equipment, requiring emission controls on construction vehicles, encouraging carpooling of construction workers, and locating staging and material transfer areas near work sites.

Preferred Alternative

Energy use would be approximately 15,006,000 million British thermal units (MBtu) for onsite construction and approximately 108,000 MBtu for pontoon transport. Construction of the Preferred Alternative would emit approximately 1.2 million metric tonnes carbon dioxide equivalent of GHG.

Option A

Option A would have approximately the same level of energy use and construction GHG emissions as the Preferred Alternative.

Option K

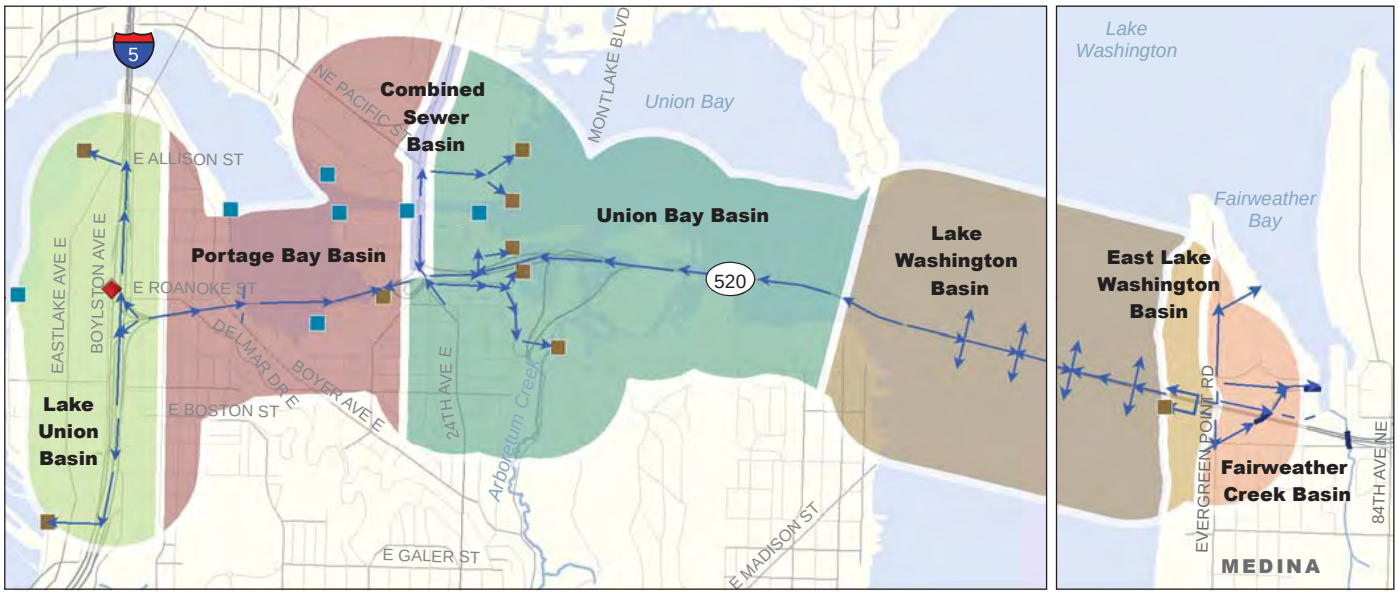
Option K is estimated to consume approximately 34,299,000 MBtu during onsite construction. GHG emissions would be about twice those of the Preferred Alternative and Option A at approximately 2.5 million metric tonnes carbon dioxide equivalent. Energy required for pontoon transport would be the same as for the Preferred Alternative.

Option L

Onsite energy consumption is estimated at approximately 18,780,000 MBtu; energy required for pontoon transport would be the same as Option A. Option L would produce approximately 20 percent more GHG emissions than Option A, but substantially less than Option K.

Water Resources

Exhibit ES-28. **Drainage Basins and Stormwater Flow**



Currently, stormwater runoff from SR 520 is untreated and flows directly into Lake Washington, Portage Bay, and Lake Union. Exhibit ES-28 illustrates the existing drainage basins and stormwater discharge locations in the project area.

Operational Effects

The Preferred Alternative and all SDEIS options would increase the amount of land covered by pollutant-generating impervious surfaces within these areas by 35 to 45 percent. However, the inclusion of stormwater treatment in the project design would improve the quality of runoff from SR 520. As a result, the Preferred Alternative and Options A, K, and L would meet or exceed state and federal water quality requirements, with enhanced treatment provided at some locations to remove additional metals from the runoff.

Mitigation

Since the project would comply with all applicable standards, no mitigation for operational effects is required.

Construction Effects

The primary concern for water quality during construction is increased turbidity (i.e., suspended soil and sediment) in water bodies. For land-based construction activities, the most likely source of turbidity would be exposed soils eroding during rainstorms and flowing into nearby water bodies. For water-based activities, the most likely source would be from direct disturbance of sediments through activities such as pile-driving, column construction, and temporary barge anchor placement. Other potential risks are spills of pollutants such as fuel and lubricants, and localized changes in water quality from concrete construction and demolition.

Construction of the roadway near Montlake and the bridge maintenance facility may temporarily require dewatering of groundwater, but these effects would be localized and temporary except under Option K, which would require a large excavation below the level of Union Bay to construct the new interchange and tunnels.

Mitigation

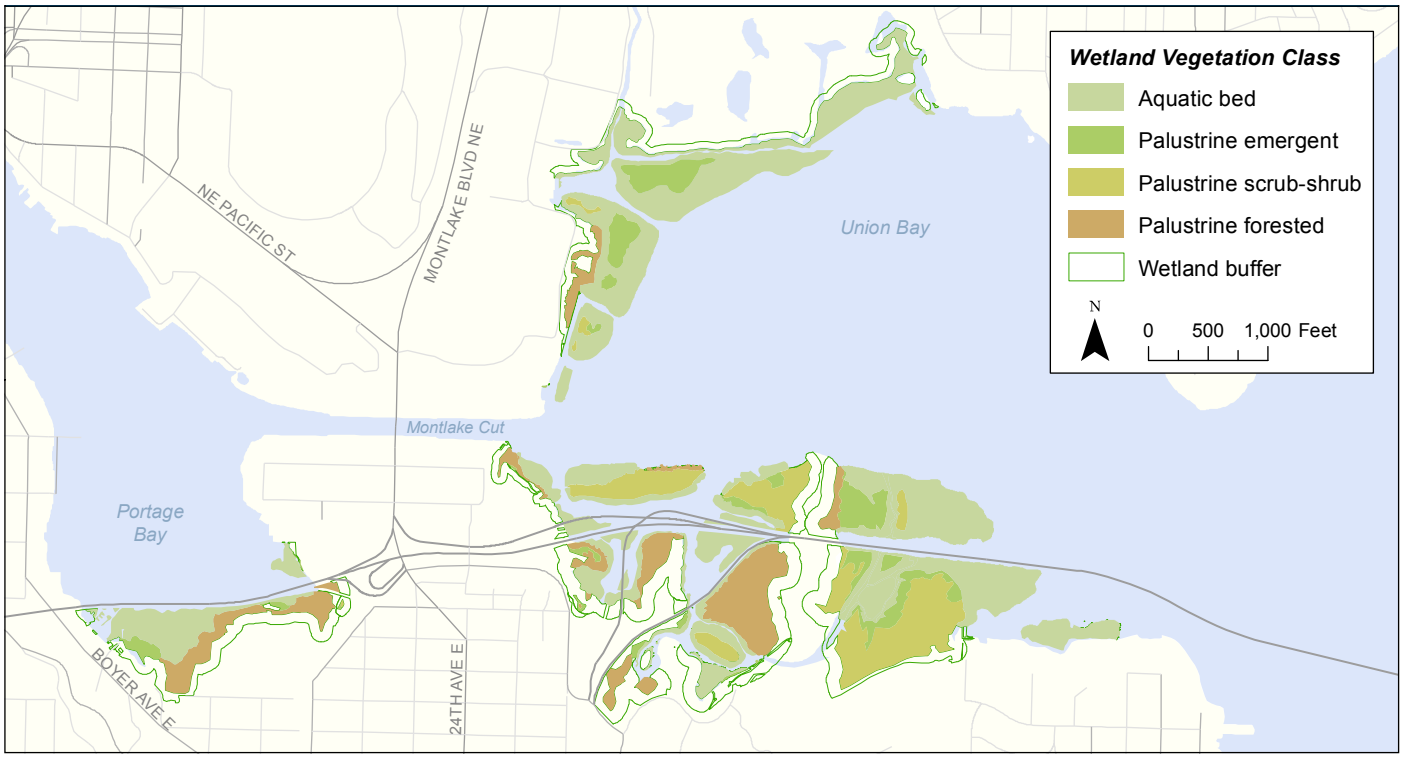
WSDOT will minimize turbidity by employing BMPs wherever feasible so that work on bridge foundations will be isolated from the water column. During demolition, material from bridge decks will be contained to prevent it from entering surface waters.

For on-land construction, WSDOT will minimize adverse effects on surface water bodies by implementing water pollution control BMPs. These measures will be outlined in various plans required under state and federal permits, including a temporary erosion and sedimentation control plan; a spill prevention, control, and countermeasures plan; and a concrete containment and disposal plan. These plans will specify the use of appropriate construction BMPs, which could include mulching, matting, and netting; filter fabric fencing; quarry-rock entrance mats; sediment traps and ponds; surface water interceptor swales and ditches; and placing construction material stockpiles away from streams. Erosion and sediment control BMPs are monitored and maintained during construction to make sure they are continuing to perform as designed.

Groundwater generated from dewatering activities during construction would be stored either in temporary treatment ponds, at the location of the permanent stormwater treatment wetlands, or in portable steel tanks. Water would be stored for a sufficient amount of time to allow particles to settle out or could be treated by chemical or mechanical filtration before the water is discharged to an approved location.

Ecosystems

Exhibit ES-29. **Wetlands in the Seattle Project Area**



Operational Effects

The Preferred Alternative and all of the SDEIS options would reduce the availability and quality of wetland and wetland buffer habitat due to filling and shading. The Preferred Alternative would have the least wetland and buffer fill, while Option K would fill the most wetland and wetland buffer area.

The Preferred Alternative and all of the SDEIS options would reduce fish habitat functions, primarily due to increased shading by the larger overwater structures and the addition of new in-water structures. Compared to the existing structures, the proposed overwater structures are about twice as wide for all designs. The Preferred Alternative would result in the most wetland shading in the west approach area, while Option L would result in the most overwater shading. However, the Preferred Alternative's higher profile would reduce the intensity of shading, allowing more light to support wetland vegetation. Consequently, resource agencies for the project require less mitigation for shading than for wetland fill. Option K would result in the overall greatest loss of fish habitat due to the filling for the new depressed interchange on the Montlake shoreline.

The Preferred Alternative and all of the SDEIS options would affect wildlife by permanently removing vegetation and wildlife habitat, and by increasing shading. The greatest habitat removal would be of the urban matrix cover type. Option K would result in the greatest loss of wildlife habitat and the Preferred Alternative the least.

Mitigation

Mitigation as described below is pending approval by regulatory agencies.

Wetlands

The SR 520, I-5 to Medina project will provide approximately 9.5 acres of compensatory wetland mitigation in five locations for the project's wetland effects. Four of these locations are onsite or close to the project, and one is located several miles from the project but in the same watershed. See the Conceptual Wetland Mitigation Plan in Attachment 9 to the Final EIS for more information.

Table ES-9. **Project Operational Effects on Ecosystems Resources**

	Wetland		Wetland Buffer		Fish Resources		Wildlife Habitat Removal
	Fill	Shading[a]	Fill	Shading	In-Water Structures	Shading[a]	
Preferred Alternative	0.1 acre	4.8 acres	0.7 acre	1.1 acres	0.9 acre	49.9 acres	8.1 acres
Option A	0.1 acre	3.2 acres	0.7 acre	0.9 acre	0.7 acre	49.0 acres	11.4 acres
Option K	1.8 acres	2.8 acres	5.4 acres	0.1 acre	2.8 acres	48.6 acres	19.5 acres
Option L	0.3 acre	4.3 acres	1.5 acres	1.3 acres	0.8 acre	52.1 acres	10.8 acres

[a] The effects of shading on wetland and aquatic habitat vary with structure height; higher structures (such as the west approach under the Preferred Alternative) create less intense shade than lower structures. For this analysis WSDOT conservatively estimated shade impacts by assuming that all areas beneath the project footprint were equally shaded, regardless of structure height or gaps between structures.

Fish Resources

WSDOT has developed a comprehensive conceptual mitigation plan for aquatic restoration and habitat improvements at seven locations within Water Resource Inventory Area 8 including restoration projects in Lake Washington, the Cedar River, and Bear Creek. The primary mitigation goal is to compensate for the SR 520, I-5 to Medina project's physical and biological effects while enhancing the production and survival of fish species to the maximum extent practicable. See the Conceptual Aquatic Mitigation Plan (Attachment 9) to the Final EIS for further detail.

Wildlife and Habitat

The wetland and aquatic habitat mitigation measures discussed above will also benefit wildlife by creating new habitat and enhancing existing habitat. WSDOT will continue to work with the City of Seattle and the UW to develop mitigation planting strategies to offset operational effects on shoreline habitat in Portage Bay and Union Bay.

Construction Effects

The Preferred Alternative and SDEIS options include construction work bridges, work platforms, staging areas, and construction access roads that would have temporary effects on wetlands due to vegetation clearing or shading during construction. Option K would have the greatest effect on wetlands during construction.

Construction would also result in areas with reduced fish habitat functions, primarily due to increased shading by work bridges and barges. This shading could reduce the distribution, density, and/or growth rate of aquatic vegetation in the shadow of these structures. The Preferred Alternative and SDEIS options would result in the same area of temporary overwater structure in the Portage Bay area (approximately 3 acres). Option A would result in the most temporary overwater shading in the west approach area. In addition to shading, the work bridge piers would result in the loss of lake bottom substrate that supports aquatic vegetation.

The Preferred Alternative and SDEIS options would require substantial in-water pile-driving to build construction work bridges in shallow-water areas that cannot be accessed by barge. If not mitigated, the underwater sound levels generated during pile-driving activities can disturb or alter the natural behavior and habitat of fish and other aquatic species and in some instances cause injury or mortality. Option K would require considerably more in-water and over-water construction in the Montlake and west approach areas compared to Options A and L. The depressed interchange would be constructed below the high-water elevation of the lake, and would involve substantial excavation and disturbance within the water column.

All of the options would result in noise from construction activities that could affect wildlife species by causing stress and altering behavioral patterns. Construction would also affect wildlife by removing vegetation and wildlife habitat and increasing shading through the use of work bridges. Although habitat quality is generally low for the Urban Matrix cover type, some urban-adapted species such as black-capped chickadees, American robins, and eastern gray squirrels would be affected. Option K would result in the greatest loss of wildlife habitat during construction.

Mitigation

Wetlands

Mitigation specific to construction effects on wetlands will occur at one or more of the five mitigation sites discussed above. Section 5.11 of the Final EIS and the Conceptual Wetland Mitigation Plan (Attachment 9 to the Final EIS) present wetland mitigation in more detail.

Fish Resources

The Preferred Alternative and SDEIS options will implement standard overwater and in-water construction and demolition BMPs in accordance with environmental regulatory permit requirements. Specific in-water construction time periods will also be established through the project permitting process to minimize potential effects of pile-driving and other in-water construction activities on aquatic species.

During column and bridge construction, contractors will use BMPs (e.g., cofferdams and silt curtains) to avoid unintentional effects on habitat and water quality. Cofferdams or other appropriate measures will be used to isolate work areas from open-water areas, particularly for concrete pouring activities, and work bridges will minimize the use of barges in shallow water areas. Bibs will be used to contain falling debris during construction of the new bridge decking and demolition of the existing decking. As noted in the Water Resources discussion, temporary erosion and sediment control measures, a stormwater pollution prevention plan, and a spill prevention, control, and countermeasures plan will be developed and implemented.

Appropriate BMPs and sound attenuation methods will be developed in coordination with the regulatory agencies to minimize potential effects of pile-driving activities. A test pile program undertaken by WSDOT in 2009 - 2010 determined that the use of bubble curtains resulted in substantial reductions in underwater sound levels, and this technique will be used where feasible during project construction.

Temporary project effects that would likely require compensatory mitigation include partial shading and fill from the construction work bridges and falsework, which would reduce habitat value and may provide cover for salmonid predators. Mitigation for these effects will occur at one or more of the seven mitigation sites identified in Section 5.11. The Conceptual Aquatic Mitigation Plan (Attachment 9 to this Final EIS) describes mitigation for aquatic resources effects.

Wildlife and Habitat

WSDOT will continue to work with the City of Seattle and the UW to develop mitigation planting strategies to offset construction effects on shoreline habitat in Portage Bay and Union Bay.

Table ES-10. **Project Construction Effects on Ecosystems Resources**

	Wetland		Wetland Buffer		Fish Resources	Wildlife Habitat Removal
	Fill	Shading	Fill	Shading	Shading	
Preferred Alternative	0.2 acre	6.8 acres	3.0 acres	1.1 acres	10.9 acres	14.4 acres
Option A	0.6 acre	6.4 acres	2.8 acres	0.2 acre	11 acres	12.4 acres
Option K	1.1 acres	8.1 acres	3.2 acres	0.6 acre	11.9 acres	14.9 acres
Option L	0.5 acre	6.4 acres	2.8 acres	0.2 acre	10.4 acres	14.0 acres

Geology and Soils

Exhibit ES-30. **Geologic Hazards in the Project Area**

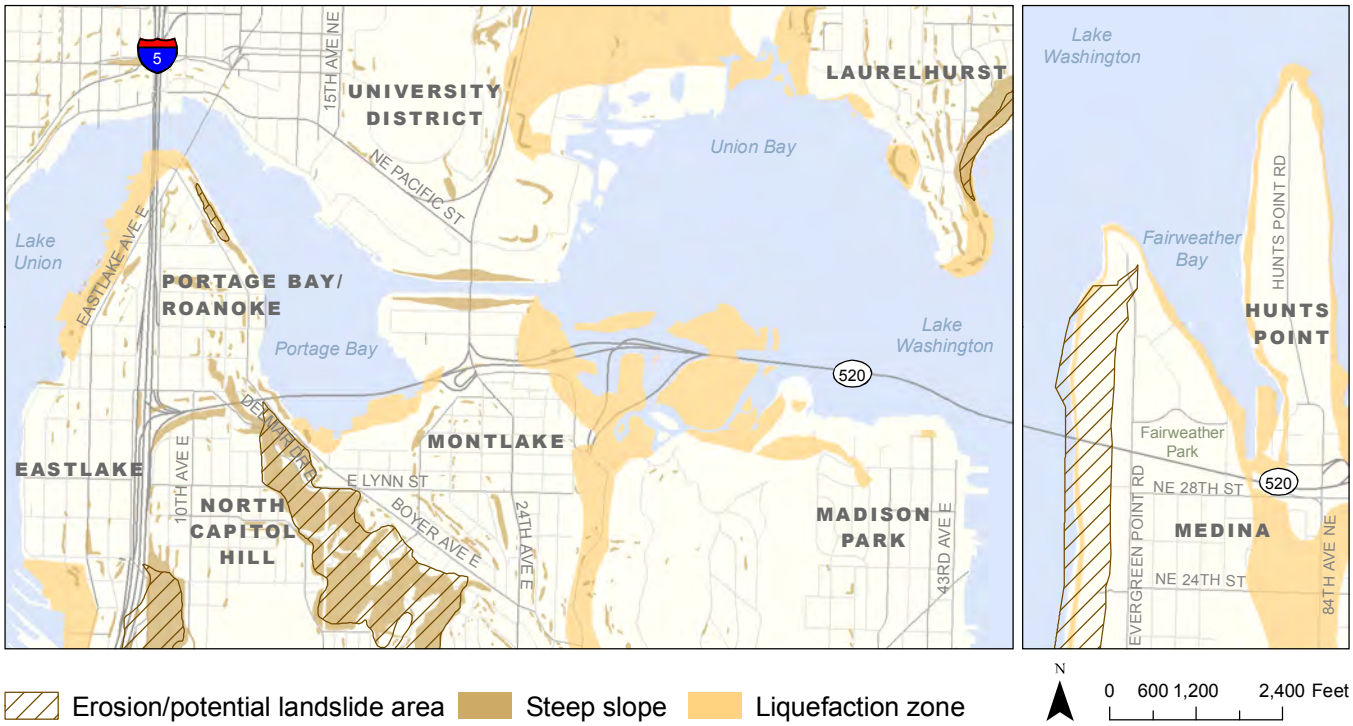


Exhibit ES-30 illustrates the existing geologic hazards in the project area. The primary hazard is areas of liquefiable soils, which can become unstable during an earthquake.

Operational Effects

Under the Preferred Alternative and all SDEIS options, WSDOT would design bridge columns to withstand seismic motion, and/or excavate areas of vulnerable soils and replace them with stronger material. The Preferred Alternative and Option A would have a lower risk of damage from liquefaction and long-term settling than Options K or L. This is because Options K and L would both have a large structure-supported interchange located in liquefiable soils near the Montlake shoreline. In addition, Option K would have greater risk of damage during liquefaction because a portion of the interchange would be below the water level.

Preferred Alternative

The Preferred Alternative would result in an estimated 340,000 cubic yards (cy) of excavation and 86,000 cy of fill material. The overall constructability risk based on geologic criteria is considered low to moderate.

Option A

Option A would have effects during construction similar to the Preferred Alternative.

Option K

Option K would result in an estimated 1,300,000 cy of excavation and 320,000 cy of fill material. Deep pile walls would be required for the depressed interchange, and risks from leaks and contamination or settlement of adjacent soils would be greater than for the other options. The overall constructability risk for this option is moderate to high.

Option L

Option L would result in an estimated 450,000 cy of excavation and 52,000 cy of fill material. The overall constructability risk for this option is moderate.

Mitigation

Because the proposed project would be designed to current standards for seismic loading and other geotechnical factors, no impacts are anticipated and no mitigation would be necessary.

Construction Effects

Construction would require excavation and grading for cuts and fills, and/or installation of bridge and retaining wall structures. Other than the depressed interchange and tunnel for Option K, topographic changes within the corridor would be minor.

Some construction would take place in areas identified in Exhibit ES-30 as having a high potential for landslides. WSDOT is developing construction methods specific to these areas to ensure that slope stability is maintained in areas where cut slopes are required. Erosion control measures will also reduce the risk of potential landslides.

Dewatering may be required in excavations, requiring disposal of excess groundwater and potentially resulting in settlement of nearby structures. The amount of dewatering is not expected to be high except under Option K, where the new interchange would extend below the water table.

Mitigation

WSDOT will implement BMPs to prevent erosion. These would include minimizing loss of vegetation, using erosion-control blankets and mulching, street sweeping, using construction exits that minimize mud tracking, constructing temporary sedimentation ponds, and limiting the area exposed to runoff at any given time.

Hazardous Materials

Exhibit ES-31. **Known or Potential Hazardous Material Sites in the Seattle Project Area**

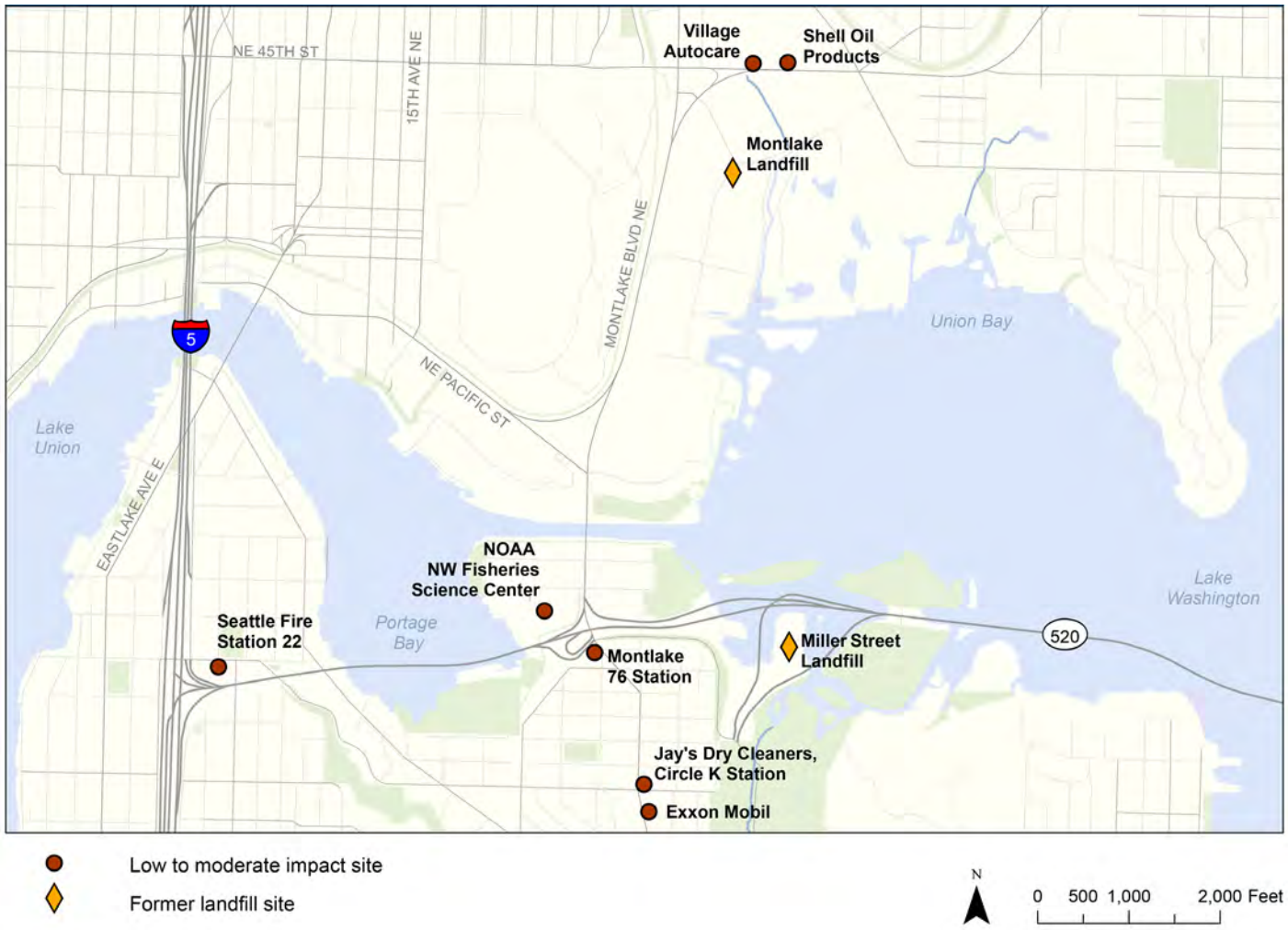


Exhibit ES-31 shows the known or potential hazardous materials sites in the project area.

Operational Effects

Project operation would result in primarily beneficial effects tied to the identification and remediation of any contamination that might be encountered during construction. In addition, the new stormwater facilities would operate to collect the currently untreated stormwater runoff.

All transportation facilities pose the risk of vehicular fluid spills by the travelling public. The risk of spills would not vary substantially between the Preferred Alternative and Options A, K, and L.

Mitigation

Since no adverse effects are anticipated, no mitigation for operational effects is required.

Construction Effects

The potential exists for construction activities to encounter contaminated soil, sediment, and groundwater; create accidental spills and release hazardous materials; demolish structures that contain hazardous materials; and/or encounter underground storage tanks. Construction would take place at or near several sites with a history of contamination and/or hazardous substance use, including Seattle Fire Station 22, the Montlake 76 station, the NOAA Northwest Fisheries Science Center, the Miller Street Landfill, and sediments in Lake Washington, Union Bay, and Portage Bay.

Preferred Alternative
Construction of the Preferred alternative could affect potential hazardous materials at Seattle Fire Station 22, the Montlake 76 station, the NOAA Northwest Fisheries Science Center, the Miller Street Landfill, and sediments in Lake Washington, Union Bay, and Portage Bay.

Option A
Option A would also affect the Exxon Mobil and Circle K stations.

Option K
No additional effects identified for Option K.

Option L
Option L would also affect the Shell Oil Products station and Village Autocare. Option L may also affect the Montlake Landfill through construction activities occurring within 1,000 feet of this site.

Mitigation

WSDOT will conduct an assessment of sites where contamination may be present to identify the nature and extent of any contaminants and, if necessary, develop appropriate cleanup and disposal methods. Structures to be demolished will be surveyed to determine whether they contain hazardous building materials like asbestos, lead-based paint, and polychlorinated biphenyls, and any required remediation would be carried out in accordance with applicable laws.

WSDOT will also prepare (or require the contractor to prepare) a comprehensive contingency and hazardous substance management plan and a worker health and safety plan to reduce potential risks to human health. A spill prevention, control, and countermeasures plan and a stormwater pollution prevention plan will be prepared to prevent the release of pollution and hazardous substances to the environment.

Navigation

Exhibit ES-32. **Existing Bridges and Navigational Clearances Between Chittenden Locks and Lake Washington**

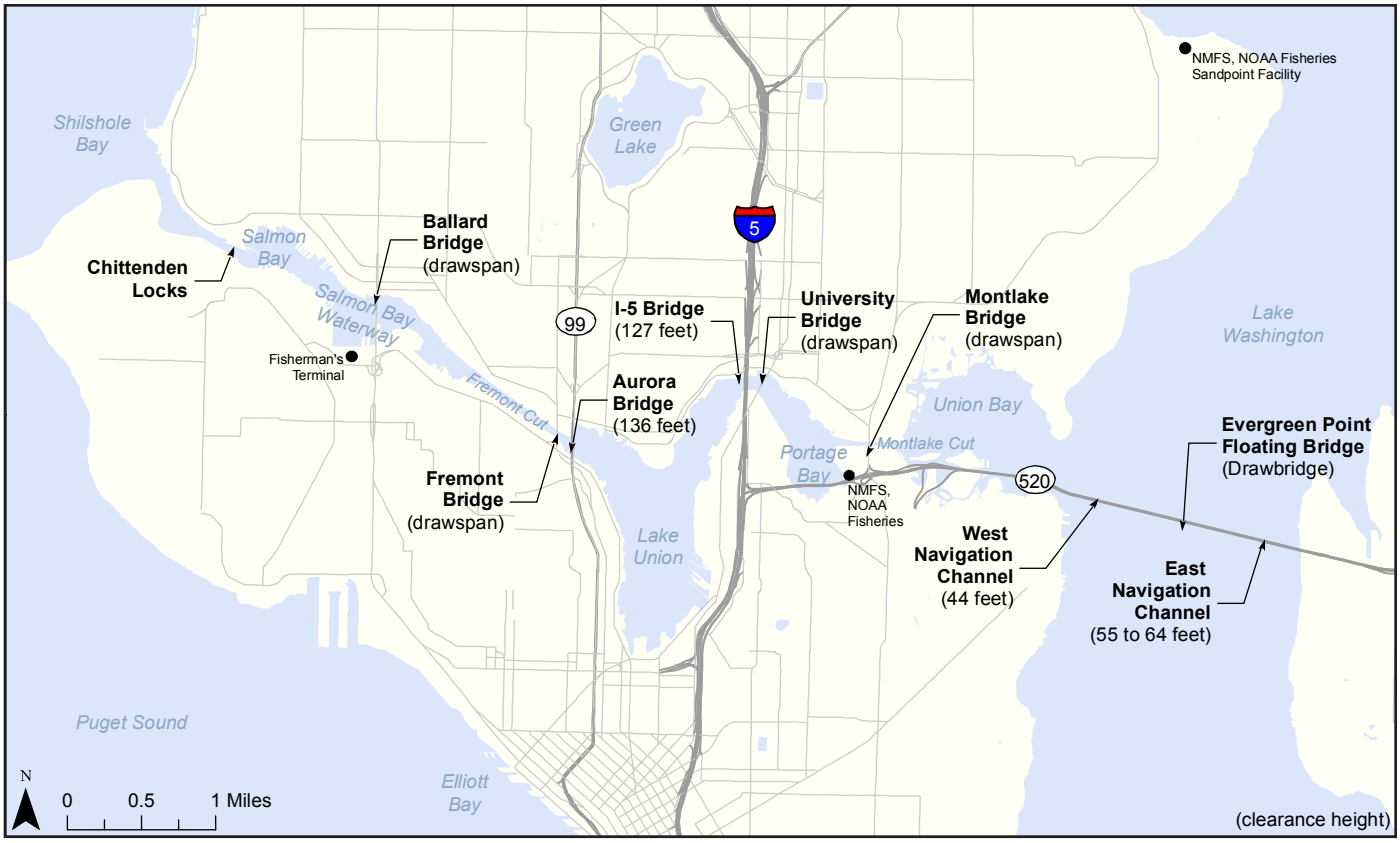


Exhibit ES-32 illustrates the existing bridges and navigation channel clearances in the Lake Washington Ship Canal between the Chittenden Locks and Lake Washington.

Operational Effects

Clearance beneath the west navigation channel of the Evergreen Point Bridge would be lowered from 44 to 41 feet under Options A, K, and L, and would remain at its existing height under the Preferred Alternative. Under the Preferred Alternative and all SDEIS options, the east navigation channel would be raised to 70 feet and the drawspan on the floating bridge would be removed. Removal of the drawspan is not expected to impair navigation in Lake Washington. Under the Preferred Alternative and Options A, K, and L, the proposed new bascule bridges would coordinate openings with the existing Montlake Bridge, and would not affect navigation through the Montlake Cut.

Mitigation

Since no adverse effects on navigation are expected, no mitigation is required.

Construction Effects

During construction, work bridges on both sides of the Portage Bay Bridge and the west approach bridge would limit the use of recreational vessels such as canoes or kayaks in these areas. For the Preferred Alternative and Options A and L, installation of the new bascule bridge would require complete closure of the Montlake Cut for two 24-hour periods and two full weekends (a total of 6 days).

Mitigation

Construction of the new floating bridge will be staged so that the west and east navigation channels will not be closed on the same days. A "Local Notice to Mariners" will be distributed electronically by the Coast Guard to alert local commercial and recreational boating communities of all construction-related closures in Lake Washington and the Montlake Cut. The notice will allow all potentially affected vessels time to relocate temporarily to prevent being blocked during the bridge construction period. Construction activities will be timed to avoid disruption of Opening Day activities occurring in Portage Bay, Lake Washington, and the Ship Canal.

Other Considerations and Next Steps

Summary of Final EIS Findings on the Preferred Alternative

The ROD for the SR 520, I-5 to Medina project will identify an "environmentally preferable alternative." This is defined as the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Designation of the environmentally preferable alternative typically involves judgment and the balancing of some environmental values against others. The Council on Environmental Quality notes that comments on draft environmental documents (such as the Draft EIS and SDEIS for this project) can assist the lead agency in developing and determining environmentally preferable alternatives.

For this project, it is anticipated that the Preferred Alternative will be designated in the ROD as the environmentally preferable alternative. The Preferred Alternative was refined from the SDEIS design options based in large part on comments received on the SDEIS. Although it is does not have the least impact in every environmental discipline, WSDOT believes that this alternative best balances environmental effects and benefits. Below is a summary of the Final EIS's findings regarding the Preferred Alternative.

Ability to meet project purpose and need:

- Improves safety by replacing the existing vulnerable structures with facilities designed to modern standards that will better resist windstorms and earthquakes. Wider shoulders will also make travel safer and more reliable.
- Improves mobility by completing the HOV lane system so that more people can travel through the corridor in fewer vehicles.
- Saves general-purpose and transit riders up to 24 minutes in crossing the SR 520 corridor in 2030 compared to the No Build Alternative.
- Reduces transit travel times by up to 12 minutes on Montlake Boulevard compared to No Build.
- Adds new commuting options by connecting the Eastside and floating bridge bike/pedestrian path to local and regional trails in Seattle.
- Provides safe, efficient connections for bicyclists, pedestrians, and bus riders to the Montlake Triangle and the University Link light rail station.
- Accommodates near-term bus rapid transit service planned by King County Metro and Sound Transit; can accommodate future light rail if voted on and funded by the region.

Environmental benefits:

- Reduces height of the floating bridge compared to the SDEIS options to minimize visual effects.
- Has the lowest acreage of park impacts of any of the options evaluated and results in the least overall harm to Section 4(f) properties.
- Removes the existing Lake Washington Boulevard ramps and restores wetlands and open space in this area.
- Minimizes impacts in the Arboretum by limiting the bridge footprint on Foster Island and reducing traffic volumes on Lake Washington Boulevard.
- Provides a new 3.9-acre public park on the Lake Washington Ship Canal and adds eight acres of new public open space on the lids.
- Reduces wetland fill to less than one-tenth of an acre, making it the least environmentally damaging practicable alternative under Section 404 of the Clean Water Act.
- Incorporates a higher west approach profile than the SDEIS options to reduce the intensity of shading over open water and wetlands and improve the efficiency of stormwater treatment.
- Affects less wildlife habitat than any of the options evaluated.
- Reduces annual vehicle miles traveled on SR 520 by 5 to 10 percent and greenhouse gas emissions by almost 10 percent.
- Shorter construction duration and fewer haul trucks on local streets than SDEIS Options K and L.

Environmental tradeoffs:

- Creates more wetland shade than the SDEIS options, but reduces the intensity of this shade by raising the west approach bridge profile.
- Results in a somewhat lesser extent of noise reduction than the SDEIS options with recommended mitigation, but still achieves a substantial reduction from existing and No Build noise levels without the aesthetic impact of noise walls.
- Results in removal of two more residences than SDEIS Options K and L to allow for construction of the parallel Montlake Bridge.

- Has more traffic in the Arboretum than Option A without the Lake Washington Boulevard ramps, but less than any other SDEIS option.

What are the next steps?

After publication of the Final EIS, if FHWA determines the analysis to be adequate and to comply with necessary standards, the agency will prepare and sign a Record of Decision (ROD) that describes the decision, explains why it has taken a particular action, and presents the mitigation measures and commitments to be incorporated into project construction and operation. The ROD will identify the selected alternative, explain the alternatives considered, and specify an "environmentally preferable alternative." The ROD will also identify any outstanding issues yet to be resolved.

Although the ROD is the conclusion of the NEPA process, it signals the beginning of project implementation. WSDOT will further develop the engineering design for the project, including additional detail on project phasing, construction staging, and construction techniques. Having a preferred alternative identified also will allow WSDOT to develop more specific designs for mitigation measures, which will be documented in project permit applications. These designs will be prepared by WSDOT and FHWA, in cooperation with the affected jurisdictions, tribes, and resource agencies.

How can I learn more?

Join the project mailing list. WSDOT will continue to keep the public informed about opportunities for input as the project moves forward with design and construction. If you provide your name, we will add you to the project mailing list, which allows you to receive regular email updates. You may join the mailing list by logging onto our Web site at www.wsdot.wa.gov/projects/SR520Bridge or by calling the project hotline at 1-888-520-NEWS.

What permits and regulatory approvals are required?

Anticipated permits and approvals that would be required for the project, as well as regulatory processes that must be followed, include:

Federal

- NEPA ROD
- Department of Archaeology and Historic Preservation: National Historic Preservation Act Consultation (Section 106)
- Environmental Protection Agency
  - Review of Corps Clean Water Act Section 404 Permit
  - Review and Rating of NEPA Document(s)
- National Park Service: Confirm Recreation and Conservation Office Section 6(f) Approval
- Tribal Nations
  - Section 106 Impacts
  - Resolution of Impacts to Usual and Accustomed Areas Government-to-Government consultation
- U.S. Army Corps of Engineers
  - Clean Water Act Section 404, Individual Permits
  - Rivers and Harbors Act of 1899 Section 10 Permit
- U.S. Coast Guard
  - General Bridge Permit
  - Private Aids to Navigation Permit
- U.S. Fish and Wildlife Service and NOAA Fisheries
  - Section 7, Endangered Species Act Consultation
  - Magnuson-Stevens Essential Fish Habitat Consultation
  - Marine Mammal Protection Act Compliance
  - Bald and Golden Eagle Protection Act Compliance
  - Migratory Bird Treaty Act Compliance

State and Regional

- WSDOT: State Environmental Policy Act FEIS
- Puget Sound Clean Air Agency: Clean Air Conformity Certification
- Recreation and Conservation Office: Section 6(f) Replacement Package Approval
- Washington Department of Fish and Wildlife: Hydraulic Project Approval
- Washington Department of Natural Resources: Aquatic Lands Use Authorization
- Washington State Department of Ecology
  - Clean Water Act Section 401 Water Quality Certification
  - Clean Water Act Section 402 National Pollutant Discharge Elimination System
  - Coastal Zone Management Act Consistency Determination
  - Shoreline Substantial Development Permit with Conditional Use and Variance Approval

Local

- WSDOT will obtain the applicable local permits from the cities of Seattle and Medina, where the project will be located.
- King County: Waste Discharge Permit/Authorization

List of Acronyms

Acronym	Definition
BMP	best management practice
CCMP	Community construction management plan
CFR	Code of Federal Regulations
cy	cubic yards
DAHP	Department of Archaeology and Historic Preservation
dB	decibel
EIS	Environmental Impact Statement
ERP	Expert Review Panel
ESHB	Engrossed Substitute House Bill
ESSB	Engrossed Substitute Senate Bill
FHWA	Federal Highway Administration
GHG	Greenhouse gas
HCT	High capacity transit
HOV	high-occupancy vehicle
I-5	Interstate 5
I-90	Interstate 90
I-405	Interstate 405
LRT	Light rail transit
MBtu	million British thermal units
MOHAI	Museum of History and Industry
MOU	Memorandum of understanding
mph	miles per hour
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
ROD	Record of Decision
SEPA	State Environmental Policy Act
SDEIS	Supplemental Draft Environmental Impact Statement
SHPO	State Historic Preservation Officer
SPUI	single-point urban interchange
SR 202	State Route 202
SR 520	State Route 520
SR 520, I-5 to Medina project	SR 520, I-5 to Medina: Bridge Replacement and HOV Project
UW	University of Washington
VMT	Vehicle miles traveled
WAC	University of Washington's Waterfront Activities Center
WSDOT	Washington State Department of Transportation