Description of Alternatives
Discipline Report

Prepared for
Washington State Department of Transportation
Federal Highway Administration

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## Acronyms and Abbreviations

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<tr>
<td>BMP</td>
<td>best management practice</td>
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<tr>
<td>Draft EIS</td>
<td>draft environmental impact statement</td>
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<tr>
<td>Ecology</td>
<td>Washington State Department of Ecology</td>
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<tr>
<td>EIS</td>
<td>environmental impact statement</td>
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<tr>
<td>ESHB</td>
<td>Engrossed Substitute House Bill</td>
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<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<td>FTA</td>
<td>Federal Transit Administration</td>
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<tr>
<td>HCT</td>
<td>high-capacity transit</td>
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<td>HOV</td>
<td>high-occupancy vehicle</td>
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<td>I-5</td>
<td>Interstate 5</td>
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<td>I-5 to Medina project</td>
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<tr>
<td>MOHAI</td>
<td>Museum of History and Industry</td>
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<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<tr>
<td>SDEIS</td>
<td>supplemental draft environmental impact statement</td>
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<tr>
<td>SEPA</td>
<td>State Environmental Policy Act</td>
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<tr>
<td>SPUI</td>
<td>single-point urban interchange</td>
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<td>SR 520</td>
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<td>SR 520 Program</td>
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Introduction

This Description of Alternatives Discipline Report describes the alternatives and design options evaluated in the Supplemental Draft Environmental Impact Statement (SDEIS) for the Interstate 5 (I-5) to Medina: Bridge Replacement and High-Occupancy Vehicle (HOV) Project (the I-5 to Medina project). A detailed account of background information on the project and description of how the alternatives and design options have evolved since publication of the Draft Environmental Impact Statement (Draft EIS) in 2006 can be found in the Range of Alternatives and Options Evaluated Report (WSDOT 2009a). Detailed information on project construction is included in the Construction Techniques and Activities Discipline Report (WSDOT 2009b).

What is the purpose of the project?

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 effects on nearby neighborhoods and the environment.

Why is this project needed now?

SR 520 crosses Lake Washington on the Governor Albert D. Rosellini Bridge (hereafter called the Evergreen Point Bridge), which is a critical component of the region’s transportation infrastructure. It is one of only two connections across Lake Washington that link urban centers in Seattle and the Eastside. The 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 between Seattle and growing communities on the Eastside.

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 about 10 to 15 years. Exhibit 1-1 in Attachment 1 shows the vulnerable sections of SR 520 and describes the vulnerabilities.

The span was originally designed for a sustained wind speed of 57.5 miles per hour. In 1999, WSDOT rehabilitated the bridge to allow it to withstand sustained winds up to 77 miles per hour. This still falls well short of WSDOT’s current design standard of 92 miles per hour. Moreover, some bridge mechanisms were 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 pontoons leak water that WSDOT must pump out on a regular basis. The probability that the bridge will sustain serious structural damage over the next 15 years is extremely high (WSDOT 2006a). To bring the Evergreen Point Bridge up to current design standards, the existing span must be completely replaced.

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 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 seismic protection levels; WSDOT studies indicate that such retrofitting would cost nearly as much and would have similar environmental impacts as building new structures. WSDOT estimates that over the next 50 years, there is a 20 percent chance of serious damage to these structures in an earthquake (WSDOT 2002).

**SR 520 Is Congested and Unreliable, and Does Not Encourage Maximum Transit and Carpool Use**

A second key reason for implementing this project is the severe traffic congestion in the SR 520 corridor, which was the reason for initiating the original Trans-Lake Washington Study in 1998. The traffic demand in both directions exceeds the highway’s capacity, creating several hours of congestion every weekday. Simply put, the corridor was not built to handle as many vehicles as currently want to use it. All of these
vehicles result in frequent breakdown of the traffic flow and long backups of vehicles traveling at very slow speeds.

A number of factors have contributed to today’s traffic congestion on SR 520. One factor is the pattern of population growth and the changing location of jobs in the project area since the highway opened in 1963. The new crossing of Lake Washington made it much easier for people to live in Eastside communities and to work in Seattle, increasing the number of westbound vehicles across the Evergreen Point Bridge in the morning and eastbound in the evening. Meanwhile, some of the Eastside communities began to develop their own commercial and employment centers, eventually leading to substantial growth of “reverse commute” traffic. Today, seven times more vehicles cross the bridge each day than when it first opened in 1963, and there is no longer a reverse commute; traffic during peak hours is nearly equal in each direction.

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 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 Evergreen Point Bridge. This creates congestion as westbound HOV traffic is forced to merge with general-purpose traffic.

Together, growth and physical limitations will make the future SR 520 traffic situation worse if the corridor is not improved. Under average evening peak-hour conditions today, a single-occupant vehicle traveling westbound takes approximately 32 minutes to travel on 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 49 minutes, or more than 50 percent longer. This makes it imperative that commuters be provided with travel choices that allow them to avoid driving alone, and that the proposed project is built to support increased use of transit and HOVs.

Traffic congestion is more than an inconvenience for drivers. It also impairs the regional economy and the quality of our lives and communities. Delays increase business costs, discourage growth, and create disincentives for businesses to locate in the region. Congestion
also generates pollutants from idling vehicles, which are much less efficient than vehicles operating at highway speeds.

What is the project background?

Project History

Planning for the SR 520 corridor began in 1997 with the work of the Trans-Lake Washington Study Committee, which was appointed by the State Legislature to explore ways of improving mobility across and around Lake Washington. The environmental review process kicked off in 2000, when a Notice of Intent was issued to prepare an environmental impact statement (EIS). The Trans-Lake Washington Project’s Executive and Technical Committees adopted the project purpose statement described previously.

In 2000, the Federal Highway Administration (FHWA), WSDOT, Sound Transit, and the Federal Transit Administration (FTA) initiated the EIS process to evaluate alternatives for the SR 520 corridor as part of the Trans-Lake Washington Project. (FTA later ceased to be a co-lead agency after it was decided to make Interstate 90 the initial high-capacity transit corridor across the lake.) Funding cuts delayed the project in 2002, but work resumed in 2003 and a Draft EIS for the SR 520 Bridge Replacement and HOV Project was issued in August 2006. During its public comment period, the Draft EIS received more than 1,700 comments from individuals, Native American tribes, government agencies, and other organizations.

In December 2006, Governor Christine Gregoire identified the 6-Lane Alternative evaluated in the Draft EIS as the state’s preference for the SR 520 corridor. However, she did not designate a preferred design option for the Seattle portion of the corridor, noting that “City and community leaders and residents need to come together and develop a common vision on the solution that best fits the character and need of the local communities.” In 2007, the Washington State Legislature passed a bill (Engrossed Substitute House Bill [ESHB] 6099) that established a mediation process to develop a 6-lane corridor design through Seattle and to prepare a project impact plan. WSDOT and FHWA identified the need to develop an SDEIS to evaluate new design options that emerged from mediation and to respond to public and agency comments on the content of the Draft EIS.
Purpose of the Supplemental Draft Environmental Impact Statement

As previously discussed, ESHB 6099 led to implementation of the Westside mediation process, and to the development of three new 6-lane design options for the Seattle portion of SR 520. (The mediation process and its results are described in more detail in the Agency Coordination and Public Involvement Discipline Report and the Range of Alternatives and Options Evaluated Report [WSDOT 2009c, 2009a, respectively]). According to the National Environmental Policy Act (NEPA) regulations and similar requirements for State Environmental Policy Act (SEPA), an agency must prepare an SDEIS when:

- The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
- There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 Code of Federal Regulations 1502.9(c)(1))

Preparing an SDEIS allows the mediation design options, which are substantially different from those studied in the Draft EIS, to be evaluated fully before a decision is made on a preferred alternative. In addition, the SDEIS contains additional design detail and analysis—including more information on construction effects, mitigation measures, and transit operations—that were requested in public, and agency comments on the Draft EIS. Including this information in the SDEIS allows agencies, tribes, and the public to review and comment on it prior to a final decision.

After publication of the SDEIS, a Final EIS and a Record of Decision will be prepared to accomplish the following:

- Respond to comments received on both the Draft EIS and the SDEIS.
- Identify a preferred design option.
- Provide additional detail on mitigation measures and commitments that would be incorporated into project construction and operation.

Although WSDOT will not formally respond to Draft EIS comments until the Final EIS, it is important to note that much of the content of the SDEIS and associated discipline reports was generated in response to feedback received on the Draft EIS. The new design options are the
result of a public process created to address concerns about the original range of alternatives.

**Additional Changes Since Publication of the Draft Environmental Impact Statement**

The Draft EIS evaluated the SR 520 corridor from I-5 in Seattle to 108th Avenue NE in Bellevue as a single project. It also noted that construction of the pontoons for the floating bridge would be evaluated in a separate environmental document. 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, and each provides independent benefits to the region that would be realized even if none of the other projects were built. The new projects are summarized as follows:

- **Medina to SR 202: Eastside Transit and HOV Project** (the Medina to SR 202 project). This project was developed in 2008 to improve transit travel time and reliability in response to strong growth in jobs, housing, and transit demand east of Lake Washington. It would complete the SR 520 HOV system from Evergreen Point Road in Medina to SR 202 in Redmond; build direct transit access between SR 520 and the South Kirkland Park-and-Ride; and provide community and environmental benefits, including lids, noise walls, a bicycle/pedestrian path, and stream and habitat enhancements. WSDOT is preparing an environmental assessment (EA) to evaluate the effects of the Medina to SR 202 project. The Draft EA was published in December 2009. WSDOT anticipates completion of the environmental process and permitting in 2010, with construction to begin later in 2010 pending availability of funding.

- **SR 520 Pontoon Construction Project.** This project was an outcome of catastrophic failure planning conducted for the Evergreen Point Bridge in 2006-07. The planning process concluded that the pontoons had the longest lead time of any component of the bridge, and that it would be prudent for WSDOT to have replacement pontoons ready for an emergency. The project’s purpose is to construct and store new pontoons, which would be used to restore the existing traffic capacity of the Evergreen Point Bridge in the event of a catastrophic failure. Having pontoons ready for such a catastrophic failure would allow the bridge to be restored several
years sooner than if the pontoons were constructed in response to a
disaster. This would, in turn, reduce adverse effects on traffic and
the regional economy. If the pontoons were not needed for
catastrophic failure, they would be used for planned replacement of
the floating bridge. WSDOT is preparing a Draft EIS for the project,
scheduled for release in February 2010, and plans to complete the
NEPA process in fall 2010.

- **SR 520 Variable Tolling Project.** The Variable Tolling Project is
  part of the Lake Washington Congestion Management Program,
funded by the U.S. Department of Transportation. Between late
2010 and early 2011, WSDOT will begin automated electronic
tolling on SR 520 to relieve existing congestion. The amount of the
toll will vary based on time of day and will be designed to maintain
travel time, speed, and reliability while generating revenue to fund
improvements to the SR 520 corridor. Variable tolling will
encourage drivers to choose alternative routes, times, and/or travel
modes, or to eliminate trips altogether. This will reduce congestion,
providing a more reliable trip for users of SR 520. WSDOT prepared
an Environmental Assessment on this project and received a

In May 2009, Gov. Gregoire signed ESHB 2211, which authorized
tolling on the Evergreen Point Bridge beginning in 2010 and set the
budget for the SR 520 Program at $4.65 billion. The bill also established
a legislative work group responsible for recommending design options
for SR 520 and reviewing and recommending a financing strategy to
fund projects for the recommended design options. The work group
met four times between July and December 2009 (plus additional
subgroup meetings and working sessions), and in December 2009
adopted a final recommendation of Design Option A+ for the 6-Lane
Alternative. (This design option is described later in this report.)
Exhibit 1 is a timeline showing major events in the project’s
development from 1997 to the present.
Why aren’t the 4-Lane Alternative and the previous 6-Lane design options included in the SDEIS?

The 4-Lane Alternative was identified in the Draft EIS as not fully meeting the project purpose and need. While it would improve safety by replacing vulnerable structures and widening lanes and shoulders, it would not meet the project purpose of improving mobility in the SR 520 corridor. Additional modeling completed for the SDEIS confirms that the 4-Lane Alternative would provide substantially lower mobility benefits than the 6-Lane Alternative for general-purpose traffic and transit. Therefore, the 4-Lane Alternative has been eliminated from further study.

The original 6-Lane Alternative and the 6-lane options evaluated in the Draft EIS have been eliminated from consideration, and therefore are not discussed in the SDEIS. The level of controversy and concern generated by the Draft EIS design options were key factors leading to the establishment of the mediation process. Consequently, the SDEIS environmental analysis focuses on the design options resulting from mediation. The SDEIS 6-lane design options do share some physical and operational similarities with the Draft EIS 6 lane design options. The Range of Alternatives and Options Evaluated Report (WSDOT 2009a) and the SDEIS compare the Draft EIS alternatives and design options to those in the SDEIS.

What is the project area?

The I-5 to Medina: Bridge Replacement and HOV Project encompasses parts of three main geographic areas—Seattle, Lake Washington, and the Eastside. The project area includes the following:

- Seattle communities: Portage Bay/Roanoke, North Capitol Hill, Montlake, University District, Laurelhurst, and Madison Park
- Eastside communities: Medina, Hunts Point, Clyde Hill, and Yarrow Point
- The Lake Washington ecosystem and associated wetlands
- Usual and accustomed fishing areas of tribal nations that have historically used the area’s aquatic resources and have treaty rights
Project limits for this project extend from I-5 in Seattle to 92nd Avenue NE in Yarrow Point, where it transitions into the Medina to SR 202: Eastside Transit and HOV Project. Exhibit 2 shows the project vicinity.

What are the alternatives being studied in the SDEIS?

The I-5 to Medina: Bridge Replacement and HOV Project SDEIS evaluates the following two alternatives and three design options:

- No Build Alternative
- 6-Lane Alternative (or build alternative) with Seattle design options:
  - Option A
  - Option K
  - Option L

As discussed in the previous section, the Draft EIS 6-Lane Alternative and its design options are not being further evaluated in the SDEIS. However, some aspects of Option A, K, and L are similar to those of the 6-Lane options that resulted from mediation and that are being evaluated in the SDEIS. Exhibit 3 depicts the general relationship between the 6-Lane Alternative Second Montlake Bridge and Pacific Street Interchange Options evaluated in the Draft EIS and Options A, K, and L being evaluated in the SDEIS. All options would rebuild the I-5 interchange and 10th Avenue East and Delmar
Drive East intersection, and would replace the Portage Bay Bridge. All options would replace the Evergreen Point Bridge.

Similar to the Second Montlake Bridge Option, Option A would rebuild the Montlake interchange and construct a new drawbridge parallel to the existing drawbridge across the Montlake Cut. Similar to the Pacific Street Interchange Option in the Draft EIS, Options K and L would relocate the Montlake interchange east of 24th Avenue East (single-point urban interchange [SPUI] design). These options would also provide for similar traffic movements north across the Montlake Cut (either in a tunnel or on a new bridge) to a rebuilt Montlake Boulevard NE and NE Pacific Street intersection.

The following sections describe each of these alternatives and design options in detail.

**What is the No Build Alternative?**

Environmental impact statements also assess what would happen to the environment in the future if a proposed project were not built. This scenario, called the No Build Alternative, assumes that other than normal maintenance and repair activities, the SR 520 corridor between I-5 and Evergreen Point Road would remain the same as it is today. SR 520 would continue to operate as it does today—as a 4-lane highway with nonstandard shoulders and without a bicycle/pedestrian path. Exhibit 4 is a cross-section of the No Build Alternative. No new facilities would be added and none would be removed, including the unused R.H. Thomson Expressway ramps near the Washington Park Arboretum. WSDOT would continue to manage traffic using its existing transportation demand management and intelligent transportation system strategies.

This scenario assumes that the Portage Bay and Evergreen Point bridges would remain intact and functional through 2030 and that no catastrophic events such as earthquakes or extreme storms would be severe enough to cause major damage to the bridges. The No Build Alternative provides a baseline that project analysts can compare the other alternatives to and is used throughout this SDEIS as a basis for analysis.
The Draft EIS evaluated a second no build scenario, called the Catastrophic Failure Scenario. This scenario assumed that both the Portage Bay and Evergreen Point bridges were lost in a catastrophic event. The SDEIS does not evaluate this scenario because it was already addressed in the Draft EIS.

Exhibit 5 identifies the boundaries of the existing SR 520 bridge structures and the boundaries of the bridge areas discussed in the SDEIS.

What is the 6-Lane Alternative?

**SR 520 Roadway**

The 6-Lane Alternative would widen the SR 520 corridor to six lanes from I-5 in Seattle to Evergreen Point Road in Medina, and would restripe and reconfigure the corridor from Evergreen Point Road to 92nd Avenue NE in Yarrow Point. The new roadway would have two 11-foot outer general-purpose lanes and one 12-foot inside HOV lane in each direction, with 4-foot-wide inside and 10-foot-wide outside shoulders.

The 6-Lane Alternative would complete the regional HOV lane system across SR 520, as called for in regional and local transportation plans. Exhibit 6 is a cross-section of the 6-Lane Alternative.

Similar to the 6-Lane Alternative proposed in the Draft EIS, the Portage Bay Bridge and the Evergreen Point Bridge would be replaced. The 6-Lane Alternative being evaluated in the SDEIS includes three
different design options, which are described in detail later in this section.

Exhibit 6. 6-Lane Alternative Cross-section

Lids and Landscape Features

Landscaped lids would be added to improve connectivity between neighborhoods and provide green open space. The SDEIS evaluates five lid areas:

- I-5/East Roanoke Street
- 10th Avenue East and Delmar Drive East
- Montlake vicinity (the design and location vary by option)
- 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

A 14-foot-wide bicycle/pedestrian path would be built along the north side of SR 520 through the Montlake area and across the Evergreen Point Bridge to the Eastside. On the west side of the lake, 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 lids and East Montlake Park. On the Eastside, the path would connect to the bicycle/pedestrian path constructed as part of the Medina to SR 202 project.
A new path connection beginning in East Montlake Park would extend south under SR 520 and connect to a proposed new trail in the Arboretum, creating a loop trail. The portion of the existing Arboretum Waterfront Trail that crosses under SR 520 at Foster Island would also be restored after construction of SR 520. There would be no bicycle/pedestrian path along SR 520 west of Montlake Boulevard.

What are the 6-Lane Alternative options?

The SDEIS evaluates three design options—Options A, K, and L—for the 6-Lane Alternative. The greatest physical difference among the options is in the location of the interchange in the Montlake area, and the roadway profile for the west approach of the Evergreen Point Bridge. These differences would affect how traffic would be routed from SR 520 north across the Montlake Cut, and how traffic would move through the Washington Park Arboretum and neighborhoods south of SR 520. These options are summarized below:

- Option A is most similar to today’s configuration. It maintains the existing location of the Montlake interchange and adds a new bascule bridge (drawbridge) over the Montlake Cut, parallel to the existing Montlake Bridge. Option A and its suboptions (discussed below) comprise Option A+, which was the design option recommended for implementation by the SR 520 legislative work group.

- Option K includes a new SPUI about a half mile east of the existing Montlake interchange. The new interchange ramps would operate below the SR 520 roadway, with the northern leg of the interchange crossing beneath the Montlake Cut in a tunnel.

- Option L would also include a SPUI with a similar alignment to that in Option K. However, instead of being beneath the SR 520 mainline, the interchange ramps would rise above it. The northern leg of the interchange would cross the east end of the Montlake Cut on a new bascule bridge.

The options vary mainly in the Montlake area; however, there are also some variations in other portions of the corridor. They include the number of lanes and the type of aesthetic treatment to be used for the

What is a SPUI?

Options K and L each include a single point urban interchange (abbreviated as “SPUI”). The term “single point” refers to the fact that all traffic passing through the interchange can be controlled from a single signal. This allows vehicles to clear the intersection more quickly than in a diamond interchange, which requires two sets of traffic signals. In addition to moving traffic efficiently, a SPUI is useful in constrained urban areas because it can be designed to take up less space than other types of interchanges.

The conceptual graphics shown in this report depict the general concept proposed for each of the options, but do not reflect how the intersection would be signaled.
Portage Bay Bridge, as well as the roadway profile through Union Bay, across Foster Island, and out to the west transition span of the floating bridge.

All options place an emphasis on multimodal transportation by decreasing reliance on single-occupant vehicle travel and facilitating transit connections. All options would improve the overall flow of SR 520 traffic. Each would include the common features described above, such as lids and landscape features and a regional bicycle/pedestrian path, although the specific details of those features vary among the options.

For each option there is a set of suboptions that may be included if further analysis suggests the suboptions would improve the operation of SR 520 and/or operation of local streets. The suboptions would affect traffic in the Washington Park Arboretum, and would have a minor effect on the overall footprint. Exhibit 7 summarizes the 6-Lane Alternative, design options, and suboptions that are being evaluated in the SDEIS.

Because the design for each option is the same in some geographic areas and different in others, the detailed descriptions that follow are organized by first identifying the larger geographic area along the project corridor (Seattle, Lake Washington, or Eastside) defined in Exhibit 1-2 of Attachment 1. Within these larger areas, project elements common across all three options are disclosed by geographic area outlined in Exhibit 7. Disclosure of elements common to all options is followed by in-depth descriptions of the design for Option A, Option K, and Option L. Exhibits 1-3a through 1-9 in Attachment 1 show the 6-Lane Alternative and 6-Lane options and suboptions.

**Seattle**

**What elements are common among the 6-Lane Alternative options?**

**I-5 Area**

Exhibits 1-3a, 1-4a, and 1-5a in Attachment 1 show how SR 520 would connect to I-5, with generally the same ramp configuration as the ramps for the existing interchange today. Improvements to this interchange would include a new reversible HOV ramp connecting the new SR 520 HOV lanes to existing I-5 reversible express lanes that serve trips to and from Seattle on I-5.
## Exhibit 7. SDEIS 6-Lane Alternative and Options

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<th>Geographic Area</th>
<th>6-Lane Options</th>
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| **I-5 Area**    | • Rebuild I-5/SR 520 interchange; add reversible HOV direct access ramp to I-5 express lanes.  
                  • Rebuild 10th Avenue East and Delmar Drive East bridges and intersection  
                  • Lids at I-5 and East Roanoke Street and 10th Avenue East | | |
| **Portage Bay Area** | • Rebuild Portage Bay Bridge to a 7-lane bridge (includes westbound auxiliary lane)  
                         • Architectural treatment to be determined | • Rebuild Portage Bay Bridge to a 6-lane bridge  
                          • Architectural treatment for bridge is a “faux arch” | • Rebuild Portage Bay to a 6-lane bridge  
                          • Architectural treatment to be determined |
| **Montlake Area** | • Rebuild Montlake interchange at current location  
                     • Relocate functions of Montlake Transit Station  
                     • Westbound to northbound transit-only direct access ramp  
                     • New bascule bridge parallel to existing bridge over Montlake Cut  
                     • Bridge replacements over SR 520 at Montlake Blvd East and 24th Avenue East  
                     • Partial lid from Montlake Blvd East to 24th Avenue East  
                     • Add southbound traffic capacity on Montlake Place East and 24th Avenue East  
                     • Suboption to add eastbound HOV direct-access ramp (part of Option A+) | • Rebuild Montlake Blvd East bridge over SR 520; replace interchange with new depressed SPUI east of 24th Avenue East  
                          • Relocate functions of Montlake Transit Station  
                          • HOV direct-access ramps (eastbound-to-northbound and southbound-to-eastbound)  
                          • Twin tunnels under Montlake Cut  
                          • Lowered intersection and lid at Montlake Blvd NE and NE Pacific Street  
                          • Additional northbound capacity on Montlake Blvd NE  
                          • Bridge replacements over SR 520 at Montlake Blvd East and 24th Avenue East  
                          • Lid between Montlake Blvd East and 24th Avenue East  
                          • Suboption to add capacity northbound on Montlake Blvd NE to NE 45th Street | | |

*Suboption to add capacity northbound on Montlake Blvd NE to NE 45th Street.*
### Exhibit 7. SDEIS 6-Lane Alternative and Options

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<tr>
<td></td>
<td>Option A</td>
</tr>
<tr>
<td><strong>West Approach Area</strong></td>
<td></td>
</tr>
<tr>
<td>Construct 6-lane bridge width</td>
<td></td>
</tr>
<tr>
<td>Ramps removed, no direct connection to Lake Washington Blvd</td>
<td></td>
</tr>
<tr>
<td>Profile of bridge from 24th Avenue East through Arboretum is a 0.5% slope to just beyond Foster Island, where roadway descends to elevation of existing profile and flattens to 0.0% before a 3.0% incline to west transition span.</td>
<td></td>
</tr>
<tr>
<td>Suboption to add eastbound on-ramps and westbound off-ramps to Lake Washington Blvd (part of Option A+).</td>
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<tr>
<td>Suboption to add Option L profileb (part of Option A+)</td>
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<tr>
<td>Floating Bridge Area</td>
<td>Replace floating bridge and east approach to 6-lane width</td>
</tr>
<tr>
<td>Eastside Transition Area</td>
<td>Tie into Medina to SR 202 project improvements at Evergreen Point Road, and restripe to 92nd Avenue NE</td>
</tr>
</tbody>
</table>

*SPUI = single point urban interchange

*Added capacity only necessary if Lake Washington Blvd ramps are not included in final design.

bSuboption not part of original mediation options; added by WSDOT to address stormwater management concerns.
The I-5 interchange lane configuration is shown in Exhibit 1-3a and described below:

- The westbound SR 520 to northbound I-5 ramp would be one lane, with one lane diverging to East Roanoke Street (the same as today).
- The westbound SR 520 to southbound I-5 ramp would be two lanes (the same as today).
- The southbound I-5 to eastbound SR 520 ramp would be a one-lane ramp that connects to SR 520 through a tunnel under I-5 (the same as today).
- The northbound I-5 to eastbound SR 520 ramp would be two lanes that merge to one lane prior to connecting to eastbound SR 520 (the same as today).
- The new reversible HOV ramp would connect the SR 520 center HOV lanes with the I-5 reversible express lanes. During the morning hours, the ramp would be used by westbound SR 520 HOV traffic to access southbound I-5; during the afternoon hours the ramp would be used by northbound I-5 express lane traffic to access eastbound SR 520.

The two SR 520 mainline general-purpose lanes moving westbound traffic to southbound I-5 would connect to I-5 using the existing ramp structure. The new reversible HOV ramp bridge over I-5 would be five spans long with an overall length of approximately 820 feet. This ramp would be 15 feet wide with 8-foot-wide inside and 4-foot-wide outside shoulders. Modifications to the I-5 express lanes would require reconstructing the express lane shoulders and removing approximately 2,000 feet of one express lane beginning from the Roanoke crossing and then moving south.

Under all options, the three local roadway crossings in this area (East Roanoke Street, 10th Avenue East, and Delmar Drive East) would be rebuilt as part of new lid structures. The local roadways would have generally the same alignment and similar vertical profile as today (East Roanoke Street would be slightly higher). As described below and shown on Exhibits 1-3a, 1-4a, and 1-5a (Attachment 1), the lane configuration would change slightly from the existing layout as follows:

- The East Roanoke Street bridge over I-5 would be replaced with a 70-foot wide structure (5 feet wider than today) as part of the new
I-5/Roanoke lid. The new crossing would include four lanes (two in each direction), sidewalks, and shoulders.

- The 10th Avenue East bridge over SR 520 would be replaced with a 100-foot-wide structure (40 feet wider than today) as part of the new 10th Avenue East/Delmar Drive East lid. The new crossing would include two 12-foot-wide lanes in each direction, planter strips, sidewalks, and shoulders.

The Delmar Drive East bridge over SR 520 would be replaced with a 50-foot-wide structure (the same width as today). The new crossing would include two lanes (one in each direction) and shoulders.

In addition, the East Roanoke/10th Avenue East/Delmar Drive East intersection would be realigned. The turning radius would be increased so that movement along East Roanoke Street/10th Avenue East movement would become the through movement, rather than East Roanoke Street/Delmar Drive, as it is today.

A lid over I-5 is proposed at the existing East Roanoke Street crossing, extending to the north and south of the crossing. A new East Roanoke Street crossing over I-5 would be included as part of the lid structure, as illustrated in Exhibit 8. The lid would function as a vehicle and pedestrian crossing, a landscaped area, and open space. The overall length of the lid would be between 450 and 500 feet long, and would provide connections between north Capitol Hill, Roanoke, and Eastlake neighborhoods.
The lid located at 10th Avenue East and Delmar Drive East would span SR 520 between the 10th Avenue East and Delmar Drive East overcrossings. This lid would connect with the new bridge overcrossings, and would function as a vehicle and pedestrian crossing, a landscaped area, and open space. The proposed lid structure would vary in length between 500 and 600 feet, and would reconnect neighborhoods on both sides of the SR 520 corridor by providing walkways and open space above the SR 520 corridor. The top of the lid structure would meet 10th Avenue East and Delmar Drive at the level of the roadway. The surface of the lid would slope from its high point in the southwest corner at 10th Avenue East to the northeast corner at Bagley Viewpoint.

The surrounding communities identified pedestrian connections and improved traffic flow as the two most important purposes for this lid. The lid incorporates additional pedestrian connections between 10th Avenue East and Delmar Drive; redevelopment of the path from Bagley Viewpoint Park; and vista points to overlook Lake Union, Portage Bay, and the panoramas to the east and west.

**Portage Bay Area**

For all options, the Portage Bay Bridge would be replaced with a wider and, in the easternmost half of the bridge, taller structure. It would begin just east of Delmar Drive, cross over Portage Bay, and end west of Montlake Boulevard. At its west end, the bridge would be widened symmetrically between the Queen City Yacht Club on the north and the Portage Bay Condominiums on the south. At its east end, the widening would occur to the north. The new profile of the Portage Bay Bridge would match the existing profile for the western half of the bridge with a 5 percent grade, as depicted in Exhibit 1-6 in Attachment 1. To remove a low point on the eastern half of the existing bridge, the grade would be adjusted to 0.5 percent beginning approximately at the midpoint of the bridge and carried to the east. The bridge height would be raised 12 feet, at most, above the existing bridge in the vicinity of the existing low point.

**Montlake Area**

Most of the key differences between the 6-Lane Alternative options occur within the Montlake Area. However, all options include a new lid in this area. As part of the lid, the local roadways over SR 520 (Montlake Boulevard East and 24th Avenue East) would be rebuilt. To improve clearances underneath Montlake Boulevard, the SR 520
mainline profile would be slightly lower than it is today. The profile for Montlake Boulevard East over SR 520 would be similar, and the profile for 24th Avenue East over SR 520 would be slightly higher than what exists today. The actual lid configurations would differ between the options, as shown in Exhibit 1-7 of Attachment 1.

Lake Washington Boulevard
For all options, the existing Lake Washington Boulevard eastbound on-ramp and westbound off-ramp, as well as the existing ramps from the R.H. Thomson Expressway, would be removed and would not be replaced.

What design elements are unique to each option?
Following is a description of the design elements unique to each option evaluated in the SDEIS.

Option A
- Includes a 6-lane Portage Bay Bridge with westbound auxiliary lane to I-5 (seven lanes total).
- Portage Bay Bridge architecture to be determined through a design competition.
- Includes an interchange at Montlake Boulevard, similar to the configuration of the existing interchange.
- Includes a westbound SR 520 transit-only off-ramp to northbound Montlake Boulevard.
- Widens Montlake Boulevard overcrossing over SR 520 to add capacity.
- Adds capacity southbound on Montlake Place East, south of SR 520.
- Includes a lid design along SR 520 from McCurdy Park to Montlake Boulevard.
- Adds a new bascule bridge (i.e., a bridge with spans that swing upward to provide clearance for boat traffic) parallel to and east of the existing Montlake Bridge.
- Does not include Lake Washington Boulevard ramps.
- Includes SR 520 mainline with low profile through the Arboretum.
• Includes sound walls and/or quieter pavement (subject to WSDOT feasibility determinations and neighborhood approval).

**Option A Suboptions**

The following suboptions for Option A will be evaluated:

• A westbound off-ramp to Lake Washington Boulevard East, located west of the existing ramp connection.

• An eastbound on-ramp from Lake Washington Boulevard, located west of the existing ramp connection.

• An eastbound direct access on-ramp for transit and HOV from Montlake Boulevard (this suboption would remove the HOV lane from the eastbound on-ramp at Montlake interchange).

• A constant slope profile extending west from 24th Avenue East until reaching the 3 percent profile rising to the west transition span of the floating bridge (see Exhibit 1-6 in Attachment 1).

All of these suboptions are included in Option A+, which was recommended for implementation by the SR 520 legislative work group in its final report.

**Portage Bay Bridge**

Portage Bay Bridge would be reconstructed with seven lanes (two 11-foot-wide general-purpose lanes in each direction, one 12-foot-wide HOV lane in each direction, and a 12-foot-wide westbound auxiliary lane) between I-5 and Montlake Boulevard (see Exhibit 1-3a in Attachment 1). The new bridge would be at least 108 feet wide (i.e., 35 feet wider than the existing bridge) to accommodate the new lanes and shoulder configurations. On- and off-ramps to Montlake Boulevard and I-5 would add width near the east and west ends of the Portage Bay Bridge, respectively. The bridge would be widened equal distances north and south from the existing structure near the Queen City Yacht Club and Portage Bay Shore Condominiums. To the east, the bridge would curve north to align with the new improvements in the Montlake vicinity.

The architectural treatment for the Portage Bay Bridge may be determined through a design competition. Architectural treatment would have implications for the type of substructure and superstructure selected.
Montlake Interchange

Option A would provide a new Montlake interchange reconstructed in a location similar to the existing interchange, shown in Exhibit 1-3b in Attachment 1. The new interchange design would include adding a new signal at the westbound ramps and adding lanes to the on- and off-ramps. The Montlake freeway station on SR 520 would be removed, and a westbound SR 520 transit-only off-ramp would be added to Montlake Boulevard as a fifth leg to the westbound ramp termini. The transit station island located on southbound Montlake Boulevard East at the entrance to the SR 520 on-ramp would remain and operate as it does today. The proposed lane configuration is similar to today’s, and summarized below:

- The eastbound on-ramp would be a loop ramp with two general-purpose lanes and one HOV bypass lane (one more lane than today.) The 3-lane on-ramp would be metered and the three lanes would merge to become a single lane on-ramp east of Montlake Boulevard.
- The eastbound off-ramp would be one lane that tapers off of the mainline and becomes three lanes at Montlake Boulevard (one more lane than today).
- The westbound off-ramp would be two lanes that taper off of the mainline and become three lanes at Montlake Boulevard (two more lanes than today.)
- The westbound on-ramp would be two lanes that merge into one lane west of Montlake Boulevard (one more lane than today). This ramp would use a signal to manage traffic merging onto SR 520, and would become the auxiliary lane on the Portage Bay Bridge.
- A new westbound transit-only direct access off-ramp would connect to northbound Montlake Boulevard at the SR 520 westbound off-ramp terminus.

A suboption at the Montlake interchange would add an eastbound transit and HOV direct-access ramp. Bus traffic from the north would be directed to the ramp and make a direct connection to the eastbound HOV lane.

Montlake Cut and Pacific Street Intersection

North of SR 520, Option A would provide a new bascule bridge (drawbridge) parallel to and east of the existing bridge over the
Montlake Cut, shown in Exhibit 1-7 in Attachment 1. The two bridges would operate as one-way streets with three lanes in each direction. The existing bridge would serve southbound traffic and the new bridge would serve northbound traffic. Each bridge would have three general purpose lanes, a bicycle lane, and sidewalks. The Montlake Boulevard/Northeast Pacific Street intersection would remain as it is today.

The new bascule bridge on Montlake Boulevard East would be approximately 60 feet wide, similar to the existing bridge crossing. The approach for the new bascule bridge would require additional width on Montlake Boulevard north and south of the Montlake Cut. Traffic signals and additional turn lanes would be provided at the cross street intersections.

**Montlake Boulevard and 24th Avenue East**

The alignment of Montlake Boulevard over SR 520 would be similar to today’s alignment; however, the bridge over SR 520 would be longer and wider than the existing bridge. A longer and wider bridge would be required to accommodate improvements to SR 520 below Montlake Boulevard and to provide wider through lanes, shoulders, a center median, and additional turning lanes on Montlake Boulevard over SR 520. Option A would also add traffic capacity southbound on Montlake Place East.

A partial lid in the Montlake vicinity would extend from west of Montlake Boulevard to east of 24th Avenue East. The lid would function as a vehicle and pedestrian crossing, a landscaped area, and open space. The lid structure would meet Lake Washington Boulevard East to provide pedestrian connections between the communities to the north and south of SR 520.

**Lake Washington Boulevard**

As previously described, the existing Lake Washington Boulevard eastbound on-ramp and westbound off-ramp and the R.H. Thomson Expressway ramps would be removed and would not be replaced under Option A. Mediation participants agreed to a suboption for Option A that would allow these ramps to be included. If Lake Washington Boulevard ramps are reconstructed, the westbound off-ramp to Montlake Boulevard would split into two lanes after separating from SR 520. One lane would exit to Montlake Boulevard (right turn onto Montlake Boulevard only) and the other lane would
connect to Lake Washington Boulevard west of the existing ramp interchange (see Exhibit 1-3b in Attachment 1).

**Union Bay and West Approach**

The new bridge for the SR 520 roadway through Union Bay and extending to the floating portion of the Evergreen Point Bridge would consist of two distinct structures: a westbound structure, and an eastbound structure. The westbound structure would include a 14-foot-wide bicycle facility on the north side of the structure, along with two 11-foot-wide general-purpose lanes with a 10-foot-wide shoulder on the outside, and a 12-foot-wide HOV lane with a 4-foot-wide shoulder on the inside. A two-lane off-ramp also adds width to this structure.

The eastbound structure would also include two 11-foot-wide general-purpose lanes with a 10-foot-wide shoulder on the outside and a 12-foot-wide HOV lane with a 4-foot-wide shoulder on the inside. The total combined width of these structures would range between 140 and 205 feet through Union Bay.

The Union Bay structures would be supported by 14 sets (or piers) of 6-foot-diameter columns. The piers would be spaced approximately 140 feet apart. Both structures would maintain a low profile through the Arboretum, though this profile would appear higher than the profile for today’s Union Bay bridge. A comparison of the Option A profiles with the existing roadway profile is shown in Exhibit 1-6 in Attachment 1.

The bridge structures near Foster Island would remain elevated over Foster Island rather than touching land as the SR 520 roadway does today. To the east, the bridge would be closer to the water and then rise again to meet the elevation of the new west transition span. The height of SR 520 at the west transition span would be similar to the existing west highrise. The combined width of these two structures east of Foster Island would be approximately 115 feet.

**Noise Reduction**

Citizen recommendations made during the mediation process defined this option to include sound walls and/or quieter rubberized asphalt pavement, subject to WSDOT reasonability and feasibility determinations and neighborhood approval.
**Option K**

Exhibits 1-4a, 1-4b, and 1-7 in Attachment 1 highlight the design elements and configuration for Option K. In general, Option K:

- Includes a 6-lane Portage Bay Bridge with a faux arch bridge design.
- Includes a northbound receiving lane on Montlake Boulevard NE, beginning north of Pacific Street and ending at the Pacific Place intersection.
- Relocates the Montlake interchange to a new SPUI under the mainline SR 520 located in the east Montlake area near the existing location of the Museum of History and Industry (MOHAI).
- Includes a tunnel under the Montlake Cut.
- Includes Montlake area access to and from SR 520 and the Arboretum, with a traffic turnaround that allows full access to and from SR 520 south of the new SPUI.
- Includes a land bridge over the roadway at Foster Island.
- Includes a low roadway profile through Union Bay, across Foster Island, and eastward to the west transition span.
- Includes quieter pavement.

**Option K Suboptions**

The following suboption for Option K will be evaluated:

- An eastbound off-ramp from SR 520 to Montlake Boulevard configured for right turns only.

**Portage Bay Bridge**

The Portage Bay Bridge would be reconstructed with six lanes (two 11-foot-wide general-purpose lanes, and one 12-foot-wide HOV lane in each direction) between I-5 and Montlake Boulevard. Fundamentally, the Portage Bay Bridge would be a concrete segmental box girder bridge type with a faux arch architectural design. Any changes to the architectural treatment may affect the substructure and superstructure type.

**Montlake Interchange**

Option K would remove the existing interchange with Montlake Boulevard and provide a new interchange located east of Montlake
Boulevard that combines the functions of the existing Montlake interchange with the Lake Washington Boulevard interchange. A SPUI would be constructed 30 to 50 feet under the SR 520 mainline near the existing MOHAI site and McCurdy Park (see Exhibit 1-4b in Attachment 1). Because the SPUI would be below grade and below the ordinary high water mark of Union Bay, large retaining walls would be constructed around its perimeter, with heights ranging from 20 feet high south of SR 520 to more than 60 feet high north of SR 520 (see Exhibit 9). The tallest walls may be benched and stepped to reduce wall design height and improve appearance.

Exhibit 9. Conceptual Rendering of the SPUI Configuration for Option K

The new interchange would include ramps to the north and south, improvements to the Montlake Boulevard/NE Pacific Street intersection, and improvements to Lake Washington Boulevard. The SPUI configuration would separate freeway traffic from local traffic moving across the Montlake Cut. Local through-traffic would continue to use the Montlake Boulevard corridor as it does in today’s configuration. The new interchange configuration would be as follows:

- The westbound off-ramp would be a two-lane ramp. At the SPUI, the right lane would be a free right turn to the north, entering a tunnel that would cross beneath the Montlake Cut and surface near the intersection of Montlake Boulevard and Pacific Street. The left lane would yield to the interchange signal, and movement would proceed south toward the traffic turnaround on Lake Washington Boulevard.
• The eastbound off-ramp would be a single-lane ramp that splits into two lanes at the SPUI. The right lane would be a free right turn to the south toward the turnaround on Lake Washington Boulevard; the left lane would yield to the interchange signal, and movement would proceed northbound into the tunnel under the Montlake Cut.

• The westbound on-ramp would be a two-lane ramp, with one lane of traffic coming from the north and the other from the south.

• The eastbound on-ramp would be a two-lane ramp, with one lane of traffic coming from the north and the other from the south.

• Two HOV direct-access ramps would be provided on the inside of SR 520 to the SPUI. The ramps would provide HOV access to and from the east side of Lake Washington only. The HOV ramps would provide access to and from the north of SR 520 only.

The ramps north of the interchange would tunnel under the Montlake Cut, and would surface north of the cut where the University of Washington Husky Stadium parking lot is today. The ramps would terminate at a reconstructed Montlake Boulevard NE/Pacific Street intersection. The west tunnel would carry two southbound lanes and the east tunnel would carry two northbound lanes. Each tunnel would have two 12-foot-wide lanes, an 8-foot outside shoulder, and a 4-foot inside shoulder. The tunnels would be approximately 2,000 feet long.

Ramps south of the interchange would travel parallel to Lake Washington Boulevard in a north-south direction and connect to a new traffic turnaround constructed near the existing SR 520 ramps’ intersection with Lake Washington Boulevard. On the south side of SR 520, the new four-lane southern ramp would connect SR 520 to the Arboretum area. Parts of the ramp would be constructed below ground and covered by a landscape feature resembling a partial lid. The ramp would merge with a new frontage road at the traffic turnaround.

The new frontage road is intended to connect Montlake Boulevard with the Arboretum area, and would be constructed just north of the existing Lake Washington Boulevard on a new lid structure over SR 520. Moving from the intersection with Montlake Boulevard eastward, the new road would parallel SR 520, and then fly over the southern ramps of the SPUI before returning to grade and merging with the ramps at the traffic turnaround. The traffic turnaround would manage the in-
flow of traffic to and from the SPUI ramps, the frontage road from Montlake Boulevard, and the Arboretum area.

With the new frontage road in place, Lake Washington Boulevard would become a single-lane one-way eastbound roadway between Montlake Boulevard and Roanoke Street. It would travel across the landscape feature that would cover part of the SPUI’s south ramps. At East Roanoke, it would become a two-lane roadway serving both northbound and southbound traffic along 26th Avenue East, and would have no connection to the new interchange or the Arboretum area.

The existing Montlake interchange on- and off-ramps would be removed and would not be replaced. Montlake Boulevard would continue to serve the local traffic needs between Montlake and the University District, and the new SPUI would provide freeway-only access from the north and south—there would be no local traffic movements through the new interchange. As depicted in Exhibit 9, the SPUI on- and off-ramps would be constructed below grade so that the SR 520 mainline traffic could flow uninterrupted over the interchange.

**Montlake Boulevard and Pacific Street Intersection**

To accommodate the new tunnel approach ramps where they daylight near the University of Washington, the three existing legs at the Montlake Boulevard NE/NE Pacific Street intersection would need to be lowered and reconfigured, as shown in Exhibit 1-7 in Attachment 1. Traffic emerging from the tunnel would be able to travel northbound or southbound on Montlake Boulevard NE or westbound on NE Pacific Street.

In addition to the improvements described above, a grade-separated pedestrian crossing would be provided over the lowered intersection to allow pedestrians to have free movements without traffic conflict. The planned Sound Transit light rail station at the University of Washington and the proposed University of Washington Rainier Vista concept plan influenced the conceptual designs of the Montlake Boulevard and Pacific Street intersection.

Either a full or partial lid (shown in Exhibit 10) would cover the lowered intersection at NE Pacific Street and Montlake Boulevard NE; the lid would maintain pedestrian and cyclist connectivity between important activity centers. A partial lid would provide a ring of walkways around the intersection, leaving the center area uncovered. A
full lid would allow diagonal crossings across the lid, in addition to the edge connections.

Exhibit 10. Conceptual Sketch of Montlake Boulevard and Pacific Street Lid

**Montlake Boulevard and 24th Avenue East**

The Montlake Boulevard and 24th Avenue East crossing structures over SR 520 would be incorporated in a lid structure. The lid would be provided in the Montlake vicinity and would extend from west of Montlake Boulevard to east of 24th Avenue NE (see Exhibit 1-4b in Attachment 1). The lid structure would meet Lake Washington Boulevard East to provide pedestrian connections between the communities to the north and south of SR 520. The final length and shape of the lid and treatment of the underside and top surfaces would be determined in future studies.

**Lake Washington Boulevard**

Option K would maintain access from SR 520 to Lake Washington Boulevard by constructing a traffic turnaround connection south of the SPUI between SR 520 and Lake Washington Boulevard (see Exhibit 1-4b in Attachment 1). This addition would also allow traffic originating south of the Montlake Cut to access the freeway from the south.

**Union Bay and West Approach**

The new bridge for the SR 520 roadway through Union Bay would begin approximately 900 feet east of the SPUI, and would maintain a low profile (similar to today’s profile) to Foster Island. Exhibit 1-6 in Attachment 1 shows the proposed profile for this design, compared to
the profile of today’s roadway. The structure would range from 190 to 250 feet wide. There would be six westbound lanes on this structure (two off-ramp lanes, two general-purpose lanes, an HOV lane, and an HOV/transit direct-access ramp) and five eastbound lanes (two on-ramp lanes, two general-purpose lanes, and an HOV lane).

For Option K, the SR 520 mainline would cross Foster Island underneath a land bridge designed to provide connectivity of regional trails to the Washington Park Arboretum. Pedestrian and cyclist access from the south side of Foster Island would be possible along a new path on top of the new land bridge. The land bridge would extend the existing Foster Island landform to the top of the structure, require fill soil and grading, and remove vegetation on Foster Island north of SR 520 (see Exhibit 1-4b in Attachment 1). The land bridge would require fill soil to be placed on the island north to the water’s edge, and short retaining walls would be needed around the new land bridge north of SR 520. The land bridge would be landscaped and would provide views of the lake. The woods on the north and south sides of the land bridge would be replanted to screen the structure and blend with the remaining existing woods.

East of Foster Island, the west approach structure would be similar in height to today’s west approach. The height of SR 520 at the west transition span would be similar to, and to the northwest of, the existing west highrise, where boat traffic travels underneath the bridge.

**Noise Reduction**

Citizen recommendations made during the mediation process defined this option to include only quieter rubberized asphalt pavement for noise mitigation, rather than the sound walls included in the 2006 Draft EIS. However, because quieter pavement has not been demonstrated to meet all FHWA and WSDOT avoidance and minimization requirements in tests performed in Washington State, it cannot be considered as noise mitigation under WSDOT and FHWA criteria. As a result, sound walls could be included in Option K, depending on the findings of the Noise Discipline Report (WSDOT 2009d), WSDOT reasonability and feasibility criteria, and on neighborhood interest.

**Option L**

The following design elements are unique to Option L:

- Includes a 6-lane Portage Bay Bridge with a faux arch bridge design.
- Removes the existing Montlake interchange and replaces it with a new SPUI over the SR 520 mainline at the east Montlake area near the existing location of MOHAI.
- Includes a new bascule bridge over the Montlake Cut.
- Includes ramp connections to Lake Washington Boulevard, but restricts left-turn movements.
- Includes a constant slope 0.3 percent profile from 24th Avenue East extending to the 3 percent profile leading up to the west transition span of the floating bridge (see Exhibit 1-6 in Attachment 1).

Option L Suboptions
The following suboptions for Option L will be evaluated as follows:

- Left-turn movement from Lake Washington Boulevard to access SR 520.
- Added capacity on northbound Montlake Boulevard NE to NE 45th Street.

Portage Bay Bridge
The Portage Bay Bridge would be reconstructed with six lanes (two 11-foot-wide general-purpose lanes and one 12-foot-wide HOV lane in each direction) between I-5 and Montlake Boulevard. Because there would be no on- and off-ramps to Montlake Boulevard, the bridge would be narrower than Option A at the east end.

Fundamentally, the Portage Bay Bridge would be a concrete segmental box girder bridge type with a faux arch architectural design. Any changes to the architectural treatment may affect the substructure and superstructure type.

Montlake Interchange
Similar to Option K, the design for Option L combines the Montlake interchange and Lake Washington Boulevard interchange into a SPUI located in the vicinity of McCurdy Park and MOHAI, shown in Exhibit 1-5b in Attachment 1. For Option L, the SPUI would be on structures 20 to 25 feet above the SR 520 mainline (see Exhibit 11).

Ramps located north of the SPUI would cross over the Montlake Cut on a new 392-foot-long, 4-lane bascule bridge (see Exhibit 1-7 in Attachment 1). The new bridge would be similar in height to the existing Montlake drawbridge to maintain navigation passage.
clearance. It would have two lanes in each direction, a center median, and outside shoulders. The north and south approaches to the bridge would be elevated and supported by columns in East Montlake Park and in the UW Open Space area. After crossing the cut, the ramps would connect to a reconstructed Montlake Boulevard East and NE Pacific Street intersection near the University of Washington.

Exhibit 11. Conceptual Rendering of the SPUI Configuration as Seen from the Bascule Bridge

Ramps located south from the SPUI would travel through the Arboretum and connect to Lake Washington Boulevard near the existing SR 520 ramp intersection. Lake Washington Boulevard traffic traveling southeast would be restricted from accessing the southern ramp. This traffic would need to travel north on Montlake Boulevard to the Pacific Street intersection to access SR 520.

The southern SPUI ramps would connect the new interchange with Lake Washington Boulevard. The ramps would include a northbound on-ramp lane and a southbound off-ramp lane. Only traffic traveling northbound on Lake Washington Boulevard would be able to access the on-ramp.

Montlake Boulevard and Pacific Street Intersection
As previously described, the new bascule bridge across the Montlake Cut would be similar in height to the existing Montlake Bridge to maintain existing navigation passage clearance. The intersection at Montlake Boulevard NE and NE Pacific Street would be lowered to include a new approach to and from the east to the new bascule bridge, and would require grade changes at the three existing legs of the
intersection. The lowered intersection would be covered by either a full or partial lid (see Exhibit 10) designed to maintain pedestrian and cyclist connectivity between important activity centers. A partial lid would provide a ring of walkways around the intersection, leaving the center area uncovered. A full lid would allow diagonal crossings across the lid, in addition to the edge connections.

A design suboption for Option L would construct additional capacity northbound on Montlake Boulevard NE to NE 45th Avenue. Three existing pedestrian crossings over Montlake Boulevard NE would also be replaced as part of this improvement.

**Montlake Boulevard and 24th Avenue East**

A lid provided in the Montlake vicinity would extend from west of Montlake Boulevard to east of 24th Avenue NE and incorporate the Montlake Boulevard and 24th Avenue NE crossing structures. The lid structure would meet Lake Washington Boulevard East to provide pedestrian connections between the communities to the north and south of SR 520. The final length and shape of the lid and treatment of the underside and top surfaces would be determined in future studies.

**Lake Washington Boulevard**

The SPUI would provide ramp connections to Lake Washington Boulevard; however, left-turn movements would be restricted from southbound Lake Washington Boulevard to SR 520. A suboption would allow left turns from southbound Lake Washington Boulevard to SR 520 (see suboption panel Exhibit 1-5b in Attachment 1).

**Union Bay and West Approach**

Elevated ramps and roadways would connect the SPUI to the west approach structures. The new bridge for the SR 520 roadway through Union Bay would range between 200 and 270 feet wide with six westbound lanes (a two-lane off-ramp, three mainline lanes, and an HOV/transit direct access ramp) and five eastbound lanes (a two-lane on-ramp, and three mainline lanes). The bridge profile would be higher than Option K and the existing profile through the Arboretum and across Foster Island (see Exhibit 1-6, Attachment 1). The SR 520 roadway would remain elevated across Foster Island, as opposed to touching land as it does today. The west approach structures would maintain a constant profile from the shoreline at Montlake and steadily rise 0.3 percent as they move eastward until meeting the 3 percent grade required to reach the height of the west transition span.
Noise Reduction
Option L would include sound wall limits similar to those defined for the Pacific Interchange Option in the Draft EIS, and shown in Exhibits 1-5a and 1-5b in Attachment 1. The extent of the sound walls could be reduced as requested during mediation by community groups, depending on WSDOT reasonability and feasibility determinations, and the results and recommendations contained within the Noise Discipline Report (WSDOT 2009d).

Lake Washington
Floating Bridge
Exhibit 1-8 in Attachment 1 shows the alignment of the floating bridge and its connections to the west approach and east shore of Lake Washington. The floating span would be located north of the existing bridge, approximately 190 feet north at the west end and 160 feet north at the east end. The new bridge would have two 11-foot-wide general-purpose lanes in each direction, one 12-foot-wide HOV lane in each direction, 4-foot-wide inside shoulders, and 10-foot-wide outside shoulders. The west transition span, which serves as the west navigation passage under SR 520, would be similar in height to the existing navigation passage. A 14-foot-wide bicycle and pedestrian path with five scenic vantage points and pullouts would be located on the north side of the bridge.

The roadway would be supported above the pontoons by rows of three 10-foot-tall concrete columns, each horizontally spaced 30 to 35 feet apart. These rows of columns would be longitudinally spaced about 90 feet apart across the floating bridge. The roadway of the Evergreen Point Bridge would be approximately 22 feet higher than the existing bridge and approximately 29 feet above the lake surface (see Exhibit 1-8 in Attachment 1).

Pontoon
The design of the new 6-lane floating bridge would include 21 longitudinal pontoons, two cross pontoons, and 54 supplemental
stability pontoons. A single row of 75-foot-wide by 360-foot-long longitudinal pontoons would support the floating bridge (see Exhibit 1-8 in Attachment 1). One 75-foot-wide by 240-foot-long cross pontoon at each end of the bridge would be set perpendicularly to the longitudinal pontoons. The pontoons would have approximately 21 to 28 feet of draft below the surface of the lake. The longitudinal pontoons would be bolstered by the supplemental stability pontoons on each side for added stability and buoyancy. The longitudinal pontoons would not be sized to carry future high-capacity transit (HCT), but would be equipped with connections for additional supplemental stability pontoons to give the bridge enough capacity to carry HCT in the future.

As with the existing floating bridge, the floating pontoons for the new bridge would be anchored to the lake bottom to hold the bridge in place. The existing anchors would likely be left in place when the existing bridge structure is removed.

Three main types of anchors would be used for the new bridge:

- **Gravity anchors** would be used in the dense, harder lakebed materials of Lake Washington. These anchors would consist of large concrete blocks stacked on top of one another.

- **Fluke anchors** would be used in the soft bottom sediments of the lake for most of the floating bridge. These anchors would be installed using a combination of their own weight and water or air-jetting to set them below the mud line. The fluke anchors would be approximately 40 to 45 feet wide.

- **Pile anchors** are driven steel piles with an anchor cable attached to them. Pile anchors may be used where water depth is too shallow to use gravity or fluke anchors and still maintain navigation channels.

All types of anchors would be connected to the floating pontoons with steel cables ranging in diameter from 2.75 to 3.5 inches. The anchors would extend a maximum of approximately 800 feet out from the bridge. For the protection of boaters, boat use would be restricted within 300 feet of the bridge. Approximately 29 anchors would be installed along each of the north and south sides of the new bridge structure, for a total of 58 anchors. See Exhibit 1-8 in Attachment 1 for approximate anchor locations.
East Approach and Transition Span

Near the east approach bridge, the roadway would be widened to accommodate transit ramps to the Evergreen Point Road transit stop. The east approach bridge and transition span would provide a navigation channel with 70 feet of vertical clearance, which is higher than what is currently provided. The west end of the transition span would be supported by a combination of columns and box piers on the floating pontoons. In this location, five columns, instead of the current three, would support the roadway. The east end of the east approach bridge would be supported by columns where it approaches the shoreline of Lake Washington. The structure would meet the existing highway at-grade as it approaches Evergreen Point Road, east of the Lake Washington shoreline.

Bridge Maintenance Facility

Routine access, maintenance, monitoring, inspections, and emergency response for the floating bridge would be based out of a new bridge maintenance facility underneath SR 520 between the east shore of Lake Washington and Evergreen Point Road in Medina. The new bridge maintenance facility would include a working dock, an approximately 7,200-square-foot maintenance building, and parking. The facility would serve as the maintenance crew duty station and provide shop space for small repair work, staging for maintenance materials, and moorage for two workboats used for bridge maintenance activities. Exhibit 12 is a conceptual sketch of the bridge maintenance facility.

Exhibit 12. Conceptual Sketch of Bridge Maintenance Facility

The conceptual design for the maintenance building incorporates a two-story structure built into the end abutment slope under the new east approach bridge. Most of the facility would be buried in the bank slope. The maintenance crew would access the facility on a driveway off of Evergreen Point Road, just north of the new SR 520 highway. The driveway would parallel SR 520 before turning south to enter the facility. Crew parking may be located inside the building, and elevators
would be constructed inside the building to transport vehicles, crews, and materials to the lake and boat dock.

The proposed maintenance dock would allow WSDOT workboats to support emergency preparedness and essential proactive maintenance activities on a daily basis. In the event of a major earthquake, vessel collision, major traffic accident, or major wind storm, emergency response time to the floating bridge is critically important. The need to perform initial damage assessment and rapidly implement damage control measures is crucial to minimizing the potential for loss of life and catastrophic failure of the bridge.

The maintenance dock was described in the 2006 Draft EIS, but its design and layout have changed since that time. The current dock design concept would provide moorage for two workboats with a T-shaped dock. One workboat, 40 to 50 feet in length, would be used in fair weather for equipment and material transport and to provide a work platform. This boat would also provide some transport of personnel. However, a smaller, more efficient, 20- to 30-foot-long workboat would be used predominantly for the transport of personnel. The dock itself would be designed to survive a 100-year storm event, the same type of event used to design the new floating bridge. The dock design would also seek to minimize environmental effects such as shading and shoreline armoring.

The dock would be located underneath the new east approach to the Evergreen Point Bridge. The dock would extend no more than 100 feet from the shoreline, with a width not exceeding 14 feet. Design may include a wave barrier and moorage berth at the end of the dock. Exhibit 13 depicts a conceptual rendering of the proposed dock layout.

Exhibit 13. Conceptual Plan View of Bridge Maintenance Facility Dock

What is a moorage berth?
A berth is a term used to describe a location in a port or harbor used specifically for mooring vessels while not at sea.
Eastside

Work planned for the eastern portion (Evergreen Point Road to 92nd Avenue NE) of the I-5 to Medina project would include:

- Moving the Evergreen Point Road transit stop west to the lid at Evergreen Point Road
- Adding new lane and ramp striping along the SR 520 roadway from the Evergreen Point Lid to 92nd Avenue Northeast
- Moving and realigning traffic barriers as a result of the new lane striping (see Exhibit 1-9 in Attachment 1)

Once the east approach and the floating portions of the Evergreen Point Bridge have been replaced, a new SR 520 roadway would be constructed between the east approach and Evergreen Point Road to accommodate the new alignment. These activities would include basic grading and paving operations. In order to make ramps and lanes connect for proper traffic operations, the SR 520 mainline would be restriped beginning at the physical improvements completed near Evergreen Point Road and extending east to 92nd Avenue NE. Lane channelization in this area would need to be adjusted to tie in to improvements completed by the Medina to SR 202 : Eastside Transit and HOV Project.
Pontoon Production and Transport

All of the longitudinal and cross pontoons, as well as 10 supplemental stability pontoons (needed to replace the existing 4-lane bridge in the event of a catastrophic failure), would be constructed as part of the Pontoon Construction Project. If the Evergreen Point Bridge does not fail prior to planned replacement, then the I-5 to Medina project would use all the pontoons constructed for the Pontoon Construction Project as part of the new 6-lane floating bridge. The I-5 to Medina project would also construct 44 additional supplemental stability pontoons needed for stability and buoyancy of a new 6-lane floating bridge. Of the 44 additional pontoons, some may be constructed at the existing Concrete Technology Corporation facility in Tacoma and others may be constructed at a new facility in Grays Harbor, also being developed as part of the Pontoon Construction Project.

Some of the longitudinal pontoons built and stored in Grays Harbor under the Pontoon Construction Project would be towed from a moorage location in Grays Harbor to Puget Sound for outfitting. The remaining pontoons, plus the outfitted pontoons, would be towed to Lake Washington for incorporation into the floating bridge. Towing would occur as weather permits during the period of March through October. The Construction Techniques and Activities Discipline Report (WSDOT 2009b) provides more detail about pontoon construction and transport activities.
Stormwater Treatment

Three facility types incorporating approved stormwater best management practices (BMPs) are currently identified for the I-5 to Medina: Bridge Replacement and HOV Project: biofiltration swales, constructed stormwater wetlands, and media filter vaults. These facilities are approved for use by WSDOT and the Washington State Department of Ecology (Ecology) through the Highway Runoff Manual (WSDOT 2008a) and the Stormwater Management Manual for Western Washington (Ecology 2005). Additional BMP facilities may be used on the project. Facilities not currently approved by the Highway Runoff Manual are subject to study and approval by Ecology and WSDOT.

Biofiltration swales are vegetation-lined channels designed to remove suspended solids from stormwater. Shallow, concentrated flow within these swales allows plant stems and leaves to filter stormwater. Swales can be easily incorporated into the right-of-way where space allows, and are an effective and relatively low-cost treatment option. Currently, biofiltration swales offer basic water quality treatment.

Stormwater treatment wetlands are considered an enhanced treatment BMP because they remove some of the dissolved metals from stormwater, in addition to removing total suspended solids. These wetlands provide enhanced treatment by using multiple cells and wetland vegetation.

Exhibit 14 shows how a stormwater treatment wetland works. The first cell in the diagram is a presettling cell that collects sediment and pollutants. After treatment in the first cell, water flows into the wetland cell, where additional settling and filtering action combine with the biological action of plants and bacteria to provide further treatment for dissolved metals and other pollutants.

A media filter vault is a proprietary stormwater treatment structure that provides passive stormwater filtration. The vault houses one or more structures, each containing a rechargeable cartridge. The cartridge is filled with a filtering medium such as dolomite, activated charcoal, or gypsum. The vault functions by conveying stormwater into the structure and through the filtering cartridge. These cartridges trap particulates and dissolved pollutants, including metals, hydrocarbons, and nutrients. The rate that water flows through the vault can be
controlled at each cartridge. This system is currently approved by Ecology to provide basic water quality treatment for stormwater runoff.

In some cases, two or more facilities could be used in sequence, resulting in a treatment train. Treatment trains are used when space is limited and a single facility providing enhanced treatment cannot be sited within the available area. Treatment trains work by first passing stormwater through one facility for initial treatment and then conveying the treated stormwater into another facility for additional treatment. A biofiltration swale followed by a media filter vault is an example of a treatment train proposed for use on this project.
What stormwater facilities are unique to Option A?

Exhibits 1-3a and 1-3b in Attachment 1 show the location of stormwater facilities identified for Option A. This option would also include media filter vaults located on the bridge structures between Foster Island and the floating bridge.

What stormwater facilities are unique to Option K?

Exhibits 1-4a and 1-4b in Attachment 1 show the location for stormwater facilities identified for Option K. Because the SPUI would be located below the lake water level, a pump station located in the median near the tunnel entrance would be required to actively pump stormwater out of the depressed SPUI interchange.

Stormwater media filter vaults and a pump station would be located at the eastern and the western end of the proposed Foster Island land bridge. These facilities would treat stormwater from the new west approach bridges to the west entrance of the land bridge. Due to design challenges in this geographical area of the project, the proposed facility would comply with basic water quality requirements only.

What stormwater facilities are unique to Option L?

Exhibits 1-5a and 1-5b in Attachment 1 depict the proposed locations of stormwater facilities for Option L. This option would include an additional constructed stormwater treatment wetland near the south ramp connection to Lake Washington Boulevard. This stormwater wetland would provide both basic and enhanced water quality treatment and would discharge directly to Lake Washington.
Lighting

Similar to today’s roadway lighting configuration, continuous lighting would be provided along the SR 520 corridor from I-5 west to Foster Island and north on bridge structures over the Montlake Cut or a tunnel under the Cut. Recessed lighting in the bridge barrier would illuminate the proposed bicycle and pedestrian path along the full length of the Evergreen Point Bridge (west approach, floating span, and east approach). To reduce the effects of lighting on fish habitat, overhead lights would be located only on the east end of the floating bridge. Continuous lighting along the SR 520 mainline would resume at the east approach bridge to illuminate lane-merging and diverging areas, as required for traffic safety.
Tolls

The SR 520 Draft EIS identified tolling as a way to generate revenue for project construction, and assumed a toll as part of the traffic modeling analysis. Since that time, the tolling discussion has continued through the Lake Washington Urban Partnership. Under a grant from the U.S. Department of Transportation, the Lake Washington Urban Partnership plans to implement tolling on SR 520 for the primary purpose of congestion management. Tolling funds would be used for improvements in the SR 520 corridor. ESHB 2211, which passed in April 2009, authorizes tolling on SR 520 for this purpose. Although the bill includes provisions for considering tolls on I-90 if future traffic conditions warrant it, no tolls are authorized for I-90; hence, traffic modeling for the SDEIS addresses tolling only for SR 520.

Tolling assumptions included in the transportation model for the SDEIS were developed prior to the passage of ESHB 2211. The tolling assumptions reflect the following elements from the SR 520 Finance Plan (WSDOT 2008b):

- Segmental 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 HOV with three or more riders

Users who are required to pay the toll would have transponders, or “cards,” that would be read by an electronic card reader. All single-occupancy vehicle travelers would be charged a toll to cross the Evergreen Point Bridge. Two types of transponders could be used—transponders that attach permanently to a vehicle’s windshield, or portable transponder that could be transferred among multiple vehicles.

The SR 520 Variable Tolling Project Environmental Assessment (WSDOT 2009f) describes the environmental consequences of implementing a toll on all lanes of SR 520 at the Evergreen Point Bridge.
Project Phasing

What is project phasing?

Along with the rest of the nation, Washington State and the Puget Sound region are facing serious revenue shortfalls. Revenue sources for the I-5 to Medina: Bridge Replacement and HOV Project include allocations from various state and federal sources and from future tolling, but there is still a gap between the estimated cost of the project and the revenue available to build it. Because of these funding limitations, there is a strong possibility that WSDOT will construct the project in phases over time.

If the project is phased, WSDOT would first complete those project components that are vulnerable to windstorms and earthquakes. These components include the following:

- The floating portion of the Evergreen Point Bridge, which is vulnerable to windstorms. This is the highest priority in the corridor because of the frequency of severe storms and the high associated risk of catastrophic failure.

- The Portage Bay Bridge, which is vulnerable to earthquakes. This is a slightly lower priority than the floating bridge because the frequency of severe earthquakes is significantly less than that of severe storms.

- The west approach of the Evergreen Point Bridge, which, like the Portage Bay Bridge, is also vulnerable to earthquakes.

Replacing these components would allow WSDOT to fulfill the safety and reliability aspect of the project purpose and need, while the remainder of the project would fulfill the mobility aspect. All project construction would avoid, minimize, and/or mitigate adverse effects on neighborhoods and the environment—the third component of the purpose and need statement. It is important to note that, while the new bridge(s) might be the only parts of the project in place for a certain period of time, WSDOT’s intent is to build a complete project that fully meets all aspects of the purpose and need.

To address the potential for phased project implementation, this SDEIS evaluates the vulnerable structures separately as a subset of the “full-
build” analysis. This subset is referred to in the SDEIS as the Phased Implementation scenario. The evaluation focuses on how the effects of phased implementation would differ from those of full build, and on how constructing the project in phases might have different effects from constructing it all at one time. Calculations of the physical effects of phased implementation (for example, acres of wetlands and parks affected) are presented alongside those for full build where applicable.

**What are the limits of vulnerable structures replacement, and how would SR 520 operate in the interim until full project completion?**

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

As noted above, replacing the vulnerable structures would fulfill only the safety and reliability aspect of the project’s purpose and need, and not the mobility aspect. Full HOV lane operation would not occur until completion of the entire 6-lane corridor, meaning that the benefits of a complete HOV system would be temporarily deferred. The Transportation Discipline Report (WSDOT 2009f) provides information on how the Phased Implementation scenario would operate compared to the full build.

Exhibit 1-2 in Attachment 1 shows the vulnerable portions of the project that would be prioritized, as well as the portions that would be constructed later. These components are discussed below in priority order and are shown in additional detail in Exhibit 1-10 in Attachment 1.

**Vulnerable Priority 1: Floating Span of Evergreen Point Bridge (including Eastside Transition Area)**

The floating span of the Evergreen Point Bridge extends from the west transition span (the connection between fixed and floating bridges), located near Madison Park, to the east transition span, located a short
distance west of the Lake Washington shoreline in Medina. The floating span and the east transition span would be replaced with new structures that would be built and striped to their ultimate 6-lane width.

The new structures would match the 6-lane configuration of the completed Medina to SR 202: Eastside Transit and HOV Project; the HOV lanes on the floating bridge would taper at a point east of the west transition span to match the existing four-lane configuration of the west approach. Floating bridge construction would also include the bridge maintenance facility and new lane channelization completed to tie into the Eastside.

The floating span is the most vulnerable component of the SR 520 corridor, with a high probability of failure in the foreseeable future. Therefore, if funding is severely limited, this portion of the corridor may be built before the other vulnerable components (Portage Bay Bridge and west approach). Should this be the case, WSDOT would construct a new connection approximately 1,500 feet long between the west transition span and the existing high point of the west approach bridge. This connection would ultimately be incorporated into the southern portion (eastbound lanes) of the new west approach.

**Vulnerable Priority 2: Portage Bay Bridge**

Portage Bay Bridge would be built to its ultimate width—seven lanes for Option A, six lanes for Options K and L—but would be striped for an interim capacity of four lanes to mesh with existing portions of the corridor on either side. The exit lane and ramps to Roanoke Street and northbound I-5 would be configured similarly to today’s. Reconstruction of the Portage Bay Bridge would also include a new bridge over Delmar Drive East. This bridge would eventually become part of the 10th and Delmar lid that would be constructed for full buildout.

**Vulnerable Priority 2: West Approach**

Like the Portage Bay Bridge, the west approach would be constructed to its ultimate 6-lane width but striped for four lanes of traffic. The initial construction would end just east of 24th Avenue East, and would include the SR 520 mainline but no new ramps or interchanges. The Lake Washington Boulevard ramps would remain in operation until full buildout, providing capacity to handle traffic demand prior to
construction of improvements in the Montlake area. In the interim, the ramps would be connected to the new mainline and temporary seismic reinforcement would be provided. The configuration and profile (height) of the west approach would vary, depending upon which design option is chosen.

What is the timing of phased implementation?

The time frame for project phasing depends upon WSDOT’s ability to fund full construction of the SR 520 corridor. This funding will be based on future revenues and economic conditions. For analysis purposes, the Phased Implementation scenario is evaluated based on a design year of 2030, the same as for full buildout. This does not mean that the vulnerable structures are expected to be the only part of the project built by 2030; it simply provides an objective way to look at the effects of phased implementation consistently with the effects of full project buildout.

How will WSDOT make decisions about how to move forward with the project?

Project funding depends on a number of factors. The State Legislature authorized tolling to fund the project in 2009 as part of ESHB 2211, but the estimated revenue from tolling is not sufficient to complete any of the 6-Lane Alternative design options being considered. A Finance Plan for the SR 520 program — another requirement of ESHB 2211 — will provide a comprehensive list of all potential funding sources and estimate how much of the project’s needs these sources will cover. The total funding need depends upon which design option is chosen to move forward. The cost estimates for the 6-Lane Alternative design options (expressed in year of expenditure dollars) vary substantially, ranging from $3.67 billion for Option A to $5.54 billion for Option K.

In addition to funding constraints, it is important to note the possibility that the region may not be able to reach a decision in the foreseeable future on the preferred design option for SR 520 in Seattle. The mediation process that produced Options A, K, and L was unable to achieve consensus on a single preferred option. This SDEIS will inform
the decision process, but given the substantial differences among the design options, consensus may be difficult to achieve. At this point, the decision process for designating a preferred design option has not been defined, but is likely to involve a finding by the Governor and endorsement by state and local legislative bodies.

The next step in project decision-making is the formal identification of a preferred alternative. Although the governor has identified the 6-Lane Alternative as the state’s choice, the FHWA, as the NEPA lead agency, makes the ultimate decision on a preferred alternative. WSDOT is working with FHWA to formalize this designation. Another important decision is the selection of a design option for the Montlake area. The legislative work group convened under ESHB 2211 will have input into this decision. The selected design option will be identified in the Final EIS.
References


WSDOT. 2009d. Transportation Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV
Program. Washington State Department of Transportation and Federal Highway Administration.


GIS References


CH2M HILL (2008) GIS Data (Park and Trails) include the following datasets:


Attachment 1

Schematic Exhibits
Exhibit 1-1. Points along SR 520 Vulnerable to Earthquakes or Windstorms
I-5 to Medina: Bridge Replacement and HOV Project
Exhibit 1-2. Geographic Areas along SR 520 Evaluated in SDEIS
I-5 to Medina: Bridge Replacement and HOV Project

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.
Option A from I-5 to Portage Bay

Potential Sound Wall
Lid or Landscape Feature
Stormwater Facility
Park

General-Purpose Lane
HOV, Direct Access, and/or Transit-Only Lanes

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

Exhibit 1-3a. Option A from I-5 to Portage Bay
I-5 to Medina: Bridge Replacement and HOV Project
Exhibit 1-4a. **Option K from I-5 to Portage Bay**

I-5 to Medina: Bridge Replacement and HOV Project

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

Stormwater Facility

Montlake Lid

Depressed Single Point Urban Interchange

Foster Island Land Bridge

Traffic Turnaround

Twin Tunnels

Area of Detail

 existing Regional Bicycle/Pedestrian Path
 Tunnel
 Lid or Landscape Feature
 Proposed Bicycle/Pedestrian Path
 Stormwater Facility

General-Purpose Lane
 HOV, Direct Access, and/or Transit-Only Lanes
 Suboption Element
 Park

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

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

Exhibit 1-5a. Option L from I-5 to Portage Bay

I-5 to Medina: Bridge Replacement and HOV Project
Exhibit 1-6. 6-Lane Option Profiles from I-5 to Lake Washington

Option A Profile

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

Area of Detail

Proposed Mainline Profile

- Existing Profile

Park

0 ft 50 ft 100 ft 150 ft 200 ft

-30 ft

Water Level

Portage Bay

Montlake

Foster Island

Lake Washington

Portage Bay

Montlake

Foster Island

Lake Washington

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

Option K Profile

Option A Suboption

-5.0% -0.5% -1.6% 0.5% -3.0% 0.0% 3.0%

Water Level

Portage Bay

Montlake

Foster Island

Lake Washington

Portage Bay

Montlake

Foster Island

Lake Washington

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

Option L Profile

Option A Suboption

-5.0% -0.5% -1.6% 0.3% 0.0% 3.0%

Water Level

Portage Bay

Montlake

Foster Island

Lake Washington

Portage Bay

Montlake

Foster Island

Lake Washington

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

Legend

- Proposed Mainline Profile

- Existing Profile

- Park
Exhibit 1-7. Options A, K, and L: Montlake and University of Washington Areas
I-5 to Medina: Bridge Replacement and HOV Project

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

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

0 250 500 1,000 Feet

Lake Washington

Exhibit 1-7 Options A, K, and L: Montlake and University of Washington Areas
I-5 to Medina: Bridge Replacement and HOV Project

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

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

0 250 500 1,000 Feet

Lake Washington
AREA OF DETAIL

I-5 to Medina Project Elements

- Limits of Construction
- Proposed Bicycle/Pedestrian Path
- General Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lanes
- Restriping Improvements
- Bridge Maintenance Facility

Medina to SR 202 Project Elements

- General Purpose Lane
- HOV Lane
- Regional Bicycle/Pedestrian Path
- Eastside Project Ltd
- Park

Source: King County (2006) Aerial Photo, CH2M HILL (2008) GIS Data (Park). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.
Exhibit 1-10. Phased Implementation for Options A, K, and L from I-5 to Lake Washington

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