01 EXECUTIVE SUMMARY

"This innovative and collaborative approach has produced context-sensitive infrastructure that is functional and reflects the needs, concerns, and voices of diverse and complex users, stakeholders, and community groups. We are hopeful that WSDOT will continue to implement this process on this and other projects."

- Memorandum: Recommendations for the Portage Bay Bridge and Montlake Lid components of the SR 520 Replacement Project, Seattle Design Commission September 17, 2014

City of Seattle Washington State Department of Transportation

EXECUTIVE SUMMARY

Introduction

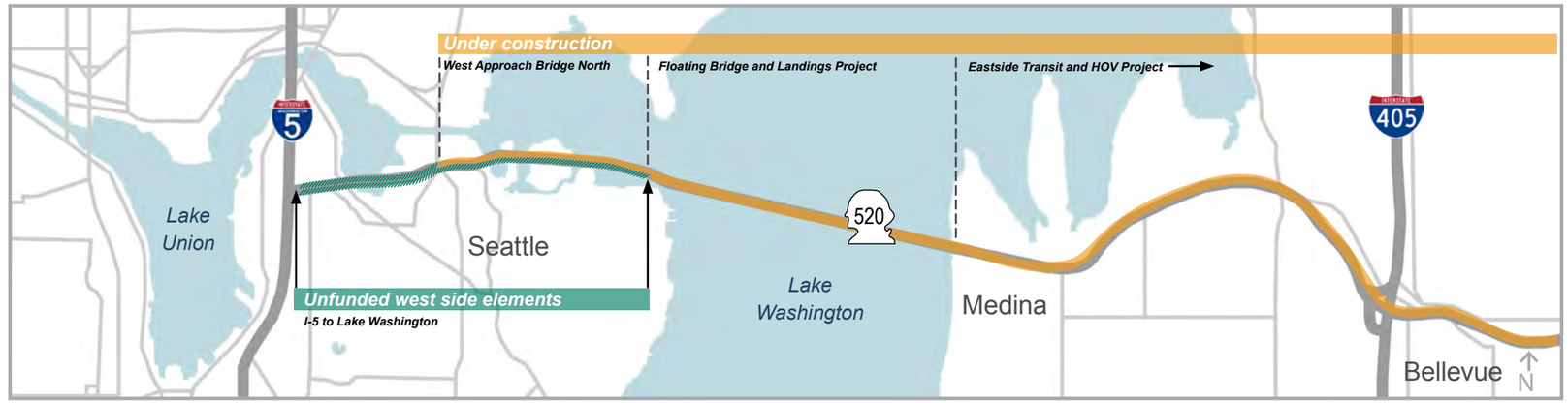
State Route (SR) 520 is a critical transportation link in Central Puget Sound, connecting major employment and population centers on both sides of Lake Washington via the world's longest floating bridge. The Washington State Department of Transportation (WSDOT) has been working with agency partners and the broader public since 1997 to plan, design, and build a safer, higher-capacity highway connecting Redmond to Interstate 5 (I-5) in Seattle.

Although SR 520 Bridge Replacement and HOV Project construction is underway throughout the corridor, improvements to a major portion of SR 520 – its western segment in Seattle – remain unfunded. Two of these unfunded elements, the Portage Bay Bridge and the West Approach Bridge South (WABS), are also vulnerable to earthquakes and must be replaced to safeguard the traveling public.

While the Final Concept Design for many Seattle-area elements was determined to be complete and was well-supported at the close of the Seattle Community Design Process (SCDP) in 2012, some work remained to explore and refine the Portage Bay Bridge, Montlake lid, and plans for bicycle, pedestrian, and transit connectivity within and around the corridor. WSDOT worked with the city of Seattle to further explore these areas in 2014.

Why is additional design work continuing in 2014?

In 2012, WSDOT launched the SCDP to refine the vision and design for the unfunded portions of the SR 520 project between I-5 and Lake Washington. The SCDP focused on intensive community and Seattle Design Commission outreach and input to help WSDOT refine design elements that interact directly with the surrounding neighborhoods and that will have a lasting effect on mobility in the city of Seattle and the surrounding region.



The SR 520 corridor extends from I-5 in Seattle to the east across Lake Washington. The I-5 to Lake Washington area, which is the focus of this document, remains unfunded.

At the conclusion of the SCDP in December 2012, final decisions had not been made regarding several key design features. Feedback was supported in some areas while split in others, and therefore further design work was identified by WSDOT and city of Seattle leaders to clarify strong solutions.

During the 2014 Legislative Session, the Washington State Legislature passed Engrossed Substitute Senate Bill (ESSB) 6001, which directed WSDOT to continue working with the Seattle Department of Transportation in the joint planning for, design of, outreach about, and operation of the remaining SR 520 west side elements, including:

- **The Montlake lid**
- **Bicycle and pedestrian connectivity**
- **The effective network of transit connections**
- **The Portage Bay Bridge**

Throughout the summer of 2014, WSDOT fulfilled this directive by working closely with the city of Seattle, a team of design professionals, and the Seattle Design Commission to develop design recommendations for these remaining unfunded elements. The work builds directly upon previous project design refinements and aligns with all project permits, regulatory approvals, and stakeholder commitments. The Final Concept Design graphic on pp. 4-5 describes design recommendations endorsed during the SCDP in 2012 as well as improvements added through the 2014 design effort.

How were stakeholders and the public engaged?

Recommendations in this report build from and reflect the public input received during the 2012 Seattle Community Design Process. Because ESSB 6001 is focused on decision-making, WSDOT and the city of Seattle determined that the appropriate way for the public to provide feedback was through existing public forums, specifically at Seattle City Council and Seattle Design Commission meetings. At these meetings, community members had the opportunity to provide input directly to decision-makers. WSDOT and the city offered additional opportunities to learn about the design process and provide feedback through a public open house and smaller community group briefings. WSDOT and the city will also host a public comment period on this draft report. Specific engagement activities and a general summary of public input are provided on pp. 14-15 and in Appendix D.

Overall project vision: Nature Meets City

The SR 520 project continues to be guided by the overall project vision of "Nature meets City." For more on the project vision, see p. 19.

The SR 520 project corridor will be a sequence of gateways to Seattle that reconnect green networks established in the city's early planning.

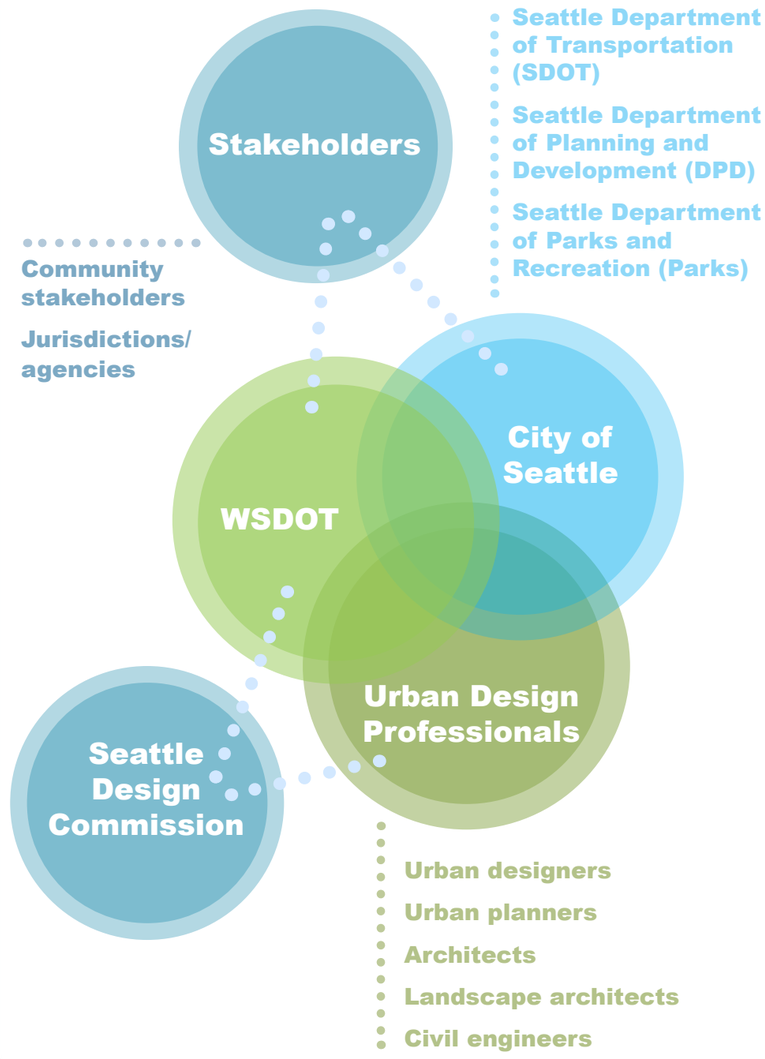
Unfunded west side elements: The Rest of the West

Planned but unfunded improvements between I-5 and Lake Washington include:

- A seismically stronger Portage Bay Bridge, which is currently vulnerable to earthquakes.
- Community-connecting highway lids at Montlake Boulevard and 10th Avenue East/Delmar Drive East.
- A new, seismically stronger West Approach Bridge South to carry three lanes of eastbound traffic past Montlake Boulevard to the new floating bridge.
- A new, second bascule bridge across the Montlake Cut to provide additional capacity and safer travel.
- A 30-foot-wide landscaped bicycle and pedestrian shared-use path over I-5.
- Six travel lanes, including transit/HOV lanes, from Redmond to I-5.
- Related mitigation projects, including aquatic mitigation at Taylor Creek and Seward Park, aquatic and wetland mitigation at Magnuson Park, landscaping enhancements on Foster Island, a new Arboretum North Entry, trail improvements in the Portage Bay area, community construction management plans for future construction phases, historic documentation and interpretive signage.

2014 Design collaboration partnership

The city of Seattle and WSDOT worked together with a team of jointly-hired urban design professionals, the Seattle Design Commission, and community stakeholders to refine the project design.



Final Concept Design: Urban trailhead on the Montlake lid and transit connections.

What is in this document?

This report shares the progress that WSDOT and the city of Seattle have made together during 2014 to develop design recommendations for SR 520's key infrastructure and multimodal connections between I-5 and Montlake. The following chapters highlight this progress:

- **Design progression to date,** including an overview of the many processes and stakeholders WSDOT has worked with to develop the project's Preliminary and Conceptual Designs.
- The **design work completed in 2014,** including a refined vision and goals, concepts explored, and final design recommendations for the following focus areas:
  - **Non-motorized connections** on and around the SR 520 corridor in Seattle;
  - **Portage Bay Bridge** type, alignment, and options for a shared-use path; and
  - **Montlake lid** and nearby pedestrian and bicycle connections.
- **Next steps** for Final Design and for WSDOT to secure funding to complete the SR 520 corridor in Seattle.

Final Concept Design

The 2014 design work built upon the design preferences confirmed at the conclusion of the 2012 SCDP. Elements identified as needing more work were refined in 2014, resulting in a cohesive set of design recommendations for the project, illustrated here.

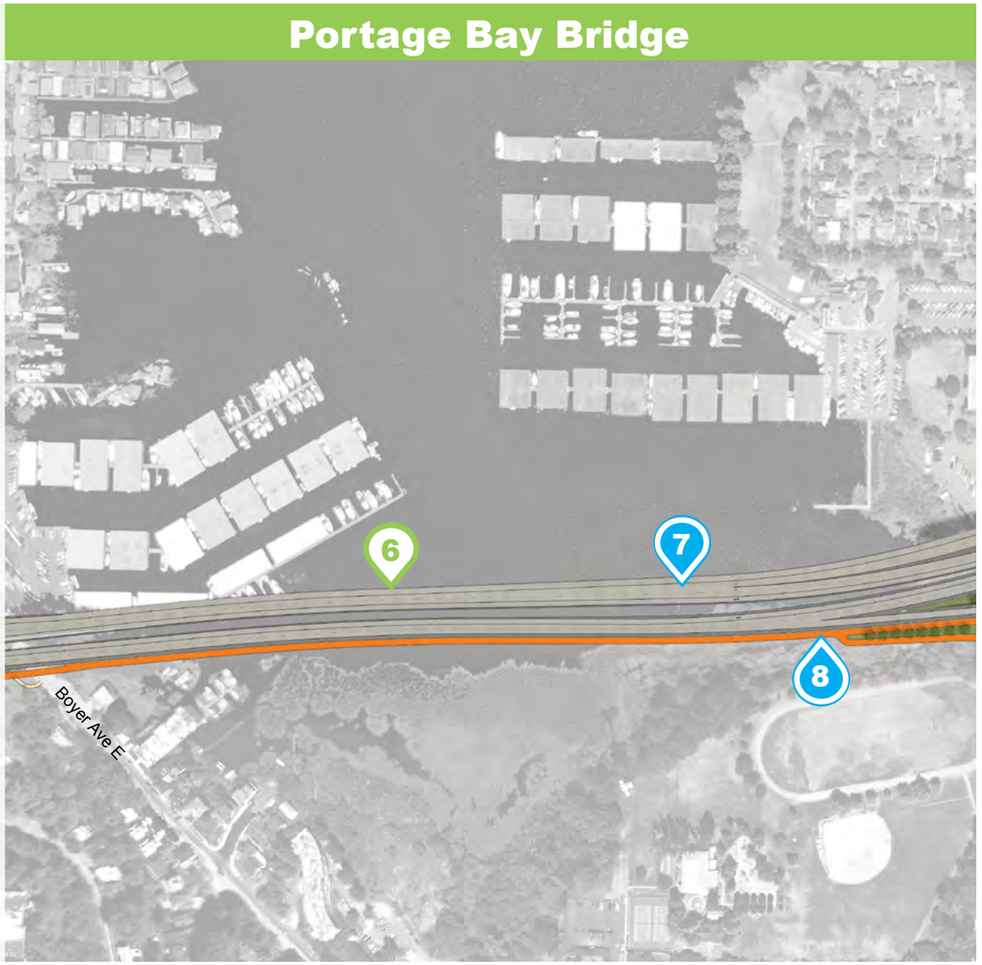
This graphic represents a summary of the design refinements and recommendations that constitute the Final Concept Design. These design recommendations take into account the environmental footprint, conceptual design features and previous project commitments that were approved in the 2011 SR 520, I-5 to Medina Bridge Replacement and HOV Project Federal Highway Administration Record of Decision.

2014 Final Concept Design Recommendations

WSDOT and city staff are aligned in their support of the design recommendations depicted in the graphic on these pages and detailed in this report. Once these recommendations are endorsed by decision makers – Seattle City Council, the Mayor and WSDOT leadership – and funded by the legislature, WSDOT and the city will be ready to advance delivery of the remaining SR 520 improvements to meet the needs of the local community and larger Puget Sound region while replacing vulnerable structures to safeguard the traveling public.

Key

- Regional shared-use path
- Sidewalk/pedestrian path
- SCDP design preferences (became recommendations with city of Seattle Resolution 31427 in 2012)
- 2014 Final Concept Design recommendations



Roanoke area

1. **I-5 crossing:** Design a new 30-foot-wide landscaped bicycle and pedestrian shared-use path.
2. **Intersection design:** Improve the "T" intersection design at 10th Avenue East and Delmar Drive East.
3. **10th and Delmar lid:** Support passive uses as well as bicycle and pedestrian shared-use paths on the lid; balance tree preservation and safe public spaces by blending the lid into the hillside.
4. **Bagley viewpoint:** Expand Bagley Viewpoint and provide street parking on Delmar Drive East.
5. **Boyer connection:** Provide a new, accessible and safe pedestrian connection between Delmar Drive East and Boyer Avenue East.

Portage Bay Bridge

6. **Bridge alignment:** Shift the alignment to the north on the west end of the bridge in order to reduce construction duration, among other benefits.
7. **Bridge type:** A box girder bridge type split into two parallel structures is favored. Raise the profile of the bridge on the east end to allow for longer spans.
8. **Bicycle and pedestrian connections:** Include a shared-use path on the south side of the Portage Bay Bridge in addition to other connectivity options to existing and planned city networks.

Washington State Department of Transportation
City of Seattle

Montlake area

West Approach Bridge

Montlake area

9 **Bill Dawson Trail:** Realign the Bill Dawson Trail to improve sight lines and user experience. Provide multiple options for connecting to adjacent networks via paths and stairs.

10 **Montlake Boulevard East:** Continue to work with the city of Seattle and King County Metro to improve safety, wayfinding, visual character and experience for cyclists and pedestrians.

11 **Canal Reserve:** Lower the westbound off-ramps under 24th Avenue East. Shift the regional shared-use path onto the lid to preserve trees and open space in the Canal Reserve.

12 **Urban trailhead:** Develop an urban trailhead and mobility hub with transit, bicycle and pedestrian facilities, safe and comfortable connections, and space for community activity.

13 **East Lake Washington Boulevard:** Design the roadway to buffer neighbors from traffic, improve visual character and integrate with the Washington Park Arboretum by increasing the planted buffer between the roadway and the homes on the south side of the boulevard.

14 **24th Avenue East off-ramp**: Prohibit direct vehicular access to East Montlake Park from the 24th Avenue East off-ramp.

15 **Stormwater facilities:** Continue to integrate constructed wetland facilities into the existing East Montlake Park and shoreline area.

16 **Montlake land bridge:** Create a smarter lid that emphasizes better connections, more usable open space, buffered views of the roadway, an improved pedestrian experience, and safer undercrossings. The approximately 70-foot-wide land bridge provides an at-grade connection between the Washington Park Arboretum and East Montlake Park.

17 **Montlake Cut:** Improve multimodal connections across the Montlake Cut.

West Approach Bridge

18 **East undercrossing:** Develop a new undercrossing that extends the Arboretum Waterfront Trail under SR 520 at the Lake Washington shoreline. Restore the shoreline wetland habitat. *Pathway alignment subject to further study by WSDOT and the city of Seattle.*

19 **Bridge design:** Work toward a simple and clean structural design; include belvedere viewing areas for the regional shared-use path on the north side of the bridge. *Construction of the West Approach Bridge North began in Fall 2014.*

Non-motorized connectivity network

During 2014, the WSDOT design team worked collaboratively with the city of Seattle to refine the vision and goals for non-motorized facilities based on ongoing public input, Seattle Design Commission recommendations, and design team discussions. They focused specifically on areas for which concepts had not been fully resolved during the 2012 Seattle Community Design Process (SCDP) and developed a series of recommendations to guide additional design consideration for those identified areas. The efforts of the work group are documented in the *Non-motorized Connectivity Technical White Paper* (see Appendix B).

The exhibit on these pages illustrates a summary of the design refinements and recommendations that inform the Final Concept Design for the network of non-motorized connections in and around the project area. It also demonstrates the joint efforts of WSDOT, the city of Seattle and stakeholders to develop an intuitive, comfortable, efficient and safe non-motorized network within the SR 520 west side project corridor and transitions to existing and proposed facilities in the city of Seattle.

Roanoke area

8 Create a new, safe and comfortable undercrossing at 10th Avenue East connecting the 10th and Delmar lid shared-use path to Broadway Avenue East and the Harvard Avenue East neighborhood greenway to downtown Seattle.

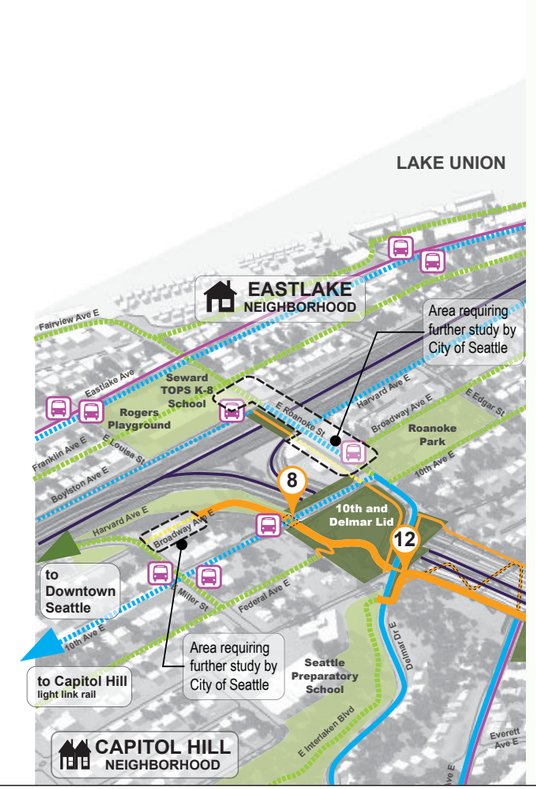
Portage Bay Bridge area

1 Provide an accessible non-motorized path on the south side of Portage Bay Bridge that completes the regional shared-use path from Eastside communities to I-5 in Seattle.

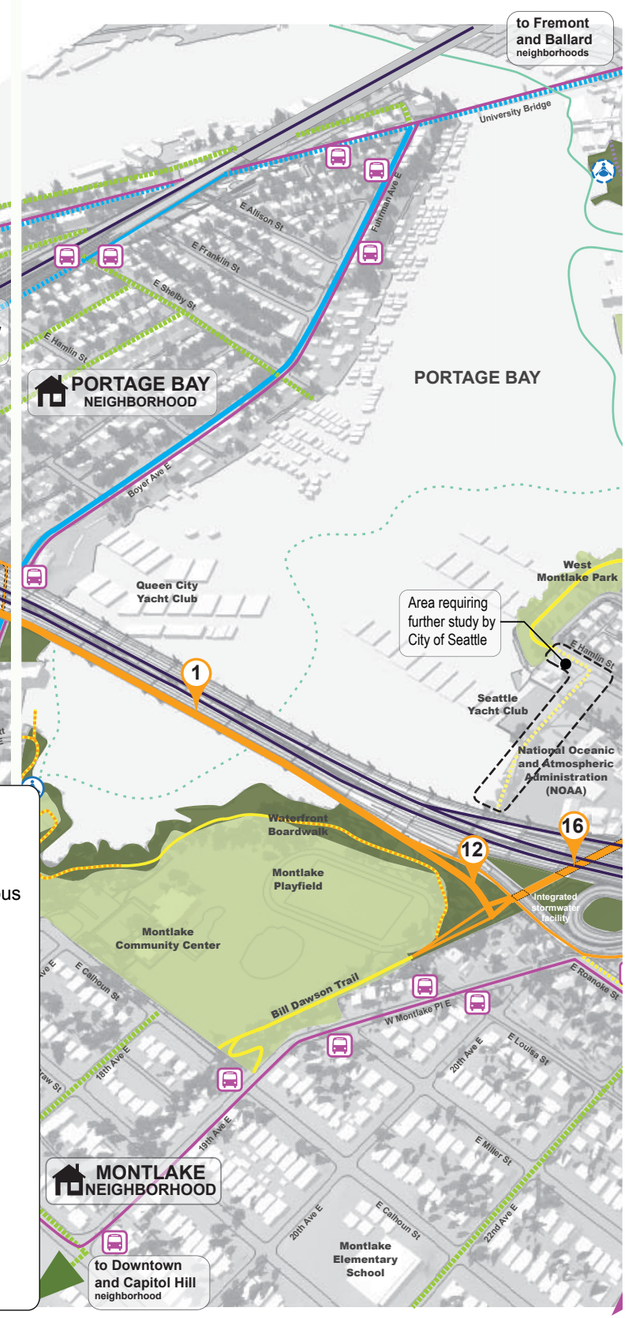
12 Design architecturally-integrated at-grade and separated connections to and from the shared-use path on the Portage Bay Bridge to provide safe, intuitive and comfortable options for pedestrians and cyclists.

16 Straighten and widen the Bill Dawson Trail alignment for improved comfort, safety and sight lines. Provide separation of cyclists and pedestrians using distinctive surfacing.

Roanoke Area



Portage Bay Bridge



2014 Non-motorized connectivity recommendations

WSDOT and city staff are aligned in their support of the design recommendations depicted in this exhibit and the associated *Non-motorized Connectivity Technical White Paper* (see Appendix B). Once endorsed by decision makers – Seattle City Council, the Mayor and WSDOT leadership – and funded by the Washington State legislature, WSDOT and the city will be ready to advance delivery of the remaining SR 520 non-motorized improvements to meet the needs of the local community and larger Puget Sound region, while replacing vulnerable structures to safeguard the traveling public.

Key

- SR 520 Program planned
- SR 520 Program planned undercrossing
- City of Seattle improvements funded by WSDOT (work by others)
- Existing city of Seattle on-street bicycle route (bike lane, shared street)
- Recommended/proposed city of Seattle bicycle routes (bike lane, cycle track, shared street)
- Existing and proposed city of Seattle neighborhood greenway
- Existing city of Seattle non-motorized facility (sidewalk, path, shared-use path)
- Recommended/proposed non-motorized facility (greenway, on-street, cycle track, shared-use, sidewalk)
- Existing green networks
- Project-proposed green network enhancement
- Existing UW non-motorized facility (sidewalk, path)
- Recommended facility in 2014 Bicycle Master Plan on UW campus, or bicycle/pedestrian facility in UW Campus Master Plan/Campus Landscape Framework Plan
- Local transit routes
- Regional transit routes serving SR 520 corridor
- Existing WA Water Trails Association water trail
- Proposed water trail
- Existing hand-carried boat launch
- WSDOT-led improvement
- City-led improvement
- UW-led improvement

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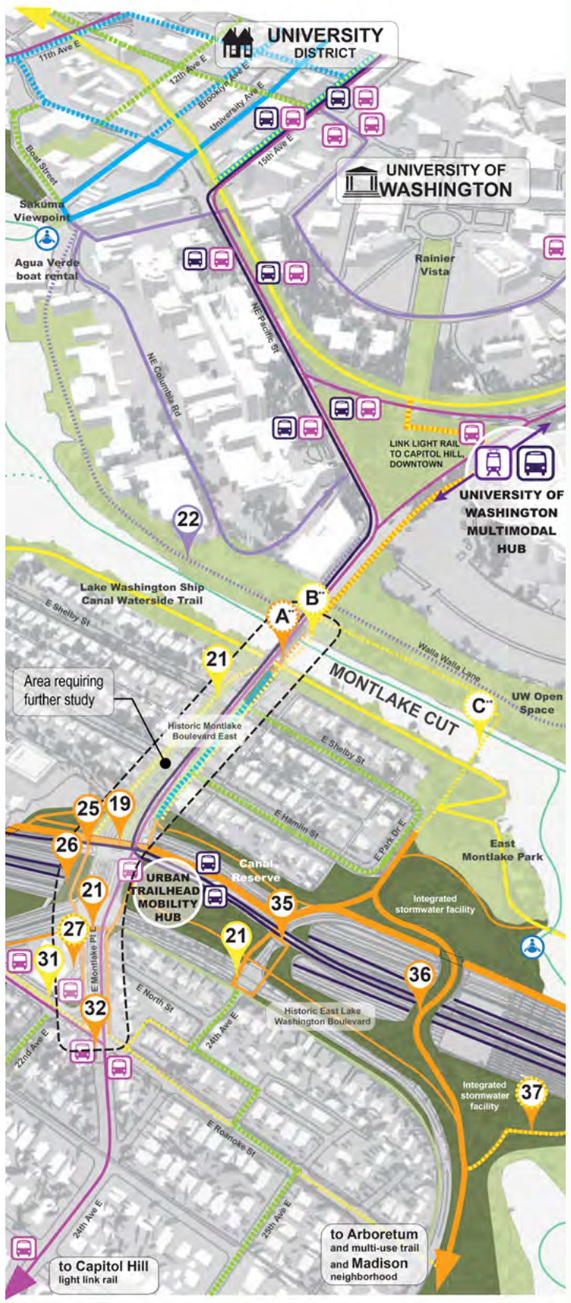
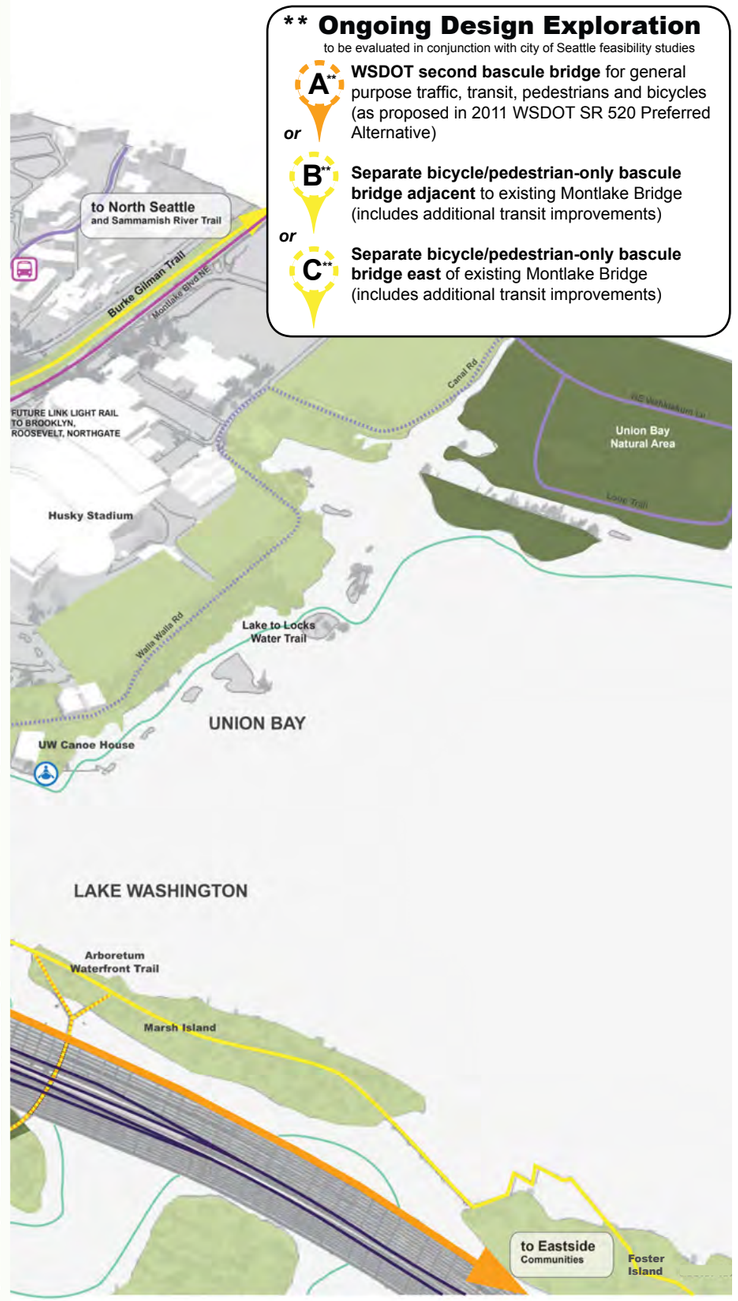
Montlake Area



West Approach Bridge



Montlake area

19 Create a new undercrossing at Montlake Boulevard East for safe pedestrian and bicycle crossing and the connection of the regional shared-use path from the urban trailhead to Bill Dawson Trail and Portage Bay Bridge. Provide separation of cyclists and pedestrians using distinctive surfacing.

21 **21** Provide raised crosswalks or distinctive surface treatments at crossings to improve wayfinding, enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character.

22 Coordinate on a University of Washington-developed waterfront recreational trail to provide bicycle and pedestrian access along Portage Bay and the Montlake Cut with connections under Montlake Boulevard East to Walla Walla Lane.

25 Shorten pedestrian crossings by narrowing lanes and eliminating free vehicle movements with signalized intersections to enhance safety, comfort and traffic calming.

26 Improve the pedestrian experience at the interchange over the SR 520 mainline by widening the path on both sides of Montlake Boulevard East and enhancing the portal edge on the west side of the street with planted buffers along path edges.

27 Continue ongoing refinement of proposed improvements to connections along the west side of Montlake Boulevard East. If existing physical constraints change in the future, WSDOT and the city of Seattle will pursue other opportunities to further improve conditions for pedestrians and cyclists.

31 Develop a safe, separated and direct multi-use connection from the Portage Bay Bridge along the north side of East Roanoke Street to Montlake Boulevard East.

32 Reconfigure the intersection at East Roanoke Street and East Montlake Place East for improved legibility and traffic calming and a safer and more direct connection between Montlake neighborhood greenways.

35 Provide signed intersections at the 24th Avenue East off-ramp and East Lake Washington Boulevard to enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character and neighborhood scale.

36 Create a new, non-motorized land bridge east of 24th Avenue East, which provides a quality, efficient and barrier-free north-south crossing over SR 520, safely connecting the Washington Park Arboretum, East Montlake Park and access to transit.

West Approach Bridge

37 Develop a new undercrossing that extends the Arboretum Waterfront Trail under SR 520 at the Lake Washington shoreline and provides additional comfortable and safe pedestrian connections to the Arboretum. *The Arboretum pathway alignment as illustrated in this report is one potential solution for this important non-motorized connection; specific landing points and layout are subject to further study by WSDOT and the city of Seattle.*

Design progression of the SR 520, I-5 to Medina Project*

**See Appendix C for more information on each phase of the design progression.*

2006 - 2011

PRELIMINARY DESIGN: Identifying, analyzing, refining and selecting a project alternative.

- **2006 Draft Environmental Impact Statement:** Identifying a preliminary range of alternatives.
- **2008 Mediation Process:** Identifying several six-lane alternatives.
- **2010 Supplemental Draft Environmental Impact Statement**: Analyzing alternatives and selecting a Preferred Alternative.
- **2010 ESSB 6392 Workgroup**: Refining the Preferred Alternative.
- **2011 Final Environmental Impact Statement**: Incorporating the Preferred Alternative refinements.
- **2011 Record of Decision:** Approving the Preferred Alternative.

2011 - 2014

CONCEPTUAL DESIGN: Refining the Preferred Alternative within the framework established by the Environmental Impact Statement.

- **2011 - 2012 Seattle Community Design Process:** Refining the Preferred Alternative.
- **2014 ESSB 6001:** Completing the Final Concept Design for the Preferred Alternative.

Winter 2014

Where we are today

FINAL DESIGN

CONSTRUCTION

Unfunded next steps:

FINAL DESIGN: Completing final design and preparing construction contracts.

CONSTRUCTION: Building project improvements.

Design work to date

Project delivery includes three design phases leading to construction: preliminary, conceptual, and final design. The evolution of the SR 520 corridor design in Seattle is described below according to these categories (also see design progression timeline above).

Preliminary design

For many years, WSDOT has worked with agency partners, key stakeholders, and the broader public to identify, analyze, refine and select the project's Preferred Alternative.

Conceptual design

Upon federal approval in 2011, the Preferred Alternative became the project's Preliminary Concept Design and WSDOT began working with their partners, key stakeholders and the broader public to refine the project's design by focusing on community aspects of the Preferred Alternative. The 2011-2012 SCDP and the 2014 design effort are considered to be refinements within the conceptual design phase.

Final design

As west side project elements receive funding, WSDOT will continue to work with the city of Seattle and key stakeholders, including the Seattle Design Commission and the broader public, to complete Final Design in order to inform contract documents and prepare for project construction. The Final Concept Design will undergo environmental review and existing environmental documents will be updated as necessary to implement the proposed design. No new significant environmental impacts are anticipated as a result of the design refinements.

Next steps: Funding and construction

The Final Concept Design recommendations and updated project cost estimates will be presented to the Seattle City Council to inform their guidance and potential endorsement. The Seattle City Council may choose to formalize this guidance in a resolution. WSDOT will also present the results of this process, revised design plans, and updated cost estimates for the Final Concept Design to the State Legislature for funding consideration. When additional project funding is obtained, WSDOT will work with the city and other partners to finalize design, prepare for construction, and complete project delivery.

Final Concept Design: Montlake Boulevard East pedestrian and bicycle undercrossing.

A full version of this document
SR 520 West Side Final Concept Design report
is available here:
www.wsdot.wa.gov/projects/SR520bridge/library/technical.htm#misc

Washington State Department of Transportation City of Seattle