APPENDIX A
DESIGN INTENT

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APPENDIX A

DESIGN INTENT

Introduction

The following appendix summarizes the guiding principles used to refine the project design in 2014. These principles communicate the design intent for continued design development as the project progresses into the Final Design phase. In order to realize many of the project elements and desired qualities identified and described in this section, ongoing collaboration between WSDOT and partner stakeholders, such as the city of Seattle, and further study will be required.

Proposed improvements were driven by practical considerations and informed by best practices. Although the project is currently in the early stages of the design process, these recommendations address not only large-scale urban design requirements but also look toward the implications of those ideas at a more detailed level. Recommendations that appear to be "aesthetic" in nature are tied directly to improving the human experience of the facility while supporting corridor capacity and safety goals. The design principles outlined in this section are intended to apply to the entire Seattle portion of the project, from the I-5/Roanoke area across Portage Bay to the Montlake area, and to the West Approach Bridge.

Project principles of "sustainability, utility, and expression" are embedded in each of the sections detailed here. These principles should continue to inform the evolution of the project as it moves forward into Final Design. While the particular details and resolution of each element will evolve, this appendix should be used as a reference to direct that evolution.

The proposed design refinements described in this appendix will be evaluated for consistency with the Section 106 programmatic agreement, in which WSDOT made specific commitments to help protect historic communities and cultural resources. These key commitments include the following:

- Implement measures to help ensure design consistency with the Olmsted plan for Seattle's parks.
- Implement measures to help enhance and ensure compatibility with the historic character of the Roanoke Park and Montlake Historic Districts.
- Develop a Community Construction Management Plan to support best practices and good communication and to minimize construction impacts on historic properties and members of the public.

Elements of continuity and distinction

The refined vision and design principles that provide the foundation for continued design development build upon historic precedents, extensive public input and professional design experience. During the conceptual design process, the WSDOT design team explored opportunities for creating a consistent visual and aesthetic relationship among elements that appear throughout the corridor, or elements of continuity, to improve user guidance and experience. At the same time, creating a design that responds to the combination of requirements unique to each condition results in distinctive moments and places. The ultimate goal is that users moving through the project area should have a memorable and enjoyable experience unique to this part of Seattle.

Design intent elements

The following sections of this appendix present the design intent for the following project elements:

- Sidewalks and crosswalks
- Urban trails
- Undercrossings
- Land bridge
- Gateways
- Gathering places
- Stormwater
- Olmsted legacy and Section 106 commitments
- Vegetation

The Final Concept Design includes many improved connections for non-motorized users, including a more generous and mode-separated Montlake Boulevard East undercrossing.

City of Seattle Washington State Department of Transportation

SIDEWALKS & CROSSWALKS

Description

Sidewalks and crosswalks exist throughout the project area, adjacent to and over SR 520. They provide a means for people to travel through the area without an automobile, and they allow access to various destinations such as homes, parks, and businesses. They also provide important connections to the University of Washington, the Washington Park Arboretum, and surrounding neighborhoods. Shared-use paths and other urban trails that are designed to include bicyclists are addressed in the *Urban Trails* design intent section (see pp. 86-87).

Location

- Sidewalks along Montlake Boulevard East from East Roanoke Street to the Montlake Bridge
- Sidewalks along East Lake Washington Boulevard
- Sidewalks and crossings on the 24th Avenue East off-ramp at East Lake Washington Boulevard and at the SR 520 HOV on- and off-ramps
- Crosswalks at East Roanoke Street, East Shelby Street, East Hamlin Street, and East Lake Washington Boulevard

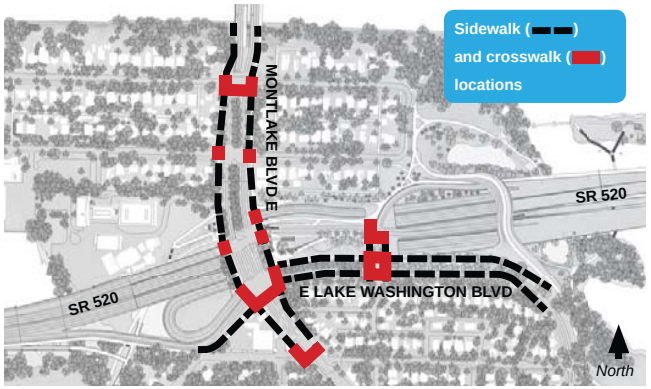
Performance outcomes

- Enhance mobility for users of all ages and abilities.
- Create intuitive, safe, and direct non-motorized connections.
- Improve neighborhood connectivity.
- Provide access to area parks and open space.
- Meet pedestrian volume needs.
- Reduce crossing distances for pedestrian safety.
- Enhance driver awareness of crossing zones.
- Provide sidewalk and trail connections that are easy for pedestrians and other non-motorized users to understand so they can easily wayfind and navigate to their destination.

Design recommendations

- Provide raised crosswalks in the north-south direction along Montlake Boulevard East (specifically at East Shelby Street and East Hamlin Street; consider other locations as appropriate).
- Minimize crossing distances, especially at crossings with more than two lanes, by reducing lane widths and narrowing the curb-to-curb distance at crosswalks.
- Design signal timing to allow adequate crossing time for users of all ages and abilities, including those using mobility assistance devices. Provide adequate signal timing to allow for crossing times based on a minimum crossing speed of 3.5 feet per second or less per the *Manual on Uniform Traffic Control Devices*.
- Consider distinct pavement color, materials, and/or durable markings at crosswalks that heighten driver and pedestrian awareness of crossings. Use this treatment consistently for crosswalks in the project area, particularly for all crosswalks along Montlake Boulevard East.
- Consider current and projected pedestrian volumes when sizing sidewalk and crosswalk elements. A minimum sidewalk width of ten feet is recommended on both sides of Montlake Boulevard East at the SR 520 Montlake lid and to the north, based on current pedestrian volumes. Provision of additional width, based on current design standards, should be considered in areas anticipated to experience significant bicycle traffic and/or higher future pedestrian volumes. See also the *Urban Trails* design intent section (pp. 86-87) for more information on shared-use paths and cycle tracks.
- Provide a sidewalk that could be used by greenway cyclists (e.g. users of all ages and abilities, including children, elderly, etc.) along the west side of Montlake Boulevard East from East Roanoke Street to the Montlake Cut.
- Consider providing button-activated flashing warning beacons for vehicular traffic at non-signalized pedestrian crossings.

Location key



A conceptual rendering showing a bird's-eye view of the "Urban Trailhead" area of the future Montlake lid over SR 520. A continuous paving pattern extends the character of the sidewalk across the SR 520 HOV/Direct access lanes (view facing southeast).

Washington State Department of Transportation
City of Seattle

Precedents

This crossing on Lonsdale Street in Victoria, British Columbia provides additional pedestrian safety by heightening driver awareness of the pedestrian zone by using specialty paving. (Source: BKK Architects)

A raised crosswalk with specialty paving to alert motorists to crossing in Port Townsend, WA. (Source: SvR Design Company)

This raised crossing in Seattle provides additional pedestrian safety by heightening driver awareness of the pedestrian zone across the roadway. (Source: City of Seattle)

A raised crossing (speed table) in Forest Park, IL. (Source: Steve Vance, Flickr)

- Provide vegetated buffers between sidewalks and roadways wherever possible.
- Material selection should reinforce the use of city sidewalks, shared-use pathways and pause points (e.g. concrete for sidewalks).

Life cycle considerations

- Maintain pavement markings.
- Maintain sidewalks on lid, along arterials and adjacent to city-managed trees.
- Maintain sidewalks along residential streets lacking city-managed trees.

Design resources

- Public Right of Way Accessibility Guidelines (PROWAG)
  - » Chapter R3 – Technical Requirements, http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements
- Seattle Right-of-Way Improvements Manual (ROWIM)
  - » Chapter 4 – Design Criteria: Sidewalks (4.11), http://www.seattle.gov/transportation/rowmanual/manual/4_11.asp
  - » Chapter 4 – Design Criteria: Crosswalks (4.12), http://www.seattle.gov/transportation/rowmanual/manual/4_12.asp
- WSDOT Design Manual
  - » Chapter 1510 – Pedestrian Facilities, http://www.wsdot.wa.gov/publications/manuals/fulltext/M22-01/1510.pdf
- National Association of City Transportation Officials (NACTO) Urban Street Design Guide
  - » Sidewalks – http://nacto.org/usdg/street-design-elements/sidewalks/
  - » Intersections – http://nacto.org/usdg/intersections/
  - » Raised Intersections – http://nacto.org/usdg/intersections/minor-intersections/raised-intersections/
- Manual for Uniform Traffic Control Devices (MUTCD)
  - » Section 4E.06 Pedestrian Intervals and Signal Phases

URBAN TRAILS

Description

Urban trails include shared-use paths, cycle tracks and other paths and walkways that are intended to serve mixed modes of non-motorized users. Urban trails are located throughout the project area. The regional shared-use paths are the most prominent urban trails. Others include the bicycle and pedestrian route along the east side of Montlake Boulevard East from the SR 520 lid north to the Montlake Cut and the pathway through the Canal Reserve area.

Location

- Montlake lid area
- East side of Montlake Boulevard East from the SR 520 lid north to the Montlake Cut
- Pathway through the Canal Reserve

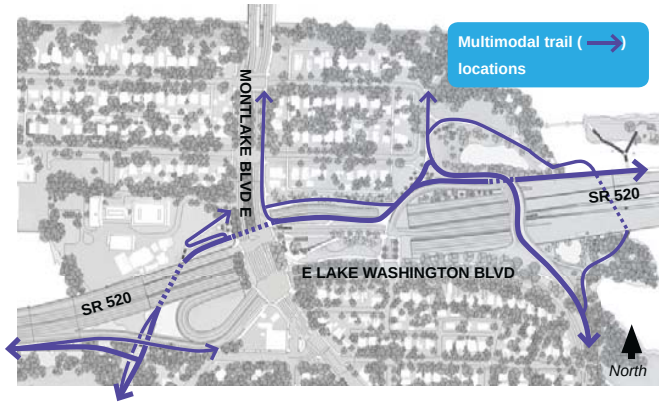
Performance outcomes

- Improve regional and neighborhood non-motorized connections for users of all ages and abilities.
- Provide more options for direct, convenient, intuitive and safe access to existing and future networks and destinations.
- Ensure that the “Urban Trailhead” at the Montlake lid on the east side of Montlake Boulevard East is easily accessible to all potential users.
- Create a north-south neighborhood greenway connection across SR 520.

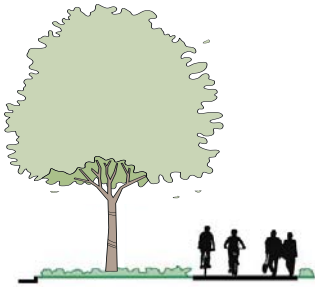
Design recommendations

- Keep site furnishings, vegetation, or other obstructions clear of sidewalks, paths, cycle tracks, etc.
- Provide a facility along the east side of Montlake Boulevard East that will accommodate current and projected volumes of bicyclists and pedestrians at an acceptable level of service.
- Provide sidewalks of appropriate widths to accommodate greenway cyclists (e.g. cyclists of all ages and abilities, including children, elderly, etc.) in combination with pedestrians at key connection points where roadway travel is not acceptable for all ages and abilities, such as along the west side of Montlake Boulevard East from East Roanoke Street north across SR 520.
- Provide appropriate trail widths based on projected use and guidance from appropriate current standards (e.g. AASHTO, NACTO).
- Provide vegetated buffers from adjacent roadways with barriers as necessary.

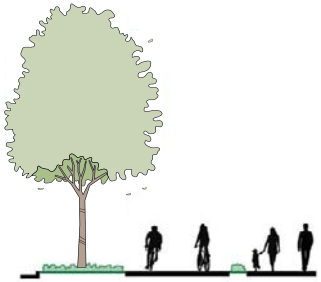
Location key



Urban trail options



Shared-use path section



Two-way cycle track with separate sidewalk section

Precedents

Elmer's Two Mile Park in Boulder, CO. (Source: Loris and Assoc.)

The Burke-Gilman Trail, near Golden Gardens in Seattle. (Source: SvR Design Company)

The Chief Sealth Trail in Seattle. (Source: SvR Design Company)

Lady Bird Lake Trail, a shared-use path above water and land in Austin, TX. (Source: Austin American-Statesman)

Life cycle considerations

- Plan for and allocate appropriate resources to keep trails operating at a high level of service.
- Ensure that adjacent vegetation is managed to provide a safe and inviting experience for trail users.

Design resources

- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 2012 4th Edition
  - » Chapter 5 – Design of Shared Use Paths (not available electronically)
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (see sections on Bike Lanes, Cycle Tracks)
  - » Cycle Tracks – http://nacto.org/cities-for-cycling/design-guide/cycle-tracks/

UNDERCROSSINGS

Description

Undercrossings occur where regional shared-use pedestrian and bicycle paths cross under roadways or bridges to provide safe passage for pedestrians and cyclists.

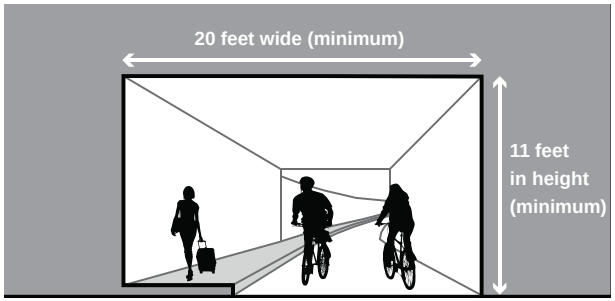
Location

- At the SR 520 interchange below Montlake Boulevard East (SR 513)
- Below the SR 520 mainline along the Bill Dawson Trail

Performance outcomes

Safety

- Minimize the potential for collisions by designing the width of the passageway to allow for simultaneous comfortable passing by both pedestrian users and cyclists.
- Clearly define and/or separate the pedestrian zone from the bicycle zone. Strategies may include a distinctive surface treatment and/or a minor grade differential (e.g. a rolled curb). The pedestrian portion of the path should be a minimum of eight feet wide and the bicycle path should be a minimum of 12 feet wide.
- Ensure a minimum clear height of 11 feet within the passageway.
- Design walls to be without recesses or other corners or signs that a bicyclist might hit.
- Avoid or minimize the curvature of the pathway within and outside the undercrossing to maintain sight lines and to facilitate predictable user behavior.
- Avoid dangerous hairpin turns.
- Design passageway and approach lighting to mitigate dramatic contrasts between outside and inside lighting levels, during both day and night.

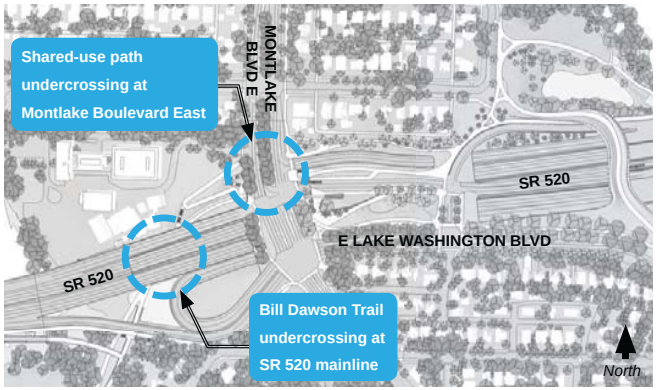


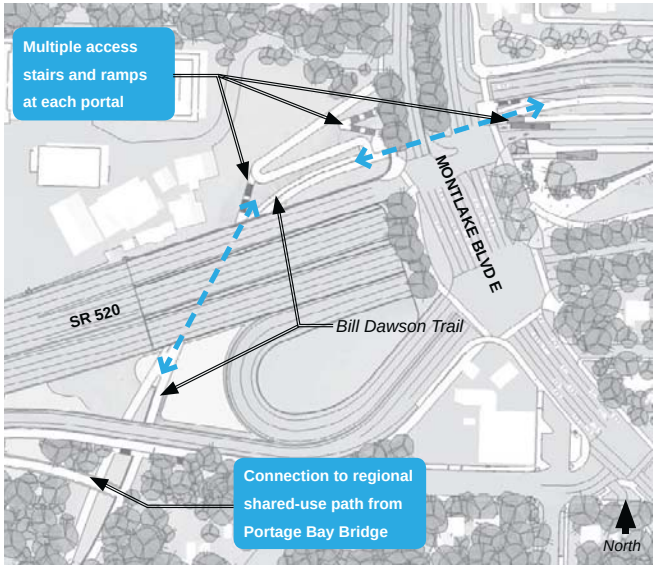
3D schematic diagram of a typical undercrossing with mode separation.

Security/visibility

- Provide adequate sight lines from the approach through the undercrossing to the opposite approach. Approach areas should allow views through the undercrossing at a minimum of approximately 150 feet from either undercrossing entry to allow for full surveillance.
- Provide users with alternate route options via stairs and ramps within or as close to this 150-foot approach area as possible. These options should be clearly visible from the opposite side of the undercrossing.
- Provide lighting that illuminates the face of other users of the space at the approaches and within the undercrossings.
- Design walls, ceiling and landscaping to have a continuous treatment that provides a comfortable transition between undercrossing and approach areas and to facilitate orientation and wayfinding when approaching and passing through those spaces.
- Slope back walls and any associated landscape in the passageway approach area wherever possible to maximize views to and from surrounding areas and to generally maximize natural light.
- Design passageway walls to be smooth and without recessed areas that could potentially restrict full surveillance of the space.
- Provide high-quality materials and thoughtful pedestrian-scale design details to convey the appropriate importance of the space.
- Further evaluate the potential inclusion of emergency call boxes.

Location key



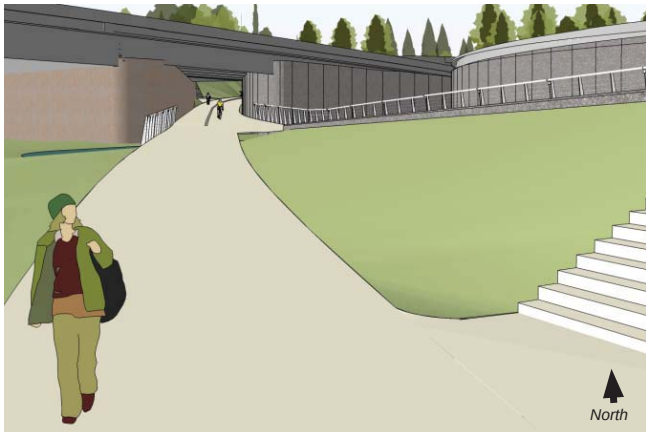


Washington State Department of Transportation
City of Seattle

Precedents

This undercrossing in Vancouver, British Columbia has clear sight lines and separates user modes. (Source: Denver Igarta/Portland Bicycle Plan for 2030)

A bicycle undercrossing in the Netherlands: generous height, smooth reflective walls, and separated paths for pedestrians and cyclists. (Source: Flickr user Stewie1980)



View of the passage below the SR 520 mainline, demonstrating clear views of exit beyond, other occupants, and multiple access points before and after the tunnel.

View of passageway below Montlake Boulevard East with clear views of the exit beyond, tunnel users and activity at street level. The access stair landing is set back from the path of travel to provide adequate space for users to comfortably enter and leave the pathway.

Convenience

- Keep all approaches and areas within the passageways below a five percent maximum grade, consistent with the regional shared-use path, to accommodate and encourage users of all ages and abilities.
- Maintain the smallest possible total elevation change across the pathway alignment to minimize effort required to navigate the pathway.

Design requirements/challenges

To accommodate adequate volumes of vehicular traffic on Montlake Boulevard East, restrictions and/or long distances between at-grade signalized pedestrian crossings are necessary. As a result, alternative grade-separated crossing opportunities that are safe, secure and convenient will be essential to discourage dangerous and illegal crossings and will require exceptional design attention to ensure that they are an attractive choice for pedestrians and bicyclists, particularly when passing underneath a roadway structure.

Life cycle considerations

- Lighting should be regularly checked and maintained for safety.
- Landscaping near the undercrossing and along the approaches should be maintained to ensure clear sight lines through the passage.
- Passage walls should be designed and treated to discourage graffiti.

Design resources

- FHWA's Designing Sidewalks and Trails for Access Best Practices Design Guide, Grade-separated Crossings
  - » http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks216.cfm#gra
- Safe Routes to School, Pedestrian and Bicycle Bridges and Tunnels
  - » http://guide.saferoutesinfo.org/engineering/pedestrian_and_bicycle_bridges_and_tunnels.cfm
- Portland Bicycle Plan for 2030, Appendix D p.21
- WSDOT Design Manual 1510.14 (2) Pedestrian Facilities
- Crime Prevention Through Environmental Design (CPTED) Principles
  - » Natural Surveillance, Natural Access Control, Territorial Reinforcement, Maintenance http://cptedsecurity.com/cpted_design_guidelines.htm

LAND BRIDGE

Description

The land bridge provides a north-south pedestrian and bicycle connection along the Lake Washington shoreline. The structure is also the SR 520 corridor's primary gateway element for entering the city of Seattle.

Location

Approximately 450 feet east of 24th Avenue East.

Performance outcomes

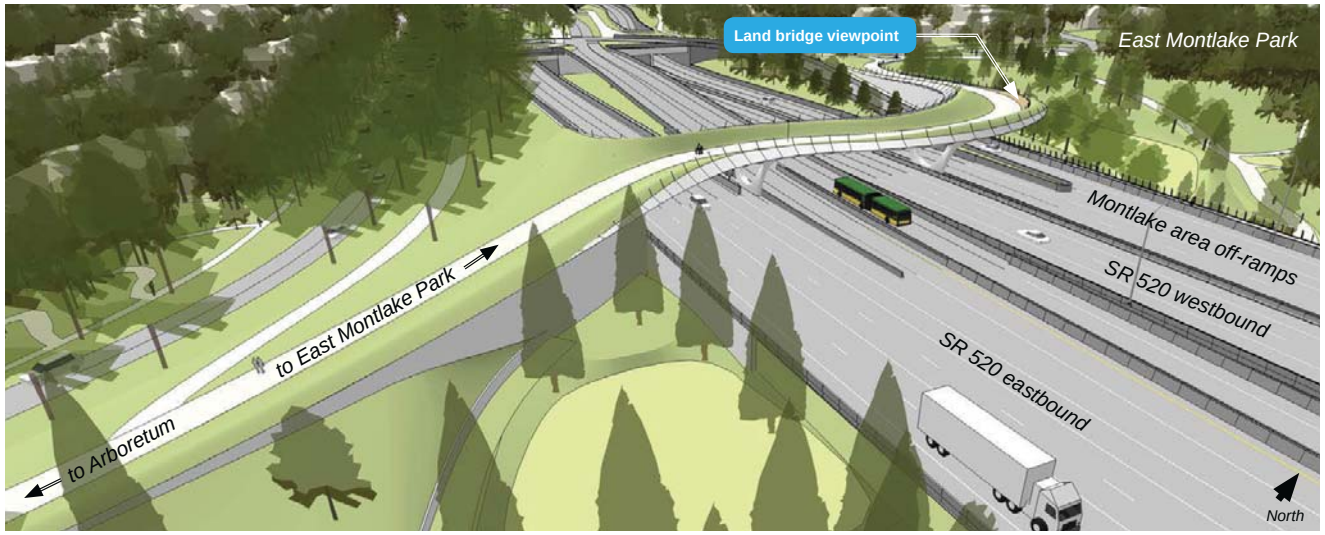
The project requires providing a convenient and attractive grade-separated pedestrian and bicycle connection between the regional shared-use path and the Lake Washington Loop and Arboretum pedestrian and bicycle connections to the south. To minimize traffic impacts upon the surrounding community, this connection should be designed to attract use as the preferred non-motorized route instead of the at-grade option further west, which requires crossing several vehicular lanes of the 24th Avenue East off-ramp.

The sinuous "double curve" bridge configuration being considered carefully balances a set of competing geometric and urban design requirements:

- Align the pathway in relation to the Lake Washington shoreline.
- Provide a perpendicular structural span across the roadway with an approximately 30-foot-wide landscaped area, shaped and planted adequately to visually buffer the path user from awareness of the large expanse of highway below.
- Provide a minimum highway clearance of 17 feet, six inches.
- Maintain an accessible (maximum five percent) grade.

Efficient and convenient

The land bridge concept as shown was shaped primarily by the design goals and requirements listed above. Initial explorations by the urban design team also considered examples of structures that could achieve these competing requirements. In order to maintain a grade of less than five percent, a through girder bridge system was evaluated. This concept allowed the pathway to maintain a relatively low profile while minimizing structural depth of the bridge.



The land bridge alignment provides a perpendicular highway crossing and uses gentle curvature to create a connection along southeast-to-northwest desire lines.

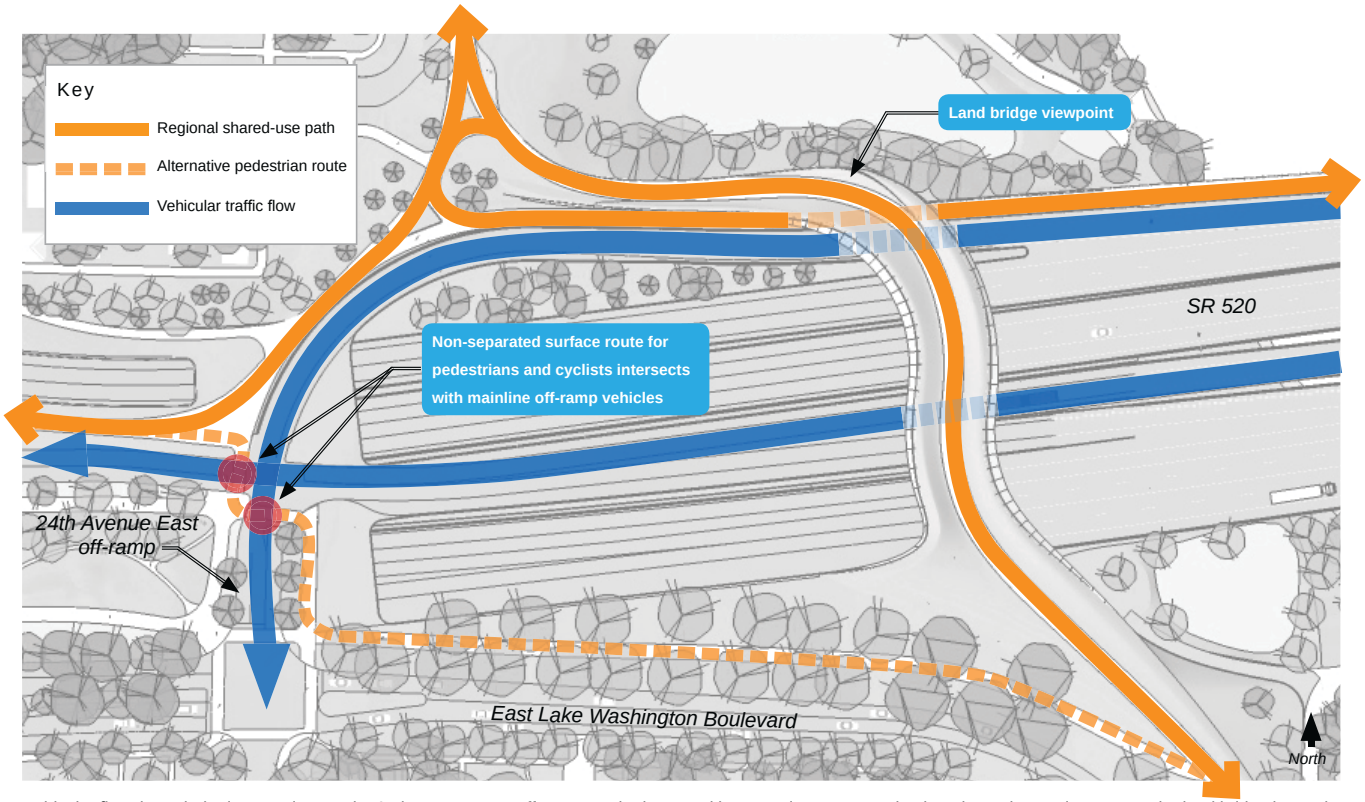
While these early design explorations guided the current Final Concept Design for the land bridge, further structural design by the engineering team will determine the type and geometry that best meets all design requirements.

Pleasant and attractive

- Provide a zone of landscape approximately 30 feet wide on each side of the path to visually buffer views and noise of the highway below.
- Limit soil depth to two feet in order to minimize structural requirements.
- Develop this shallow soil environment as an opportunity to expand Arboretum collections. Refer to the *Vegetation* design intent section (pp. 104-108) for guidance on "Northwest meadow" landscaping.
- Ensure that the landscape cross-section of the land bridge provides a comforting sense of enclosure that counteracts the noise and view of the roadway while maintaining clear lines of sight along the path of travel.
- Create a special viewpoint at the north trail bend directly above the shared-use path on the West Approach Bridge to highlight views of Union Bay, Husky Stadium, Lake Washington and northeast Seattle.
  - The viewpoint also may offer interpretive opportunities regarding the adjacent stormwater treatment facility to the north.
  - The viewpoint area should be adjacent and connected to the shared-use path, taking into consideration best practices for the design of "mixing zones" on multimodal pathways.
- Continue to study opportunities for additional views and/or viewpoints along the bridge pathway.

Note: The forms of the land bridge piers as illustrated may evolve to meet site-specific engineering requirements.

A bird's-eye view of the land bridge, a safe non-motorized crossing that reconnects recreational assets and defines a Seattle gateway where "Nature meets City."



Vehicular flow through the intersections at the 24th Avenue East off-ramp can be improved by attracting non-motorized north-south crossings to use the land bridge instead.

Design requirements/challenges

Convenient

Provide a five percent maximum grade to serve users of all ages and abilities. Minimizing pathway grades and distances may require atypical structural solutions beyond standard precast overpass construction.

Pleasant and attractive

Inviting pedestrians and cyclists to cross the 300-foot span of the land bridge above the noise of fast-moving highway traffic will require a unique and innovative solution beyond typical and simple pedestrian bridge designs over highways. Opportunities for unique views north toward Union Bay and the mountains in the distance suggest provision of a viewpoint amenity.

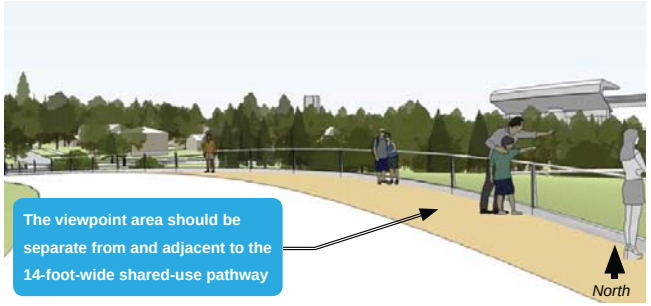
Complements the natural landscape

Inserting a significant structure within the sensitive natural environment suggests a bridge design and configuration that incorporate and complement the natural features in the surrounding context.

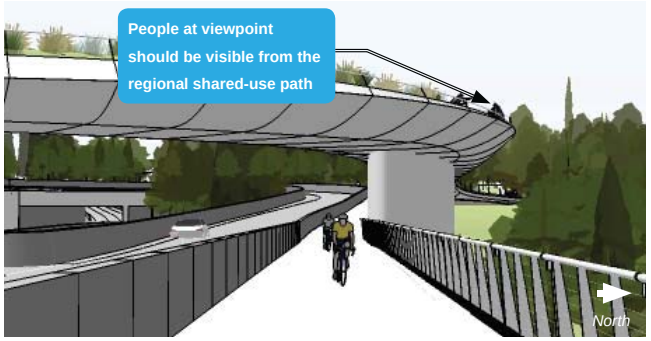
Appropriate gateway to Seattle

The land bridge is the first "gateway'" into the city of Seattle, and as such provides an important opportunity to create a positive aesthetic impression. Further decisions regarding the design of the land bridge should be guided by the project vision of "Nature meets City."

The experience of crossing the land bridge should provide a continuous encounter with the natural environment as well as visual connections to the city. Views and noise of the highway are buffered by landscape.



The north bend viewpoint offers long-distance views and provides clear lines of sight in both directions of travel along the shared-use path.



The land bridge also serves as a visual goal for users of the shared-use path located on the north side of the West Approach Bridge.

City of Seattle Washington State Department of Transportation

Westbound perspective from the SR 520 mainline. The relatively thin profile of the land bridge and visible plantings on top reduce the visual impact of the structure and enhance its ability to tie together the surrounding landscape.

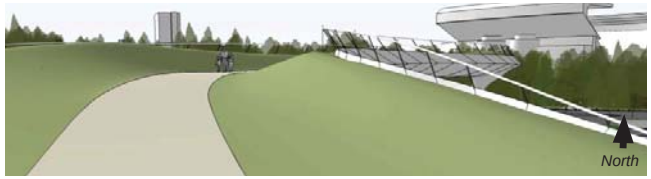
Complements the natural landscape

- The form of the land bridge should echo the curved, non-orthogonal lines of the surrounding natural environment.
- Consider, but do not be limited to, bridge abutment design options that were explored in 2014, such as mechanically stabilized earth (MSE) walls that are shaped to fluidly meet and complement the structural members of the land bridge.

Appropriate gateway to Seattle

Support the function of the land bridge as a primary gateway element by creating a tapered, lofted-edge profile that allows for views of the bridge vegetation from adjacent areas as well as from the roadway below.

Note: The forms of the land bridge piers as illustrated may evolve to meet site-specific engineering requirements.



Views from the south end of the land bridge path may reveal glimpses of its unique structural geometry.

"The [land] bridge profile should be unique and expressive without resembling typical highway infrastructure. Topography and vegetation should provide a unique experience from all angles."

- Memorandum: Recommendations for the Portage Bay Bridge and Montlake Lid components of the SR 520 Replacement Project

Seattle Design Commission, September 17, 2014

Design resources

- WSDOT Design Manual 1510.14 (2) Pedestrian Facilities
- CPTED Principles of Natural Surveillance, Territorial Reinforcement, Maintenance http://cptedsecurity.com/cpted_design_guidelines.htm

Washington State Department of Transportation City of Seattle

Precedents

The "Confluence Project" land bridge in Vancouver, WA. (Source: www.fertile--grounds.blogspot.com)

A rendering of the design for WSDOT's I-90 Rock Knob Wildlife Crossing project.

The Cross-Florida Greenway I-75 Land Bridge. (Source: activeeggplant.com)

Ecoduct deGrimberg in the Netherlands. (Source: Flickr user Chriszwolle)

Ecoduct Borkeld in the Netherlands. (Source: Zwarts & Jansma Architects)

GATEWAYS

Description

In the 2012 Seattle Community Design Process (SCDP) report, gateways were defined as *"natural features, such as trees or waterways, or built elements, such as bridges, buildings, signage or art work, that define a city or area entrance or boundaries and provide a sense of identity and arrival. A gateway can be large or small in scale, and linear or singular, depending on context."*

Location

The east shoreline area where the West Approach Bridge meets land is the first and primary gateway into Seattle. Elements of the gateway include the land bridge and its abutments, adjacent landscape plantings and trees in the stormwater treatment areas, the eastern portals under the Montlake lid and the walls of the "room" defined by the land bridge and the eastern portals. Secondary gateways include the western portal of the Montlake lid, Portage Bay Bridge, and the portals of the 10th and Delmar lid.

Performance outcomes

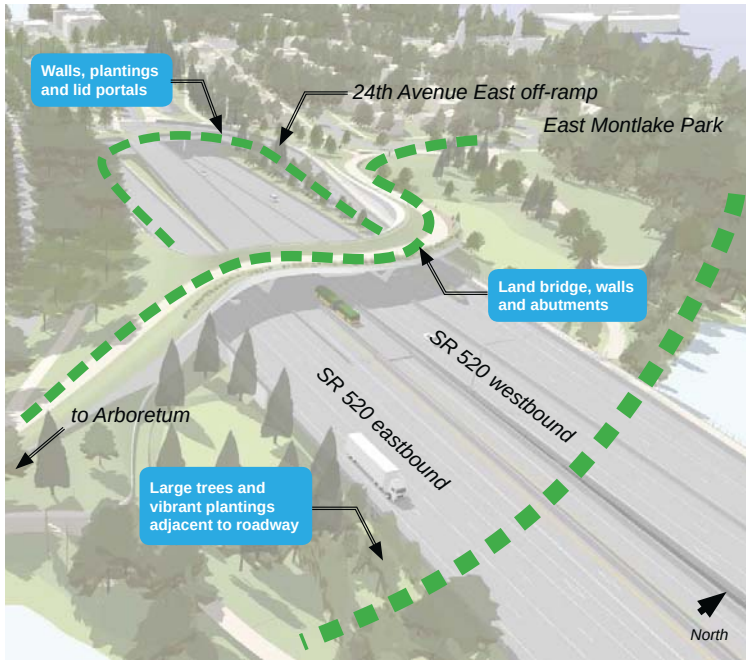
For those arriving from the east, the perception of entering Seattle begins with views from the West Approach Bridge of adjacent landscape at the Arboretum and East Montlake Park. Moving closer, these features merge into landscape walls, which become the land bridge abutments. The abutments then meld into highway walls, which join together at the tunnel portals.

- Design gateway elements as an integrated, continuous sequence of physical elements that together create a memorable gateway experience that clearly express the project vision of "Nature meets City."

Design requirements and challenges

Although the concept of a gateway into a city has evolved over time to become more symbolic than functional, it is still an actual physical experience. Rather than a single threshold, such as a traditional city gate or a tunnel portal into a steep hillside, the SR 520 gateway sequence consists of passing by and through a series of spaces and structures. Design of the sequence should incorporate "elements of continuity and elements of distinction" as articulated in the 2012 SCDP report. Although the SR 520 gateway sequence is primarily focused on vehicular traffic, consideration should also be given to users of the adjacent regional shared-use path.

Large trees and a vibrant natural landscape are visible on both sides of the SR 520 mainline, creating a "green gateway."



The east "gateway" into Seattle consists of passing through a sequence of spaces and structures.

Design recommendations

Land bridge

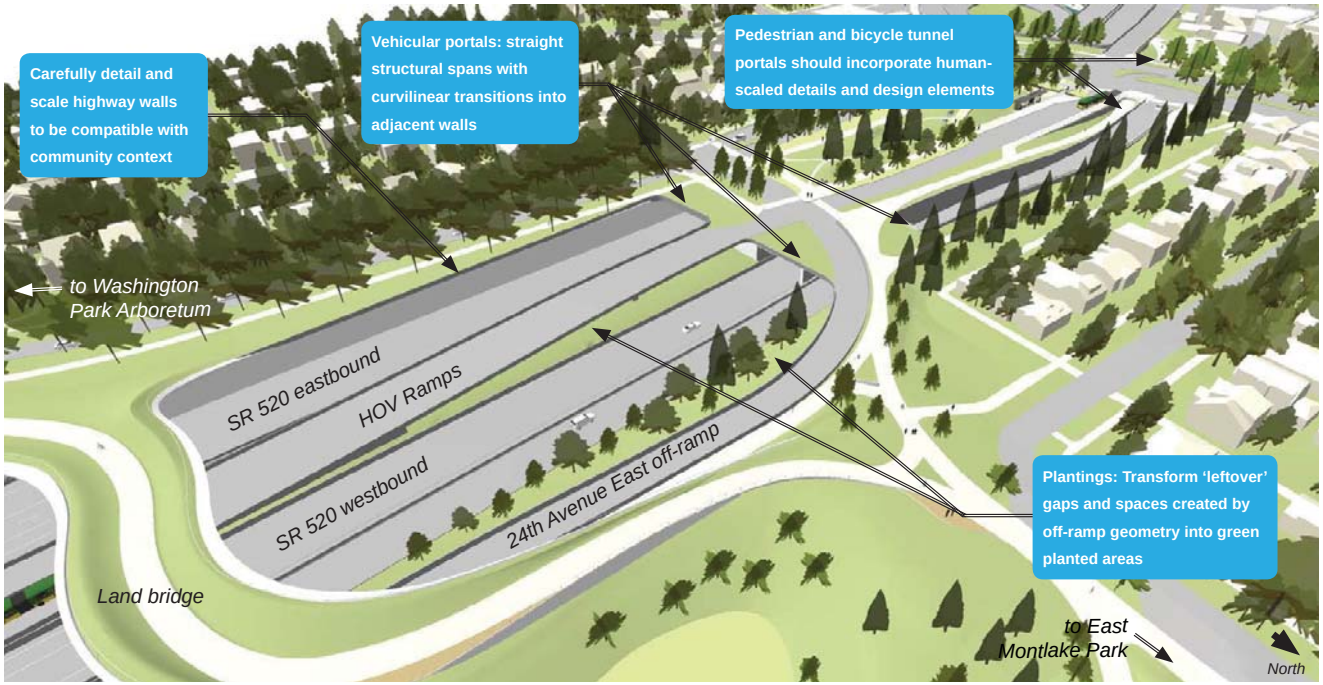
- The land bridge should unify all other east gateway elements. See the land bridge section (pp. 90-93) for design intent.

Adjacent landscape

- The most prominent elements of the "green" gateway are large trees. Maintain space adjacent to the SR 520 mainline so that trees and other vegetation in the stormwater treatment areas are visible from the roadway.
- Ensure that vegetation appears to be continuous, rising up and onto the land bridge from a driver's perspective.

Portals for vehicles

- The shapes of the vehicle portals should balance constructability with the overall design goals.
- Structural spans can be straight yet echo the land bridge geometry with curvilinear transitions into adjacent walls.
- At the east portal, entry into the tunnel should be preceded by landscape plantings at the roadway level in spaces created by the off-ramps. The project should look to similar strategies used successfully throughout the I-90 Mercer lid area.

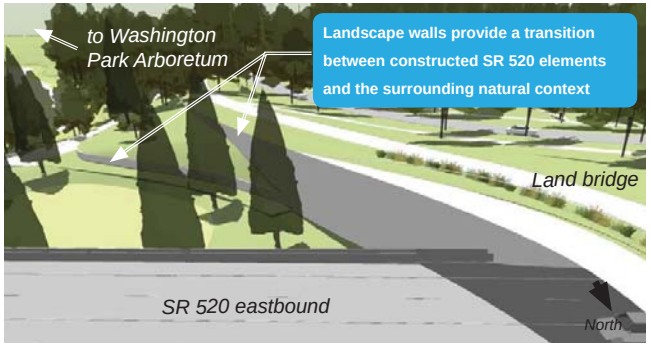


View of the east portal area looking southwest.

"Consider the Montlake lid as part of this series of thresholds and clarify how it fits within that context. The sequence of the land bridge and tunnel should work together to create this threshold experience. Consider materiality, movement through the tunnel, and the moment of emerging from under a structure to see Foster Island or Portage Bay. "

- Memorandum: Recommendations for the Portage Bay Bridge and Montlake Lid components of the SR 520 Replacement Project

Seattle Design Commission, September 17, 2014



Landscape walls transition seamlessly into retaining walls and bridge abutments where the land bridge meets the adjacent landscape (view at south landing where the land bridge transitions into the Arboretum North Entry area).

Portals for pedestrians and cyclists

See the Undercrossings section (pp. 88-89) for related design intent items.

- Portals for the pedestrian and bicycle tunnels should not be identical to those designed for vehicles but should instead be human-scaled and use criteria specific to creating a comfortable pedestrian experience when passing below street level. As noted in the 2011 *SR 520 Bridge Architectural Design Principles*, "*Pedestrians and cyclists will also be much closer to the bridge features; this proximity presents opportunities for smaller-scale features with an increased level of detail along the regional path, compared to the features most notable by transit and vehicular users.*"
- These portals will also integrate railings and traffic barriers at the sidewalk level. Railing systems should work systematically with the portal architecture and support requirements for safety and visibility.

Walls

- Account for the dual nature of highway walls in developing aesthetic treatment and construction concepts. The walls are an important gateway element for drivers entering Seattle, and they also transition into a safety barrier at street level, therefore affecting the experience on the lid and East Lake Washington Boulevard.
- Between the abutment and the tunnel, portal surfaces should be consistent and of systematic construction with minimal distraction to drivers. At the same time, contrasts of light and dark, shade and shadow, and the use of pattern, line and texture can be considered at the appropriate scale to, "*add elegance to features that will give the corridor consistency, rhythm…and punctuate this rapid experience without being so frequent as to create a strobe-like effect*" and "*create a sense of rhythm, draws the eye forward along the road, and avoids jarring, distracting patterns*," consistent with WSDOT's *SR 520 Bridge Architectural Design Principles*.

Design resources

- SR 520 Eastside Urban Design Criteria (2010)
- SR 520 West Side Corridor Design Principles (2011)
- SR 520 Bridge Architectural Design Principles (2011)

GATHERING PLACES

Description

Gathering places occur at various locations throughout the project area that are not primarily focused on providing non-motorized circulation. These places include viewpoints, “pause points” along Montlake Boulevard East, transit stop areas, and a small plaza around the Montlake lid mobility hub that serves as an “Urban Trailhead.”

Location

- Montlake lid area
- Viewpoints along the land bridge pathway
- Transit stops along Montlake Boulevard East and at the SR 520 HOV on- and off-ramps
- Pause points along Montlake Boulevard East

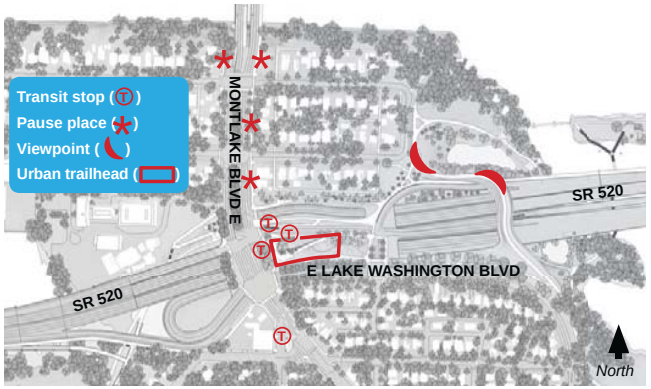
Performance outcomes

- Design safe and functional spaces that attract users and encourage positive activity.
- Design and program the lid just east of Montlake Boulevard East to serve as an “Urban Trailhead” mobility hub, helping visitors to discover, connect, and find places to explore in the surrounding parks and neighborhoods.
- Provide multiple opportunities for visitors to pause and rest, converse, or enjoy views throughout project area without impeding those who are moving along adjacent trails or sidewalks.
- Ensure that public places feel safe and active, with visitors and neighbors providing “eyes on the street.”

Design recommendations

- Provide sidewalk and trail users with spaces of adequate size to pull off or step out of circulation areas to avoid impeding passage of other users.
- Keep site furnishings, vegetation, or other obstructions clear of circulation areas (sidewalks, paths, cycle tracks, etc.).
- Provide seating opportunities at gathering places that allow for people sitting alone or in groups.
- Design gathering spaces that are sensitive to the neighborhood context, providing appropriate distance or screening from nearby residences.
- Coordinate with vegetation design at viewpoints to avoid planting vegetation that will grow in to block key views.

Location key



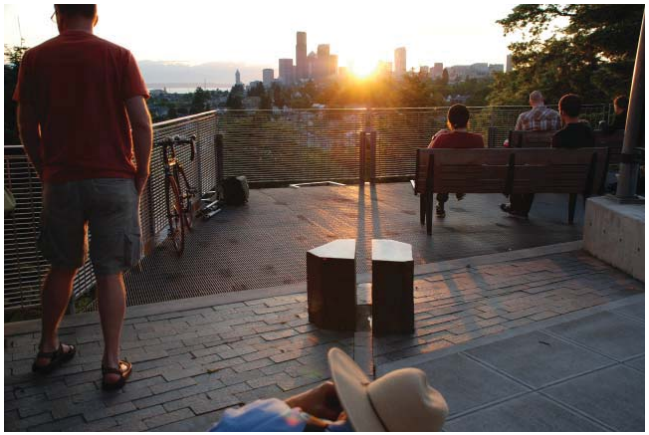
A conceptual rendering of a streetside “pause point” that provides a space for non-motorized users to step or pull out of the sidewalk or pathway to rest, wait, or meet. Locations and responsibility for the design and maintenance of such pause points remain to be determined through future planning and design.

Precedents

A gathering space with pedestrian amenities at the sidewalk near a crosswalk area along Winslow Way on Bainbridge Island. (Source: SvR Design Company)

A transit area and gathering space along the street on Northeast Campus Parkway near the University of Washington in Seattle. (Source: SvR Design Company)

A small plaza serving transit users near King Street Station in Seattle. (Source: Google Maps)



The Mt. Baker Ridge Viewpoint in Seattle provides a resting spot and opportunity to enjoy views and socialize. (Source: SvR Design Company)

Life cycle considerations

- Select furnishings and materials such as specialty paving that align with anticipated levels of maintenance.
- Develop a Memorandum of Understanding with other agencies, institutions, or private businesses for the operation and maintenance of potential facilities on the site (such as a bicycle share station, coffee stand, informational or wayfinding kiosk, etc).

Design resources

- Seattle Right-of-Way Improvements Manual (ROWIM)
  - » Chapter 4 – Design Criteria: Street Trees and Landscape Architectural Standards (4.14), http://www.seattle.gov/transportation/rowmanual/manual/4_14.asp
  - » Chapter 4 – Design Criteria: Transit Zones (4.25), http://www.seattle.gov/transportation/rowmanual/manual/4_25.asp
  - » Chapter 4 – Design Criteria: Street Furniture, Public Art and Unique Objects in the Public Right-of-Way (4.26), http://www.seattle.gov/transportation/rowmanual/manual/4_26.asp
- Crime Prevention Through Environmental Design (CPTED) guidance:
  - » Seattle Police Dept.: http://www.seattle.gov/police/prevention/neighborhood/cpted.htm
  - » Portland, OR: http://www.portlandoregon.gov/oni/article/320548
- General principles of Olmsted design: http://www.olmsted.org/the-olmsted-legacy/olmsted-theory-and-design-principles/seven-s-of-olmsteds-design
- Seattle Pedestrian Master Plan
  - » http://www.seattle.gov/transportation/pedestrian_masterplan/

STORMWATER

Description

Stormwater runoff from urban areas contains pollutants that are harmful to natural ecosystems and aquatic life. Treatment wetlands provide an enhanced level of treatment for runoff by removing a higher volume of dissolved metals. Treatment wetlands (including a concrete-lined presettling pool or vault, if required due to groundwater or space constraints) will be used to treat highway runoff from SR 520.

Bioretention cells are shallow depressions that contain engineered soil with plantings, which remove pollutants as water infiltrates downward. Plants in the bioretention cell help to maintain the soil media and enhance the visual experience of the facility. Biofiltration swales remove pollutants by slowing water with vegetation and allowing the pollutants to settle or be filtered out. Bioretention cells and biofiltration swales provide various levels of treatment that are appropriate for low- and moderate-volume roads. Bioretention or biofiltration could be used along roadways in the project area to help treat non-highway stormwater runoff where technically feasible.

Location

Planned treatment wetland locations include:

- East Montlake Park, just north of SR 520
- South of SR 520, just east of the land bridge landing
- South of SR 520, west of Montlake Boulevard East and adjacent to the SR 520 eastbound general purpose on-ramps

Bioretention locations to be considered further include:

- Along Montlake Boulevard East north of SR 520, as space, design advancement, and geotechnical factors permit
- Other roadways or surfaces, such as lid surfaces, as appropriate for bioretention

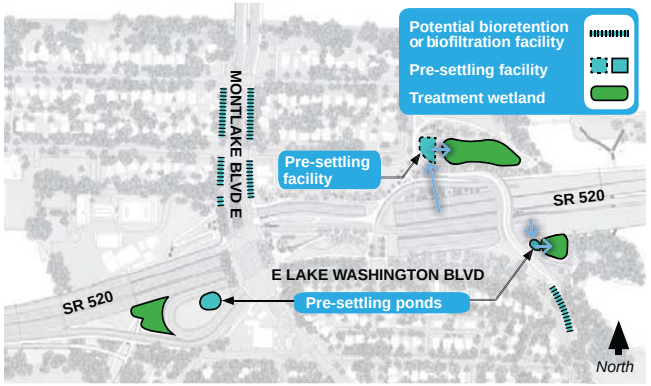
Performance outcomes

- Stormwater from highway and other lower-traffic roadways is effectively treated per applicable standards.
- Natural assets of the adjacent open spaces are reflected and accented by treatment wetland and bioretention features.
- Park and open space areas and views adjacent to the highway are unobstructed by stormwater infrastructure.
- Stormwater facilities blend aesthetically with their surroundings.
- Groundwater recharge occurs through infiltrating green stormwater infrastructure, where technically feasible.
- Stormwater runoff collection and conveyance meets applicable standards.

Design recommendations

- Distribute treatment areas for the West Approach Bridge North, the West Approach Bridge South, and the Montlake lid to utilize areas available on both the north and south sides of SR 520.
- Reflect and accent the natural assets of the adjacent open spaces with constructed wetland and bioretention or biofiltration features.
- Separate stormwater runoff from non-pollution-generating areas where feasible to limit facility size.
- Evaluate opportunities to distribute bioretention cells and/or biofiltration swales along low- and moderate-volume roads.
- Cover the pre-settling cell in East Montlake Park (north of SR 520) in a vault to increase the area available for other landscape elements and to better integrate the treatment facility into the park's landscape.
- Maintain a saturated wetland condition in treatment wetlands for the majority of the year to support wetland habitat.
- Achieve gravity conveyance of stormwater where feasible. Where gravity conveyance of stormwater is not feasible, pumping will be required.

Location key



Washington State Department of Transportation
City of Seattle

Precedents

Stormwater wetlands though which users can walk, jog and bike in Seattle's Magnuson Park. (Source: Berger Partnership)

Rain gardens at High Point in Seattle. (Source: SvR Design Company)

The Alewife Wetlands in Cambridge, MA. (Source: Kleinfelder)

A roadside bioretention area in Seattle's Eastlake neighborhood. (Source: SvR Design Company)

Life cycle considerations

- Pre-settling cells, wetland cell outlet controls, and pump stations require access for routine maintenance.
- Pre-settling cells require periodic cleaning to remove accumulated sediment and debris.
- Wetland cells should be monitored for noxious weeds and Crime Prevention Through Environmental Design (CPTED) considerations, which may necessitate additional maintenance.

Design resources

- Seattle Right-of-Way Improvement Manual (ROWIM) http://www.seattle.gov/transportation/rowmanual/manual/
- City of Seattle, Stormwater Manual, Volume 3, 2009
- Washington State Department of Transportation, Final Environmental Impact Statement, SR 520 Bridge Replacement and HOV Program, 2011
- Washington State Department of Transportation, Highway Runoff Manual, 2014

OLMSTED LEGACY AND SECTION 106 COMMITMENTS

Description

The SR 520 corridor west side project has, through the National Environmental Policy Act (NEPA) process and Final Environmental Impact Statement (FEIS), developed a series of project commitments, including those developed under the U.S. Department of the Interior's National Historic Preservation Act, Section 106. Section 106 commitments have informed the urban design approach for the SR 520 corridor west side project. Awareness of and sensitivity to the legacy of the Olmsted brothers' work in Seattle in the early part of the 20th century, and summarized in the 1909 *Seattle Parks and Boulevards Plan* (see p. 19), has guided the project's vision, design explorations, and recommendations.

The 2006 Seattle Parks Foundation's *Bands of Green* plan provided an update to the Olmsted concept of connecting Seattle's "emerald necklace" of green space by identifying opportunities to eliminate gaps in the network of parks and boulevards. The SR 520 project seeks to continue this legacy by reestablishing pedestrian, bicycle and ecological connections that strengthen the overall green network.

Several elements within the west side SR 520 project area constitute key pieces of this "parks and parkways" network identified in the 1909 plan, including East Lake Washington Boulevard, Montlake Boulevard East, the Washington Park Arboretum, and Delmar Drive East.

Locations

- Montlake lid area
- Montlake Boulevard East
- East Lake Washington Boulevard
- Canal Reserve area
- Land bridge
- 10th and Delmar lid area
- Delmar Drive East

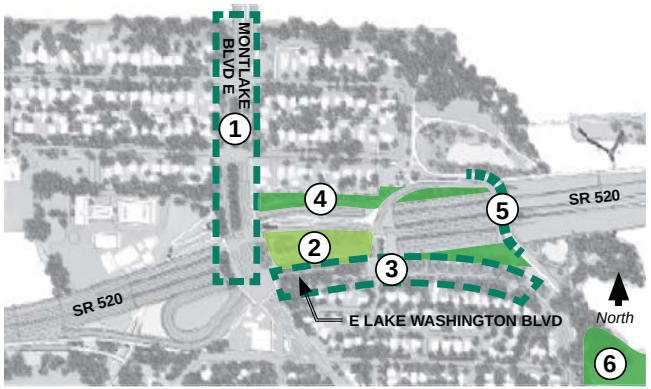
Project commitments

Project commitments address a series of urban design and landscape architecture elements. They are summarized in Appendix F and fully detailed in the *SR 520 Record of Decision - Attachment 1 Section 106 Programmatic Agreement*.

Montlake interchange

- To the maximum extent practicable, ensure that changes to East Lake Washington Boulevard are consistent with the city of Seattle's Olmsted park furniture standards and follow the Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Ensure that the portion of the Montlake Boulevard East median to be partially removed is reestablished such that it retains the Olmsted plan to the maximum extent practicable.
- Within the area of Montlake Boulevard East for which median modifications are planned, consult on design, wording, and placement of a sign about the Alaska-Yukon-Pacific Exposition and the Olmsted design for this portion of Montlake Boulevard East.
- Consult to determine whether Seattle's Department of Parks and Recreation would be willing to have a sign or some other indicator of the significance of East Lake Washington Boulevard as an Olmsted property placed on the small piece of Seattle Parks and Recreation property at the southeast corner of Montlake Boulevard East and East Lake Washington Boulevard. If the Seattle Department of Parks and Recreation is willing to accept this proposal, consult to design the sign or other marker and have it fabricated and installed on the Seattle Parks and Recreation property.

Location key

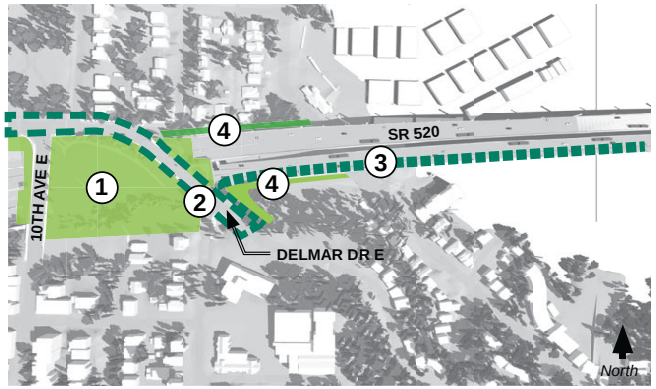


Montlake area *with 1 - Montlake Boulevard East, 2 - Montlake lid, 3 - East Lake Washington Boulevard, 4 - Canal Reserve, 5 - Land bridge, 6 - Washington Park Arboretum*

Montlake lid

- Consult to create a landscape design plan for the Montlake lid that is compatible with the historic character of the Montlake Historic District. This plan will include plantings and urban design elements, possibly including median and planter strip design, interpretive signage, and bus shelter design.
- Include interpretive exhibits and markers in the lid design if the design process identifies such exhibits or markers as being desirable. If markers or exhibits are placed on the lid, they may include information about the evolution of the Olmsted landscape and the effects of SR 520 on that landscape.
- Ensure that the design of the Montlake Boulevard East planted areas across the lid reflect the historical connection between Montlake Boulevard East and East Lake Washington Boulevard; these planted areas should reflect the original design principles of East Lake Washington Boulevard and other Olmsted-designed boulevards in Seattle to the highest degree possible.

Location key



Roanoke area *with 1 - 10th and Delmar lid, 2 - Delmar Drive East, 3 - Portage Bay Bridge shared-use path, 4 - Pedestrian stair and path connections*

- Consult on a design to reestablish a visual buffer on or adjacent to the remaining Canal Reserve lands south of the historic properties on East Hamlin Street.
- Consult on the development of a signage plan for historic markers or signs for the Montlake Historic District. Once the signage plan is approved, fund fabrication and installation of up to five historic markers or signs within the district.

Bascule bridge

- Determine feasible ways to provide a buffer between Montlake Boulevard East and a new bascule bridge, and those historic properties that are adjacent to the boulevard and bridge.
- Ensure that the design for a new bascule bridge is compatible with the existing bridge and neither competes with nor replicates that bridge.

Portage Bay Bridge

- WSDOT is committed to a *Context-Sensitive Solutions* approach for the replacement of the Portage Bay Bridge.
- Consult on a design to include improved open space as part of the bridge design, making the space under the bridge usable while incorporating Crime Prevention Through Environmental Design (CPTED) principles to the maximum extent practicable.
- Connect the Bill Dawson Trail and the Ship Canal Waterside Trail via the Arboretum Waterfront Trail.
- Form a partnership to install appropriate retaining wall treatments and lighting along the Bill Dawson Trail that enhance the user experience and promote safety in areas directly affected by project construction.

Delmar Drive/10th Avenue lid and I-5 interchange

- This design will be compatible with the historic character of the Roanoke Park Historic District and other adjacent historic properties and consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties insofar as these are applicable.
- This plan may include provisions for some or all of the following:
  - Design, fabrication, and installation of interpretive markers describing the evolution of the Olmsted landscape and the effects of SR 520 on the landscape. If adopted as part of the design plan, exhibits may note that the lid reconnects communities and recovers the landscape connections that were historically significant within the landscape of Seattle.
  - Incorporate Olmsted characteristics, perhaps using the Seattle Olmsted Park Furniture Standards as guidelines for items such as benches or lighting, into the design of the lid and the Bagley viewpoint.
  - A context-sensitive design should allow the lid to blend gracefully into the hill slope to the south.
- Maintain as much mature vegetation as possible on all sides of the lid and consult with the Portage Bay/Roanoke Park and North Capitol Hill communities to identify and select plantings compatible with the historic character of the area to the maximum extent practicable.

Performance outcomes

Olmsted scholar Charles Beveridge outlines several key Olmsted goals for successful design. They comprise considerations of and design for: Scenery, Suitability, Style, Subordination, Separation, Sanitation and Service. These goals are reflected in the performance outcomes for the SR 520 project, including:

- Enhance or complement the user experience and appreciation of Olmsted legacy through project design.
- Connect and reinforce the system of boulevards and open spaces with consistent and memorable vegetation and materials.
- Encourage and increase multimodal use.
- Ensure that planting palettes are consistent with or complementary to Olmsted design.
- Reinforce Olmsted sustainability principles throughout the project.

Design recommendations

Design recommendations for ensuring adherence to Section 106 project commitments and respecting the legacy and goals of the Olmsted brothers' work in Seattle were developed in part from the Olmsted design principles identified by the National Association for Olmsted Parks (see *Seven principles of Olmsted design*, p. 102).

"Special efforts were made and heavy expenditures were required in carrying out our plan to have our north and south chain of boulevards along or overlooking Lake Washington from the Mount Baker district, north to the Exposition grounds, open for traffic, so that our Eastern visitors might enjoy the beauties of our lake and mountain scenery."

- from City of Seattle, Board of Park Commissioners, *Sixth Annual Report 67*, 1909, cited in *HistoryLink Essay* 8985

- Reflect and complement the historical footprint of the University Extension of Washington Park Boulevard in the connection between Montlake Boulevard East and East Lake Washington Boulevard, including the application of the Olmsted design principles in Montlake lid plantings.
- Use native plants where possible or ornamental vegetation that preserves, reflects or complements the Olmsted legacy and design principles.
- Develop interpretive signage where required or appropriate that documents the Olmsted legacy and the effects of the SR 520 project on that legacy.
- Enhance existing park and boulevard spaces as well as proposed open spaces through the use of views to borrowed landscape, such as Lake Washington, Mount Rainier and Portage Bay.
- Support and create spaces that are memorable, unified and context-sensitive.
- Encourage safe, intuitive and comfortable movements along, and to and from, SR 520 facilities.

Seven principles of Olmsted design

All text from the *National Association for Olmsted Parks.*

A GENIUS OF PLACE

The design should take advantage of unique characteristics of the site, even its disadvantages. The design should be developed and refined with intimate knowledge of the site.

UNIFIED COMPOSITION

All elements of the landscape design should be made subordinate to an overarching design purpose. The design should avoid decorative treatment of plantings and structures so that the landscape experience will ring organic and true.

ORCHESTRATION OF MOVEMENT

The composition should subtly direct movement through the landscape. There should be separation of ways, as in parks and parkways, for efficiency and amenity of movement, and to avoid collision or the apprehension of collision, between different kinds of traffic.

ORCHESTRATION OF USE

The composition should artfully insert a variety of uses into logical precincts, ensuring the best possible site for each use and preventing competition between uses.

SUSTAINABLE DESIGN/ENVIRONMENTAL CONSERVATION

The design should allow for long-term maintenance and ensure the realization and perpetuation of the design intent. Plant materials should thrive, be non-invasive, and require little maintenance. The design should conserve the natural features of the site to the greatest extent possible and provide for the continued ecological health of the area.

A COMPREHENSIVE APPROACH

The composition should be comprehensive and seek to have a healthful influence beyond its boundaries. In the same way, the design must acknowledge and take into consideration what surrounds it. It should create complimentary effects. When possible, public grounds should be connected by greenways and boulevards so as to extend and maximize park spaces.

(Source: http://www.olmsted.org/the-olmsted-legacy/olmsted-theory-and-design-principles/design-principles)

Life cycle considerations

- Specify site furnishings and materials that are context-sensitive, energy-saving, durable and easily maintained.
- Develop MOUs or agreements between appropriate agencies (e.g. WSDOT, Seattle Department of Transportation, Seattle Department of Parks and Recreation, University of Washington) for the maintenance of vegetation.

"The drive is not the primary purpose of the park. The park is a piece of landscape or a series of landscapes and the drive is merely the means of making these landscapes accessible and enjoyable by people in carriages and on foot."

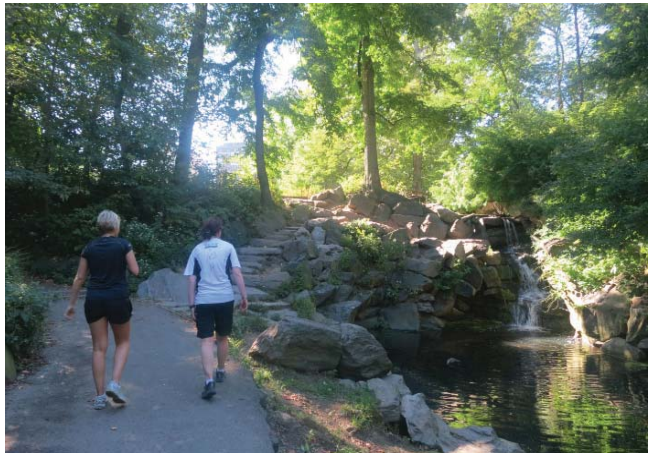
- from letter of John C. Olmsted to Board Commissioner Charles W. Saunders, 1904.
HistoryLink Essay 10243

Precedents

Connected green spaces and safe and comfortable pedestrian paths at Frederick Law Olmsted and Calvert Vaux's Prospect Park in New York City, NY.

Multimodal use, separation of users for safety, and access to water encourage healthy activities and access to nature at John Charles and Frederick Law Olmsted Jr.'s Green Lake Park in Seattle, WA. (Source: SvR Design Company)

Context-sensitive design that considers scale, unity, and materials at Frederick Law Olmsted and Calvert Vaux's Central Park in New York City, NY.



Ecological and recreational functions are enhanced at Frederick Law Olmsted and Calvert Vaux's Central Park in New York City, NY.

Design resources

- SR 520 Final Environmental Impact Statement (2011) http://www.wsdot.wa.gov/Projects/SR520Bridge/EIS.htm#FEIS
- SR 520 Record of Decision (2011) Section 106 Programmatic Agreement http://www.wsdot.wa.gov/NR/rdonlyres/82D6F3D8-FD6E-446F-B257-1923ABB658B7/0/520_ROD_Att1_ProgrammaticAgreement.pdf
- National Association for Olmsted Parks http://www.olmsted.org/
- Friends of Seattle's Olmsted Parks http://www.seattleolmsted.org/ See also "Seattle's Olmsted Landscape Heritage" Puget Soundings, April 1986 http://s3.amazonaws.com/olmsted/links/11/Puget_Soundings_April_1986.pdf?1405275762
- Seattle Parks Foundation Bands of Green https://www.seattleparksfoundation.org/file/2014/step-up/Bands-of-Green-Final-Plan-2007.pdf
- Lake Washington Boulevard Vegetation Management Plan http://www.seattle.gov/parks/horticulture/vmp/lakewashingtonblvd.htm
- WSDOT Context Sensitive Design http://www.wsdot.wa.gov/Design/Policy/CSDesign

VEGETATION

Description

The vegetation in the project area includes a number of different zones and planting types defined by varying physical, ecological and built conditions within the project area. These range from low, urban streetscape plantings with street trees to treeless dry meadow area to native Pacific Northwest coniferous forest. This section provides an overview of the major planting concept areas, indicating the locations in which they would be applied, general design intent, and a small sample of potential plant species for each.

Location

- Montlake Boulevard East planting areas
- Montlake lid area
- East Lake Washington Boulevard planting areas
- Highway buffer planting
- Stormwater treatment wetlands
- Land bridge
- Canal Reserve area

Performance outcomes

- Ecological connectivity between areas north and south of project area, such as the University of Washington Arboretum to the south and the Union Bay Natural Area to the north.
- Views into and out of non-motorized areas available throughout the project area to promote user safety and security.
- Well-established plantings maintained to provide the aesthetic and functional benefits expected by typical users.
- A user experience consistent with the Olmsted boulevard legacy along East Lake Washington Boulevard and Montlake Boulevard East.
- Appropriate transitions between connected vegetated areas of different types, such as between Olmsted boulevards and the land bridge or the Canal Reserve.

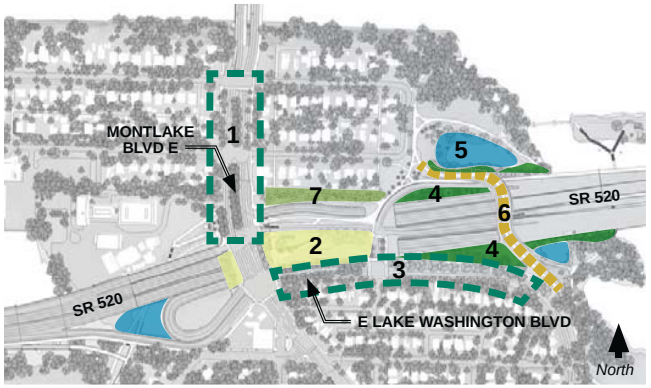
Design recommendations

- Select species and design layout of plantings to keep vegetation clear of circulation areas such as sidewalks, paths, and cycle tracks.
- Consider ease of maintenance when selecting plant species and designing plantings.
- Use native plants where possible; other plants should be well-adapted to our region's climate and any special planting conditions for their location, such as shallow soils or roadside conditions.
- Provide adequate soil volume for trees. Providing soil volume for trees on the lid may necessitate stormwater pumping for portions of the highway.
- Provide irrigation necessary for the establishment and continued health of vegetation.
- Locate the path through the Canal Reserve to allow for a grove of trees between the path and residential areas.
- Consider Crime Prevention Through Environmental Design (CPTED) principles in planting design.
- Provide screening where appropriate, but avoid creating large volumes of dense vegetation that could provide areas to hide or camp.
- Select and arrange plant species in ways that allow good visibility into and out of public spaces.

Life cycle considerations

- Consider maintenance needs for vegetated areas.
- Develop MOUs or agreements between appropriate agencies (e.g. WSDOT, Seattle Department of Transportation, Seattle Department of Parks and Recreation, University of Washington) for the maintenance of vegetation.

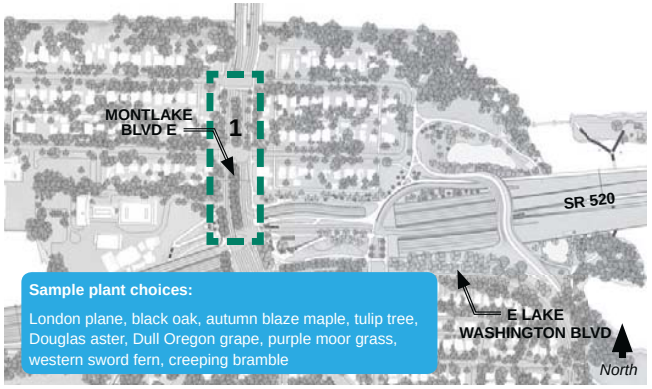
Location key



Design resources

- Seattle Right-of-Way Improvements Manual (ROWIM), Chapter 4 – Design Criteria: Street Trees and Landscape Architectural Standards (4.14) http://www.seattle.gov/transportation/rowmanual/manual/4_14.asp
- Seattle Department of Transportation's Street Tree List http://www.seattle.gov/transportation/docs/uf/2011-Street_Tree_List.pdf
- Lake Washington Boulevard Vegetation Management Plan (VMP) http://www.seattle.gov/parks/horticulture/vmp/lakewashingtonblvd.htm
- Washington, DC Department of Transportation – 2014 Green Infrastructure Standards guidance on minimum recommended soil volumes for trees http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/2014-0421-DDOT%20Green%20Infrastructure%20Standards.pdf
- General principles of Olmsted design http://www.olmsted.org/the-olmsted-legacy/olmsted-theory-and-design-principles/seven-s-of-olmsteds-design
- WSDOT Roadside Manual Chapter 800: Vegetation, Chapter 810: Vegetation Restoration http://www.wsdot.wa.gov/Publications/Manuals/M25-30.htm
- CPTED guidance, Seattle Police Department http://www.seattle.gov/police/prevention/neighborhood/cpted.htm

Location key



1. Montlake Boulevard East: *Large street trees with low plantings (including native species) in character with an historic Olmsted boulevard.*

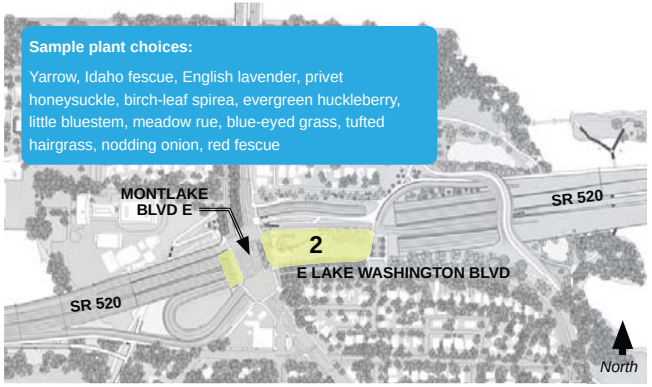
Precedents

Boulevard with mature tree canopy in Portland, OR. (Source: MAXfaqs blog)

Location-specific design recommendations

1. Montlake Boulevard East

- Reflect the historic character of Montlake Boulevard East as an Olmsted parks system boulevard.
- Select low shrubs and groundcover, combined with large trees appropriate to a boulevard.
- Maximize width of vegetated zones while providing adequate travel ways for motorized and non-motorized users.
- Include bioretention swales where possible; ensure bioretention plantings are compatible with historic character.
- Include evergreen plantings for year-round presence.
- Select plants with characteristics that provide year-round interest (such as flowers, fall color, seasonal scent, etc.).



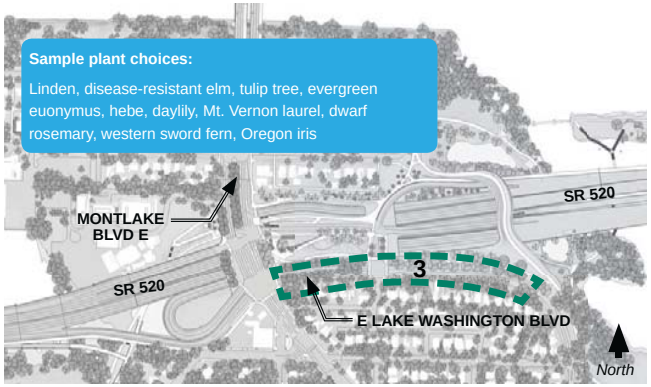
2. Plantings on lid: *Intensive green roof with deep soil base and trees.*

Northwest meadow landscape in Seattle's Olympic Sculpture Park. (Source: Berger Partnership)

2. Urban trailhead and Montlake lid

- Choose plantings at the urban trailhead (near the west end of the lid, on east side of Montlake Boulevard East) that are compatible with an area that serves as a vibrant, multi-modal urban hub joining two historic Olmsted boulevards.
- Include medium-to-large tree species on this area of the lid, which will include soils up to six feet in depth for robust plantings in some areas. Deeper soils will require a deeper lid structure, the potential lowering of the highway for adequate clearance and may necessitate the pumping of stormwater.
- Include evergreen plantings for year-round presence.
- Select plants with characteristics that provide year-round interest (such as flowers, fall color, seasonal scent, etc.).
- Incorporate a gradation in vegetation type, from native meadow at the land bridge end of the lid to a more cultivated expression around the urban trailhead area.

Location key



3. East Lake Washington Boulevard: *Grand trees and low, diverse vegetation along the historic Olmsted boulevard serve as a gateway to the Washington Park Arboretum.*

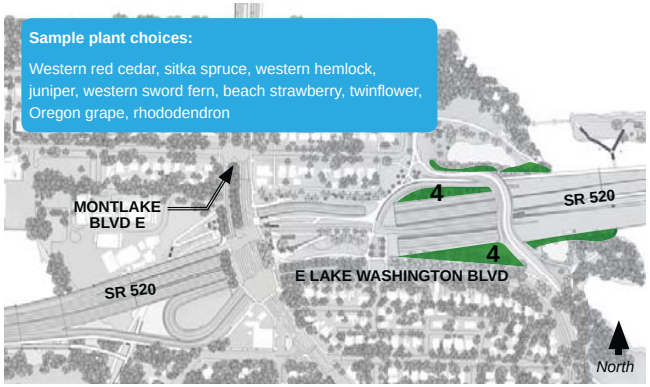
Precedents

Planted median and streetscape with mature trees in Odessa, Ukraine. (Source: OddessaApts.com)

Location-specific design recommendations

3. East Lake Washington Boulevard

- Reflect the historic character of East Lake Washington Boulevard as an Olmsted parks system boulevard.
- Select low shrubs and groundcover combined with large trees appropriate to a boulevard.
- Select trees that will provide a broad overhead canopy along the boulevard when they mature. Select species that complement existing mature trees along the boulevard.
- Include evergreen plantings for year-round presence.
- Preserve existing and healthy mature trees where possible.
- Coordinate design work with SDOT's landscape architect.
- Refer to Seattle's Department of Parks and Recreation's *Vegetation Management Plan* (VMP) for Lake Washington Boulevard.



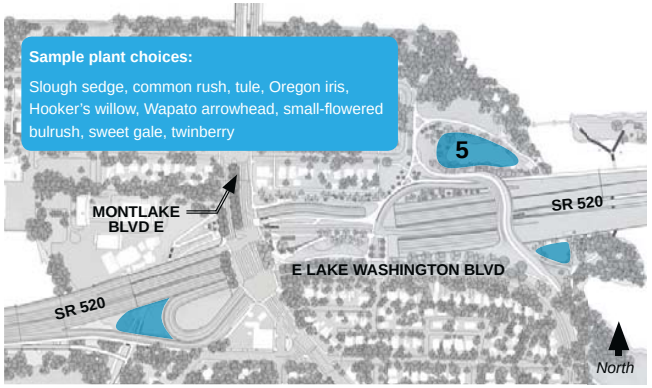
4. Highway buffer planting: *Dense, evergreen tree and shrub planting will screen traffic, reduce noise, and provide views of vegetation for drivers on the highway.*

Dense evergreen freeway buffer planting at the I-90 portal on Mercer Island. (Source: Google Maps)

4. Highway buffer and gateway

- Provide visual screening in select areas between the highway infrastructure and surrounding neighborhoods.
- Select plantings that highlight Seattle's urban nature in the "gateway experience" of those traveling into or out of the city, reinforcing the SR 520 west side vision of "Nature meets City."
- Include a variety of hardy and robust evergreen tree and shrub species.
- Include native plant species.

Location key



5. Stormwater wetlands: *Plantings should be able to withstand periods of drought and stormwater inundation.*

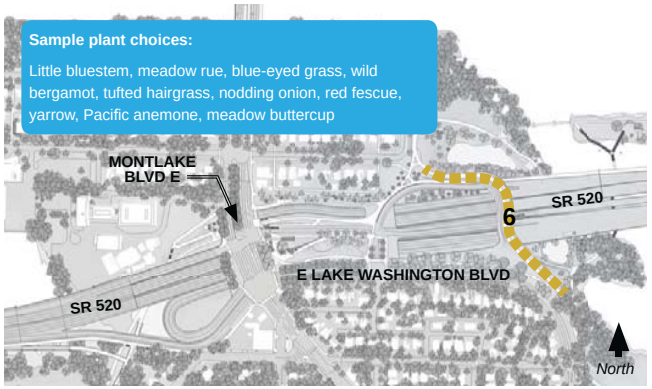
Precedents

The grounds at Stafford Hospital in Stafford, VA. (Source: Amy Umble)

Location-specific design recommendations

5. Stormwater wetlands

- Include plantings adapted to multiple wetland zones (from fully saturated to moist edges and above).
- Include evergreen species.
- Include native plant species.
- Select several key species to provide character and visual impact.
- Select plantings that blend the wetland area seamlessly into the surrounding park and/or highway buffer vegetation.



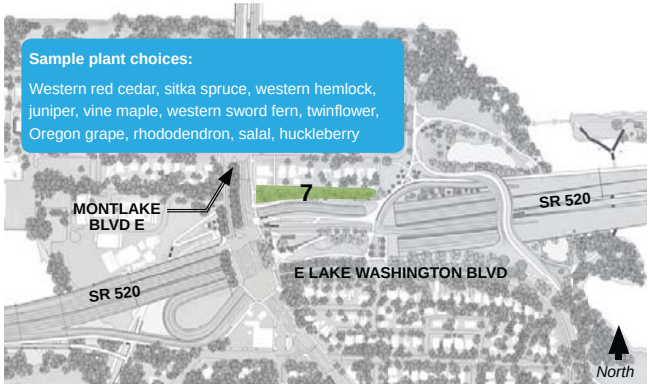
6. Land bridge meadow: *An extensive green roof system with a shallow soil base supports meadow and prairie plantings.*

The High Line in New York City. (Source: Friends of the High Line)

6. Land bridge meadow

- Select plant species compatible with the thin soil profile of the land bridge.
- Select plantings to create a "dry meadow" or prairie-type ecosystem, including grasses, low perennials and forbs.
- Select native or non-invasive, climate-adapted species.
- Select plants that are maintainable by periodic mowing/trimming.
- Consider plants to provide year-round interest (such as flowers, fall color, persistent seed heads, etc.).
- Select plants with characteristics that provide year-round interest (such as flowers, fall color, seasonal scent, etc.).

Location key



7. Canal Reserve: *Grand trees and screening understory vegetation are located between the SR 520 Montlake lid and the adjacent Shelby/Hamlin neighborhood.*

Precedents

A forest pathway in Seattle's Volunteer Park is lined with mature trees and some low vegetation for screening similar to that envisioned for the Canal Reserve. (Source: Ed Porras, Flickr)

Location-specific design recommendations

7. Canal Reserve

- Screen views of the highway from the Shelby/Hamlin area to the north.
- Consider Crime Prevention Through Environmental Design (CPTED) principles when designing plantings.
- Select shrubs, groundcover and large tree species appropriate to a forested urban public open space.
- Consider the city of Seattle's tree canopy goals.
- Use native plants where possible and non-natives or ornamentals where appropriate.
- Include evergreen trees and other plantings for year-round presence.
- Preserve existing and healthy mature trees where possible.
- Design plantings that relate to and help create a connected urban green space along SR 520, from the area around the stormwater facility at East Montlake Park into and through the Canal Reserve.

APPENDIX B

NON-MOTORIZED CONNECTIVITY TECHNICAL WHITE PAPER

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SR 520 and City of Seattle

Non-Motorized Connectivity Technical White Paper

November 2014

FINAL

Lead Author: Parametrix

Contributing Authors: VIA Architecture
SvR
City of Seattle

Washington State Department of Transportation

City of Seattle

Washington State Department of Transportation

City of Seattle

SR 520 and City of Seattle Non-motorized Connectivity Technical White Paper

Introduction

Per the direction of the legislature under the auspices of ESSB 6001 in April 2014, the Washington State Department of Transportation (WSDOT) teamed with the city of Seattle and other design professionals, including the Seattle Design Commission (SDC), in a series of workshops throughout the summer of 2014 to advance the design of the unfunded elements of the SR 520 corridor. The workshops were based on the design refinements resulting from the 2012 Seattle Community Design Process (SCDP) and sought to address the unresolved design areas as outlined in the City Council Resolution 31427. The team focused on three key elements for further study: the network of non-motorized and transit connectivity, the Portage Bay Bridge and the Montlake lid area. Together the group developed a series of recommendations, and where additional study is still required, they identified design considerations or future concepts.

During the 2012 SCDP, WSDOT and the city of Seattle heard significant stakeholder and public feedback to enhance the non-motorized connections to and through the SR 520 corridor and in response developed a series of design preferences that reflected this feedback. A work group made up of city of Seattle and WSDOT technical staff were directed to recommend compelling non-motorized connections that improve mobility, safety, comfort and traffic conditions in and around the SR 520 corridor. Their recommendations are summarized in this document, the *SR 520 and City of Seattle Non-motorized Connectivity Technical White Paper.*

Purpose

This technical white paper outlines specific recommendations for non-motorized connections within the WSDOT SR 520 project on the west side and where those facilities transition to the city of Seattle bicycle, pedestrian, and transit network. Where possible, the document identifies agency responsibility for feasibility, coordination, design or funding. It also includes recommendations for possible additions to the 2014 city of *Seattle Bicycle Master Plan*, where these proposed improvements interface with SR 520 facilities. This will require further coordination and analysis by the Seattle Department of Transportation (SDOT). Ultimately, this technical white paper will provide a blue print for future SR 520 non-motorized planning and design work when funding is received and serve as the basis for developing guiding design principles to ensure best practices for non-motorized connections.

What informed the work

The work group discussed the SR 520 regional shared-use path (RSUP), which extends across Lake Washington, and its role in not only providing new transportation and mobility choices, but of uniting the east side of Lake Washington to downtown Seattle, as well as providing access to transit and connections to other bicycle facilities, the neighborhoods north and south of the Montlake Cut, and major centers like the University of Washington and the new University Link Light Rail line. With this assumption, the group also considered the following as a basis for their recommendations:

The vision, design preferences, and unresolved design decisions from Seattle Community Design Process (SCDP) were the starting platform that informed the content and direction of the non-motorized connectivity workshops in 2014. The group also considered a number of other important documents, projects and public processes a basis for their recommendations (see sidebar *Relevant Resources and Projects*).

Goals

Based on ongoing public input, previous WSDOT and design team explorations, and city of Seattle non-motorized priorities, the following design goals were established to guide the development of the work group's recommendations for the SR 520 project corridor:

Access and mobility

- **Mobility between and through neighborhoods** with various travel modes and convenient routes.
- **Access for all levels, abilities and needs** through best practices and compliance with Americans with Disability Act (ADA) requirements.
- **Capacity for current and future non-motorized traffic volumes.**

Health and safety

- **Safe and interesting cycling and walking routes** to attract diverse users with varying skill and confidence levels for recreation and health.
- Promotion of **traffic-calming and reduction of potential conflicts** among cyclists, pedestrians and vehicles using path separation, route widening, and safe and distinctive surfacing, as well raised crosswalks, effective signalization and/or signage.
- Promotion of **commute-trip reduction, reduced congestion and reduction of greenhouse gas** emissions by providing connections to transit, and more and improved bicycle and pedestrian facilities.

Character and clarity

- Build connections to and through green and blue (waterways) open space networks that can support multiple uses.
- Use paths to **activate open spaces and lids** as well as to create **easy connections to activity centers**, such as schools, transit, parks and open spaces, and neighborhoods.
- Develop **clear and intuitive wayfinding** to promote cycling and walking as everyday means of travel.

RELEVANT RESOURCES AND PROJECTS

2012 Seattle Community Design Process

For more information about the SCDP see the 2012 SCDP Final Report online here *[Seattle Community Design Process Final Report]*. Pages 21 to 27 outline refinements to the non-motorized connections.

Other WSDOT Documents

Washington State Bicycle Facilities and Pedestrian Walkways Plan (2008), *SR 520 Final Environmental Impact Statement* (2011)

Existing city of Seattle Master Plans

Bicycle Master Plan (2014), *Bicycle Implementation Plan* (2014), *Pedestrian Master Plan* (2009), *Transit Master Plan* (2012), *Complete Streets Program*, *Bands of Green Plan* (2007), *Washington Park Arboretum Master Plan* (2002)

Other references

NAACTO Urban Bikeway Design Guide (2014), *University of Washington Campus Master Plan* (2003), *University of Washington Campus Landscape Framework* (2014)

Other projects underway

23rd Avenue Corridor Improvements Project, Burke Gilman Trail improvements, Sound Transit UW Light Rail Station , University of Washington Rainier Vista Project and *Washington Park Arboretum Multi-use Trail Project*

Summary of Major Recommendations

The work group identified a series of recommendations for the major focus areas within the SR 520 project corridor, as well as additional considerations where design concepts remain unresolved. These recommendations include bicycle and pedestrian paths within the SR 520 project corridor that enhance the connections and transitions between the new SR 520 regional shared-use path (RSUP) and other regional centers, as well as existing and planned city of Seattle bicycle, pedestrian and transit networks. Ownership and/or oversight of specific non-motorized facilities are delineated by color. State facilities are indicated in orange, City facilities in yellow, mixed oversight in orange with yellow and University of Washington facilities in purple.

1 Provide an accessible non-motorized path on the south side of Portage Bay Bridge that completes the Regional Shared-Use Path (RSUP) from Eastside communities to I-5 in Seattle.

8 Create new, safe and comfortable undercrossing at 10th Avenue East connecting 10th and Delmar lid shared-use path to Broadway Avenue East and Harvard Avenue East neighborhood greenway to downtown 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 Bill Dawson trail alignment for improved comfort, safety and sightlines with separation of cyclists and pedestrians using distinctive surfacing.

19 Create a new undercrossing at Montlake Boulevard East for safe pedestrian and bicycle crossing and connection of RSUP from urban trailhead/mobility hub to Bill Dawson Trail and Portage Bay Bridge with 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 Montlake Cut with connections under Montlake Boulevard to Walla Walla Lane.

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

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

27 Continue ongoing refinement of proposed improvements to connections along the west side of Montlake Boulevard. If existing constraints change in the future, WSDOT and 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.

32 Reconfigure the intersection at East Roanoke Street and East Montlake Place 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 at 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.

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.***

***NOTE:** The boardwalk alignment as illustrated in this report is one potential solution for this important pathway connection; specific landing points and layout are subject to further study by WSDOT and the city of Seattle.

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SR 520 and City of Seattle Non-motorized Connectivity Technical White Paper

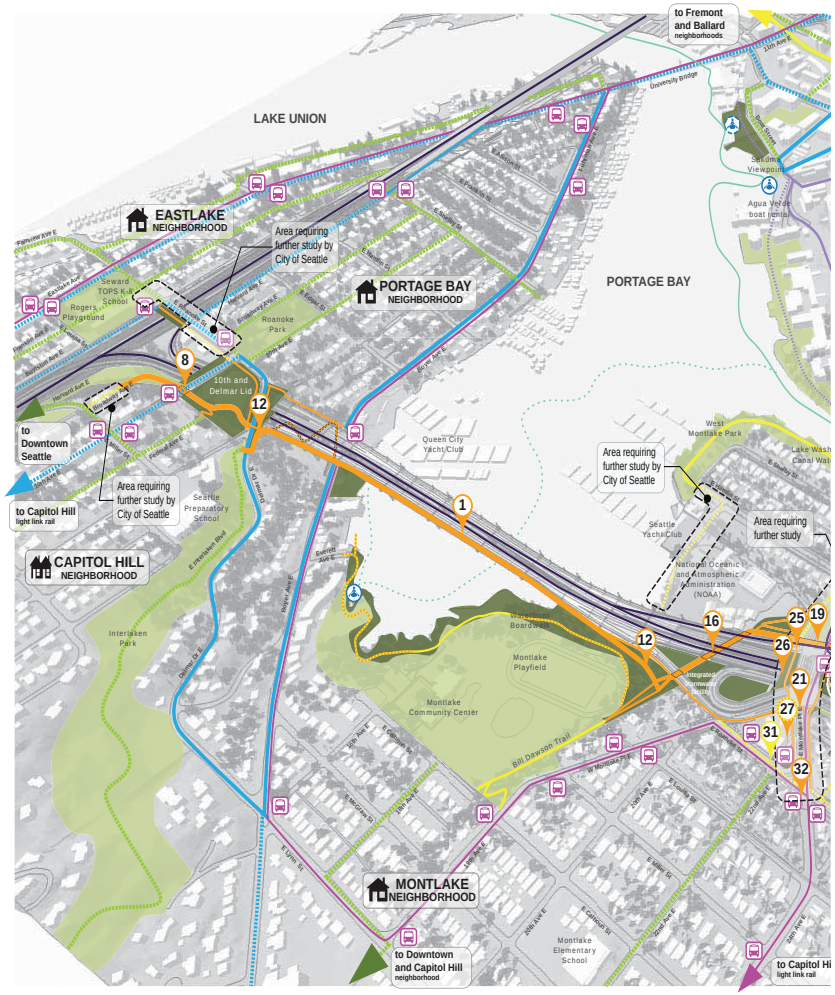
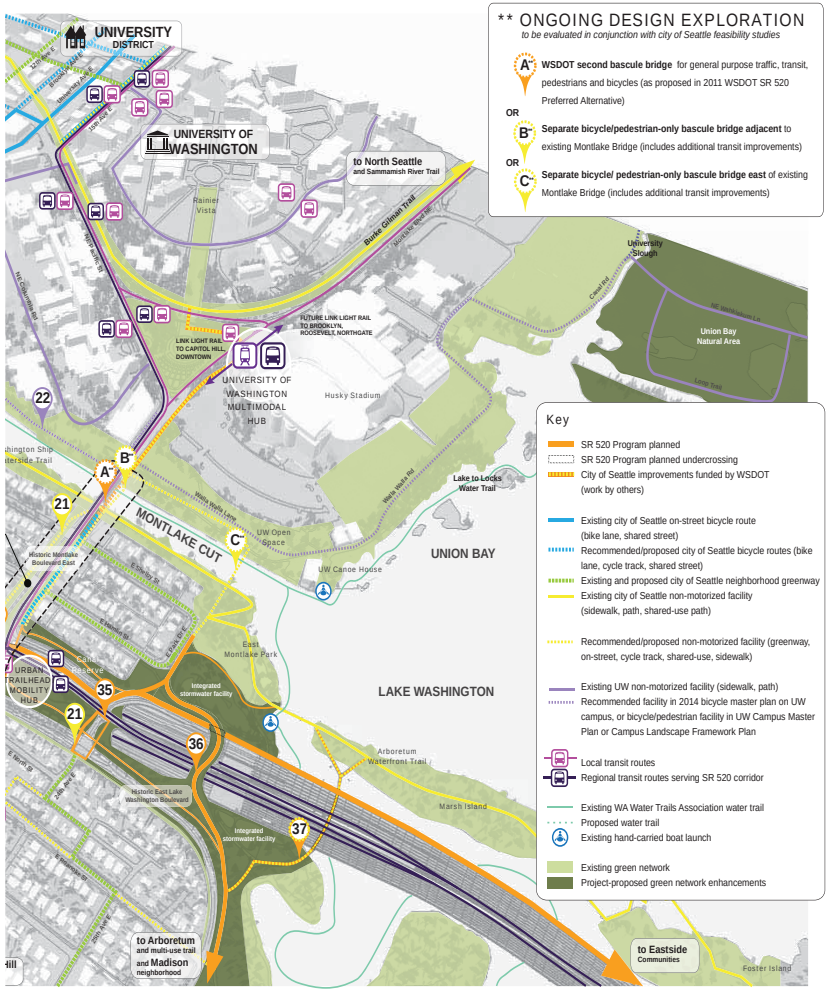


Figure 1 SR 520 and City of Seattle Non-motorized Connectivity Network



City of Seattle Washington State Department of Transportation

Recommendations and Additional Design Considerations by Geographic Area

The 2014 project recommendations and additional considerations are discussed by geographic area moving from the west portion of the SR 520 project to the east where the regional shared-use path (RSUP) meets the West Approach Bridge. Where consensus was not reached, and/or additional analysis is required, alternative design explorations are provided for future consideration.

The SR 520 and City of Seattle Non-motorized Connections Network: 2014 Design Refinements exhibit provides a visual, diagrammatic summary of the proposed recommendations and additional design considerations (See **Figure 1**). These recommendations are described in further detail below in narrative form and also summarized in an attached matrix. Recommendations are organized by four geographic areas--regional, Roanoke Area, Portage Bay Bridge, Montlake Area—and further broken down into subareas. For clarity, recommendations and additional design considerations are numbered in the narrative and exhibit details. Ownership and/or oversight of specific non-motorized facilities are delineated by color. State facilities are indicated in orange, City facilities in yellow, mixed oversight in orange with yellow and University of Washington facilities in purple.

REGIONAL

Recommendations for the unfunded portions of the regional non-motorized connections focus on completing the regional shared-use path for the full SR 520 corridor from the Eastside to I-5 in Seattle and include evaluation of supporting benefits (+), potential risks (-) and/or requirements (✓). The work does not include the Eastside constructed elements.

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

- + Provides "lake-to-lake" connections from Lake Washington, Portage Bay to Lake Union.
- + Creates a continuous, dedicated non-motorized connection from the Eastside communities to I-5 in Seattle.
- + Offers a more direct, shorter distance and more accessible and constant 2.6% grade than available on existing street routes.
- + Supports anticipated user demands and offers easy, intuitive commute, recreational and neighborhood connections.
- + Has significant public support and endorsement from Seattle Design Commission and city of Seattle.
- + 2014 City of Seattle Bicycle Master Plan supports non-motorized access on Portage Bay Bridge (designated "catalyst" project).
- - Adds additional 16-feet width of structure to Portage Bay Bridge (14-foot shared-use path standard plus 2 feet of barrier).
- ✓ This is part of the WSDOT SR 520 West Side project.

SR 520 and City of Seattle Non-motorized Connectivity Technical White Paper

2 **Create belvederes on the regional shared-use path** at Portage Bay Bridge.

- + Provides resting, viewing and interpretation for users.
- + Offers continuity of facilities with funded floating bridge and West Approach Bridge.
- + Eliminates potential conflicts between slower and faster users.
- ✓ Requires additional structure on bridge.
- ✓ This is part of the WSDOT SR 520 West Side project.

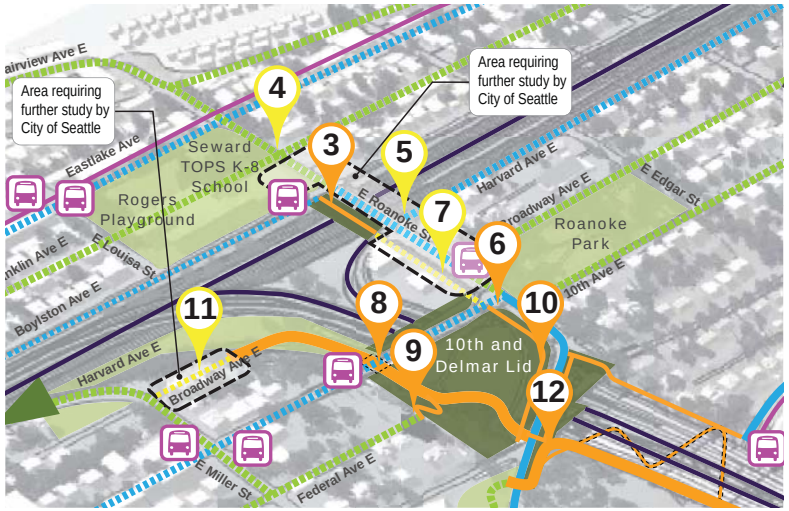


Figure 2 Roanoke Area recommendations and areas for additional study

ROANOKE AREA

Recommendations for improvements in the Roanoke Area focus on improving safety and mobility and providing separated non-motorized facilities where possible and include evaluations of supporting benefits (+), potential risks (-) and/or requirements (✓).

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I-5

Recommendations for the area of I-5 with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 2**):

3 Provide a **30-foot wide separated crossin**g with 14-foot wide shared-use path on south side of existing East Roanoke Street over I-5 with landscape pockets and retain existing sidewalk.

+ Increases pedestrian and bicycle safety on East Roanoke Street.
+ Reduces user conflicts with separation of bicycles and pedestrians.
+ Provides visual relief with vegetation.
+ Creates pedestrian refuges for viewing or resting at highway edge.
✓ Requires design coordination with SDOT for crosswalk and sidewalk improvements along East Roanoke Street (see Additional Design Considerations).
✓ This is part of the WSDOT SR 520 West Side project.

Addition Design Considerations and concepts for future study

The city of Seattle will lead future improvements in the I-5 and East Roanoke Street area. The work group explored several key considerations:

4 Develop **additional bicycle route options west from I-5** to Eastlake via East Roanoke Street (designated future neighborhood greenway) and/or via neighborhood greenways along Broadway Avenue East to Harvard Avenue East and under I-5 at East Allison.

+ Enhances city of Seattle bicycle network.
+ Improves safety and comfort for users.
✓ Requires further SDOT analysis and design coordination with updated city of Seattle Bicycle Master Plan.
✓ Area of further exploration led by the City of Seattle.

5a **Change right-turn vehicle movements** from East Roanoke Street to Harvard Avenue East from two lanes to one lane.

+ Increases pedestrian and bicycle safety on Roanoke and reduces vehicular conflicts.
✓ Requires SDOT traffic operations analysis to determine potential impacts, feasibility and design.
✓ Area of further exploration led by the City of Seattle.

5b **Provide bicycle signalization** and lanes on both sides of East Roanoke Street at intersection with Harvard Avenue East.

+ Increases pedestrian and bicycle safety on Roanoke and reduces vehicular conflicts.
✓ Requires SDOT traffic operations analysis to determine feasibility and design coordination with the city of Seattle Bicycle Master Plan.
✓ Area of further exploration led by the City of Seattle.

5c **Add crosswalks on East Roanoke Street** at Harvard Avenue East and Boylston Avenue East where they are not currently in place.

+ Increases pedestrian and bicycle safety on Roanoke and reduces vehicular conflicts.
✓ Requires SDOT traffic operations analysis to determine feasibility and design.
✓ Area of further exploration led by the City of Seattle.

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East Roanoke Street

Recommendations for the area of the East Roanoke Street with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 2**):

6 **Retain T-intersection configuration at East Roanoke Street** and 10th Avenue East.

+ Conforms to feedback from community and other stakeholders.
+ Provides safe pedestrian crossings and reduces vehicle conflicts.
✓ Requires SDOT traffic operations final design and approval.
✓ This is part of the WSDOT SR 520 West Side project.

7 Widen sidewalk on south side of East Roanoke Street in front of fire station.

+ Provides consistent path width from lid to I-5 crossing.
+ Reduces potential user conflicts.
- Creates potential conflict with function of fire station.
✓ Requires further SDOT traffic operations analysis and design coordination.
✓ Owned by City of Seattle.

10th and Delmar Lid

Recommendations for the area of the 10th and Delmar lid with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 2**):

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

+ Provides continuous, grade-separated connection from 10th and Delmar lid to Broadway Avenue East and city of Seattle neighborhood greenway on Harvard Avenue to downtown.
+ Provides accessible grade and route option that avoids steeper grades on 10th Avenue East.
- Path on west side of 10th Avenue to Broadway street end will require removal of trees and potentially additional elevated structure in WSDOT right-of-way.
✓ Bicycle facility on Broadway Avenue East south of SR 520 requires SDOT analysis and design coordination with updated city of Seattle Bicycle Master Plan.
✓ This is part of the WSDOT SR 520 West Side project.

9 Connect the 10th and Delmar lid to a recommended city of Seattle **neighborhood greenway on Federal Avenue East** with an accessible path and stairs.

+ Supports city of Seattle Bicycle Master Plan greenways.
+ Provides safe and accessible connections from 10th and Delmar lid.
- Federal Avenue East between lid and Miller Street is a steep grade, posing accessibility challenges.
✓ This is part of the WSDOT SR 520 West Side project.

10 **Improve sidewalks along both sides of Delmar Drive East** and add crosswalk at Delmar Drive East and 11th Avenue East.

+ Improves safety and access for pedestrians along Delmar and to and from 10th and Delmar lid, Portage Bay Bridge shared-use path and Seattle Preparatory School.

✓ Requires SDOT traffic operations analysis to determine feasibility and design.

✓ This is part of the WSDOT SR 520 West Side project.

Areas for additional study in Roanoke

11 Provide additional bicycle facility on Broadway Avenue East south of SR 520 and connecting from proposed SR 520 shared-use path in WSDOT right-of-way to Harvard Avenue East greenway (see above for recommendation of undercrossing at 10th Avenue East.)

+ Completes connection from SR 520 regional shared-use path to city of Seattle network.

✓ Bicycle facility on Broadway Avenue East south of SR 520 requires further SDOT analysis and coordination with updated city of Seattle Bicycle Master Plan and pedestrian and bicycle stakeholders.

✓ Area of further exploration led by the City of Seattle.

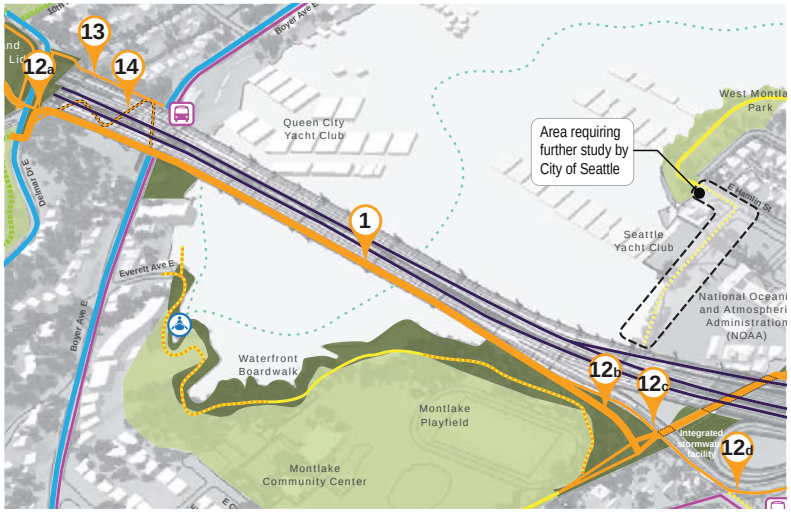

Figure 3 Portage Bay Bridge recommendations and areas for additional study

PORTAGE BAY BRIDGE

Recommendations for improvements in the Portage Bay Bridge focus on providing intuitive, comfortable and quality connections to and from the new shared-use path on the bridge as well as activating and improving safety of undercrossings and include evaluations of supporting benefits (+), potential risks (-) and/or requirements (✓). (See **Figure 3**)

West Side—Bridge Understructure and Path Connection

12a 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.

+ Provides connection to neighborhood greenway at East Interlaken Boulevard.

+ Improves school crossing and connections to and from bridge.

- Impacts Seattle Parks Department property and SDOT right-of-way.

✓ Requires additional WSDOT and SDOT coordination to provide connections to and from proposed pedestrian path from Delmar Drive East to Boyer Avenue East and additional crosswalk per SDOT design and approval.

✓ Requires coordination with Seattle Parks Department.

✓ This is part of the WSDOT SR 520 West Side project.

13 **Replace existing stairs** on north side of SR 520 Portage Bay Bridge.

+ Maintains pedestrian access from East Roanoke Street to Boyer Avenue East.

+ Improves substandard stair facility.

✓ This is part of the WSDOT SR 520 West Side project.

14 Create **ADA accessible pedestrian path connection from Delmar Drive East to Boyer** Avenue East.

+ Provides new pedestrian ADA access from Delmar Drive East to Boyer Avenue East.

+ Addresses neighborhood concerns regarding activating space under SR 520 facility.

+ Require further design to ensure feasibility for construction with landslide risks.

✓ This is part of the WSDOT SR 520 West Side project.

Washington State Department of Transportation

City of Seattle

Bridge

Recommendations for Portage Bay Bridge with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 3**):

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

+ Provides "lake-to-lake" connections from Lake Washington, Portage Bay to Lake Union.
+ Creates a continuous, dedicated non-motorized connection from the Eastside communities to I-5 in Seattle.
+ Offers a more direct, shorter distance and more accessible and constant 2.6% grade than available on existing street routes.
+ Supports anticipated user demands and offers easy, intuitive commute, recreational and neighborhood connections.
+ Has significant public support and endorsement from Seattle Design Commission and city of Seattle.
+ 2014 City of Seattle Bicycle Master Plan supports non-motorized access on Portage Bay Bridge (designated "catalyst" project).
- Adds additional 16-feet width of structure to Portage Bay Bridge (14-foot shared-use path standard plus 2 feet of barrier).
✓ This is part of the WSDOT SR 520 West Side project.

East Side—Bridge Understructure and Path Connections

Recommendations for the area of the Portage Bay Bridge on the east side with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 3** and **Figure 4**):

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.

12b Create a **barrier-free ramp from Portage Bay Bridge shared-use path to Bill Dawson Trail.**

+ Provides accessible connections to and from Bill Dawson Trail, Montlake Playfield and surrounding neighborhoods.
+ Provides continuous connections along regional shared-use path from Montlake.
- Requires 8-percent grade ramps for a short distance to meet grade.
- May have additional environmental (over-water and wetland) impacts.
- Impacts Seattle Parks Department property.
- Requires further design, environmental analysis and coordination with Seattle Parks.
✓ This is part of the WSDOT SR 520 West Side project.

12c Provide a ramp connection from Portage Bay Bridge shared-use path connection along the eastbound off-ramp to the intersection of Montlake Boulevard East and East Lake Washington Boulevard.

+ Provides direct connection from Portage Bay Bridge to west side of Montlake Boulevard East and Montlake lid and urban trailhead/transit hub.
- Requires further analysis to ensure meets design requirements.
✓ This is part of the WSDOT SR 520 West Side project.

12d Provide a connection from the Portage Bay Bridge shared-use path to a new multi-use path on north side of East Roanoke Street (see Montlake Area recommendations below for multi-use path and reconfigured intersection at East Montlake Place East and East Roanoke Street).

+ Creates neighborhood connection to and from Portage Bay Bridge.
+ Provides safer and more continuous connection to neighborhood greenways and Washington Park Arboretum along Roanoke Street East.
✓ Requires coordination and final design approval from SDOT.
✓ This is part of the WSDOT SR 520 West Side project.

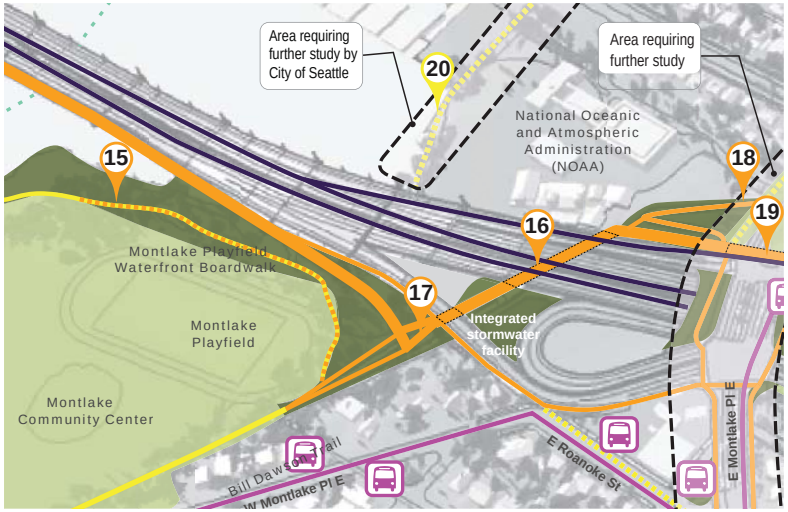

Figure 4 Bill Dawson Trail recommendations and areas for additional study

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Bill Dawson Trail and Connections

Recommendations for the area of the Bill Dawson Trail and Connections with supporting benefits (+), potential risks (-) and/or requirements (✓) to it include (See **Figure 4**):

15 Support **Montlake Playfield boardwalk creation** as part of existing city of Seattle Parks master plan for Montlake Playfield waterfront pedestrian path.

+ Fulfills WSDOT SR 520 permit conditions and provides funding only.
+ Enhances pedestrian access to Portage Bay shoreline.
+ Connects Montlake Playfield waterfront Path to Bill Dawson Trail.
✓ Requires coordination and final design by city of Seattle Parks Department.
✓ This is owned by the City and supported by WSDOT.

16 **Straighten and widen Bill Dawson trail** alignment for improved comfort, safety and sightlines with separation of cyclists and pedestrians using distinctive surfacing.

+ Creates clear sightlines through length of undercrossing by removing tight curves.
+ Improves safety by providing 20-foot wide path with user separation (6-foot wide concrete sidewalk and 14-foot wide asphalt bicycle path) and add increasing undercrossing vertical clearance to 12 feet.
+ Improves quality of experience with reconfiguration from existing narrow, dark, chain link fence condition and improved grade transition.
+ Preserves parking for NOAA under SR 520 facility.
✓ Relocating trail behind bridge abutment requires moving abutment further west for structural feasibility.
✓ This is part of the WSDOT SR 520 West Side project.

17 Provide **stair and ramp access from Bill Dawson south of Portage Bay Bridge** to shared-use path and connections to East Montlake Place East and East Roanoke Street.

+ Provides multiple connections for users to and from Bill Dawson Trail and Montlake Playfield.
✓ This is part of the WSDOT SR 520 West Side project.

18 **Improve connection from west side of Montlake Boulevard East to Bill Dawson Trail** north of SR 520 with reconfigured at-grade ramp and stair access within WSDOT project limits of construction.

+ Provides better sightlines to and from street and Bill Dawson Trail.
+ Reduces amount of above-grade structure.
+ Improves turning radii of path access.
+ Connection remains within limits of construction as defined in the SR 520 Environmental Impact Statement and does not require additional property from NOAA.
✓ Requires Federal Land Transfer from NOAA. Further details to be determined in final design.
✓ This is part of the WSDOT SR 520 West Side project.

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19 Create a **new undercrossing at Montlake Boulevard East** for safe pedestrian and bicycle crossing and connection of RSUP from urban trailhead/mobility hub to Bill Dawson Trail and Portage Bay Bridge with separation of cyclists and pedestrians using distinctive surfacing.

+ Improves sightlines and safety with wider 20-foot and 12-foot high vertical clearance at undercrossing.
+ Lays back walls at undercrossing entrances to allow for more light and vegetation.
+ Reduces user conflicts with separated bicycle (14-foot asphalt bicycle path) and pedestrian (6-foot concrete sidewalk).
+ Provides consistent, quality and safe experience in high-use, high-conflict area.
✓ This is part of the WSDOT SR 520 West Side project.

Areas for additional study at Bill Dawson Trail

The city of Seattle will lead future studies of this area for additional study.

20 Connect West Montlake Park to Bill Dawson Trail and Montlake Playfield along waterfront west of NOAA.

+ Completes connection around Portage Bay.
+ Addresses neighborhood desire for community connection.
+ Cited in Bands of Green Parks Foundation plan.
- May be restrictions on property use due to homeland security concerns for federal facilities.
✓ Requires city of Seattle feasibility studies and design coordination with NOAA, Seattle Yacht Club and adjacent neighbors.
✓ This is an area of further exploration led by the City.

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City of Seattle

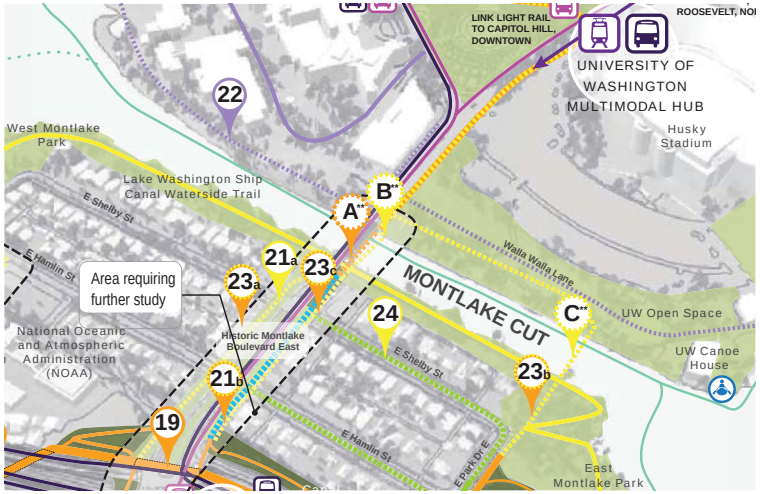

Figure 5 Montlake Boulevard East north recommendations and areas for additional study

MONTLAKE AREA

Recommendations for improvements in the Montlake Area focus on improving safety and mobility, improving character and quality of user experience, and providing separated non-motorized facilities where possible and include evaluations of supporting benefits (+), potential risks (-) and/or requirements (✓). As part of this study, existing crossing lengths at intersections were evaluated and where feasible, reconfigured, shortened or otherwise improved for pedestrian and bicyclist safety. See **Figure 5** and **Figure 6** for details on crossing conditions and recommendations.

Montlake Boulevard East—North of Interchange

With construction of the West Approach Bridge North (WABN) , the current phase of the SR 520 program, the sidewalk on the east side of Montlake Boulevard East between the Montlake interchange and East Hamlin Street will be widened from the existing eight feet to 10 feet to address temporary impacts for pedestrian and cycle users during construction, when the 24th Avenue East off-ramp will be closed for six months. (See **Figure 5** and second cross section **Figure 7**).

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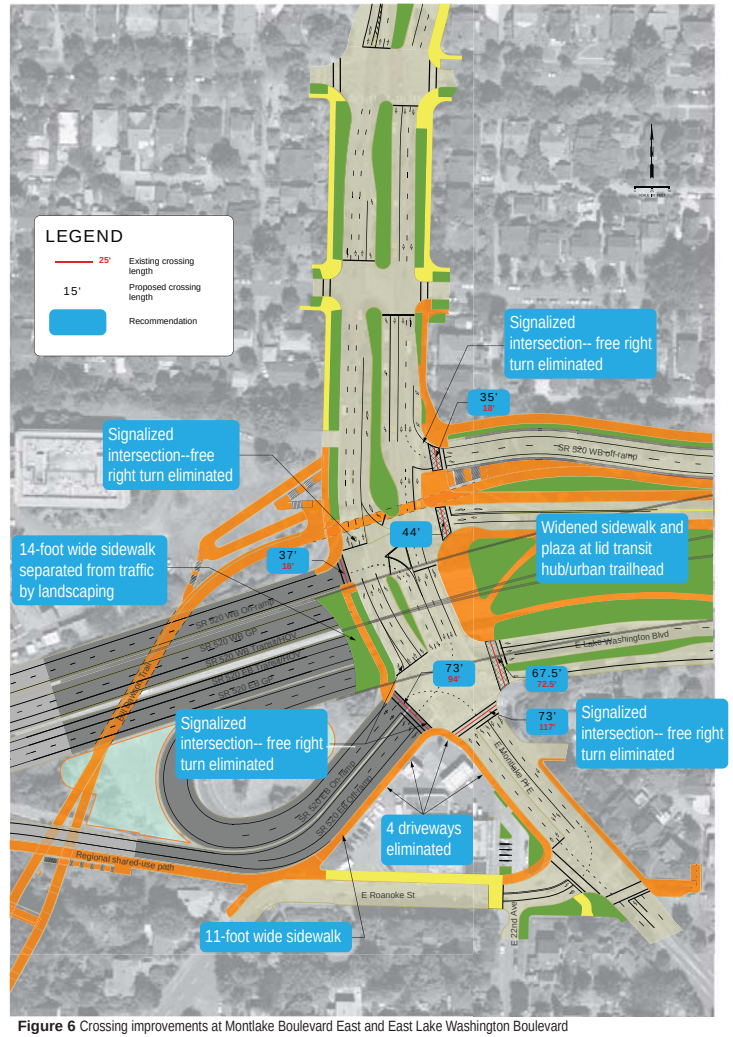

Figure 6 Crossing improvements at Montlake Boulevard East and East Lake Washington Boulevard

City of Seattle
Washington State Department of Transportation

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

21a Provide raised crosswalks at East Hamlin Street and East Shelby Street along both sides of Montlake Boulevard East to improve wayfinding, enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character.

+ Raised crosswalks improve wayfinding for bicycles and pedestrians.
+ Enhances ADA access.
+ Addresses stakeholder concerns about poorly located curb cuts in existing condition.
+ Enhances continuity of connections and quality of experience from Montlake lid urban trailhead and mobility hub to University of Washington and Burke Gilman Trail and locations south.
+ Provides safety with increased traffic calming and driver awareness.
✓ Requires SDOT coordination and final design approval.
✓ This is owned by the City of Seattle.

22 Create a waterfront recreational path to be developed by the University of Washington (UW) along the north side of the Montlake Cut on the UW campus and connecting under Montlake Boulevard East.

+ Provides safe, off-street connection under Montlake Boulevard East.
+ Improves existing substandard facilities.
+ Cited in the University of Washington *Campus Landscape Framework Plan*.
+ The facility east of Montlake Boulevard East is included in updated city of *Seattle Bicycle Master Plan* as a recommended off-street local connector.
- Widening the path under Montlake Boulevard East at the Montlake Bridge abutment will require additional evaluation for feasibility.
✓ Requires further evaluation and feasibility study by University of Washington.
✓ Requires coordination with UW, WSDOT, SDOT and the Coast Guard.
✓ This is owned by the University of Washington.

Areas for additional study at Montlake Boulevard East

WSDOT and the city of Seattle are actively pursuing design explorations to address the need for improved transit mobility and bicycle and pedestrian access along Montlake Boulevard East and across the Montlake Cut. The city of Seattle is also planning and implementing improvements for the 23rd Avenue/Montlake Boulevard corridor south of East Roanoke Street.

Three alternatives for additional capacity across the Montlake Cut have been identified by the work group and will require evaluation in conjunction with city of Seattle analysis and feasibility studies of the design, operation and maintenance of the respective alternatives. Final adoption of an alternative is pending Seattle city council approval. These alternatives include (See **Figure 1** and **Figure 5** for locations):

A** **WSDOT second bascule bridge** for general-purpose traffic, transit, pedestrians and bicycles. This alternative is included in the 2011 SR 520 Preferred Alternative. It would be located directly east and adjacent to the existing Montlake Bridge and provide an 18-foot wide shared-use path on the east side of the new structure.

B** **Separate bicycle/pedestrian-only bascule bridge adjacent** to the existing Montlake Bridge and including additional transit improvements. The size and configuration of this option will be determined

C** **Separate bicycle/pedestrian-only bascule bridge east of the existing** Montlake Bridge and including additional transit improvements with proposed connections to the RSUP through East Montlake Park.

Pending approval by the Seattle city council of a Montlake Cut crossing alternative, the work group explored several potential conceptual non-motorized improvements along Montlake Boulevard East to the Montlake Cut. Illustrative conceptual cross sections (See **Figure 7** and **Figure 8**) are provided below for clarification of these proposed options and include existing conditions, proposed changes with construction of the West Approach Bridge North (WABN), as well as three options with a range of minimal to more substantive impacts and benefits.

Analysis and design development of these options for improved bicycle and pedestrian access weighted several key criteria, including the:

- Bridge crossing alternative identified for the Montlake Cut (see A, B, and C above)
- Trade-offs between potential environmental and neighborhood impacts, and improved pedestrian and bicycle safety
- Constraints of a limited right-of-way, or opportunities outside of the right-of-way.
- Type of facilities identified in the City of Seattle Bicycle Master Plan
- Potential impact of the options on trees, adjacent neighbors and historic integrity of an Olmsted boulevard

The options explored for non-motorized improvements along Montlake Boulevard East to the Montlake Cut include:

23a **OPTION 1 Widen existing 8-foot sidewalks to 10-feet on both sides** of Montlake Boulevard East (see third cross section in See **Figure 7** and **Figure 8**).

EXPLANATION: *This option was developed to nominally improve non-motorized access along Montlake Boulevard East from substandard conditions with minimal impacts to the existing trees, and right-of-way. The workgroup identified this option as* ***compatible with any of the proposed Montlake Cut crossing alternatives*** *as it nominally improves both bicycle and pedestrian access. Benefits, risks and requirements include:*

+ Widens existing sidewalks (typically 8 feet wide) to 10 feet wide to provide more space for pedestrians and bicyclists.
+ Fulfills 2010 legislative bill Engrossed Substitute Senate Bill (ESSB) 6392 non-motorized recommendations for enhanced 10-foot sidewalks along Montlake Boulevard East, summarized in the *Workgroup Design Refinements and Transit Connections* final report.

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+ Does not require additional impacts on right-of-way or center median.
+ The sidewalk on the east side of Montlake Boulevard East from the interchange to Hamlin will be widened to 10 feet to address temporary impacts to non-motorized connectivity from WABN construction.
+ Is compatible with any of the three Montlake Cut crossing alternatives identified.
- May impact health of trees where sidewalk is widened over mature tree roots due to limited right-of-way constraints.
- Does not provide facility to adequately carry current or future bicycle and pedestrian volumes, based on current counts and anticipated increased future volumes with improved regional connections.
- Curb line south of Hamlin on east side of Montlake Boulevard East will move as part of WABN. There may be impacts to existing trees and planting in that portion of the roadway.
✓ Requires SDOT feasibility studies, coordination and final design approval.
✓ This is an area of further study by WSDOT and the City of Seattle.

OR

23b

OPTION 2 Provide a 14-foot wide shared-use path on the east side of Montlake Boulevard East with a 6 to 13-foot wide planting strip (varies along length of this segment) and a 10-foot widened sidewalk on the west side with widened planting strip (12.5 feet minimum). (see fourth cross section in **Figure 7** and **Figure 8**).

EXPLANATION: *This option was developed to improve non-motorized access along Montlake Boulevard East for pedestrians and address existing and future use between the Montlake lid transit hub and the UW Husky Stadium and University Link Light Rail station. The work group identified Option 2 as most compatible with Montlake Cut crossing* **Alternative C,** *which encourages primary bicycle traffic to utilize connections from the regional shared-use path (RSUP) and land bridge through East Montlake Park and across the Montlake Cut via a separate bicycle/pedestrian-only bascule bridge east of the existing Montlake Bridge, while improving the pedestrian environment on Montlake Boulevard East. Benefits, risks and requirements include:*

+ Improves bicycle and pedestrian safety and mobility with a larger and separated off-street facility.
+ Better accommodates all users in area where existing 8-foot sidewalk is used by both cyclists and pedestrians.
+ Can serve as a catalyst for creating improved tree canopy and green space along Montlake Boulevard East.
- Requires the removal and replanting of trees at median and planters.
- Requires moving curbs at street edge and median.
✓ Requires additional design study for feasibility and potential environmental impacts on East Montlake Park.
✓ Requires additional study of the design, operation and maintenance of non-motorized bridge located east of the existing bascule bridge.
✓ Requires SDOT feasibility studies, coordination and final design approval.
✓ This is an area of further study by WSDOT and the City of Seattle.

OR

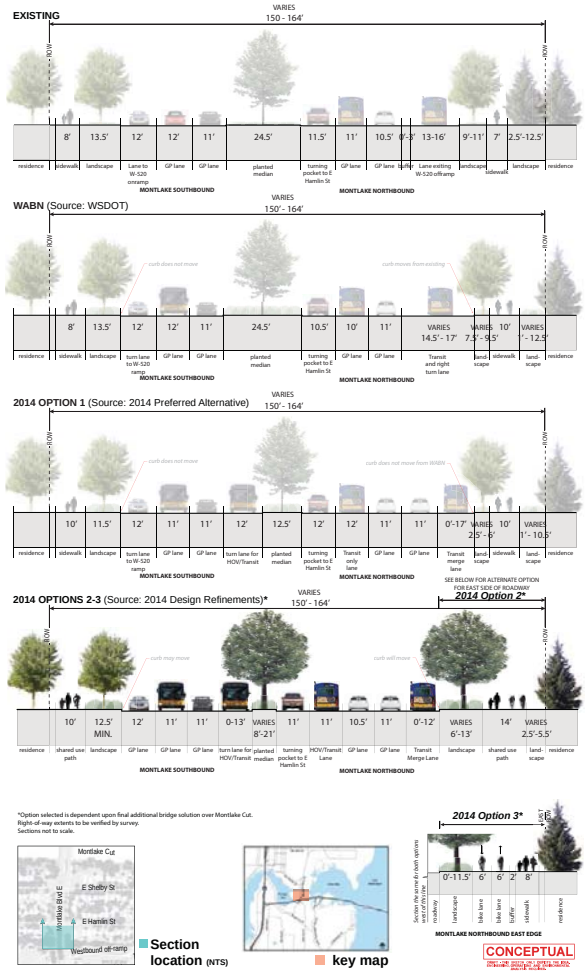

Figure 7 Montlake Boulevard East Design Explorations -- from westbound SR 520 off-ramp to East Hamlin Street

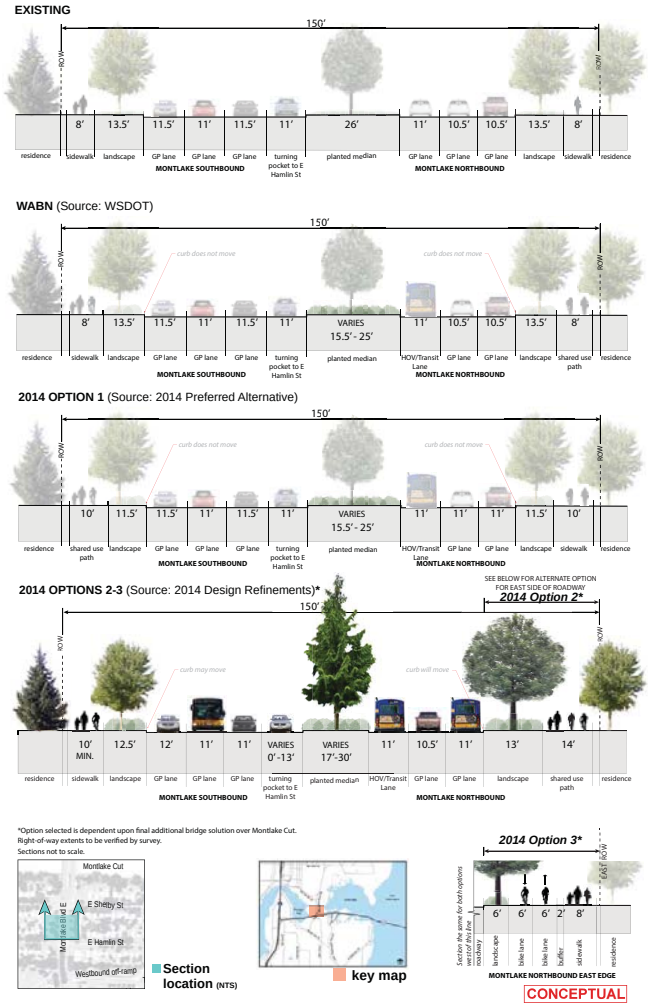

Figure 8 Montlake Boulevard East Design Explorations -- from East Hamlin Street to East Shelby Street

23c **OPTION 3 Provide a 14-foot wide cycle track on the east side** of Montlake Boulevard East (6-foot north and southbound lanes with 2-foot buffer at sidewalk), an 8-foot wide sidewalk, an approximately 0 to 11.5-foot planting area (varies along length of this segment), and 10-foot widened sidewalk on the west side with widened planting strip to 12.5 feet minimum. (See fifth cross section in See **Figure 7** and **Figure 8**).

EXPLANATION: *This option was developed to improve non-motorized access along Montlake Boulevard East and address existing and future use between the Montlake lid transit hub and the UW Husky Stadium and University Link Light Rail station. The work group identified Option 3 as* **most compatible with Montlake Cut crossing Alternatives A** *or B. Option 3 provides an appropriately-sized facility in keeping with the Seattle Bicycle Master Plan to encourage bicycle traffic to utilize connections along the east side of Montlake Boulevard East and logically and comfortably connect across the Cut on a second bascule bridge or separate bicycle/pedestrian-only bridge. Benefits, risks and requirements include:*

+ Conforms to updated 2014 city of Seattle Bicycle Master Plan identification of cycle track on Montlake Boulevard East from Montlake Cut to East Roanoke Street.
+ Creates a more consistent width for cycle track and pedestrian facility from the Montlake lid across the Montlake Cut facility to the Sound Transit UW link light rail station.
+ Improves bicycle mobility and safety with separated off-street facility.
+ Separates users on the east side of Montlake Boulevard East where the existing 8-foot sidewalk is used by both cyclists and pedestrians.
+ This option is compatible with Alternative A WSDOT FEIS preferred alternative proposed second bascule bridge or Alternative B the pedestrian/bicycle-only bridge adjacent to the existing Montlake Bridge.
+ Can serve as a catalyst for creating improved tree canopy and green space along Montlake Boulevard East.
- Requires the removal and replanting of trees at median and planters.
- Requires moving curbs at street edge and median.
✓ Requires SDOT feasibility studies, coordination and final design approval.
✓ This is an area of further study by WSDOT and the City of Seattle.

24 Provide a **counterflow bicycle lane** on East Shelby Street.

+ Improves safety and access for heavily used bicycle route to and from University of Washington, Burke Gilman Trail and Lake Washington Loop Trail—East Shelby Street is a one-way street going west which cyclists already utilize moving in the wrong direction.
+ Is a pre-existing city of Seattle bicycle route and designated neighborhood greenway.
+ Fulfills 2010 legislative bill Engrossed Substitute Senate Bill (ESSB) 6392 non-motorized recommendations, summarized in the Workgroup Design Refinements and Transit Connections final report.
- Requires removal of parking on one side of East Shelby Street (NOTE: alley parking is available)
✓ Requires further SDOT analysis and coordination with updated city of Seattle Bicycle Master Plan and stakeholders.
✓ This is an area of further exploration led by the City of Seattle.

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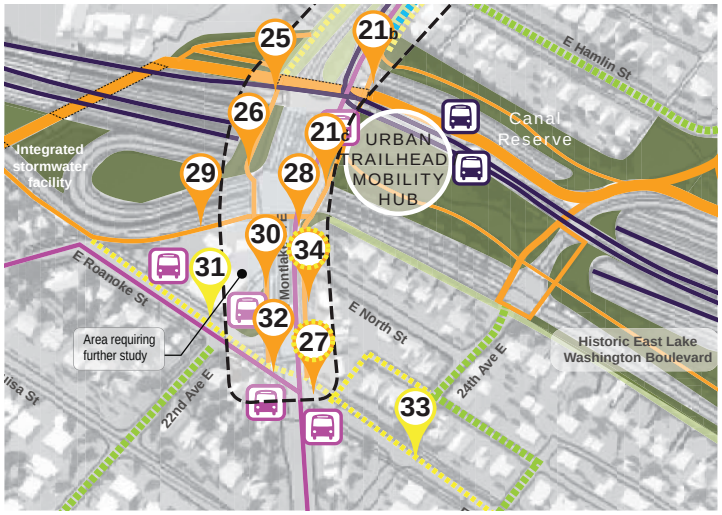

Figure 9 Montlake Boulevard East south recommendations and areas for additional study

Montlake Boulevard East—Interchange

Recommendations for the area of Montlake Boulevard East at the interchange with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 6** and **Figure 9**):

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

- + Improves pedestrian safety on north-south crossings at on- and off-ramps.
- - Reduces lane widths.
- ✓ Requires approval of deviation from design standards.
- ✓ Requires tightening vehicle turning radii.
- ✓ This is part of the WSDOT SR 520 West Side project.

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

- + Deeper lid portal edge structure on west side allows for deeper soils and more tree and shrub plantings.
- + Improves quality of experience for pedestrians by buffering path edges with vegetation.
- + Responds to neighborhood concerns for safety and quality of crossings on west side of Montlake Boulevard East.
- ✓ This is part of the WSDOT SR 520 West Side project.

21b Provide **distinctive surface treatments at crossings** at on- and off-ramps at Montlake Boulevard East to improve wayfinding, enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character.

- + Improves wayfinding for bicycles and pedestrians.
- + Enhances continuity of connections and quality of experience from Montlake lid urban trailhead and mobility hub to University of Washington and Burke Gilman Trail to the north as well as to locations south.
- + Reinforces visibility and vision of historic boulevard and Olmsted legacy.
- + Provides safety with increased traffic calming and driver awareness.
- ✓ This is part of the WSDOT SR 520 West Side project.

Areas for additional study at Montlake Boulevard East Interchange

The work group also examined potential above-grade pedestrian connections over the SR 520 mainline along the west side of Montlake Boulevard East and over the eastbound on- and off-ramps to East Roanoke Street and West Montlake Place East. This would require the construction of a large elevated structure in order to provide required vertical clearance from the roadway and to meet ADA accessibility standards. The city and state jointly evaluated the idea for preliminary feasibility and determined that while possible, it would require considerable additional structure with negative visual, environmental and property impacts. The Seattle Design Commission also did not support the proposal for additional overhead structures at the Montlake lid area.

The workgroup does not support the above-grade bridge. However, they do recommend the following:

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

Montlake Boulevard East—South of Interchange

Recommendations for the area of Montlake Boulevard East and East Montlake Place East south of the interchange with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 6** and **Figure 9**):

21c Provide **distinctive surface treatments at crossings** at on- and off-ramps at Montlake Boulevard East to improve wayfinding, enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character.

- + Improves wayfinding for bicycles and pedestrians.
- + Addresses city of Seattle Pedestrian Master Plan designation as a Tier 1 Along the Roadway high priority area
- + Enhances continuity of connections and quality of experience from Montlake lid urban trailhead and mobility hub to University of Washington and Burke Gilman Trail and locations south.
- + Reinforces visibility and vision of historic boulevard and Olmsted legacy.
- + Provides safety with increased traffic calming and driver awareness.
- ✓ This is part of the WSDOT SR 520 West Side project.

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

+ Improves pedestrian safety.
+ Increases traffic calming and driver awareness.
+ Provides a balanced solution that considers the needs of both pedestrians and vehicles.
- Reduces lanes to non-standard widths.
✓ This is part of the WSDOT SR 520 West Side project.

29 Create **pedestrian and bicycle refuge** by utilizing right-of-way at southeast corner of East Lake Washington Boulevard and East Montlake Place East.

+ Improves pedestrian and bicycle safety.
+ Enhances quality of experience with improved plantings, surfacing and street furniture.
- Requires removal of encroachments.
✓ Requires coordination and final approval of SDOT.
✓ This is part of the WSDOT SR 520 West Side project.

28 Create **11-foot wide sidewalk to Montlake Boulevard East** at gas station and eastbound off-ramp (see above for Portage Bay Bridge East Side).

+ Replaces substandard sidewalk and improves existing pedestrian usage to neighborhood.
+ Provides direct neighborhood connections to retail and Montlake lid, and access to and from Portage Bay Bridge shared-use path.
+ Improves safety and visibility of route.
- Right-of-way constraints limit sidewalk widths.
✓ Requires further analysis to ensure meets design requirements.
✓ Requires coordination with business owner of Montlake Market.
✓ This is part of the WSDOT SR 520 West Side project.

Areas for additional study at south of interchange at Montlake Boulevard East

The work group recommended that WSDOT and the city of Seattle explore opportunities to upgrade the proposed 11-foot sidewalk facility described above to shared-used path design standards (14 feet) should future development occur on the adjacent private property.

30 **Improve existing sidewalks** on both sides of East Montlake Place East.

+ Replaces substandard sidewalks in poor condition.
+ Improves pedestrian neighborhood connections to retail, Montlake lid.
+ Improves safety and comfort of route.
- Constrained right-of-way and private property lines limits widening on east side of street.
✓ Requires coordination and final approval of SDOT.
✓ Requires coordination with business owner of Montlake Market.
✓ This is part of the WSDOT SR 520 West Side project.

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

+ Provides a 14-foot wide separated connection from Portage Bay Bridge to neighborhood greenway at 22nd Avenue East.
+ Increases pedestrian and bicycle safety.
+ Enhancing intuitive wayfinding.
- May require removal of on-street parking.
✓ Requires analysis and final approval of SDOT and design coordination with the City of *Seattle Bicycle Master Plan*.
✓ Requires coordination with business owner of Montlake Market.
✓ This is owned by the City of Seattle.

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

+ Improves pedestrian and bicycle safety.
+ Increases traffic calming and driver awareness.
+ Improves intersection function for transit and vehicles.
+ Provides better connections to and from designated neighborhood greenways.
✓ Requires reconfiguration of parking at Montlake Boulevard Market.
✓ Requires design coordination and final approval of SDOT.
✓ This is part of the WSDOT SR 520 West Side project.

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33 **Extend neighborhood greenway connection along East Roanoke Street** east from East Montlake Place East to Arboretum Multi-use Trail and to 24th Avenue East.

+ Builds Seattle neighborhood greenway connections and overall city of Seattle pedestrian and bicycle network.
✓ Requires analysis and final approval of SDOT and design coordination with the City of Seattle Bicycle Master Plan.
✓ This is owned by the City of Seattle.

Areas for additional study at south of interchange at Montlake Boulevard East

The work group acknowledged that the location and configuration of bicycle and pedestrian facilities on Montlake Boulevard East and East Montlake Place East from the proposed Montlake lid to East Roanoke Street still requires additional study and coordination. The Seattle *Bicycle Master Plan* identifies a protected cycle track extending from the existing Montlake bascule bridge to East Roanoke Street. Additional design considerations and concepts for future study may include:

34 **Extend protected cycle track on Montlake Boulevard** from the Montlake lid to East Roanoke Street and 22nd Street.

+ Conforms to updated 2014 city of Seattle *Bicycle Master Plan* identification of cycle track on Montlake Boulevard East from Montlake Cut to East Roanoke Street.
+ Improves bicycle access and safety with protected facility.
+ Provides safe, logical connections to the "Urban Trailhead Mobility Hub", transit, greenway network and north to UW/Burke Gilman/Link Light Rail.
- Constrained right-of-way.
✓ Requires SDOT feasibility studies, coordination and final design approval.
✓ This is an area of further exploration led by the City of Seattle.

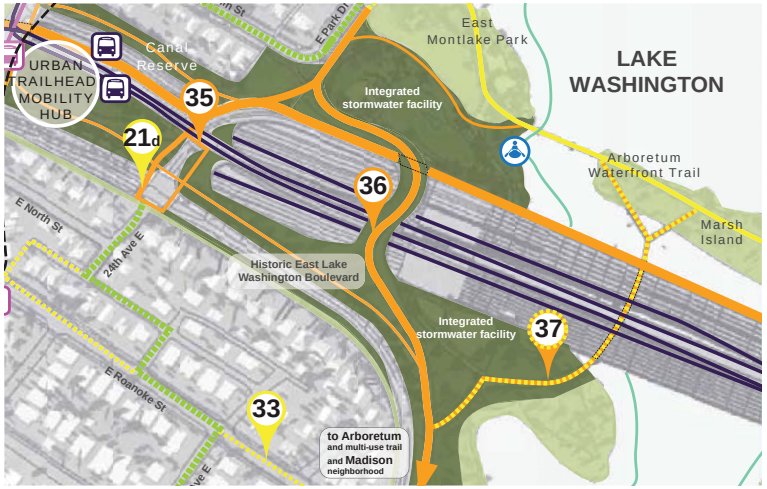


Figure 10 Montlake Lid recommendations and areas for additional study

Montlake Lid—24th Avenue East Off-ramp

Recommendations for the area of Montlake lid at the 24th Avenue East off-ramp with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 10**):

21d Provide **raised crosswalks and distinctive surface treatments at crossings** along 24th Avenue East at East Lake Washington Boulevard to improve wayfinding, enhance bicycle and pedestrian safety, provide vehicle traffic calming and reinforce the Olmsted boulevard character.

+ Improves wayfinding for bicycles and pedestrians.
+ Enhances ADA access and addresses concern about poorly located curb cuts in existing condition.
+ Enhances continuity of connections and quality of experience from Montlake lid urban trailhead and mobility hub to University of Washington and Burke Gilman Trail and locations south.
+ Improves pedestrian and bicycle safety with increased traffic calming and driver awareness.
✓ Requires coordination and final approval of SDOT.
✓ This is part of the WSDOT SR 520 West Side project.

35 Provide **four-way signed intersections along 24th Avenue East** on- and off-ramps and at East Lake Washington Boulevard.

- + Improves pedestrian and bicycle safety with increased traffic calming and driver awareness.
- + Provides appropriate urban design scale for neighborhood.
- + Conforms to design requirements for neighborhood greenway.
- - May require future change to signalized intersection for traffic function.
- ✓ Requires coordination and final approval of SDOT.
- ✓ This is part of the WSDOT SR 520 West Side project.

Montlake Lid—East and Shoreline

Recommendations for the area of Montlake lid at the east and shoreline with supporting benefits (+), potential risks (-) and/or requirements (✓) include (See **Figure 10**):

36 Create a **new, non-motorized land bridge** east of the 24th Avenue East off-ramp, 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.

- + Replaces east half of lid with 70-foot wide direct, barrier-free and accessible crossing meeting public concerns regarding unused spaces and lack of accessibility on the north side.
- + Addresses stakeholder feedback regarding concerns that main north-south routing was previously located under SR 520 facility at shoreline.
- + Improves quality of crossing with screening, vegetation and improved views to East Montlake Park and Lake Washington.
- + Creates intuitive north-south connections between neighborhoods, Washington Park Arboretum and Lake Washington Loop Trail with wayfinding to destinations north at urban trailhead and mobility hub at lid, University of Washington, and Burke Gilman Trail.
- ✓ This is part of the WSDOT SR 520 West Side project.

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.***

- + Extends and completes the Arboretum Waterfront Trail identified in the Washington Park Arboretum Master Plan and provides direct connection to and from East Montlake Park and Washington Park Arboretum.
- + Improves safety with better sightlines, light and more vertical clearance.
- + Creates a connection more sensitive to character of existing Arboretum trails and wetland experience.
- + Is ADA accessible.
- + Addresses stakeholder feedback regarding concerns about safety and experience by relocating path away from abutment on water under second taller bay of West Approach Bridge.
- - May have additional environmental (over-water and wetland) impacts.
- ✓ Requires coordination with Seattle Parks Department.
- ✓ This is part of the WSDOT SR 520 West Side project.

*****NOTE:** The boardwalk alignment as illustrated in this report is one potential solution for this important pathway connection; specific landing points and layout are subject to further study by WSDOT and the city of Seattle.

SR 520 and City of Seattle Non-motorized Connectivity Technical White Paper

Next Steps

The recommendations and additional design considerations listed above will serve as the basis for continued and future bicycle and pedestrian planning and design implementation for the SR 520 project West Side facilities and transitions to and from the Seattle non-motorized network. In anticipation of legislative funding, the SR 520 program and the city of Seattle will continue to coordinate efforts to ensure relevant, quality non-motorized facility planning and design implementation.

A number of the non-motorized elements identified in this document by the work group are already identified as future facilities in the city of Seattle Bicycle Master Plan. There are also several proposed additions to the city of Seattle bicycle and neighborhood greenway facilities discussed in this document that are key components in providing transitions to and from the SR 520 bicycle and pedestrian facilities. They are denoted in a yellow, dashed line in the non-motorized connections exhibit. Those additions include:

11 **On-street bicycle facility on Broadway Avenue East south of SR 520** This connects the proposed SR 520 regional shared-use path from under 10th Avenue East and the SR 520 right-of-way to the Harvard Avenue East neighborhood greenway.

23 a, b, c **Bicycle and pedestrian improvements on Montlake Boulevard East** This area is an area of further study led by WSDOT and the City of Seattle and identified in the Seattle Bicycle Master Plan as the potential location of a cycle track. Three alternatives are explored in this document.

24 **Counterflow bicycle lane on East Shelby Street** East Shelby Street is a designated bicycle route and city of Seattle neighborhood greenway.

31 **Multi-use path on East Roanoke Street** This connects the proposed SR 520 regional shared-use path on the Portage Bay Bridge connecting at West Montlake Place East to the neighborhood greenway on 22nd Avenue East and to the proposed neighborhood greenway (see 38 below) on East Roanoke Street east of East Montlake Place East.

36 **Neighborhood greenway connection along East Roanoke Street** This provides a connection from East Montlake Place East to Arboretum Multi-use Trail and 24th Avenue East neighborhood greenway.

SDOT and the city of Seattle have continued to solicit feedback from stakeholders through outreach to neighborhood organizations, the Seattle Bicycle Advisory Board, Seattle Pedestrian Advisory Board, Seattle Neighborhood Greenways groups, Friends of Seattle Olmsted Parks, Cascade Bicycle Club, Feet First, Seattle Preparatory High School, Seattle Yacht Club, Queen City Yacht Club, NOAA and others.

Stakeholder input will continue to inform ongoing design development, and provide valuable feedback where additional consideration of concepts for further study is required. Decisions regarding alternatives for the Montlake Cut will be addressed by Seattle City Council and provide direction for future design.

Over the next year, WSDOT will capture design recommendations for improvements to State non-motorized facilities identified within this document, in conjunction with Seattle City Council endorsement, in conceptual-level engineering plans to ensure that when funding is received, the agency will be ready to implement design.

APPENDIX C

SR 520 DESIGN PROGRESSION OVERVIEW

APPENDIX C

SR 520 DESIGN PROGRESSION OVERVIEW

How has WSDOT identified and refined the SR 520 Preferred Alternative?

For many years, WSDOT has been working with agency partners, stakeholders, and the public to develop and analyze corridor alternatives in order to select and refine a Preferred Alternative. Major steps in this process are described below, while additional detail on each step can be found in source documents cited in Appendix G.

2006 Draft EIS

Identifying a preliminary range of alternatives

The August 2006 Draft EIS for the SR 520 Program evaluated the No Build Alternative and two build alternatives, the 4-Lane Alternative and the 6-Lane Alternative. Based on this analysis and public feedback, WSDOT decided to continue evaluating only the No Build Alternative and 6-Lane Alternative design options.

2008 Mediation

Identifying the best 6-Lane Alternative design options

Three 6-lane design options were developed through a stakeholder mediation process established as part of ESSB 6099, enacted during the 2007 Legislative Session. The mediation process included elected officials; local, federal, and state agencies; neighborhood representatives; local organizations; and WSDOT.

2009 Legislative Workgroup

Reviewing Options A, K and L as identified from 2008 mediation

ESHB 2011 created the SR 520 Legislative Workgroup, a group of legislators and transportation officials, to present recommendations on financing and a west side design for the SR 520 corridor to the Governor and the Legislature.

2010 Supplemental Draft EIS

Analyzing alternatives and selecting a Preferred Alternative

The January 2010 Supplemental Draft EIS evaluated the effects of a No Build Alternative and three 6-Lane Alternative design options. The Supplemental Draft EIS recommended a Preferred Alternative similar to the Final Concept Design configuration in terms of its geometry, although it was wider and had a taller west approach profile. The Preferred Alternative:

- Maintained the existing location of the Montlake interchange.
- Changed the westbound off-ramp to connect separately to 24th Avenue East and Montlake Boulevard East.
- Included a new bascule bridge over the Montlake Cut, parallel to the existing Montlake Bridge.
- Included a 1,400-foot lid over Montlake Boulevard East with landscaping, ramps, transit facilities, and pathways.
- Provided near-term transit enhancements along with the ability to accommodate potential future light rail on SR 520.

2010 ESSB 6392 Workgroup

Refining the Preferred Alternative

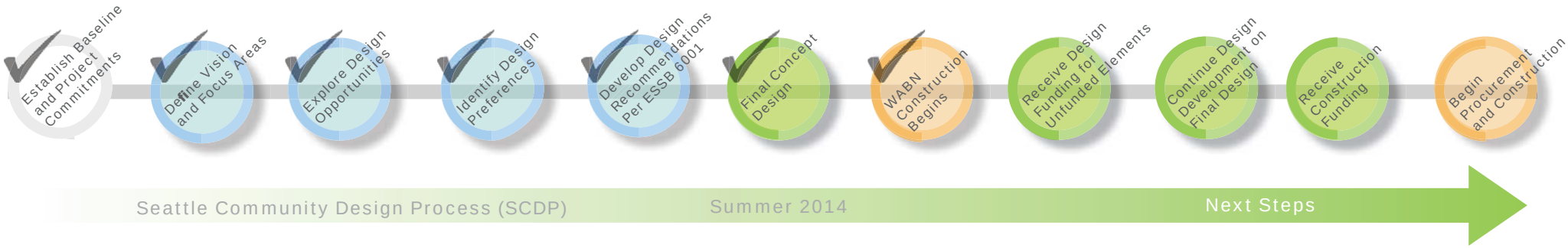
During the 2010 Legislative Session, the Washington State Legislature passed ESSB 6392, which outlined specific areas and elements of the SR 520 project Preferred Alternative to refine through a multi-agency process. Based on legislative direction, WSDOT, the Seattle Mayor, and the Seattle City Council established a Workgroup that brought together King County Metro, the University of Washington, Sound Transit, and other designees to consider design refinements and transit connections within the Preferred Alternative.

More than 350 people attended the September 2014 open house event in Seattle.

The Workgroup recommendations included the following (among others):

- Establish a design process to expand and refine the vision, goals, and design treatments for urban design and streetscapes.
- Enhance bicycle and pedestrian connections.
- Establish measures to trigger construction of a second bascule bridge across the Montlake Cut.
- Maintain the SR 520 reversible transit/HOV ramp to and from I-5.
- Implement noise reduction strategies throughout the corridor.

The final report included the Workgroup's recommendations on the comprehensive design refinements and transit connection improvements to the SR 520 Preferred Alternative as well as an overview of public comment. As part of this process, Workgroup participants also developed a "High Capacity Transit Planning and Financing Findings and Recommendations Report" and a "Washington Park Arboretum Mitigation Plan" (Dec. 2010). Through this process, WSDOT and the city of Seattle also agreed to continue working with key stakeholders and the public to implement the Workgroup recommendations, develop future Seattle design processes, and address other issues raised.



2011 Final EIS Preferred Alternative

Incorporating Preferred Alternative refinements

The June 2011 Final EIS analyzed the direct, indirect, and cumulative effects of the Preferred Alternative compared to the No Build Alternative and the three Supplemental Draft EIS 6-lane design options. WSDOT also incorporated the design refinements made during the ESSB 6392 Workgroup process.

2011 Record of Decision

Identifying and approving the Preferred Alternative

In summer 2011, the Federal Highway Administration approved the Final EIS and confirmed that the Preferred Alternative could be considered the project's Preliminary Concept Design with the federal Record of Decision. While WSDOT had adequate budget to complete Final Design of the SR 520 floating bridge and begin construction in 2012, most corridor elements in Seattle did not have funding to advance design or begin construction.

2012 Seattle Community Design Process

Refining the Preliminary Concept Design in Seattle

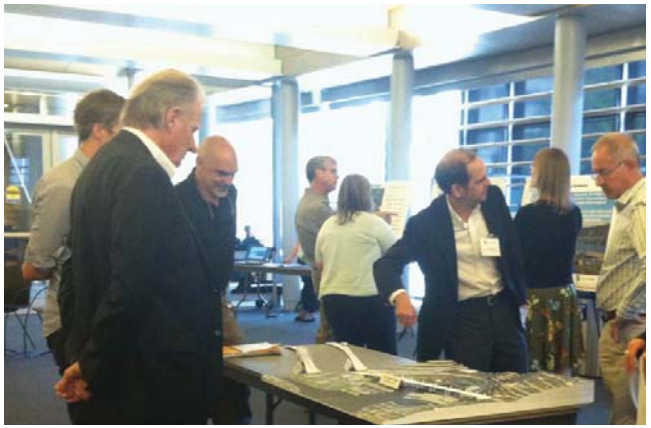
This robust and collaborative effort between WSDOT, the city of Seattle, design professionals, and the broader public resulted in a refined corridor vision and conceptual design for unfunded portions of the SR 520 corridor in Seattle. While many well-supported design refinements were endorsed and incorporated into the Preliminary Concept Design, the city asked WSDOT to continue exploring the design of the Portage Bay Bridge, Montlake lid, and non-motorized connectivity through Resolution 31427, which was passed in February of 2013.

2014 West side design refinements

WE ARE HERE!

Completing the Final Concept Design in Seattle

Per ESSB 6001, WSDOT and the city continued exploring design elements not resolved through the 2012 Seattle Community Design Process. A team of design professionals, working in collaboration with the Seattle Design Commission and supported by WSDOT and city staff, recommended design refinements for the Portage Bay Bridge, Montlake lid, and non-motorized connections.



Portage Bay Bridge models on display before a Seattle Design Commission meeting.

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APPENDIX D

SUMMARY OF SEPT. 11, 2014 OPEN HOUSE PUBLIC COMMENT

APPENDIX D

SUMMARY OF SEPT. 11, 2014 OPEN HOUSE PUBLIC COMMENT

Overview

On Sept. 11, 2014, WSDOT and the city of Seattle hosted a public open house at the Montlake Community Center. The purpose of the event was to share refined conceptual designs for key areas on the Seattle side of the SR 520 corridor, including:

- Portage Bay Bridge (including bridge type and options for a shared-use bicycle/pedestrian path).
- Montlake lid area (including lid functionality and bicycle/pedestrian/transit connectivity options).
- Non-motorized connections in and around the SR 520 corridor in Seattle.

Nearly 350 people attended the event and over 150 individual comment cards were received. Members of the public also shared feedback through interactive conversations with SR 520 Project staff, city staff and other neighbors.

The public was also able to view various informational boards with overviews and updates on the following topics:

- SR 520 Bridge Replacement and HOV Program
- SR 520 West Approach Bridge North Project
- Design process overview of the SR 520 corridor in Seattle

Open house focus

Design concepts shown at the open house built on the work conducted in the 2012 Seattle Community Design Process (SCDP). The SCDP was a robust public process to refine the vision and design of the unfunded portions of the SR 520 Project between I-5 and Lake Washington. Many well-supported design refinements emerged from the SCDP, and in some geographic areas further design work was needed. WSDOT and the city of Seattle worked with a team of design professionals and in close consultation with the Seattle Design Commission to further refine design concepts for the unresolved areas, which were the focus of the September 11 open house.

Members of the public were able to view conceptual design renderings of refined concepts for the Portage Bay Bridge, Montlake lid area and non-motorized connectivity networks. Materials compared visuals of existing conditions, the Preliminary Concept Design approved by the Federal Highway Administration in the SR 520, I-5 to Medina Project Record of Decision, and the refined concepts being developed.

The event also featured physical models of the refined concepts for the Portage Bay Bridge and Montlake lid, and an animation provided a “virtual stroll” through the refined corridor. Members of the public were able to view the design materials and share their feedback by providing written comments and having conversations with WSDOT and city of Seattle staff.

Open house accomplishments

The public was appreciative of the design work that has been completed and for WSDOT and the city of Seattle sharing the refined concepts with the community. There were many comments indicating that the refined concepts were an improvement over the concepts shared in the 2012 SCDP.

The event attracted record attendance, including many people who have not been actively involved with the SR 520 Program as well as many people who have been well-engaged with the program. The public was eager to view the latest design concepts and provide their feedback. Many people also expressed an interest in seeing the project receive funding for construction.

Key themes of public feedback

Public comments heard at the event were diverse. Feedback was split on some topics while clear themes emerged on others. WSDOT and city of Seattle staff considered all of the feedback heard at the event, which will be used to help inform final conceptual design recommendations to the Seattle City Council Transportation Committee.

Following is a summary of general themes of public feedback organized by key topics and geographic areas. This summary is intended to capture the themes of public feedback from comment cards and conversations with WSDOT and city of Seattle staff and is not inclusive of all of the individual comments received.

The public was invited to ask questions and fill out comment forms at the September 2014 open house event.

Washington State Department of Transportation

City of Seattle

WSDOT staff used drawings and 3D models to answer questions about the design.

WSDOT staff answered questions at the September 2014 open house event.

General:

- General appreciation for the design work that has been done, and for WSDOT and city of Seattle staff being available to discuss the design concepts with the community.
- Current design concepts show progress from designs developed in the 2012 Seattle Community Design Process.
- Concerns about traffic, noise, and air quality in and around the SR 520 corridor.
- Concerns regarding the lack of funding for west side project elements and questions about when funding will be received. People are ready for the project to be constructed.
- The physical models and animation were useful and popular tools that helped people to understand the refined concepts.

Montlake lid area:

There was general support for the following design concepts:

- Improvements to the Bill Dawson Trail undercrossing.
- Proposed boardwalk connection underneath SR 520 at the shoreline of Lake Washington.
- The land bridge and the east end of the lid area are improvements.

People asked that WSDOT continue exploring/refining/improving the following areas:

- West end of the lid (bike/pedestrian connectivity), particularly on Montlake Boulevard East.
- Transit connections, particularly the lack of buses crossing Lake Washington and serving the Eastside.
- Routes and crossings for transit connections between local and regional buses, particularly getting to and from the southbound local bus stop.

The following concerns were expressed:

- Bicycle and pedestrian connectivity and safety on Montlake Boulevard East, specifically at the SR 520 interchange and Montlake Cut crossing.
- Traffic congestion on the Montlake Bridge and throughout the Montlake area.
- The community is losing a benefit with the smarter lid concept and requests to receive something else in return.
- Safe bicycle and pedestrian connections from the 22nd Avenue greenway to the University of Washington area, including the University Link Light Rail station. Requests for a separate bicycle and pedestrian bridge in this area and a safer connection on the west side of Montlake Boulevard East.
- Potential noise and air quality effects of the Final Concept Design, particularly among residents of East Lake Washington Boulevard.

Portage Bay Bridge:

- Encouraged by the design progression of both the box girder and cable stay bridge type concepts.
- No clear consensus on a preferred bridge type.
- Support and enthusiasm for the addition of a shared-use bicycle and pedestrian path, and questions about connections on the east and west ends of the bridge.

Non-motorized connectivity:

- Current concepts show great improvement for safety and travel options as compared to concepts shared in the 2012 SCDP.
- Concerns about bicycle and pedestrian conflicts with vehicles on Montlake Boulevard East and 24th Avenue East.
- Requests for a cycle track on Montlake Boulevard East, which is consistent with the updated 2014 Seattle Bicycle Master Plan.
- Questions about how people would travel on the trail networks to and from various locations.
- Concerns about safety of greenways routes and connections to these routes.

Next steps

WSDOT and the city of Seattle used feedback received at the open house to inform staff design recommendations shared with the Seattle City Council Transportation Committee. WSDOT and the city are also working together to document the design process and the Final Concept Design recommendations in this report, which will be shared with the Washington State Legislature. Both agencies continue to work together to secure funding to complete the SR 520 corridor in Seattle.

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APPENDIX E

SEATTLE DESIGN COMMISSION MEMORANDUM

APPENDIX E

SEATTLE DESIGN COMMISSION MEMORANDUM

Seattle design Commission

Ed Murray
Mayor

Diane Sugimura
Director, DPD

Marshall Foster
Planning Director, DPD

Osama Quotah, Chair

Shannon Loew, Vice Chair

Bernie Alonzo

Brodie Bain

Lee Copeland

Thaddeus Egging

Megan Groth

Martin Regge

Ellen Sollod

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MEMORANDUM

To: Honorable Mayor Ed Murray
Seattle City Councilmembers

From: Seattle Design Commission

Date: September 17, 2014

Subject: Seattle Design Commission recommendations for the Portage Bay Bridge and Montlake Lid components of the SR 520 Replacement Project

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Dear Mayor Ed Murray and Councilmembers:

The Seattle Design Commission (SDC) is pleased to provide our comments on the conceptual design development and urban integration of two key elements of the State Route (SR) 520 project: replacement of the **Portage Bay Bridge** and the creation of a structure over portions of SR 520 near Montlake Blvd E (**Montlake Lid**). This memo provides the Mayor and City Council with the SDC's recommendations on questions of urban design for these two critical components of the SR 520 project.

The Seattle City Council requested the SDC's review of these project elements as part of their 2012 Resolution (Resolution 31427) concerning this key transportation corridor. This resolution included a request that SDC review these two project elements before the Washington State Department of Transportation (WSDOT) proceeds with funding requests to the Washington State Legislature. WSDOT has indicated that they are ready to proceed with funding for these project elements in the 2015 legislative session.

Washington State Department of Transportation City of Seattle

To facilitate the SDC's review, WSDOT and City staff provided three briefings to the full SDC and five additional workshops with an SDC subcommittee. To support this work, WSDOT engaged a roster of consultants in urban planning, urban design, landscape design, and bridge design to illustrate and explain design options for both project elements. At the presentations to the full SDC, interested agencies and citizens also provided comments for the SDC to consider during our deliberations.

We understand that WSDOT has adopted the Legislature's *Least Cost Planning* approach for infrastructure funding. The SDC's composition of design, architecture, and engineering professionals allowed for a unique forum to balance conceptual decisions that promote quality design with fiscal analysis of each design alternative.

Endorsement of the Project Vision and Goals

In 2012, WSDOT developed a framework outlining their vision and goals for the SR 520 corridor in Seattle. That framework, also supported by the SDC, established a broader urban design framework beyond SR 520's role as a key regional transportation corridor. In 2014, WSDOT engaged the SDC to further define a vision and goals that specifically address the Portage Bay Bridge and Montlake Lid. The SDC continues to support WSDOT's visions and goals for this corridor. Given the complexity of these projects, their impacts at both the neighborhood and regional scale, and the importance of interdepartmental collaboration to achieve success, WSDOT's vision and goals should be the reference point for evaluating and proceeding with funding options for both the Portage Bay Bridge and the Montlake Lid.

Endorsement of and Recommendations for the Design Process

The SDC greatly appreciates WSDOT staff and their consultants for their focused design process, highly collaborative engagement, and extensive reviews with the SDC. The quality of WSDOT's presentations added much depth to the process. The SDC also appreciates the opportunity to have been part of the consultant selection for key projects within the SR 520 corridor. This collaborative approach will continue to benefit the project and is invaluable for our support of this important transportation infrastructure. We look forward to WSDOT's continued consultation with the SDC as it develops future RFPs, selects designers, and contracts projects in the corridor.

We particularly appreciate WSDOT's commitment to extend the regional multi-use trail across Portage Bay. The SDC advocated strongly for this important feature during the 2012 Seattle Community Design Process. As we revisit the Portage Bay segment of the corridor, we again thank WSDOT for their earlier work on reducing lane widths and providing flexible lanes to minimize the overall width of the bridge.

Moving forward, we hope that WSDOT will continue to engage the City of Seattle. With DPD and SDOT actively involved in design explorations, superior solutions can emerge that stitch the

freeway corridor into the urban fabric and modal networks of our city. The SDC believes that the project will suffer if WSDOT terminates its design efforts at the edge of its right-of-way. We hope the City will remain a proactive partner in order to build on the momentum of change for the benefit of the communities along the corridor.

The SDC also recommends that WSDOT continue its integrative approach towards project design, with urban design at the center of design development. We recognize the time and resources WSDOT has spent to facilitate such a comprehensive, multidisciplinary, and interagency design process. 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.

Portage Bay Bridge

Context

Portage Bay and the surrounding neighborhoods form a unique environment within Seattle. The arrangement of hills, water, and wetlands forms a curved bowl that is intimate in scale. The surrounding built environment includes large institutional uses like the University of Washington, smaller institutional and water-dependent uses in Portage Bay, and fine-grained residential development on the hillsides and in floating residences to the north. As is the case in other locations within Seattle, SR 520 passes through and touches residential neighborhoods without the buffer of large-scale commercial or industrial uses. Sensitivity to designs that buffer the freeway from the adjacent neighborhoods is thus essential to successful integration.

The Portage Bay Bridge is one of a series of bridges interspersed throughout the city. These bridges provide fundamental connections among Seattle's neighborhoods. A diversity of bridge types surrounds Portage Bay, including the high, double-deck, steel truss Ship Canal Bridge; the

ornate and historic University and Montlake Bridges; and the low-profile Evergreen Point Floating Bridge. Any new bridge at Portage Bay will (and should) acquire an equally unique identity.

Overall Recommendations

The new Portage Bay Bridge must be both a distinctive and context-sensitive element within the family of SR 520 bridges. Given its context, the bridge should appear elegant and light and enhance the unique character of Portage Bay. Bridge elements such as piers, abutments, and vertical lighting poles should complement the context without mimicking the natural, historical, or built environments. With the addition of a shared-use path, the Portage Bay Bridge helps complete regional connectivity for all modes of users from SR 202 in Redmond to I-5 in Seattle and beyond.

- To accommodate different users within the corridor, whose use varies based on speed, skill, and field of vision, consider any bridge design from all perspectives including on, above, and below the bridge and from various vantage points.
- Emphasize minimizing the appearance of the bridge deck and related infrastructure for recreational users and nearby residents.
- Consider the bridge within the context of the larger SR 520 network, particularly its role as a gateway experience both entering and leaving Seattle.
- Closely examine where each bridge section lands near Montlake Blvd E to the east and 10th Avenue E and Delmar Drive E to the west in order to integrate the project within the urban fabric of each neighborhood. Pay special attention to how the design affects deck heights at both ends and the experience and networks of cyclists and pedestrians. Connect the shared-use path up to and over the Delmar Lid as directly as possible.
- The slope of the bridge should both enhance its contextual relationship to Portage Bay and consider the needs of cyclists and pedestrians. While we recommend that WSDOT continue to study retaining the elegance of hugging the natural grade, this should not come at the expense of a consistent design for the entire Portage Bay span.
- Any bridge design should emphasize lightness in appearance and scale and complement its location within Portage Bay. This is particularly important given the size and number of columns below the deck, which should be reduced as much as possible in number and prominence.
- Integrate architectural elements within the overall design of the bridge to provide aesthetic interest and follow a structural logic.
- Design the bridge to relate to the horizon line in a logical and compelling fashion.
- Maximize the amount of natural light that reaches the water and land. To accomplish this, pursue greater horizontal separation between the east- and westbound bridge segments.

<u>Option 1: Cable Stay Bridge</u>

Background

WSDOT presented the SDC with three separate versions of a cable stay bridge over Portage Bay. Our initial review began with the two-tower version evaluated in the Final Environmental Impact Statement (FEIS). During our review, WSDOT refined the cable stay concept to include two additional bridge types—one with a single tall tower and the other with three towers of various heights. In all versions, the eastern portion of the bridge nearest Montlake is a beam bridge; this secondary bridge type reduces construction costs. Attachment A shows the cable stay designs we considered.

Analysis

Cable stay bridges offer the opportunity to reduce the amount of structure below the bridge deck. Spans can be wider, columns fewer, and the bridge deck thinner. These characteristics create a positive environment for portions of Portage Bay used for recreation purposes at or near the water and improve the overall experiential quality of the bridge. The distinctive character of cable stay bridges and their vertical elements attracts the eye and commands attention. When properly designed and sited, these elements can enhance and define their settings. However, the concept alternatives the SDC reviewed overpowered Portage Bay and its unique context. The visual impacts of these vertical elements detracted from the desirable horizontal character and lightness inherent in cable stay bridges.

Recommendations
After careful analysis, the SDC believes a cable stay bridge is not the most compelling option for Portage Bay. A small number of Commissioners felt that the time allotted for the study did not allow for a full exploration of cable stay options and that a concerted effort here could result in an appropriate design. However, weighted against other bridge types and project considerations, the majority of Commissioners believe a cable stay bridge to be the least appropriate of those presented in this study.

If WSDOT proceeds with a cable stay bridge, the SDC recommends the following:

- Maximize the cable stay technology to significantly reduce the profile of the bridge deck, size of vertical elements, and number and girth of columns in the water. The bridge should be as thin and light on the water as possible. Take great care not to create a structure that overwhelms the scale of the Portage Bay bowl.
- Leverage the bridge technology to create a dynamic and elegant formal solution to the design.
- Design the bridge lighting with consideration for the residents in the area and with the aim of elegance rather than drama.

<u>Option 2: Box Girder Bridge</u>

Background
The SDC evaluated a box girder bridge and had the opportunity to help refine the design as part of our explorations. The initial renderings presented to the SDC from the 2010 FEIS showed a bridge with a varied slope and up to 14 columns, 11 of them in the water:

As our review progressed, WSDOT refined the design to have a uniform slope, which enhances the non-motorized experience. The refined design also reduced the number of columns, resulting in reduced environmental impacts. Attachment B shows the box girder designs we considered.

Analysis
A box girder bridge is a utilitarian solution that places function above form and aesthetics. It is commonly seen as part of the American highway bridge vernacular. The box girder is bulkier and heavier at and below the bridge deck than the cable stay bridge. More columns are necessary, adding to the innate heaviness of this bridge type. Because it does not have above-deck structural elements, the box girder is horizontally oriented. While it lacks the presence of more structurally expressive bridge types, the width of the deck and location within Portage Bay will nevertheless have a visual impact that warrants careful consideration.

There are many examples of designs that have pushed the limits of this typology to achieve a higher aesthetic and contextual standard. The work of the design consultants and our experience reviewing the West Approach Bridge North make us confident that the box girder can provide an elegant, distinctive solution. The design effort should focus on maximizing the thinness and lightness of the bridge. The WSDOT team has already started to investigate reducing the number of columns and adjusting the profile of the structure to minimize the visual impacts of the bridge deck.

Recommendations
Given the analysis to date, the SDC believes that the box girder bridge has the greatest potential for success in Portage Bay. However, to fully meet the vision and goals of this project, the box girder bridge must be well funded in order to be designed *for this place and its context*.

If the budget is spare, the result will be a boxy, heavy highway bridge. Furthermore, architects and urban designers must continue to play leading roles on the project team. WSDOT's project engineers and agency leadership must continue to explore solutions that push the boundaries of standard design. An integrated team can develop and refine the box girder to be distinctive and contextual.

Additional SDC design recommendations include:

- Allocate funding commensurate to the project's unique, dense location in order to produce an exceptional bridge.
- Stretch the bounds of the box girder design to create an elegant bridge that enhances its unique location, while achieving lightness and a contemporary appearance.
- Refine the strategy for the vertical elements to add visual interest and rhythm. However, do not detract from the horizontal character and contemporary expression of the bridge.
- While the bridge should enhance the context without mimicking its historical and natural elements, do not strip the bridge of all enhancements and leave a bare box girder bridge in an effort to be contemporary.

Montlake Lid

Context

Prior to the construction of SR 520, the Montlake neighborhood was a connected community of single-family homes bounded by the Montlake Cut and Portage Bay to the north and west and the Washington Park Arboretum to the south. Today, SR 520 isolates the Shelby-Hamlin neighborhood and former MOHAI site on the north from the rest of Montlake neighborhood to the south. The junction of SR 520 and Montlake Blvd E effectively places a freeway interchange in the middle of this residential neighborhood, interfering with bicycle and pedestrian traffic across the Montlake Cut to the University of Washington and the future light rail station.

Past SDC Input

The SDC provided recommendations on the Montlake Lid concept during the 2010 EIS process and 2012 Seattle Community Design process. In 2012, the SDC recommendations to WSDOT included:

- Maximize the qualitative and functionality of the lid space.
- Prioritize non-motorized connections.
- Provide activated open spaces.
- Enhance the user experience.
- Better integrate the program within the neighborhood and its context.

To achieve these recommendations, the SDC encouraged WSDOT and the City to explore diverse design options and scales that would focus on quality over quantity, reduce the reliance on disruptive mechanical equipment, increase benefits to users and neighbors, and provide better connectivity and impact mitigation.

Endorsement of the Montlake Lid Design Refinements

The SDC endorses WSDOT's refined concept design for a "smarter" lid. This approach identifies the desired goals that the lid should achieve and then, through thoughtful moves, maximizes the planning, engineering, and design of the project to meet or exceed these goals with an emphasis on quality over quantity. Through these investigations, WSDOT balanced the SR 520 tunnel size with project goals, eliminating the need for ventilation infrastructure and operations

and maintenance facilities. This resulted in a thinner, less invasive lid that could effectively be lowered by 15 feet.

Above all, the smarter lid concept achieves the following key benefits:

1. Enhanced regional connectivity
The smarter lid does not merely become a destination; the reductions in grade improve multimodal connections along the SR 520 corridor, across the Montlake Cut, and through the neighborhood. The primary north–south pedestrian and bicycle connection takes on a more direct alignment *above* rather than *beneath* the highway, at a lower slope, and with greater visual connection to the University of Washington. This allows the shoreline trail under SR 520 to become an overwater boardwalk with better visibility and connections to the Arboretum and Foster Island. Finally, the refined design improves on the previous east–west connections to, from, and across the lid.

2. More useable open space
The design and programming of open space in the refined concept focuses on quality usable spaces over quantity. The goal is to provide meaningful activity and not promote unintended uses. Spaces are functional, safe, and thoughtfully placed within the context of the neighborhood and the network of paths and trails. Lowering the lid height improves visibility and physical access and eliminates the need for large ventilation stacks that break up the open space and decrease its functionality.

The refined design goes beyond the lid and thoughtfully integrates the stormwater facility at the former MOHAI site as additional green space within East Montlake Park. This capitalizes on stormwater infrastructure and captures it as an element of the open space network that will extend north from the Arboretum toward the Montlake Triangle and Burke-Gilman Trail.

3. Enhanced view corridors
The project team studied grades and landscape elements to buffer views of the highway and control roadway noise. Lowering the overall height of the lid maintains visual connectivity throughout the neighborhood and from Lake Washington Blvd E.

4. Improved transit, bicycle, and pedestrian experiences
The design refinements improve the experience of pedestrians, cyclists, and transit users through better undercrossings, enhanced site design, and greater connectivity. The project team enhanced the pedestrian experience along Montlake Blvd E by expanding the lid to the west to create a larger vegetated buffer between pedestrians and SR 520 and shortening pedestrian crossings in this area.

Pathways across the lid were aligned to create convergence zones at two critical points: near Montlake Blvd E in the form of urban trailhead and where the landbridge meets 24th Ave E. This enhances non-motorized connections, improves transit access, and activates open space.

In addition, the concept refinements enhance the safety, functionality, and overall character of the Bill Dawson trail by easing the grades, adjusting the trail alignment, improving sightlines, and providing alternative routes.

5. Improved integration within the Montlake neighborhood fabric.
The reduced height, buffering of SR 520, and enhanced physical and visual connectivity of the smarter lid create more seamless connections with the neighborhood. The landbridge connection replaces the large retaining wall along the north side of SR 520 and creates an enhanced landscaped edge.

Moving east to west along the SR 520 corridor, the landbridge and lid create a series of thresholds that transition from the large landscape of Lake Washington to the urban fabric of the city.

Recommendations for Further Design Development
While the SDC is very encouraged by the changes resulting from the smarter lid approach, this approach also creates design challenges. As the SDC evaluated this updated approach, we also provided a number of key recommendations to guide WSDOT and the City in further development of the project.

1. Environment

- Strengthen the sustainability strategy for the project as a whole, particularly as it relates to stormwater, materiality, constructability and the integration of the project into our larger network of open space and habitat.

2. Enhance the Sequential Gateway Experience

- Consider the SR 520 as a succession of elements—the floating bridge, West Approach Bridge North, landbridge, Montlake Lid, Portage Bay Bridge, Delmar Lid—that together create a larger gateway experience as one moves into or out of our City. Consider the Montlake Lid as part of this series of thresholds and clarify how it fits within that context. The sequence of the landbridge and tunnel should work together to create this threshold experience. Consider materiality, movement through the tunnel, and the moment of emerging from under a structure to see Foster Island or Portage Bay.
- In addition to east–west movement, consider the experience of thresholds moving north to south along Montlake Blvd E and throughout the network of paths on the lid and landbridge.

3. Strengthen Connectivity and Wayfinding

- Develop a clear hierarchy for the paths and trails that transect the lid. This hierarchy should be weighted to clearly indicate how paths connect to nearby and regional destinations. Consider how people will connect to the Burke-Gilman Trail, Arboretum, and future transit hub at the Montlake Triangle.
- Continue to study grades, visual connections, desire lines, and buffers between bicyclists, pedestrians, and vehicular traffic. Pay particular attention to the pinch points where 24th Ave E crosses Lake Washington Blvd E and where the Bill Dawson Trail connects to E Roanoke St.

4. Landbridge

- Continue to study the landbridge typology. The bridge profile should be unique and expressive without resembling typical highway infrastructure. Topography and vegetation should provide a unique experience from all angles.
- Resolve where the landbridge connects to the land at both ends and how it emerges from the landscape. On the deck of the landbridge, explore widening the east edge to provide adequate width for generous landforms and vegetation. Continue to develop moments for pause and views, and provide opportunities to look eastward towards Lake Washington.

5. West Lid

- The “urban trailhead” area works as a strong placemaking gesture. Its success, however, is crucial to the function of the lid as a hub within the city. It will be important to proactively develop the kiosks and program the space to activate it and achieve the desired civic outcomes.
- Continue to focus on developing quality public space, especially at the west end of the lid. Provide a good experience for non-motorized users moving across the lid and along 24th Ave E. To that end, consider increasing the amount of lid on the east side of Montlake Blvd E at 24th Ave E.

6. Montlake Boulevard

- Give as much attention to the design articulation of the west side of Montlake Blvd E as to the east side. This is a major non-motorized route that links transit to the north with the heart of Montlake to the south. It is also a desire line between Capitol Hill and the UW.
- Work with the property owner of the gas station site at Montlake Blvd E and Lake Washington Blvd E to win space for transit users, cyclists, and pedestrians.
- Continue to explore the idea of providing a bike and pedestrian bridge over the Montlake Cut at a point close to where 24th Ave E would transect the waterway. This would strengthen the connective function of the landbridge within the larger north–south continuum between the Arboretum and the University of Washington. The SDC has not thoroughly analyzed the question of a second bascule bridge, but in 2010 we recommended that, if constructed, the second bascule bridge be limited to pedestrian, cyclist, and transit use. A separate pedestrian/bicycle bridge over the Cut further east would help alleviate pressure for a crossing close to the existing historic bridge. It would also relieve pressure on Montlake Blvd E between SR 520 and the Montlake Triangle.

7. Ramps to Nowhere

Though not part of this review or our review of the West Approach Bridge North, the SDC supports the idea of retaining a part of the “ramps to nowhere” at the Arboretum that are slated for removal.

The ramps to nowhere are existing structures that relate to former plans to extend a freeway through the Arboretum and the successful fight to stop those plans. The ramps represent an important time in Seattle’s history and express a key personality trait of our city. Furthermore, their presence has created unique experiences from the “unauthorized” pedestrian access to the ramps, providing elevated views of the lake and opportunities to jump into the water. This attracts spectators regularly. The structures provide an interesting sense of scale and a unique contrast between the softness of nature and hardness of infrastructure. The ramps to nowhere offer thought-provoking irony and ties to our history that, with further public art interventions

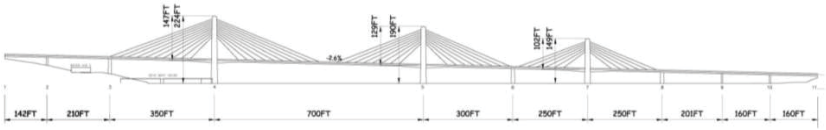
and safety and access improvements, could preserve and strengthen this extraordinary place in the history of our city.

We recommend that the State and City explore the idea of retaining part of the ramps to nowhere. They are located where plans are underway to expand recreational use as part of the Arboretum North Entry project. There is an important opportunity to enrich that design of that project with these socially significant relics of the past.

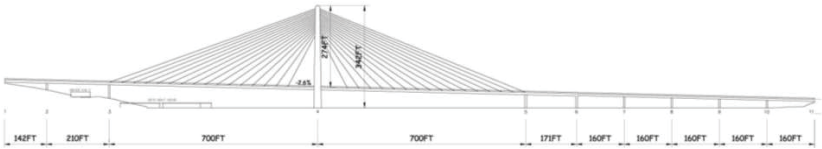
In closing, the SDC greatly appreciates the time and commitment that WSDOT and the City have made in presenting this project. As the project proceeds, we look forward to continued involvement.

CC: Diane Sugimura, DPD Director
Scott Kubly, SDOT Director
Nathan Torgelson, DPD Deputy Director
Lyle Bicknell, DPD
Bernard Van De Kamp, SDOT
Kerry Pihlstrom, WSDOT

Attachment A
Cable stay bridge designs presented to the SDC



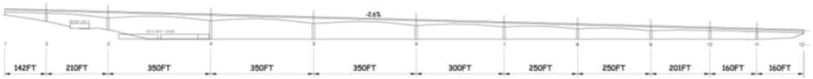
July 8, 2014 – three towers of varied heights (102, 129, and 147 feet above bridge deck) and uniform 2.6% grade



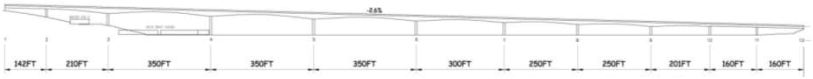
June 17, 2014 – one tall tower (274 feet above bridge deck) and uniform 2.6% grade

FEIS Baseline Design – two towers of equal height (each 216 feet above bridge deck)

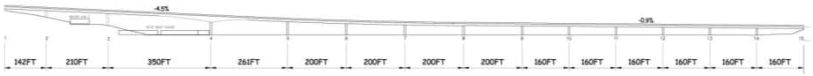
Attachment B
Box girder bridge designs presented to the SDC



July 8, 2014



June 17, 2014



FEIS Baseline Design

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APPENDIX F

WEST SIDE OPERATIONAL REQUIREMENTS AND COMMITMENTS

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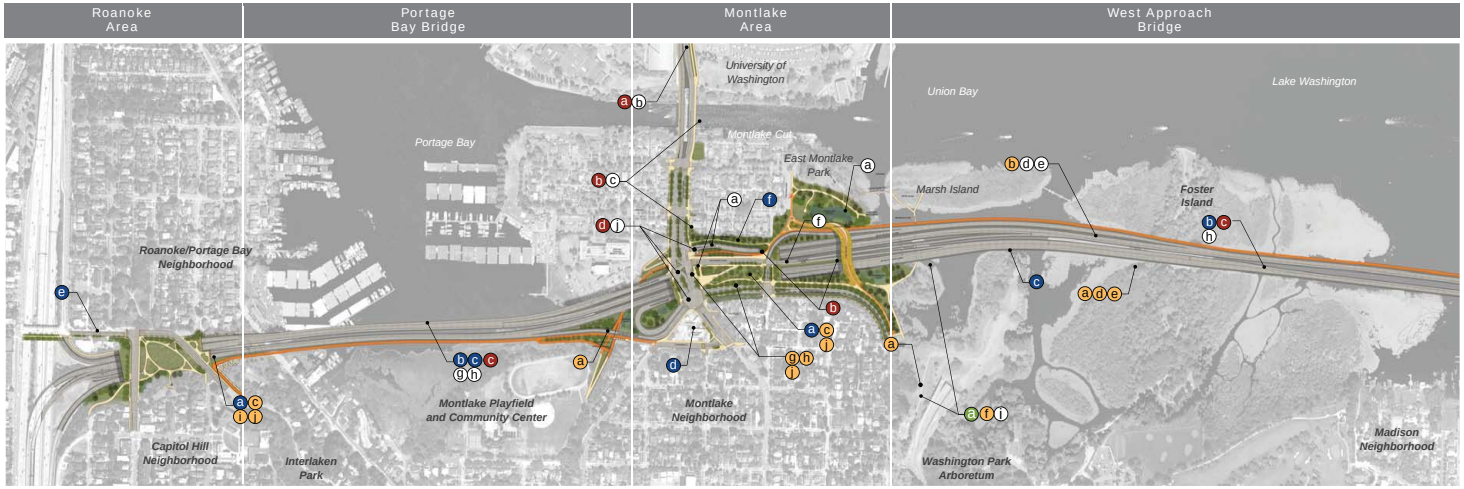
APPENDIX F

WEST SIDE OPERATIONAL REQUIREMENTS AND COMMITMENTS (per FEIS including Section 106)*



Neighborhoods

- √ Narrow the footprint of the corridor through the neighborhoods.
- √ Minimize impacts to neighborhoods during construction.
- a Add lids to reconnect neighborhoods.
- b Incorporate aesthetic treatment on bridge structures and engage Context-Sensitive Solutions approach.
- c Reduce noise to the extent possible by using noise walls, noise barriers and other innovative methods.
- d Minimize impacts on the Montlake Market grocery store.
- e Enhance bicycle and pedestrian connection over I-5.
- f Re-establish a visual buffer on or adjacent to the remaining Canal Reserve lands.

Natural Environment

- √ Treat stormwater to meet current stormwater design and treatment standards.
- √ Minimize emissions and provide incentives for transit riders.
- √ Minimize impact to fish and wildlife habitat and mitigate effects.
- √ Retain as much mature vegetation as possible.
- a Remove existing R.H. Thomson and Lake Washington Boulevard ramps.

Mobility

- √ Build a six-lane configuration with 4 general-purpose lanes and two transit/HOV lanes with narrower shoulders.
- a Provide efficient connections for buses to/from the U-LINK station and SR 520.
- b Provide grade-separated pedestrian crossing to U-LINK station.
- c Improve bicycle and pedestrian connection at the Montlake/SR 520 interchange and across the Montlake Cut.
- d Build a structure that accommodates future light rail transit.
- e Provide bicycle and pedestrian connections across Lake Washington.
- f Provide direct-access transit/HOV ramps to/from the east to Montlake.
- g Narrow width, lower height and incorporate a managed shoulder on Portage Bay Bridge.
- h Reduce the number of in-water bridge columns.
- i Replace Lake Washington Boulevard ramp function with managed access at 24th Avenue.
- j Remove free right vehicle turning movements and replace with signalization.

Parks and recreation

- √ During construction, minimize effects to Opening Day of boating season.
- a Minimize effects on the Arboretum and other parklands adjacent to the corridor.
- b Provide canoe access underneath SR 520 in Union Bay.
- c Add lids to provide open space.
- d Minimize impacts to the historical Foster Island.
- e Revegetate right-of-way on Foster Island with native vegetation of ethnobotanical significance to affected tribes.
- f Remove existing R.H. Thomson and Lake Washington Boulevard ramps.
- g Ensure that changes to Lake Washington Boulevard consistent with the City of Seattle Olmsted park furniture standards.
- h Reflect the historical connection between Montlake Boulevard and Lake Washington Boulevard, including Olmsted design principles in Montlake lid plantings.
- i Design 10th and Delmar lid to be compatible with Roanoke Park Historic District and incorporate Olmsted characteristics.
- j Provide signage about the Alaska-Yukon-Pacific Exposition, the evolution of Olmsted design and Montlake Boulevard and Roanoke, and the effects of SR 520 on that landscape.

Safety

- √ Move forward with the replacement of SR 520 as a six-lane corridor.
- √ Provide sufficient space for stalled vehicles and emergency access along the corridor.
- a Provide grade-separated pedestrian crossing to U-LINK station.
- b Improve bicycle and pedestrian connection at the Montlake/SR 520 interchange and across the Montlake Cut.
- c Replace vulnerable structures.
- d Remove free right vehicle turning movements and replace with signalization.

√ = applicable project-wide

* NOTE: A complete list of project requirements and commitments can be found in the SR 520 ***Final Environmental Impact Statement*** (2011) and the ***Record of Decision*** (2011). See also the ***Section 106 Programmatic Agreement*** in the Final EIS. http://www.wsdot.wa.gov/Projects/SR520Bridge/EIS.htm

City of Seattle Washington State Department of Transportation

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APPENDIX G
REFERENCE DOCUMENTS

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APPENDIX G

REFERENCE DOCUMENTS

Seattle Design Commission Memorandum: Recommendations for the Portage Bay Bridge and Montlake Lid components of the SR 520 Replacement Project
September 17, 2014
http://www.seattle.gov/dpd/cityplanning/designcommission/cs/groups/pan/@pan/@designcommission/documents/web_informational/p2194279.pdf

WSDOT Toll Division Annual Report FY 2013
March 2013
http://www.wsdot.wa.gov/NR/rdonlyres/348E3EED-1D8F-44CC-AC1E-2A9EBD45774F/0/TollDivisionAnnualReport_FINAL_031114_WEB.pdf

Seattle Community Design Process Final Report
December 20, 2012
http://www.wsdot.wa.gov/projects/sr520bridge/i5tomedina/scdp.htm#KeyReports

http://www.wsdot.wa.gov/NR/rdonlyres/A22AD830-500A-46C1-B6A7-9D0F9FD54ED9/0/2012_1220_SR520_FinalReport_11x17_OneFile.pdf

Establishment of Triggers: Second Montlake Bridge Workgroup
June 2012
http://seattletransitblog.com/wp-content/uploads/2012/09/FinalReport2ndBasculeBridgeWithAttachments.pdf

Seattle Community Design Process Public Comment Summary
November 2011
http://www.wsdot.wa.gov/projects/sr520bridge/i5tomedina/scdp.htm#KeyReports

http://www.wsdot.wa.gov/NR/rdonlyres/DD9C4D99-7061-40C4-B55C-C60E8CF49C14/0/2012_SCDP_CommentPeriod_FullSummary_Final.pdf

SR 520/City of Seattle Memorandum of Understanding
Oct. 28, 2011
http://clerk.seattle.gov/~scripts/nph-brs.exe?s1=&s3=117303&s4=&s2=&s5=&Sect4=AND&l=20&Sect2=THESON&Sect3=PLURON&Sect5=CBORY&Sect6=HITOFF&d=ORDF&p=1&u=/~public/cbory.htm&r=1&f=G

Record of Decision
August 2011
http://www.wsdot.wa.gov/Projects/SR520Bridge/EIS.htm#ROD

SR 520, I-5 to Medina Project Final Environmental Impact Statement (FEIS)
June 2011
http://www.wsdot.wa.gov/Projects/SR520Bridge/EIS.htm#FEIS

SR 520 Bridge Architectural Design Principles
January 2011
http://www.wsdot.wa.gov/NR/rdonlyres/D7F6D0AB-377B-49FF-A56A-9EB5BD0CFB78/0/SR520_FBL_Appendix_L02_01_Addm04.pdf

ESSB 6392 Workgroup (ESSB 6392: Design Refinements and Transit Connections Workgroup: Recommendations Report and Washington Park Arboretum Mitigation Plan)
October 1, 2010 and December 22, 2010
http://www.wsdot.wa.gov/NR/rdonlyres/71503308-669C-4FCC-BFA3-5F3CCAB11F80/0/2010_1001_WG_LegReport_Final.pdf

http://www.wsdot.wa.gov/NR/rdonlyres/91999CA6-DCEB-41BA-91ED-D8DEDDE87EE2/0/ArboretumMitigationPlan_FINAL_122210.pdf

Supplemental Draft Environmental Impact Statement
January 22, 2010
http://www.wsdot.wa.gov/Projects/SR520Bridge/EIS.htm#SDEIS

Westside Project Impact Plan (or ESSB 6099 report)
December 2008
http://www.wsdot.wa.gov/NR/rdonlyres/FD796AFD-25DC-4D76-807E-F74D7F818F1E/0/FINALSR520PIP122908.pdf

Draft Environmental Impact Statement
August 11, 2006
http://www.wsdot.wa.gov/Projects/SR520Bridge/DraftEIS.htm

Seven 'S' of Olmsted's Design
January 1986
http://www.olmsted.org/the-olmsted-legacy/olmsted-theory-and-design-principles/seven-s-of-olmsteds-design

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APPENDIX H

COMMUNITY ORGANIZATION LETTER SUMMARIES

APPENDIX H

COMMUNITY ORGANIZATION LETTER SUMMARIES

The pages that follow provide summaries of letters received from community organizations and other organizations regarding the 2014 design work, including concepts shared at Seattle Design Commission briefings, Seattle City Council Transportation Committee briefings, and the Sept. 11 SR 520 West Side Design Public Open House. Letters are listed by date received and highlight key feedback regarding the design concepts explored in 2014.

Respect Seattle (7/17/14):

General

- Support WSDOT receiving full funding for the Seattle side of the SR 520 corridor before any construction begins. Support completion of all mitigation projects included in the SR 520, I-5 to Medina EIS.
- Support noise-reduction measures, including noise-absorptive material on highway medians, coated expansion joints, and quieter pavement.
- Traffic impacts continue to be a concern, and the new design should help improve traffic conditions for Seattle residents.

Non-motorized connections

- Bicycle and pedestrian connections should be seamless.

Portage Bay Bridge

- Support the box girder bridge type. The box girder bridge type allows for more views above the bridge deck, is more compatible with the surrounding neighborhood and historic character and is more cost-effective.
- The bridge design should be consistent with the Olmsted legacy.

Montlake area

- Support reducing the span of the lid in order to eliminate the need for ventilation stacks. Suggest that the span of the lid expand to cover the off-ramps to Montlake Boulevard East.
- Maintenance of the lid needs to be determined.

Montlake Greenways, Madison Greenways, Central Seattle Greenways (9/11/14):

(supported by Seattle Neighborhood Greenways and Cascade Bicycle Club)

General

- The project design is improved, although additional design work is needed.

Montlake area

- Create a direct and comfortable bicycle and pedestrian connection for users of all ages and abilities extending from the Central Area greenway to the University of Washington Medical Center on the west side of Montlake Boulevard East.
- Improve bicycle and pedestrian access across the Montlake Cut.
- Support a bicycle and pedestrian-only bridge across the Montlake Cut.
- Reclaim Montlake Boulevard East as part of the Olmsted legacy.
- Support a multi-use trail, expanded sidewalk and a protected bike lane.
- Prevent cut-through traffic in the Montlake neighborhood while at the same time creating safe routes to schools, parks, transit stops, and business districts. Key locations for specific improvements are listed.

Roanoke area

- Create a seamless, comfortable connection from the regional shared-use path on the Portage Bay Bridge to Federal Avenue East and 10th Avenue East for bicyclists and pedestrians of all ages and abilities.
- Provide a protected bike lane along Delmar Drive East and East Roanoke Street between the Portage Bay Bridge Trail and the Capitol Hill and Eastlake neighborhoods.

Portage Bay/Roanoke Park Community Council (9/11/14):

Portage Bay Bridge

- Request that the bridge design is compatible with the context of the surrounding districts and that modern concepts are avoided.
- Preference for the box girder bridge type.
- Request that the community efforts to make the under-bridge area at Boyer Avenue East safe are continued once the new bridge is constructed. The under-bridge area should be activated with lighting and the design of the area should be conducive to active uses.
- Request that the arch over Boyer Avenue East receive special design attention. The arch could represent a welcoming portal to the Montlake and Portage Bay/Roanoke Park neighborhoods.

Seattle Design Commission (9/17/14)

(See Appendix I for the complete text of the memorandum.)

Vision and goals

Support WSDOT's vision and goals for the SR 520 corridor in Seattle, which should be used as reference points for evaluating the project design.

Process

- Appreciate WSDOT's continued coordination with the Seattle Design Commission and look forward to continued participation as the SR 520 project moves forward.
- Encourage WSDOT and the city of Seattle (including the Departments of Transportation and Planning and Development) to continue working together to integrate the SR 520 project design within the city of Seattle. The city should remain a proactive partner.
- Request that WSDOT continue its integrative approach to project design with urban design at the center of the design development.

Corridor-wide

- Strengthen the project's sustainability strategy, including stormwater, materiality, constructability and the integration of open space and natural habitat.
- Enhance the sequential gateway experience across the SR 520 corridor and the integration of individual project elements within that context (east-west). Also consider the north-south experience.
- Strengthen connectivity and wayfinding, including clearly indicating how paths on the Montlake lid will connect to nearby and regional destinations. Continue to study grades, visual connections, desire lines and buffers between bicyclists, pedestrians and vehicles.

Other

- Support retaining a part of the Ramps to Nowhere, including opportunities to integrate the ramps into the Arboretum North Entry project.

Portage Bay Bridge

- Appreciate the continuation of the regional shared-use path across Portage Bay Bridge as well as WSDOT's effort to reduce the overall width of the bridge, including reducing lane widths.
- The new Portage Bay Bridge must be both a distinctive and context-sensitive element within the family of SR 520 bridges. The bridge should appear elegant, light, and enhance the unique character of Portage Bay. Guidance for specific bridge elements is provided in the memo.
- The cable stay bridge is not the most compelling option for Portage Bay.
- The box girder bridge has the greatest potential for success in Portage Bay. In order to meet the project vision and goals, a box girder must be well-funded and well-designed in order to fit within the context of Portage Bay and the surrounding area.
- WSDOT should continue to use an integrated team of architects and urban designers to refine the bridge design and explore solutions that push the boundaries of standard design to develop a bridge that is distinctive and contextual.

Montlake lid area

- Endorse the "smarter lid" concept and the emphasis on quality over quantity. The smarter lid achieves the following benefits (specific examples are provided in the memo):
  - Enhanced regional connectivity.
  - More usable open space.
  - Enhanced corridor views.
  - Improved transit, bicycle, and pedestrian experiences.
  - Improved integration within the Montlake neighborhood fabric.
- Continue to study the typology of the land bridge. It should be unique and expressive. Also, further evaluate how the land bridge connects on both ends and opportunities for viewpoints and vegetation.
- Activate the urban trailhead and provide a good experience for non-motorized users traveling across the lid. Consider expanding the lid east at 24th Avenue East.
- Ensure quality design on both the east and west sides of Montlake Boulevard East, and continue to look for opportunities to improve bicycle and pedestrian facilities in the area.
- Continue to evaluate a separate bicycle and pedestrian bridge over the Montlake Cut to the east of the existing bridge. If a second bridge is built adjacent to the existing bridge, it should be for cyclist, pedestrian, and transit use only.

Montlake Community Club Board of Trustees (9/18/14):

Montlake area

- Support the reduction of the lid size, which eliminates the need for ventilation stacks and an operations and maintenance facility.
- Support widened sidewalks on Montlake Boulevard East.
- Support the traffic signal at the intersection of the SR 520 off-ramps to northbound Montlake Boulevard East and the additional lane on the eastbound off-ramp at Montlake Boulevard East. Also support the additional lane on the eastbound off-ramp at the exit of Montlake Boulevard East.

Non-motorized connections

- Support the wide bicycle and pedestrian paths on the Montlake lid to connect the Shelby/Hamlin neighborhood to the southern portion of the Montlake area.
- Support improvements to the Bill Dawson Trail, including connections to the 22nd Avenue East greenway and the SR 520 regional shared-use path.
- Support a new bicycle and pedestrian bridge across the Montlake Cut to the east of the existing bascule bridge.
- Support a new path from the Bill Dawson Trail along the Portage Bay shore, extending between NOAA Northwest Fisheries Science Center and the Seattle Yacht Club to connect to West Montlake Park and the western portion of the Shelby/Hamlin neighborhood.
- Additional north-south bicycle and pedestrian improvements are needed for the west side of Montlake Boulevard East. Separating bicyclists and pedestrians from traffic on Montlake Boulevard East is a priority for the community.

Seattle Pedestrian Advisory Board (9/23/14):

Non-motorized connections

- The final concept design shows improved neighborhood non-motorized connections and regional connections to major employment, education and recreational destinations.
- The urban trailhead provides safer, friendlier, and more intuitive pedestrian crossings, connections and shared-use paths that can help accommodate all non-motorized users. It also maintains and improves transit connectivity.
- The refinements to the amount of infrastructure and associated mechanical and maintenance systems will greatly improve the bicycle and pedestrian experience and environment.

Queen City Yacht Club (10/14/14):

General

- Support preserving the character of the neighborhoods surrounding SR 520.

Portage Bay Bridge

- Support the north shift of the west end of the bridge to help reduce the construction duration of the Portage Bay Bridge, provided that WSDOT works with the Queen City Yacht Club to ensure that construction effects are appropriately addressed and that the operation of the Club can continue after the bridge is constructed.
- Interest in ensuring that a Community Construction Management Plan is developed prior to construction beginning in the area and would like to remain involved as the plan is developed.

Northeast District Council (10/15/14):

Portage Bay Bridge

- Support Sept. 11, 2014 letter from the Portage Bay/Roanoke Park Community Council regarding the Portage Bay Bridge design plans.
- Portage Bay Bridge should preserve continuity between the historic districts of the Portage Bay and Roanoke neighborhoods.
- The under-bridge area should be activated with welcoming lighting and design. The arch over Boyer Avenue East should receive special design attention.

Arboretum and Botanical Garden Committee (10/28/14):

Montlake area

- Support the reduced size of the lid, elimination of the operations and maintenance facility, creation of better connections between the University of Washington campus, the Washington Park Arboretum and surrounding neighborhoods and improvements to the character and usability of open space on the lid.
- Request that WSDOT and the project design team consider the following key elements as the design is finalized:
  - Continue the historical, aesthetic and design integrity of the Washington Park Arboretum within the SR 520 project.
  - Use high-quality design standards and materials, and take advantage of educational opportunities. Ensure that the design of project elements, including the land bridge, is not compromised by budget constraints.
  - Provide comprehensive and well-integrated wayfinding systems on bicycle and pedestrian networks.
  - Strengthen connections between the University of Washington Link Light Rail station and the Arboretum.

APPENDIX I

SEATTLE CITY COUNCIL RESOLUTION 31427

APPENDIX I

SEATTLE CITY COUNCIL RESOLUTION 31427

City of Seattle Legislative Information Service

Information retrieved on May 8, 2014 9:11 AM

Resolution Number: 31427

A RESOLUTION relating to the State Route 520 Interstate 5 to Medina Bridge Replacement and High Occupancy Vehicle Project; recognizing the completion of the Seattle Community Design Process and recommending actions by the City of Seattle and State of Washington based on results of this process.

Status: *Adopted*
Date adopted by Full Council: *February 11, 2013*
Vote: *8-0 (excused: Clark)*

Date introduced/referred to committee: *January 22, 2013*
Committee: *SR 520*
Sponsor: *CONLIN*
Committee Recommendation: *Adopt as Amended*
Date of Committee Recommendation: *February 4, 2013*
Committee Vote: *9-0*

Index Terms: *SR-520, HIGHWAYS, BRIDGES, MEDINA, INTERLOCAL-AGREEMENTS, DEPARTMENT-OF-TRANSPORTATION-WASH-STATE, TRANSPORTATION-PLANNING, REGIONAL-PLANNING*

References/Related Documents: *Related: Ordinance 123733*

Fiscal Note: *Fiscal Note to Resolution 31427*

Electronic Copy: *PDF scan of Resolution No. 31427*

Text

CITY OF SEATTLE

RESOLUTION _____

A RESOLUTION relating to the State Route 520 Interstate 5 to Medina Bridge Replacement and High Occupancy Vehicle Project; recognizing the completion of the Seattle Community Design Process and recommending actions by the City of Seattle and State of Washington based on results of this process.

WHEREAS, Ordinance 123733, passed in October 2011, authorized execution of a Memorandum of Understanding (MOU) between the Washington State Department of Transportation (State) and the City of Seattle (City) regarding State and City roles, responsibilities and future actions in the State Route 520 Interstate 5 to Medina Bridge Replacement and High Occupancy Vehicle Project (Project); and

WHEREAS, Section 2.3.5 of the MOU stated that the State and City intended to coordinate with City neighborhoods, King County Metro, Sound Transit, the University of Washington, the Seattle Bicycle Advisory Board, the Seattle Pedestrian Advisory Board and the Seattle Design Commission in a Seattle Community Design Process (Process) for community amenity and lid design features within the Project limits; and

WHEREAS, the State organized and led the Process as intended by the MOU, consistently with the Preferred Alternative and baseline design features and environmental footprint of the Project as approved by the Federal Highway Administration's Record of Decision; and

WHEREAS, in September 2012 the State issued a draft report on the results of the Process and solicited public comments on the report, in October 2012 issued a report on the public comments received, and in December 2012 issued the Final Report on the Process; and

WHEREAS, in October and November 2012 , the State briefed the City Council on the Process and these reports, and the Council itself received public comments on the Process and on the design recommendations resulting from it; and

Washington State Department of Transportation City of Seattle

WHEREAS, Section 1.1.5 of the MOU calls for the City to maintain a meaningful role throughout the Project design process, Section 2.1.15 says the State will consult with the Seattle Design Commission, Seattle Bicycle Advisory Board, Seattle Pedestrian Advisory Board, and City neighborhood groups on design and construction of the Project as necessary or requested by the Parties, and Sections 2.3.3, 2.3.4 and 2.3.5 say the State and the City will continue to consult with community members on a variety of aspects of the Project design; NOW, THEREFORE

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SEATTLE, THE MAYOR CONCURRING, THAT:

Section 1. The City recognizes that the Seattle Community Design Process (Process) intended by Section 2.3.5 of the Memorandum of Understanding (MOU) between the Washington State Department of Transportation (State) and the City authorized by Ordinance 123733 is complete and fulfills the intent of that section of the MOU.

Section 2. The City endorses the general vision expressed in the December 2012 Final Report on the Process (Report) and concurs with the following specific recommendations from the Report, as they are described in the Report:

A. Roanoke Area

(1) A 30-foot wide landscaped bicycle and pedestrian shared use path should be constructed across Interstate 5.

(2) The intersection of 10th Avenue East and Delmar Drive East should have a "T" design.

(3) The lid at 10th Avenue East and Delmar Drive East should be blended into the hillside on the south side and should include bicycle and pedestrian paths, while ensuring safe public spaces and privacy for adjacent neighbors.

(4) There should be an accessible pedestrian connection between Delmar Drive East and Boyer Avenue East.

B. Portage Bay Bridge

(1) In order to reduce the time required to construct the Portage Bay Bridge, the west end of the bridge should be shifted to the north from the position described in the Preferred Alternative in the Final Environmental Impact Statement on the Project provided that the State works with the Queen City Yacht Club to ensure that any effects to the Club during construction are appropriately addressed and that operation of the Club (including Dock 3) can continue after the bridge is constructed. The City requests that the State continue to consult with the Seattle Design Commission, Seattle Bicycle Advisory Board, Seattle Pedestrian Advisory Board and neighborhood residents on the specific design and impacts of the shift.

C. Montlake Area

(1) In the Canal Reserve area, the westbound off-ramps under 24th Avenue East should be lowered and the shared-use path should be shifted to the south.

(2) East Lake Washington Boulevard should be designed so that neighbors are buffered from traffic, the appearance of the roadway is improved, and the size of the planted buffer between the roadway and homes on the south side is increased in order to integrate the roadway with the Arboretum.

(3) At the stormwater facility, a wetland facility should be constructed that is integrated with East Montlake Park and the shoreline.

Section 3. The City and State should continue to develop and evaluate options with respect to the following issues and recommendations in the Final Report:

A. Roanoke Area

(1) The Bagley Viewpoint should be expanded if possible, and should include significant green space and provide unobstructed views. The City and State should continue to review the adequacy of on-street parking along Delmar Drive East to meet demand for use of the viewpoint and the lid at Delmar Drive East and 10th Avenue East.

B. Portage Bay Bridge

(1) The City supports providing a bicycle and pedestrian path on the Portage Bay Bridge. The City also continues to support a bridge design that minimizes the width of the bridge and its overall visual and environmental impacts while preserving a reliable transit pathway across the bridge and to and from Interstate 5. Further, the utility of a bicycle and pedestrian path on the bridge requires good quality connections at the ends of the bridge to the network for bicycle and pedestrian travel. Thus the City requests that the State develop options for a path on the bridge with these goals in mind and cooperate with the City in developing options for related improvements to the network.

(2) The City requests that the State continue to refine and analyze the two options for bridge type, namely, box girder and cable stay. This should include reviewing and if necessary updating the engineering assumptions for each type, continuing to

evaluate options to minimize the width and overall visual impact of each, developing options for including a bicycle and pedestrian path in each, and refining cost estimates for each accordingly. The City requests that the State discuss these options with and consider the views of the Seattle Design Commission in this analysis.

C. Montlake Area

(1) The City and State should reexamine and consider a wider range of options for the Montlake Lid. This analysis should consider how the lid can best support connections for pedestrians, bicyclists and transit users, including uninterrupted connections across the lid and westbound SR 520 off-ramps. It should consider how the lid can best reduce the impacts of roadway sound and make good visual connections among the neighborhoods. It should consider how alternative lid designs can best support active and passive uses of the lid itself, and should define the requirements for managing the space on the lid to support and ensure positive uses. It should estimate the costs of these options. The City and State should solicit the advice of the Seattle Design Commission on these options.

(2) The City and State should refine the designs of and connections currently provided by the Bill Dawson Trail and East Portage Bay Underbridge Area to make these connections direct, safe and comfortable.

D. Bicycle, pedestrian and multimodal connections generally

(1) The City and State should continue to pursue improvements in bicycle and pedestrian connections for people of all ages and abilities in the entire area covered by the Process and Report, including Montlake Boulevard. This includes improving the functionality, safety and attractiveness of bicycle and pedestrian facilities by creating clear and seamless routes and making good connections to transit and existing and planned trails and neighborhoods surrounding the area.

(2) The City and State should collaborate with King County Metro, Sound Transit and the University of Washington to refine multimodal connections to and within the State Route 520 corridor. These refinements should be consistent with existing and prospective plans for transit and for bicycle and pedestrian routes, and should consider access, mobility and safety, with the overall goals of eliminating gaps in the system and maintaining and enhancing existing networks in the city.

Section 4. The City requests that the State construct the West Approach Bridge following the design recommendations in the Report and those of the Seattle Design Commission. This includes a simple, clean structural design with a regional bicycle and pedestrian path. Consistent with the Report, the bridge should be constructed on the assumption that access to East Montlake Park from 24th Avenue East will be limited to bicycles and pedestrians.

The City also requests that the State develop an interim design for the connection between the West Approach Bridge and the Montlake Area, including all transportation connections and connections among open spaces in the Area. The interim design would have several purposes. One is to ensure that these connections work as well as possible in the interim period between the construction of the bridge and the funding, design and construction of the other transportation improvements and related amenities in the Area. Another is to ensure that the choices necessarily made in the construction of the bridge do not unduly constrain the options for the other transportation improvements and amenities in the area, including but not limited to the Montlake Lid. A third is to ensure that the impacts of the bridge and the Project as a whole on the neighborhood and the community are adequately mitigated in the interim period.

Section 5. The City intends to implement two general recommendations of the Seattle Design Commission for the subsequent design processes in the Project area. These are that the City assign a "Champion" as a single coordinating voice for the Project across all City departments and that the Commission itself have ongoing involvement in these designs.

Section 6. The City requests that prior to finalizing the design for the Portage Bay Bridge the State consider changed conditions that may affect performance for all modes of transportation and review this information with the City.

Section 7. The City urges the State Legislature to provide sufficient funding to the State Department of Transportation for its share of the work described in Sections 1-4 of this Resolution. This includes funding the development of additional information that is necessary and sufficient for these design decisions, and funding the development of any required design refinements when construction funding is available.

Adopted by the City Council the ____ day of _____, 2013, and signed by me in open session in authentication of its adoption this_____ day

of _____, 2013.

_____

President _____of the City Council

THE MAYOR CONCURRING:

_____

Michael McGinn, Mayor

Filed by me this ____ day of _____, 2013.

_____

Monica Martinez Simmons, City Clerk

(Seal)

Michael Fong, Peter Harris LEG SR 520 Seattle Community Design Process RES February 6, 2013 Version #4