Agenda
Seattle Design Commission Briefing
Thursday, July 17, 2014, 1:30 to 4:30 p.m.
Seattle City Hall, Bertha Knight Landes Room, 600 4th Ave., Seattle, WA

Purpose: Review vision, goals, criteria and evaluation of Portage Bay Bridge concepts.

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Who</th>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Review objectives and agenda</td>
<td>Andrew Glass Hastings Lyle Bicknell</td>
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<td></td>
<td>• Requested SDC action: Endorsement of vision, goals, criteria and evaluation</td>
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<tr>
<td>1:40 p.m.</td>
<td>West side design process overview</td>
<td>Kerry Pihlstrom</td>
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<td></td>
<td>• Building from 2012 Seattle Community Design Process</td>
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<td></td>
<td>• Advancing conceptual design</td>
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<tr>
<td>1:45 p.m.</td>
<td>Portage Bay Bridge design discussion</td>
<td>Kerry Pihlstrom Donald MacDonald</td>
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<td></td>
<td>• Vision, goals and evaluation criteria</td>
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<td></td>
<td>• Design concepts and ties to vision</td>
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<td>2:30 p.m.</td>
<td>Public comment</td>
<td>All</td>
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<td>3:00 p.m.</td>
<td>SDC clarifying questions</td>
<td>Commissioners Project staff</td>
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<td>3:45 p.m.</td>
<td>SDC deliberation, action and next steps</td>
<td>Commissioners</td>
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<tr>
<td>4:30 p.m.</td>
<td>Adjourn</td>
<td>All</td>
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Upcoming meetings:
- Aug. 5: SR 520 SDC Subcommittee meeting (focus on Montlake lid)
- Aug. 12: Seattle City Council Transportation Committee briefing
- Sept. 4: SDC briefing (final presentation on Montlake lid)
- Sept. 11 (tentative): Public open house
- Sept. 23: Seattle City Council Transportation Committee briefing (staff present recommendations)

Materials
- Portage Bay Bridge Design Exploration and Evaluation Criteria Matrix
- Portage Bay Bridge Vision and Goals
- Portage Bay Bridge Existing Conditions

Attendees
SR 520 Program staff
- Kerry Pihlstrom, WSDOT Engineering Manager
- Rob Berman, Westside Design Process Facilitator *(unable to attend)*
- Paul Bott, WSDOT Engineer
- Dave Edwards, WSDOT Engineer
- Dawn Yankauskas, WSDOT Engineer
- Suryata Halim, Engineer
- Phil Merrell, Engineer
- Sarah Brandt, Communications
- Candace Goodrich, Communications
- Olivia Rother, Communications

SR 520 Project design staff
- Elizabeth Umbanhowar, Parametrix
- Donald MacDonald, Bridge Architect

Seattle Design Commission
- Ellen Sollod, Fine Artist
- Osama Quotah, Architect
- Shannon Loew, At-Large Representative
- Lee Copeland, Architect
- Thaddeus Egging, Engineer
- Bernie Alonzo, Landscape Architect
- Martin Regge, Urban Designer
- Brodie Bain, Urban Planner
- Megan Groth, Get Engaged Representative
- Michael Jenkins, Director
- Valerie Kinast, Coordinator
- Nick Welch, Staff
- Joan Nieman, Staff
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Feedback*</th>
<th>Design Explorations**</th>
<th>Evaluation**</th>
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<tbody>
<tr>
<td><strong>Architectural quality</strong></td>
<td>• appears light and graceful</td>
<td>- explore tower numbers and heights</td>
<td>- more consistent bridge type and appearance for greater length of bridge compared to FEIS baseline or SC concept</td>
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<tr>
<td></td>
<td>• acts as a connecting thread among the City’s natural, urban and historic elements</td>
<td>• emphasizes bridge structures as “moment”, bays as background</td>
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<td></td>
<td>• fits within scale and character of Portage Bay</td>
<td>• bridge deck rises in height to follow horizon line</td>
<td>• gap between structures increases light below bridge and sense of “lightness”</td>
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<td></td>
<td>• serves as one of a series of gateways</td>
<td>- slimmer towers and angled, thinner cables improve “lightness” of structure</td>
<td>• sign structures may impact views to and on bridge</td>
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<td></td>
<td>• creates integrated architectural elements-esthetic interest and structural logic</td>
<td>• bridge deck is thinner than box girder</td>
<td>• lighting changes character and visibility of bridge at night</td>
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<tr>
<td><strong>Community context/ public input</strong></td>
<td>• minimize bridge width and thickness</td>
<td>• maintain rhythm and awareness of experience of bridge structure</td>
<td>• bridge deck appears thinner than FEIS baseline box girder</td>
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<tr>
<td></td>
<td>• preserves or improves views above and below bridge</td>
<td>• visualizes understructure (footing to box girder)</td>
<td>• understructure hides structure</td>
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<tr>
<td></td>
<td>• improves safety and access at shoreline</td>
<td>• provide a shared-use path on Portage Bay Bridge regardless of bridge type</td>
<td>• provides buildable design</td>
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<tr>
<td><strong>Constructability and construction duration</strong></td>
<td>• shift west end of bridge north</td>
<td>- shift west end of bridge north</td>
<td>• bridge width reduced at east end of bridge</td>
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<tr>
<td></td>
<td>• separate eastbound and westbound structures on box girder</td>
<td>• separate eastbound and westbound structures with gap</td>
<td>• separate eastbound and westbound structures with gap</td>
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<tr>
<td></td>
<td>• raise bridge profile at east end of bridge to 2.6% constant grade (PA = 4.5%, 0.9%)</td>
<td>• cable stay FEIS baseline design has gap; updated design to consistent 19-foot gap between eastbound and westbound structures</td>
<td>• maintain City Queen Yacht Club Dock 3 operations during construction</td>
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<td><strong>Connectivity</strong></td>
<td>• provide a shared-use path on Portage Bay Bridge regardless of bridge type</td>
<td>• improve bridge grade</td>
<td>• access for boats under bridge will allowed at times during construction</td>
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<tr>
<td></td>
<td>• improves connectivity</td>
<td>• locate shared-use path on south side of bridge</td>
<td>• easier constructability for both bridge types</td>
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<tr>
<td></td>
<td>• minimizes construction time and impacts</td>
<td>• provide constant grade for all users</td>
<td>• north shift reduces construction duration 1.5 to 2 years</td>
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<td></td>
<td>• maintains access during construction</td>
<td>• create usable shared-use connections at both ends of bridge</td>
<td>• bridge profiles with constant grade allows construction of longer spans and better drainage</td>
</tr>
<tr>
<td><strong>Site conditions/environmental</strong></td>
<td>• reduces environmental impacts</td>
<td>• avoid environmental impacts</td>
<td>• shared-use path meets connectivity criteria with either bridge type</td>
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<tr>
<td></td>
<td>• addresses poor soils</td>
<td>• separate eastbound and westbound structures with gap in box girder from baseline</td>
<td>• consistent grade safer and more accessible for non-motorized users</td>
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<td></td>
<td>• minimizes shading</td>
<td>• reduce number of in-water structures</td>
<td>• non-motorized connections at west and east end spans are ADA accessible and improve ADA access</td>
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<td></td>
<td>• enhances shorelines</td>
<td>• gap between eastbound and westbound structures required with cable stay</td>
<td>• provides additional structure at connections where feasible</td>
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<td><strong>Practical Solutions</strong></td>
<td>• consider life-cycle costs</td>
<td>• reduce construction time (see Constructability and construction duration)</td>
<td>• incorporates fishhabitat on aquatic habitat</td>
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<td></td>
<td>• achieves sustainability goals</td>
<td>• use lower maintenance, more durable materials</td>
<td>• gap between structures allows light to reach water</td>
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<td></td>
<td>• reduces material volumes, energy use</td>
<td>• reduce materials (concrete)</td>
<td>• raised profile on east end of bridge allows more light on water at east shoreline</td>
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<td></td>
<td>• minimizes maintenance and operations</td>
<td>• reduces long-term maintenance costs</td>
<td>• more opportunity for connecting green spaces and access at shoreline</td>
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<td>• increases bridge life span and usability</td>
<td>• uses 15% more concrete, 90% more steel than box girder (rebar, structural steel, edge beam, floor beams, stays and casing in foundation)</td>
<td>• minimum 75 year design life for both bridge types</td>
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SR 520 PROGRAM VISION – DRAFT

Our vision for the SR 520 corridor is to become a sequence of gateways for the City of Seattle by reconnecting to the Seattle vision of Nature meets City.

We intend to implement our Program in a manner that yields practical solutions and fosters sustainability practices that support regional and local connectivity, ecology and the use of low-carbon materials. Further, the design of the corridor will balance aesthetics, functionality, proportion and sense of speed along the SR 520 facility to provide a memorable experience for all users.

SUSTAINABILITY PRACTICES AND GOALS

Design of the SR 520 project in the City of Seattle will meet and augment program sustainability goals by:

- Protecting or enhancing green and open spaces and aquatic habitats
- Lessening construction impacts including duration, traffic disruption, and hauling
- Reducing material volumes and energy use compared to the baseline design
- Addressing life-cycle costs such as minimizing maintenance and operations and utilizing durable materials
- Increasing life span and usability of structures
- Employing practical design

Reduction of materials is achieved through:

- Innovative technologies such as seismic isolation bearings
- Simplifying and reducing substructure elements on bridges including increasing pier spacing, reducing depth of bridge deck, and reducing number of piers
- Maximizing efficiency and usability of open spaces

These sustainability goals can lead to a reduction in concrete that, in turn, has the potential to reduce carbon dioxide (CO2) emissions.

PORTAGE BAY BRIDGE GOALS

The Portage Bay Bridge is both a distinctive and context-sensitive element within the family of SR 520 bridges. It serves as a connecting thread, tying together the tree-covered Roanoke ridge to the west and the heart of residential, research and multimodal transportation at Montlake to the east. With the addition of a shared-use path, the Portage Bay Bridge helps to complete regional connectivity for all modes of users from SR 202 to I-5.

The bridge will:

- Appear light and graceful and fit within the scale and character of Portage Bay
- Enhance the blue-green network by acting as a connecting thread among the City’s natural, urban and historic elements
- Act as one of a series of gateways within the SR 520 corridor experience
- Have integral architectural elements with aesthetic interest and structural logic
- Follow the horizon line in a logical and compelling fashion
- Accommodate differing user speeds, skills and viewpoints
- Improve views and access from the water and surrounding shorelines
- Allow natural light to reach the water and land by separating the eastbound and westbound lanes
- Enhance recreational activities on the water by raising the profile and allowing unrestricted water craft passage
Portage Bay Bridge - Existing Conditions

Aerial View

*Locations (orange arrows) correspond to viewpoints in 7/17/14 SR 520 Program, Portage Bay Bridge Design presentation.
Why are we here?

- In 2014, the State Legislature directed WSDOT and the City of Seattle to work together to advance design recommendations on key elements of the SR 520 corridor in Seattle.
- Based on the program vision and 2012 feedback heard through the Seattle Community Design Process (SCDP), a team of professional designers refined two Portage Bay Bridge “types,” a cable stay and box girder. The design team developed goals to inform design concepts for the two bridge types and a suite of design criteria to evaluate the concepts.
- Today, WSDOT and the City of Seattle are hosting a public forum to provide a review of the Portage Bay Bridge concepts to be discussed at today's Seattle Design Commission meeting. Ask questions of WSDOT and City staff and review our design boards and materials to:
  - Affirm your feedback
  - Review what we heard in the 2012 SCDP to inform our work moving forward
  - Preview the latest Portage Bay Bridge concepts
- You may also wish to provide a comment to the Seattle Design Commission about whether today’s designs reflect the major themes of public feedback heard to date.

What’s next?

- On Aug. 12, WSDOT and the City will brief the Seattle City Council Transportation Committee on progress to date.
- On Sept. 4, the design team will present to the Seattle Design Commission about refinements to the Montlake lid.
- In September, WSDOT and the City will co-host a public meeting to share process recommendations and hear public feedback.
- On Sept. 23, WSDOT and city staff will present design recommendations to Seattle City Council Transportation Committee.

For more information

- Visit our website: www.wsdot.wa.gov/projects/SR520bridge
- Email: SR520bridge@wsdot.wa.gov

Design process to date
Design preferences based on community input, which identified two potential bridge type options for Portage Bay Bridge - cable stay and box girder (July 2012)

(Box girder option shown in plan view above)
Bridge alignment
Support to shift bridge alignment to the north on the west end of the bridge for shorter construction duration.
(Approximately 141 of 345 individual comments support this preference.)
- Of the remaining 345 comments, 87 indicated they were neutral or had no preference towards an alignment shift and 34 were specifically opposed to this preference.

Bridge type
Support to proceed with further technical analysis and refinement of box girder and cable stay bridge concepts. Explore ways to integrate the structure with the surrounding neighborhoods.
(Approximately 175 of 366 individual comments support this preference.)
- Public requested more information on the bridge concepts, including possible variations, overall footprint, visual aesthetics above and below the bridge deck, and cost for each concept.
- No clear consensus on a preferred bridge type.
  » Box girder concept.
    (Approximately 308 comments in support and 98 comments against.)
  » Cable-stayed concept
    (Approximately 340 comments in support and 106 comments against.)

Bicycle and pedestrian connections
Support to include a 14-foot wide regional shared-use path on the Portage Bay Bridge.
(Approximately 1,298 of 1,339 individual comments support this preference.)
Seattle Community Design Process - What We Heard
Feedback from May 2012 Public Session on Portage Bay Bridge and West Approach Bridge

Overview
The May 2012 public session was the fifth public session hosted by WSDOT during the Seattle Community Design Process. Approximately 140 people attended the event, and approximately 265 individual written comments were received in addition to many interactive conversations between members of the public and SR 520 project staff.

Public comments were diverse. Feedback was split in some areas, while clearer themes were apparent in other areas. Overall, comments were constructive and will help inform designs for the area.

Below is a summary of the general themes of public feedback. This summary is meant to capture the larger themes of the public’s feedback and is not inclusive of all the individual comments received.

Portage Bay Bridge

General
- Concern about the width of the bridge, and potential visual, noise, and pollution impacts to the adjacent neighborhoods
- Neighborhood request for a four-lane bridge with a bicycle and pedestrian path and no planted median

Bridge location
- Support for alignment shift north at the west end of the bridge

Box girder concept
- There was support for a box girder bridge. People believe this option is desirable for various reasons, including:
  - It places most of the structure below the bridge deck, allowing for better views above the deck
  - The design seems “clean”, “simple”, and “cost-saving”
- Reasons that people do not prefer the box girder option include:
  - It appears “massive”, “boring”, and “cheap”

Extradosed concept
- Overall, project staff heard the least amount of feedback regarding the extradosed option
- People believe this option is desirable because:
  - It is a compromise between options that provided an iconic structure but without as much visual impact as the cable stay
- Reasons that people do not prefer the extradosed include:
  - The towers would obstruct views from the nearby neighborhoods

Cable stay concept
- Request to explore variations of the concept including the number of towers, and width and location of cable towers
- There was the most positive feedback for the cable stay option. People believe this option is desirable for various reasons, including:
  - It has a lighter structure with fewer in-water columns
  - It is distinctive, yet fits into the context of the surrounding landscape
  - It seems to have a smaller carbon footprint and requires less concrete
- Reasons that people do not prefer the cable stay option include:
  - The towers would obstruct views from the nearby neighborhoods
  - It creates “too much bridge” for the size and context of Portage Bay

Underbridge Areas
- Support of activation of underbridge areas for safety with paths, trails or other program elements
- Request to maintain and enhance connections from Delmar Drive to Boyer Avenue
- Concern for views at underbridge areas and desire to make area attractive, light, good sightlines, and enhance appearance of underside of bridge

West Approach Bridge
- Preserve views to mountains and other natural elements from West Approach Bridge
- Desire for simple and clean design elements
- Architectural elements such as sentinels should not be included

Bicycle and Pedestrian Connectivity
- Support for continuing the SR 520 regional trail across Portage Bay Bridge
- Focus on safe, direct, separate routes for bicyclists and pedestrians
- Desire for the completion of pedestrian connections, including a boardwalk and trail, per the Montlake Playfield master plan
SR 520 Program
Portage Bay Bridge Design
July 17, 2014

Julie Meredith
SR 520 Program Director

Lynn Peterson
Secretary of Transportation

SR 520 Seattle Design Commission Subcommittee
SR 520 Program Office
July 17, 2014

City of Seattle
Seattle Community Design Process - 2012
Portage Bay Bridge - What We Heard

General:
• Concern about the bridge width, and potential visual, noise, and pollution impacts
• Support for alignment shift north at the west end of the bridge
• Support for continuing the SR 520 regional trail across Portage Bay Bridge
• Support for safe and direct bicycle/pedestrian connections
• No clear consensus on preferred bridge type

Box girder concept:
• Desirable because it is “clean”, “simple”, “cost-saving”, and provides better views above the deck

Cable stay concept:
• Desirable because it has a lighter structure with fewer in-water columns and it is distinctive
The bridge will:

- **Appear light and graceful** and fit within the scale and character of Portage Bay.
- **Enhance the blue-green network** by acting as a connecting thread among the City’s natural, urban and historic elements.
- Act as one of a **series of gateways** within the SR 520 corridor experience.
- **Have integral architectural elements** with aesthetic interest and structural logic.
- Follow the horizon line in a logical and compelling fashion.
- Accommodate **differing user speeds, skills and viewpoints**.
- **Improve views and access** from the water and surrounding shorelines.
- Allow natural light to reach the water and land by separating the eastbound and westbound lanes.
The Portage Bay Bridge is both a distinctive and context-sensitive element within the family of SR 520 bridges. It serves as a connecting thread, tying together the tree-covered Roanoke ridge to the west and the heart of residential, research and multimodal transportation at Montlake to the east. With the addition of shared-use path, the Portage Bay Bridge helps to complete regional connectivity for all modes of users from SR 202 to I-5.
Existing Conditions
University Bridge (View Looking Southeast)
Elevation Approx. +90'
Box Girder
University Bridge (View Looking Southeast)
Elevation Approx. +90’

- Emphasizes bridge as passage, bay as a foreground
- Gracefully follows slope of hillside
- Fewer piers allow better views to water and surrounding parks and neighborhoods
Cable Stay
University Bridge (View Looking Southeast)
Elevation Approx. +90’

- Emphasizes the bridge as a “moment”, bay as background
- Gracefully follows slope of hillside
- Fewer piers in water allow better views to water and surrounding parks and neighborhoods
Existing Conditions

West Montlake Park (View Looking Southwest)

Elevation Approx. +25'
Box Girder
West Montlake Park (View Looking Southwest)
Elevation Approx. +25'

- Elements above bridge deck provide a reference to surrounding marine context
Cable Stay
West Montlake Park (View Looking Southwest)
Elevation Approx. +25'

- Elements above bridge deck provide a reference to surrounding marine context
Existing Conditions
Montlake Playfield (View Looking Northwest)
Elevation Approx. +22'
Box Girder
Montlake Playfield (View Looking Northwest)
Elevation Approx. +22’

- Fewer piers in water and longer spans allow for greater views under bridge
- Bridge deck appears slimmer than baseline bridge in Final Environmental Impact Statement
Cable Stay
Montlake Playfield (View Looking Northwest)
Elevation Approx. +22’

- Fewer piers in water and longer spans allow for greater views under bridge
- Bridge deck is slimmer than baseline bridge in Final Environmental Impact Statement
Box Girder
Shoreline at Seattle Yacht Club (View Looking Southwest)

- Bridge form is more consistent across bridge length than baseline bridge in Final Environmental Impact Statement
Cable Stay
Shoreline at Seattle Yacht Club (View Looking Southwest)

• Bridge form is more consistent across bridge length than cable stay concept from Seattle Community Design Process
Existing Conditions

10th and Delmar Lid (View Looking East)

Elevation Approx. 150'
Box Girder

10th and Delmar Lid (View Looking East)

Elevation Approx. 150’

- Minor and major elements provide function—lighting, signage support—and provide a sense of rhythm moving across bridge
Cable Stay
10th and Delmar Lid (View Looking East)
Elevation Approx. 150’

- Cable elements create unique moment on bridge which changes from different perspectives
Box Girder

Boyer Ave. E. at Queen City Yacht Club (View Looking East)

- Bridge understructure is simplified
Cable Stay
Boyer Ave. E. at Queen City Yacht Club (View Looking East)

- Bridge understructure is revealed for greater interest
- Bridge deck is slimmer
Box Girder
Under Bridge (View Looking West)

- Gap between structures allows more light to reach water and land, and reduces width appearance
- Raised bridge profile on east end allows for easier access for boats and better views
Cable Stay
Under Bridge (View Looking West)

- Gap between structures allows more light to reach water and land, and reduces width appearance
- Raised bridge profile on east end allows for easier access for boats and better views
Box Girder
Shared-Use Path (View Looking West)

- Shared-use path provides local and regional connectivity for all users
- Raised bridge profile on east end improves access for all users
- Path provides views
- Bridge elements help scale experience and add visual interest
Cable Stay
Shared-Use Path (View Looking West)

- Shared-use path provides local and regional connectivity for all users
- Raised bridge profile on east end improves access for all users
- Path provides views
- Bridge elements help scale experience and add visual interest
Box Girder
Pier Study

- Faceting of bridge piers, cap ends and major and minor elements add visual interest and create illusion of slimmer structure
- Minor and major elements are aligned with piers and underscore bridge structure and rhythm
Cable Stay Tower Study

- Faceting of bridge towers, cap ends and major and minor elements add visual interest and create illusion of slimmer structure
- Towers are slimmer
Box Girder
Cross Section View
Cable Stay
Cross Section View
Box Girder

Elevation and Profile

July 8, 2014

June 17, 2014

Previous

City of Seattle
• Lighting provides wayfinding and user guidance
• Provides opportunity to underscore rhythm of structure
• Lighting provides wayfinding and user guidance
• Provides opportunity to underscore structure of bridge
The Portage Bay Bridge is both a distinctive and context-sensitive element within the family of SR 520 bridges. It serves as a connecting thread, tying together the tree-covered Roanoke ridge to the west and the heart of residential, research and multimodal transportation at Montlake to the east. With the addition of shared-use path, the Portage Bay Bridge helps to complete regional connectivity for all modes of users from SR 202 to I-5.