Seattle
Design Commission

April 2, 2020

**Re: SDC/WSDOT Collaboration for urban design principles-Portage Bay phase of SR 520 'Rest of the West'**

The Seattle Design Commission (SDC) is pleased to provide their report documenting their support for Washington State Department of Transportation (WSDOT) proposals that integrate urban design solutions into the Portage Bay Bridge and Roanoke Lid Phase of the State Route (SR) 520 project. From February 2019 to November 2019 the SDC worked with WSDOT and their consultant to evaluate key project elements that include replacement of the Portage Bay Bridges, a new lidded segment at 10th and Roanoke, and the creation of active and passive local and regional recreation investments. The SDC report attached to this letter identifies and supports key urban design values and principles for the successful delivery of the overall project, and details on each of the project features that were refined to garner SDC support.

The following bullet points summarize the urban design values and principles that inform and support the SDC recommendations detailed in this project. These values and principles are a baseline to assess how SDC recommendations advance WSDOT commitments to the SR 520 Nature meets City concept for these investments. These values and principles include:

- Environmental stewardship in the use and procurement of materials, whether natural or manufactured
- Solutions that enhance human activity in design, detail, materials, and their execution
- Designs of structures and facilities that reduce the visual or physical impacts on their immediate context, and are designed to fit in context with the natural or built environments
- Creating seamless relationships between new investments and the quality and character of surrounding neighborhoods and their unique context
- Viewing engineering solutions as opportunities to create distinct places or spaces centered on human activity
- Design solutions that allow individuals with limited or special needs to have the same quality experience as those that are able bodied
- Creating clear, defined, safe, and articulate places to travel to and through, regardless of speed or method of travel
- Using multi-tiered landscaping solutions to create spaces and places that enhance human activity while improving their immediate built and natural environments
- Material procurement and execution that enhances the quality, function and identity of their locations

In addition, the following summarizes successful urban design and placemaking outcomes for key project features further detailed in the attached report.



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**Successful outcomes for the Roanoke Lid include:**

- An outstanding park-like experience that provides a gathering place for the local community, includes amenities designed and reflective of the local context, includes places that capitalize on local and territorial views, and design features that respond to the environmental challenges present in a sloping site
- Connections to the right of way that reflect local context in their use and integration of materials, placement of natural features, and incorporation of multi-tiered landscaping strategies that enhance and frame views
- Gateways that occur at key intersections that incorporate and integrate human-scaled features (lighting, landscape, seating, wayfinding, etc.) supported by architectural details that are defined by high quality of design, detail, and placement
- Viewpoints designated at specific locations that are designed and placed to take advantage of local or territorial built or natural geographies and that are integrated into their immediate context
- Materials that elevate the user experience by delineating spaces based on intended use, user group, nearby context, or environmental stewardship
- Mixing zones that use variation of materials, signage, lighting, and planting to create unique places that provide an area for safe and clear transition between modes of travel
- When utilities or related infrastructure can be viewed, immediate neighborhood context should inform architectural or engineering solutions that minimize or obscure their negative visual, auditory or environmental impacts
- Planting palettes that focus on native and climate-adapted species

**Successful outcomes for City and regional trail investments include:**

- Direct and intuitive trail experiences for all users and all ages and abilities
- Inviting, approachable, safe, and intuitive project features that elevate the users experience through use of quality materials, supported by detailing for long-term quality
- Lighting designed for all ages and abilities, located in spaces or places where low light levels can counteract or prevent any undesirable or unsafe activities
- Multi-modal safety elevated through clarity of design, ease of use, quality of materials, separation of modes, clear sight lines, and infrastructure designed to lessen its impact on its surroundings
- Designs of supporting ramps, paths and similar infrastructure that promote lightness, legibility of form, are visually compelling, and that are sensitively integrated into their immediate environment and context
- Multi-modal connections designed to promote ease in wayfinding, elevate safety at transition points, provide direct and intuitive connections, are visible from a variety of locations, and include infrastructure that support all ages and abilities
- Outcomes that promote and enhance sustainability and environmental stewardship in the design, implementation of project features of impacted areas
- Street furniture (signage, lighting, seating, etc.) designed and organized for legibility, ease of use, the local context, and are well integrated within the project and its context

**Successful outcomes for the Portage Bay Bridges include:**

- Bridge designs that support outcomes documented in the 2014 SDC report to the Seattle City Council
- The visible relationships between vertical and horizontal elements should be well integrated and designed for a seamless effect between structural members and their components
- Where structural components are located near human activity, the design of these elements and their finishes should enhance the identity, safety, and function of such spaces
- Structural components viewed from a distance should provide visual interest at a scale that is legible, enhances their location, and contribute to safety and security of those spaces
- Landscaping should elevate and enhance biological function of adjacent places and spaces, provide transitions between active and passive recreation areas, and enhance and support habitat
- Column typologies that are designed with clear, defined and proportional relationships to the bridge deck they support, like those achieved through base isolation systems in the Montlake/West

Approach segments

- Views of the bridge deck should emphasize a lightness in mass, arc, form, and in the relationships between vertical and horizontal bridge elements
- Vertical components above the bridge deck should be integrated into the bridge structure through their placement, orientation, spacing, color and other urban design strategies
- Utilities should be integrated into the structure to reduce their appearance and visibility to both those using the bridge and those viewing the bridge from various viewpoints
- Color should be used to enhance desirable bridge elements (lightness of form, integration of bridge components, repetition of forms, etc.), while detracting from less desirable elements (massing, out of scale structural components, etc.)
- Detailing on project features (lighting, handrails, seating, signage, etc.) scaled to human activity, provide visual interest, and elevate the quality of spaces through the choice of materials and their execution.

Sincerely,

Michael Jenkins
Executive Director, Seattle Design Commission

# Seattle Design Commission Report:

## Urban Design Principles for Portage Bay Bridge and Roanoke Lid

SR 520 'Rest of the West'

April 2, 2020


## How this report shall be used and interpreted

This report reflects the deliberations and recommendations of the Seattle Design Commission (SDC) in their work with Washington State Department of Transportation (WSDOT) on urban design values and principles to guide the replacement of Portage Bay Bridges, in the creation of the Roanoke Lid, and in supporting investments. This report and its recommendations shall be used, along with any amendments or additions, as a template for successful outcomes related to urban design, placemaking, sustainability, and equity, in the design and implementation of various project features related to these investments.

This report underscores and highlights the intent behind the urban design decisions that are reflected in the SDC review of WSDOT project documents. This report is intended to provide direction to all interested parties about what features the SDC believes are integral to the success of the project, and that resulted in the SDC support documented in this report.

The details in this report and supporting documentation also underscore and highlight design features and details that shall be adhered to if any modifications and alternatives are proposed through the ATC process and through the final design and construction process.

For any proposed alternatives to the proposals evaluated and supported by the SDC, the design-builder must confirm with the SDC that the proposed alternative matches the original design intent reflected in this report and supporting documents.

For each element of the design discussed in this report, we indicate

1. The purpose of each project element and the basis for SDC support;
2. The urban design intent of the project elements that are integral to SDC support; and
3. Recommendations for what to explore before the RFP is released.

Finally, the SDC understands and appreciates that images presented to the commission during this phase of review, as highlighted in this report and in supporting documents, were illustrative only and used to test and refine pre-concept ideas for key project features. As design develops through the RFP process and beyond, the SDC will remain involved and engaged to provide input and direction through design development.

## Project Summary

WSDOT is redeveloping the Seattle segment of the State Route (SR) 520 corridor between Interstate 5 (I-5) and Lake Washington. The redevelopment will include new bridges that meet current seismic standards, HOV capacity, updated roadways, new pedestrian and bicycle facilities, improved transit connections, open spaces, and enhanced non-motorized connections.

Throughout 2019, the SDC worked collaboratively with WSDOT in a series of public meetings and focused subcommittees evaluating urban design concepts for replacement of the Portage Bay Bridges and the creation of a lidded segment at Roanoke Ave East with project features that include:

- The replacement of Portage Bay bridges[1] with two box girder bridges that includes an extension of the regional shared use path (SR 520 trail) between Montlake Avenue East and the Roanoke Lid at its intersection with Delmar Avenue East;
- A lidded segment of SR 520 bounded by 10th Avenue to the west, Roanoke Ave East to the North, Delmar Ave E to the east and an area about 200 feet north of East Miller Street to the south (Roanoke Lid);
- An extension of WSDOT's regional shared use path (SR 520 trail) pedestrian and bicycle facility that links it at its current terminus near Montlake Blvd, extending under the Portage Bay bridge, up to the south side of the east bound Portage Bay bridge, terminating at Delmar Avenue East and the related Roanoke Lid;
- Improvements to the Bill Dawson trail that provides pedestrian and bicycle connections between Montlake Ave East and the south side of the east bound Portage Bay bridge;
- Improved pedestrian and bicycle facilities along Roanoke Ave E between Boylston Ave East to the West and Delmar Drive to the east, including enhancements to the existing bridge structure crossing I-5; and
- A new pedestrian and bicycle connection traversing the east bound lanes connecting I-5 and SR 520 between East Miller to the south and the Roanoke lid to the east, including a tunnel connection under 10th Avenue East.

Copies of all presentations and meeting minutes for every SDC meeting are attached. While this report is a summary of the interactions between WSDOT and SDC concerning pre-concept design reviews for Portage Bay bridges and related investments, the successful bidder will have a working knowledge of the SDC reviews and the design issues and recommendations that were advanced through this process.

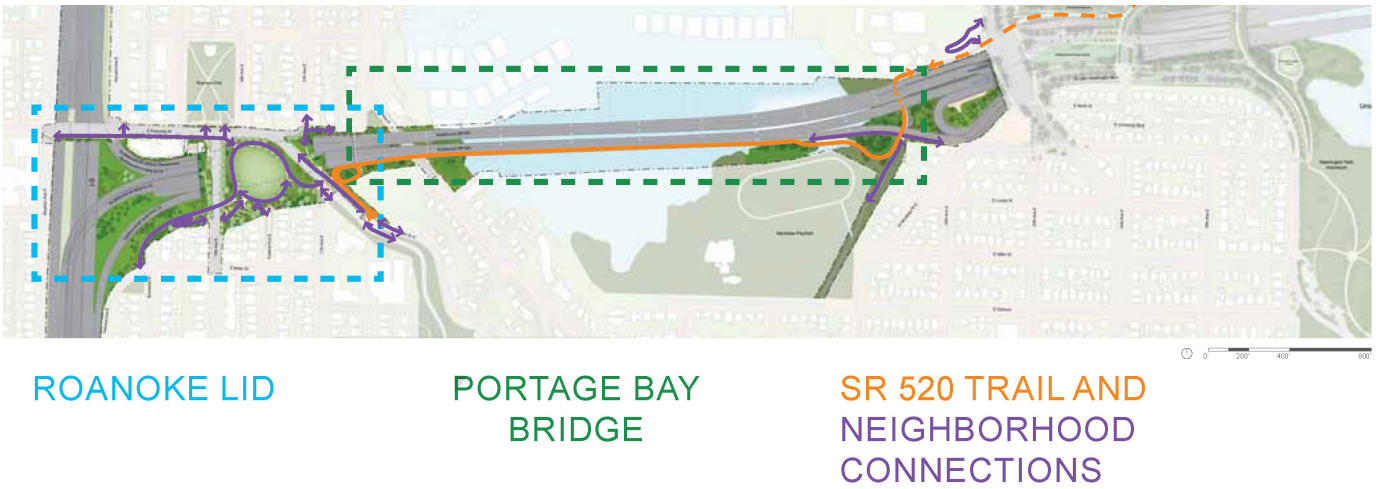


*Image 1: Portage Bay Bridge replacement and Roanoke Lid overview diagram*

[1]In September 2014 the SDC developed a series of recommendations to Mayor Ed Murray and the Seattle City Council concerning replacement of the Portage Bay Bridges, calling for two box girder bridges, one serving eastbound traffic and the other westbound traffic. That letter is attached to this report

## BACKGROUND

### 1. SDC vision and values

The SDC was established in 1968 to advise the Mayor and City Council on projects that have a substantial impact on the public realm. In this role, the SDC uses 6 guiding principles that inform its deliberations and recommendations when evaluating design quality of projects that affect the public realm:

**Inspired Design** - Inspired design unifies the public realm and inspires the community by embodying state-of-the-art practices.

**Contextual Integration** - Integrated design responds to its context and enhances its neighborhood.

**Innovative Sustainability** - Sustainable design minimizes environmental impact and provides long-term self-sufficiency.

**Social Inclusion** - Inclusive design seeks to elevate the quality of life for all and responds fluently to its cultural context.

**Exemplary Partnerships** - Design partnerships leverage public, community, and private resources, integrating design efforts across multiple disciplines and agencies to achieve greater results with the same resources.

**Effective Investments** - Effective design provides high value for the investment by thoughtfully considering flexibility, longevity, and total life-cycle costs.

The SDC uses these values as a guide when evaluating both the intent and outcomes of individual elements and features within this project, as well as the overall proposal and its integration into the City's public realm network and abutting City neighborhoods.

### 2. How should the immediate context guide the project

The project area has one of the most unique urban and natural geographies in Seattle. The following is a summary of three significant elements in these geographies that ground the SDC review of the project and informs its recommendations.

In 2012 and 2014 the SDC worked collaboratively with WSDOT and their design consultants to create a framework with vision and goals for the Seattle segment of the corridor of SR-520, including the Portage Bay Bridge and Roanoke Lid investments. That framework remains the reference point as the SDC evaluates, makes recommendations, and endorses the designs for the Roanoke Lid and Portage Bay Bridge. Overall, the vision for the Portage Bay Bridge is to be "both distinctive and context-sensitive." The Roanoke Lid was envisioned to reknit the community and environmental connections that were severed with the original SR-520 construction and provide enhanced connectivity for bikes and pedestrians within the Seattle urban networks. The Portage Bay Bridge and Roanoke Lid were envisioned to be part of a gateway experience into Seattle that leads users between natural and urban areas as an expression of the overall "Nature Meets City" vision of the project (see image 2). Together, all elements of the SR-520 Seattle segment were to provide a memorable experience to motorists, cyclists, pedestrians, transit users, recreationalists and residents of adjacent neighborhoods.

#### Portage Bay bridges

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,

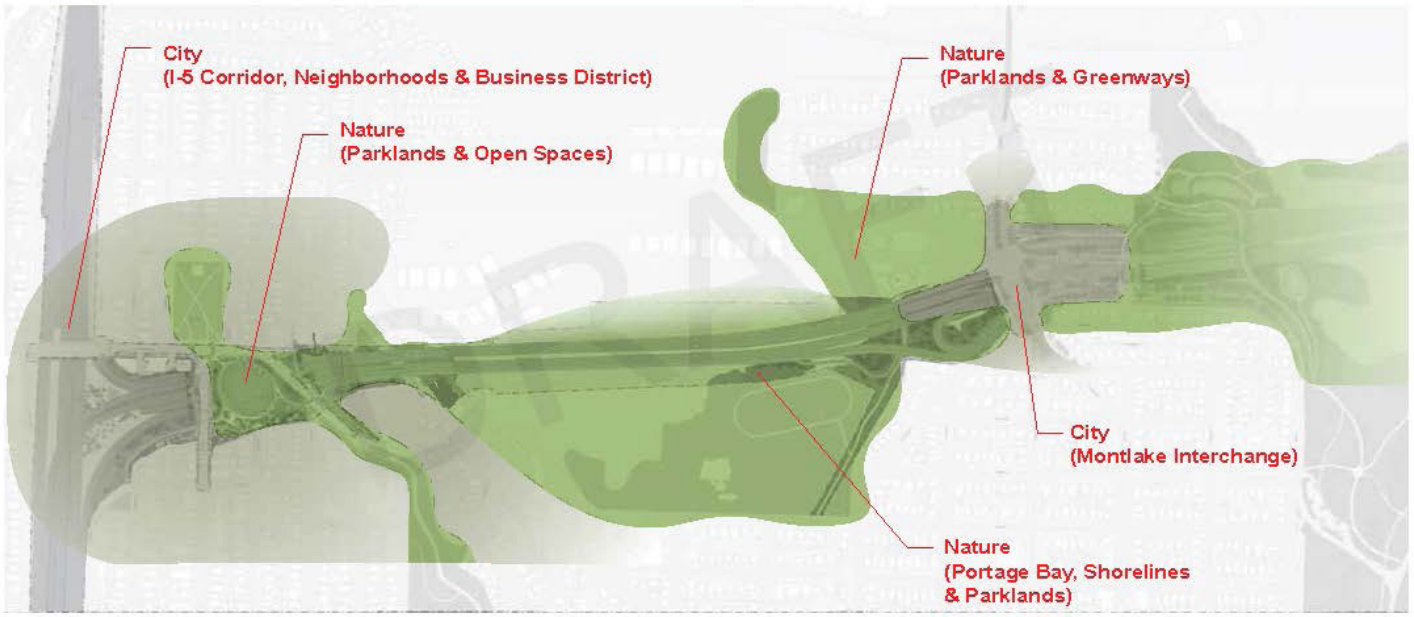


*Image 2: Nature Meets City deisgn concept*

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 must acquire an equally unique identity.

## Roanoke Lid area

The proposed Roanoke Lid will reconnect two residential neighborhoods that were separated during the construction of SR 520. The lid will connect the Roanoke Park neighborhood to the north to the neighborhoods of North Capitol Hill and the western reaches of the Montlake neighborhoods to the south and east.

The Roanoke Park neighborhood is a significant community resource marked by historic residential structures and a 2-acre park purchased by the City of Seattle in 1908. The City recently redeveloped its Fire Station #22 sited at the SW corner of 10th and Roanoke. The Roanoke Park neighborhood is listed on the National Park Service National Register of Historic Places. While the North Capitol Hill and Montlake Neighborhoods to the south and west do not share the same historic designation as the Roanoke Park neighborhood, these two neighborhoods also have a significant collection of residential structures dating back to the late 19th and early 20th Century. These two neighborhoods also have a collection of institutional uses (Seattle Preparatory Academy, the Bertschi School) as well as an important link to the Olmsted-designed Interlaken Boulevard and Park system.

These neighborhoods have not seen a significant change in the collection of residential structures. While there have been some expansion of Seattle Preparatory Academy and Bertschi School, these have been relatively small in scale and impact. While 10th Avenue to the south of the Roanoke Lid has some small scale commercial and multi-family structures, the city's land use and zoning requirements have not allowed much additional growth or density in this neighborhood.

## Relationship to City Public Realm

The Portage Bay bridge project will provide an important extension of the SR 520 trail. The SR 520 trail connects Seattle to Bellevue and communities in East King County along SR 520 right of way. The Seattle segment currently terminates in the Shelby Hamlin neighborhood. The proposed extension will include connections to the City's pedestrian and bicycle network along the Bill Dawson trail at and under the Portage Bay bridges, continue along the eastbound Portage Bay bridge structure, and connect to the City's pedestrian and bicycle network at the Roanoke Lid.

The Roanoke Lid project will provide a significant addition to Seattle's open space network and strengthen the historic Olmsted framework. The existing 2-acre Roanoke Park provides significant open space for the

Roanoke community. The location of the park and the residential development that surrounds it creates a semi-public quality to the space. While it is a public park, its identity is closely identified to the abutting residential development.

The Roanoke Lid Project will provide approximately 3 acres of public space abutting neighborhoods to the south and east. Unlike the historic Roanoke Park, the Roanoke Lid will be more public in nature, as it is not framed by residential development or commercial uses. The Roanoke Lid will also provide an important place of connections to and between City pedestrian and bicycle resources, the Interlaken Boulevard and Park network, and between these resources and the SR 520 trail. The Roanoke Lid investments will also provide an important link to the City's pedestrian and bicycle network through expanded sidewalks along Roanoke from Boylston to 10th Avenue, expanded sidewalks and a small viewing/open space area along the 10th Avenue overpass above the SR 520/I5 interchange, and a southern connection at the intersection of East Miller and Harvard Avenue East.

The SR 520 trail and Roanoke Lid should be responsive to the open space context of this historic part of Seattle and intentionally integrate and strengthen existing bike and pedestrian networks.

## PROJECT ELEMENTS – Commission support and guidance

In 2012, WSDOT established the guiding vision for SR 520 investments - Nature meets City. Throughout the corridor, this vision establishes the baseline for development of both repeated project elements (Elements of Continuity) as well as the creation of distinct, place-based design features (Elements of Distinction). Those concepts are continued through this phase of the project.

### 1. Elements of continuity

The following elements build on the theme of 'areas of continuity', meaning certain project elements are used repeatedly throughout phases of the project to provide both a citywide and regional language to the corridor, interpreted as need be to the specifics of the site or space where they are provided (see image 3). The SDC supports the elements of continuity with specific recommendations on each element.

#### *A. Portal Walls*

There are two sets of portal walls that are created by the Roanoke Lid. One set faces eastbound and are located west of the 10th Avenue overpass, after the movement from I5 northbound lanes to SR 520 east


*Image 3: Elements of Continuity*

bound lanes. The other portal walls are east of Delmar Drive and the related Roanoke Lid. These walls signal the transition from SR 520 westbound lanes to I5 north and south bound lanes, as well as the transition to City streets at the Harvard Ave East exit.

Consistent with the SDC review of previous phases, portal walls act as gateways to and from the City and, as such, must have design details that elevate and reinforce this role. Limited directional or safety signage may be appropriate for these walls, assuming no viable opportunity exists through separate, standalone signage. Design details for these walls developed through variation of material choice and placement should be visible and not obscured by landscaping, signage, or other project features.

### *B. Highway Walls*

Highway walls are used where grade changes occur between project features (roadway, SR 520 trail, etc.) and abutting property, or where grading is required to support lanes that transition between highway segments. The use of variation in the application and coloration of materials on highway walls is a consistent theme throughout the Seattle segment of the project and should be applied here. The commission supports the continued use of biophilic walls as the predominate patterning used on highway walls, Adze-hewn landscape retaining walls, or other walls throughout the corridor that do not have specific design direction prescribed in this document. Given the importance of this feature, further examination of the successful execution design feature will be needed.

### *C. Path systems with distinction at*

- Mixing zones
- Intersections
- Outlooks

Uniformity in the material and detailing of path systems is critical to the identity of the project and its relationship to local and regional transportation systems. Concrete is the predominate material used in the SR 520 trail, while asphalt with concrete edge treatments is used for other City systems like the Bill Dawson trail. Throughout all phases of the project, variation of material applications is used (mixing zones, viewpoints, intersections). Such variation provides visual cues to warn users about potential conflict locations, provide wayfinding at key locations, or to provide distinction to the place. In the current project such locations include:

- 10th Avenue Ave East/Boyer under bridge viewpoints
- Federal Ave East overlook
- Mixing zones on Roanoke Lid
- Bill Dawson/SR 520 trail intersection
- Delmar Drive/SR 520 trail intersection
- SR 520 trail hill climb near Delmar

The SDC supports the continued implementation of these project features. Refinement of these project features may be appropriate on a site-specific basis to reflect the specific character or role of a project features, including the Roanoke Lid outlooks. Additional discussion is provided under elements of distinction.

### *D. Railing systems*

Railing systems are designed for a variety of users and situations. Railings are used at key viewpoints to enhance the project location and provide an appropriate barrier. Continuous railings are provided along the SR 520 trail and other locations to protect bicycle riders from potential conflict and to help clearly define route. Customized railings on the Portage Bay bridge, of equal or enhanced quality as compared to the West Approach Bridge SR 520 Trail, may be appropriate to achieve the vision of a distinctive and context sensitive bridge.

### *E. Lighting systems*

Lighting fixtures scaled to the mode of travel and user group is a consistent feature through all phases of the project. Lighting is applied on bridge columns that are located near pedestrian and bicycle facility or where additional safety or security features are needed. Cobra head fixtures are found at major vehicle intersections or along the mainline. Smaller pedestrian scale lighting is located based on its role to light pedestrian intersections and crossing or paths of travel. Lighting will also be incorporated into pedestrian tunnels to provide safe and secures spaces along with providing visual interest to those spaces.

### *F. Seating*

The following types of seating are utilized:

- World's fair
- Seat walls

World's fair seating is a consistent project element through all phases. This style of seating is placed in areas that are either related or are placed to interpret the Olmsted legacy. By contrast, seat walls are more modern in style and are placed to serve user groups at prominent locations (bus stops, view spots, mixing zone, intersections, etc.). Seat walls can and should be integrated into landscape walls or other similar landscape features, so that the opportunity to introduce seating is explored where possible and when associated with pedestrian or non-motorized activities. Seat walls will use adze-style patterning technique for visual interest and consistency throughout the project areas. The SDC supports customization of seating at key pedestrian locations including Roanoke Lid, Federal Avenue overlook, and similar context sensitive locations.

### *G. Signage*

The SDC endorses an approach that keeps signage in alignment with other appurtenances and architectural elements to create an orderly visual rhythm to the elements of continuity. The SDC understands that signage is largely determined by regulatory requirements. The intent to minimize the amount and scale of signage and place it in a way that it reduces visual clutter and contributes to a larger visual objective for these investments.

## 2. Elements of distinction

### *A. Regional Shared Use Path (SR 520 trail)*

The purpose of this project feature is to extend the existing SR 520 trail from its current terminus at Montlake Blvd up to the Roanoke Lid via the south portion of the east bound lanes of the Portage Bay Bridge (see image 4). This extension of the SR 520 trail adds approximately 1 mile of path for pedestrians and bicyclists of all ages and abilities to better link Seattle and its related pedestrian and bicycle investments to this regional resource.

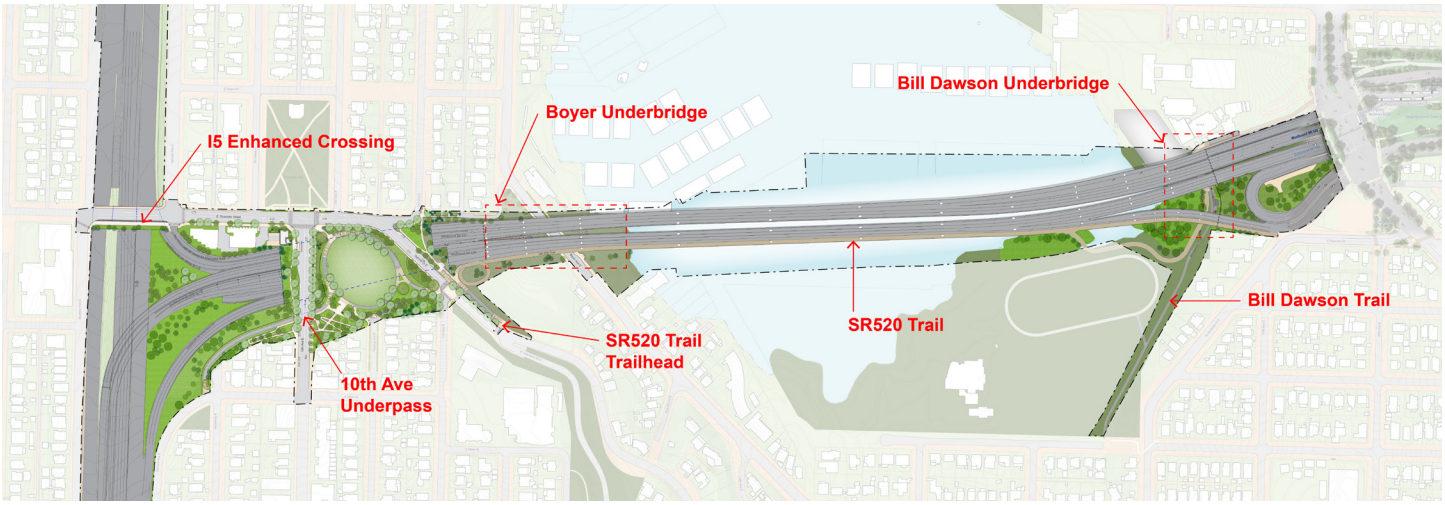


*Image 4: Regional Shared Use Path*

The SDC supports the following elements of this project feature:

1. An extension of the SR 520 trail that overlays and merges with the Bill Dawson Trail at and under the Portage Bay Bridges.
2. Physical separation between bicyclists and pedestrians in under bridge areas to increase the safety of all users.
3. A mixing zone near the eastbound offramp at Montlake that separates the Bill Dawson trail from the SR 520 trail.
4. Features in the under-bridge areas including boulders, faceted wall treatments, reflective horizontal and vertical surfaces (where feasible), and lighting integrated into the bridge between girders. The intent of these features that are supported by the SDC are to make the under-bridge environment safer, more human-scaled, visually interesting, light-filled, and hospitable.
5. An elevated SR 520 trail segment, directly adjacent to the eastbound lanes of the Portage Bay Bridge, that provides direct and visible connections from the Bill Dawson trail interchange to the trails on the south side of the Portage Bay Bridge.
6. A link from the Portage Bay Bridge up to the Roanoke lid, ending at Delmar Drive. Successful connections will include clear and distinct options for trail users to make the connection as effortless as possible.
7. An interchange at Delmar Drive East that provides immediate and safe connections to the Roanoke Lid, as well as a separate connection to Delmar Drive.

The urban design intent to be applied to these SR 520 trail elements include:

- A direct and intuitive regional trail experience
- Prioritization of design elements for use by regional trail users, but also including provisions for local connections to and between the City's pedestrian and bicycle network that are sensible and appropriately sized for the variety of users and their respective modes of travel
- Clear sight lines along the SR 520 trail and at decision points that include places of rest and places of transfer to and between mode of travel, with clear use of materials and signage that assist users based on mode
- Separation of pedestrians and cyclists through grade separation and pavement material change, where sightlines are less optimal
- Decision points that elevate safety, reliability and visibility as key project features
- Mixing zones and trail intersections that are highly visible from other public spaces and places and which have become repeating elements with clear and recognizable functions
- Path grades that maintain views into and out of under bridge areas and provide the user with the most direct and intuitive route of travel
- Paths of travel that are designed for all users and abilities that feature clear, direct, and accessible routes and connections
- Replication of design details and features of the existing SR 520 trail into this new segment (elements of continuity) that include
  - Trail width and spacing
  - Consistent use of wall treatment
  - Pedestrian railing system
  - Lighting features
  - Mixing zones that use contrasting banding to help slow and manager speeds and uses
  - Wayfinding
- Use best practices in sustainability and environmental stewardship in the design and implementation for areas of the SR 520 trail that are overwater or directly impact wetlands or other sensitive areas.

- When fencing is required, it should be designed to reflect its location while using materials and placement that adds identity and value to its location in lieu of utilitarian solutions
- Wall segments abutting the SR 520 trail and Bill Dawson trails that elevate the user experience through variations in the use and placement of materials, to provide visual interest and enhanced safety
- Ground plane treatments in the under-bridge areas that use natural rock and other durable materials layered in a variety of size and color gradations, to provide visual interest and bring a human scale to the surrounding context
- Lighting, furnishings, and paving in the under-bridge areas that relate to and elevate the pedestrian and cyclists' experience.
- Lighting that is incorporated in the abutment walls, overhead bridge infrastructure, and hand railings in order to provide lighting that adds character to the space in addition to providing lighting for safety and security through the area

*Areas for further study*

1. Configuration of the connection from the SR 520 trail to the Roanoke Lid/Delmar Drive intersection that will maximize light to the looped link while maintaining a functional connection for all ages and abilities
2. In under bridge areas, boulder placement should be considered in terms of their number, placement, variation of size, coloration and pigment, spacing, and their role in preventing inappropriate or unsafe activities at or near pedestrian or bicycle facilities.
3. Provide options that maximize lighting levels in under bridge areas to define and enhance these spaces, while enhancing safety
4. Consider where aesthetic lighting can be included to create unexpected and unique moments along the SR 520 trail
5. Provide more definition of the planting palette in the RFP
6. Solutions that provide vertical and horizontal reflective surfaces in under bridge areas that balance the desire to create a safe and welcoming space with the need to reduce the potential for vandalism or address concerns about long-term maintenance


*Image 5: Roanoke Lid*

*B. Roanoke Lid*

The purpose of this project feature is to provide a passive recreational open space connecting Delmar Drive, 10th Ave E and to adjacent neighborhoods (see image 5) that builds on the existing neighborhood context and provides regional and local non-motorized connections.

The SDC supports the following elements of this project feature that include:

- A neighborhood park with usable open space
- Linkages and gateways between the public right of way and the park at these locations
  - 10th Avenue East and East Roanoke,
  - Along Delmar Drive East, connecting to the SR 520 trail with the most direct connection possible,
  - At 10th Avenue East near the SE corner of the lid, is designed to address grade changes between 10th Avenue and the circular multiuse path
  - In a tunnel under 10th Avenue that is linked to a bicycle and pedestrian extension that terminates at East Miller


Designs for these and other linkages and gateways should reflect their various locations, sizes, orientations, purposes, and user groups. Their intent is for each to be unique and designed for the needs of users and their context.

- An overlook at the end of Federal Avenue East, with a size, location, orientation and supporting design details and features reflected in commission reviews
- A predominately green space with gradual topography to accommodate passive recreation but allow for visual interest and clustered planting, and provides opportunities for people of all ages and abilities to use for active and passive recreation

*Image 6: proposed concepts of the Neighborhood Greenway (top), Cascade Overlook (middle), & Federal Overlook (bottom)*

- A pedestrian walkway on the west side of 10th Avenue East, lined with varied planting and trees on both sides, that connects neighborhood resources to the south with the 10th and Roanoke intersection and the related public facilities along Roanoke
- Outlooks along 10th Avenue East and at Delmar Drive East near the intersection of the SR 520 trail and the Lid, sized and oriented with views to significant natural features including Lake Union, Olympic or Cascade Mountains, and natural and built environments, with design details and features reflected in commission reviews (see image 6)
- A blending of the open space and the existing City public realm at abutting streets through the use of materials, signage, lighting, planting, and other solutions
- A planting palette that includes:
  - A blended palette of coniferous, broadleaf evergreen and deciduous trees, and understory vegetation that creates a permeable buffer between the open space and the neighborhood to the south

  - Street tree placement along all rights of way that has a relationship to planting and species in the open space areas, to provide continuity with the neighborhood street tree context across the lid structure
  - Plantings along slopes that provide both visual interest and environmental stewardship
  - Increase long-term resiliency through the planting of a diverse mix of tree and plant species, selected for adaptability to our changing climate
  - A lawn usable for informal group play ringed by the multi-use path that allows for both active and passive recreation
- For visible utility infrastructure that support WSDOT facilities, designs that are to the scale and character of the surrounding neighborhood with its architecture and perimeter planting

The urban design intent to be applied to the Roanoke Lid includes:

- A multi-layered planting palette that protects users, allows views to and through the site and that supports and enhances significant grade changes
- Enhanced street crossings that use variation of materials to delineate paths of travel
- Non-motorized connections should be designed to establish a hierarchy of use and intensity from significant regional systems to minor neighborhood pathways and sidewalks
- Viewpoints incorporated into stairs, paths or other locations that provide local or territorial view supported or framed by landscape features, seating, widened paved areas or other similar design features
- Seating and outlooks located and designed in response to immediate context and the prevalence of view opportunities, scaled to their location and to their role in providing a place of safe transition between the right of way and the Lid
- Continued use of railings, lighting, site furnishings and other similar features like those provided in the previous Montlake phase
- Lighting that is scaled to the user experience, including the use of pedestrian scale lighting and lighting at intersections or mixing zones
- Mixing zones between the public realm on the lid and the right of way, to include project features that use variation of materials, signage, lighting, and planting to create unique places that provide an area for safe and clear transition between modes of travel
- Paved surfaces at mixing zones that provide a clear transition and warning where intersections between trail components occur
- When life-safety or related highway infrastructure must be visible in or from public areas, designs that screen these features should reflect and respect structures of historic or neighborhood character in the nearby business district or residential communities that include:
  - Use of brick as dominate material, applied to accentuate building or enclosure roofline, window systems, vertical or horizontal features, and to eliminate or reduce appearance of blank or monotonous walls
  - Use of commercial window systems
  - Integration of the facility within the surrounding landscape (topography, plantings, etc.) on building to provide greater visual interest
  - Door entry or exit that have significant setback (4’ or more) from sidewalk to create transition zone between building and public realm
- Where paths, trails, streets or plazas meet the public right of way, transition zones that provide pedestrian amenities (seating, view sheds, lighting, etc.) that provide distinction, wayfinding and placemaking opportunities
- Amenities (seating, lighting, mixing zones, vegetation, etc.) at places like the Federal Avenue East overlook, outlooks at 10th Avenue East and Delmar Drive east, and at viewpoints, all of which are designed to give each place distinction.
- Planting palette that favors native and climate-adapted species, and follows City protocols for public parks and open spaces

- Concrete framed/trimmed asphalt as the primary material for multiuse pathways that include fine details like gravel transition areas between walkways and planting areas, inclusion of concrete or other durable materials when identifying transition or mixing zones, etc.
- Lighting of areas where mobility or wayfinding may be challenging, scaled to human activity associated with those areas

*Areas for further study*

1. Explore and incentivize an alternative in the RFP that allows a direct connection from the Portage Bay Bridge to the Roanoke Lid that avoids a complex ramp structure with multiple curves and switchbacks, that does not increase environmental or visual impacts.
2. Provide bike runnels on all stairs
3. Investigate an at-grade crossing at 10th Ave East immediately above the tunnel connection from East Miller to the Lid

### *C. Portage Bay Bridge structure(s)*

In September 2014, the SDC developed a series of recommendations to Mayor Ed Murray and the Seattle City Council about concept proposals to replace the Portage Bay Bridges. At that time the SDC recommended two box girder bridges to replace the existing bridges. We stand by our original recommendation as the best option for replacement.

We also look back at the guiding principles we established in our September 2014 letter as an important baseline for measuring design quality, and reaffirm the values today, including:

- 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 (see image 7).
- 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

*Image 7: Proposed bridge concept (top and bottom)*

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.

The concept of future Portage Bay bridges being "a good neighbor" to all those that interact with the bridge has driven many of the design decisions up to this point. The major features that this concept supports and that must be carried forward through final design and construction are:

- The profile of the columns curving up to meet the smooth parabolic soffit of the bridge substructure.
- The rhythm of structural and non-structural elements achieved through tight alignment of lighting, signage, blisters, and other structural elements to break down scale of bridge and enhance the visual experience of the bridge from land and water.
- The placement of the ITS utility platform between the two structures in order to reduce visual impacts from all sides of the bridge and to maintain a smooth, uninterrupted path for pedestrians and bicyclists on the SR 520 trail.

The SDC support for the Portage Bay bridge replacement is divided into 3 distinct elements:

1. Under bridge areas
2. Bridge deck
3. Additional concepts to shape acceptable alternatives and modifications

***1. Under bridge areas***

*a. Boyer Avenue underpass*

The SDC supports the following features and proposed for the area known as the Boyer Ave underpass:

- Walls and related structures should be tailored and sculpted to the level of human activity. For example, abutment walls located near trails should include fine level details, materials and application methods that result in greater visual interest scaled to the pedestrian.
- For features not located near human activity, walls and other similar features should be designed and applied differently but with visual interest scaled for the distance between their location and human activity
- Incorporation of landscaping interspersed to frame areas where rock is used, to provide visual interest along with slope stabilization
- Landscaping areas adjacent to the water that provide transitions between trails and the water, with habitat supportive plant species
- An outlook on the east side of Boyer that provide sidewalk users with a place of rest that orient to the natural environment
- Pedestrian scaled lighting located to enhance user's safety and security

*b. Columns*

The parabolic shape of the long-span girders must be minimized as much as possible to maintain the light superstructure profile, with the profile of the columns curving up longitudinally to meet the smooth parabolic soffit of the bridge superstructure. This longitudinal taper of the columns where the column meets the underside of the bridge soffit should be designed proportionate to the height of the column so that the length of the lower column portion is significantly longer than the tapered portion that meets the bridge soffit. Column corner fillets should also be included, along with an exaggerated reveal.

For portions of this corridor, the use of columns has featured a base isolation typology establishing a deep shadow line where each column meets the girder or soffit, creating a sense of the bridge floating atop the

columns. This sense of the bridge floating atop the columns should be continued in this portion of the corridor.

### *2. Bridge deck*

The SDC supports the following attributes of the bridge deck:

- Massing as presented, including the smooth, parabolic soffit of the girders and the connections to the fluted columns
- Lighting, both for handrails on the SR 520 trail and the placement of lighting for both autos and trail users on the edges of the bridge rather than at the center
- Placing utilities and the ITS platform between the bridges as opposed to on the outside of the bridge and finding ways to obscure these elements as much as possible
- A smooth linear path for the SR 520 trail along the entire length of the bridge to promote legibility and reduce pinch points.
- Orderliness of the placement of the lighting, signage, columns, corbels, and other components of the bridge
- The rhythm created by organizing the bridge appurtenances and architectural components to provide a higher aesthetic experience to those looking at and travelling along the bridges (see image 8)
- Integration of architecture, engineering, and landscape architecture in design of all aspects of bridge

*a. Location and attributes of SR 520 Trail*

The SDC supports the SR 520 Trail location on the south side of the east bound lanes at Portage Bay Bridges, as it provides the best opportunity for continuing the path from its current terminus at Montlake to its proposed terminus at Delmar Drive East.

Attributes of this section of the SR 520 trail are like those found throughout the West Approach Bridge and Montlake corridor, including extension of railing systems and lighting oriented to pedestrian and bicycle movement, with integrated corbels expressed along the side of the bridge deck. Any modifications to the Portage Bay Bridge options reviewed by the SDC must maintain a smooth linear path for the SR 520 trail along the entire length of the bridge to promote legibility and smooth operations for both regional and local users.

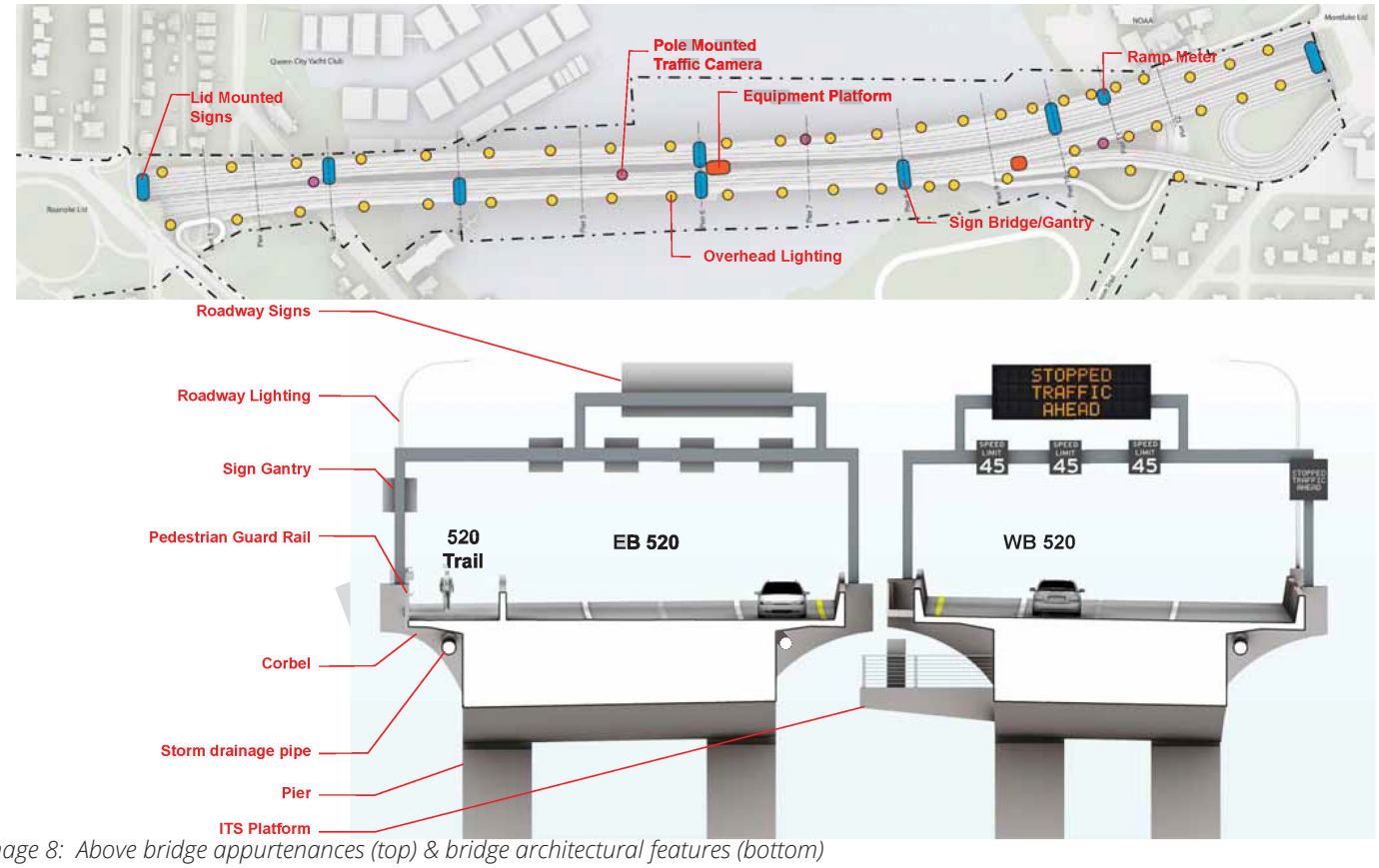


*Image 8: Above bridge appurtenances (top) & bridge architectural features (bottom)*

*b. Integrations and distribution of highway signage*

The SDC endorses the Portage Bay Bridge conceptual design that brings the signage in alignment with other appurtenances and architectural elements to create an orderly visual rhythm to the bridge. The SDC understands that highway signage is largely determined by regulatory requirements. Still, choices are made in the design and placement of signage within these restrictions. The SDC supports Portage Bay Bridge designs that minimize the amount of signage and place it in a way that it reduces visual clutter and contributes to a larger visual objective for the bridge.

*c. Use of color in concrete and signage*

The use of color in concrete and its application can reduce the appearance of structure mass and density. Colors should be chosen and applied in a manner that will reduce the overall bridge bulk and mass and streamline its appearance. Signage and lighting on the bridge should consider using coordinated color or metal type for signage and lighting to provide distinction from the rest of the corridor and to contribute to the overall quality of the bridge design.

***3. Additional concepts to shape acceptable alternatives and modifications***

The 2019 SDC collaboration with WSDOT provided input and direction to create bridge structures designed to appear like a boulevard, with design details that minimize the appearance of bulk, resulting in a sense of lightness in the overall mass and appearance of any bridge structures. Any modifications to the bridge designs that were evaluated by the SDC must not result in a larger, heavier looking structures that appear more like a freeway and less like bridges and a boulevard. Additionally, any alternative must fully achieve the vision and intent of the original concept designs developed to gain the SDC support, not just achieve cost or time savings.

To gain the SDC's support, any alternative must clearly document that the boulevard effect of the current solution can still be achieved, along with documentation that the environmental or urban design impacts from the alternative can be reduced or mitigated sufficiently. Extensive analysis on the urban design implications and benefits of alternative bridge solutions should be demonstrated, including:

- A lightness in the appearance of the structure
- Reduced number of columns, with no increase in overall net column width or outer limits of superstructure width
- An increase in habitat enhancement in those under bridge areas that will see a reduction in light, an increase in shadows, or both
- Inclusion of light penetrating surfaces that will offset areas that will be shaded as a result of widened single span
- For any structure, create a boulevard-style effect using lighting (maintaining street lighting along the edges of the bridge and not along the center), signage and other urban design details

*Areas for further study*

1. Require handrail lighting along the bridge deck and related connections
2. Provide an incentive for an enhanced lighting concept
3. Investigate the use of color to offset the bridge mass and bulk
4. Provide guidance that elevates urban design solutions for highway signage, in addition to meeting industry and governmental standards
5. Consider requiring the design-builder to engage a nationally recognized bridge architect for final design of the bridge and SR 520 trail connections

*D. Improvements to segments of the Bill Dawson trail;*

The purpose of this project feature is to upgrade and enhance the segment of the Bill Dawson bicycle and pedestrian trail that abuts Montlake SR 520 trail investments (see image 9)

The Bill Dawson trail begins at Montlake and Shelby Streets in the Shelby Hamlin neighborhood immediately

south of the Montlake Cut. The trail extends south along Montlake, turns westbound and continues under the eastern landing of the Portage Bay Bridges, heading south along and abutting Montlake Playfield, to its terminus at East Calhoun Street in the Montlake neighborhood. The Bill Dawson trail divides from the SR 520 trail at the Montlake Playfield where it emerges from under the Portage Bay Bridges.

*Image 9: Bill Dawson Underpass*

The SDC supports the project elements of this feature that include:

- Separating the Bill Dawson trail from the SR 520 trail through a raised walkway of at least 6 feet in width to provide increased safety and sense of safety for pedestrians in an area where visibility is less optimal.
- Creation of mixing zone intersections between the Bill Dawson trail and the SR 520 trail near Montlake Blvd to the north and at the Montlake Playfield, where the SR 520 and Bill Dawson trails diverge
- Lighted trail segments at key locations including intersections and under bridge areas to enhance safety and security
- Designs that foster a unique experience for cyclists and pedestrians that removes incentives for inappropriate behavior or activities

In addition to the urban design intent applied to the SR 520 Trail relative to underbridge areas at Portage Bay, the urban design intent to be applied here include:

- A design that reinforces the identity of the Bill Dawson Trail while maintaining the SR 520 trail as being the primary through-trail element, due to the higher number of SR 520 trail users
- A design with features that create a hospitable place for passage through an area under a freeway bridge
- Consider grade changes at the Montlake playfield portion of the trail to help support a direct and efficient rise of the SR 520 trail to the Portage Bay bridge deck
- Fencing that contibutes to a hospitable environment under the bridge, in particular along side the water areas under the Portage Bay bridges, and fencing along the trail abutting the NOAA properties
- Lighting that its incorporated into the bridge infrastructure
- Clear distinction between the SR 520 trail and the Bill Dawson trail through variation in material, grade differences with a curbed and raised surface for pedestrian traffic
- Mixing zones and intersections with high visibility from adjacent public realm, with clear sight lines for all modes of travel

*Areas for further study*

- Specify the scale of rocks, logs and erratics, scaled to human activity
- Early engagement with an artist or artist team to provide the underbridge treatment based on
  - Light reflection
  - Interesting character/landmark
  - durability

*E. Improved pedestrian and bicycle facilities and connections along Roanoke Ave E between Boylston Ave East to the West and Delmar Drive to the east, including enhancements to the existing bridge structure crossing Interstate 5*

The purpose of this project feature is to provide improved City pedestrian and bicycle facilities that link with WSDOT investments west of the Roanoke Lid, along Roanoke, terminating at the SR 520 trail connection at Delmar Drive East

The SDC supports the following elements of this project feature that include:

- Upgraded pedestrian and bicycle facilities at the Boylston and E. Roanoke intersection, including improved intersection crossing and curb ramps
- An improved I-5 crossing on the south side of Roanoke between Boylston and the Harvard Avenue East exit from SR 520, provided in a new structure that abuts the existing bridge structure, that includes
  - a 14-foot-wide pedestrian and bicycle path with related landscaping areas
  - an amenity zone between the curb line and the edge of the existing structure
- A multipurpose path between Harvard Ave E exit and 10th Avenue East, abutting the City's Fire Station 22 and Washington State Patrol facility
- Updated crosswalk features at Harvard Avenue East and East Roanoke and the intersection of 10th Avenue East and East Roanoke
- A sidewalk area east of the 10th Avenue and East Roanoke intersection to Delmar Lid that includes widened sidewalk areas that connect into the Park at Roanoke Lid

The urban design intent of the enhanced I5 crossing include:

- A landscape planting area along the expanded bridge deck crossing I5 that will support a diversity of planting types suitable for the location, given factors such as
  - the depth of the structure to support plantings,
  - design of the new bridge structure,
  - the location over a freeway
  - the role of planting and vegetation as part of the overall identity of the Roanoke Lid and related investments
- The use of a stamped cobble or stone cobble design in the amenity zone
- Lighting scaled for both automobile movement with additional smaller scale lighting to serve pedestrian and bicycle movement

The urban design intent of the segment from Harvard Ave E exit to 10th Avenue East include:

- A minimum 10-foot-wide sidewalk area, with options that help to distinguish bicycle and pedestrian movement due to the reduction in width from 14 feet at the enhanced I5 crossing to 10 feet in this segment (see image 10)
- Planting of trees on either side of the sidewalk, to provide a neighborhood scale pedestrian experience
- Cobra head fixtures, with opportunities for pedestrian oriented lighting

*Image 10: 10th Ave Underpass*

The urban design intent of the improvements along Roanoke, from

10th Avenue East to Delmar Drive (lid shared use path) include:

- A 14-foot-wide path that includes a 12-foot-wide shared path for wheel propelled movement, framed by 1-foot wide concrete paved detailing
- A separate 2-foot-wide gravel soft-shoulder path

The urban design intent applied at the Delmar Drive intersection with the SR 520 trail include

- A concrete raised intersection, with 6x6 scoring, transitioning to 2 x 2 scoring at pedestrian/bicycle crosswalk areas
- Reflective striping at connections between the SR 520 trail and the intersection
- A concrete ramp transition area between the elevated concrete mixing zone and the hot mix asphalt roadway paving

*Areas for further study*

1. A pedestrian and bicycle demand analysis for SR 520 trail connection and the multi-use path in the right of way, used to evaluate the proposed width and dimensions of pedestrian and bicycle connections and intersections.

### *F.A new pedestrian and bicycle connection between East Miller to the south and the Roanoke lid to the east, including a tunnel connection under 10th Avenue East.*

The purpose of this project feature is to provide pedestrian and bicycle connections from neighborhoods to the south and west of the Roanoke Lid to the Lid, and to its connections to the SR 520 trail.

The SDC supports project elements that include:

- A minimum 14-foot wide pathway that includes a 12-foot-wide hard surface with 1-foot wide concrete surface on either side
- A minimum 5-foot wide planting zone that frames either side of the entire trail between Miller and the Roanoke Lid
- A minimum 20-foot-wide tunnel under 10th Avenue East that include the 14-foot-wide path plus an addition 6-foot-wide grade separated sidewalk on one side, for all ages and abilities
- A concrete path from 10th Avenue East to the west portal of the tunnel that provides an accessible route for all ages and abilities
- Railing systems located at the outside edge of each planting zone that includes protective measures where significant grade changes occur

The urban design intent of these features includes:

- Pedestrian scale lighting along the path that is the same size and style as other pedestrian scale lighting used on the Roanoke Lid
- A tunnel with concrete panels applied in a varied pattern that establishes a rhythm resulting in a breaking down the vertical and horizontal scale of the space that include:
  - Articulated concrete wall panels of different sizes and angles, and colored to match other concrete wall surfaces throughout
  - Lighting placed and integrated into the tunnel to enhance safety and security
  - A rolled curb between the pedestrian and bicycle routes
- Lighting scaled for pedestrian and bicycle users

*Areas for further study*

- Extension or integration of the interior concrete panels to the retaining walls at tunnel entrances

# Seattle Design Commission Report:

## Urban Design Principles for Portage Bay Bridge and Roanoke Lid

SR 520 'Rest of the West'

Appendix

Seattle design Commission



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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.

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.

## Option 1: Cable Stay Bridge

### 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:

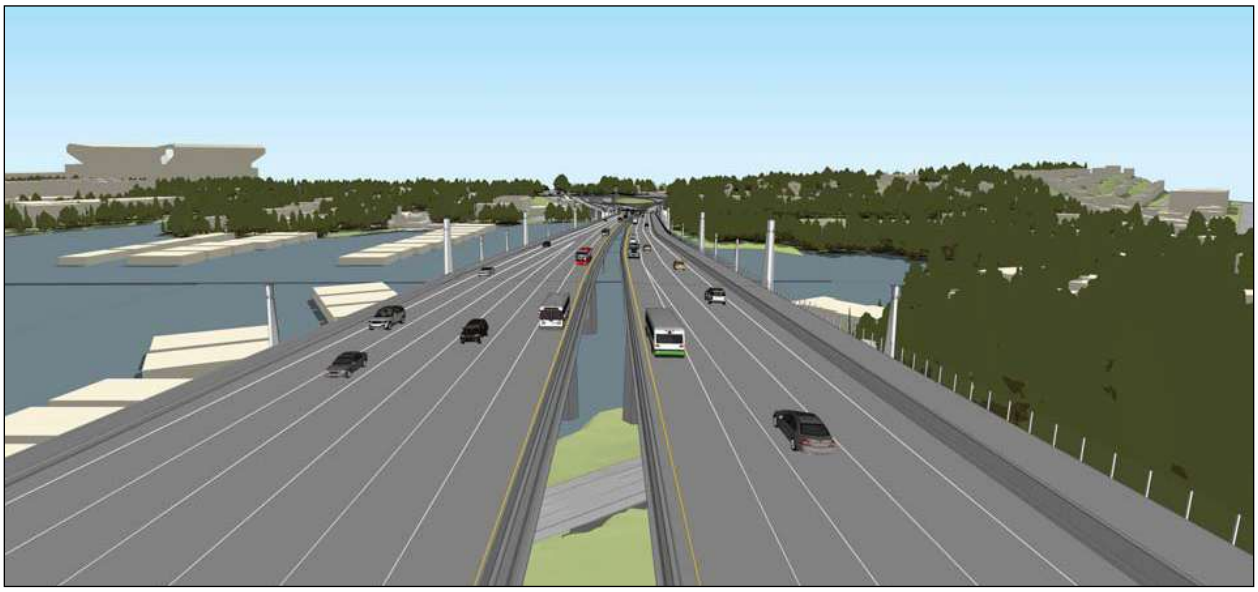
- Maximize the cable stay technology to significantly reduce the profile of the bridge deck, size of vertical elements, and number and girth of columns in the water. The bridge should be as thin and light on the water as possible. Take great care not to create a structure that overwhelms the scale of 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.

## Option 2: Box Girder Bridge

**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.

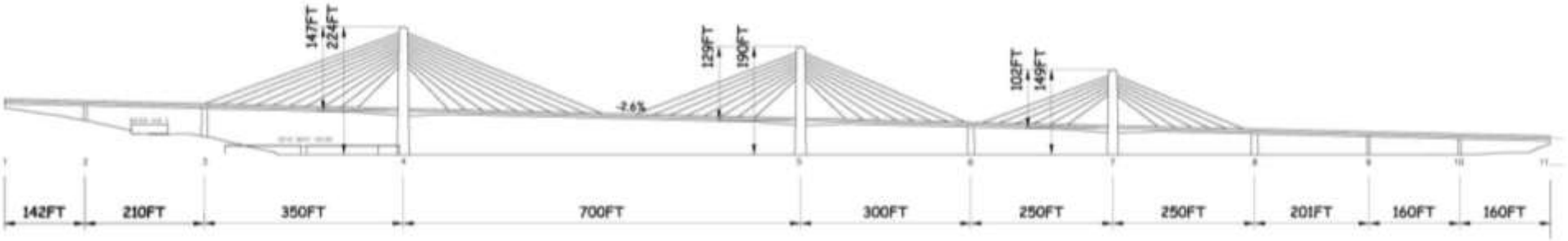
We recommend that the State and City explore the idea of retaining part of the ramps to nowhere. They are located where plans are underway to expand recreational use as part of the Arboretum North Entry project. There is an important opportunity to enrich that design of that project with these socially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

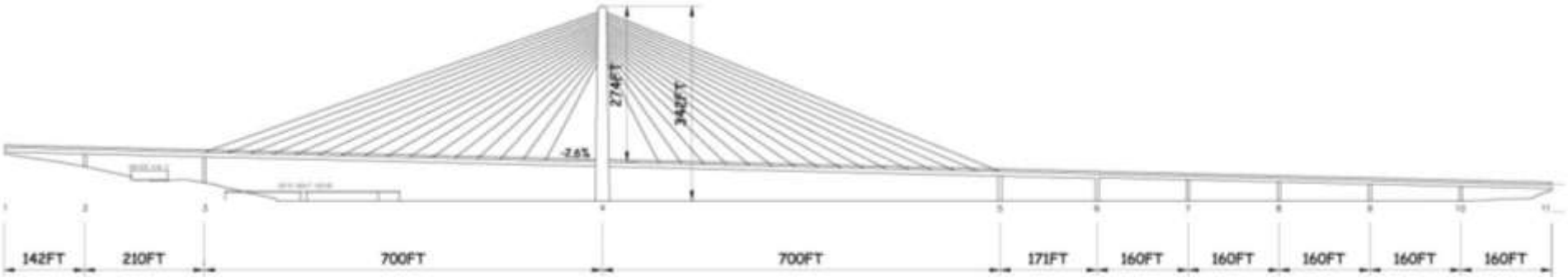
CC: Diane Sugimura, DPD Director
Scott Kubly, SDOT Director
Nathan Torgelson, DPD Deputy Director
Lyle Bicknell, DPD
Bernard Van De Kamp, SDOT
Kerry Pihlstrom, WSDOT

**Attachment A**

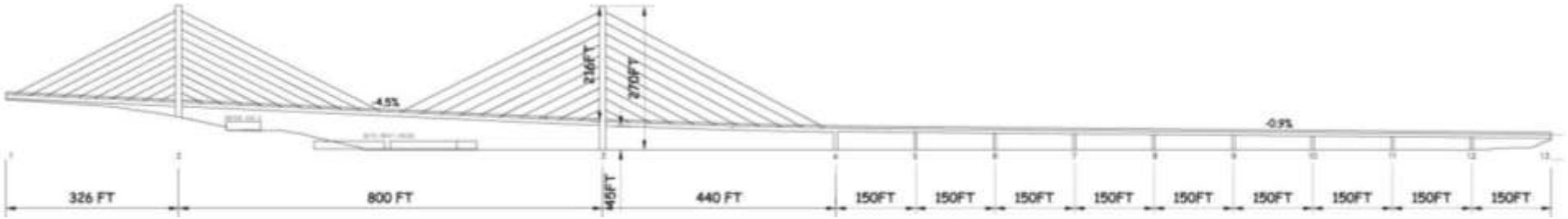
Cable stay bridge designs presented to the SDC




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



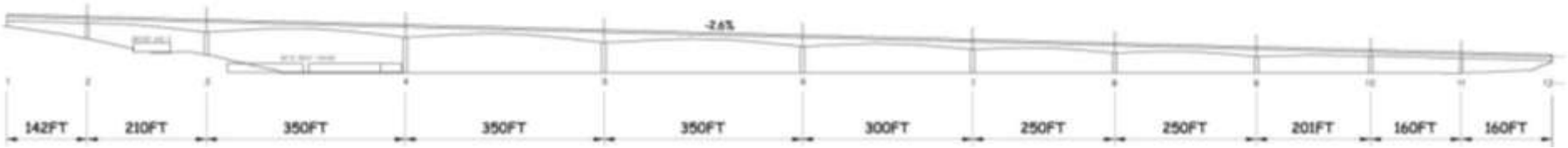

**June 17, 2014** – one tall tower (274 feet above bridge deck) and uniform 2.6% grade



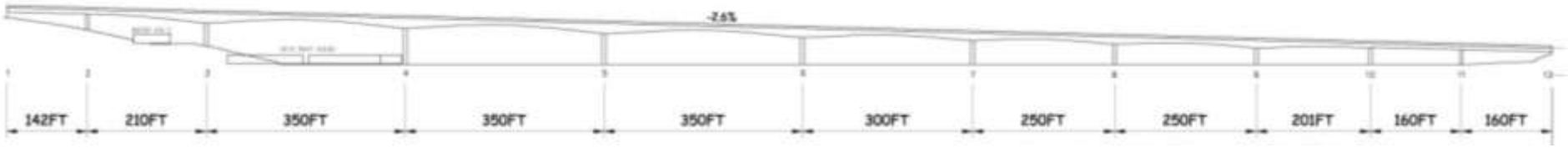

**FEIS Baseline Design** – two towers of equal height (each 216 feet above bridge deck)

**Attachment B**

Box girder bridge designs presented to the SDC




**July 8, 2014**




**June 17, 2014**


**FEIS Baseline Design**

Seattle design Commission

APPROVED MEETING MINUTES
June 6, 2019

# SR 520 Portage Bay Bridge & Roanoke Lid



**Office of Planning and Community Development**
**Seattle City Hall**
600 4th Avenue, 5th Floor
Seattle, WA 98124

**TEL** 206-684-0435
**FAX** 206-233-2784
seattle.gov/designcommission

**Commissioners Present**
Ben de Rubertis, Chair
Brianna Holan, Vice Chair
Rikerrious Geter
Laura Haddad
Mark Johnson

**Commissioners Excused**
Justin Clark
Rick Krochalis

**Non Voting Commissioners Present**
Amalia Leighton
Vinita Sidhu
Elaine Wine

## Project Description

The Washington State Department of Transportation (WSDOT) is redeveloping the Seattle segment of the State Route (SR) 520 corridor between I-5 and Lake Washington. The redevelopment will include new bridges that meet current seismic standards, HOV capacity, updated roadways, new pedestrian and bicycle facilities, improved transit connections, open spaces, and enhanced non-motorized connections. The project is being developed in several phases. The Seattle Design Commission (SDC) is providing guidance to WSDOT and the SR 520 team on urban design concepts for the Roanoke Lid and Portage Bay Bridge, which will be constructed following the awards of a design-build contract. The proposed concepts will include design elements and principles that will be embedded in WSDOT's request for proposals (RFP) which will be used to receive bids from design-build project teams.

## Meeting Summary

This was the SDC's first briefing of the SR 520 – Roanoke Lid and Portage Bay Bridge project design. The purpose of this meeting was to review the proposed concept design for the project. After the presentation and discussion, the SDC provided a summary of recommendations for the project team to consider. The SDC will review the project again at a future date. The SDC is also holding discussions with the project team in subcommittee meetings between full SDC meetings.

## Recusals and Disclosures

**Brianna Holan** disclosed that she had previously worked on the project while working for LMN Architects

**June 6, 2019**

2:30 - 4:00 pm

**Type**

Major Project

**Phase**

Briefing

**Previous Reviews**

None

**Presenters**

Michael Fitzpatrick
SR 520 Design Team

Matt Gurrad
SR 520 Design Team

Osama Quotah
SR 520 Design Team

Dawn Yankauskas
WSDOT

**Attendees**

Adam Amrhein
LMN Architects

Joe Basile
WSDOT

Lyle Bicknell
OPCD

Omar Jepperson
WSDOT

Victoria Morris
WSDOT

Amanda Tse
SDOT


*Figure 1: Project location*

## Summary of Presentation

Dawn Yankauskas, SR 520 Westside Engineering Manager, and Michael Fitzpatrick, Matt Gurrad, and Osama Quotah, of the SR 520 Design Team presented the design concept for the Portage Bay Bridge and Roanoke Lid project. The presentation included a update on the overall process, vision, and overview for the SR 520 'Rest of the West' project. The team then presented the context and design approach for the Portage Bay Bridge and Roanoke Lid projects (*see figure 1*) and how it is integrated within the overall SR 520 'Rest of the West' project.

The presentation then focused on the continued development for the Portage Bay Bridge and Roanoke Lid project. The project will include elements of continuity, which are design elements that will be included throughout the Rest of the West project. Elements of continuity are (*see figure 2*):

- walls and finishes
- signage
- railing
- lighting
- bicycle and pedestrian facility treatments.

The project will also include elements of distinction, which are design elements and features that are unique to specific areas. Elements of distinction will be located in the following project areas (*see figure 2*):

- The East connections focus on bike and pedestrian connections along the RSUP and Bill Dawson Trail between Montlake Blvd and Portage Bay Bridge and include areas such as the Bill Dawson Underbridge, a pedestrian and cyclist underpass located below the SR 520.
- The Portage Bay Bridge area includes elements such as RSUP, HOV lanes, and columns and support as well as lighting, signage, and railing design.
- The Roanoke Lid area is located between Roanoke St, 10th Ave E, and Delmar Ave E and includes open space and viewpoints into the open space and surrounding area as well as direct connections to the RSUP, city bicycle facilities, and surrounding neighborhoods.
- The West connections include pedestrian and bicycle connectivity crossing Interstate 5 (I-5) along E Roanoke St as well as pedestrian and bicycle facilities crossing under 10th Ave E.

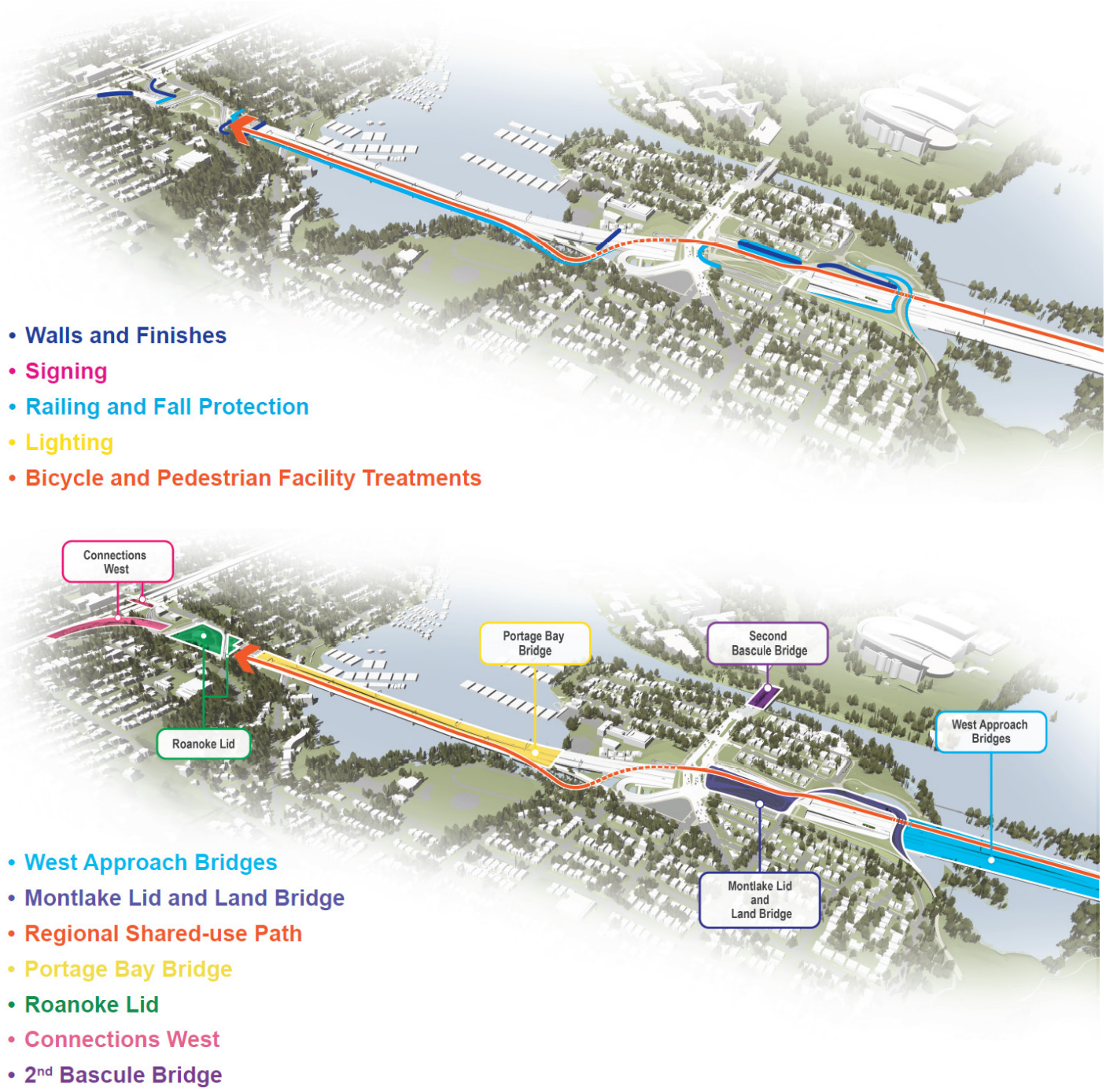



*Figure 2: Elements of continuity (top) and elements of distinction (bottom)*

## Agency Comments
**None**

## Public Comments
**None**

## Summary of Discussion
The Commission organized its discussion around the following issues:
- Portage Bay Bridge
- Roanoke Lid

*Portage Bay Bridge*
The SDC commended the project team for the initial Portage Bay Bridge design concept. Specifically, commissioners appreciated the proposed height of the bridge, which will provide an improvement for the

trails and pathways located below. The Commission highlighted several opportunities that can be achieved through the replacement of the Portage Bay Bridge. The SDC recommended the team continue to consider the elegance and lightness of the bridge as the design continues to develop. The SDC then discussed how the bridge will be seen and experienced from varying distances and locations. The commission encouraged the project team to consider the design of the bridge, as well as the user experience, from different locations near, on, and below the bridge. Commissioners were especially interested in understanding how users will interact and experience specific elements such as the columns as well as understanding how people will experience the bridge from the water below. Several commissioners recommended the team explore ecological opportunities in the design of the portion of the bridge columns that are submerged beneath the water. The SDC then expressed concern with the amount of signage on the bridge deck and its relationship to the overall design on the bridge deck. Commissioners recommended the project team consider the amount of signage that is actually needed and then to provide renderings that are reflective of the amount of signage proposed.

The SDC expressed concern with the proposed design of the RSUP where it connects to the Roanoke lid. Commissioners recommended the project team consider avoiding switchbacks and encouraged the team to consider an alternative solution or alternative location for the RSUP to connect from the bridge that is more intuitive for users.

*Roanoke Lid*
The SDC commended the project team for the Roanoke Lid design proposal. Commissioners agreed that the project team was setting up a successful design concept and strongly recommended they focus on developing a few programmatic elements rather than attempting to design several small elements that can negatively impact the overall function of the open space. Commissioners then recommended the project team continue to develop the lid to serve as a destination, providing users with flexible open space rather than attempting to prescribe specific active elements. The SDC then acknowledged that the view points providing views into the open space as well as the surrounding area will be a major destination. The SDC discussed community involvement in the design and identification of program elements. Commissioners then recommended the project team continue to listen to the community when thinking about potential elements for the open space. The SDC strongly recommended that the project team specify tree canopy goals for the lid when writing the RFP.

The SDC strongly recommended the project team continue to think about connectivity between the lid and surrounding local and regional trails. Commissioners encouraged the project team to consider connectivity when writing the RFP.

## Action

The Commission thanked the project team for their presentation of the design for the SR 520 Roanoke Lid and Portage Bay Bridge project. The SDC provided the following recommendations that should be addressed as the design continues to develop:

*Portage Bay Bridge*
1. Increase the lightness and elegance of the bridge.
2. Consider the experience of the bridge from the water.
3. In addition to considering the pedestrian interaction with sculpted concrete work, consider the experience from the water.
4. Explore adding ecological value with the sculpting of the columns in the water.
5. Consider the views of the columns not just from far away but also from closer, such as 10 ft away.
6. Be realistic when rendering and considering the amount of signage that will be needed for the project.
7. Avoid switchbacks and explore peeling the RSUP off of the mainline of the bridge where it will result in an elegant solution.

*Roanoke Lid*
1. Continue to develop just a few larger programmatic moments rather than many small ones with the lid space.
2. Look to other signature spaces for ideas that draw people to a destination without programming them with active uses.

3. The views are the biggest draw, but listen carefully to the community to identify other attractions that are passive.
4. Consider having the trail run along the north side of the bridge and use the lid to accommodate grade.
5. Be sure that there is intentionality with where the trail connects into the City bike facility network.

Seattle design Commission

APPROVED MEETING MINUTES
September 5, 2019

# SR 520 - Roanoke Lid & Portage Bay Bridge



**Office of Planning and Community Development**
**Seattle City Hall**
600 4th Avenue, 5th Floor
Seattle, WA 98124

**TEL** 206-684-0435
**FAX** 206-233-2784
seattle.gov/designcommission

**Commissioners Present**
Ben de Rubertis, Chair
Brianna Holan, Vice Chair
Justin Clark
Laura Haddad
Rick Krochalis
Elaine Wine
Vinita Sidhu

**Commissioners Excused**
Mark Johnson
Amalia Leighton

## Project Description

The Washington State Department of Transportation (WSDOT) is redeveloping the Seattle segment of the State Route (SR) 520 corridor between I-5 and Lake Washington. The redevelopment will include new bridges that meet current seismic standards, HOV capacity, updated roadways, new pedestrian and bicycle facilities, improved transit connections, open spaces, and enhanced non-motorized connections. The project is being developed in several phases. The Seattle Design Commission (SDC) is providing guidance to WSDOT and the SR 520 team on urban design concepts for the Roanoke Lid and Portage Bay Bridge, which will be constructed by a design-build contract. The proposed concepts will include design elements and principles that will be embedded in WSDOT's request for proposals (RFP) which will be used to receive bids from design-build project teams.

## Meeting Summary

This was the SDC's second briefing of the SR 520 – Roanoke Lid and Portage Bay Bridge project design. The purpose of this meeting was to review the updated concept design for the project. After the presentation and discussion, the SDC provided a summary of recommendations for the project team to consider. The SDC will review the project again at a future date.

## Recusals and Disclosures

**Brianna Holan**, disclosed that she had previously worked on the project while working for LMN Architects

**Justin Clark,** Disclosed that his employer, WSP, is a sub consultant for WSDOT's Owner's representative team, but that he has not worked on the project in any capacity.

**September 5, 2019**
9:00 - 11:00 am

**Type**
Major Project

**Phase**
Breifing

**Previous Reviews**
6/6/19

**Presenters**
Michael Fitzpatrick
SR 520 Team

Matt Gurrad
SR 520 Team

Victoria Morris
SR 520 Team

Osama Quotah
SR 520 Team

**Attendees**
Hasti Afkham
SR 520 Team

Adam Amrhein
SR 520 Team

Joe Basille
SR 520 Team

David Graves
SPR

Donal King
Mimar Studio

Ron Paananen
SR 520 Team

Amanda Tse
SDOT

Stephen Van Dyck
SR 520 Team

*Figure 1: Project location*

## Summary of Presentation

Victoria Morris, Osama Quotah, Michael Fitzpatrick, and Matt Gurrad, of the SR 520 Team presented the updated concept design for the Roanoke Lid and Portage Bay Bridge. The project team began with project updates as well as updates for the public outreach process. The team then reminded everyone of the "Nature meets City' vision for the SR 520 'Rest of the West' project as well as an overview of the overall project between Lake Washington and I-5. The team then explained how the Roanoke Lid and Portage Bay Bridge fit within that vision and project context. The rest of the presentation focused on design updates to the Bill Dawson Trail and Boyer St underbridge areas, Portage Bay Bridge, and Roanoke Lid.

The Bill Dawson Trail and Boyer St underbridge area designs address pathways crossing below the SR 520 Bridge. The Bill Dawson underbridge provides a connection between the regional shared use pathway between the Montlake Lid and Bill Dawson Trail before transitioning up to the SR 520 trail running along the Portage Bay Bridge. The Boyer underbridge will provide a trail connection between Boyer Dr and Delmar Dr. Both underbridge areas are designed to encourage movement and will include a shared use pathway, sidewalk, and lighting, as well as crushed gravel and boulders near the bridge abutment. Proposed landscape will help restore and enhance shoreline and wetland habitats while providing a buffer between the trail and adjacent residences. *See figures 2 & 4 for more detail.*

The Portage Bay Bridge will either include a singular or dual bridge design. The project team will decide on which design to use based on environmental and community impacts as well as bridge geometry, location of utilities, traffic systems, and lighting. The proposal includes a box girder bridge design with tapered piers, highway lighting, signage, and a 14-foot wide shared used pathway on the south edge of the south bridge. The design also includes two alternatives for proposed railing that includes a continuous or interrupted railing pattern. The interrupted railing pattering integrates the lighting bases. *See figure 3 for more detail.*

The Roanoke Lid design includes as series of open spaces, gateway features, streetscapes, and pathways and connections to surrounding trails and neighborhoods. The lid is separated into three sections that are divided by 10th Ave and Delmar Dr. The sections west of 10th Ave and east of Delmar Dr include small open spaces, pathways, and mature vegetation and street trees. The area between 10th Ave and Delmar Dr will include a large open space with

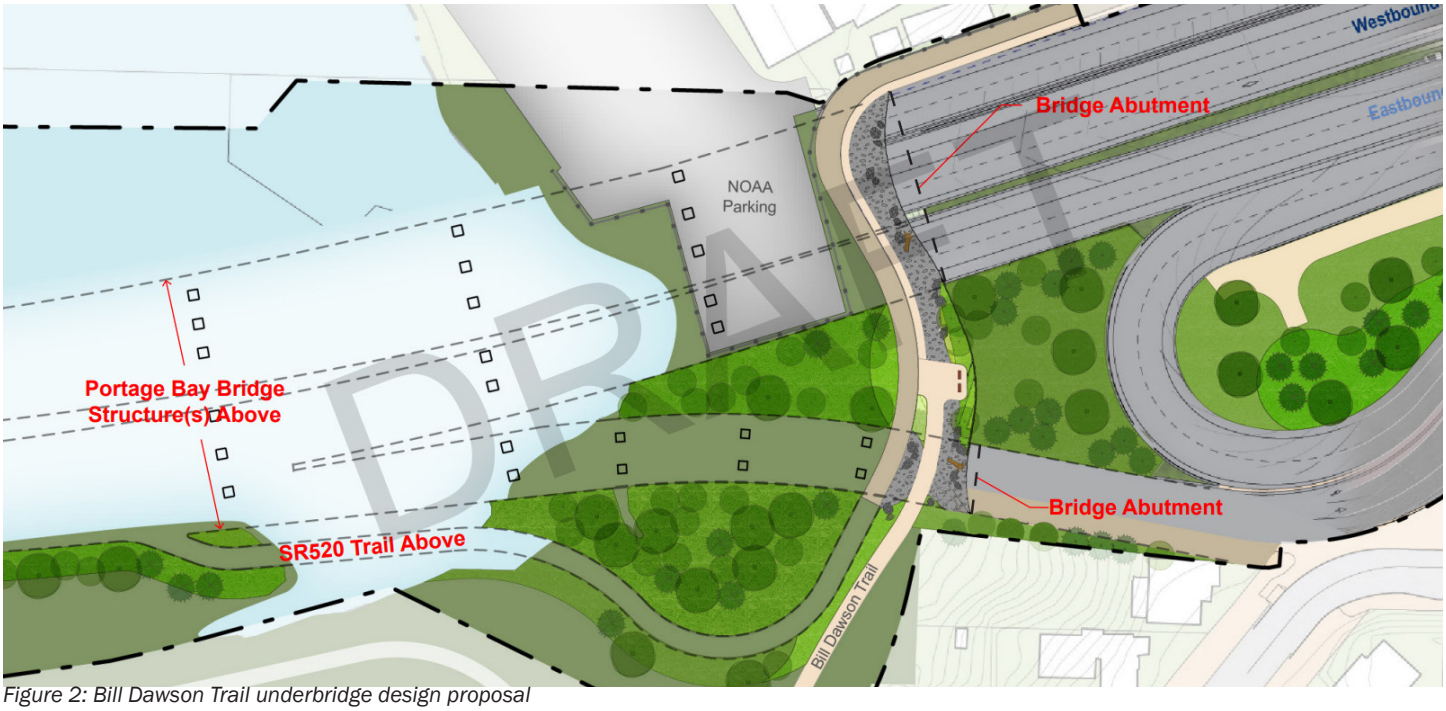



*Figure 2: Bill Dawson Trail underbridge design proposal*

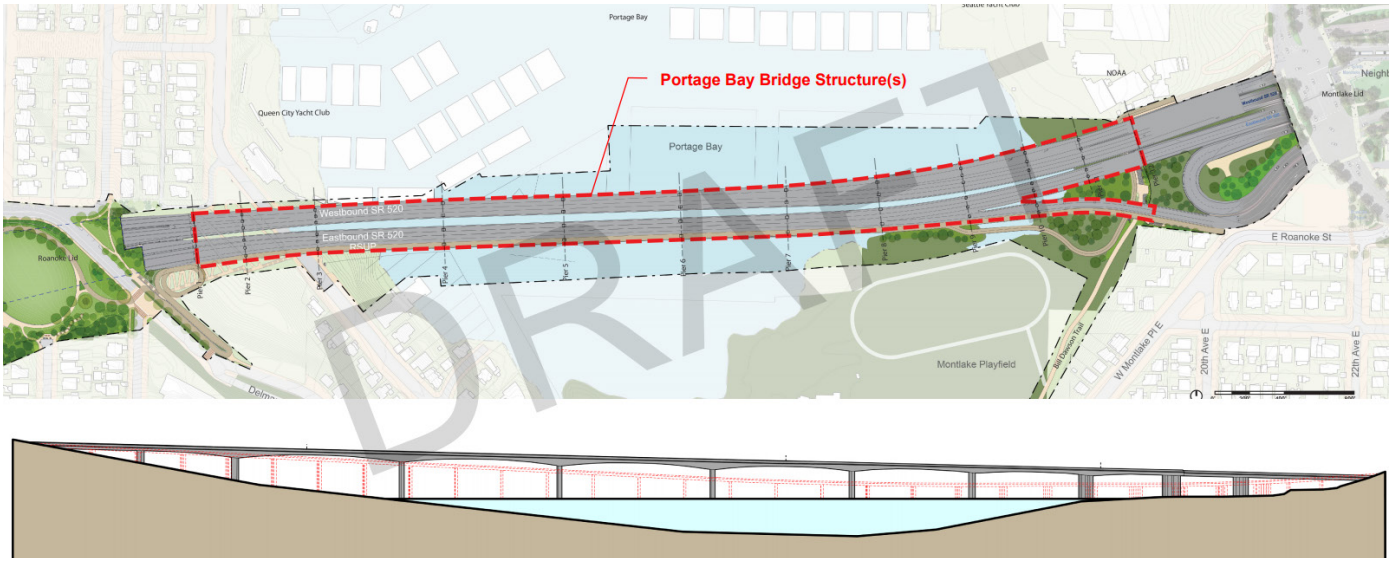



*Figure 3: Portage Bay Bridge design proposal*


*Figure 4: Boyer underbridge design proposal*


*Figure 5: Roanoke Lid design proposal*

a central lawn area, mature trees and other vegetation. A shared use pathway will wrap around the northern portion of the central open space. The proposed lid design will also provide connections between the central open space and Delmar Dr, Federal Ave E, 10th Ave E, and E Roanoke St. The northwest and southwest corners of the central lid space along 10th Ave E are identified as neighborhood gateways and will include design features such as unique park sign, bike racks and parking area, drinking fountain, special paving, seating, and gathering space. Several overlooks are located on the southern portion of the lid near 10th Ave E and at the Federal Ave E street end and will include seating, special paving, and lean rails. The proposed planting framework will be used to transition from on space to another as well as restoring and enhancing habitat functions along the shoreline, wetlands, steep slopes. *See figure 5 for more detail.*

## Agency Comments

**Lyle Bicknell**, OPCD, commended the project team for their continued discussion on design issues and then reminded everyone of the reason for choosing a simpler bridge typology for the Portage Bay crossing, which was due to fitting in with scale of the bridge typology of the early 1900's. Lyle Bicknell then mentioned that the current bridge design was also chosen to better integrate a smaller structure with the surrounding environment and to allow for more natural light come through. They then stated that the discussion around providing a single or double bridge is very relevant and strongly encouraged the SDC to discuss.

Lyle Bicknell then discussed the proposed open space on the Roanoke Lid. They agreed the updated design was comprehensive and provided thoughtful connections to the surrounding trail and neighborhoods. Lyle Bicknell then mentioned that the project team needs to think about the location of the signal control box and emergency generator, stating that the location will have a visual effect on the surrounding right-of-way, which is designated as an Olmsted historic corridor.

**David Graves**, SPR, stated that they proposed open space is a great opportunity to increase the usability of the Roanoke Lid and that it will engage well with the surrounding neighborhood. David then mentioned that the proposed lid and open space will compliment Roanoke Park. They then encouraged the project team to think about the lid as open space and cautioned the team from over programming the space.

## Public Comments

**None**

## Summary of Discussion

The Commission organized its discussion around the following issues:

- Portage Bay Bridge structure and design
- Roanoke Lid
- Underbridge areas

*Portage Bay Bridge structure and design*

The SDC appreciated the continued work being done on the Portage Bay Bridge design. Specifically, commissioners appreciated the tapering of the piers and columns below the bridge as well as the continued breaking down of scales and creating a rhythm of different elements such as lighting, blisters, railing, and signage. The SDC strongly encouraged the project team to ensure these are represented in the final design. The Commission did not have a preference regarding the integration of the blisters and railing, but recommended the team continue to break down the scale of the bridge with specific elements and to also consider how the rhythm of each bridge elements can be integrated with one another.

The SDC then commented on the proposed lighting. Commissioners agreed the existing lighting proposal seemed out of scale for pedestrians and recommended the project team study using smaller, pedestrian scaled lighting. Encouraged the project team to consider using lighting as a gateway element and also recommended the project team compare the proposed lighting options to existing lighting conditions.

*Roanoke Lid*

The SDC commended the project team for providing additional connectivity between the Roanoke Lid open space and the surrounding neighborhoods. Commissioners agreed the open space would serve as a destination for trail users and neighborhood residents. The Commission also appreciated how each gateway is uniquely designed and will provide differing experiences for users.

The SDC also agreed with the location, size, and grade of the open space and strongly encouraged the project team to continue to be mindful of creating a true park experience. The Commission also encouraged the project team to explore providing additional seating along the edges and areas away from the overlook to serve as an opportunity to rest.

*Underbridge areas*

The SDC agreed the proposed design for the Bill Dawson Trail underbridge is an improvement over what currently exists, but also strongly recommended the project team consider the scale of elements proposed within the context they are located. Specifically commissioners are concerned with the scale of the proposed boulders and recommended the project team be prescriptive about the scale of specific elements as it relates to the surrounding context. Commissioners appreciated the separation of pedestrian and bicycle traffic along the Bill Dawson Trail under SR-520. They encouraged the project team to continue to explore the width and materiality of the pedestrian portion of it to elevate a sense of hierarchy of use and to provide solutions to ensure the pathway provides sufficient space for both cyclists and pedestrians. Commissioners also encouraged the project team to consider narrowing the bicycle pathway and/or striping the mixing zones to encourage cyclist to slow down. The Commission recognized the low visibility around the turn of the Bill Dawson Trail and encouraged the project team to increase the sidewalk width or to provide other options such as lighting, to improve pedestrian safety in that area.

The SDC then encouraged the project team to do study natural light conditions along the edges of the underbridges to better understand what areas are suitable enough to support vegetation.

## Action

The Commission thanked the project team for their presentation of design updates to the SR 520 Roanoke Lid and Portage Bay Bridge project. They appreciated the project team balancing community and citywide needs as well as focusing on connecting well within the surrounding neighborhoods. The SDC provided the following recommendations for the project team to consider as they further develop the design:

1. The SDC appreciates the tapering of pier and columns of the Portage Bay Bridge

2. The SDC appreciates the work being done to break down the scale throughout the Portage Bay Bridge design and recommends to continue breaking down scale as the project progresses.
3. Consider thinking about how to better integrate the rhythms of lighting, railing, blisters, and signage
4. Model how the one bridge and two bridge alternatives will look, especially below especially from below the bridge
5. Compare proposed lighting options against existing lighting conditions
6. Consider lighting as a special feature to serve as a gateway element
7. The SDC appreciated the connectivity into the neighborhood with distinct features of gateways and entry points along the Roanoke Lid
8. The SDC appreciated shaping the park as a place, and recommended the project team continue to be mindful of creating a true park experience
9. Explore adding more seating along edges (non-overlook) of the open space on the Roanoke Lid
10. Continue to explore the width and materiality of the pedestrian portion of the Bill Dawson Trail to support a of hierarchy of use and to provide solutions to ensure the pathway provides the right amount of space for both cyclists and pedestrians
11. Continue looking at alternatives in path edges and consider scale of elements, such as boulders and pavers, used along the Bill Dawson Trail underbridge to better fit with the surrounding context
12. Increase the sidewalk width and provide options to improve safety near the turn with low visibility on the Bill Dawson Trail

Seattle design Commission

APPROVED MEETING MINUTES
November 7, 2019

# SR-520 Roanoke Lid & Portage Bay Bridge



**Office of Planning and Community Development**
**Seattle City Hall**
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**Commissioners Present**
Ben de Rubertis, Chair
Brianna Holan, Vice Chair
Justin Clark
Laura Haddad
Rick Krochalis
Amalia Leighton
Vinita Sidhu
Lucas Whitesell
Elaine Wine

**Commissioners Excused**
Mark Johnson

## Project Description

The Washington State Department of Transportation (WSDOT) is redeveloping the Seattle segment of the State Route (SR) 520 corridor between I-5 and Lake Washington. The redevelopment will include new bridges that meet current seismic standards, HOV capacity, updated roadways, new pedestrian and bicycle facilities, improved transit connections, open spaces, and enhanced non-motorized connections. The project is being developed in several phases. The Seattle Design Commission (SDC) is providing guidance to WSDOT and the SR 520 team on urban design concepts for the Roanoke Lid and Portage Bay Bridge, which will be constructed by a design-build contract. The proposed concepts will include design elements and principles that will be embedded in WSDOT's request for proposals (RFP) which will be used to receive bids from design-build project teams.

## Meeting Summary

This was the SDC's third briefing of the SR 520 – Roanoke Lid and Portage Bay Bridge project design. The purpose of this meeting was to review the updated concept design for the project. After the presentation and discussion, the SDC provided a summary of conditions and recommendations for the project team as well as a summary of endorsed elements that should be carried forward into the RFP process.

## Recusals and Disclosures

**Brianna Holan** disclosed that she had previously worked on the project while working for LMN Architects

**Justin Clark** disclosed that his employer, WSP, is a sub consultant for WSDOT's owner's representative team, but that he has not worked on the project in any capacity.

**November 7, 2019**
9:00 am - Noone

**Type**
CIP

**Phase**
Briefing

**Previous Reviews**
9/5/19, 6/6/19

**Presenters**
Michael Fitzpatrick
SR 520 Team

Matt Gurrad
SR 520 Team

Victoria Morris
SR 520 Team

Osama Quotah
SR 520 Team

**Attendees**
Hasti Afkham
SR 520 Team

Adam Amrhein
SR 520 Team

Pete Delaunay
Portage Bay Roanoke Park Community Concil

Raichle Dunkeld
Meeting attendee

David Graves
SPR

Clair Leighton
SR 520 Team

Robyn Mills
SR 520 Team

Ron Paananen
SR 520 Team

Carl Stixrood
Portage Bay Roanoke Park Community Council

Amanda Tse
SDOT

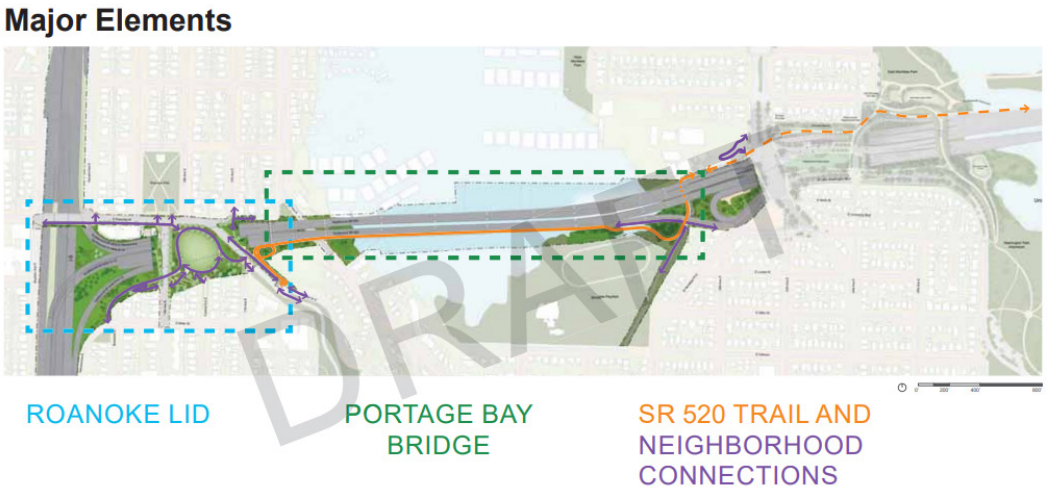


*Figure 1: Project location and neighborhood context*

## Summary of Presentation

Victoria Morris, Osama Quotah, Michael Fitzpatrick, Matt Gurrad, of the SR 520 Team, presented the third briefing of the SR 520 – Roanoke Lid and Portage Bay Bridge project. The presentation was organized to provide a summary of previous public outreach, project context, and sustainability and equity. The project team then discussed design updates to the Sr 520 Trail and neighborhood connections, Portage Bay Bridge, and Roanoke Lid.

The SR 520 trail network includes a series of trails on the east and west side of the Portage Bay Bridge as well as bridge connections, connecting the trails to a pathway along the Portage Bay Bridge *(see figure 2 for more detail.)* The updated design includes design elements that are consistent throughout the network, including the design of walls, pedestrian rails, lighting, mixing zones, and vegetation. The network also included unique design elements within the Bill Dawson Underbridge, bridge connections, 10th Ave Tunnel, and I-5 crossing.

The project team then provided updates to the Portage Bay Bridge design *(see figure 2 for more detail.)* The team provided a light and shade analysis for both one and two bridge options, but then focused on a two bridge alternative when presenting additional bridge elements such as roadway signage, lighting, railing, corbels, and piers. Lighting fixtures include WSDOT standard cobra head lighting as well as pedestrian scaled light poles and trail lighting within the railing.

The Roanoke Lid is designed to serve as a neighborhood green, connecting the North Capitol Hill and Roanoke neighborhoods, through a series of pathways, outlooks, viewpoints, and central open space *(see figure 2 for more detail.)* The lid will include planting palettes that will be unique to their specific environment. The north Capitol Hill buffer and Green Gateway will include mature trees and shrubs, while the planting palettes along East Roanoke St, Delmar Dr E, 10th Ave E will include street trees and low-lying vegetation. The proposed open space will not include specific programming elements but is designed to serve as a flexible space. The Roanoke Lid will also include a series of vehicular lighting along the street edges as well as pedestrian scaled lighting located throughout the open space, 10th Ave Tunnel, trail, and underbridge area.

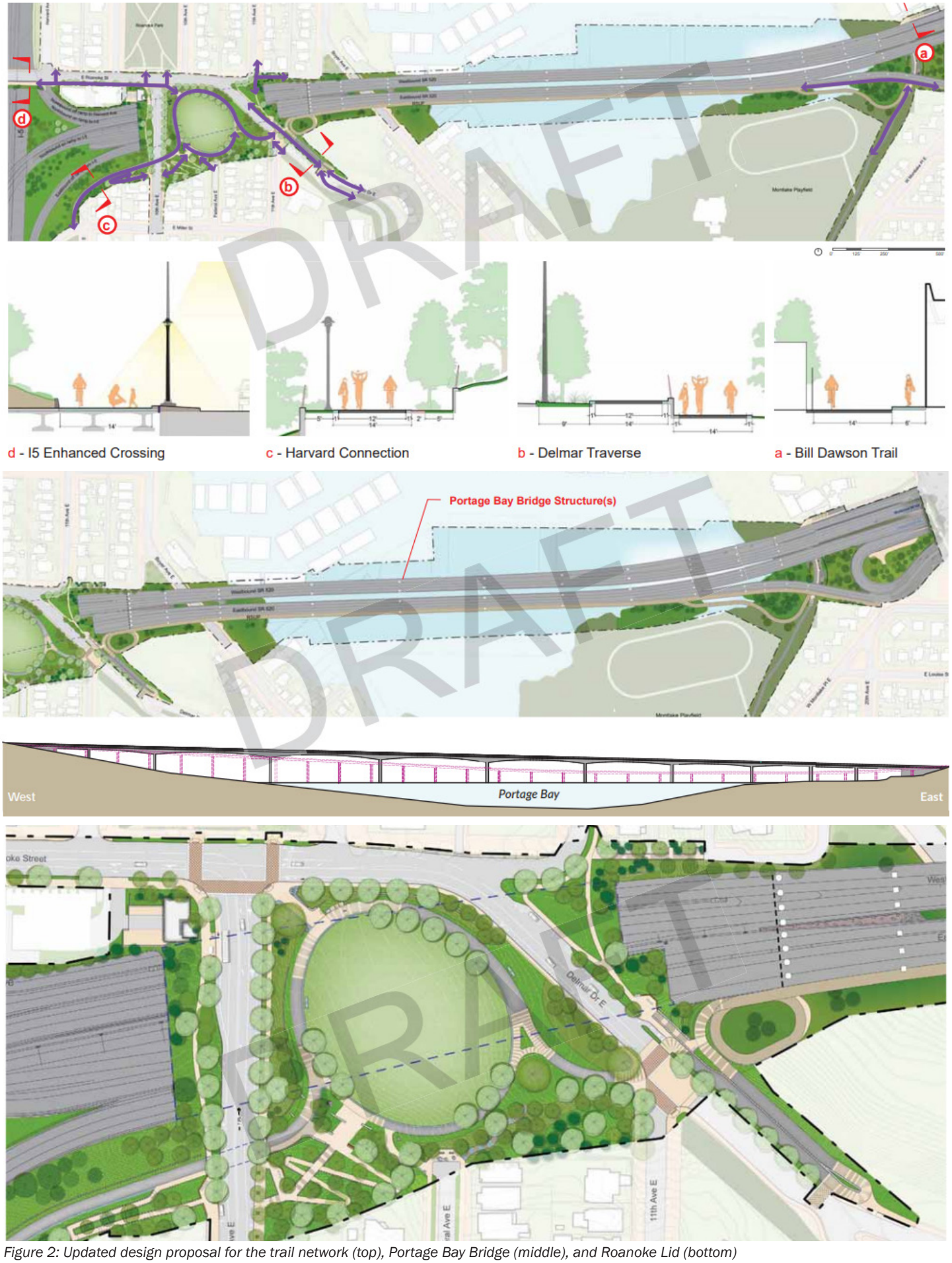




*Figure 2: Updated design proposal for the trail network (top), Portage Bay Bridge (middle), and Roanoke Lid (bottom)*

## Agency Comments

**Lyle Bicknell,** OPCD, stated that the SDC needs to recognize and endorse the design build model and elements that are of importance.

**David Graves**, SPR, mentioned that SPR will maintain the Roanoke Lid similarly to the way the Montlake Lid will be maintained. David commended the project team on their design proposal and then mentioned that the Roanoke lid has the potential to be very successful and to be valued by the surrounding neighborhood. David also stated that there has been a lot of discussion around programming for the Roanoke Lid and suggested that the space not be overprogrammed, allowing it to be a place that will become an asset to the community.

## Public Comments

**Pete Delaunay,** Portage Bay Roanoke Park Community Council, spoke towards the Historic character of the neighborhood and whether the proposed bridge design is representative of that historic perspective in terms of profile and lighting. Pete encouraged the SDC to analyze the design that WSDOT has proposed.

**Carl Stixrood,** Portage Bay Roanoke Park Community Council – is concerned that integration with the surrounding neighborhood has been left out from the project proposal. Carl then spoke about connectivity issues and the isolation of activities within the open space. Carl also mentioned that they are requesting a funding program for shoreline planting as well as planting along park to screen the adjacent road.

## Summary of Discussion

The Commission organized its discussion around the following issues:

- Regional Shared Use Path, trails, and connectivity
- Bill Dawson underbridge crossing
- Portage Bay Bridge
- Roanoke Lid and Boyer underbridge crossing

During the discussion of each issue, the Commission addressed the following:

- How the proposal reflects the concept design vision
- Elements that need to be moved forward into the RFP
- Additional recommendations
- Additional conditions

*Regional Shared Use Path, trails, and connectivity*

The SDC commended the project team for elevating the experience along the RSUP through the design and location of specific elements such as lighting and encouraged the team to think about opportunities to create a custom or unique lighting element to further elevate the user experience. The Commission then commented on the location and design of the mixing zones. Commissioners recognized the importance of the mixing zones and appreciated the continuity of paving materials used throughout each zone. The commission then recommended the project team specify in the RFP to maintain the design and location of each mixing zone and requiring the design build team to provide explanation for any design changes. The SDC then recommended that the RFP include criteria for providing design alternatives in the RFP to provide better understanding as to what alternatives should include.

The SDC then recognized that the RSUP provides many regional and local trail connections and that, while local connections should be maintained, the regional path should have priority connectivity over local use.

*Bill Dawson underbridge crossing*

The SDC discussed the proposed layout and design of the ground plane of the Bill Dawson underbridge area. Commissioners had differing opinions on how the proposed boulders and rocks are located within the landscape but agreed that prescriptive language should be in the RFP that elevates the location of boulders and rocks as a specific design element. Language should also address the design approach and level of quality of the boulders and rocks. Commissioners also suggested the project team consider using some of the ground plane materials to buffer the pedestrian path.

The Commission then discussed the location and design of proposed lighting and landscape restoration.

Commissioners commented that the proposed lighting elements are hidden within the bridge girder, resulting in a soft light. Commissioners also recognized that the soft light is a result of the soft finish applied to the girder and strongly recommended the project team include carry this forward into the RFP. The commission then recommended the project team specify a variety of planting and tree species within the proposed restoration area to increase the long-term resiliency.

*Portage Bay Bridge*
The SDC commended the project team for providing an elegant bridge design that is light in appearance. Commissioners then discussed the importance of having two bridge structures instead of one bridge as it relates to the overall massing and light allowed to permeate to the landscape below. Commissioners agreed the loss of lighting between the bridge would negatively impact the areas below the bridge. The SDC then condition its endorsement on the project team prescribing the two-bridge alternative within the RFP process. The SDC also strongly recommended providing prescriptive measures to address bridge massing, and the rhythm of specific design elements such as lighting, corbels, and columns within the RFP. The SDC also stressed the importance of integrating architecture, landscape, and engineering throughout all aspects of the proposed design, from the overall design framework to individual details and recommended that it be specified in the RFP to ensure that it is carried through. Commissioners then expressed their appreciation to the design team for minimizing the piers and structures, but recommended the team consider providing an opportunity for custom light fixtures to better integrate within the surrounding neighborhood context. The Commission then strongly recommended providing prescriptive measures to retain all of the proposed lighting, including handrail lighting, while also recommending language that would allow for innovative design alternatives that would enhance the lighting experience.

The SDC then discussed issues around the one bridge alternative. The Commission stated that a one bridge alternative would need to maintain the overall project vision. Commissioners also stated that if a one bridge alternative is proposed the project team should provide an explanation of benefits of the one bridge alternative, beyond addressing the project schedule and budget.

*Roanoke Lid and Boyer St underbridge crossing*
The SDC commended the project team for the proposed design of the Roanoke Lid. Specifically, commissioners commended the team for not providing specific programming, instead setting up a framework for how the park will be used and grow in the future. The SDC also appreciated the location of topographical changes, which allows the central lawn to better function as open space and recommended that this design be kept moving forward. Commissioners also appreciated that the design proposal provided connections to parks and boulevards created in the original Olmsted plan. The SDC encouraged the project team to continue to think about visual and physical connections as the design evolves. Commissioners also stressed the importance of developing each viewpoint or overlook with a unique character, scale, and view. Commissioners recommended the location, scale, and orientation of each overlook and viewpoint be prescribed in the RFP.

The SDC recognized that the proposed design will provide different experiences along 10th Ave E and Delmar Dr. and strongly encouraged the project team to provide street crossings that are multimodal and sized appropriately. The Commission then recommended that the project team provide a safety plan for users crossing 10th Ave E near the southwest corner of the park. Commissioners also recommended providing runnels on staircases for cyclists.

Similar to the Bill Dawson Underbridge, The SDC recommended providing prescriptive language in the RFP that elevates the location of boulders and rocks as a specific design element within the Boyer Underbridge. Language should also address the design approach and level of quality of the boulders and rocks.

## Action

The Commission thanked the project team for their presentation of the updated design for the SR 520 Roanoke Lid and Portage Bay Bridge project. The commission appreciated the partnership created between state and local agencies as well as the unique ways the project team used to solve complicated design issues. The Seattle Design Commission endorses the concept design as presented today for the western segment of the SR-520 project with the following conditions:

1. The two bridge option should be prescriptive in the RFP. If WSDOT will allow a one bridge option as part of a RFP, concept designs should be brought back to the SDC for evaluation of design elements and priorities so that the original vision for a two bridge is still met. The RFP should require that a one bridge alternative fully achieve the vision supported by the Commission in its September 2014 letter, not just achieve cost or time savings.
2. The number and position of overlooks must be maintained

The SDC then highlighted other key elements that should be carried forwarded into the RFP process:

1. Recognition of the boulders and rocks as a specific design element within the landscape and addressing the design and level of quality of the boulders and rocks in the Bill Dawson and Boyer Underbridge
2. The recessed lighting under the bridge as well as the material finish the girder to provide soft lighting to the Bill Dawson Underbridge area.
3. Maintain the design and location of each mixing zone in the Bill Dawson Underbridge area, requiring an explanation for any design changes.
4. Specify a variety of planting and tree species within the proposed restoration area to increase the long-term resiliency in the Bill Dawson and Boyer Underbridge areas
5. Proposed massing of the Portage Bay Bridge, and the rhythm of specific design elements such as lighting, corbels, and columns.
6. Integration of architecture, landscape, and engineering throughout all aspects of the proposed bridge design, from the overall design framework to individual details
7. Retain all of the proposed lighting, including handrail lighting, for the Portage Bay Bridge while also providing language that would allow for innovative design alternatives that would enhance the lighting experience.
8. Grading of the Roanoke lid to facilitate usable open space
9. Location, scale, and orientation of proposed overlooks on the Roanoke Lid
10. Additional criteria for providing design alternatives to be included in the RFP to provide better understanding as to what alternatives should include

The SDC also provided the following recommendations:

1. Consider providing runnels on stairways for cyclists
2. Consider providing pedestrian connection across 10th Ave E above the pedestrian tunnel
3. Study and consider allowing or bonussing an option for the RSUP that doesn't include a loop to connect the Portage Bay Bridge and Roanoke Lid.
4. Prioritize regional connections over local connections on the RSUP
5. In the underbridge areas, place walls, boulders and other elements with intentionality.