SR 520 Bridge Architectural Design Principles
SR 520, I-5 to Medina: Stage 1 Evergreen Point Floating Bridge and Landings

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EXECUTIVE SUMMARY

Construction of the SR 520 Floating bridge and ancillary features represents a significant infrastructure investment by the State of Washington and the Washington State Department of Transportation (WSDOT). The final design and construction of the floating bridge, the world’s longest, and adjacent SR 520 Program projects is reflective of the years of constructive, corridor-wide coordination with interested parties including federal, state and local agencies, as well as individuals, community groups, public institutions and privately-held companies.

The current stage of the SR 520 Evergreen Point Floating Bridge and Landings Project symbolizes the opportunity to further define the look and feel of the facility based on the project’s design principles as documented in the contractual requirements of the Request for Proposals and as described herein. It is WSDOT’s intention to build upon these design principles together with other contractual requirements of the Request for Proposals to develop a world class facility that fulfills the objectives of the State and the surrounding communities.

SCOPE OF PROJECT

The Washington State Department of Transportation (WSDOT) has issued a Request for Proposals (RFP) for the SR 520 Evergreen Point Floating Bridge and Landings (FB&L) Project. The Design-Build contract extends from the west face of the Evergreen Point Road Ltd westbound to pier 36 of the West Approach Bridge. Future contracts will construct either the West Connection Bridge to join the Project’s 6-lane floating bridge with the current 4-lane approach bridge, or the final 6-lane approach bridge and other elements west of pier 36.

SCOPE OF ARCHITECTURAL DESIGN PRINCIPLES

The Architectural Design Principles defined in this document are applicable to the final 6-lane configuration floating bridge, East Approach Bridge, and pier 36 of the West Approach Bridge. The Design-Builder for the FB&L Project shall make all reasonable efforts to ensure that the designs for the FB&L Project coordinate with appropriate and comparable elements in the previously-awarded Eastside Transit and HOV Project and that project’s Urban Design Criteria document (RFP Appendix L1).

The Architectural Design Principles shall be applicable to any configuration of the bridge. However, the specific design elements constructed under this contract are not required to be directly applicable to any future configurations of the FB&L, such as expansion for bus rapid transit and light rail transit.

CONTEXT AND REVIEW

The Design-Builder is encouraged to identify and propose opportunities for technical or sustainable innovations, methodologies and/or materials that enhance or add value to the project while keeping with Executive Order E 1028.00, the Context Sensitive Solutions (CSS) model for project development. Designs for architectural features will be reviewed at various points of the design process as part of the Urban Design Task Force (UDTF) as documented in Section 2.15.3.4 of the RFP. Architectural features will be reviewed for application of design principles, as well as contractual requirements including but not limited to those listed in the Design-Builder’s proposal and in Chapter 1, Chapter 2 and appendices of the RFP.
USER EXPERIENCE

The new SR 520 corridor will be perceived from many angles and by a variety of users. Each user group anticipated on the SR 520 corridor will have a unique experience of the bridges and surrounding scenery. The speed at which different users travel; their proximity to bridge features; and their relative elevation, all combine to influence the perceptions of the bridge by these users. The Design-Builder’s design proposal shall attempt to recognize the different scales and speeds of the primary users, whether they are routine commuters or first-time users. The unique perspectives of the different user groups shall be evaluated during final design to ensure the bridge elements enhance their experiences. A brief discussion for each user group follows.

Pedestrians and bicyclists will have a north Lake Washington crossing for the first time. The regional path will have safety and comfort features to enhance their experience. Belvederes will provide varied perspectives on the region, as well as places to rest or rendezvous. The pathway will be separated from the traffic lanes by shoulders and crash-rated barriers. It will have an illumination system for wayfinding and visibility. Pedestrians and cyclists will travel at a pace much slower than vehicles (3 to 20 mph). This means that pedestrians and cyclists will experience the same length of the corridor in 7 to 45 minutes that vehicular traffic, traveling at 60 mph, will experience in about 2.5 minutes. Pedestrians and cyclists will also be much closer to the bridge features; this proximity presents opportunities for smaller-scale features with an increased level of detail along the regional path, compared to the features most notable by transit and vehicular users.

The boating community and nearby residences will have a variety of lake-level perspectives. The pontoons and bridge superstructure will be composed to provide an aesthetic logic and form of contemporary design standards. Maximized spacing of bridge piers and the elements of the superstructure beneath the bridge deck will enhance the lake-level views.

Transit and vehicle users travel at highway operating speeds between 35 and 60 mph, and thus will experience the corridor within a matter of three to five minutes. At these relatively high speeds, appropriate state of the art safety and operational features, along with preeminent regional vistas, will be incorporated to make the more rapid crossing a pleasing experience. The fine architectural design of elements is intended to add elegance to features that will give the corridor consistency, rhythm and thoughtful markers of the structural systems. The frequency of elements will punctuate this rapid experience without being so frequent as to create a strobe-like effect.
PART 1

INTRODUCTION

PURPOSE OF THIS DOCUMENT

The SR 520 Bridge Architectural Design Principles (BADP) is a reference document for the Design-Builder as noted in Appendix A1 of the Design-Build RFP. It is intended that this document be used in tandem with the Technical Requirements of the RFP, Project RFP, with the technical requirements of the RFP, taking precedence over the technical requirements herein. This document seeks to illustrate the principles and requirements documented in Chapter 2 of the RFP, including illustration of architectural principles, goals, character and aesthetic inspiration for the bridge and landings. The Design-Builder’s proposal and final bridge designs are required to develop bridge architectural features, including those documented in the SR 520 Bridge Architectural Elements Diagram (RFP Appendix L1).

The BADP document is organized in two parts:

- **Part One** – Project history related to the bridge design and the Bridge Architectural Design Principles
- **Part Two** – Application of Bridge Architectural Design Principles

**Part One** provides the Design-Builder a project overview, introduces historical design references and stakeholder concepts, and outlines document purpose and usage. The SR 520 Bridge Architectural Design Principles reflect the integration of the Design Team’s internal distillation of publicly-desired principles as it pertains to structural design and architectural aesthetics. Community agreements concerning corridor aesthetic continuity with the cities of Medina and Seattle are also a basis for the goals, requirements and qualitative character presented in the BADP.

**Part Two** presents an application of the Architectural Design Principles. For each element, there are *Aesthetic Goals* (measures of success), *Technical Requirements* (quantitative), *Qualitative Character*, and supporting *Graphics*, which include renderings and inspirational photographs. The contents of this document are intended to inform and inspire the Design-Build Team in their specific proposals. This section describes the expected purpose, visual character and quality, and measures of success for the project elements to be designed and constructed by the Design-Builder.
REGIONAL HISTORY

Lake Washington Crossings

Lake Washington is a long and deep, glacially etched fresh-water lake in the Seattle Metropolitan area. Until 1940 when the first floating bridge was built across Lake Washington, it was crossed by boat, including the use of a vehicle and passenger ferry boat. The alternative was to detour around the lake, a distance of 25 to 30 miles between Seattle and Bellevue (travelling south or north of the lake, respectively). This trip around the end of the lake added considerable time to any trip - particularly before the Interstate Highways including I-5 and I-405 were constructed in the 1960s.

I-90 Crossings: Lacey V. Murrow, Homer M. Hadley Bridges

The Lacey V. Murrow Bridge was the first floating bridge across Lake Washington connecting Seattle to Mercer Island, carrying US-10 which is now west bound I-90. The connection to Bellevue was completed with the East Channel Bridge. At the time of its completion in 1940, the Lacey V. Murrow Bridge was the longest floating bridge in the world. The photo at right shows the configuration of the original US-10 bridge landing near the Mount Baker Tunnel. In 1989, a parallel span was built; the Homer M. Hadley Memorial Bridge. The Lacey V. Murrow was replaced following the 1990 sinking of a portion of the floating span while it was closed to traffic for maintenance.

SR 520 Crossing: Governor Albert D. Rosellini Bridge

The Governor Albert D. Rosellini Bridge (also known as the Evergreen Point Floating Bridge) is currently the longest floating bridge structure in the world. It carries State Route 520 between the Seattle Montlake neighborhood and the City of Medina on the Eastside. It opened in 1963 with an estimated operational life of 50 years. Its replacement has been the focus of public planning since the Trans-Lake Study of 1997-2003, which developed operational goals and a vision for the future bridge facility.
CONCEPT DESIGN HISTORY

Design Advisory Group (DAG) 2005-2006

CORRIDOR CONTINUITY
WSDOT initiated a Citizens Design Advisory Group (DAG) in 2006 comprised of community representatives from both sides of Lake Washington and members of the WSDOT Design Team. They developed a Corridor Aesthetics Handbook (RFP Appendix L6) that was based on the value of integrating corridor aesthetics with the engineering design process. A consensus developed around these points:

- WSDOT is committed to the aesthetic needs of the SR 520 Project.
- It is possible and desirable to develop a new highway corridor and facility with a distinctive, unified aesthetic character that is also compatible with its neighboring landscapes and communities.
- The aesthetic design vision and concepts for the new highway should reflect a variety of scales.
- The aesthetic design vision and concepts for the new highway should be refined into guidelines that will reflect the preferences of the communities and help the interdisciplinary design team make decisions in the future.

The DAG expressed that “corridor unity means that the SR 520 corridor would have a recognizable look and a distinctive character that are created by the interplay among aesthetic elements of the facility” (p. 13). They identified among their design principles that the bridges “should be visually unobtrusive and elegant” (p. 40). An overall corridor theme of “naturalistic-contemporary” was chosen to describe the use of materials and structures that appear organic and well established, but with a graceful, clean finish.

The images in this collage were preferred by community design groups and used throughout the conceptual design process to represent the “look & feel” of the facilities to be built along the SR 520 corridor. This includes materials/texture, color and form.
Corridor Design Concept Plan (CDCP) 2007

CONTEXT / CHARACTER / CONNECTION

With these directives from the DAG, WSDOT initiated a Corridor Design Concept Plan (CDCP) Design Team to develop a vision for the SR 520 corridor. The CDCP summary document included urban design analysis and thematic ideas for the corridor, along with conceptual imagery for the design elements. The Design Team was comprised of WSDOT and the General Engineering Consultant (GEC) staff. They documented their design process in the CDCP document in May 2007 (RFP Appendix L8). This document was used to define the approach to corridor aesthetics for the 10% design phase. A three-part Vision Statement emerged through this phase of the work: Context, Character, and Connection. These three elements are captured in detail here, slightly paraphrased from the CDCP (pp. 7-8).

**Context**

The travelway shall be cohesive and graceful; it shall respect and enhance the surrounding natural and built environments.

- Bridges should be of high visual quality and set the tone for the aesthetic quality of the entire SR 520 corridor.
- Aesthetic references could be drawn from or include references to, local architectural, cultural, or environmental elements.
- The bridge structure should have uniformity and rhythm especially when seen from near and below bridge views.

**Character**

Structures and landscapes shall be created with high quality craftsmanship that reflects natural and contemporary character.

- Views of the bridge, particularly from Husky Stadium toward Mount Rainier, are important to the University of Washington.
- Treatments of bridge components (arch, column, cap, parapet, beam, and pier) and surrounding landscapes shall be selected and coordinated to create a harmonious effect.
- Slim profile piers shall offer a sleek, contemporary appearance.
- Structure and form are the most significant factors for bridge aesthetics – the bridge structure should be inherently beautiful.

**Connection**

Elements shall reconnect neighborhoods and communities and restore habitat.

- The transition structures between the two different bridge types (or between landfall and bridge) shall offer a visual transition that combines and resolves differences between the structures.
- The design of the bridges should enhance or articulate the visual and aesthetic coherence of the corridor.

**LAND / AIR / WATER**

The CDCP Design Team also identified a thematic “Big Idea” of Land, Air, and Water to express the vision statement in physical design terms (CDCP, p. 9). When applicable, these themes shall be reflected in the design elements. For the design of the floating bridge, this concept was described as follows: “water, … the corridor’s most pervasive natural feature” (p. 9), and the potential for the floating bridge to be “physically expressed as a series of horizontal bands that depict the wavy surface of the water” (p. 9).
Eastside Coordination 2007-2008

Because of the scale of the SR 520 Bridge Replacement and HOV Program, the SR 520 corridor was divided into several projects to be awarded in separate contracts. The first component taken into Preliminary Engineering and then the Design-Build stage was the Eastside Transit and HOV Project. A series of meetings with the Eastside jurisdictions during 2007-2008 culminated in agreements on corridor alignment, lid and transit station locations, and aesthetic themes selected from the CDCP process.

Eastside Community Design Collaboration (ECDC) 2009

Subsequently, the Eastside Community Design Collaboration (ECDC) committee comprised of Eastside mayors, jurisdictional staff, local design representatives, and user representatives was convened in 2008. Intensive ECDC and SR 520 Design Team studies developed Preliminary Urban Design Guidelines for the Eastside corridor with design implications for the floating bridge and Westside/Seattle projects to come. These guidelines were the consensus design preferences of the ECDC and described lid programming and pathways; lid architecture and furniture; landscape characteristics; types; and locations; and material qualities for walls and ground plane surfaces. These elements were captured in the 2009 Eastside Consolidated Urban Design Report (RFP Appendix L9).

Urban Design Criteria (UDC) 2010

The Preliminary Urban Design Guidelines were distilled into the Eastside Urban Design Criteria (UDC) (RFP Appendix L1) as a contract document for the Eastside Transit and HOV Project. While the previous design character documents created with direct input from community members were qualitative in nature, the UDC documented quantitative and qualitative components for the entire Eastside project. Together with the technical requirements, the UDC serves as a baseline design precedent for the SR 520 Program and its individual projects. Both the UDC and technical requirements capture the level of quality WSDOT looks to achieve in the physical characteristics of the Eastside Transit and HOV Project. The Design-Builder incorporated the aesthetic design characteristics depicted in the UDC along with the technical requirements into their proposal, acknowledging the importance of publicly-endorsed design characteristics. Several features documented within the UDC represent physical design precedents that help to define rhythm, scale, and finish of elements within features adjacent to the Eastside Project. Construction is scheduled to begin in 2011, which will mark the first permanent on-site construction phase of the SR 520 Bridge Replacement and HOV Program.

The images in this collage represent the highest rated design preferences identified during the Eastside Community Design Collaboration process. These preferences were captured in the Eastside Consolidated Urban Design Report (2009).
BRIDGE AESTHETIC CONCEPTS

Corridor Continuity and Contemporary Expression

The FB&L Project will be the second phase of the SR 520 Bridge Replacement and HOV Program corridor to be designed and built. This project has the challenge of creating new bridge structures that express corridor continuity while integrating elements of distinction that showcase the unique qualities of what will be the world’s longest floating bridge. The Eastside Transit and HOV Project Urban Design Criteria, along with this document, shall inform and inspire the design of the FB&L Project due to their contiguous contexts.

The themes of Corridor Continuity and Naturalistic-Contemporary stemming from DAG have been reiterated throughout the life of the Program. From the public feedback and aspiration, through the technical design teams’ workings, there has been a focus on creating a clear identity for the corridor that encompasses a contemporary style that is cognizant of classical forms.

The final designs for the new FB&L Project shall respond to the regional significance of its location and mission in a similar manner as the Eastside Project responds to its context. The SR 520 corridor connects the Seattle metropolitan area both culturally and economically, while traversing many varied environmental contexts. For example, the Eastside and Westside communities share an elegant natural landscape separated only by the waters of Lake Washington, upon which the new world’s longest floating bridge will be born.

Land Based / Water Born

The “land based / water born” concept contrasts the land based structural elements with the water buoyant floating bridge elements. This concept is an interpretation of the CDCP themes of Land-Air-Water. Land elements begin at the Evergreen Point Lid portal and continue through the Eastside Approach. These piers and elements form a set with the piers and elements of the West Approach. Between these two bracketing features lies the central element: the water-born floating bridge superstructure supported on pontoons.

Concept of Rhythm and Hierarchy

The Design-Builder’s proposal shall create a consistent visual and perceptual rhythm for those traveling the corridor, and for viewers on land or water who are looking at the whole system of bridges. Rhythm along the corridor is based primarily on longitudinal factors. The 360-foot length of the pontoons was used as the unit on which the architectural concepts were based for the floating bridge. The expansion joints on the West Approach structure and pier locations on the East Approach structures were used as the base unit for spacing the land-based architectural features. The expansion joint / pier spacing and the length of the longitudinal pontoons shall be of a similar scale, thereby reinforcing a sense of rhythm and continuity. The pontoon joints and bridge deck expansion joints will not be readily perceptible to the traveling public. However, they represent significant structural junctions, and provide a rationale for the spacing of architectural features.

The hierarchy of the elements throughout the corridor should be closely tied to the structural systems of the various bridge types. As an example, the piers of the East Approach shall be each significant in size and, when expressed up past the bridge deck in an “outboard” location, have strong form dynamics. The same concept should be brought to the West Approach through outboard columns at the expansion joint connections. The scale of these elements can be another key feature that groups elements in the hierarchy. Outboard piers at the expansion joints should be larger (i.e., “major” elements), whereas elements placed along the floating bridge to mark the pontoon joints should be smaller (i.e., “minor” elements) to create a hierarchy of elements.
Hierarchy of Elements

The architectural elements defined within this BADP document create a family of related elements that should be experienced as a coherent set (RFP Appendix L11). They will serve as the elements of distinction to the different user groups on and around the FB&L.

The Hierarchy is based on the scale/size of elements and the range of user groups who will have a direct experience of that element. The position on the Hierarchy does not signify the relative importance of each element. Rather, it is a way to view the corridor as a whole and to ensure that continuity is applied whenever reasonable and feasible. The larger elements will be visible by a wider range of user groups, and thus rank higher in the Hierarchy. Conversely, smaller elements will be viewed by fewer user groups and rank lower on the Hierarchy. Below are the types of elements that are defined throughout this document, along with a description of the relative rank of these elements. The Architectural Elements Diagram (RFP Appendix L11) reproduced for this document on pp. 14-15, illustrates how these elements work together to create a rhythmic experience along the corridor.

The plan-view diagrams (pp. 12-13) illustrate the locations of each Sentinel, Major, and Minor Element in the hierarchy. These diagrams should be used in conjunction with the elevation-view diagram on the following spread. Sentinel Elements are the capstone elements of the Hierarchy for the floating bridge corridor. Major Elements are on the approach structures, and Minor Elements are smaller and more frequent elements used to give rhythmic scale to the bridge railings. They are at the lower end of the Hierarchy.

Sentinel Elements

Sentinel Elements will serve as a gateway announcing the unique structural phenomenon of the Floating Bridge across Lake Washington. They will be located at the cross pontoon at the east and west high rises, marking the transitions between the floating bridge and the approach structures. These two elements frame the entire floating bridge. The Sentinel Elements will be prominent from inside and outside of the highway corridor. On the north side of the bridge the Sentinel Elements will form a belvedere feature that provides respite for users of the regional bicycle and pedestrian path, and a raised perch to view the regional landscape.

Major Elements

The Major Elements occur on the East and West Approach bridges. Though the scale and specific features of the Major Elements on the Westside may differ from the Eastside, their form and spacing emphasize the same basic rhythm through the corridor. They create a bracket of consistency on both ends of the Floating Bridge. The Major Elements are defined as a pair of elements at the pier 36 expansion joints on the West Approach bridges and at the two sets of piers on the East Approach bridges. They will extend outward of the roadway or path, to allow them to slip past the bridge deck to express their vertical strength in a singular, clean line from the pier past the bridge deck. Features will reflect a common architectural vocabulary with the other elements on the floating bridge and approach bridges, and follow the precedent of the Eastside terminal columns at the Lid portals.

Minor Elements

The Minor Elements will be located at the joint between each pontoon, and they will mark the scale and meter of the pontoons. Minor Elements shall also mirror the Major Elements on the Approach Bridges. Their form and detailing will reflect a common architectural vocabulary with the larger pier and element assemblies. They may incorporate a mix of uses such as lighting, information, communications, or maintenance. Because of the close proximity of the Minor Elements to the regional path along the north side of the bridge, their detailing will be of high quality.
Belvederes

Belvederes will provide opportunities for cyclists and pedestrians to experience the bridge from a safe, stationary position along the regional bicycle and pedestrian path on the north side of the bridge. Views of Lake Washington and the surrounding landscape will be dramatic from these vantage points. Because of the proximity of users to the elements at the belvederes, the scale and detail of these elements should be the same or similar to the railing and railing post. Belvederes are experienced from an intimate perspective. The conceptual forms developed differentiate the belvederes as to location on the floating bridge and Sentinel Elements. Their ultimate structural support should be sublimated to the deck form. The materials of the deck and rail will be durable, yet lightweight. A combination of solid and open grating materials could be balanced to make all users feel safe while providing the opportunity for a unique over-water experience.

Railing Post

The metal posts supporting the railings will reflect or mimic the form of the Minor Elements, and will be integrated into the spacing of the Minor Elements. The spacing of the path illumination should be coordinated with the post spacing. While the posts serve the structural purpose to carry the rails, they should also be designed to provide rhythmic meter and architectural detail to the railing system.

Traffic Barrier

Detailing of the traffic barrier should provide a distinctive style for the floating bridge compared to the other sections of the corridor. The details will enhance a sense of continuity between features, such as each different type of traffic barrier having the same detailing. The perspective from boats should be addressed as well as the perspectives of roadway users.

Application of Hierarchy

The original bridge crossing Lake Washington in 1940 (US-10 Lacey V. Murrow Bridge) illustrates a similar hierarchy of elements. The image at right highlights specific elements (see original image, p. 7).

A. Sentinel Columns mark the gateway to the floating bridge. These quarter-round sentinel columns reflect a contemporary design for the 1940s.

B. The Major Element shown on the US-10 Bridge differs in form and frequency from the Major Elements proposed in this document, but they perform a similar function of punctuating the driving experience.

C. Minor Elements serve the same functions on the US-10 Bridge pictured as they do in the proposed SR 520 design. They are small-scale elements that serve either as structural elements or as markers of the underlying structural form and they are carried across the length of the bridge providing an even, rhythmic meter.

D. Common Elements shown in this historic photo include the customized barrier railing. Similarly, “common elements” will be developed for the SR 520 Bridge.

E. Viewpoints similar to the belvedere concept are integrated into the design at the landing of the bridge on the Seattle side.
**LAND BASED ELEMENTS**

- **Sentinel Element**
  - Integrated with north pier belvedere, and expresses transition between land and water.

- **Belvederes**
  - Provide views and opportunities to rest.

- **Major and Minor Elements** at each pier (see p. 32)

- **Sentinel Element** on south pier expresses transition between land and water.

- **Evergreen Point Road Transition Columns** at lid portals.

**WATER BORN ELEMENTS**

- **Sentinel Elements**
  - Major Elements at expansion joint (pier 36) (see p. 32)

- **Belvedere locations**

**LIMITS OF ARCHITECTURAL FEATURES FOR SR 520 FLOATING BRIDGE AND LANDINGS PROJECT**

**ARCHITECTURAL ELEMENTS DIAGRAM**

**13 BELVEDERE LOCATIONS**
**Bridge Architecture Design**

The SR 520 Floating Bridge and Landings shall express elements of both continuity and distinction. Elements of Design Continuity of the entire SR 520 Corridor shall include both specific requirements (e.g., color, signs) as well as discretionary elements to be proposed by the Design-Builder (e.g., forms/shapes of features).

**Elements of Design Distinction** shall be provided that distinguish the "land-based" structures from the "water-born" structures while establishing a hierarchy of scale and spacing of sentinel, major and minor elements that can be appreciated by pedestrians, bicyclists, transit and vehicular users, and from all community views of the bridge.

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**Sentinel Element** integrated with north pier belvedere, and expresses transition between land and water.

**Major and Minor Elements** at expansion joint (pier 36) (see p. 32).

**Major and Minor Elements** at each pier (see p. 32).

**Sentinel Element** on south pier expresses transition between land and water.

**Minor Elements** integral to traffic barriers.

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**LANDFALL TO LANDFALL**

**WSDOT SR 520 BRIDGE ARCHITECTURAL ELEMENTS DIAGRAM**

**LIMTS OF ARCHITECTURAL FEATURES FOR SR 520 FLOATING BRIDGE AND LANDINGS PROJECT**

**BY OTHERS**

**Evergreen Point Road Transition Columns at lid portals**

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**Match line p. 14**

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**Match line p. 14**

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**Match line p. 14**
The FB&L Design Team synthesized the project history; the values and design preferences of the communities; and successful design precedents set by other projects. The process involved a collaborative effort of architects, structural and civil engineers, landscape architects, and urban planners. SR 520 Program Management tracked the progress and products to ensure that the outcomes of this process were in alignment with commitments made to local jurisdictions, political figures, and other stakeholder groups.

Representatives from the Seattle Design Commission and the City of Medina will be involved during FB&L Project through the Urban Design Task Force process defined in RFP Section 2.15.

From all of the available information the Design Team produced the following Bridge Architectural Design Statement and set of Design Principles.

**BRIDGE ARCHITECTURAL DESIGN PRINCIPLES**

**Bridge Architecture Design Statement**

The FB&L Project shall express elements of both continuity and distinction.

**Elements of Design Continuity** of the entire SR 520 Corridor shall include both specific requirements (e.g., color, signs) as well as discretionary elements to be proposed by the Design-Builder (e.g., forms/shapes of features).

**Elements of Design Distinction** shall be provided that distinguish the “land-based” structures from the “water-born” structures while establishing a hierarchy of scale and spacing of sentinel, major and minor elements that can be appreciated by pedestrians, bicyclists, transit and vehicular users, and from all community views of the bridge.
Design Principles

Physical
Designs shall be an expression of SR 520 Program corridor unity between all contiguous projects and land and water based features through the use of consistent form, materials, color, character and textures.

Sub principles of physical design characteristics include:
- Utilize high quality, durable and easily-maintained materials and construction
- Establish a hierarchy of Sentinel, Major, and Minor elements to create rhythm and enhance experiential qualities for bridge users including, pedestrian, cyclist, transit and vehicular users
- Reflect the regional significance of the floating bridge and its approaches through their unified architectural composition
- Express the uniqueness of the world’s longest floating bridge
- Express transitions between the floating bridge and approach bridges with Sentinel elements
- Utilize the natural environment to signalize arrival to or departure from land-based features on the East Approach
- Establish architectural expressions that respond to the structural form and function of bridge elements
- Reinforce the rhythmic experience with lighting that adds beauty for all users
- Express the design of navigational channels for boat passage
- Utilize the “green over gray” principle for walls of the East Approach landing

Social
Designs shall reflect a contextually sensitive design approach that balances the needs of cyclists, pedestrians, transit and vehicular users, and those of the adjacent communities.

Sub principles of social design characteristics include:
- Design to illustrate the differences between the inside-corridor and outside-corridor experience
- Employ universally-accessible design best practices and reduce potential for conflict between pedestrians, cyclists, and motorists
- Utilize safety and security design principles
- Enhance user civility
- Respect views of and around the bridge from surrounding communities
- Provide opportunities for the enjoyment of surrounding views from the bridge
- Provide opportunities for rest and refuge
- Create infrastructure for way-finding and regional interpretive education opportunities

Environmental:
Designs shall minimize the effects of the project on the land, water, and air, and shall implement long-term sustainable solutions.

Sub principles of environmental design characteristics include:
- Utilize noise reduction best practices
- Minimize light pollution on the water’s surface and glare towards drivers on the floating bridge
- Embody low lifecycle cost
- Tread lightly over the surrounding natural environment and regional character

The images on pages 16 and 17 illustrate bridge structures that embody some of the SR 520 design principles, including using high-quality and durable materials, architectural expressions that respond to the structural form, treading lightly over the water, and respecting views of and around the bridge.
KEY TO USAGE

Part Two presents the application of the Bridge Architectural Design Principles associated with the FB&L Project, utilizing the typical layout to the right (p. 19). Each architectural element is summarized with Aesthetic Goals (measures of success), Performance Requirements (quantitative), Qualitative Character (qualitative), and supporting Graphics, which include renderings and inspirational photographs. The contents of this document are intended to inform and inspire the Design-Build Team in their specific proposals. This section describes the expected purpose, visual character and quality, and measures of success for the project elements to be designed and constructed by the Design-Build.

Together the photographs, concepts and text herein represent design solutions that are seen as contextually appropriate to each of the bridges' locations. The following photographs and concepts are presented for inspirational purposes and may not represent appropriate scale, form or character for this project.

BRIDGE TYPOLOGY

The profile below is representative of the various types and subtypes of bridges that exist as part of this project. From the fixed bridges at the East and West approach bridges to the floating bridge and its varying profile at either end, all have varying physical characteristics. Elements and design details within this section represent opportunities to incorporate Design Principles that contribute to creating continuity and distinction, where appropriate.
2.2 Element Hierarchy

**Sentinel Elements**

**Aesthetic Goals**

Sentinel Elements identify regional gateways between land-based and water-born structures and signify an arrival onto the world’s longest floating bridge. The Sentinel Elements shall be scaled to provide significant architectural expression above the adjacent roadway deck noticeable from a regional perspective.

**Technical Requirements**

- Four Sentinel Elements are required, per RFP Section 2.15. The Sentinel Elements shall be significant architectural statements that note the location of where the land-based structure transitions to the water-born structure. The Sentinel Elements shall be scaled to provide significant expression above the adjacent roadway deck noticeable from a regional perspective.
- Sentinel Elements shall be coordinated with required service stairs accessing the pontoons below. Lighting shall be used to enhance the regional presence of the Sentinel Elements with an even green glow visible from the lake level for a minimum distance of one quarter mile.
- A 9-inch minimum offset shall be provided from the vertical face of the traffic barrier to the vertical face of the Sentinel Elements. Spillover light shall not exceed the maximum amount of light spill onto the water's surface as documented in Appendix E6 of the RFP. The face of the Minor Elements shall not protrude more than 4 inches beyond the vertical face of the railing so that they will not create a catch hazard for path users.

**Qualitative Character**

- Sentinel Elements will receive a color that is contextually appropriate to the overall architectural design of the bridge, while distinguishing them as unique, as befits their form and function. Lighting assists in the definition of navigation channels for boat passage and regional presence.

**Graphics**

- Articulation reflective of a family of architectural elements
- Significant architectural features visible from a regional perspective
- Sentinel belvedere (see p. 28)
- Integral with architectural features

The **Aesthetic Goals** describe the intended, overall effect to be achieved for the element being discussed. The **Technical Requirements** prescribe for the Design-Builder project-specific, quantitative requirements as described in the contents of the FB&L RFP Chapter 2. The **Qualitative Character** provides the Design-Builder qualitative guidelines for the “look/feel/function” of each element while allowing the Design-Builder flexibility in determining the method and or materials to achieve the intended aesthetic outcome. Graphics and photographs illustrate the desired “look/feel/function” of aesthetic elements, and correlate with the text explanations of aesthetic goals and technical requirements.
2.1 Bridge Superstructure

SUPERSTRUCTURE AESTHETICS

Aesthetic Goals
Bridge superstructure elements have consistent character and rhythm and maintain a clean, thin, and low-lying structure to minimize view obstruction.

Technical Requirements
- The floating bridge approach and transition spans shall be supported in their entirety from below the roadway deck as noted in RFP Chapter 2.
- All steel structural members shall be galvanized and painted with the superstructure primary steel paint color as described in RFP Section 2.15.
- All exposed concrete surfaces, exclusive of pontoon surfaces, shall be sealed with the same base concrete pigment sealer color or as noted otherwise in RFP Section 2.15.

Qualitative Character
- Superstructure elements will contribute to the overall light and airy appearance of the superstructure.
- The Design-Builder shall design the floating bridge superstructure to have a consistent character and rhythm across the distinct sections of the floating bridge. Specifically, the construction types for the floating bridge section with 0% grade and the two sections with grades greater than 0% may be different, but they shall express a similar character.
- Floating bridge concrete post, beam, and girder systems shall be a reflection of the form and character of the East Approach Bridge and Eastside Transit and HOV Project portal transition columns.

ARCHITECTURAL CONCEPT

Steel Truss Superstructure Construction

The images on pages 20 and 21 illustrate bridge structures that embody some of the SR 520 design principles, including using high-quality and durable materials, architectural expressions that respond to the structural form, tread lightly over the water, and respecting views of and around the bridge.
Concrete Superstructure Construction

- Minor Element, typ.
- Concrete columns with uniform spacing
- 360° typical pontoon length frequency for Minor Elements based on length of pontoons

Examples:
- Ponte de Bercy, Paris, France
- Benjamin Shearers Bridge, Singapore
- Roosevelt Bridge, Stuart, FL
- I-35 St Anthony Falls Bridge, Minneapolis, MN
2.2 Element Hierarchy

SENTINEL ELEMENTS

Aesthetic Goals
Sentinel Elements identify regional gateways between land-based and water-born structures and signify an arrival onto the world’s longest floating bridge.

Technical Requirements
- Four Sentinel Elements are required, per RFP Section 2.15.
- The Sentinel Elements shall be significant architectural statements that note the location of where the land-based structure transitions to the water-born structure.
- The Sentinel Elements shall be scaled to provide significant expression above the adjacent roadway deck noticeable from a regional perspective.
- Sentinel Elements shall be coordinated with required service stairs accessing the pontoons below.
- Lighting shall be used to enhance the regional presence of the Sentinel Elements with an even glow visible from the lake level for a minimum distance of one quarter mile.
- Spillover light shall not exceed the maximum amount of light spill onto the water’s surface as documented in Appendix E6 of the RFP.
- A 9-inch minimum offset shall be provided from the vertical face of the traffic barrier to the vertical face of the Sentinel Elements.
- The face of the Minor Elements shall not protrude more than 4 inches beyond the vertical face of the railing so that they will not create a catch hazard for path users.

Qualitative Character
- Sentinel Elements will receive a color that is contextually appropriate to the overall architectural design of the bridge, while distinguishing them as unique, as befit their form and function.
- Lighting assists in the definition of navigation channels for boat passage.
The images on page 23 illustrate bridge structures that embody some of the SR 520 design principles, including use of high-quality and durable materials, hierarchy of elements, regional significance, bridge transitions marked with sentinel structures, and demarcation of navigational channels.
MAJOR ELEMENTS

Aesthetic Goals
Major Elements create a rhythm from a vehicular and community perspective, and establish the piers as a prominent element of the hierarchy.

Technical Requirements
- A minimum of six Major Elements shall extend above the roadway deck to a height noticeable to all facility users.
- A 9-inch minimum offset shall be provided from the vertical face of the traffic barrier to the vertical face of the Major Elements.
- The face of the Minor Elements shall not protrude more than 4 inches beyond the vertical face of the railing so that they will not create a catch hazard for path users.
- Major Elements shall be located at pier 36N&S located at the interface with the West Approach Bridge.
- Major Elements shall occur at both outboard piers at each East Approach Bridge structure.
- Major Elements shall incorporate lighting that ties into the rhythm of the elements. Lighting shall match the light spectrum of portal transition columns of the Eastside Project (RFP Appendix L1).

Qualitative Character
- Accent concrete pigment sealer color may be used with Major Elements to enliven the hierarchy as needed.
- The width of the Major Elements should visually integrate with the width of the cap beam at the East Approach Bridge and pier 36 to achieve a clean vertical line from the elevation perspective.
- Major Elements extend outboard from the roadway or path edge.
- An outboard facing facet may be used to link the architectural character of the Major Element to the portal transition columns of the SR 520 Eastside Transit and HOV Project.
- Design of Major Elements should deter their use as a bird perch.
- Major Elements should use light to add beauty and help to reinforce visual hierarchy and rhythm when illuminated.
The images on page 25 illustrate bridge structures that embody some of the SR 520 design principles, including use of high-quality and durable materials, hierarchy of elements, architectural expressions that respond to the structural form, and designs that illustrate the difference between the inside and outside views of the bridge.
MINOR ELEMENTS

Aesthetic Goals
Minor Elements punctuate the experience along the floating bridge to reinforce hierarchy and a sense of rhythm with a more intimate scale, as seen from a regional bicycle and pedestrian path user’s perspective.

Technical Requirements
- A minimum of 46 Minor Elements shall be provided, and they shall extend above the adjacent roadway to a height that is noticeable to all facility users.
- Minor Elements shall be provided opposite of Major Elements on the East and West Approach bridges integral with the traffic barrier.
- Minor Elements shall be located at a 360 foot spacing along the floating bridge and opposite of the Major Elements along the inside shoulder of the approach bridges.
- The face of each Minor Element shall not protrude more than 4-inches beyond the vertical face of the regional bicycle and pedestrian path railing.
- A 9-inch minimum offset shall be provided from the vertical face of the traffic barrier to the vertical face of the Minor Elements.

Qualitative Character
- Minor Elements may receive the accent concrete pigment sealer color on all exposed concrete surfaces.
- Minor Elements will be expressed as a single composition. When positioned at the deck expansion joint the elements shall center on the expansion joint.
- Minor Elements will be designed to discourage their use as a bird perch.
- Minor Elements provide an opportunity to integrate lighting to reinforce the experience of rhythm.
The images on page 25 illustrate bridge structures that embody some of the SR 520 design principles, including use of high-quality and durable materials, hierarchy of elements, architectural expressions that respond to the structural form, and designs that illustrate the difference between the inside and outside views of the bridge.
2.3 Belvederes

SENTINEL BELVEDERES

Aesthetic Goals
Sentinel belvederes provide users of the regional bicycle and pedestrian path a unique place for rest, relaxation and enjoyment of regionally-significant views from an elevated perspective.

Technical Requirements
- Two Sentinel belvederes accessible from the regional bicycle and pedestrian path shall be provided at the Sentinel Elements along the northern side of the bridge.
- One or more points along the outside edge of the belvederes shall extend a minimum of 11-feet clear width beyond the north edge of the regional bicycle and pedestrian path.
- Each belvedere shall have a minimum usable surface area of 210 square feet as noted in RFP Section 2.15.
- Interpretive signage shall be located at each belvedere in such a way that it enhances the users’ experience of the space and does not obscure sightlines.
- Seating shall be provided for six (6) persons at each belvedere.

Qualitative Character
- The belvedere areas will be clearly visible to roadway and path users to enhance safety and security at these locations.
- The Sentinel belvedere will provide a refuge area for users of the regional bicycle and pedestrian path.
- The access stairway hatch and associated features should be incorporated into the integral design of the belvedere and refuge area with consideration for how the space is likely to be used by path users and WSDOT maintenance personnel.
- Architectural features will respond to site-specific conditions including, but not limited to, wind and traffic noise.

Sentinel Belvedere - Cross-section
The images on page 29 illustrate belvederes that embody some of the SR 520 design principles, including bridge transitions marked with sentinel structures, enhancing user civility, and providing opportunities to rest and enjoy surrounding views.
FLOATING BRIDGE BELVEDERES

Aesthetic Goals
Belvederes along the Floating bridge provide users of the regional bicycle and pedestrian path a place for rest, relaxation and enjoyment of views within close proximity to the water.

Technical Requirements
- Three belvederes shall be located on the flat portion of the Floating bridge, spaced to provide regular intervals for rest and accessible from the regional bicycle and pedestrian path.
- The three central belvederes shall be at least 300-feet from the sloped portions of the Floating bridge and from any static sign bridge or ATM sign gantry/monotube structure.
- One or more points along the outside edge of the belvederes shall extend a minimum of 11-feet clear width beyond the north edge of the regional bicycle and pedestrian path.
- Each belvedere shall have a minimum usable surface area of 210 square feet as noted in RFP Section 2.15.
- Interpretive signage shall be located at each belvedere in such a way that it enhances the users’ experience and does not obscure sightlines.
- Seating shall be provided for six (6) persons at each belvedere.

Qualitative Character
- The belvedere areas will be clearly visible to roadway and path users to enhance safety and security at these locations.
- Belvedere locations should maximize regional bicycle and pedestrian path users’ experience of the water below.
- Where feasible, Floating bridge belvederes should not be placed over current or future supplemental stability pontoon (SSP) locations or near an SSP lagoon.
- Supporting structure for the belvedere should be of the same character as the Floating bridge superstructure.
- The belvedere railing should be consistent with the regional bicycle and pedestrian path perimeter railing on the Floating bridge.
- The locations of the belvederes should be integral to the composition of the bridge elements.
- Consider integrated design of interpretive signage and railings.
- Belvedere decking materials should provide comfort for users while supporting a unique over-water experiencing.
Belvederes provide opportunities to rest, enjoy the scenery, and learn about the region and history of the bridge.

Belvederes provide areas clear of the regional path that lower the risk of collision with other path users.

The images on page 31 illustrate bridge belvederes that embody some of the SR 520 design principles, including enhancing user civility, providing opportunities to rest and enjoy surrounding views, and creating infrastructure for wayfinding.
2.4 Safety Barriers

CREATING A SET OF BARRIERS

Aesthetic Goals
The barriers and rails on the FB&L express a consistent design theme by incorporating similar materials, sizing of members, finishes and form.

Horizontal tube rails incorporated throughout the regional bicycle and pedestrian path rail and the barrier between the vehicular and path-user.

Technical Requirements
- All permanent barriers shall be single slope concrete barriers with a class 2 concrete finish.

Qualitative Character
- Consistency with the SR 520 Eastside Transit and HOV Project barrier types should be achieved except as described in this document and RFP Section 2.15.
- Establish a consistent character for the set of barriers that are used across the floating bridge and approaches. Architectural detailing, size and shape of rail members, and color can all be used to establish a consistent theme.

Cross-section of Floating Bridge looking East - Set of barriers and rails

Cross-section of West Approach Pier 36 and East Approach Piers - Set of barriers and rails
TRANSITIONS IN BARRIER TYPES

Aesthetic Goals
The barriers and rails transition smoothly between types for safety and aesthetic reasons.

Qualitative Character
- Transitions between barrier and rail types shall conform to all safety standards regarding fixed objects within the design clear zone. This includes, but is not limited to, how railings are terminated adjacent to a concrete barrier.
TRAFFIC BARRIER

Aesthetic Goals
Single-slope traffic barriers along the floating bridge and between approach structures emphasize corridor continuity while providing safe separation for each direction of motorized traffic.

Technical Requirements
- All permanent barriers shall be single slope concrete barriers with a class 2 concrete finish.
- Barrier selection shall meet the requirements as noted in RFP Sections 2.11 and 2.12.
- The top of barrier height shall be a maximum of 21-feet from the surface of the lake at the floating bridge mid-span as noted in RFP Section 2.11.

Qualitative Character
- Architectural details such as reveals (up to 3/4" deep) may be used on the surfaces of concrete structures intended to redirect vehicular traffic. The architectural detailing can enhance the distinctive experience of traveling across the floating bridge while allowing the basic form of the single-slope concrete barrier to express the corridor continuity. Detailing may also be used to create visual continuity with other bridge features such as Sentinel, Major and Minor elements.

The images on page 34 illustrate barriers that embody some of the SR 520 design principles, including use of high-quality and durable materials, and expressing the uniqueness of the project.
TRAFFIC BARRIER AND RAILING BETWEEN ROADWAY AND PATH

Aesthetic Goals
The barrier provides a safe separation between motorized and non-motorized users. The top element above the concrete barrier provides visual continuity with the regional bicycle and pedestrian path railing on the north side of the path.

Technical Requirements
- All permanent barriers shall be single slope concrete barriers with a class 2 concrete finish.
- Barrier selection shall meet the requirements as noted in RFP Sections 2.11 and 2.12.
- The minimum height shall be 4'-6" from the finish grade, including a concrete barrier base and railing on top.
- A concrete barrier with a single-slope facing the vehicle lanes and a flat, vertical surface facing the regional path shall separate these user types.

Qualitative Character
- Architectural details such as reveals (up to 3/4" deep) may be used on the surfaces of concrete structures intended to redirect vehicular traffic. The architectural detailing can enhance the distinctive experience of travelling across the floating bridge while allowing the basic form of the single-slope concrete barrier to express the corridor continuity. Detailing may also be used to create visual continuity with other bridge features such as Sentinel, Major, and Minor elements.

The images on page 35 illustrate barriers that embody some of the SR 520 design principles, including use of high-quality and durable materials, expressing the uniqueness of the project and enhancing safety through design.
**REGIONAL BICYCLE & PEDESTRIAN PATH BRIDGE RAIL**

**Aesthetic Goals**
The railing provides visual continuity across the floating bridge and approach bridges while emphasizing that the floating bridge is a unique structure.

**Technical Requirements**
- Bike railing shall be 4'-6" tall from the finish grade when immediately adjacent to the traveled way used by bicyclists.
- The face of Minor Elements shall not protrude more than 4 inches beyond the face of the railing so it will not be a catch hazard for path users.
- Railing design will deter climb-ability and minimize catch hazards for bicycle users.
- Rail member spacing shall meet AASHTO Roadside Design Guide requirements for maximum opening width.

**Qualitative Character**
- Post spacing should fit within the rhythm of Minor Elements, illumination fixtures, and belvedere spacing.
- Transition the railing used along the regional bicycle and pedestrian path at a logical and significant point from A) the type used on the Eastside Transit and HOV Project to B) a new railing with character distinctive to the floating bridge, as a way to signalize the transition between land and water.
- Railing will achieve a high level of transparency for the users’ prospect of water and the surrounding environment.

The images on page 36 illustrate bridge rails that embody some of the SR 520 design principles, including using high-quality and durable materials, enhancing safety and user viability through design, providing opportunities for enjoyment of surrounding views, and treading lightly over surrounding environment.
2.5 Other Elements

ILLUMINATION – REGIONAL PATH

Aesthetic Goals
Illumination creates a safe and appealing environment for regional bicycle and pedestrian path users, regardless of the natural lighting conditions.

Technical Requirement
- Spill over light shall not exceed the maximum amount of light spill onto the water’s surface as documented in Appendix E6 of the RFP.
- For light fixtures east of the East Approach Bridge abutment, the Design-Builder shall select pedestrian lighting fixture styles that are the same as those installed for the Eastside Transit and HOV Project.
- Exposed pedestrian lighting elements east of the East Approach Bridge abutment shall be powdercoated to match WSDOT Cascade Green, as noted in RFP Appendix L1.
- Regional path wayfinding lighting shall be provided west of the East Approach Bridge abutment, as indicated in RFP Section 2.16.
- Exposed regional path wayfinding lighting elements shall be powdercoated to match WSDOT Blue-Gray.

Qualitative Character
- Regional bicycle and pedestrian path wayfinding and lighting elements should not protrude as to be a catch hazard for bicyclists or pedestrians.
- Path illumination should align with spacing of railing posts and as longitudinal subdivisions of structural, barrier and pontoon modules.
- Illumination may be placed within the Minor Elements along the regional path, providing supplementary illumination to those users.
- Sufficient lighting shall be used at the belvederes to illuminate the walking surface, enhance safety, and alert approaching path users to the location of the belvedere during hours of darkness.

part 2 | architectural concept - 2.5 other elements
ILLUMINATION – FLOATING BRIDGE

**Aesthetic Goals**
Illumination enhances the experience of all users and shall highlight the character of the new bridges.

**Technical Requirement**
- Spillover light shall not exceed the maximum amount of light spill onto the water's surface as documented in Appendix E6 of the RFP.
- Sentinel Elements shall incorporate lighting that highlights the element with an even green glow visible from the lake level for a minimum distance of one-quarter mile.
- Major Elements shall incorporate lighting that ties into the rhythm of the elements.
- Lighting for the Major Elements shall match the light spectrum of portal transition columns of the SR 520 Eastside Transit and HOV Project, as described in Appendix L1.
- Lighting associated with Major and Sentinel Elements shall not create glare to pedestrians, cyclists, or motorists.

**Qualitative Character**
- Sentinel Element lighting shall accentuate unique features and provide a gateway marker during both day and night.
- Major and Minor Element lighting should reinforce the rhythm of their spacing and lower hierarchy relative to the Sentinel lighting.
Unified lighting scheme provides continuity between bridge elements.

The images on pages 38 and 39 illustrate illuminated bridge structures that embody some of the SR 520 design principles, including regional significance of structure, reinforcing rhythm through lighting, expressing the navigational channel in the design, enhancing user civility, and minimizing light pollution on the water's surface.
REGIONAL PATH SITE AMENITIES

Aesthetic Goals
Seating enhances the users’ experience of the path and belvederes, and shall be in keeping with the Naturalistic-Contemporary look and feel defined by the DAG.

Technical Requirement
- Seating for six (6) people shall be provided at each belvedere.
- The bench designs shall discourage use for sleeping and be constructed with vandal-resistant and sustainable materials.

Qualitative Character
- Site amenities shall be low maintenance and durable within the environment in which they are placed.
- Seating materials should relate to the land-based and water-born concept of the FB&L and be comfortable for year-round use.

The images on page 40 illustrate site amenities that embody some of the SR 520 design principles, including enhancing user civility and providing opportunities for rest and refuge.
**SIGNS – ROADWAY**

**Aesthetic Goals**
Signs and sign structures are consistent across the floating bridge and approach bridges to reinforce the sense of rhythm for the traveling public.

**Technical Requirement**
- The Design-Builder shall powdercoat all monotube sign structures located west of Evergreen Point Road with WSDOT Blue-Gray.
- Monotube sign structures located east of Evergreen Point Road shall be powdercoated with WSDOT Cascade Green.
- The Design-Builder shall not mount any signs other than street identification to lid portal faces.
- Signs shall not be mounted directly to bicycle and pedestrian railings. Refer to Section 2.19 (Signing) for additional requirements.
- The ATM monotube, static sign bridges, and any other significant Intelligent Transportation System (ITS) components shall not be closer than 300-feet from any point of a belvedere.

**Qualitative Character**
- The signs used on the floating bridge and approach bridges shall be evenly spaced, and of consistent size, color and form.

**INTERPRETIVE SIGNS – REGIONAL PATH**

**Aesthetic Goals**
Signs provide wayfinding and education to path users. Emphasis shall be placed on cultural and natural resources, engineering of structures, and sustainability measures integrated into the project.

**Technical Requirement**
- The Design-Builder shall develop wayfinding and signage that are consistent with community preferences shown in the WSDOT SR 520 Eastside Urban Design Criteria (Appendix L1) and the East King County Bicycle Wayfinding Practice Guide (Appendix L7).
- Bicycle and pedestrian path signage shall be provided at key decision points along the regional bicycle and pedestrian path and shall meet the WSDOT Design Manual (Appendix D3) requirements for sign locations.
- Interpretive signage shall be provided at each belvedere, clear of the regional bicycle and pedestrian path, identifying key regional features as seen from each belvedere location, historical information and images related to the Evergreen Point floating bridge.

The images on page 41 illustrate interpretive signs that embody some of the SR 520 design principles, including designs that are universally accessible, enhancing user civility, and wayfinding infrastructure.
COLOR PALETTE

Aesthetic Goals
Color is used to establish an overall corridor aesthetic unity; provide identity at specific community locations; mitigate visual differences between concrete mixes; and aid in maintenance control of graffiti.

Technical Requirements
- Color shall be applied to all exposed above-ground or above-water surfaces as noted in RFP Section 2.15.
- Painting of pontoons shall not be required unless otherwise required in RFP Chapter 2.
- WSDOT standard Washington Gray pigmented sealer shall be applied throughout the corridor to the majority of all concrete structures including noise and retaining walls, concrete bridge elements, and abutment walls.
- WSDOT standard Mt. Baker Gray pigmented sealer shall be applied as an accent color to terminal columns on noise and retaining walls, pier wall ends, and box piers.
- WSDOT standard Cascade Green pigmented sealer shall be applied to metal fixtures east of the East Approach Bridge.
- Federal Standard 595 Color FS 35237 WSDOT Blue-Gray shall be applied to metal fixtures including roadway monotube signage, illumination features, railings (posts and lower rails) and miscellaneous metal structures such as metal-work on benches west of the East Approach Bridge.
- Federal Standard 595 Color FS 36118 Dark Blue shall be used on the metal elements of the floating bridge superstructure below the bridge deck, including the maintenance sheds on the pontoons.
- Federal Standard 595 Color FS 34277 Narrows Green shall be used on the top rails of the pedestrian rail and median barrier rail.
- The finish of roadway lighting standards, mast arms and luminaries shall be finished in accordance with RFP Section 2.16.
- All CCTV and signal poles shall be galvanized finish and shall not be painted or powder-coated, as noted in RFP Section 2.18.
- Painting, powder-coating or anodizing for ITS cabinets is not permitted, as noted in RFP Section 2.18.

Qualitative Character
- A color theme shall be established and applied in a consistent manner throughout the corridor for visual harmony and community identity.

WSDOT WASHINGTON GRAY
Applications
- Concrete - Primary Color
  - Noise and retaining walls
  - Concrete bridge elements
  - Abutment walls
  - Concrete drainage elements
  - Maintenance facility screen walls

WSDOT MT. BAKER GRAY
Applications
- Concrete - Accent Color
  - Terminal columns (noise & retaining walls)
  - Pier wall ends
  - Piers, Sentinel, Major, and Minor Elements

WSDOT CASCADE GREEN
Applications
- Metal - Eastside Primary Color
  - Illumination features including lighting east of the East Approach Bridge
  - Roadway static and ITS sign bridges east of the East Approach Bridge

WSDOT BLUE-GRAY
Applications
- Metal - Roadway Primary Color
  - illumination features including recessed lighting and frangible elements
  - Railing and fall protection
  - Roadway static and ITS sign bridges

DARK BLUE
Applications
- Metal - Super Structure Primary Color
  - Metal structural and drainage elements beneath roadway decks
  - Metal portions of maintenance sheds

NARROWS GREEN
Applications
- Metal - Roadway Accent Color
  - Top rail of bicycle and pedestrian path railings

DISCLAIMER: Please note that color palettes on this page are approximate, as colors may vary based upon printer and screen settings. These palettes are intended to suggest a conceptual direction. Ultimate design review decisions should be based on field testing under varying weather and light conditions. Use of any of these schemes requires WSDOT approval.
RESOURCES / REFERENCES


Citizen’s Design Advisory Group. 2006. Corridor aesthetics handbook: SR 520 bridge replacement and HOV project ideas for urban corridor design. Washington State Department of Transportation (WSDOT), Seattle, WA.

City of Bellevue Transportation Department. 2009. Design manual. City of Bellevue, WA.


CRC UDAG. 2009. Draft architectural design concept document. WSDOT, Vancouver, WA.

CRC UDAG. 2010. Draft I-5 Columbia river crossing architectural standards. WSDOT, Vancouver, WA.


HDR, HNTB, Parametrix. 2009. SR520 bridge replacement and HOV Program Eastside consolidated urban design report. WSDOT, Seattle, WA.

HDR, LMN, Parametrix. 2008. SR520 bridge replacement and HOV Project: Aesthetics design concept plan. WSDOT, Seattle, WA.

HDR, Parametrix. 2010. SR 520 bridge replacement and HOV program Eastside urban design criteria. WSDOT, Seattle, WA.


MAKERS. 2008. SR 519 intermodal access project phase 2: South Atlantic corridor context-sensitive design criteria. WSDOT, Olympia, WA.


WSDOT ND. Bridge design manual (M23-50).WSDOT, Olympia, WA.

WSDOT ND. Design manual (M22-01). WSDOT, Olympia, WA.

WSDOT. 2004. Context Sensitive Solutions (CSS) Executive Order E 1028.00. WSDOT, Olympia, WA.


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APPENDIX A  RHYTHM CONCEPT

The attached time lapse diagram was created as a means for testing the concept of rhythm and time between various elements of the bridge. The frequency was calculated as each element relates to various bridge users. The diagram assisted in the validation of the conceptual placement of elements as documented in Appendix M1 of the RPR. This validation process helped to ensure the family of elements aligned with a pleasurable experience from all user perspectives.
DEVELOPMENT
SOUTH ELEVATION - LOOKING NORTH

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<th>1.4</th>
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<th>1.3 minutes @ 3 mph walk</th>
<th>5.5 minutes @ 3 mph walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
<td>5.1 minutes</td>
<td>1.3 minutes @ 20 mph ride</td>
<td>6.5 minutes @ 20 mph ride</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>0</td>
<td>3 seconds</td>
<td>12 seconds @ 60 mph drive</td>
<td>16 seconds @ 60 mph drive</td>
</tr>
</tbody>
</table>

ELEVATION

PLAN VIEW

LEGEND
Note 1) 2 GP and 1 HOV-transit lane shown in each direction (ultimate 4+2 configuration) + bike/ped path and roadway shoulders.
- CCTV camera poles
- Delineators located on the north side of the pedestrian and bicycle path only
- Supplemental Stability Pontoon and Cross Pontoon
- Major Elements are proposed on south side of mainline and north side of bike/ped path.
- Static sign bridges
- Monotube sign structures
Appendix A Rhythm Concept Development

TIME LAPSE FOR TRAVEL ACROSS THE CORRIDOR 
LANDFALL TO LANDFALL

NOT TO SCALE