

# **SR 520 Bridge Replacement and HOV Program**

## **Seattle Design Commission Briefing**

**John White, P.E.**

Project Director

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Deputy Secretary

**Paula Hammond**

Secretary of Transportation

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SR 520 Program Director

# SR520 Sustainable Practices Plan

Presentation by

**Don Forbes**

Brittingham Partners

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# SR 520 Sustainability Practice Evolution

The SR 520 Bridge Replacement and HOV Program is the first program in the U.S. working to implement measurable sustainability criteria across an entire corridor. These criteria seek to improve the environmental, social, and economic welfare of communities affected by construction and operation of public infrastructure.

## CORRIDOR LEVEL GOLDEN THREAD FOR SUSTAINABILITY

- ◇ Address transportation equity by increasing access to public transit.
- ◇ Increase public access to open space and waterfront.
- ◇ Reduce greenhouse gases (GHG) through construction and life of the corridor.
- ◇ Provide a continuous bicycle-pedestrian path that increases commuting options.
- ◇ Leverage and improve previously used facilities (brownfield sites).
- ◇ Reduce the amount of material used through use of recycled materials and product innovation.
- ◇ Reduce waste through recycling and local partnerships.
- ◇ Reconnect communities with improved pedestrian-bicycle connections and safety.

### EASTSIDE TRANSIT AND HOV PROJECT

- Enhance public open space system.
- Improve transit access and quality of service.
- Recycle construction refuse.
- Improve aquatic ecosystem functions.
- Reduce traffic-generated noise.
- Provide continuous high-occupancy vehicle (HOV) lanes.

➤ Indicates that this activity is in progress.

### FLOATING BRIDGE AND LANDINGS

- ◇ Reduce stormwater pollution discharges to lake.
- Minimize in-water impacts.
- ◇ Reduce construction duration.
- ◇ Increase structural durability and life cycle costs.
- ◇ Utilize low impact construction methods, such as electric tower cranes.
- ◇ Provide construction employee commuting program.

### WESTSIDE DESIGN AND CONSTRUCTION

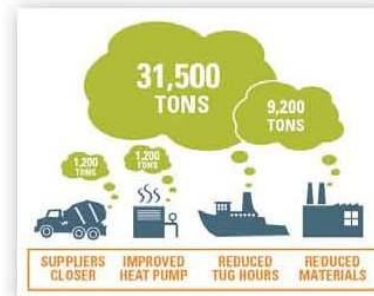
- ◇ Assure integration of urban and sustainability design principles.
- ◇ Increase transit and HOV access.
- ◇ Increase access to public open space.
- ◇ Reduce infrastructure impacts on the natural environment.
- ◇ Reduce construction-related noise and pollution.



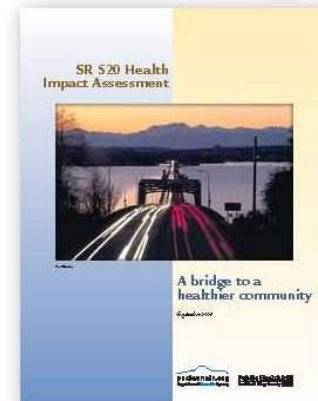
Community and transit connections



Material recycling



Pollution and energy reduction



Healthy natural systems



# SR 520 Sustainability+Urban Design Strategies and Outcomes for Westside Design and Construction

The SR 520 Bridge Replacement and HOV Program is the first program in the U.S. working to implement measurable sustainability criteria across the design, construction, and operational phases of the project as well as across an entire corridor. These criteria seek to improve the environmental, social, and economic welfare of communities affected by construction and operation of the corridor.

The Westside project is the final segment of the SR 520 Program and represents nearly 50% of the cost of the entire program. The project is a unique opportunity to fully integrate urban design and sustainability principles into design and construction. Strategies to accomplish this are identified for the following areas and lead to three primary outcomes.

CONNECTIVITY	ECOLOGY	MATERIALS	OUTCOMES
<ul style="list-style-type: none"> <li>◊ Increase transit and HOV access.</li> <li>◊ Complete regional bicycle and walking facilities.</li> <li>◊ Connect communities situated north and south of the corridor.</li> <li>◊ Help complete the Olmstedian vision of connected parks and greenways.</li> <li>◊ Improve public access to Lake Washington and Portage Bay shorelines.</li> </ul>	<ul style="list-style-type: none"> <li>◊ Restore natural habitat.</li> <li>◊ Collect, treat, and return water run-off to the natural environment.</li> <li>◊ Reduce noise and pollution during construction and for the life of the corridor.</li> <li>◊ Reduce the accumulation of greenhouse gases (GHG) from construction materials, traffic delays during construction, and on-going operation of the corridor.</li> </ul>	<ul style="list-style-type: none"> <li>◊ Reduce use of new materials through use of recycled materials and product innovation.</li> <li>◊ Obtain 'locally sourced' materials to help the regional economy and reduce transportation-generated GHG.</li> <li>◊ Reduce the use of carbon-intensive materials.</li> <li>◊ Select materials and systems on a life-cycle cost basis.</li> </ul>	<ul style="list-style-type: none"> <li>◊ Improved transit, cycling, and walking options can lead to more economically robust and 'livable' communities.</li> <li>◊ Increased modal options, decreased congestion due to construction, improved long-term operations of the highway, and use of lower carbon intensive materials can lead to improved short-term and long-term air quality.</li> <li>◊ Life cycle material and systems selection leads to better long-term value.</li> </ul>



Community connections



Collect and treat run-off

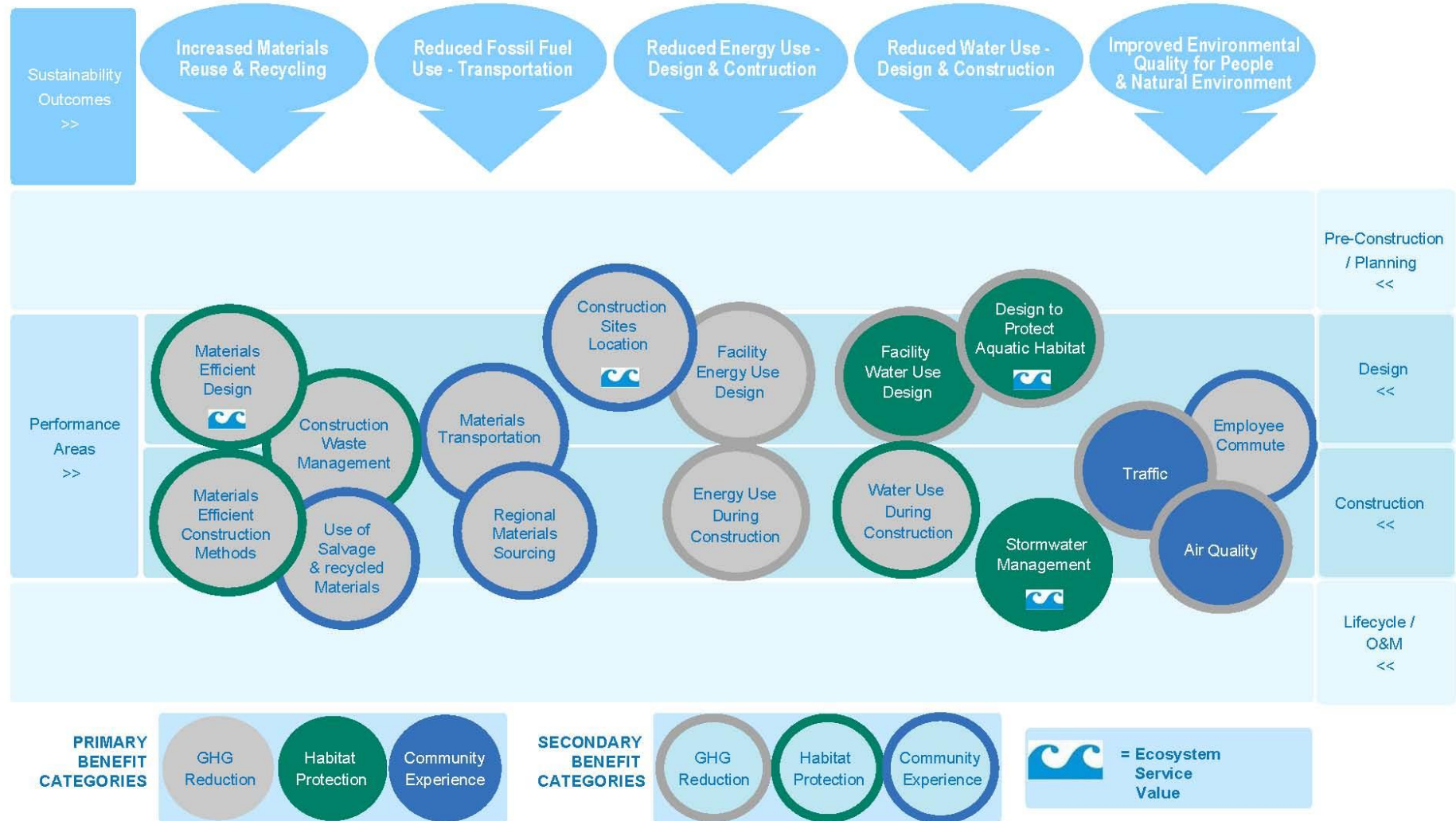


Locally sourced materials

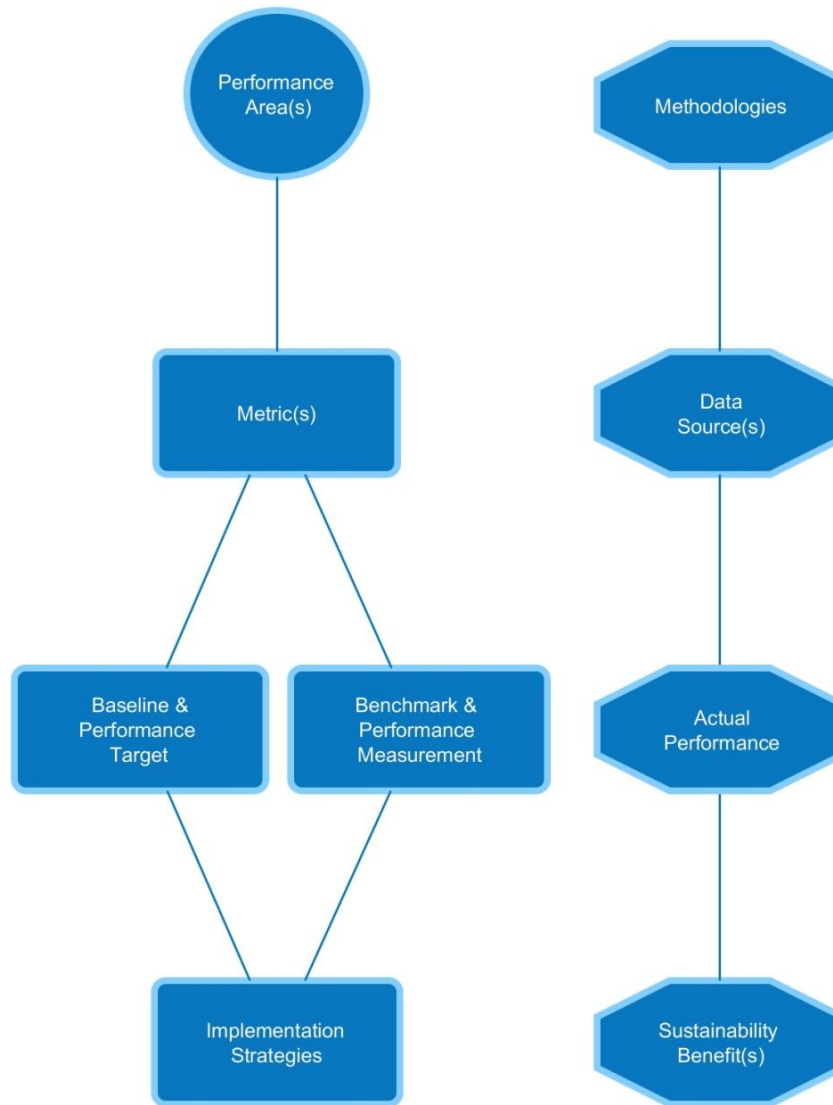


Multi-modal options

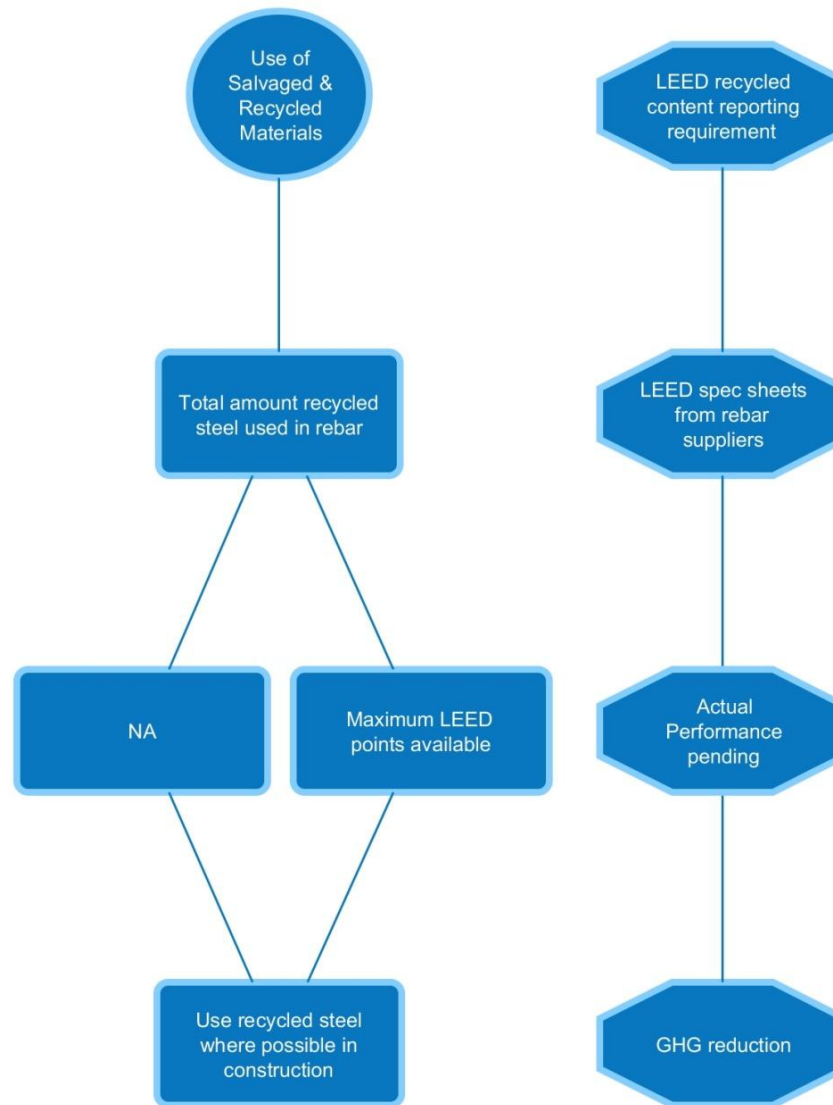
# Sustainability Framework



# Hierarchy & Process



# Hierarchy & Process





# Status

Sustainable Practices Plans (SPP) for CTC and Kenmore Complete

SPP for Floating Bridge and Landings in development

KGM training commencing

Data collection tool being tested and first data gathered

# Process

Monthly Dashboard

Sustainability Task Force Monthly/Quarterly Review

Revised SPP 90 days after start with preliminary results

Annual reports

Final Report at Bridge completion



# SR520 Floating Bridge and Landings Design

## Presentation by

**Alan Hart**

SR 520 Urban Design Lead

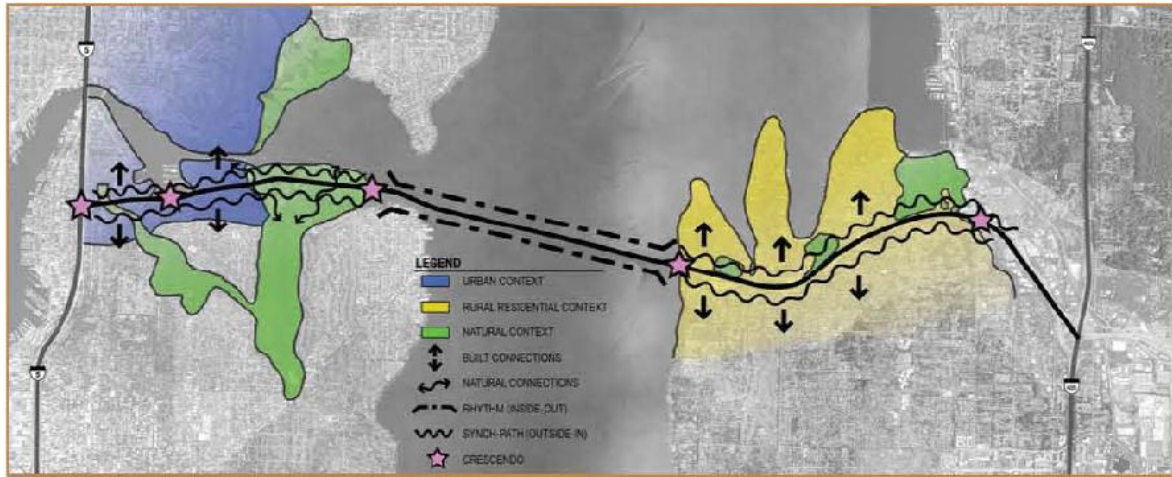
**Bruce McKean**

KGM Lead Bridge Architect

**Lowell Cate**

KGM Bridge Architect

# Vision and Thematic Zones

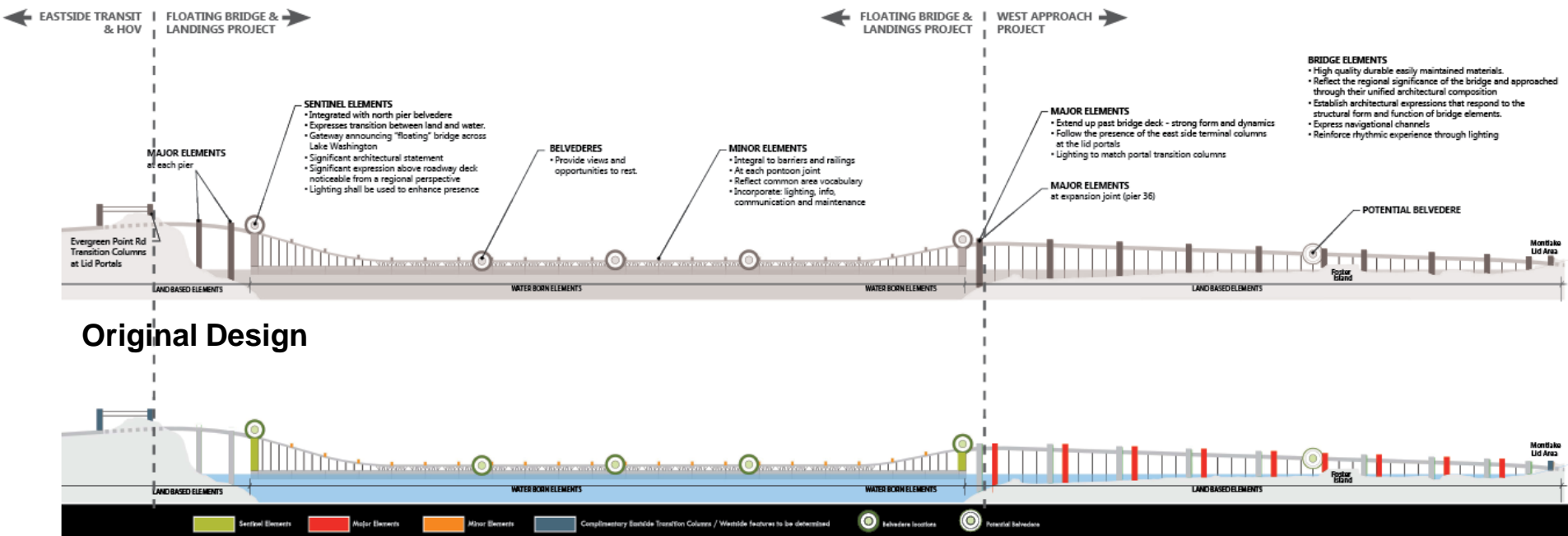


## Vision Diagram



## Thematic Zones & Aesthetics Opportunities

# Architectural Elements



# View Looking East





# View Looking West from Eastside Lid



# View Looking West from Eastside Pedestrian Overlook





# Mid-Channel View of Navigation Channels

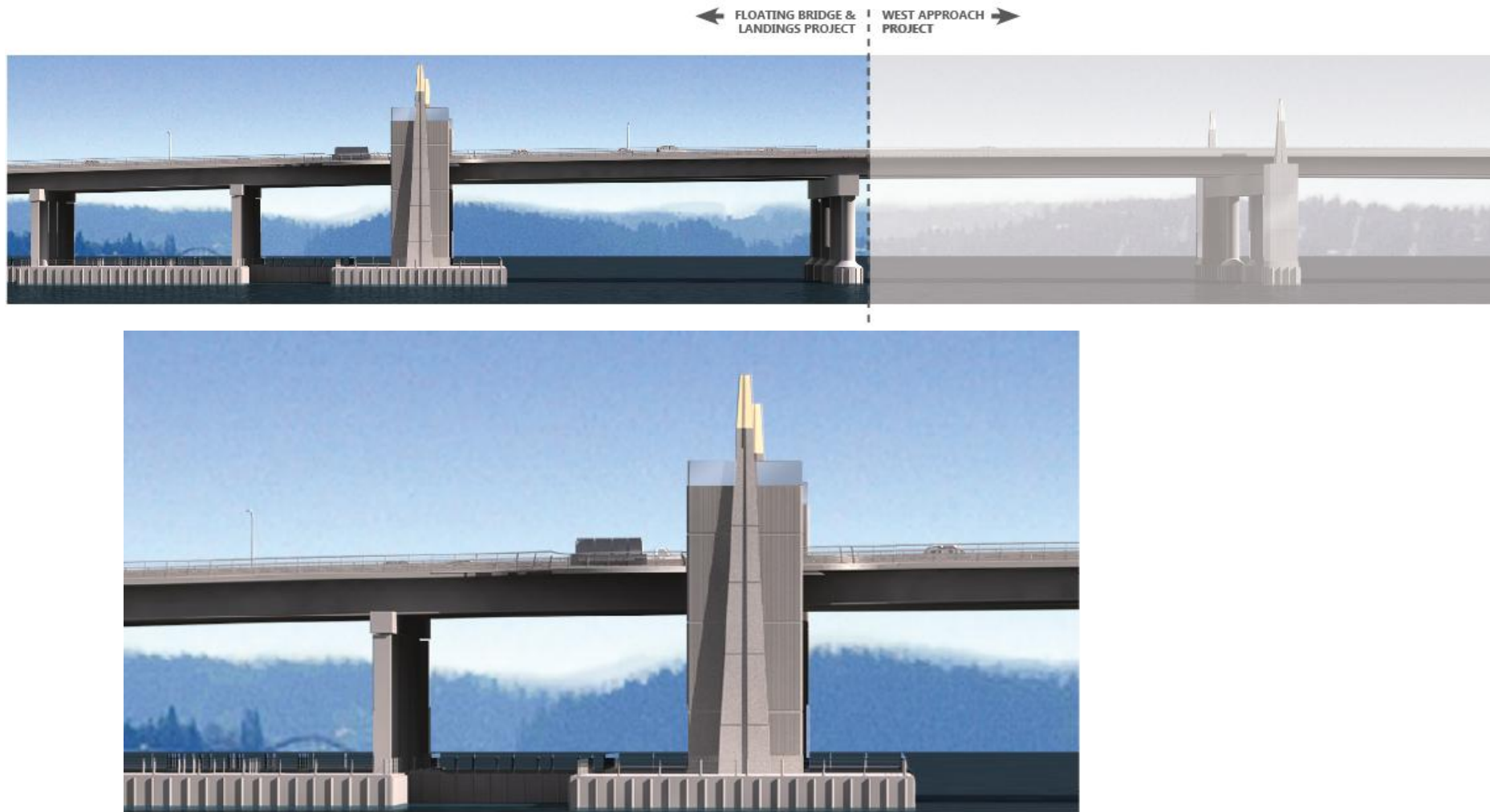


# Overall Bridge View from Madison Park

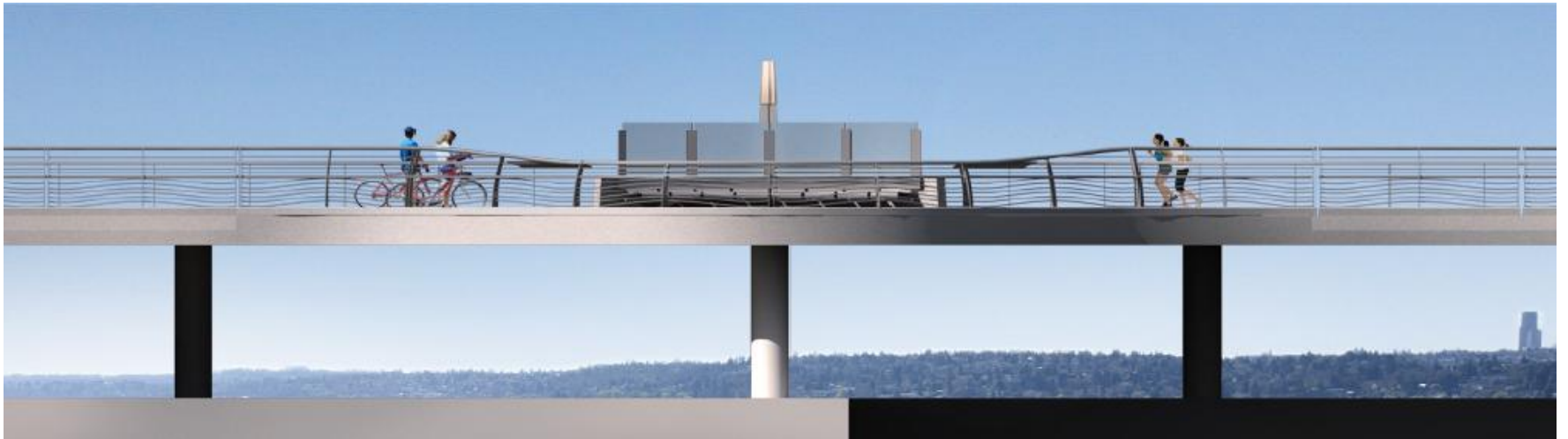
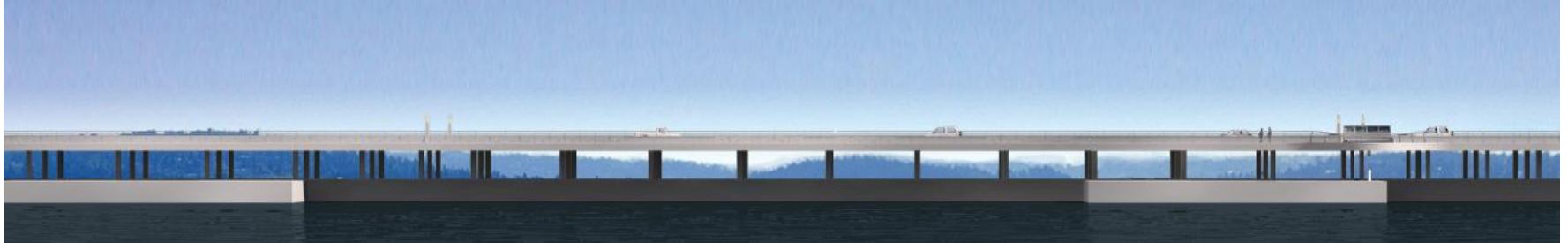




# West Transition



# Mid-span



# East Approach





# Sentinel Element

RFP DESIGN





# Sentinel Element

CURRENT DESIGN



# Sentinel Water View

RFP DESIGN



# Sentinel Water View

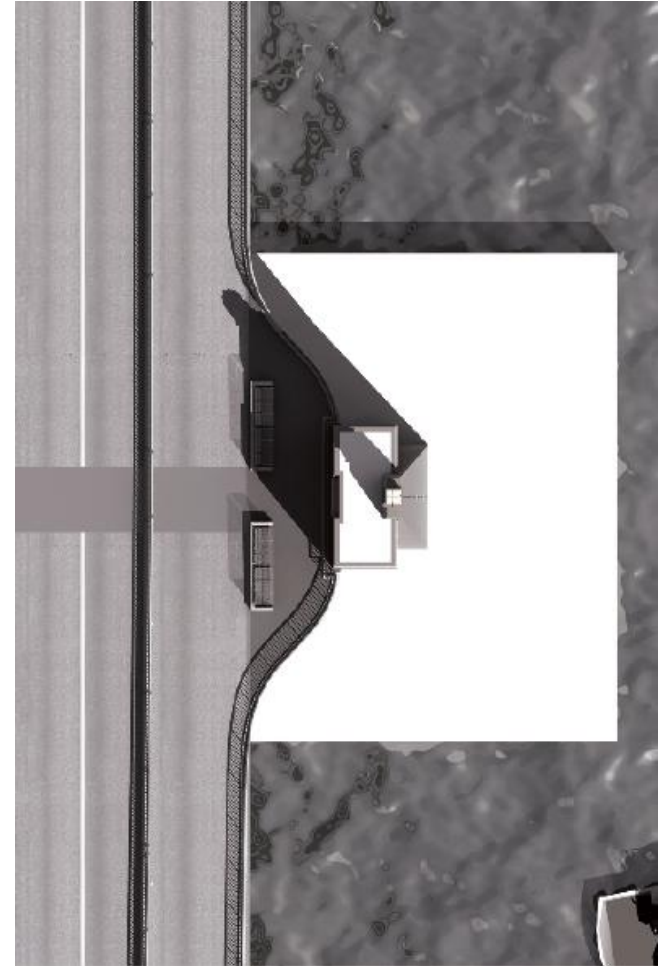
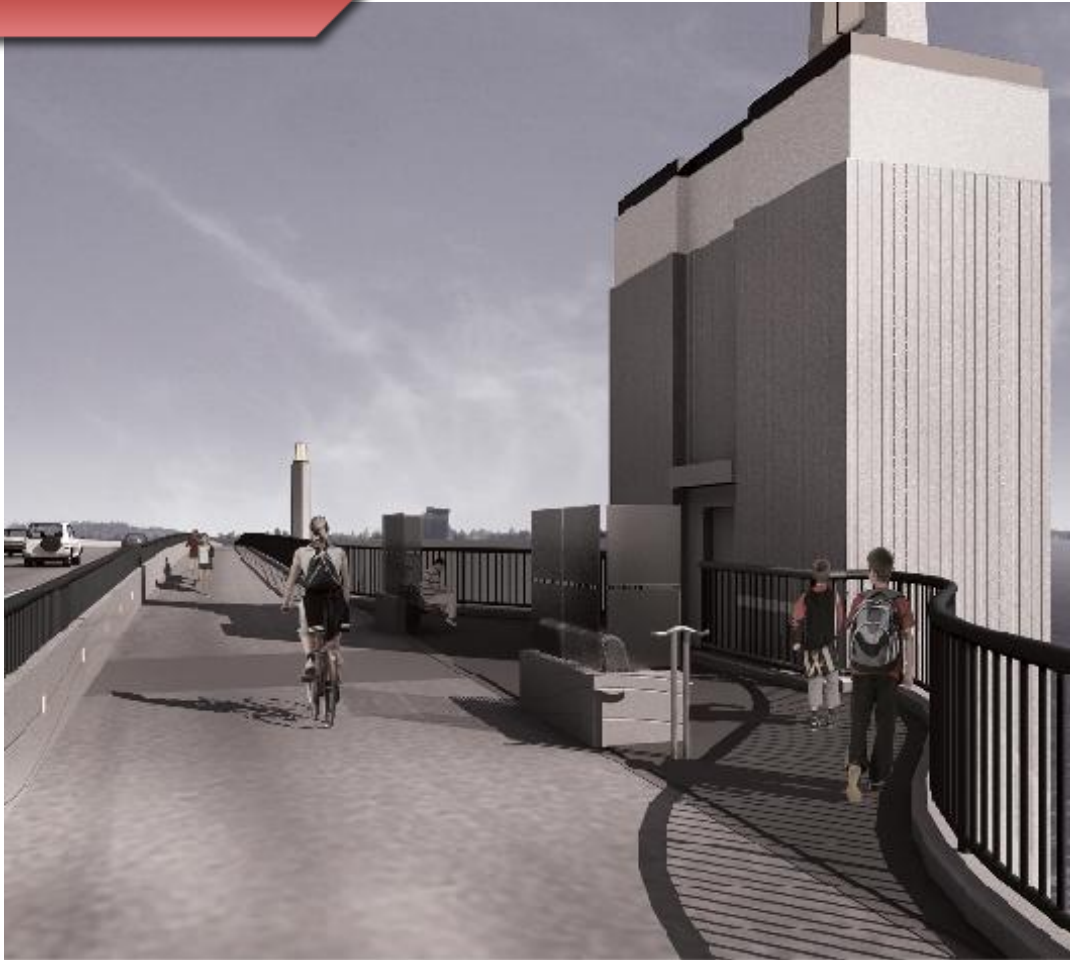
CURRENT DESIGN





# Sentinel Pedestrian View

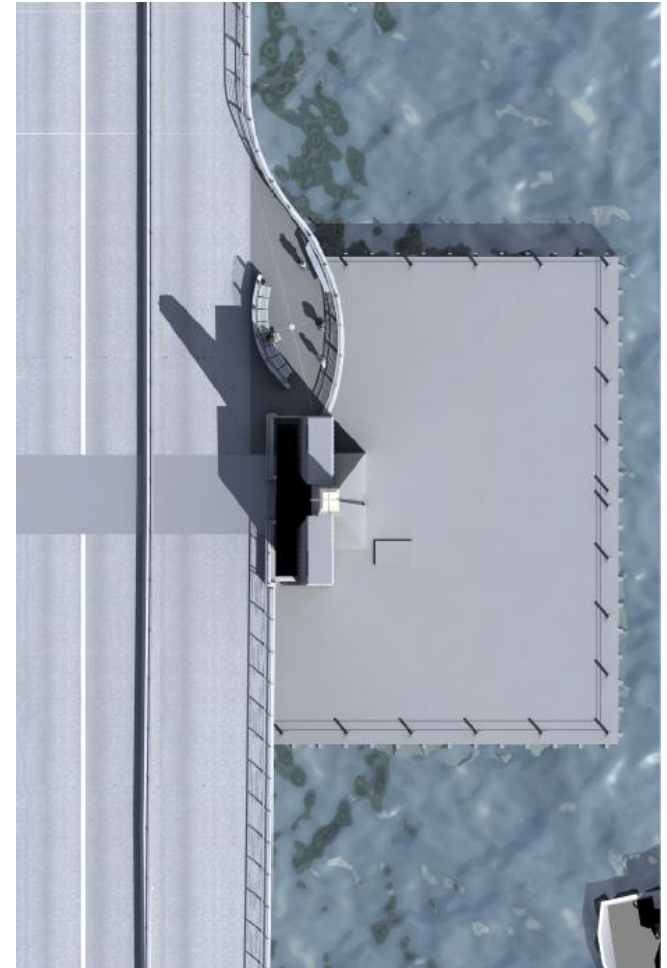
RFP DESIGN





# Sentinel Pedestrian View

CURRENT DESIGN



# Sentinel Night View



# Low-rise Belvedere

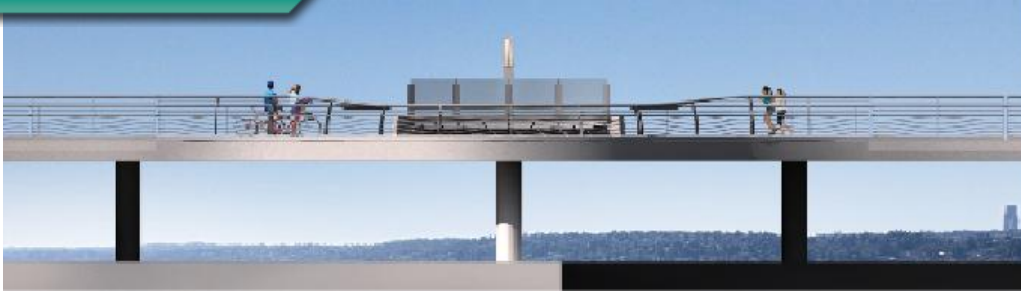
RFP DESIGN





# Low-rise Belvedere

## CURRENT DESIGN





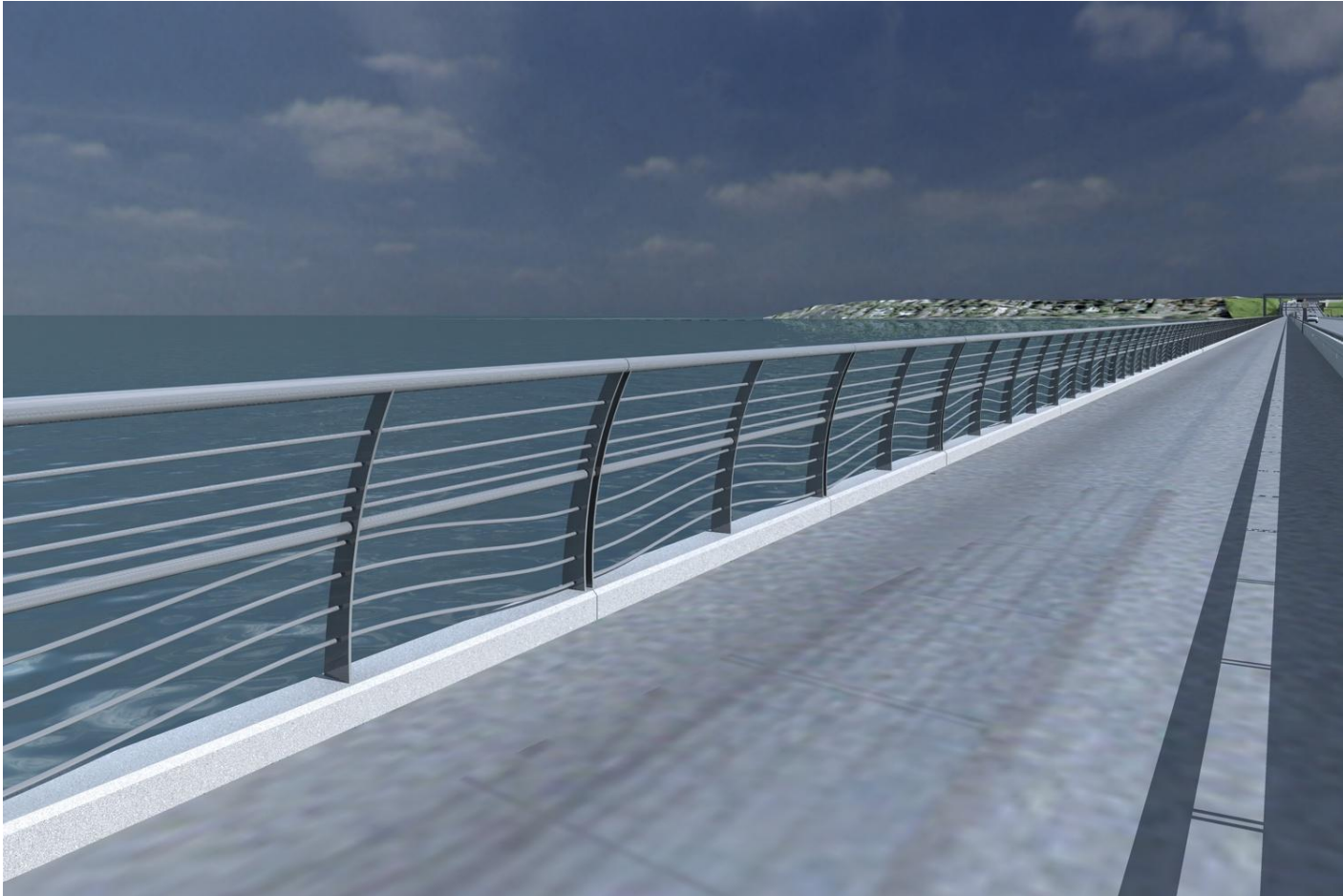
# Railing



WAVE RAIL

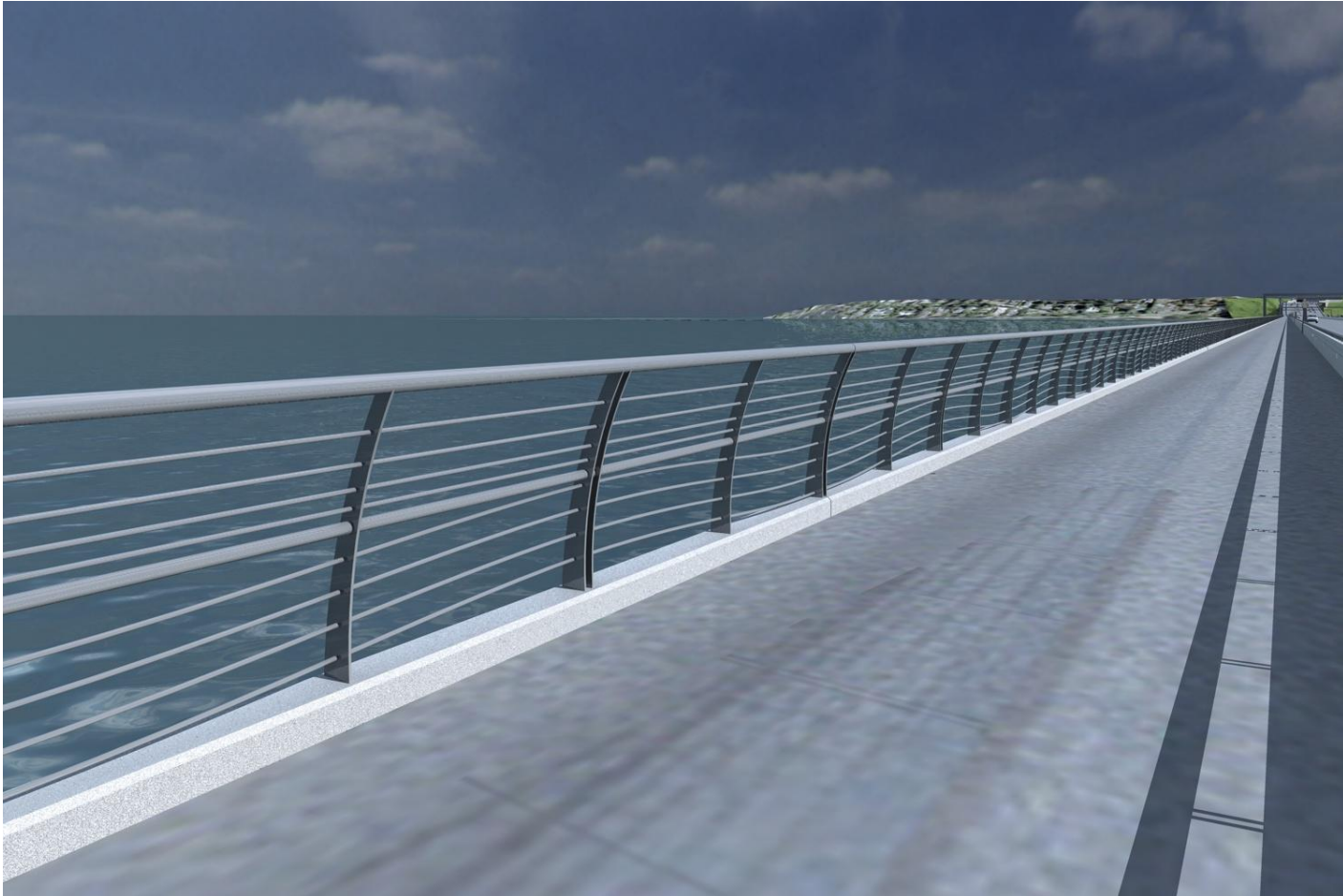
LINEAR RAIL

# Railing



HEAVY WAVE

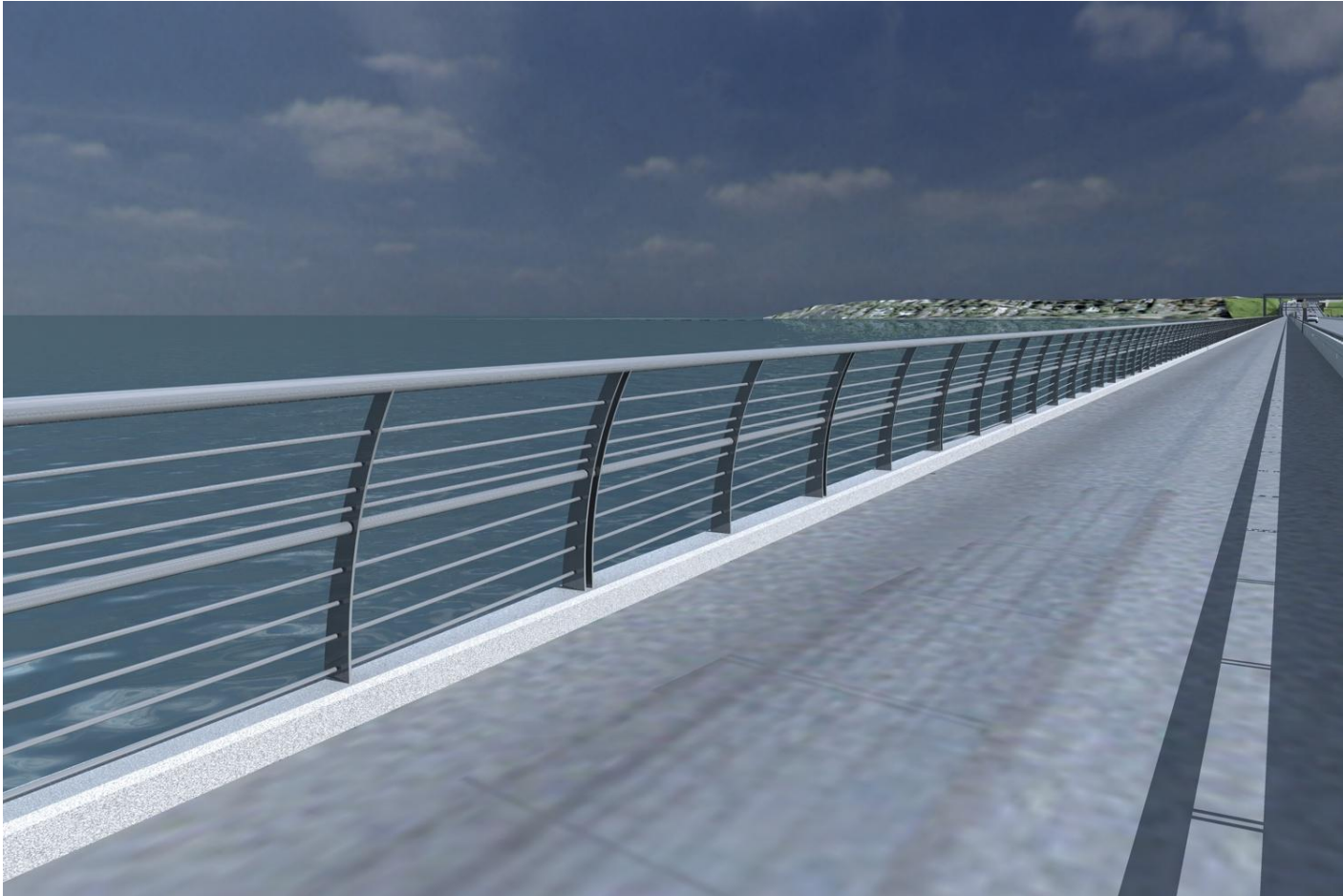
# Railing



MID WAVE



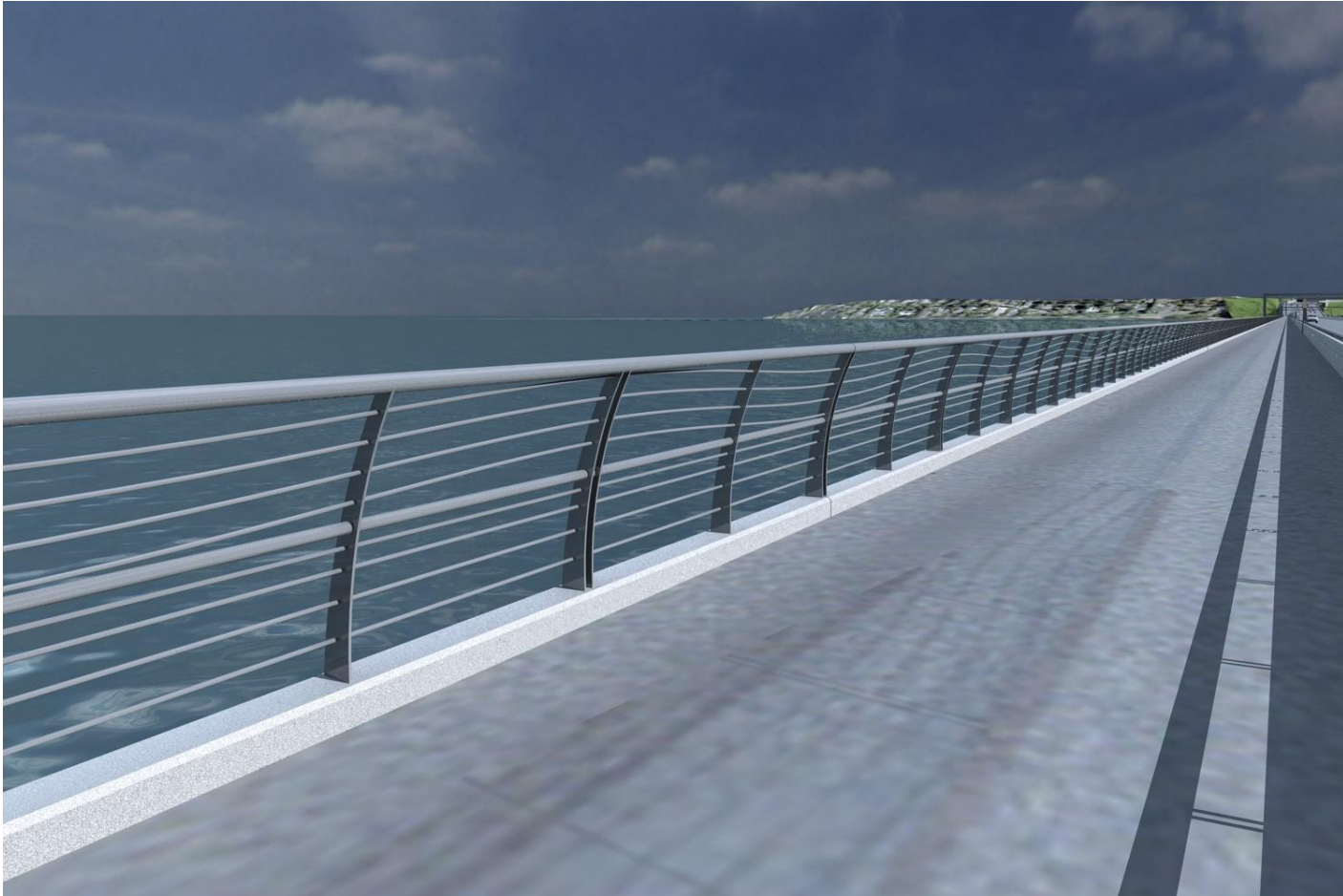
# Railing



LIGHT WAVE



# Railing



WAVE ON TOP

# Traffic Barriers



34" BARRIER W/ 8" RAIL



42" BARRIER

# Interpretive Signage Themes

BRIDGE ENGINEERING  
& CONSTRUCTION

REGIONAL FEATURES  
ENVIRONMENTAL PROTECTION, FISH RUNS, ETC.  
& “WHAT AM I LOOKING AT?” IMAGE ILLUSTRATION

BRIDGE & LAKE  
HISTORY

WATER BORN ELEMENTS

WATER BORN ELEMENTS

