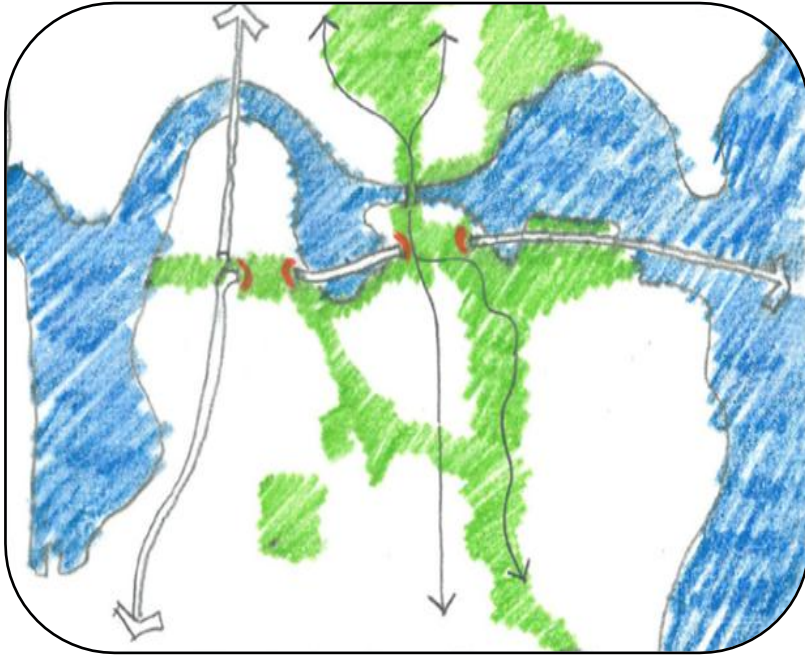


SR 520 Program

Portage Bay Bridge Design

July 17, 2014



Julie Meredith
SR 520 Program Director

Lynn Peterson
Secretary of Transportation

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

Seattle Community Design Process - 2012

Portage Bay Bridge - What We Heard

General:

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

Box girder concept:

- Desirable because it is “**clean**”, “**simple**”, “**cost-saving**”, and provides better views above the deck

Cable stay concept:

- Desirable because it has a **lighter structure** with **fewer in-water columns** and it is **distinctive**

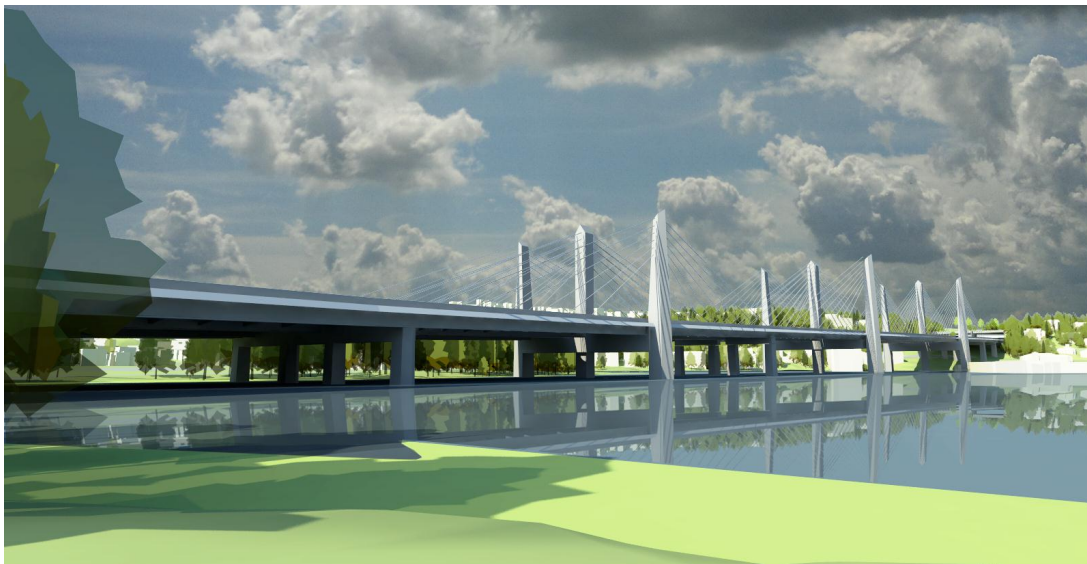


Portage Bay Bridge Goals and Aesthetic Criteria

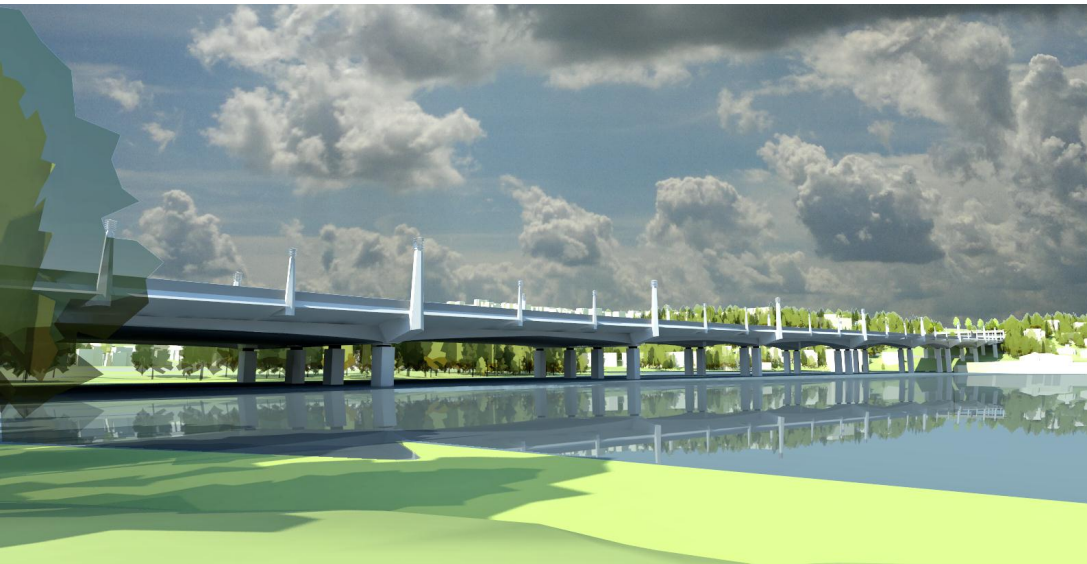
The bridge will:

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

Portage Bay Bridge Vision



Cable stay



Box girder

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

Existing Conditions

University Bridge (View Looking Southeast)

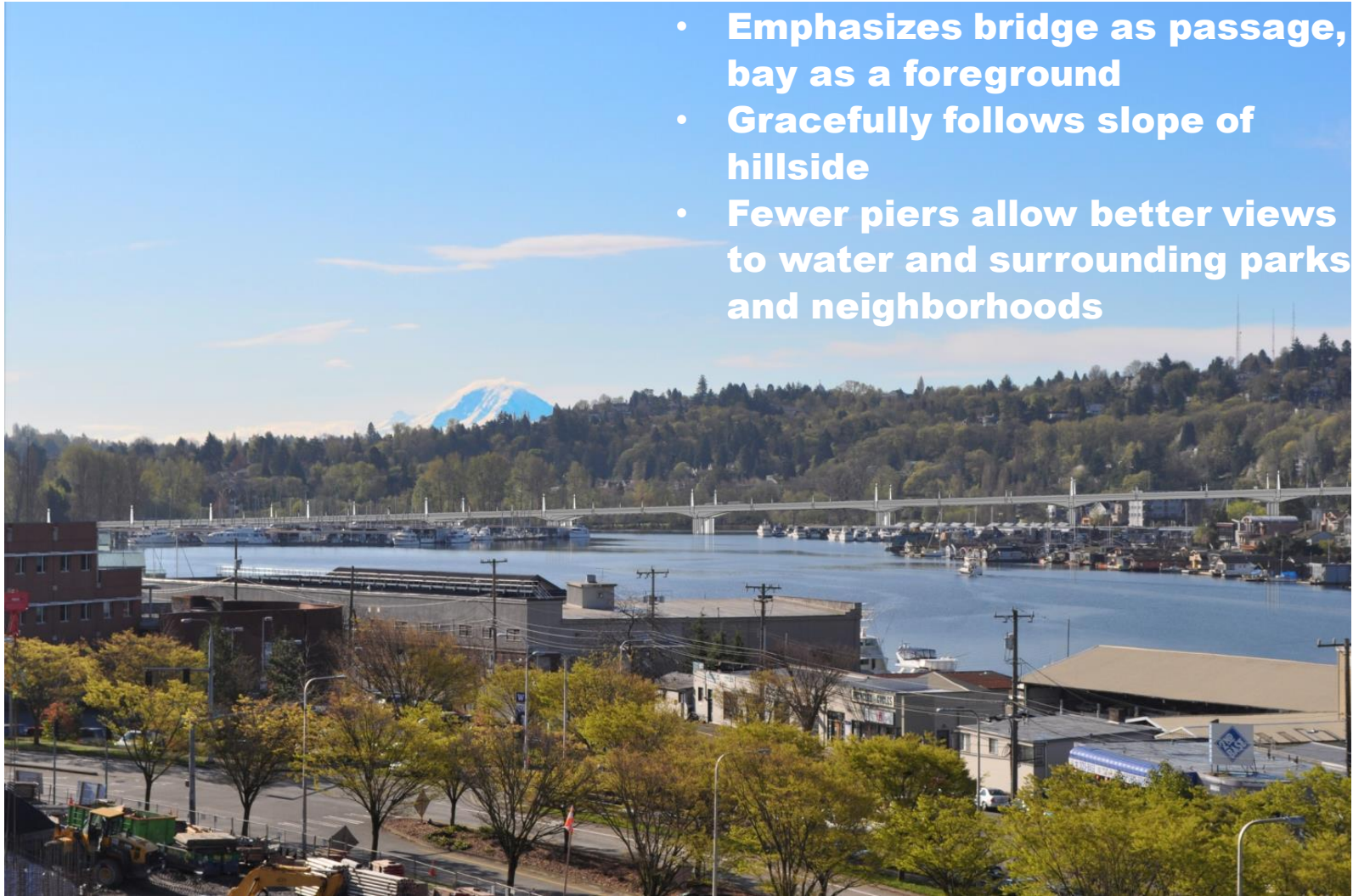
Elevation Approx. +90'



Box Girder

University Bridge (View Looking Southeast)

Elevation Approx. +90'



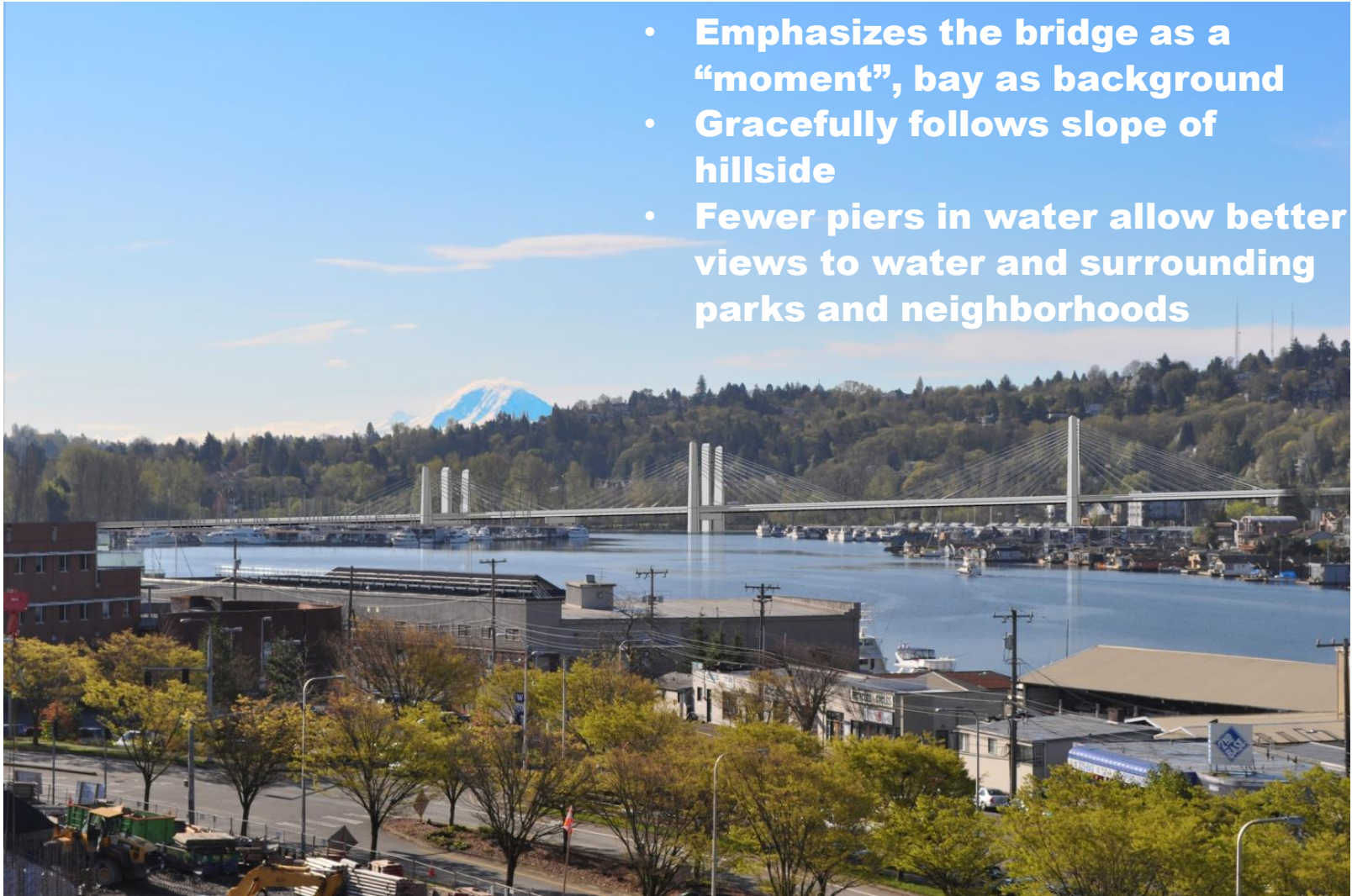
- Emphasizes bridge as passage, bay as a foreground
- Gracefully follows slope of hillside
- Fewer piers allow better views to water and surrounding parks and neighborhoods

Cable Stay

University Bridge (View Looking Southeast)

Elevation Approx. +90'

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



Existing Conditions

West Montlake Park (View Looking Southwest)

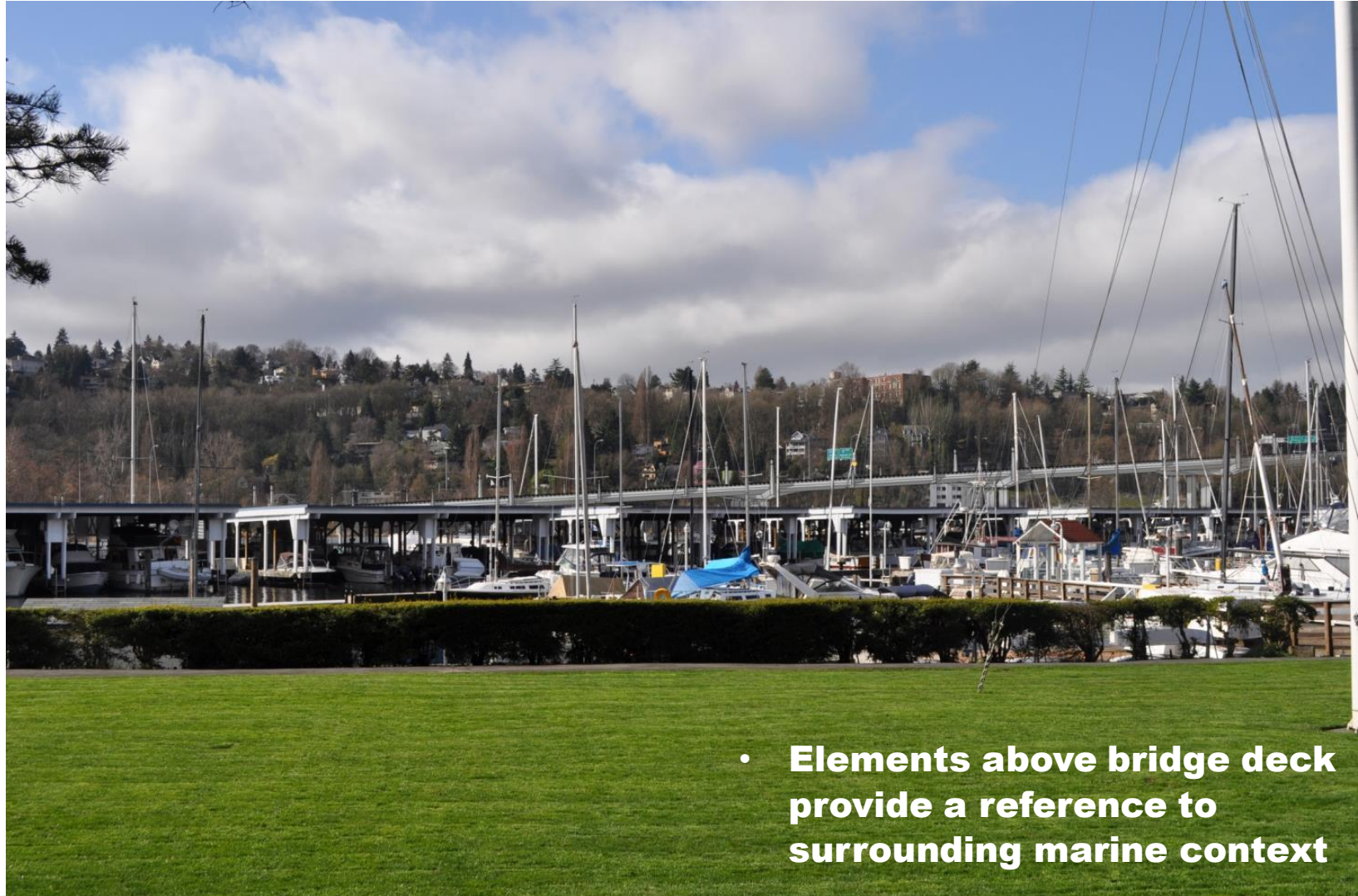
Elevation Approx. +25'



Box Girder

West Montlake Park (View Looking Southwest)

Elevation Approx. +25'

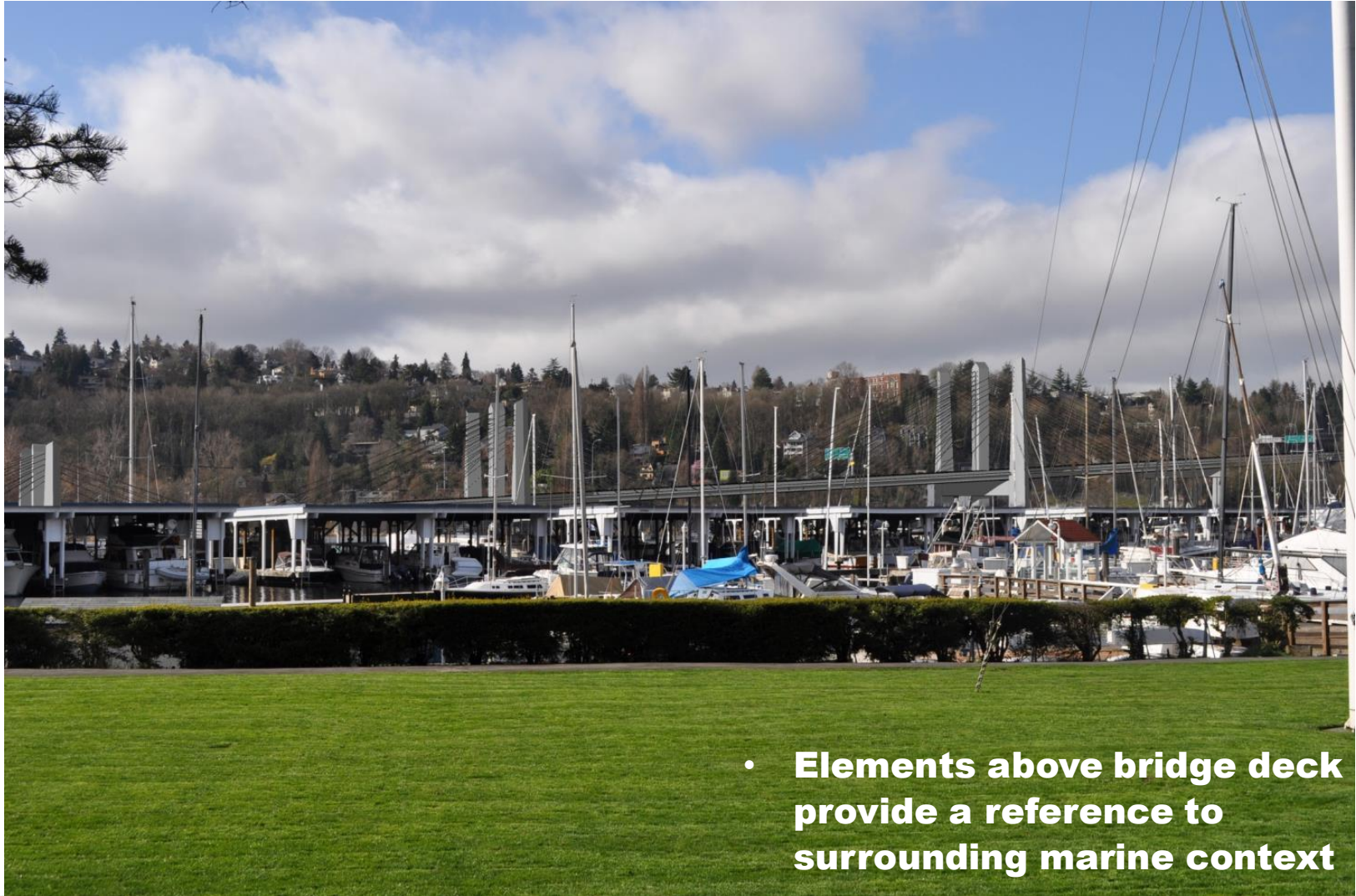


- Elements above bridge deck provide a reference to surrounding marine context

Cable Stay

West Montlake Park (View Looking Southwest)

Elevation Approx. +25'



- Elements above bridge deck provide a reference to surrounding marine context

Existing Conditions

Montlake Playfield (View Looking Northwest)

Elevation Approx. +22'



Box Girder

Montlake Playfield (View Looking Northwest)

Elevation Approx. +22'



- Fewer piers in water and longer spans allow for greater views under bridge
- Bridge deck appears slimmer than baseline bridge in Final Environmental Impact Statement

Cable Stay

Montlake Playfield (View Looking Northwest)

Elevation Approx. +22'



- Fewer piers in water and longer spans allow for greater views under bridge
- Bridge deck is slimmer than baseline bridge in Final Environmental Impact Statement

Box Girder

Shoreline at Seattle Yacht Club (View Looking Southwest)

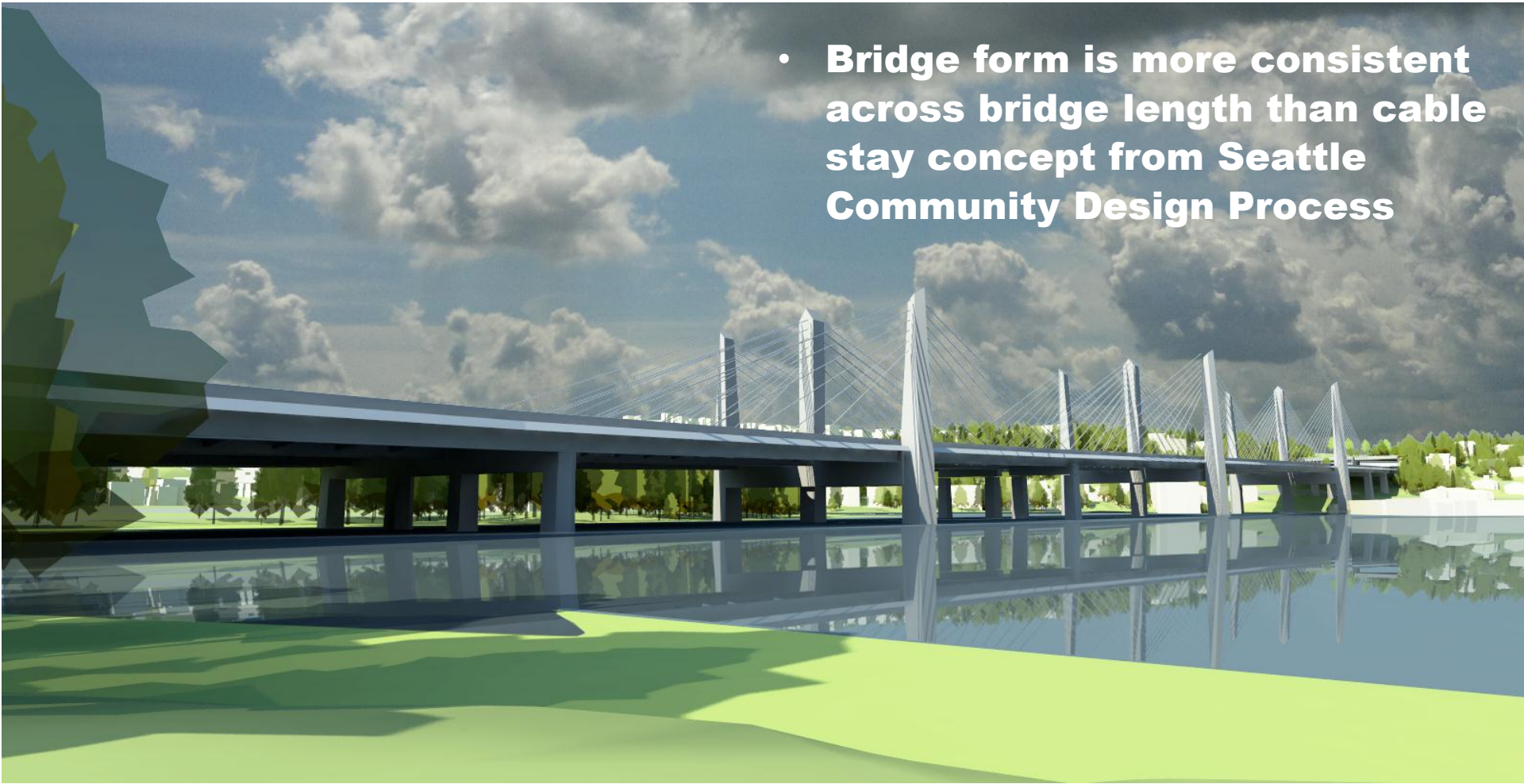
- Bridge form is more consistent across bridge length than baseline bridge in Final Environmental Impact Statement



Cable Stay

Shoreline at Seattle Yacht Club (View Looking Southwest)

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



Existing Conditions

10th and Delmar Lid (View Looking East)

Elevation Approx. 150'

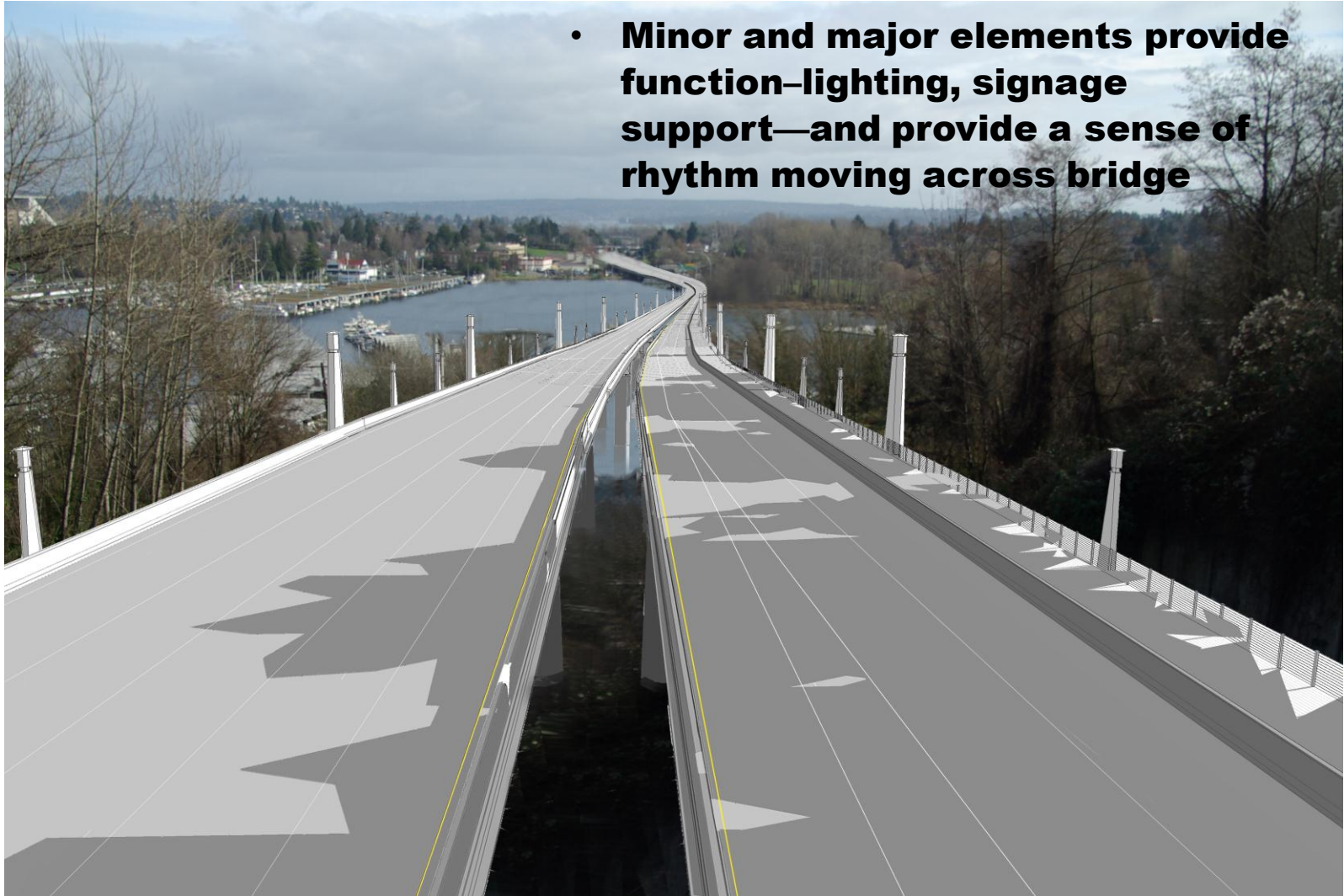


Box Girder

10th and Delmar Lid (View Looking East)

Elevation Approx. 150'

- Minor and major elements provide function—lighting, signage support—and provide a sense of rhythm moving across bridge

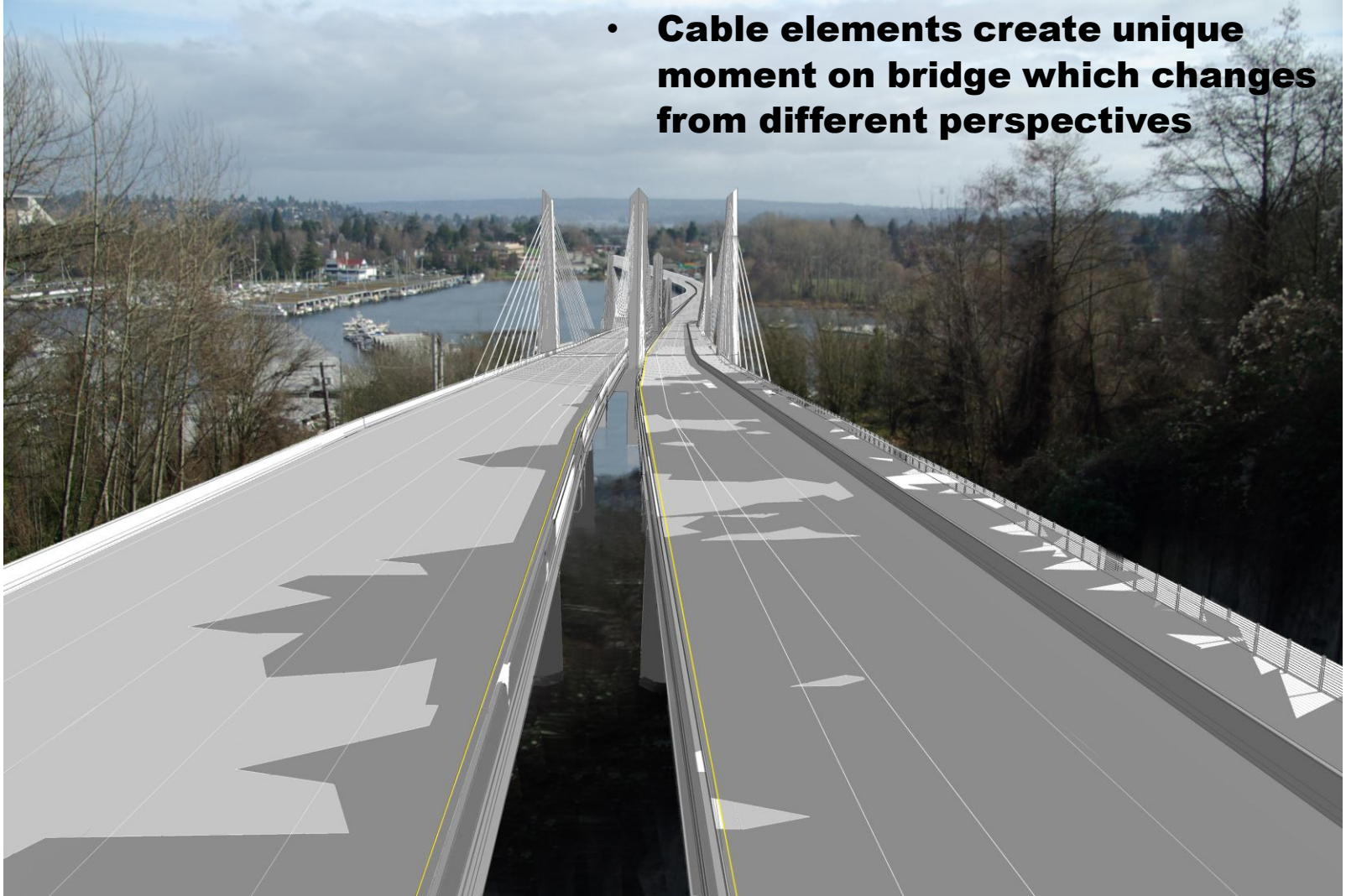


Cable Stay

10th and Delmar Lid (View Looking East)

Elevation Approx. 150'

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



Box Girder

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



- Bridge understructure is simplified

Cable Stay

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



- Bridge understructure is revealed for greater interest
- Bridge deck is slimmer

Box Girder

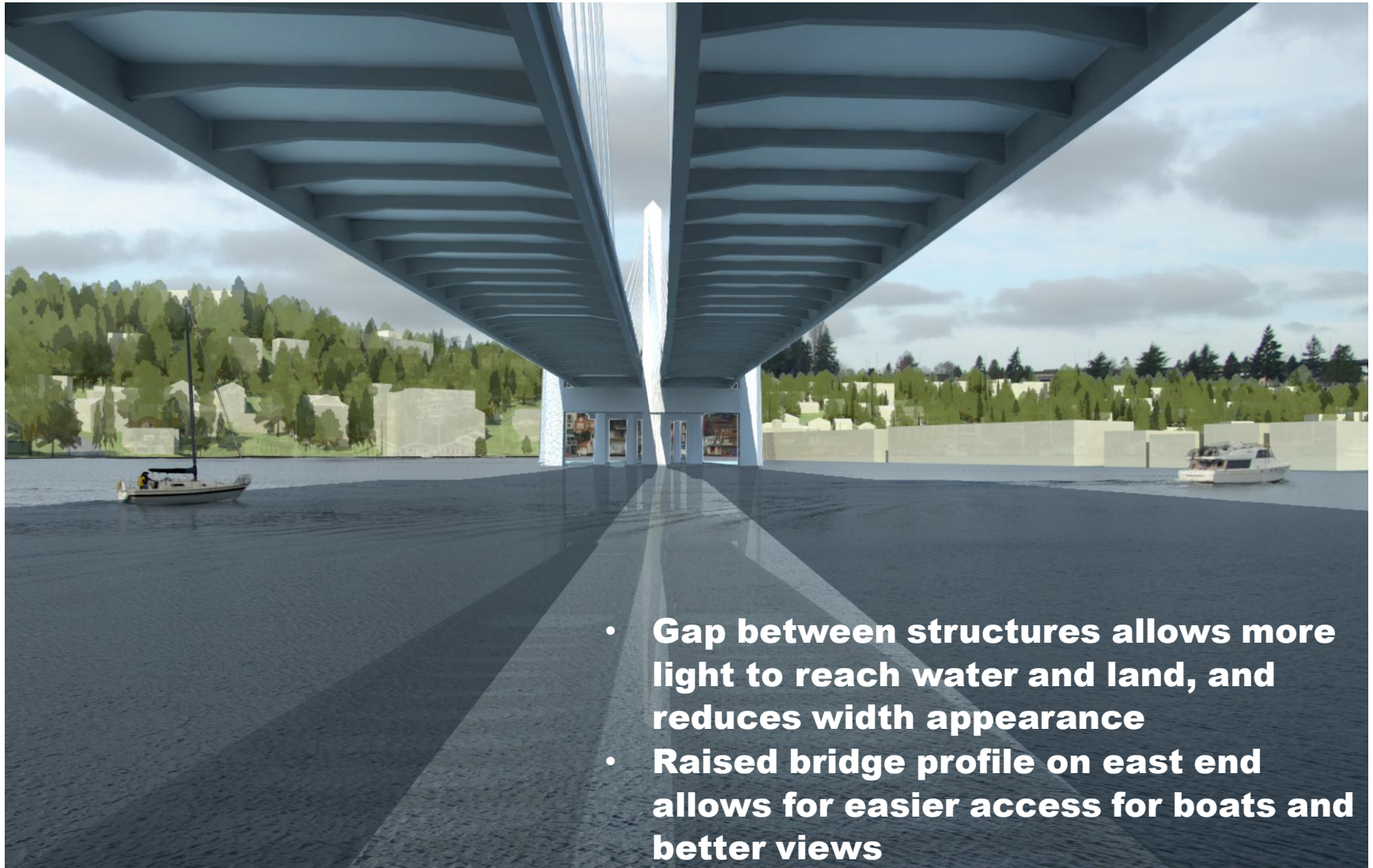
Under Bridge (View Looking West)



- **Gap between structures allows more light to reach water and land, and reduces width appearance**
- **Raised bridge profile on east end allows for easier access for boats and better views**

Cable Stay

Under Bridge (View Looking West)



- Gap between structures allows more light to reach water and land, and reduces width appearance
- Raised bridge profile on east end allows for easier access for boats and better views

Box Girder

Shared-Use Path (View Looking West)

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



Cable Stay

Shared-Use Path (View Looking West)

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



Box Girder

Pier Study



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

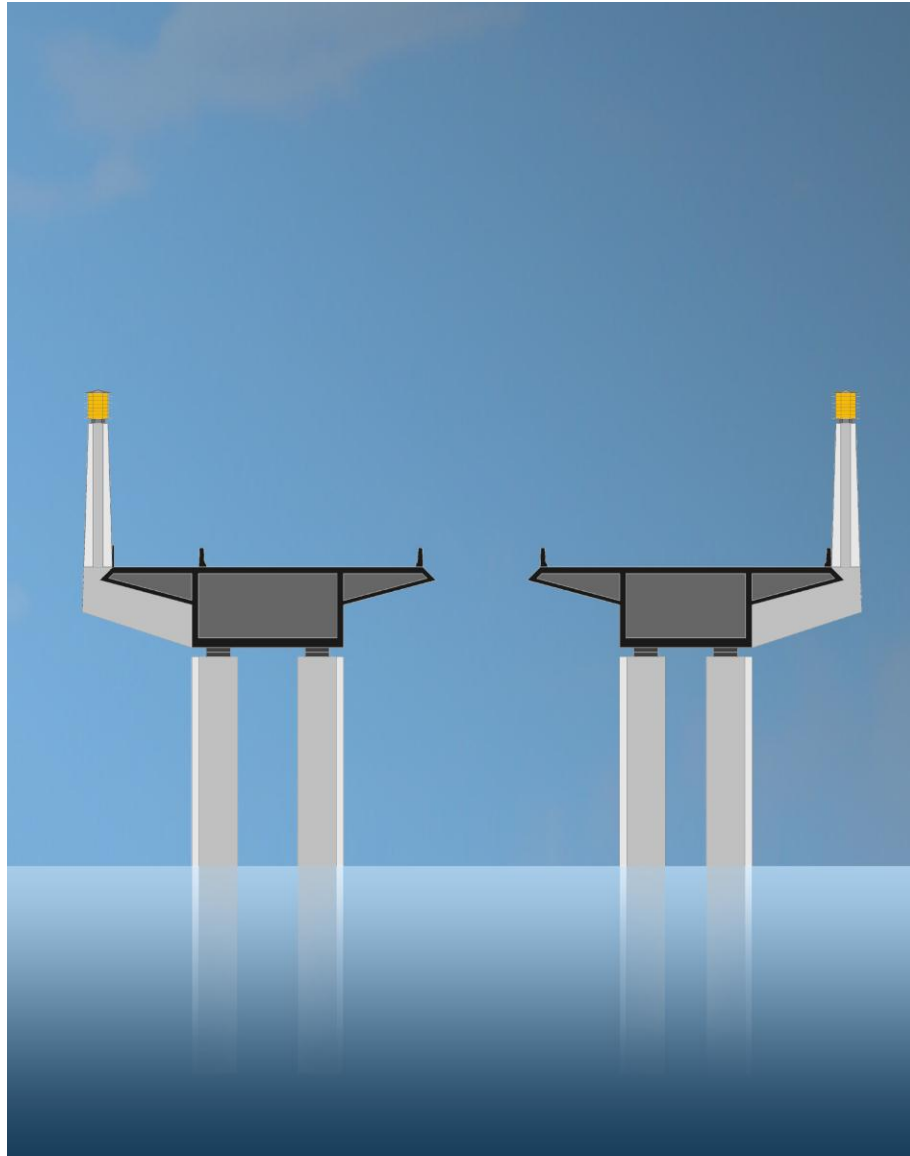
Cable Stay Tower Study



- **Faceting of bridge towers, cap ends and major and minor elements add visual interest and create illusion of slimmer structure**
- **Towers are slimmer**

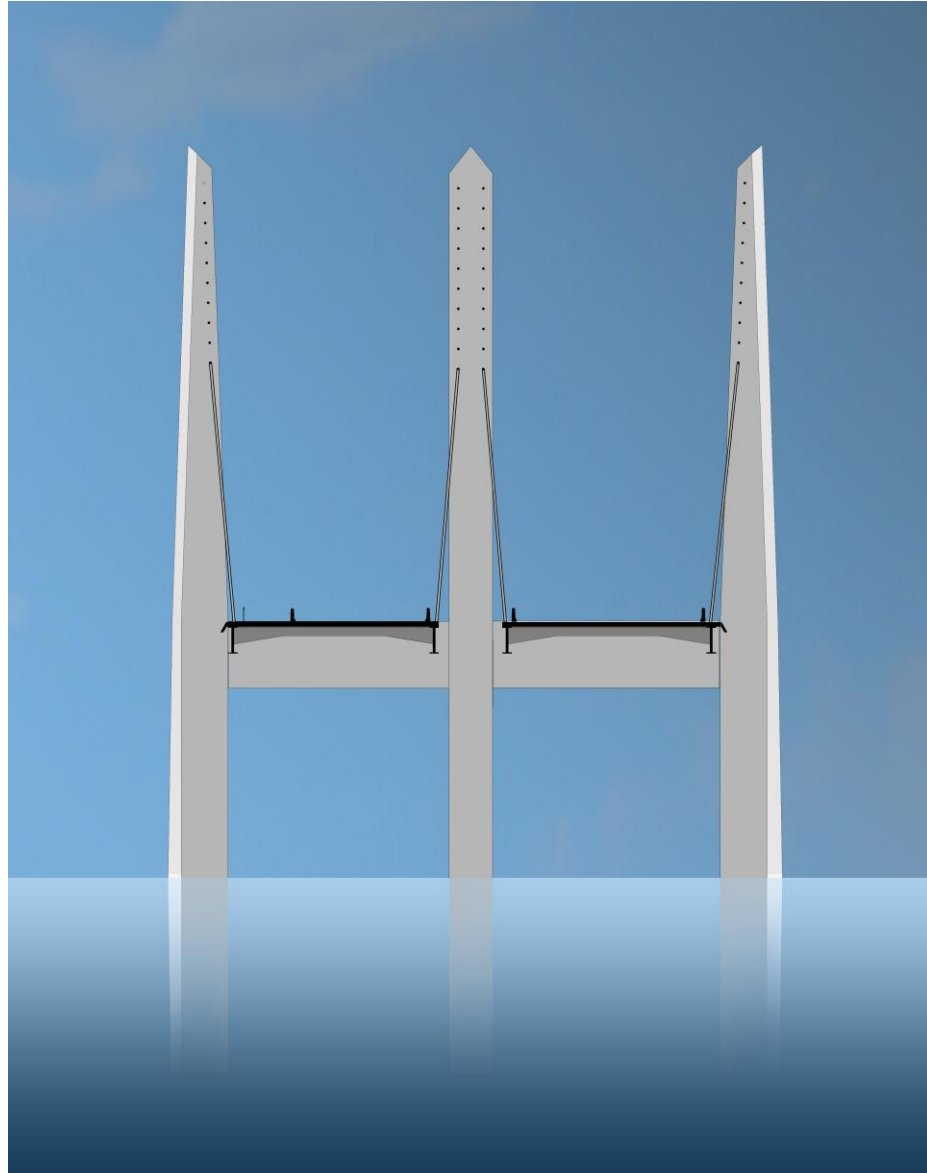
Box Girder

Cross Section View



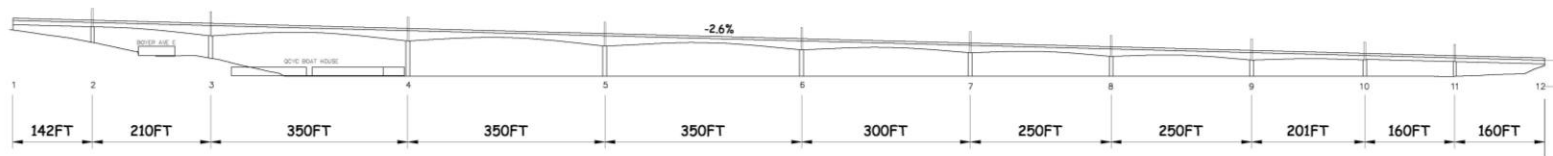
Cable Stay

Cross Section View

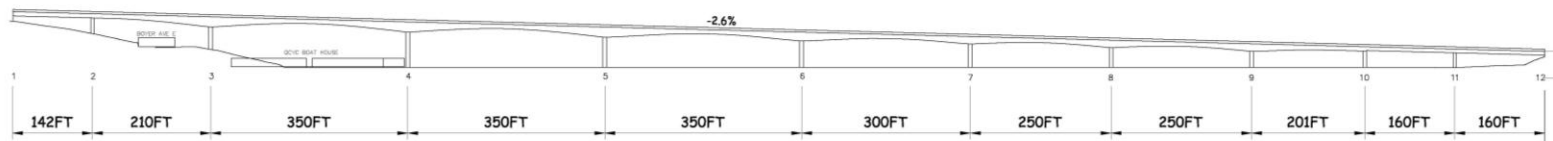


Box Girder

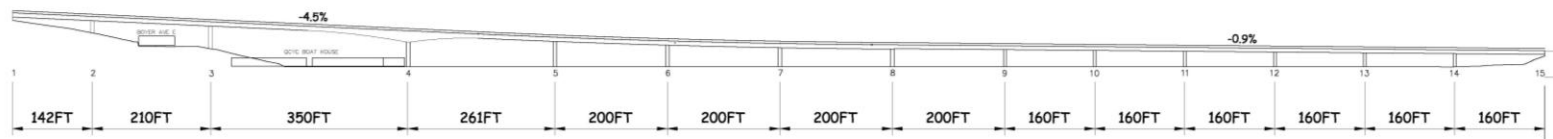
Elevation and Profile



July 8, 2014



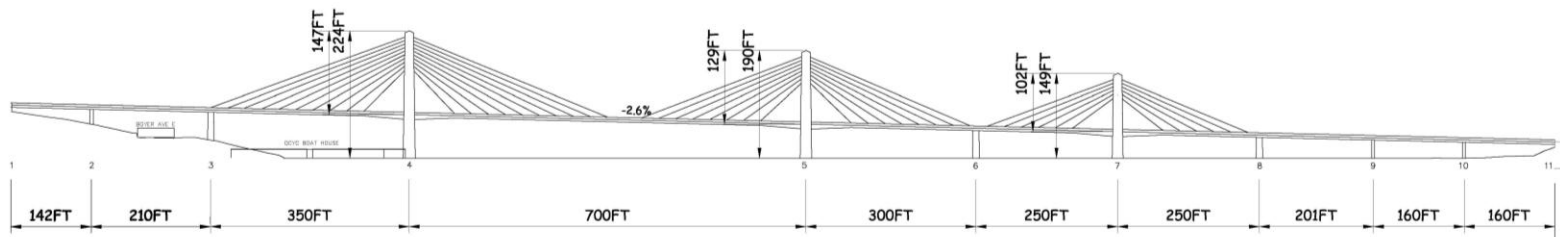
June 17, 2014



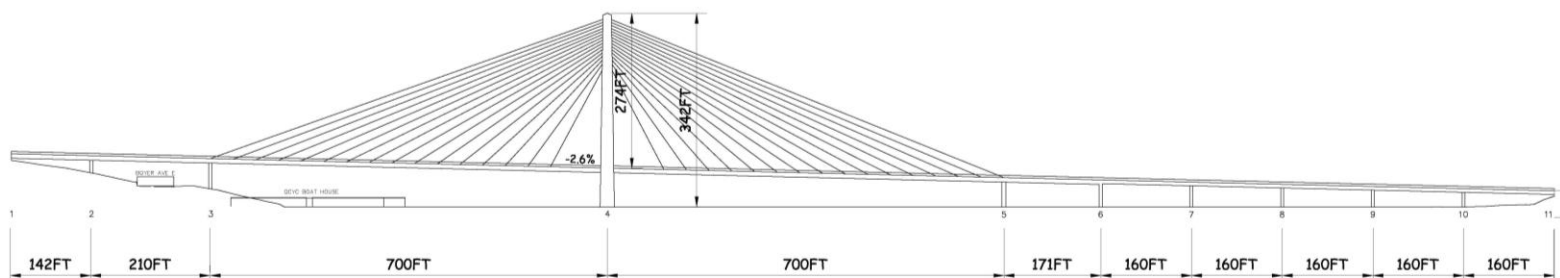
Previous

Cable Stay

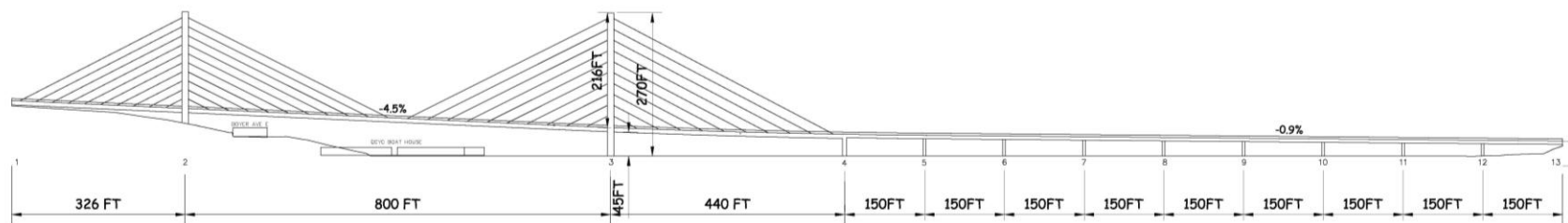
Elevation and Profile



July 8, 2014



June 17, 2014

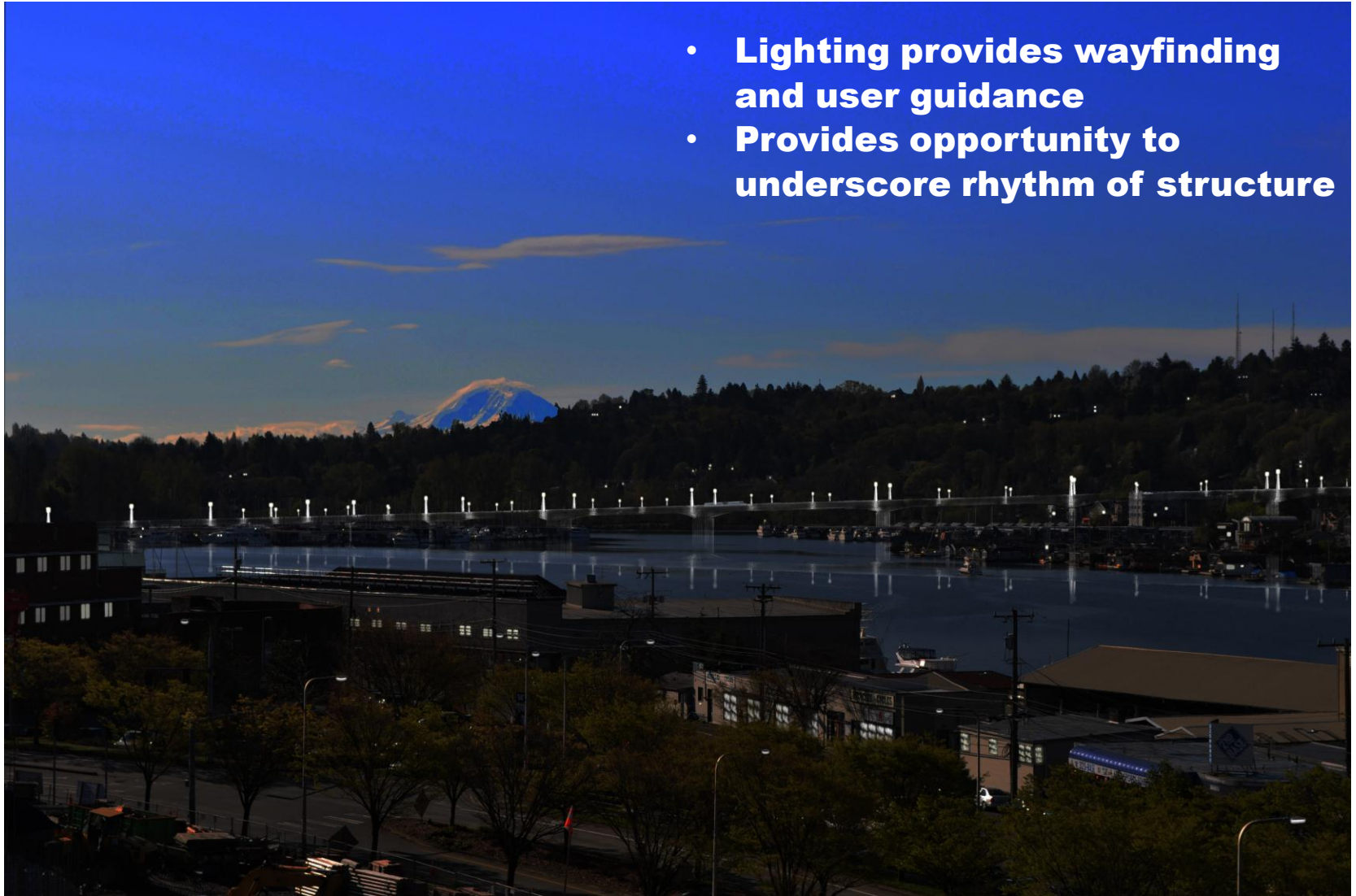


Previous

Box Girder

Light Study – University Bridge (View Looking Southeast)

- Lighting provides wayfinding and user guidance
- Provides opportunity to underscore rhythm of structure



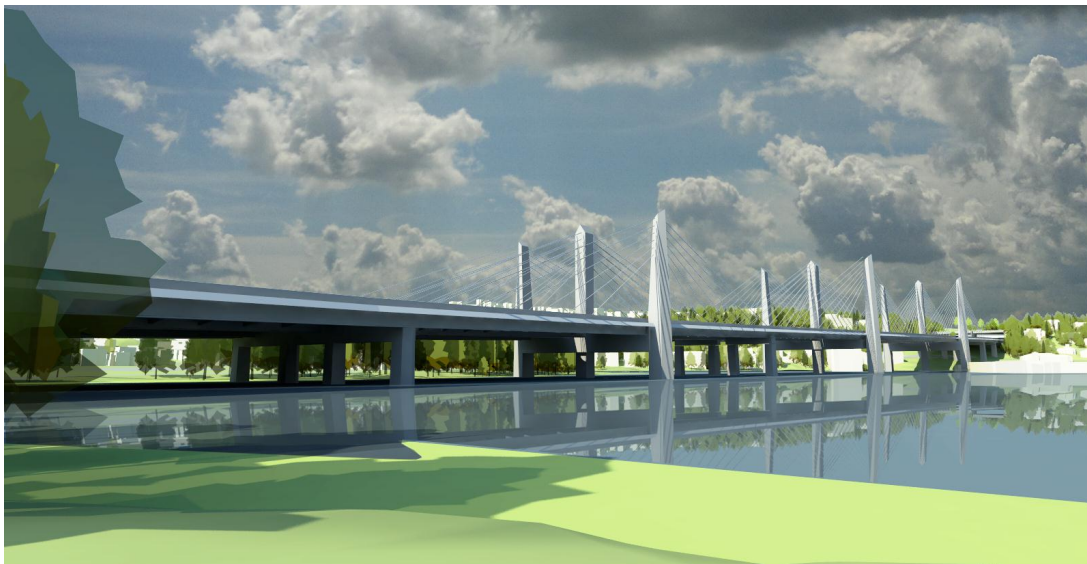
Cable Stay

Light Study – University Bridge (View Looking Southeast)

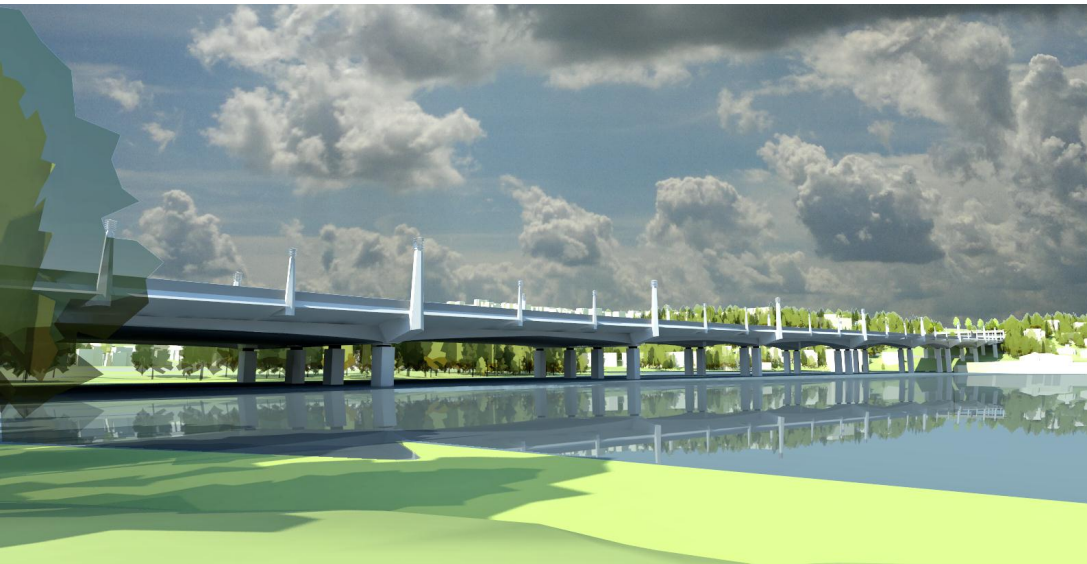


- Lighting provides wayfinding and user guidance
- Provides opportunity to underscore structure of bridge

Portage Bay Bridge Vision



Cable stay



Box girder

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