



# North Washington Street Bridge Replacement Project

Boston, Massachusetts

West End Civic Association - September 8, 2016

Martin J. Walsh  
Mayor



Michael Dennehy  
Commissioner



Moving Massachusetts Forward  
**massDOT**

**City of Boston:** Para Jayasinghe, City Engineer  
Benjamin Sun, Chief Structural Engineer



**Mass DOT:** Michael O'Dowd, Project Manager



# Project Team

City of Boston  
MassDOT -Highway Division  
Federal Highway Administration



Bridge Engineer: Benesch  
Bridge Architect: Rosales + Partners

ROSALES + PARTNERS  
ARCHITECTS ENGINEERS







Existing Bridge

CHARLESTOWN

BOSTON HARBOR

NORTH END

NORTH WASHINGTON STREET BRIDGE

WEST END

ZAKIM BRIDGE





Existing Bridge Context

CHARLES RIVER

WEST END

Project Limits

Project Limits

NORTH END

CHARLESTOWN

BOSTON HARBOR



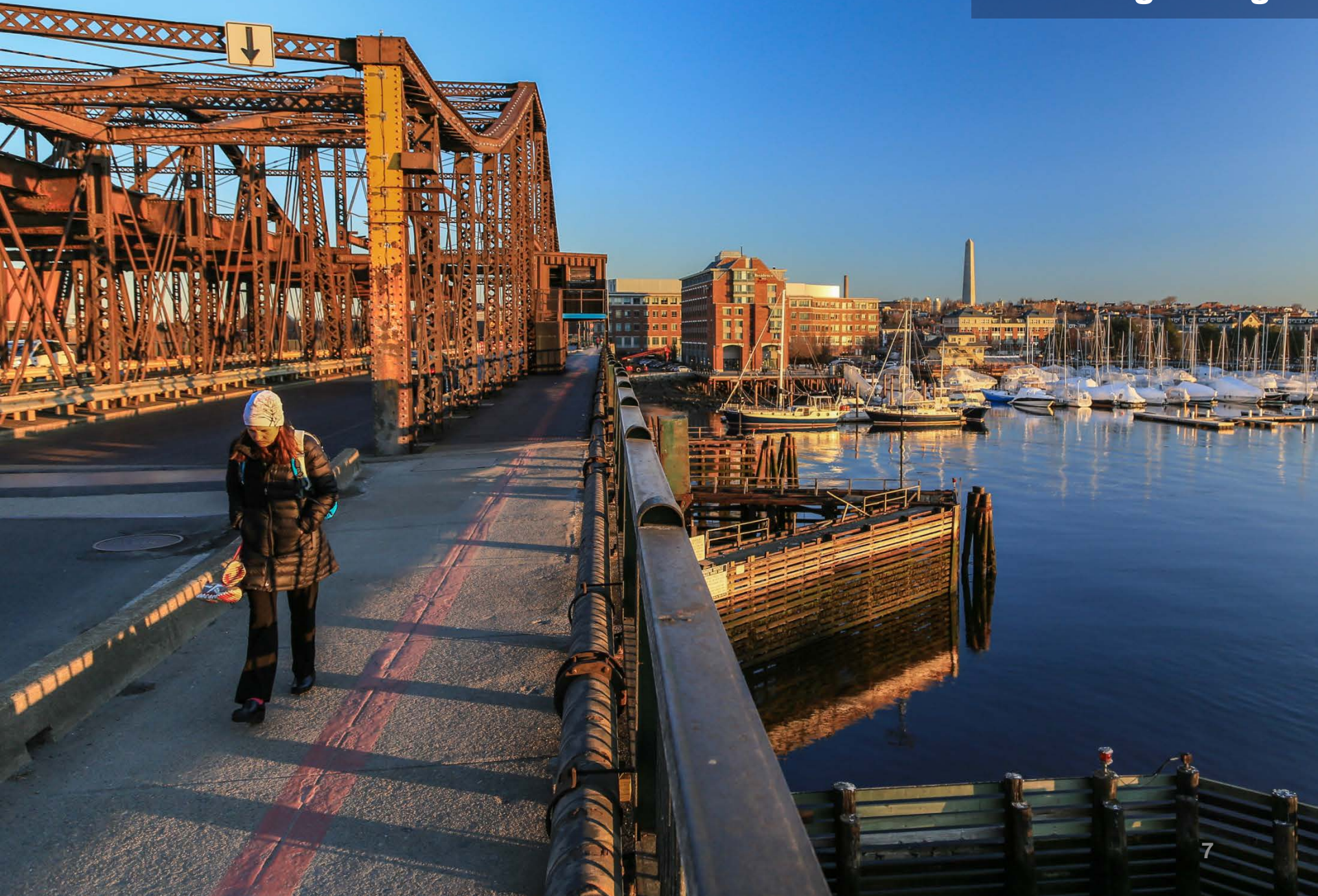
## Project History

- 1898 Existing Bridge Constructed - 12 spans, 1087' in Length
- 1956 Bridge is Reconstructed
- 1961 Swing Span Closed Permanently
- 1977 Elevated Street Railway Structure Removed
- 1992 Adjoining Warehouse Bridge Structure in Charlestown is Replaced
- 2003 Center Truss Bay Lanes Closed
- 2004-2015 Ongoing Maintenance and Repairs





# Existing Bridge





## Existing Bridge





# Existing Bridge



## Project Goals

- Replace Structurally Deficient Bridge
- Provide Multi-Modal Bridge as a Complete City Street over Water
- Improve Deficient Bike and Pedestrian Accommodations
- Improve Intersections Safety and Functionality
- Improve Navigation Channel
- Provide Context Sensitive Bridge Design in an Important Waterfront and Historic Bridge Location
- Provide Visually Appealing Bridge Design Complementing the Zakim Bridge
- Maintain Traffic, Residential and Economical Needs during Construction



# Proposed Bridge – Design Philosophy

## Form

Iconic  
(Zakim Bridge)

vs.

Iconic-lite  
(Charlestown Bridge)



## Function

Interstate Highway  
(Zakim Bridge)

vs.

City Street over water  
(Charlestown Bridge)



# Bridge Type Study Alternatives





# Bridge Type Study Alternatives





## Public Outreach

- 2014 Spring –DCR and USCG meeting
- 2014 Summer – City of Boston Interdepartmental meeting including Boston Landmarks Commission
- 2014 Fall – Charlestown Neighborhood Community Meeting
- 2014 Fall – North End Neighborhood Community Meeting
- 2014 Fall – Bicycle and Pedestrian Advocacy Group Meeting including Walk Boston, Livable Streets and MassBike
- 2015 Winter – Charlestown Preservation Society meeting
- 2015 Spring – Stakeholder meeting including Marriott Hotel, Constitution Marina and Downtown North Association
- 2015 Spring – A Better City Transportation Committee meeting
- 2015, December 16 – Design Public Hearing at – Comments provided by Downtown North Association, MGH Institute of Health Professionals, Friends of the Charlestown Navy Yard, West End Civic Association, Constitution Marina, Boston Harbor Association, Save the Harbor/Save the Bay, Charles River Wheelmen Bicycle Club, Transit Matters, Livable Streets Alliance, Charlestown Waterfront Coalition, Boston Cyclist Union and residents from Charlestown, West End and the Marina.



## Public Outreach

- 2016, April 6 - Charlestown Neighborhood Council Meeting
- 2016, May 6 – Bus Lane Preview meeting with Boston Cyclists Union, Livable Streets, Transit Matters, Freedom Trail Foundation, WalkBoston and the MBTA
- 2016, August 18 – 75% Design Submittal



## Form - Zakim Bridge





# Form – Existing Charlestown Bridge





# Form - Proposed Bridge Aerial View





## Form - Proposed Bridge Elevation View





## Function – Zakim Bridge





# Function - Proposed Bridge





# Context Plan with Proposed Bridge



TD GARDEN

BOSTON NORTH STATION

ZAKIM BRIDGE

CHARLES RIVER

INTERSTATE - 93

PORTAL PARK

CAUSEWAY STREET

LOVEJOY WHARF

PAUL REVERE PARK

FRONT STREET

Project Limits

Project Limits

NORTH WASHINGTON STREET

ENDICOTT STREET

RUTHERFORD AVENUE

CITY SQUARE

NORTH END

PRINCE STREET PARK

CHARLESTOWN

CONSTITUTION MARINA

WARREN STREET

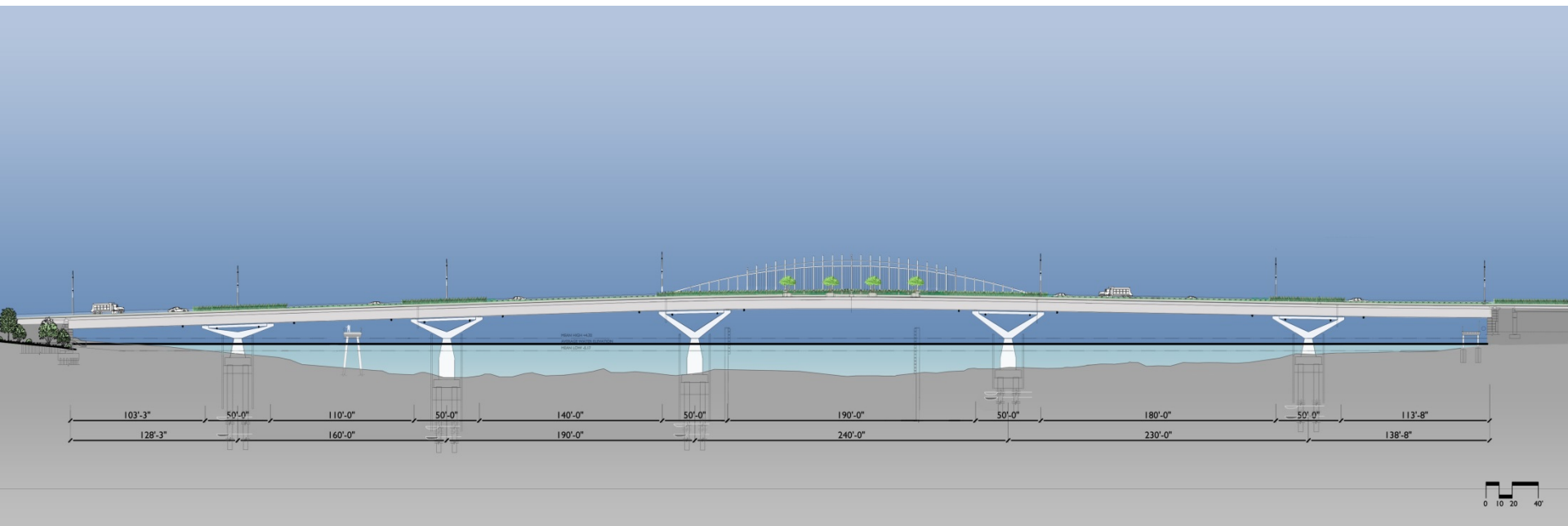
COMMERCIAL STREET

BOSTON HARBOR



# Proposed Bridge Elevation

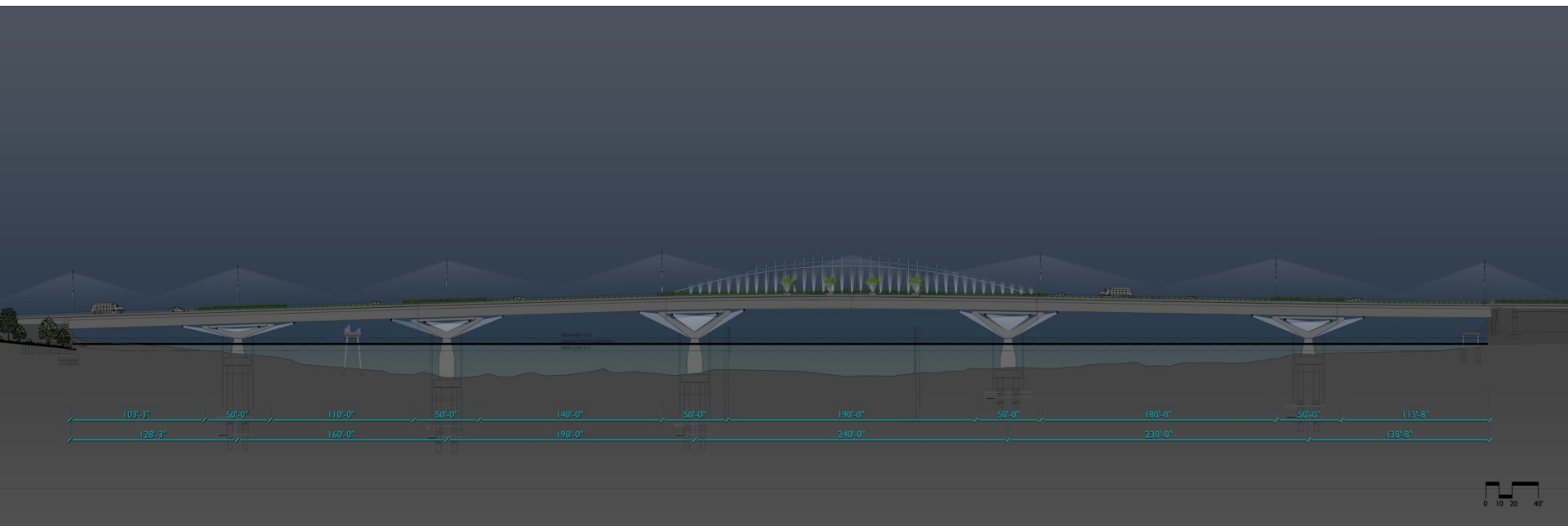
- **Constant Depth Trapezoidal Steel Box Superstructure**
- **Five Sets of Concrete V Piers Substructure**
- **Main Span 190 Feet**
- **Overall Length 1,087 Feet**





# Proposed Bridge Elevation

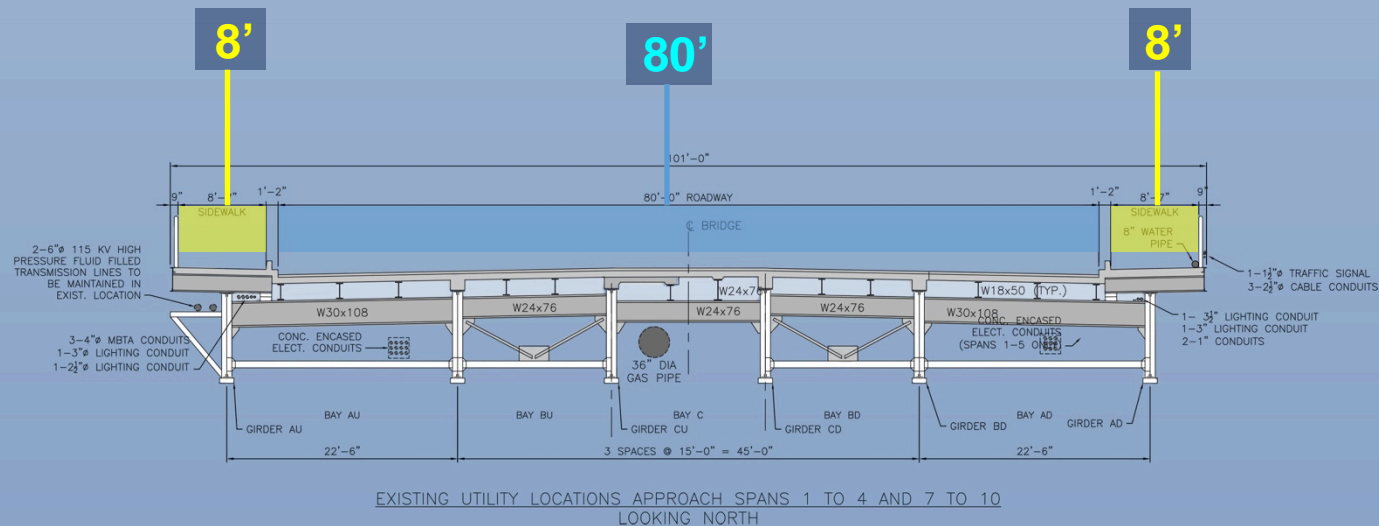
- Constant Depth Trapezoidal Steel Box Superstructure
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# Existing Bridge Cross Section at Approach Spans

- Plate Girder Bridge
- Granite Historic Piers





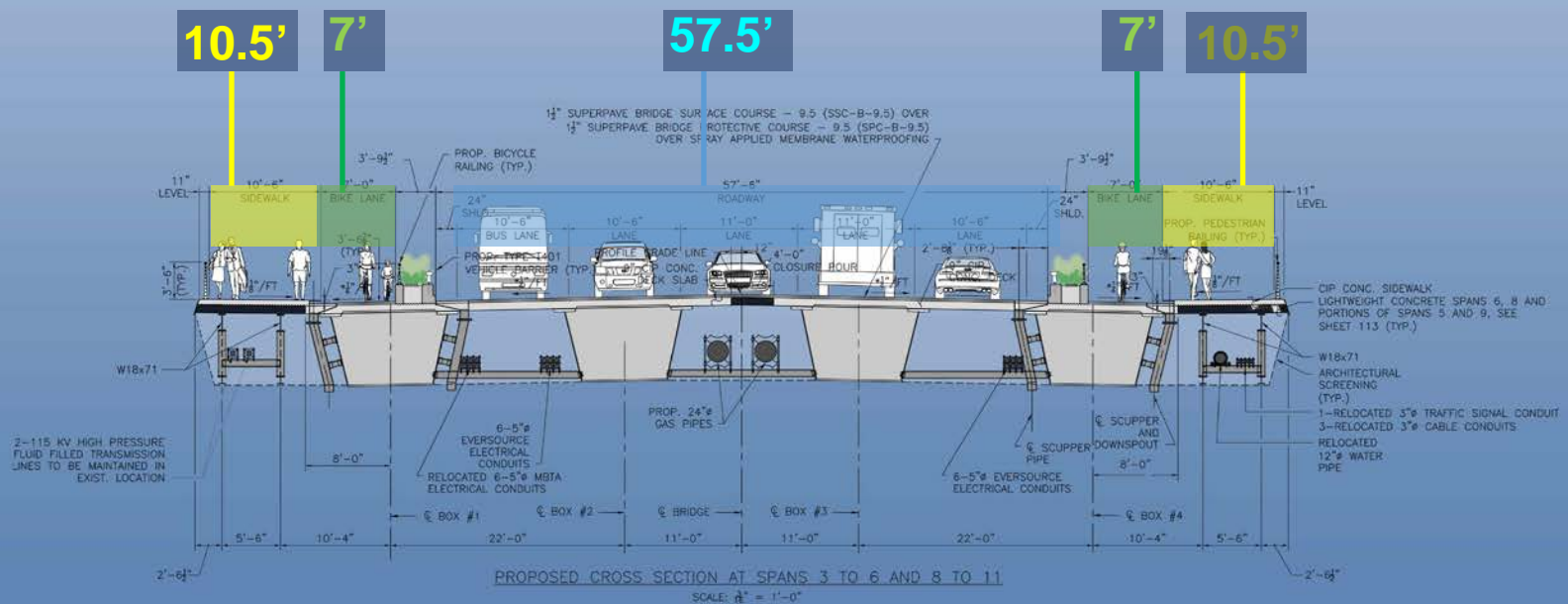
- **Swing Movable Span**
- **Steel Truss**





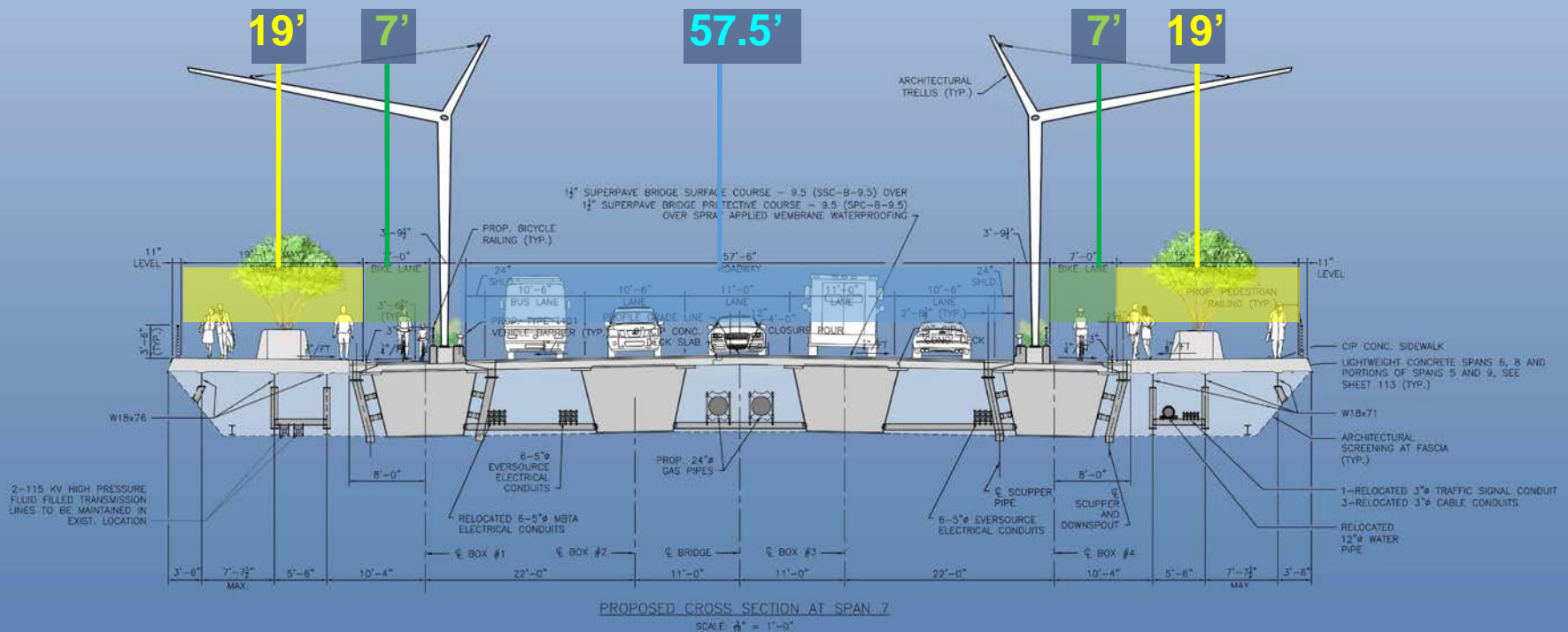
# Proposed Bridge Cross Section at Approach Spans

- Wide Sidewalks
- Separated Bike Lanes
- Two Vehicular Lanes in Each Direction
- Designated Bus Lane in Southbound Direction



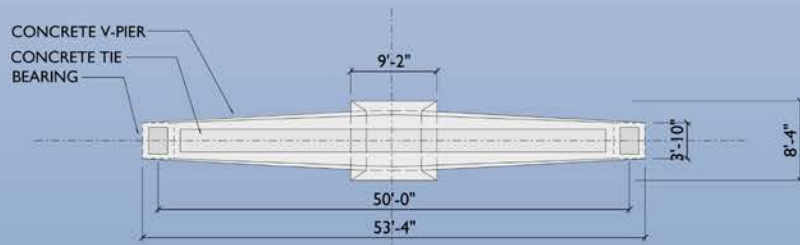
# Proposed Bridge Cross Section at Navigation Span

- Pedestrian Overlooks
- Architectural Trellis and Plantings

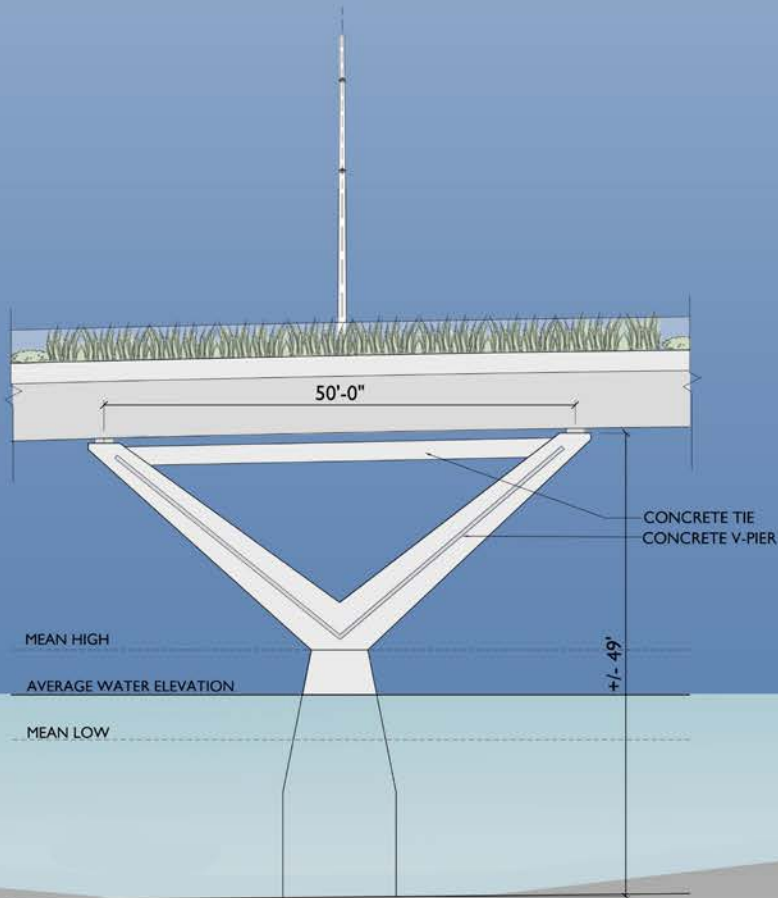
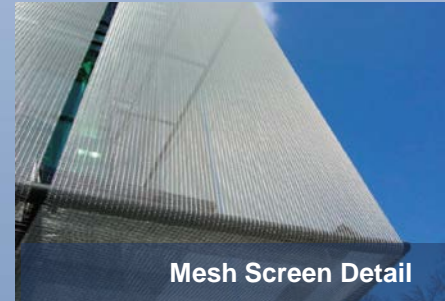




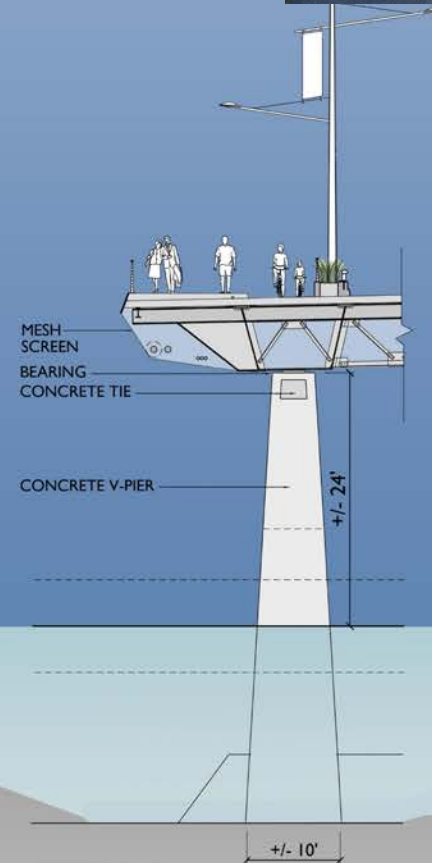
# Proposed Bridge Pier Detail



PLAN

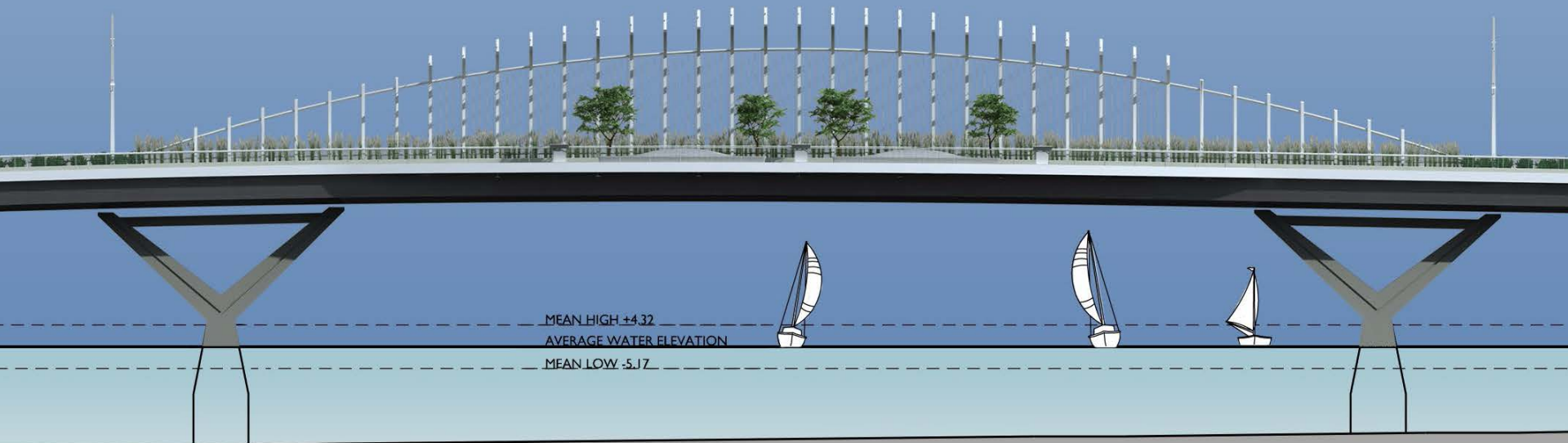


ELEVATION



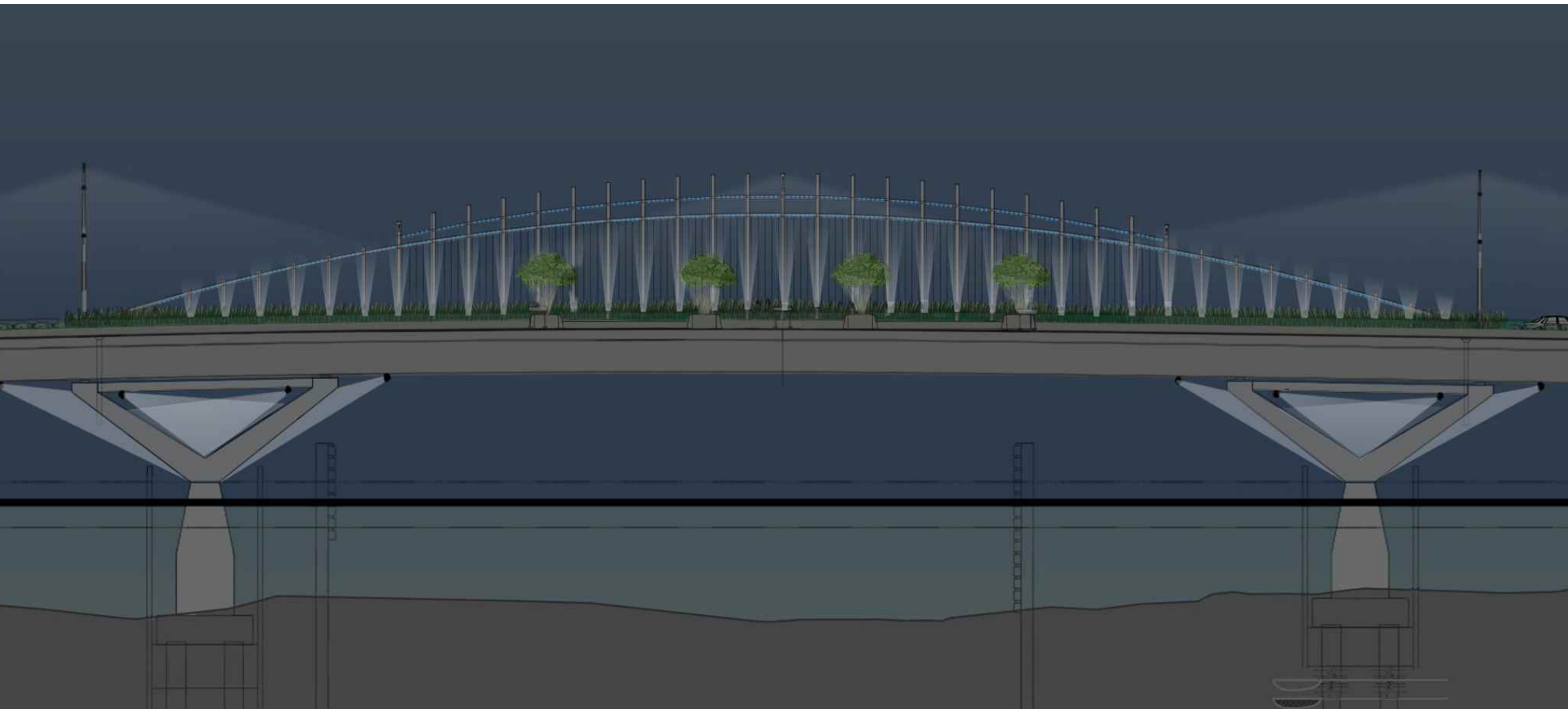
SECTION

# Elevation of Architectural Trellis

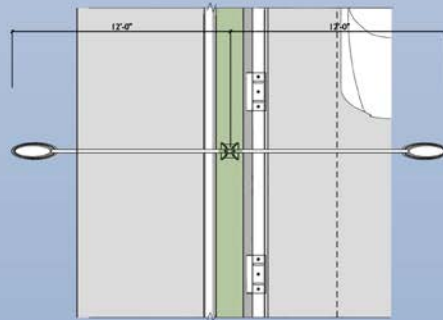




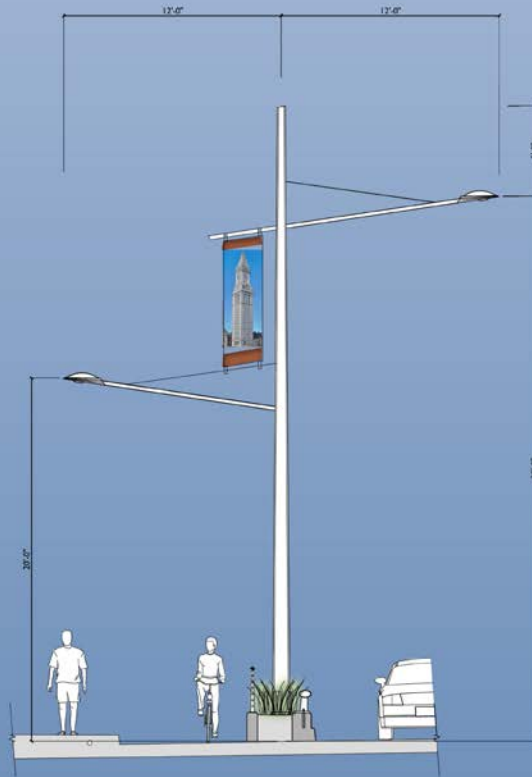
# Elevation of Architectural Trellis



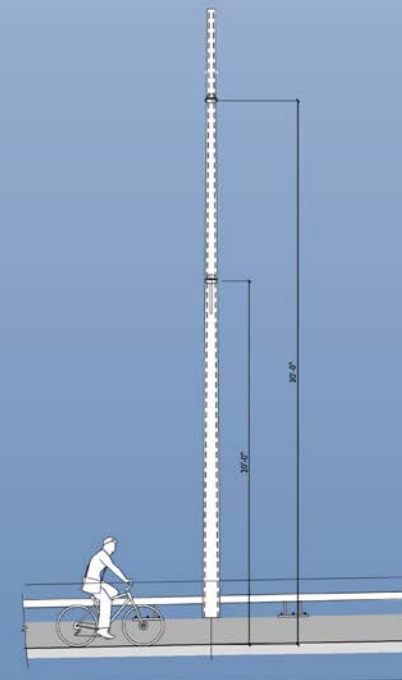
# Roadway and Pedestrian Lighting



PLAN



SECTION



ELEVATION

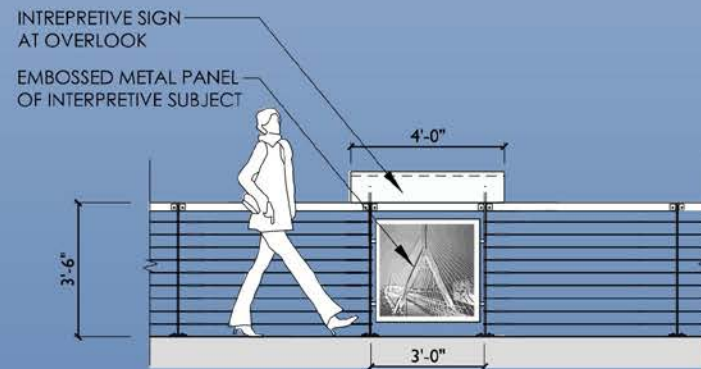
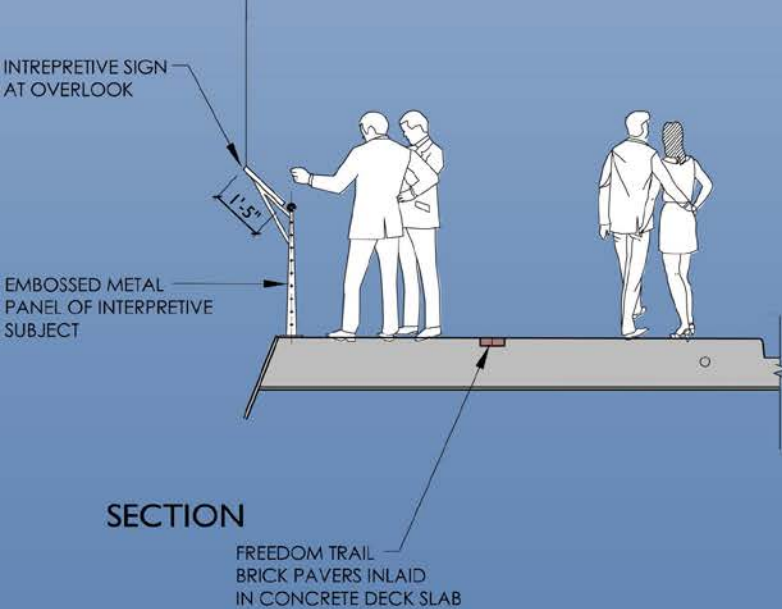
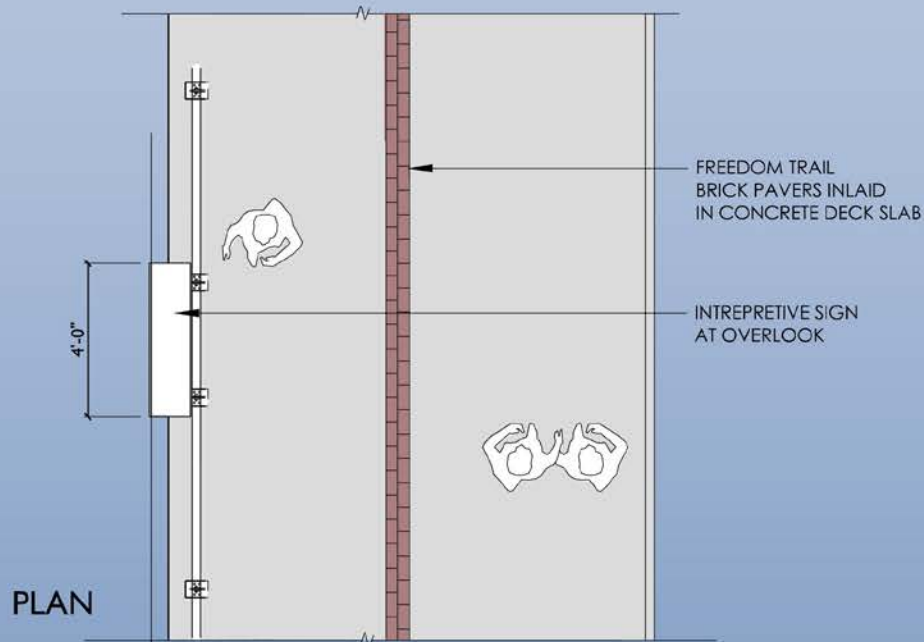


Light Fixture **LED**

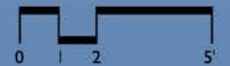
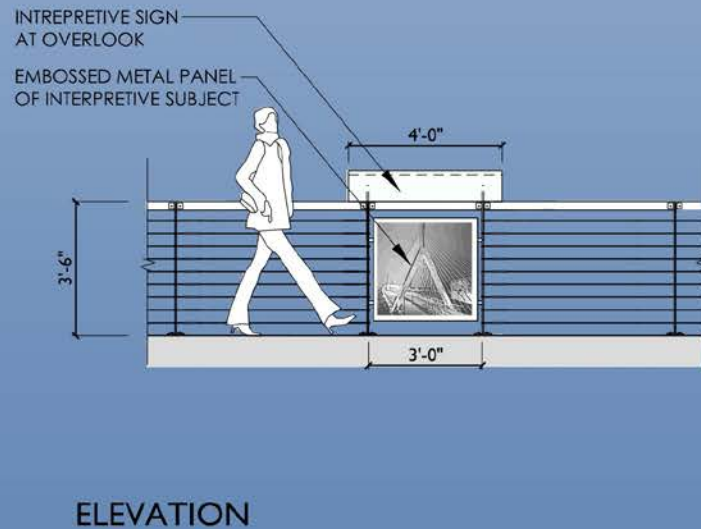
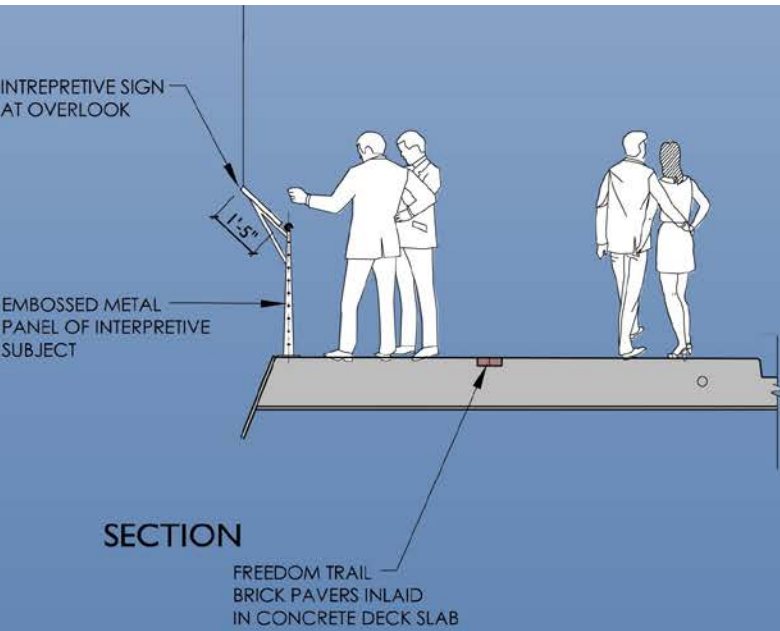




# Pedestrian Railing

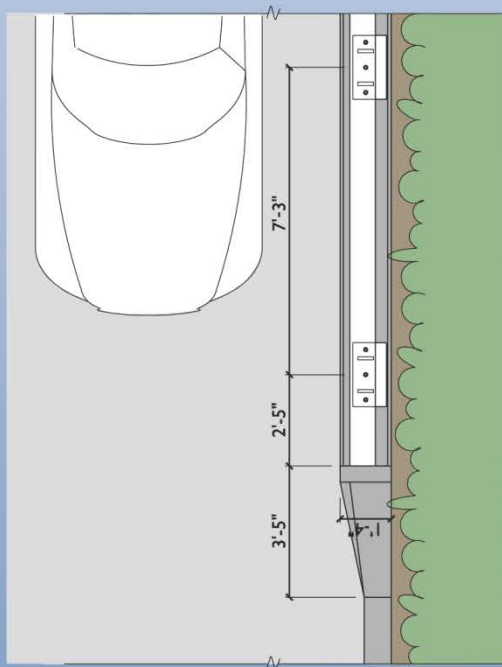


# Suggested Themes for Interpretive Signage

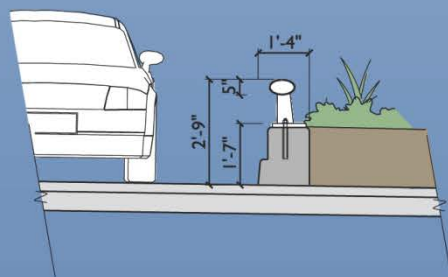




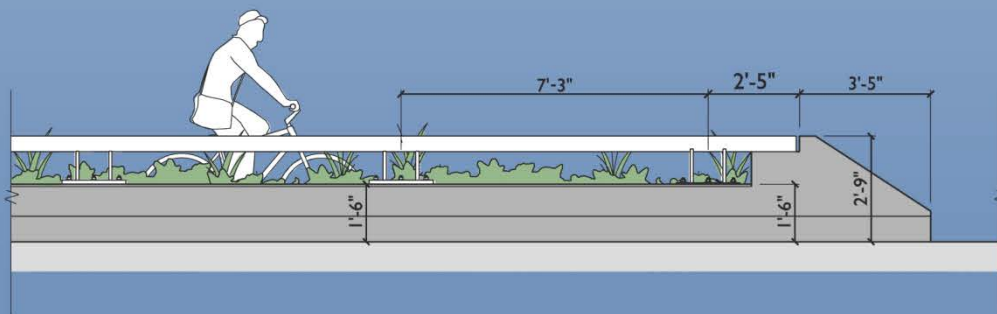
# Vehicular Barrier



PLAN



SECTION



ELEVATION



# 3D Visualizations













# Pedestrian View





# Pedestrian View





# Motorist View









## Pedestrian View at Overlook





# Pedestrian View at Overlook





## Pedestrian View at Grade Separated Walkway





## Proposed Bridge Underside View





# Proposed Bridge Night Elevation View



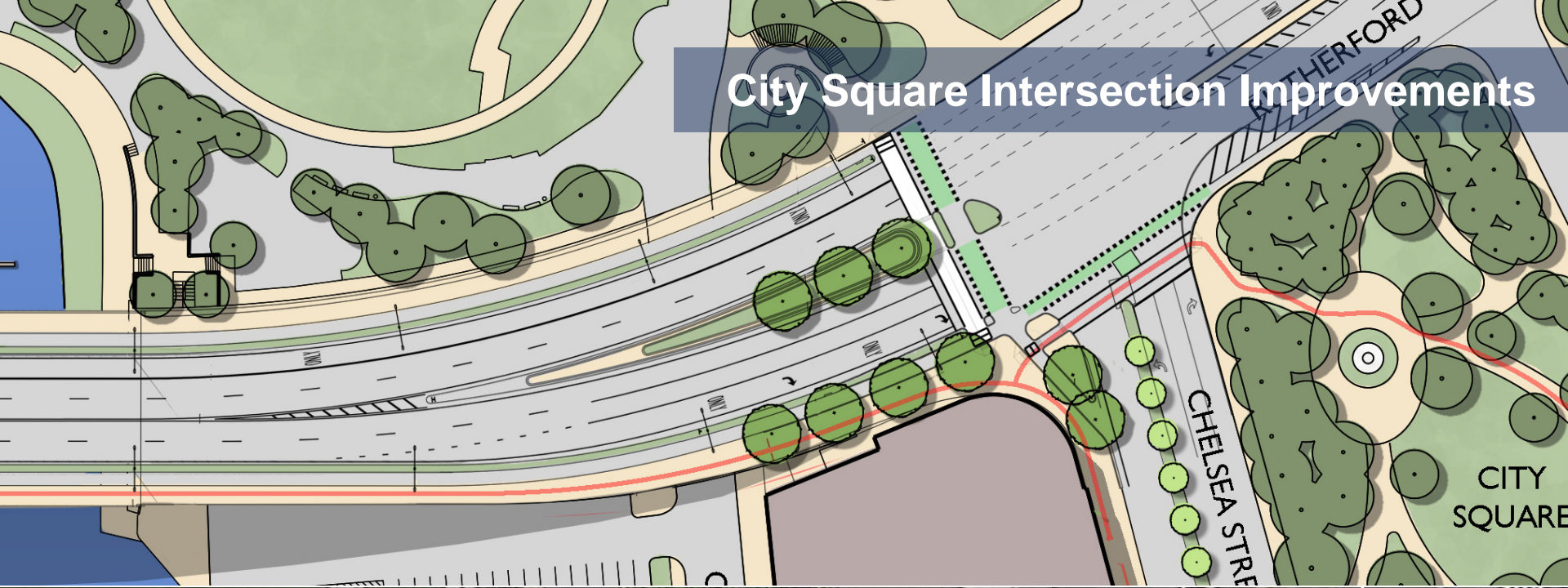


# Connectivity Improvements



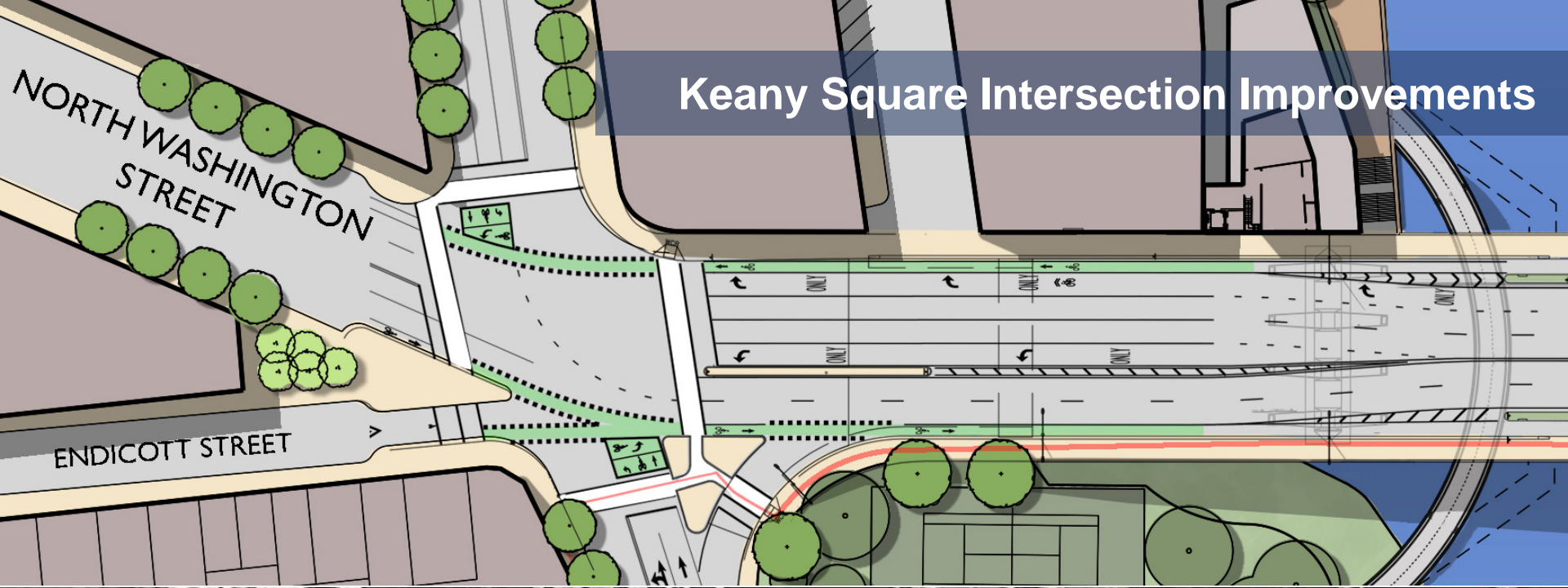


# City Square Intersection Improvements



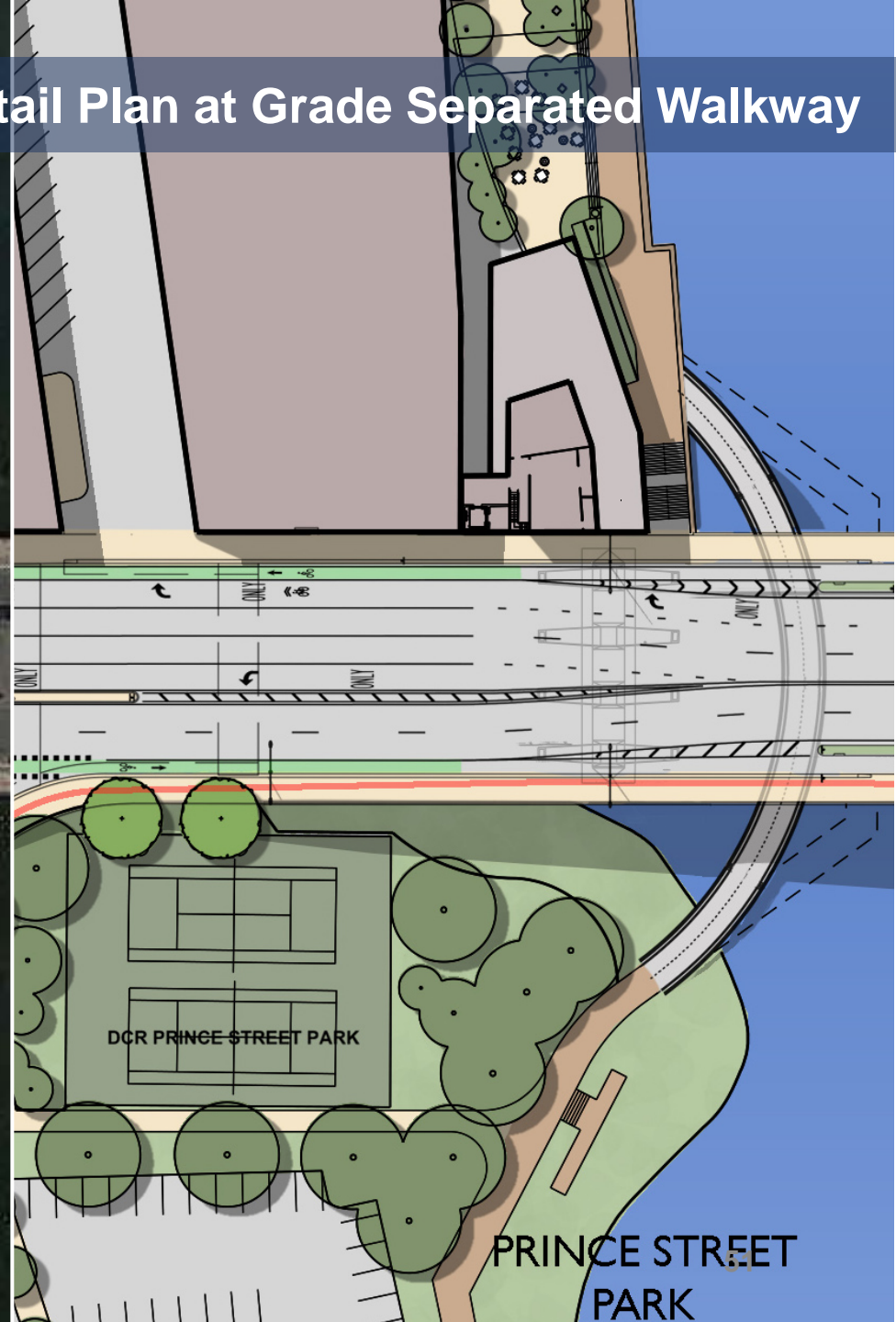


# Keany Square Intersection Improvements





## Detail Plan at Grade Separated Walkway





# Comparison Before and After Views

Before







After



Before





After





Before





After



# Project Progress and Schedule

- Completed Conceptual Design: Spring 2015
- Preliminary Design: Fall 2015
- Environmental Permits: 2015 to 2016
- Final Design: Winter 2016
- Anticipated Construction Activity: 2017 to 2020





**Chief Engineer:**

Patricia A. Leavenworth, P.E.  
Project File No. 604173

MassDOT- Highway Division  
10 Park Plaza  
Boston, MA 02116

<https://www.massdot.state.ma.us/highway/HighlightedProjects/NorthWashingtonStreetBridgeReplacement.aspx>

<http://keepbostonmoving.org/portfolio/north-washington-street-bridge/>

<https://public.govdelivery.com/accounts/madot/subscriber/new>

**Public Outreach:**

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Public Involvement Specialist

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617-482-7080

**Contact**

# Thank you

## Q & A

North Washington Street Bridge Replacement Project  
Boston, Massachusetts

