

| City of Concord, NH



# I-93 “Bridge Park” Feasibility Study & Conceptual Design

Public Meeting February 4, 2025



# Agenda

- Brief Study History
- Public Vision
- Opportunities, Constraints and Design Considerations
- Present Alternatives
- Cost Analysis
- Public Input

# Presenters

## **City of Concord:**

- Beth Fenstermacher, PLA, LEED AP



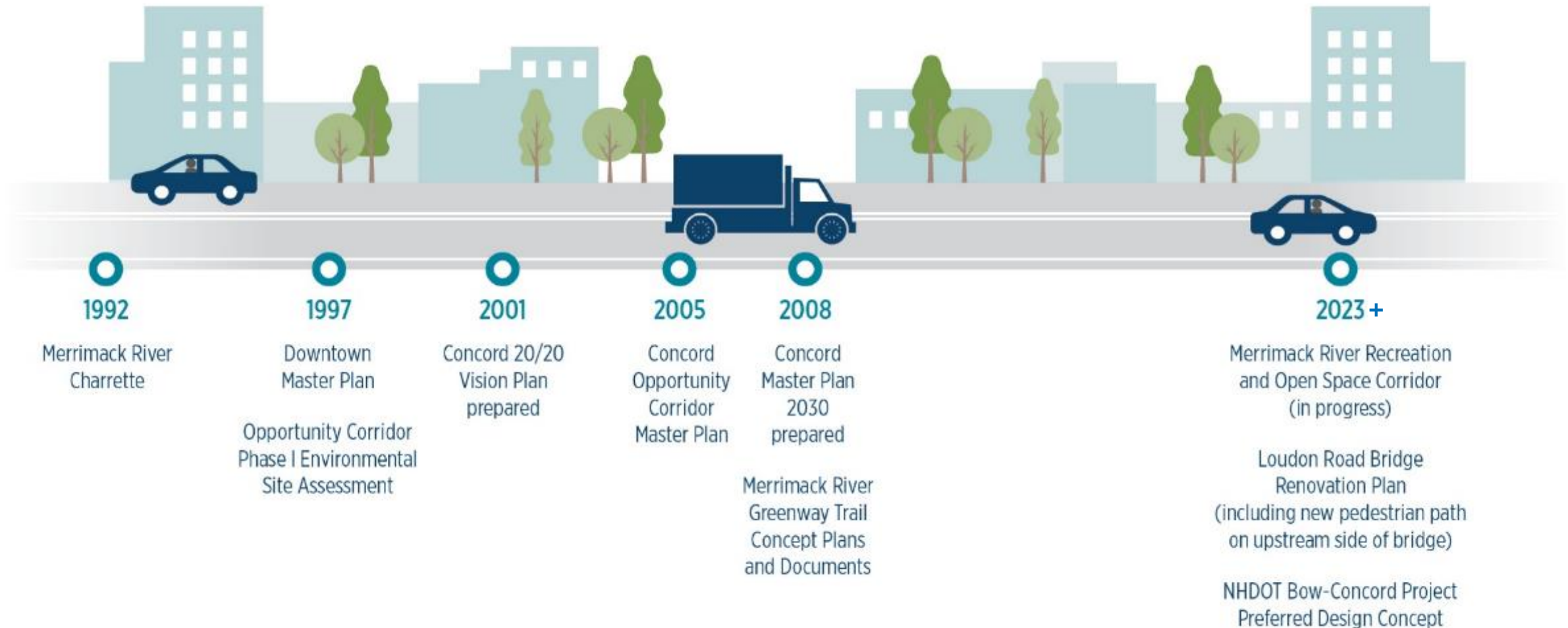
- Gregory Bakos, PE
- Stefanie Kizza, PE, ENV SP

Architectural Design Support from:





# Project History and Background



# Bridge Park Vision

- Span over railroad and highway corridors
- Create an attractive public space with views of the Merrimack River
- Reduce noise resulting from the widened interstate
- Include vegetation and pedestrian amenities on the structure
- Connect to the Merrimack River Greenway Trail (MRGT) and points east
- Provide space for “social mixing” to occur
- Create an attractive statement as the gateway to the Capital City



## 2005 Opportunity Corridor Master Plan

Source: <https://www.concordnh.gov/DocumentCenter/View/1663/Opportunity-Corridor-Master-Plan?bidId=>

# Feasibility Study Considerations

## Opportunities

- Enhanced visual connectivity to the river from the downtown side
- Deck portion could provide public space high above river
- Bridge portion would provide river views and bike/ped connection to east side of river and the MRGT





# Feasibility Study Considerations

## Known Constraints

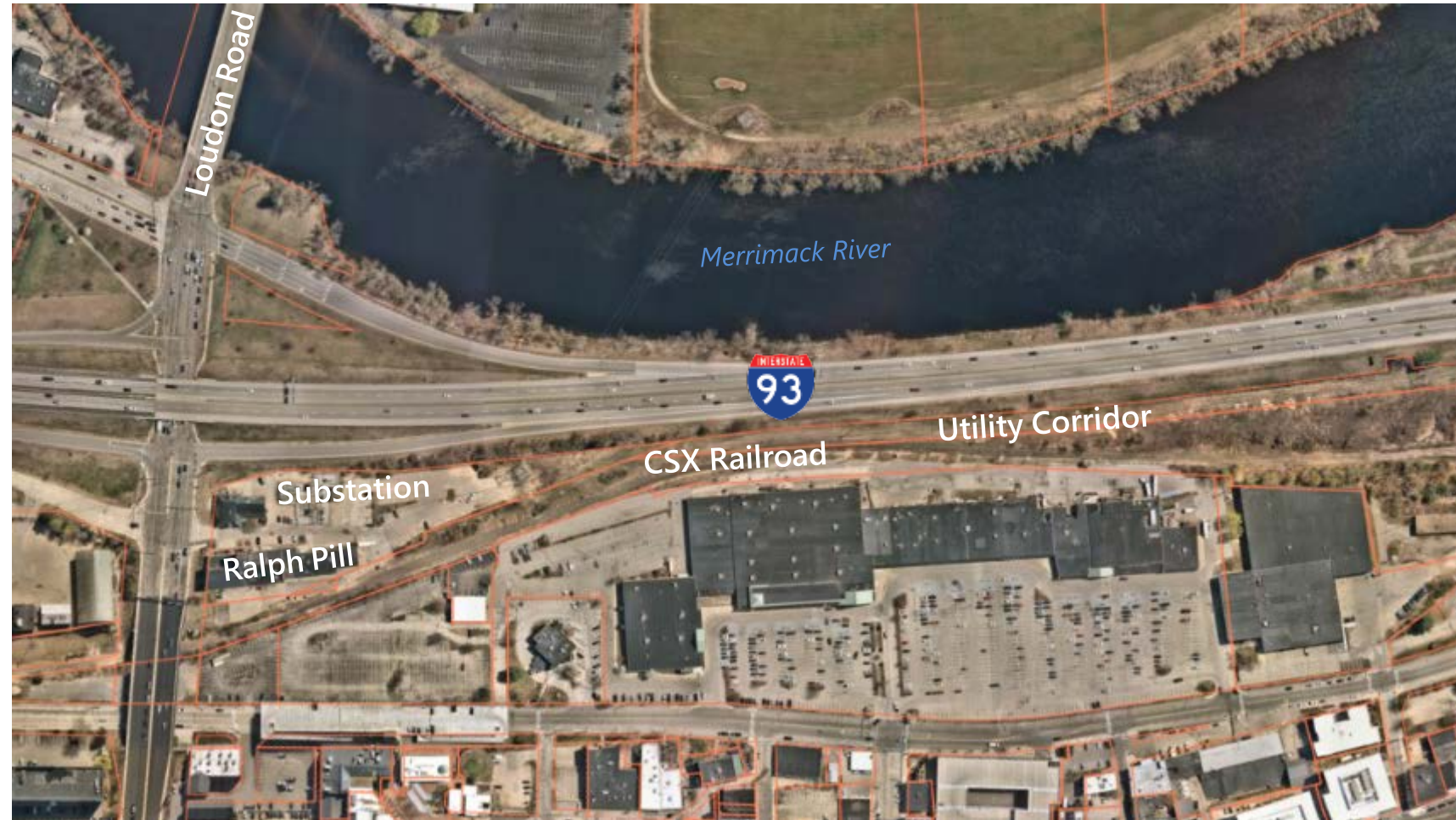
- Private, Railroad, and State Property
  - With exception of Healy Park, the City doesn't own property between Storrs Street and the Merrimack River



# Feasibility Study Considerations

## Constraints

- Infrastructure
  - I-93 Corridor
  - CSX Railroad Corridor
  - Utilities
  - Loudon Road Bridge





# Feasibility Study Considerations

- Access
  - Convenience/Usability
  - MRGT connectivity
  - Amenities
  - Safety / Security
- Aesthetics
  - High visibility
  - Visual statement
  - Appealing design features to offset scale
- Cost



*Closeup of CC2DCA Intermodal Connector by SOM*



# Feasibility Study Considerations

## **Environmental Considerations**

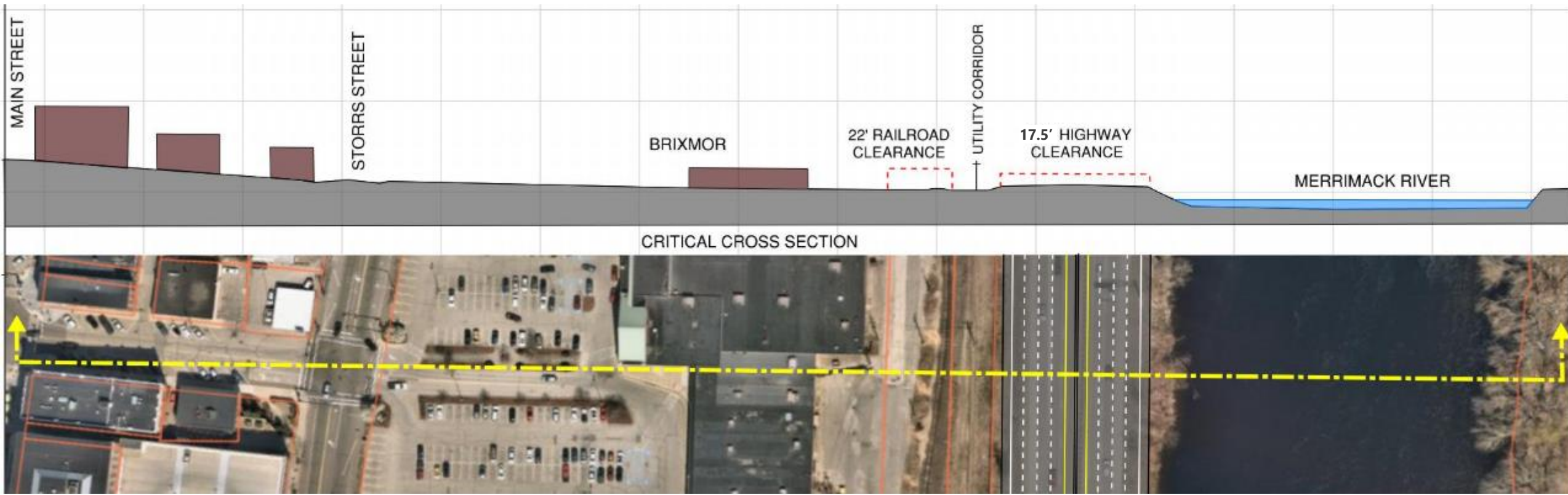
- Rigorous permitting process
- Floodplain, shoreline and & wetland impacts
- Conservation easement along shoreline
- Healy Park contamination



# Feasibility Study Considerations

## Physical Considerations

- Challenges associated with spanning over
  - Railroad, Utility Corridor and I-93
  - Merrimack River
- ADA compliant structure
  - Evaluate critical cross sections
  - Horizontal and vertical relationships
  - Actual river surface would be approx. 30-ft below the surface of the bridge park decking





## Feasibility Study Considerations: Proposed I-93 Improvements



# Alternatives Development

## **Alternative 1 – Multi-use Bridge**

Bridge Alignments Considered:

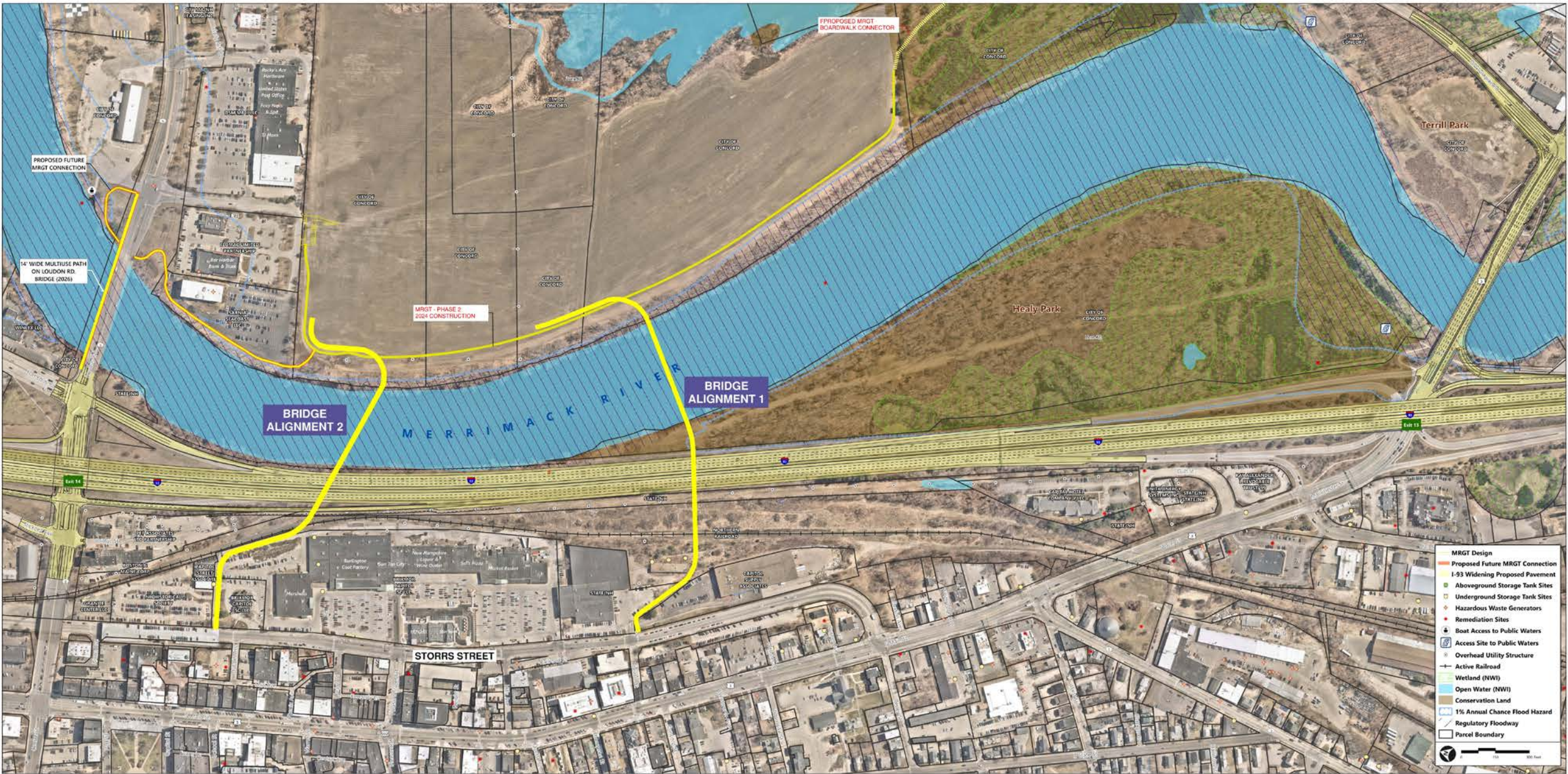
- Bridge Alignment 1 – Southern River Crossing
- Bridge Alignment 2 – Northern River Crossing

## **Alternative 2 – Bridge with Deck Park**

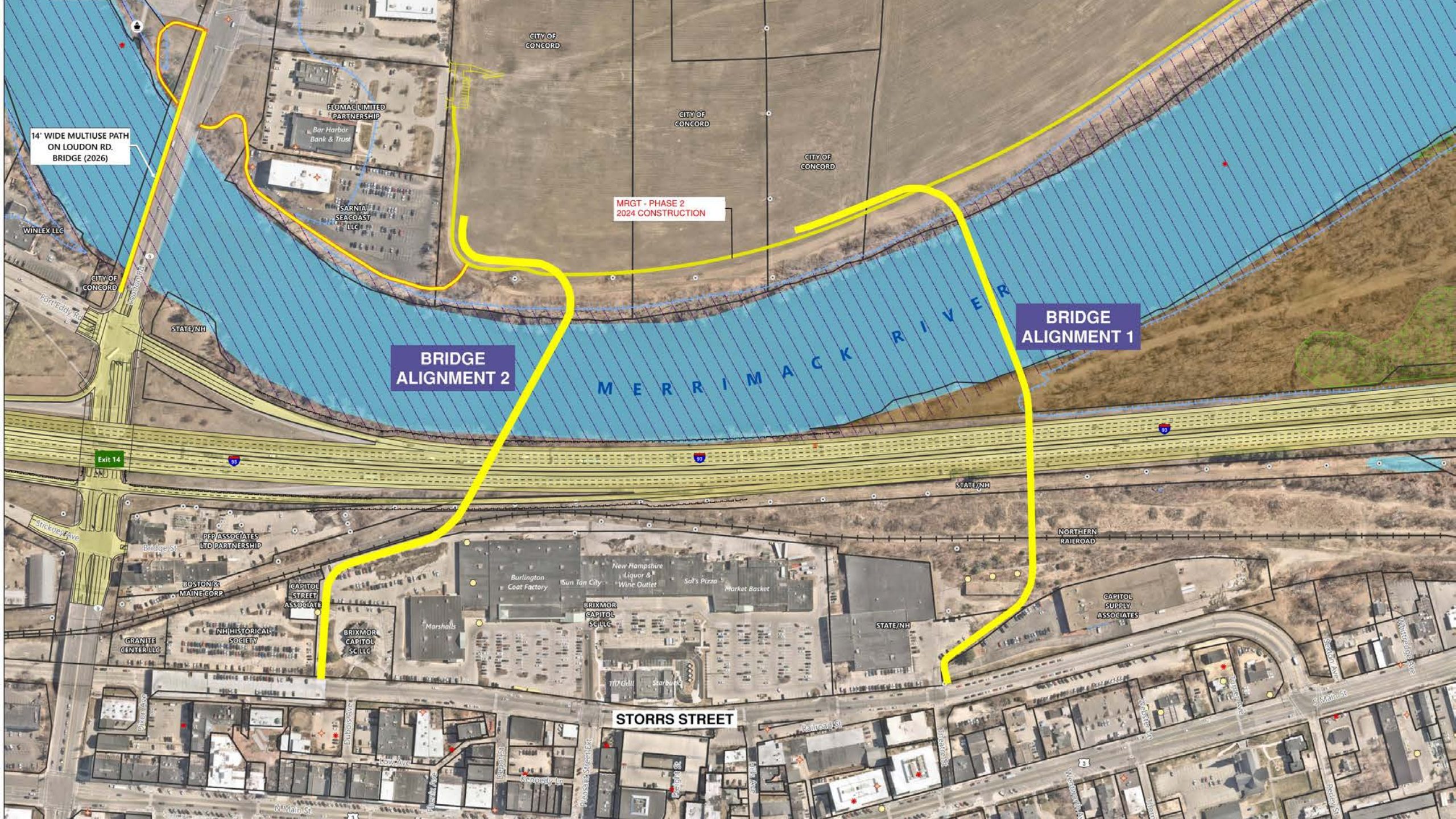
## **Alternative 3 – Depress I-93 / Add Expansive At-Grade Deck Park**



# Overall Plan









■ Bridge Alignment 1 – Southern River Crossing

The map displays the proposed bridge alignment across the Merrimack River. Key features and labels include:

- Streets:** Theatre Street, Storrs Street, and Concrete Plaza Area.
- Buildings:** NH Liquor Commission, Plumbing and Bathroom Supply Store.
- Highways:** I-93 SB (Southbound) and I-93 NB (Northbound).
- Bridge Structure:** The proposed bridge structure is shown crossing the river, with a red double-headed arrow indicating a width of 430'.
- Text Overlay:** Total Structure Length = 3,000 LF (0.6 Mile).

■ Bridge Alignment 1 – Southern River Crossing

The map displays the proposed bridge alignment across the Merrimack River. Key features include:

- Streets:** Theatre Street, Storrs Street.
- Buildings:** NH Liquor Commission, Plumbing and Bathroom Supply Store.
- Highway:** I-93 SB and NB lanes.
- Bridge Structure:** The proposed bridge structure is shown crossing the Merrimack River.
- Dimensions:** A red double-headed arrow indicates a section of 430'.
- Total Length:** Total Structure Length = 3,000 LF (0.6 Mile).

■ Bridge Alignment 1 – Southern River Crossing

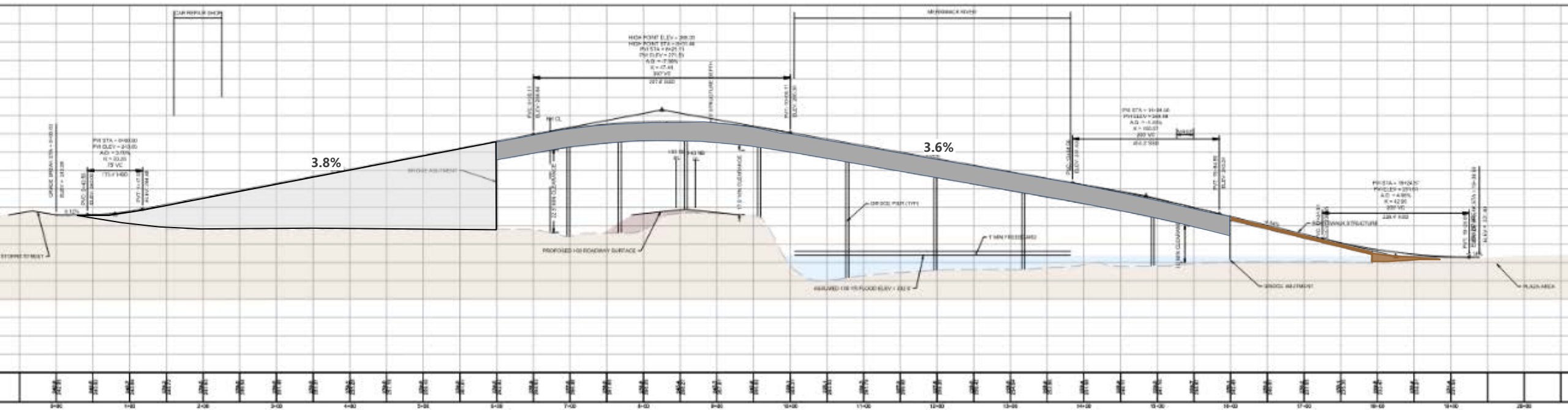
The map displays the proposed bridge alignment across the Merrimack River. The structure begins near Storrs Street and Theatre Street, crosses the I-93 interchange, and extends eastward across the river. A red double-headed arrow indicates a 430-foot section of the bridge structure. The total structure length is 3,000 LF (0.6 Mile).

Key locations and features labeled on the map include:

- Storrs Street
- Theatre Street
- NH Liquor Commission
- Plumbing and Bathroom Supply Store
- I-93 SB
- I-93 NB
- Merrimack River
- MRGT
- Concrete Plaza Area
- Concrete Bridge Structure

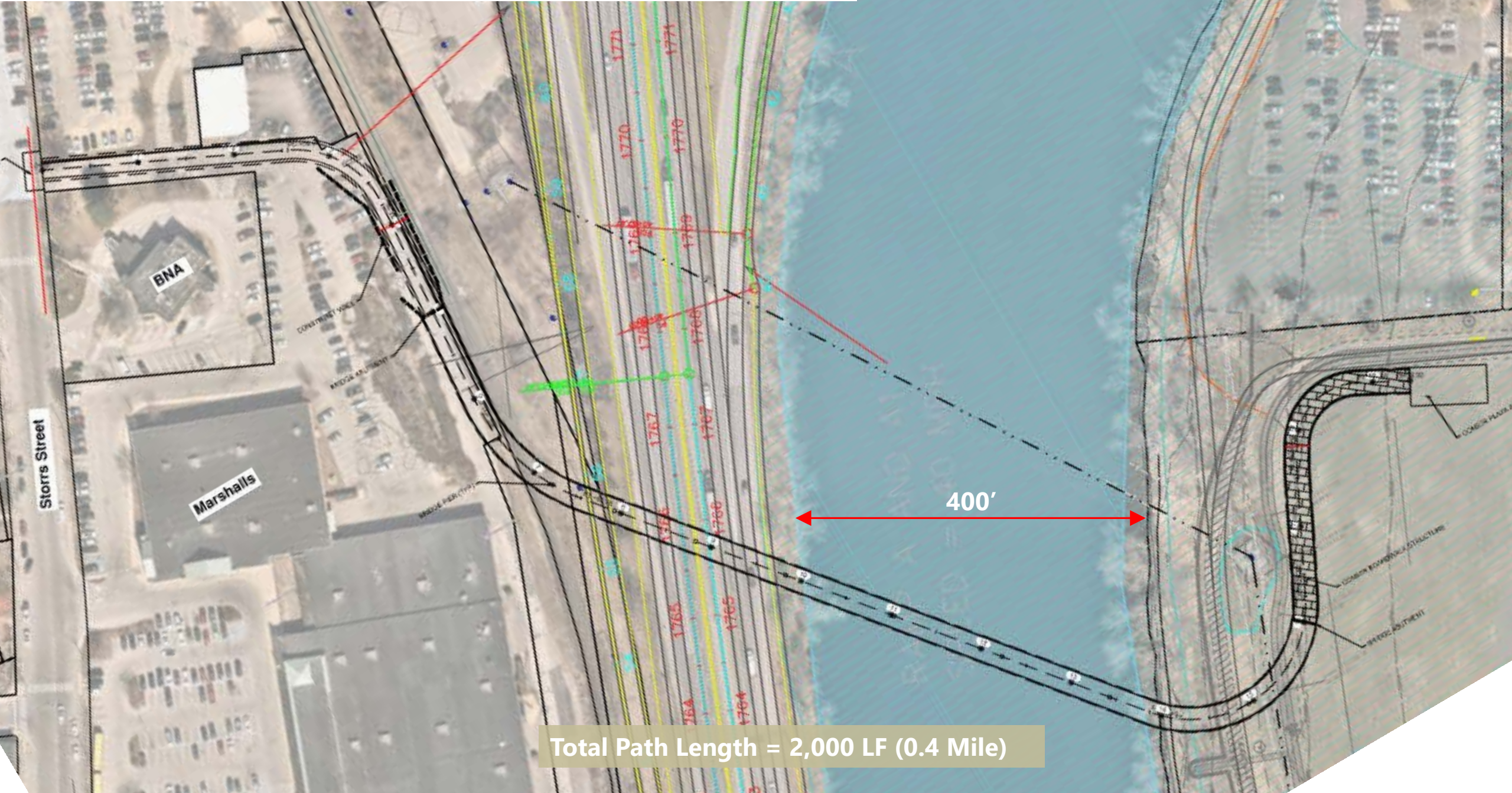


## ■ Alignment 1 – Southern River Crossing Profile





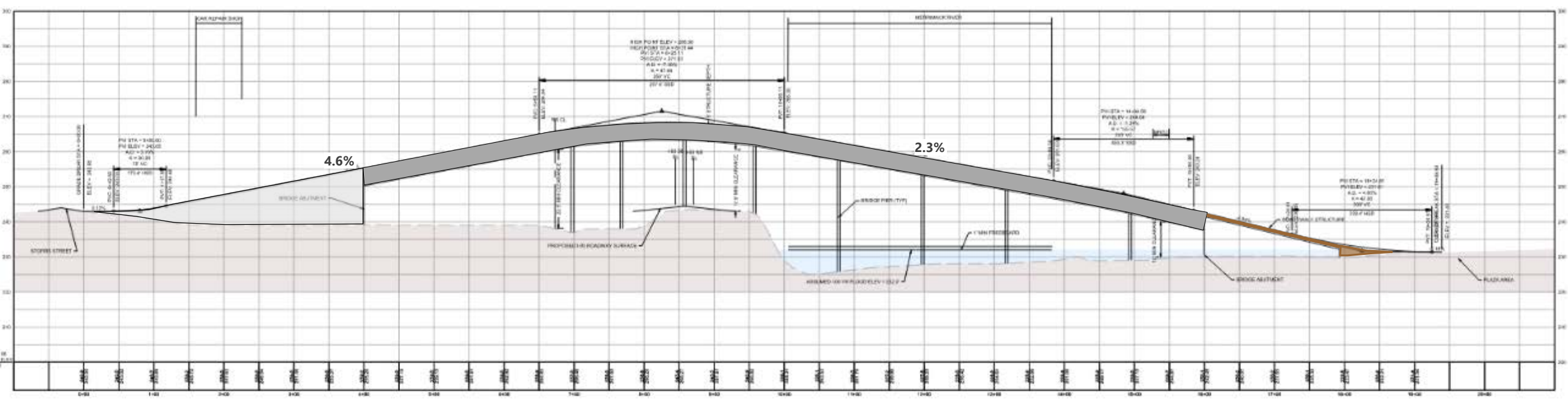
# ■ Bridge Alignment 2 – Northern River Crossing



Total Path Length = 2,000 LF (0.4 Mile)



■ Alignment 2 – Northern River Crossing Profile

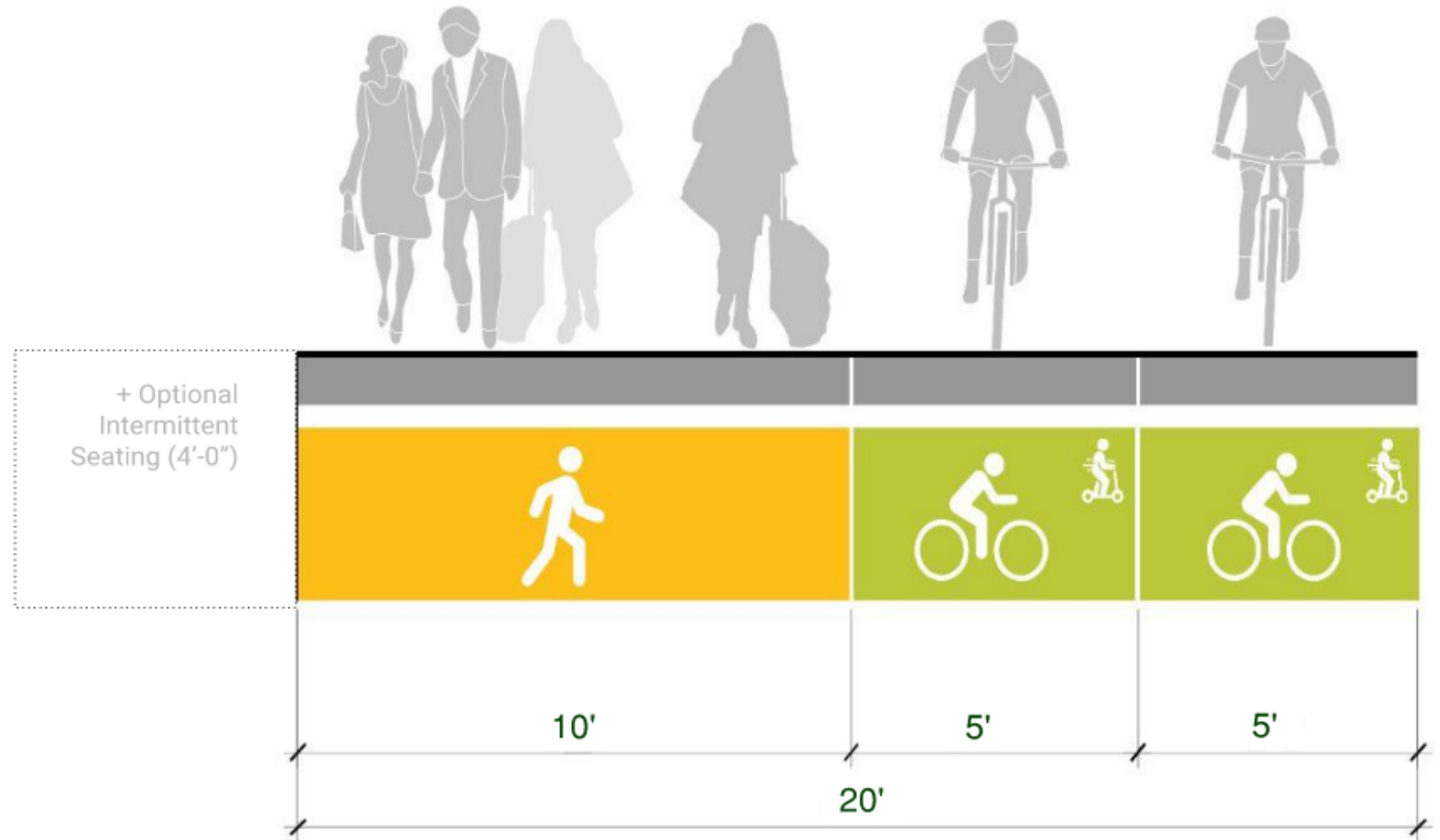


Interior Clearance: 24'-0"

**Overall Width: 24'**

**Accommodates:**

- 2 uni-directional cyclist paths
- 1 bi-directional pedestrian path
- Lane striping
- Intermittent Programmed Area As Desired



# Bridge Concept Options

## 1. Girder



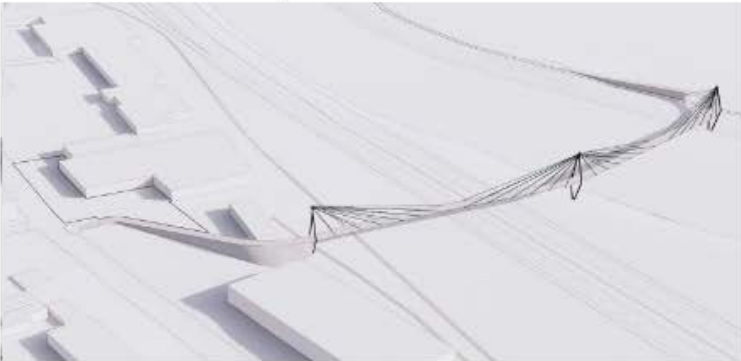
## 2. Box Beam



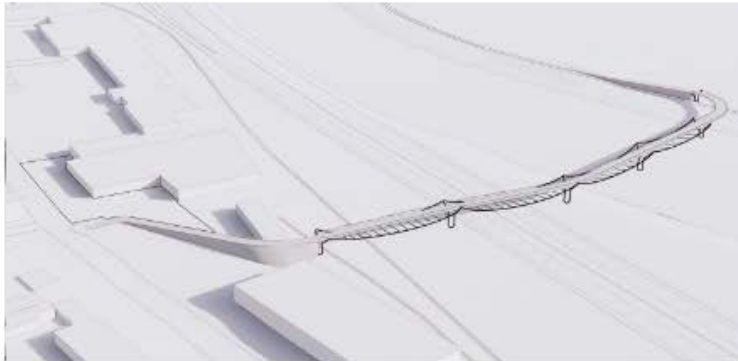
## 3. Truss



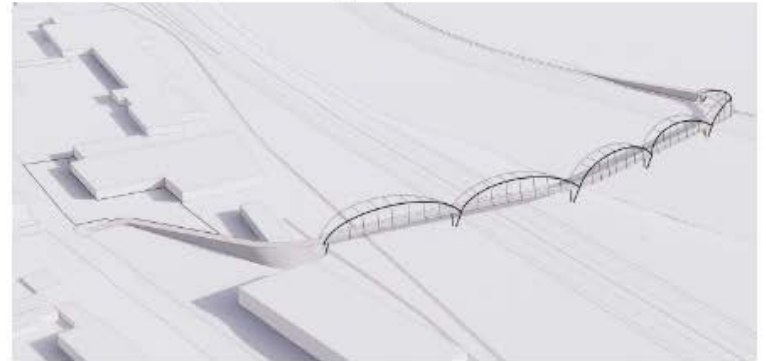
## 4. Cable Stayed



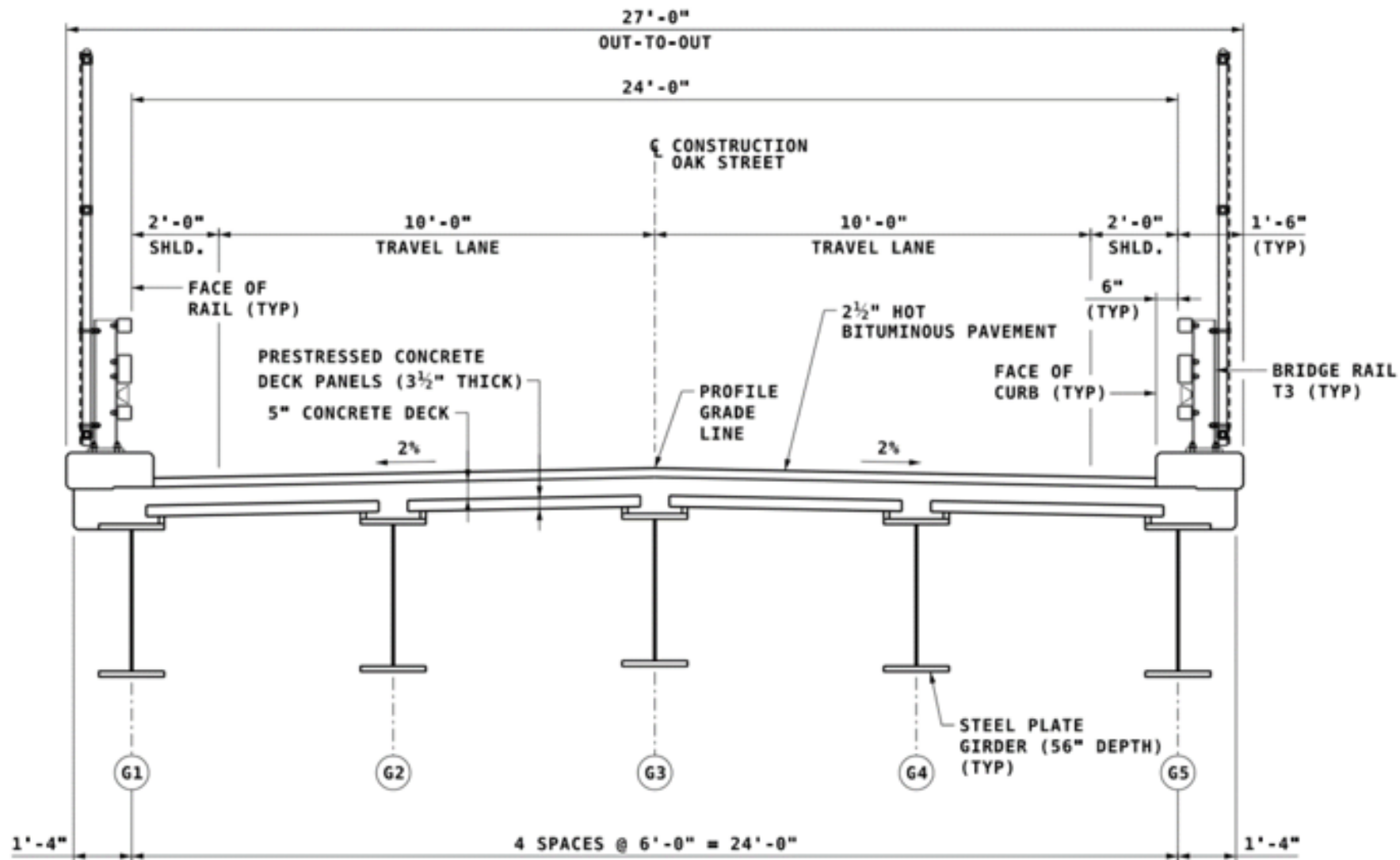
## 5. Stressed Ribbon



## 6. Arch (A & B)







## TYPICAL DECK SECTION

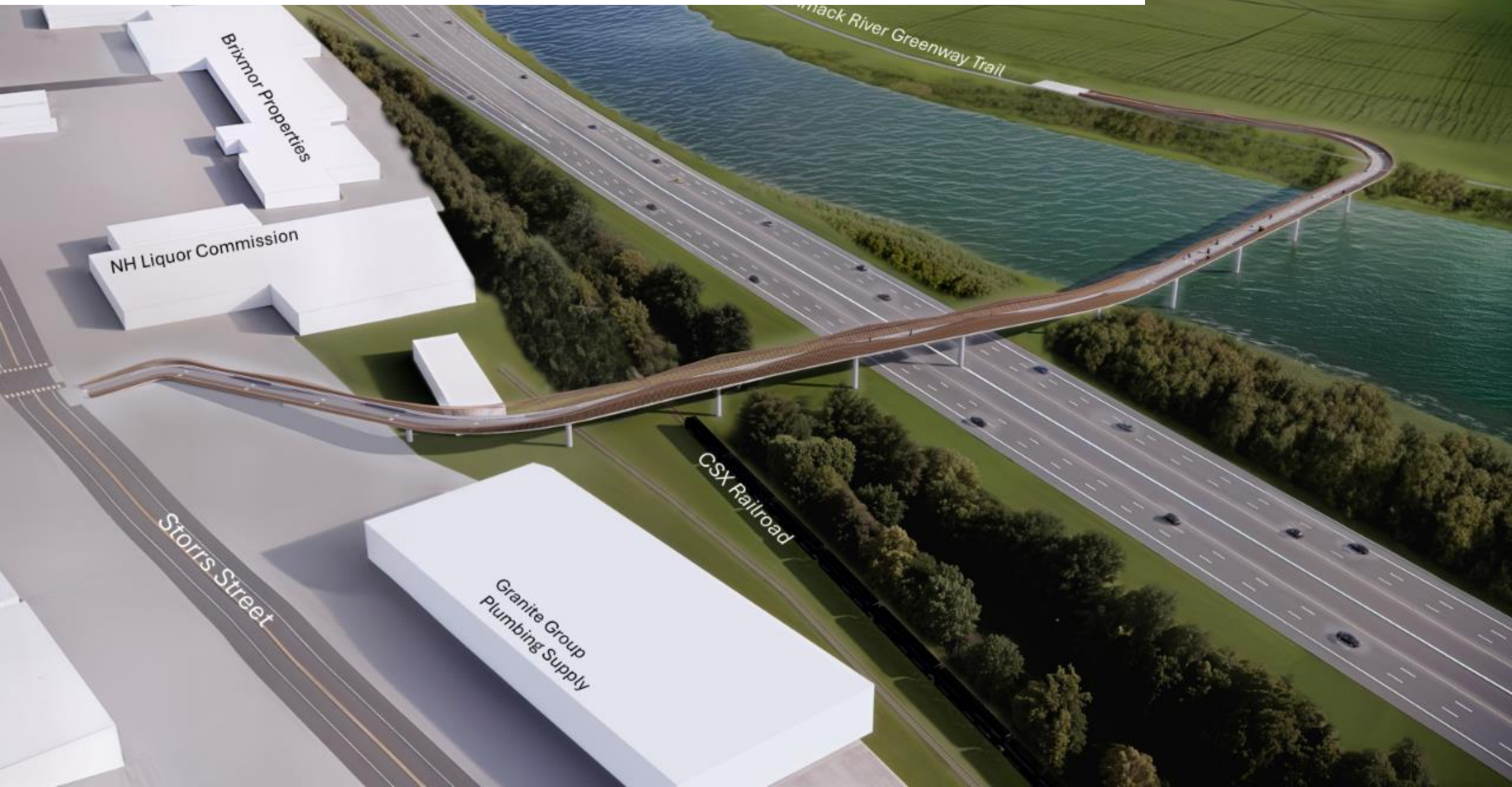
(DIAPHRAGMS NOT SHOWN)



**Shenzhen, Guangdong, China**



## ■ Alternative 1 (Southern River Crossing) Architectural Renderings





## ■ Alternative 1 (Southern River Crossing) Architectural Renderings





## ■ Alternative 1 (Southern River Crossing) Architectural Renderings



































**Deck Park Area = 18,000 SF (0.4 Acre)**

**Comparable to:**

- Eagle Sq. (0.43 Ac)
- Fletcher/Murphy Play Lot (0.48 Ac)
- McKee Sq Park (0.55 Ac)



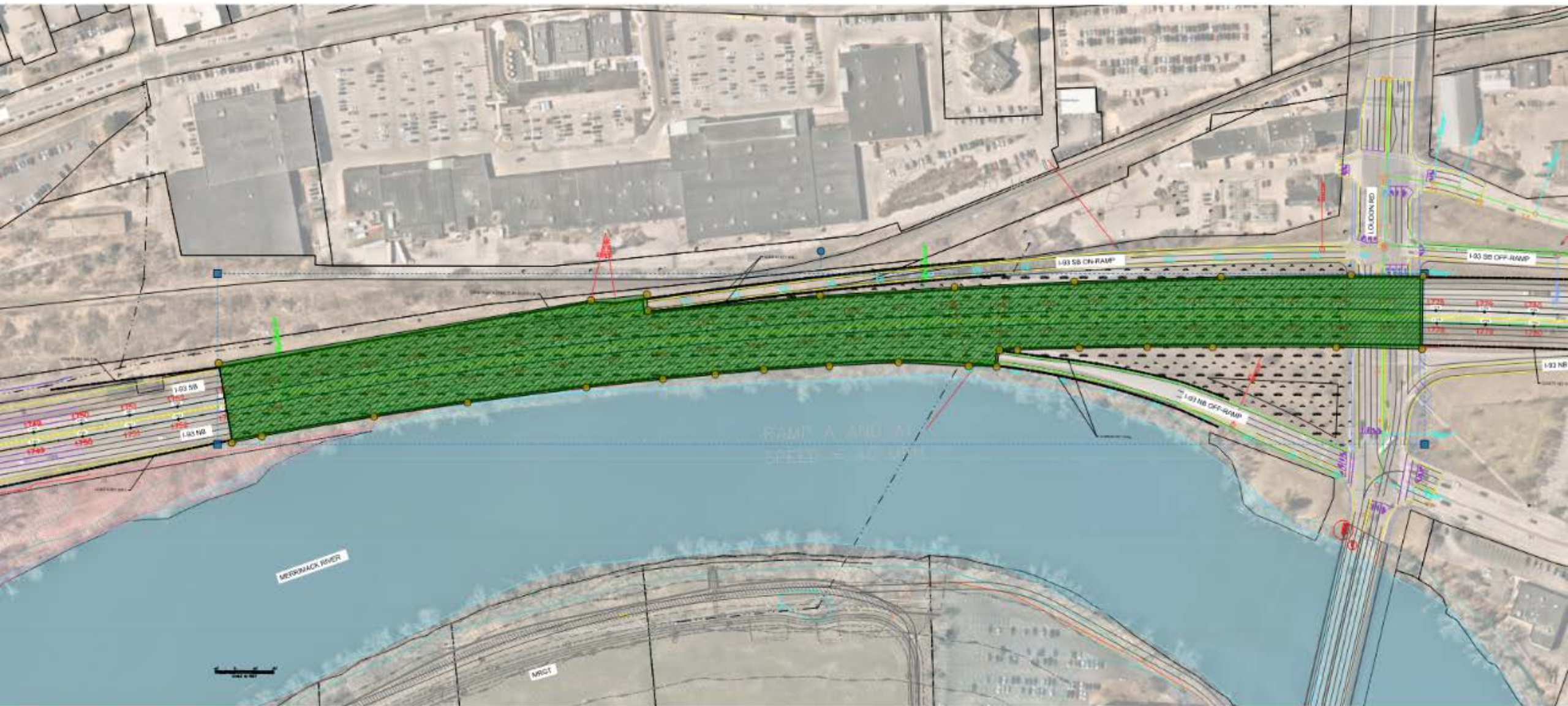






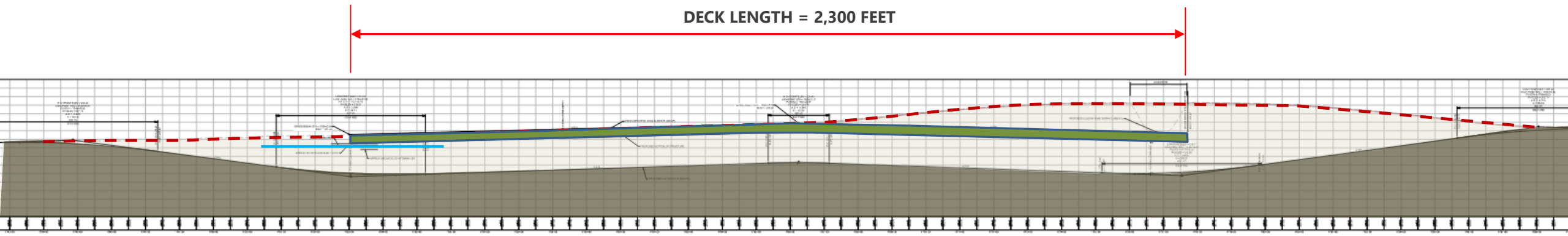


## ■ Alternative 3 - Depress I-93 / Add Expansive At-Grade Deck Park



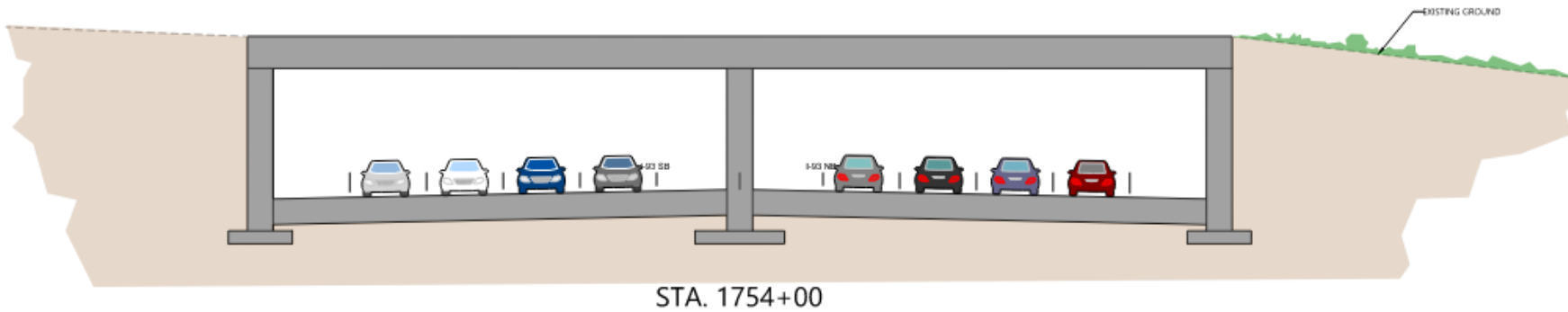
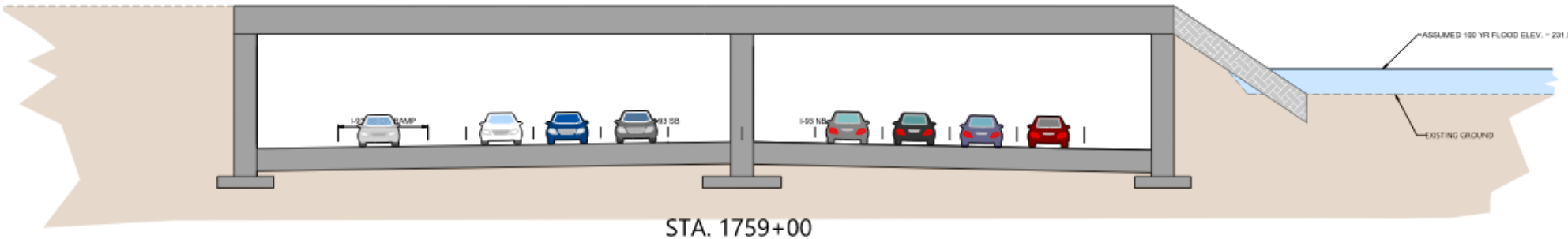
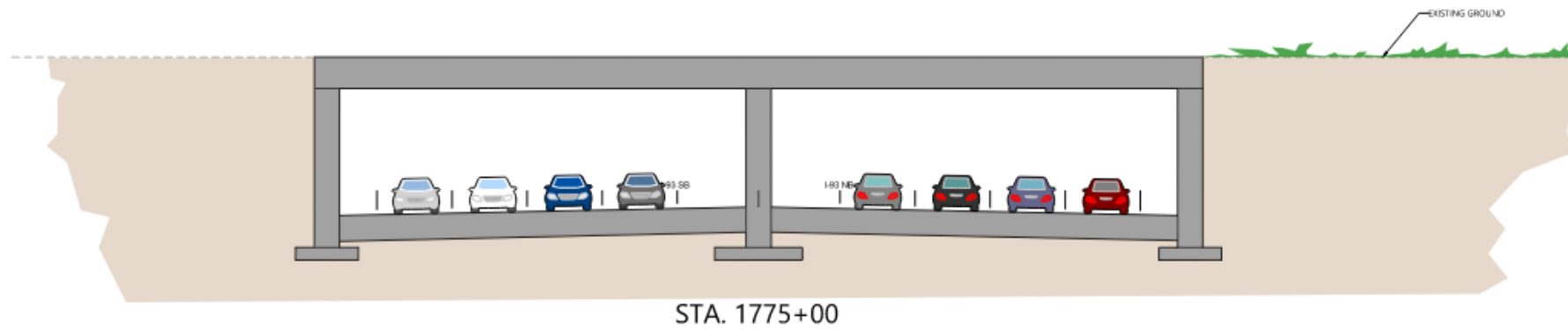


- Alternative 3 - Depress I-93 / Add Expansive At-Grade Deck Park





■ Alternative 3 - Depress I-93 / Add Expansive At-Grade Deck Park





# Alternative 1 – Southern Bridge Costs

	Area	Units	Unit Cost		Amount
Bridge Structure Costs	34,700	S.F.	\$ 1,150.00	\$	39,905,000.00
Approach Costs	22,000	S.F.	\$ 300.00	\$	6,600,000.00
			Subtotal	\$	46,505,000.00
Architectural Amenities			15%	\$	6,980,000.00
Right-of-Way			(Say)	\$	200,000.00
Design, Permitting, and Construction Services			20%	\$	9,301,000.00
			Subtotal	\$	62,990,000.00
Contingencies			20%	\$	12,600,000.00
			TOTAL	\$	75,590,000.00



# Alternative 2 – Southern Bridge and Deck Park Costs

	Area	Units	Unit Cost		Amount	
Bridge Structure Costs	34,700	S.F.	\$	1,150.00	\$	39,905,000.00
Deck Park Addition	18,000	S.F.	\$	1,200.00	\$	21,600,000.00
Approach Costs	22,000	S.F.	\$	300.00	\$	6,600,000.00
			Subtotal		\$	68,105,000.00
Architectural Amenities			20%		\$	13,620,000.00
Right-of-Way			(Say)		\$	200,000.00
Design, Permitting, and Construction Services			20%		\$	13,621,000.00
			Subtotal		\$	95,550,000.00
Contingencies			20%		\$	19,110,000.00
			TOTAL		\$	114,660,000.00



## **Next Steps**

- Present to City Council
- Summarize Findings in Report

**Public Discussion, Please Share Your Thoughts**



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