



Preliminary Scoping Session

Salem Route 114/North Street over North River Bridge

Project No. 605332

Agenda

01 Introductions

02 Project Overview

03 Existing Conditions

- Existing Culvert S-01-001
- Hydraulics
- Drainage & Utilities
- Traffic
- ROW / Property Owners
- Adjacent Projects
- Environmental

04 Environmental Review & Permitting Considerations

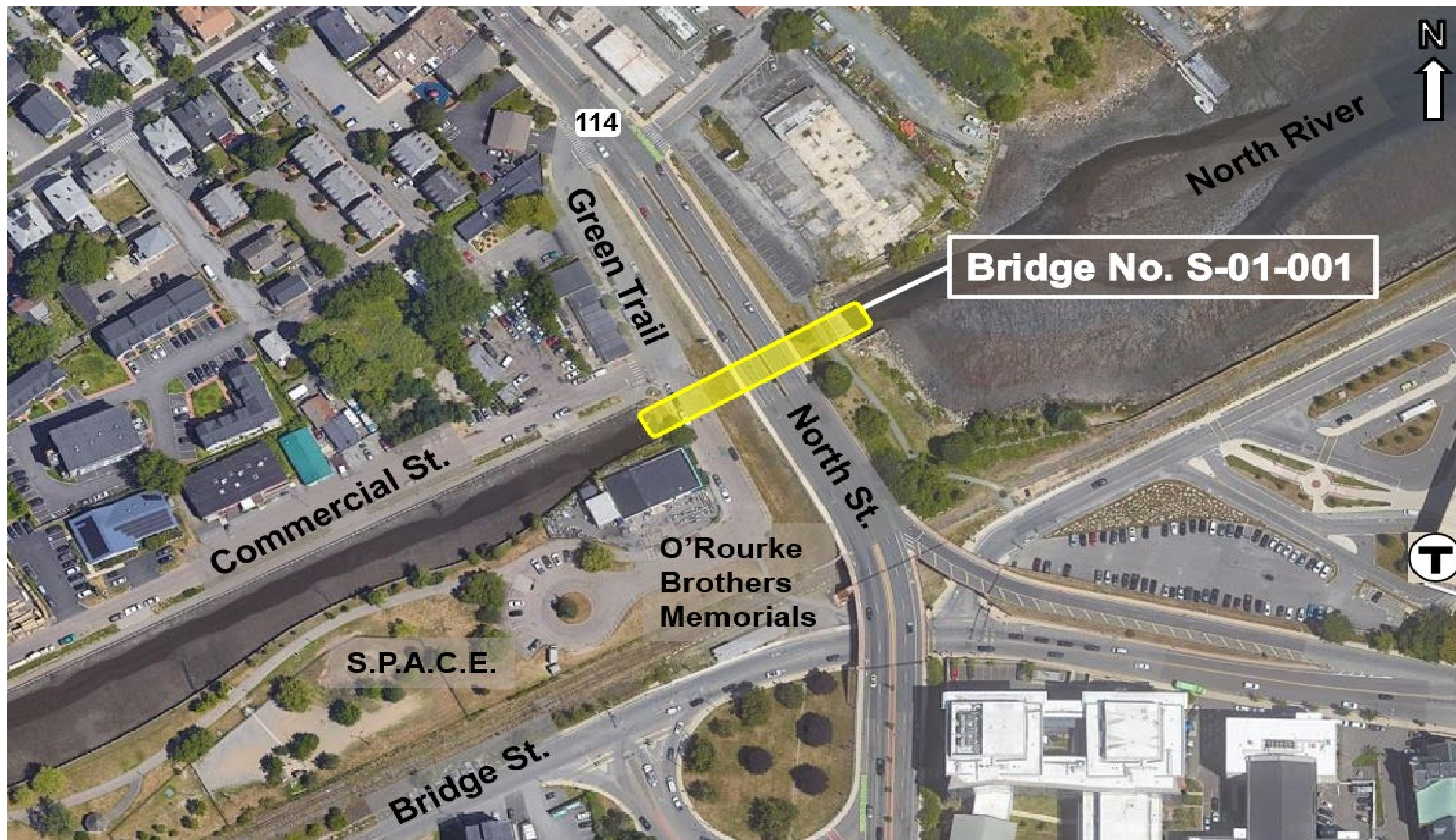
05 Conclusions & Scoping Checklist

Project History

- Original project scope: Culvert Rehabilitation
- HNTB completed Preliminary Structures Report and associated Hydraulics Memo in June 2020
- PSR discussed five (5) alternatives
- In July 2020, MassDOT directed the bridge replacement option given the best long-term solution
- Next phase includes multidisciplinary alternatives study



Project Overview – Aerial

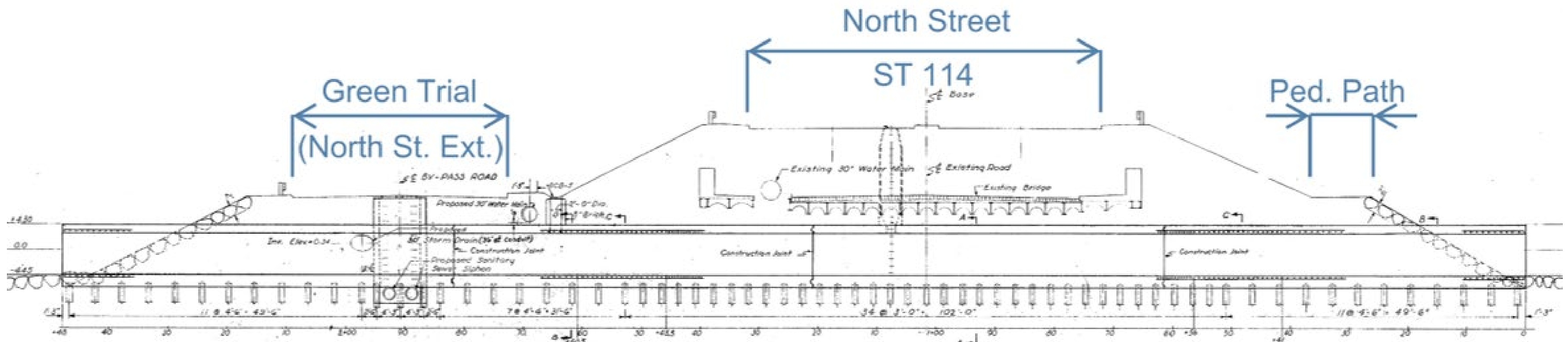


Project Overview - Bridge

- SALEM – Bridge Replacement, S-01-001, (ST 144) North Street over North River
- Three (3) crossings
- Existing twin celled reinforced concrete box culvert



West Headwall – Looking NE

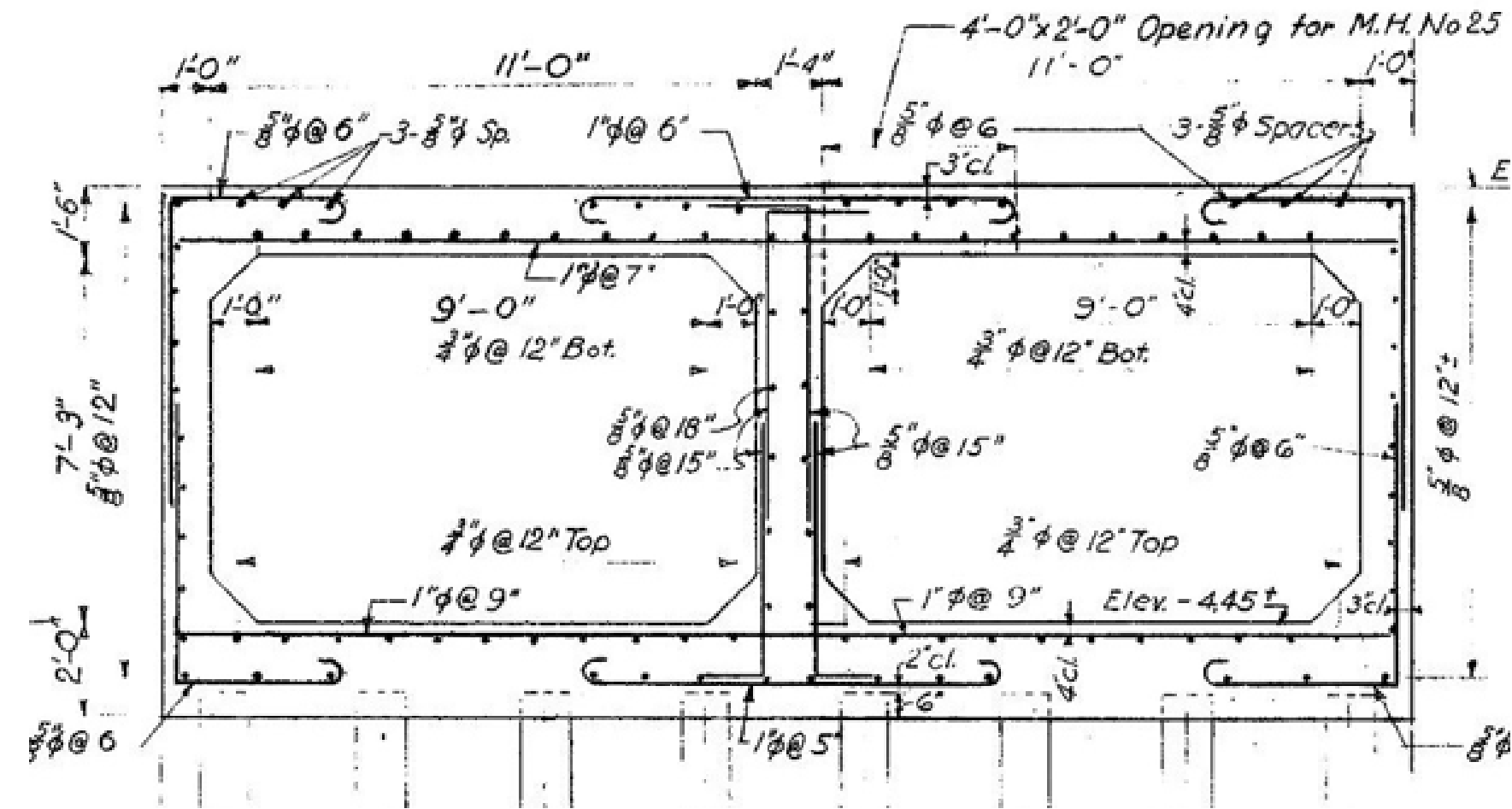


Existing Elevation – 1950 Plans

Existing Condition – Existing Bridge

Bridge Details:

- 4 sided, reinforced concrete twin celled box culvert on piles
- Constructed in 1952 and designed for H20 loading
- Overall geometry:
 - 248'L x 25'-4"W x 10'-9"H
- Barrel opening:
 - 11'W x 7'-3"H



West Headwall



East Headwall

Existing Condition – Existing Bridge

Bridge Condition :

- Poor Condition – 4 (2023)
- Culvert walls: moderate to heavy abrasions throughout, several areas of spalling, cracking and full depth holes
- Headwalls: heavy spalling, broken reinforcing bars, map cracking



Existing Conditions - Hydraulics

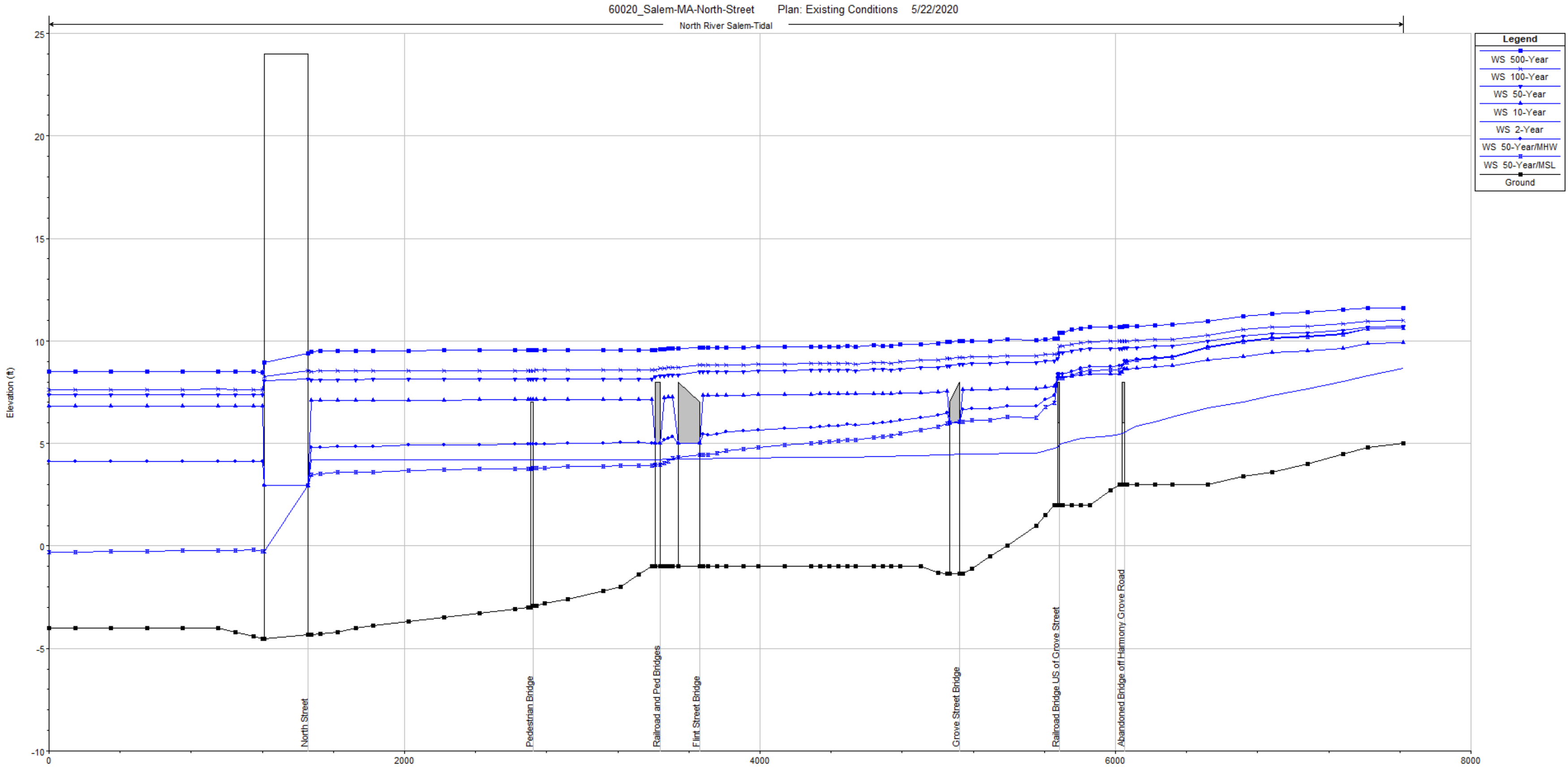


Existing Conditions - Hydraulics

North River Characteristics:

- Tidal/Storm Surge flooding from Beverly Harbor
- Diurnal tidal almost 9 feet (MHW+4.13 to MLW-4.80)
- North River tidal influence near the old mills west of Grove Street
- FEMA Tidal BFE = 10 ft NAVD88. Split flow through Bridge Street
- Fluvial 2% = 4.8 ft NAVD88 U/S, 4.1 ft NAVD88 D/S
- A Bridge, a Culvert, and a significantly constrained River

Existing Conditions - Hydraulics



Existing Conditions - Hydraulics



Upstream Face of Culvert at Low Tide



Downstream Face of Culvert with Gate Remnants

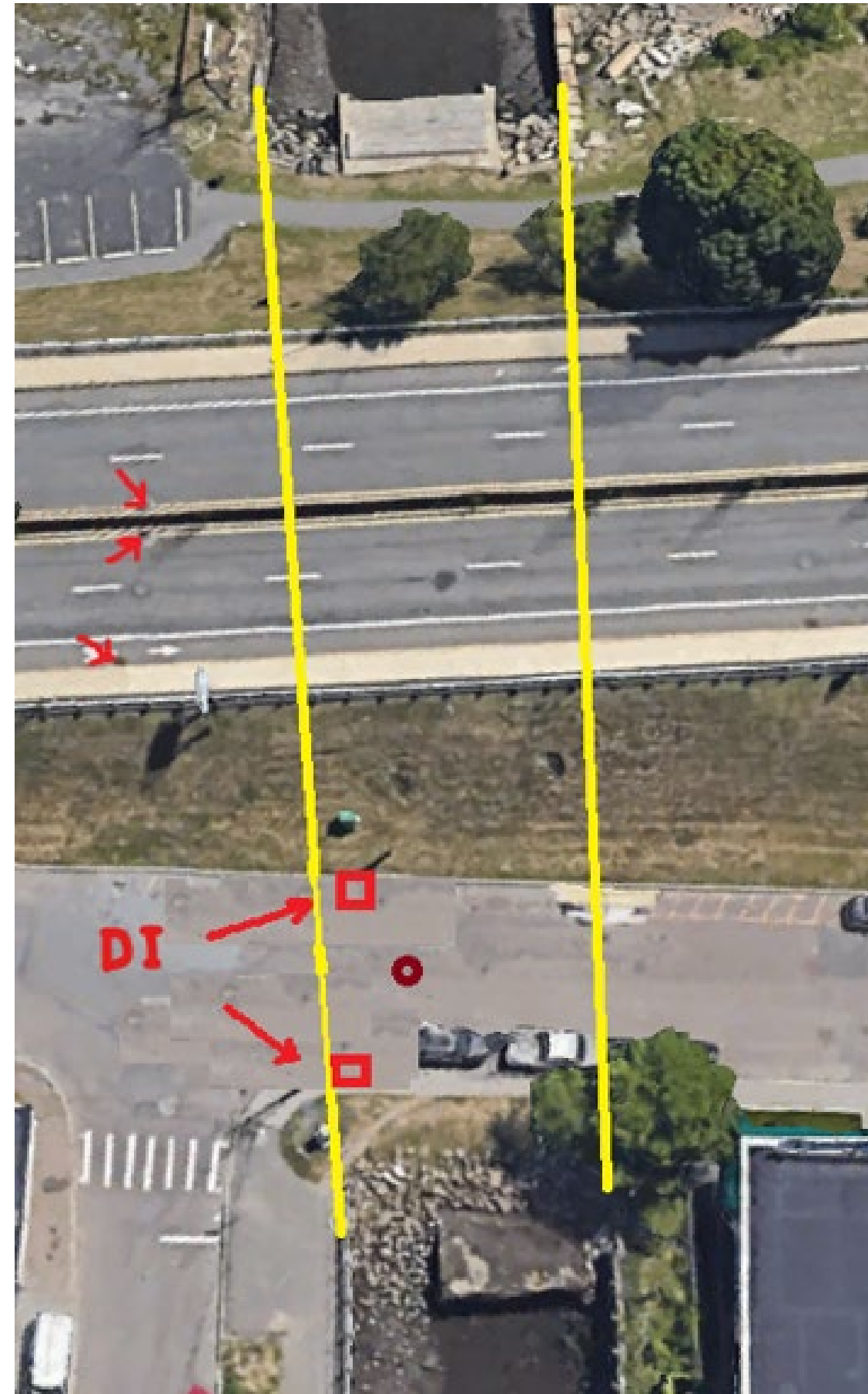


Upstream Face of Culvert at High Tide



FEMA Map of Project Area

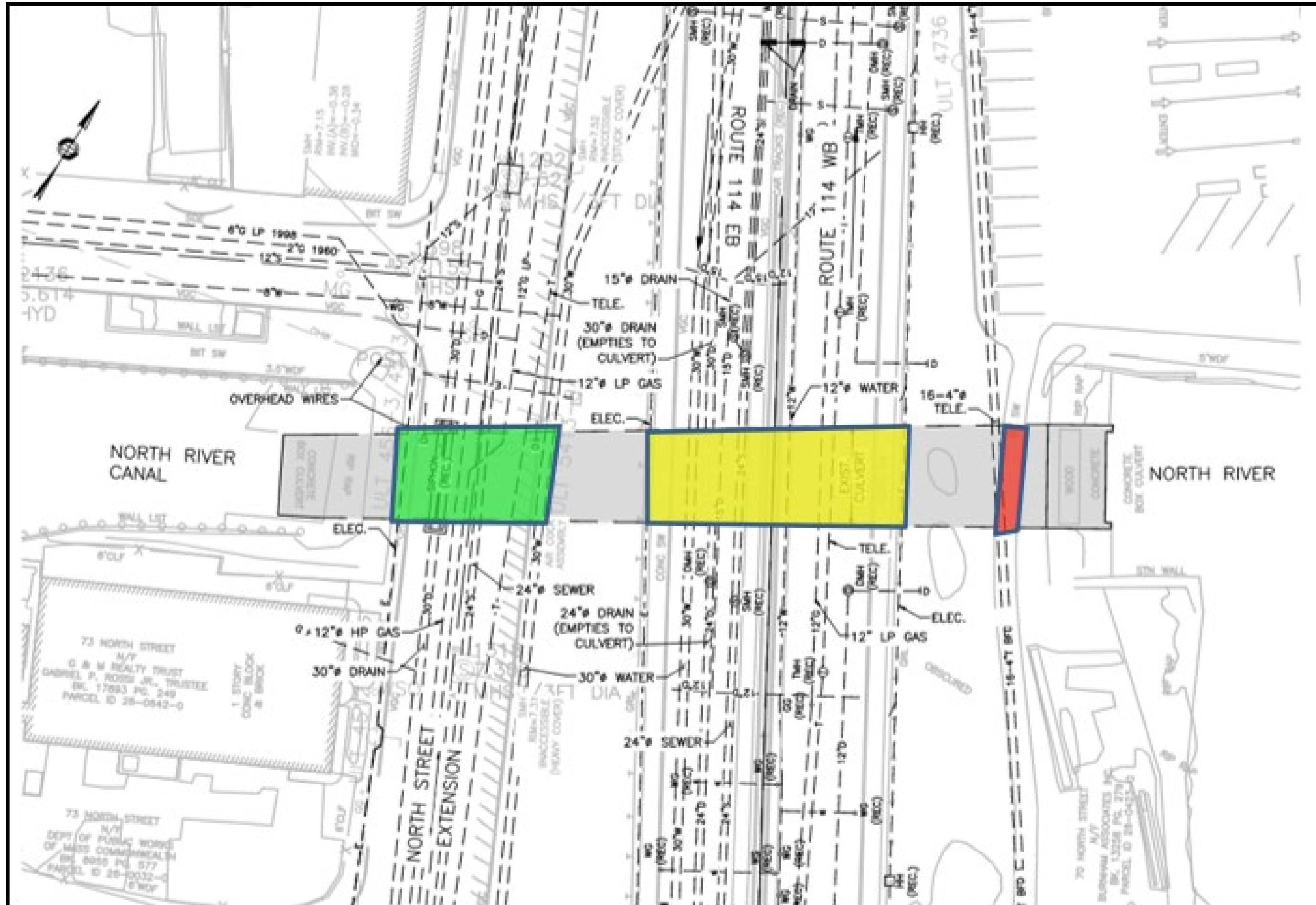
Existing Conditions - Drainage



Existing Conditions - Drainage



Existing Conditions – Utilities



Existing Conditions – Utilities

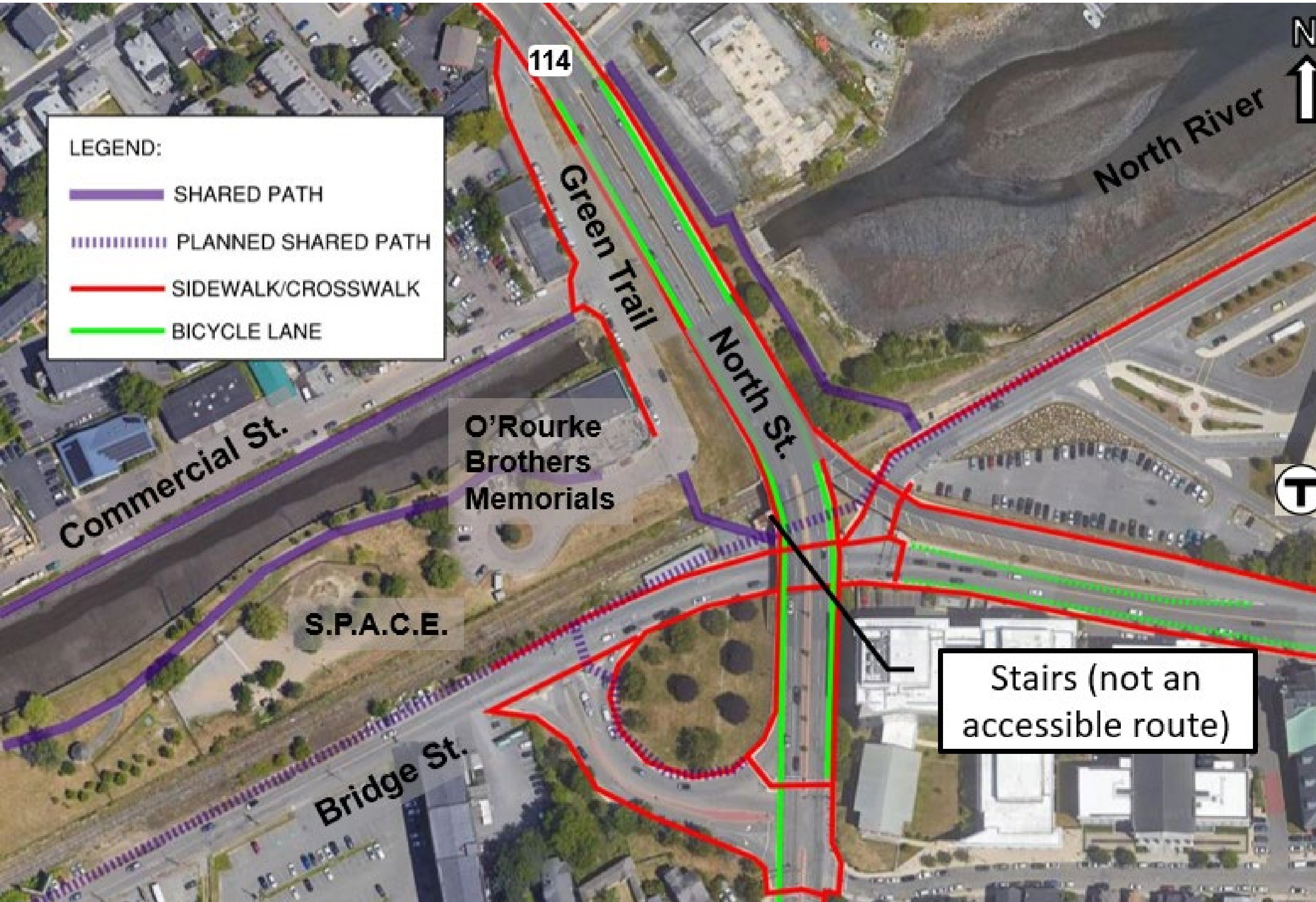
Utility	Diameter	Location	Relocation
Bituminous Fiber Duct (BFD) Tel conduits	16-4"	Crossing the culvert underneath the pedestrian path	
<ul style="list-style-type: none"> • Electric conduit • Tel conduit • LP Gas main • Water main 	- - 12" 12"	Crossing the culvert underneath State Route 114 Westbound	<ul style="list-style-type: none"> • Electric conduit • Tel conduit • LP Gas main • Water main
<ul style="list-style-type: none"> • Sewer main • Drain (drains into the top of the culvert) • Water main • Electric conduit 	24" 15" 30" -	Crossing the culvert underneath State Route 114 Eastbound	<ul style="list-style-type: none"> • Sewer main • Drain • Water main • Electric conduit
<ul style="list-style-type: none"> • Drain (empties to the east culvert wall) • Drain (empties to the west culvert wall) 	24" 30"	Under State Route 114 Eastbound	
<ul style="list-style-type: none"> • Water main • Tel conduit • LP Gas • HP Gas • Drain • Electric conduit • Sewer main (Sanitary Sewer Siphon) 	30" - 12" 12" 30" - 24" (Two separate pipes)	Crossing the culvert under the North Street Extension	<ul style="list-style-type: none"> • Water main, Tel conduit (underground), LP and HP gas • The 30" diameter water main is separated into two smaller pipes and placed in a utility bay between the beams

Existing Conditions – Traffic

- North Street
 - Urban Principal Arterial
 - Speed Limit: 25 mph (statutory)
 - ADT: 30,000 (2018 Data)
 - Provides major connection between downtown Salem to northern Salem and Peabody
- Green Trail (North Street Extension)
 - Local Road
 - Speed Limit: 25 mph (statutory)
 - Low volume
- North Street Road Safety Audit (RSA) 2018

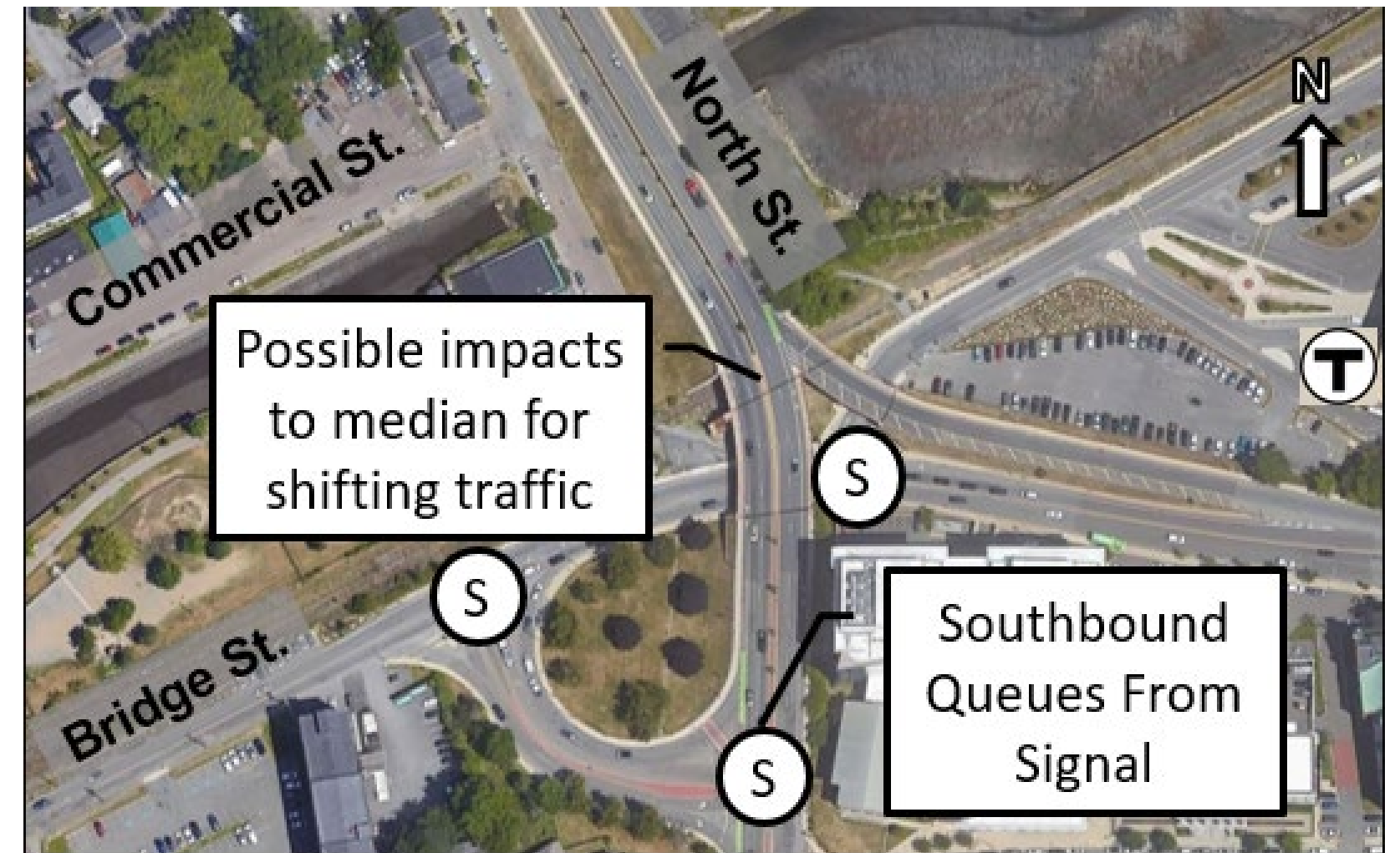


Existing Conditions – Traffic (Ped/Bike)



Existing Conditions – Traffic Management

- Traffic signal queue management
- Geometric constraints (Bridge St Bridge)
- Ped/Bike accommodations
- Existing safety concerns



Existing Conditions – Property Owners



- Private
- MassDOT
- MBTA
- City of Salem
- Park
(need to evaluate deeds)
- Salem
Redevelopment
Authority
- O'Rourke Brothers
Memorial

Existing Conditions – Adjacent Projects

Known Projects:

 MassDOT Project No. 612990


 The Exchange

 Franklin Street Redevelopment

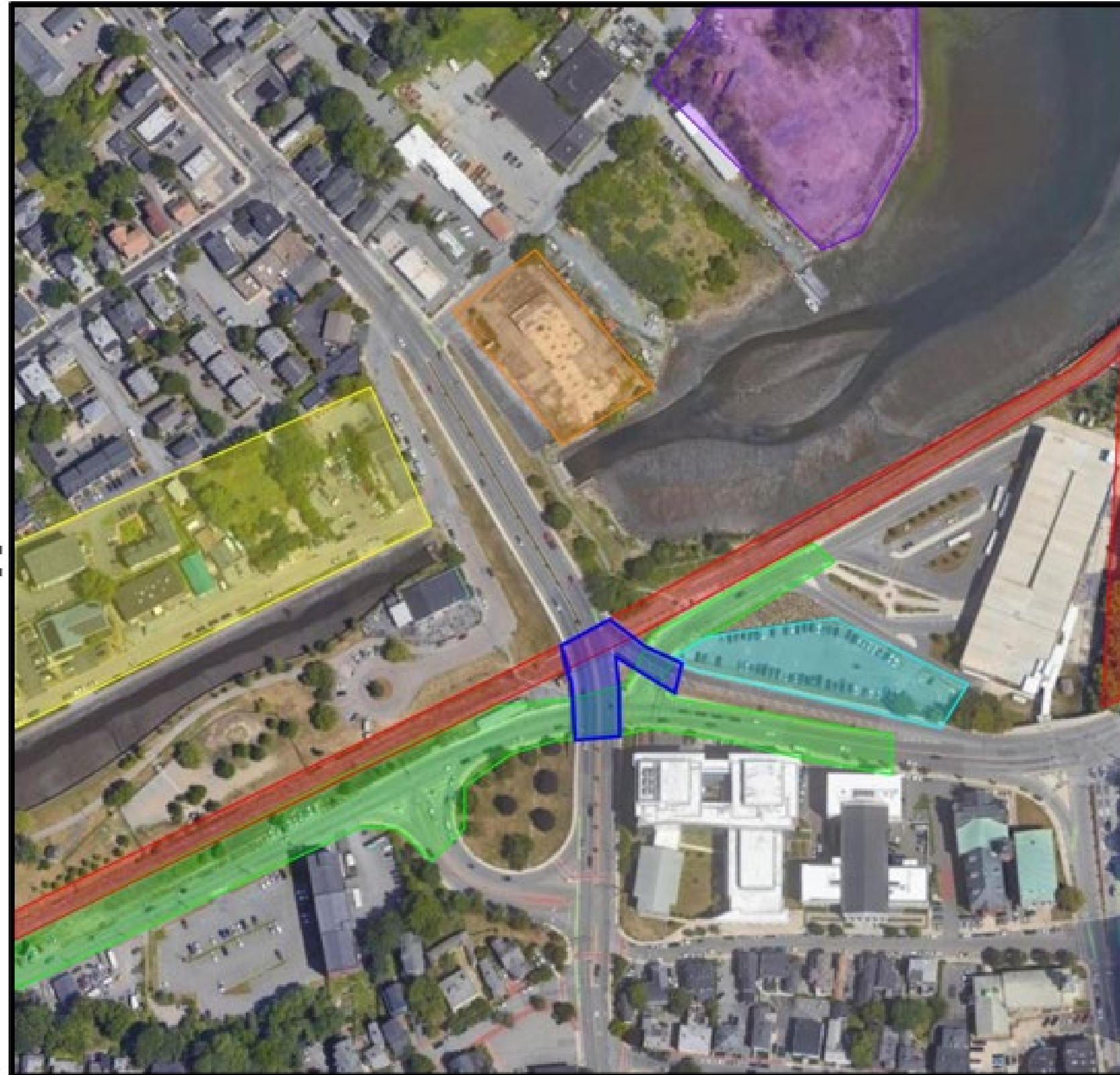
Future Considerations:

 Commercial Street Redevelopment

 Buddy's Auto Collection

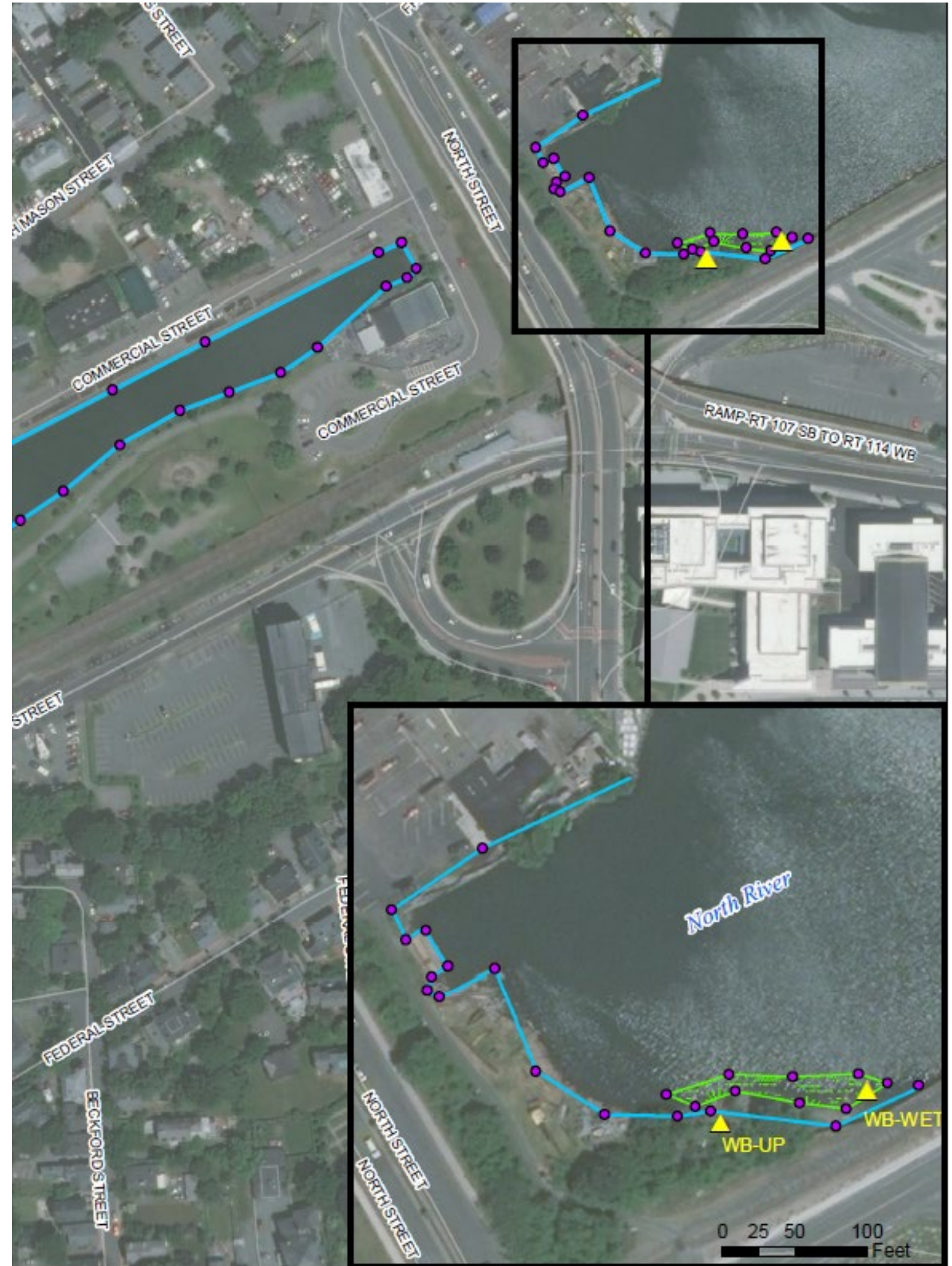
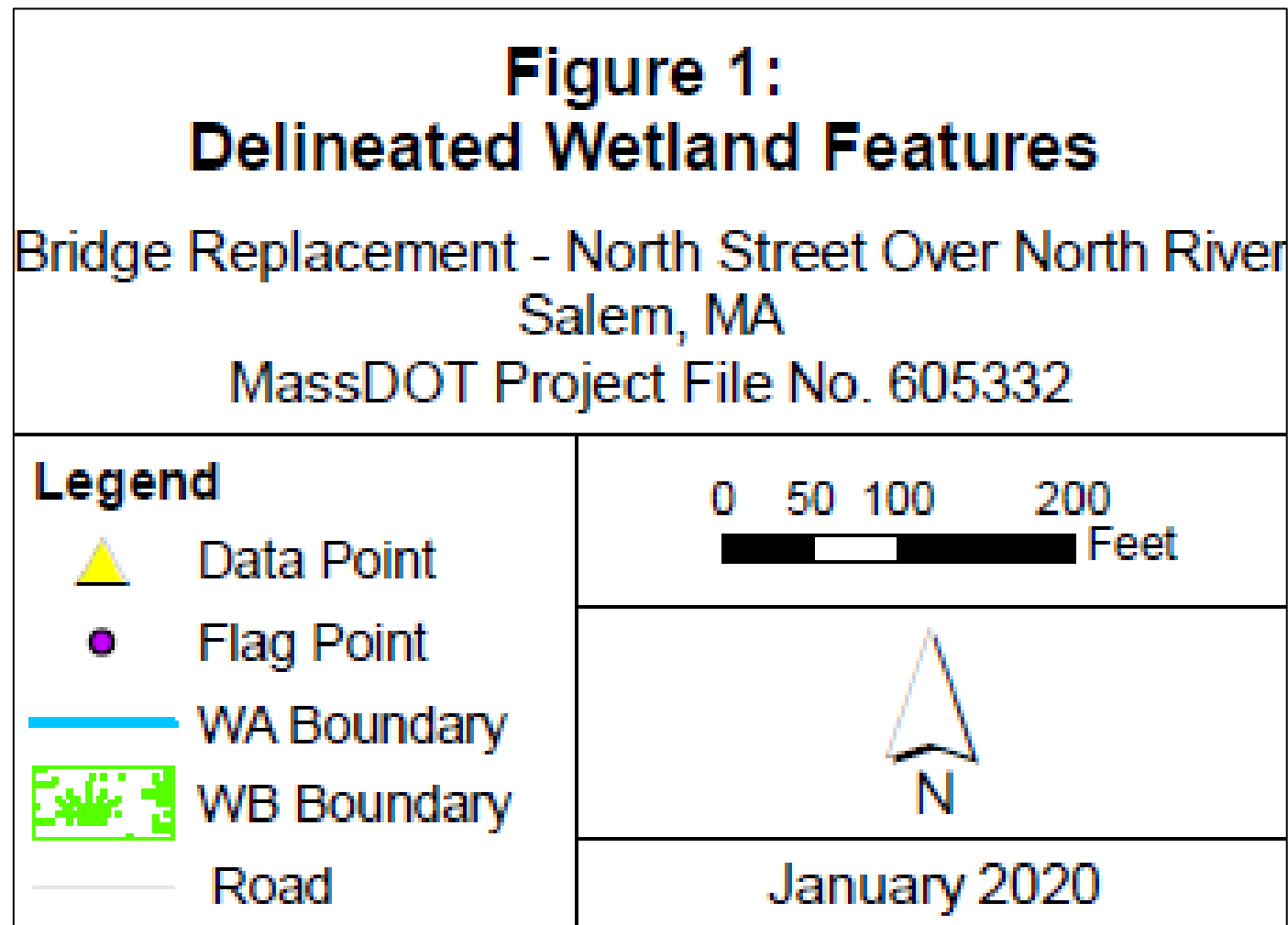
 Bridge Street Bypass (S-01-018)

 MBTA



Existing Conditions – Environmental

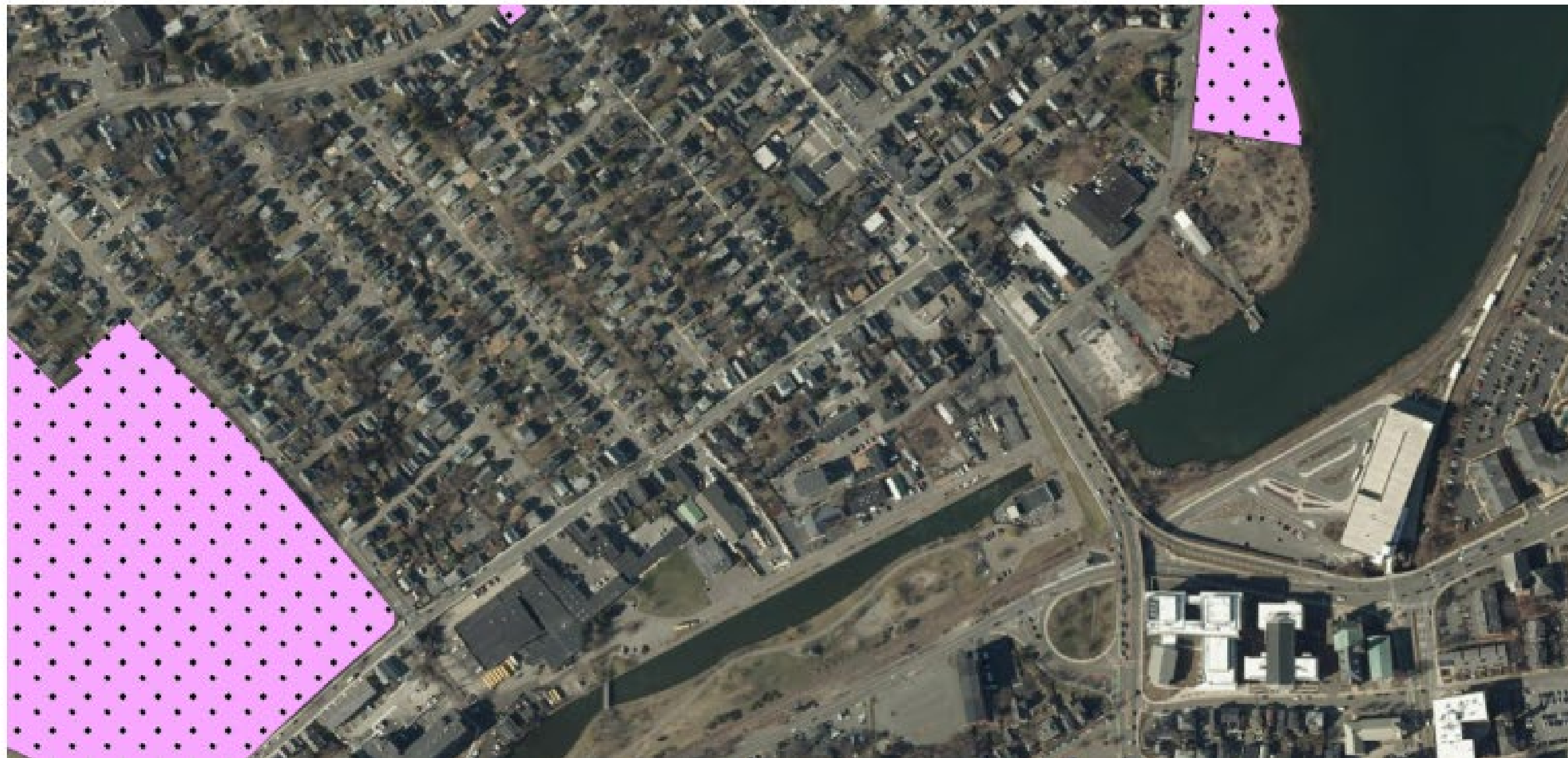
- Tidal estuary
- Salt marsh
- Coastal Zone
- Floodplain



Existing Conditions – Environmental

Open Space

- S.P.A.C.E
- Leslie’s Retreat Park



Openspace Article 97



Openspace by Ownership Solid

- Federal
- DCR-State Parks_Recreation
- DCRS/DFG
- Department of Fish_Game
- DCR-Urban Parks_Recreation
- DCR-Water Supply Protection
- Department of Agricultural Resources
- Commonwealth of Massachusetts
- County
- Municipal
- Public Non-Profit
- Land Trust
- Conservation Organization
- Non-Profit
- Private
- Other
- Unknown

Existing Conditions – Environmental

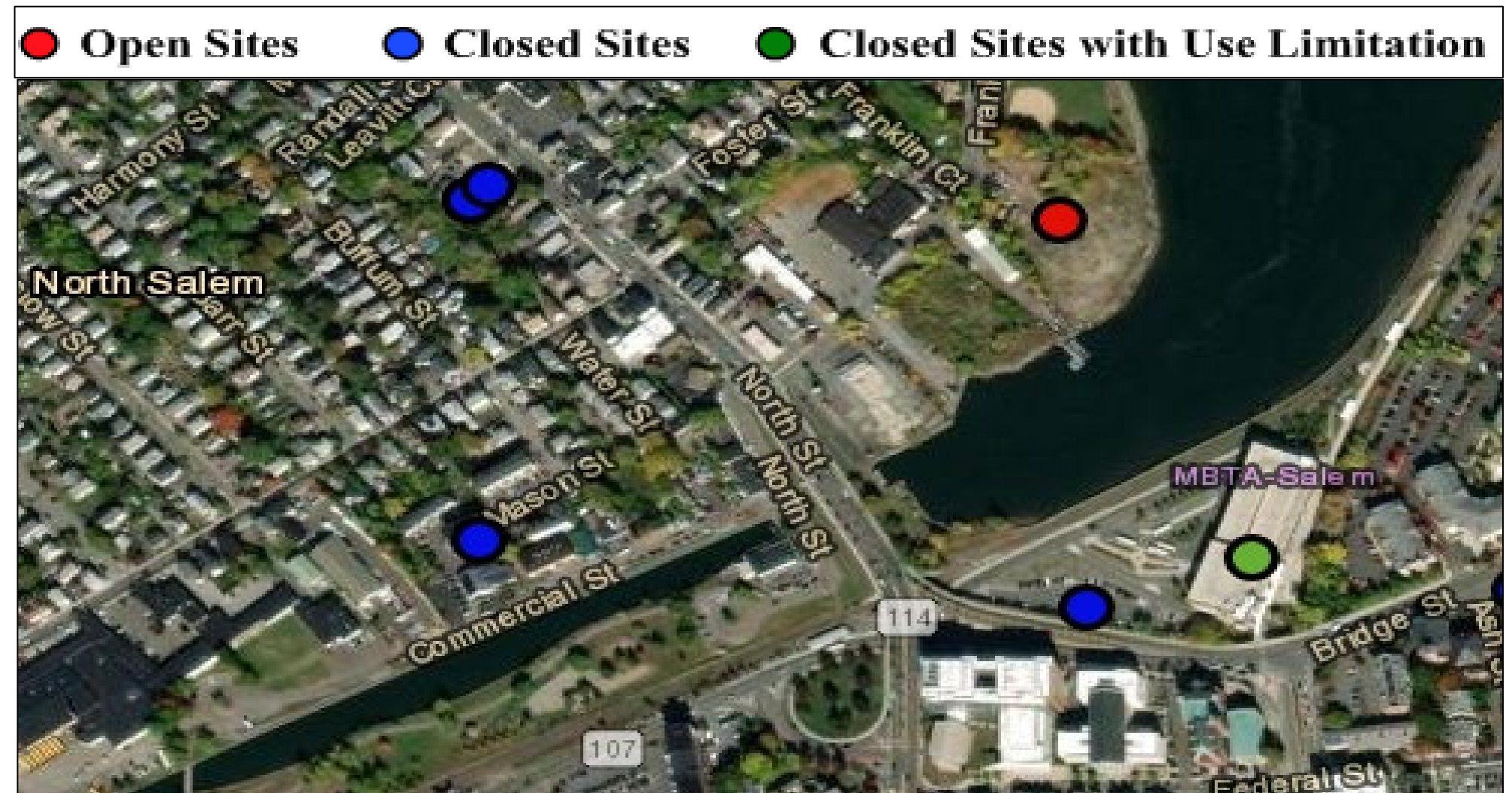
Historic Resources

- Leslie’s Retreat Monument



Hazardous Materials

- No DEP regulated release sites or AULs within project area.
- History of industrial land use.



Environmental Review & Permitting Considerations

Federal	State
National Environmental Policy Act (NEPA); 40 CFR Parts 1500-1508	Massachusetts Environmental Policy Act (MEPA); 301 CMR 11.00*
Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966	Massachusetts Wetlands Protection Act; 310 CMR 10.00 *
Section 9 Rivers and Harbors Act of 1899	Massachusetts Public Waterfront Act (Chapter 91); 310 CMR 9.00)*
Section 10 of the Rivers and Harbors Act of 1899	401 Water Quality Certification (WQC); 314 CMR 9.00
Section 7 of Endangered Species Act	Shellfish consultation with the Division of Marine Fisheries (DMF)
Section 106 of the National Historic Preservation Act of 1966	Article 97 of the Amendments to the Massachusetts Constitution
Essential Fish Habitat (EFH) consultation with National Oceanic and Atmospheric Administration (NOAA) Fisheries	Coastal Zone Consistency Review
Section 404 of the Clean Water Act	

**Not required if project qualifies under MassDOT Transportation Bond Bill Bridge Exemption*

Conclusions

- Due to all existing conditions, this project scope could follow several paths.
- The consultant will develop a comprehensive and multidisciplinary alternatives analysis/ planning study considering all parameters.
- This will help organize the site as a whole and find the best solution for MassDOT to move forward with into preliminary design while working with the City of Salem.