TRANSPORTATION and TECHNOLOGY on the SEACOAST

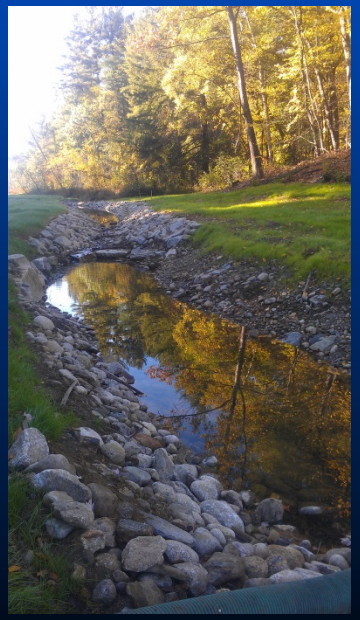
An Overview of the Spaulding Turnpike Newington-Dover Project

ITE/ASCE Joint Meeting

AT

University of New Hampshire

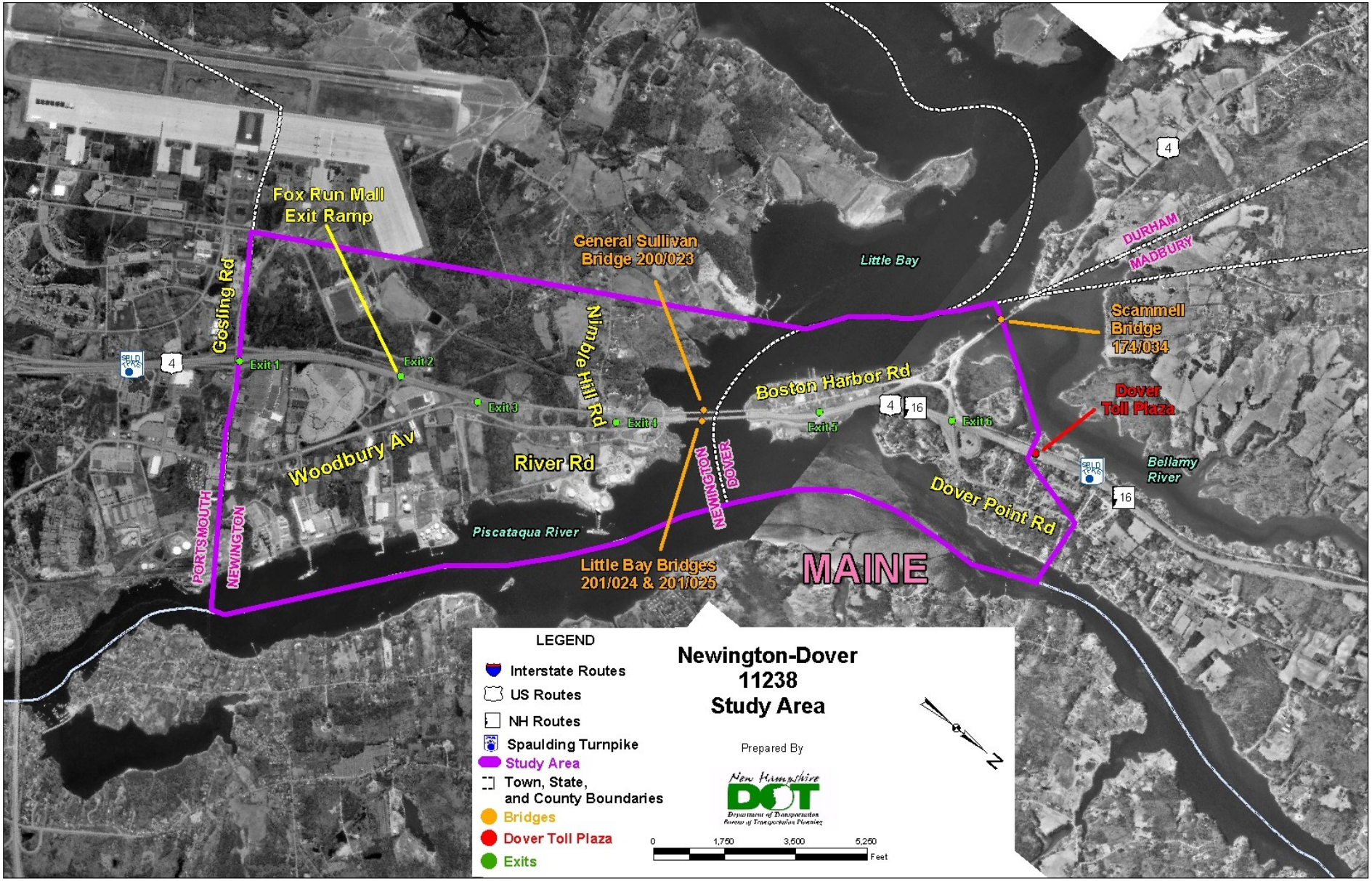
OCTOBER 29, 2015



Meeting Agenda

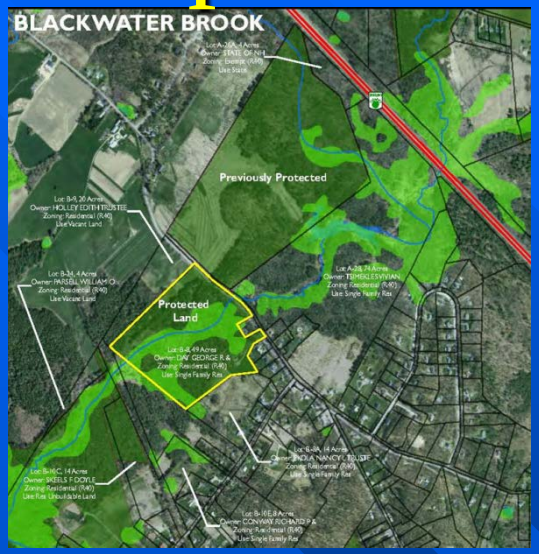
- Project Overview
- Status of Newington-Dover, 11238 Contracts
  - Contract L – New Little Bay Bridge SB
  - Contract M – Newington
  - Contract O – Little Bay Bridge NB Rehabilitation
  - Contract Q – Dover
  - Contract S – General Sullivan Bridge Rehabilitation
- Intelligent Transportation Systems (ITS)

Project Area



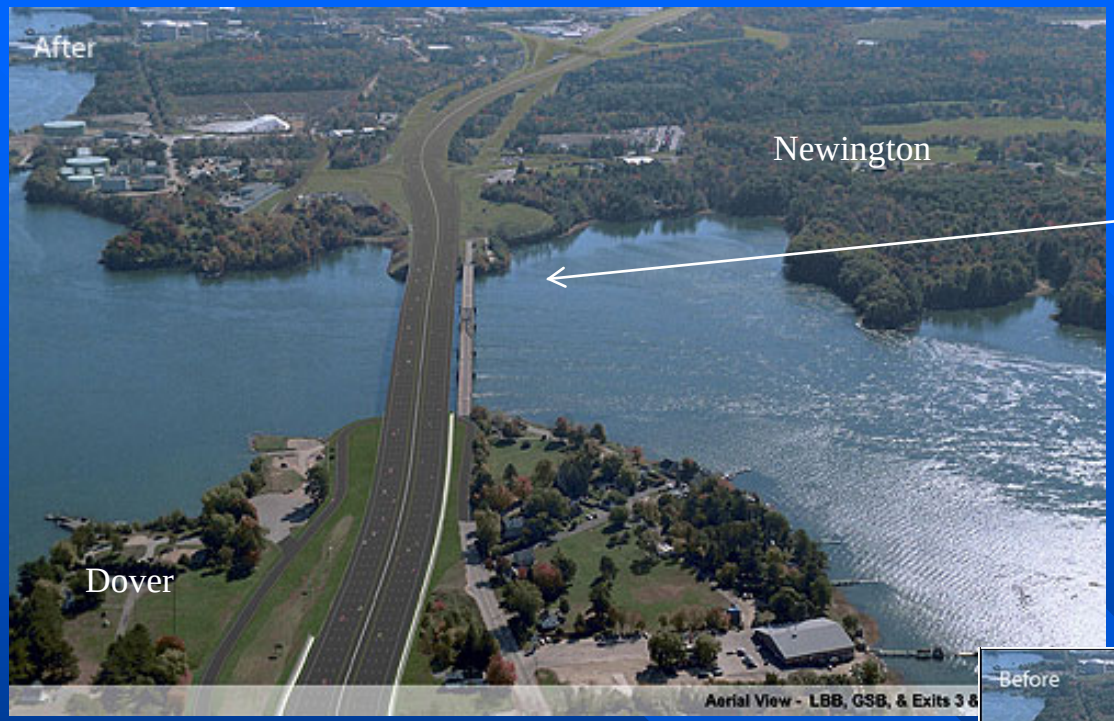
Project Need

Environmental Mitigation Components



- Environmental Mitigation - $4.57M (224 acres)
  - 120-acre Preservation of Tuttle Farm (Joint Effort w/ City, SRC, DOT) – ($1.34M)
  - 40-acre Preservation of Day Property in Blackwater Brook Watershed – ($0.23M)
  - 64 acres of Preservation in Knight Brook Watershed – ($2.0M)
  - Railway Brook Restoration – ($1.0M)

NEWINGTON-DOVER 11238



Post Construction

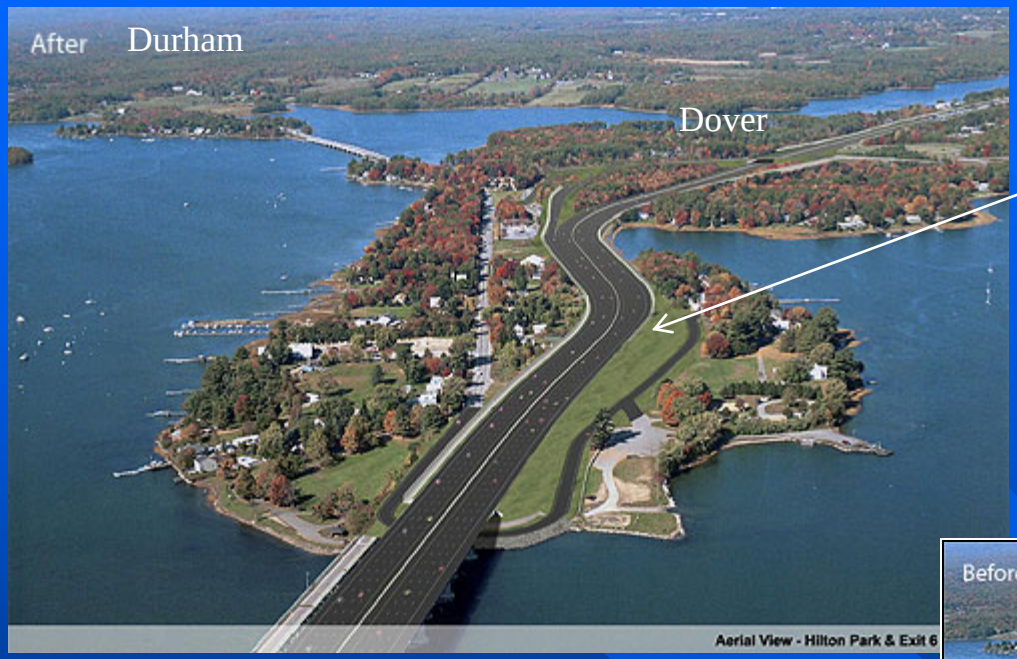
Pre-Construction

NEWINGTON

SOUTHERLY

RENDERING

NEWINGTON-DOVER 11238



Post Construction

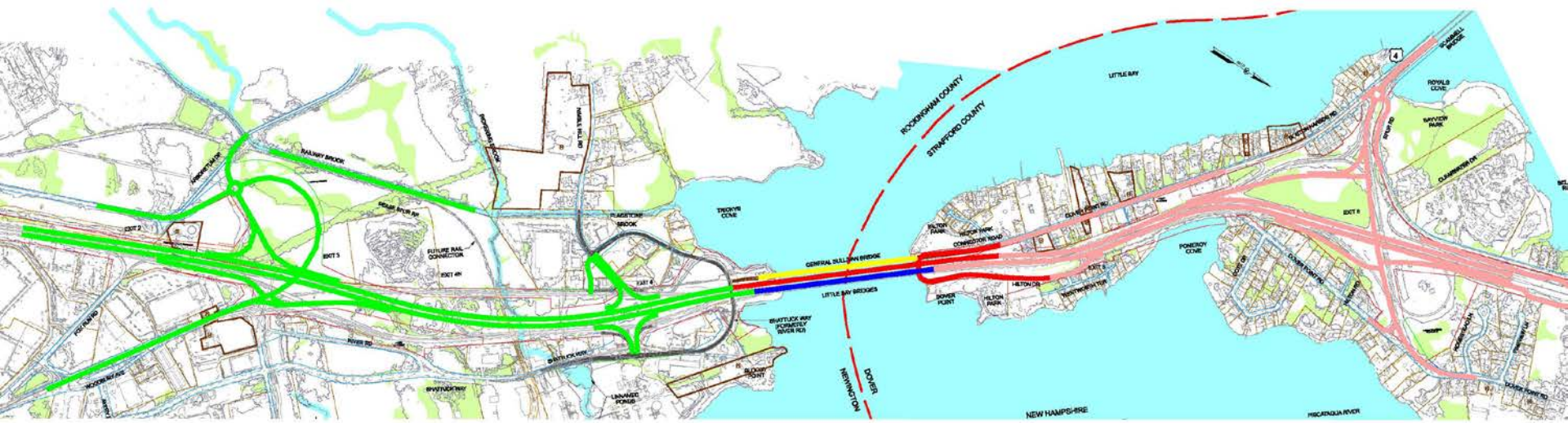
Pre-Construction

DOVER

NORTHERLY RENDERING

Little Bay Bridges Contracts L, O, & S

Current Contract Breakout & Schedule



	CONSTRUCTION SCHEDULE												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CONTRACT L					$57.5 M								
CONTRACT M							$49.9 M						
CONTRACT O									$21.9 M*				
CONTRACT Q											$46.4 M*		
CONTRACT S												$27.6 M*	
DOVER TOLL PLAZA													$13.0 M
NEWINGTON MAINTENANCE SHED											$6.0 M		

CONSTRUCTION OUTREACH

WEB SITE: www.newington-dover.com

Contract L (Completed)

New Little Bay Bridge

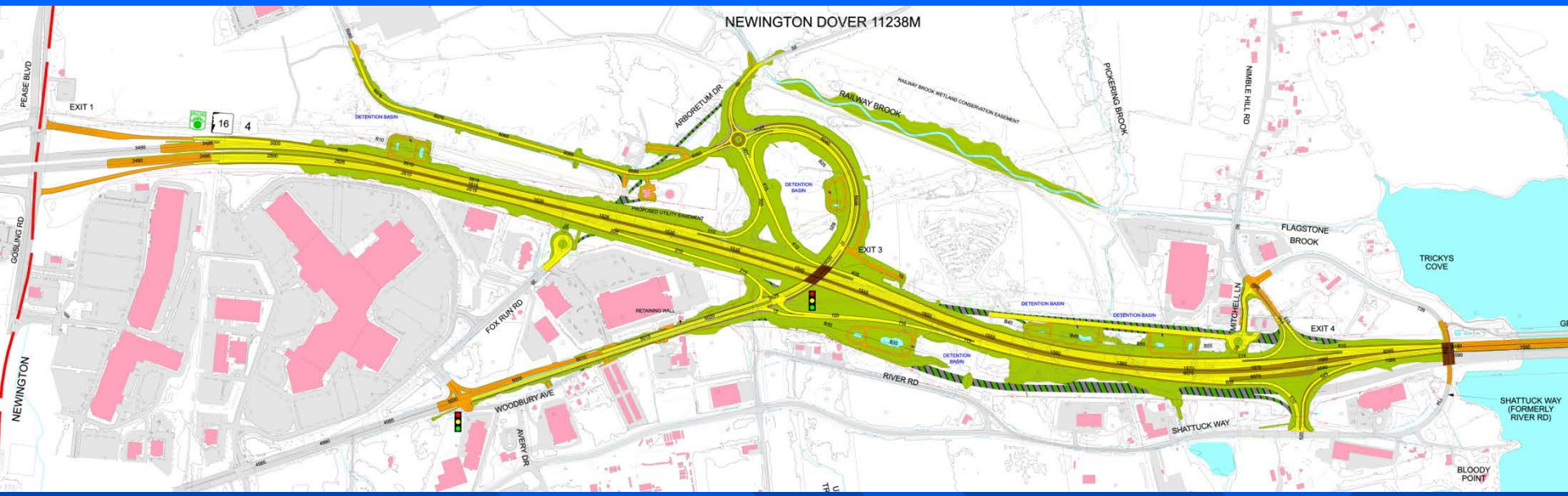
Contract L - SB New Little Bay Bridge Construction

- Project completed by Cainbro Contractors of Maine at cost of $54.1M
- Construction Initiated in 2010 Completed in Fall 2013
- Spaulding Turnpike Dover Approach Work
- Spaulding Turnpike Newington Roadway Approach
- Wentworth Terrace - Now Opened for Two-way Traffic
- Pedestrian & Bicycle Structure (Approach to GSB)

Construction – Contract L
Ped and Bikeway Access to GSB

- Pedestrian, Bicycle Access to GSB
- Wentworth Terrance/Hilton Park Access Under LBB's

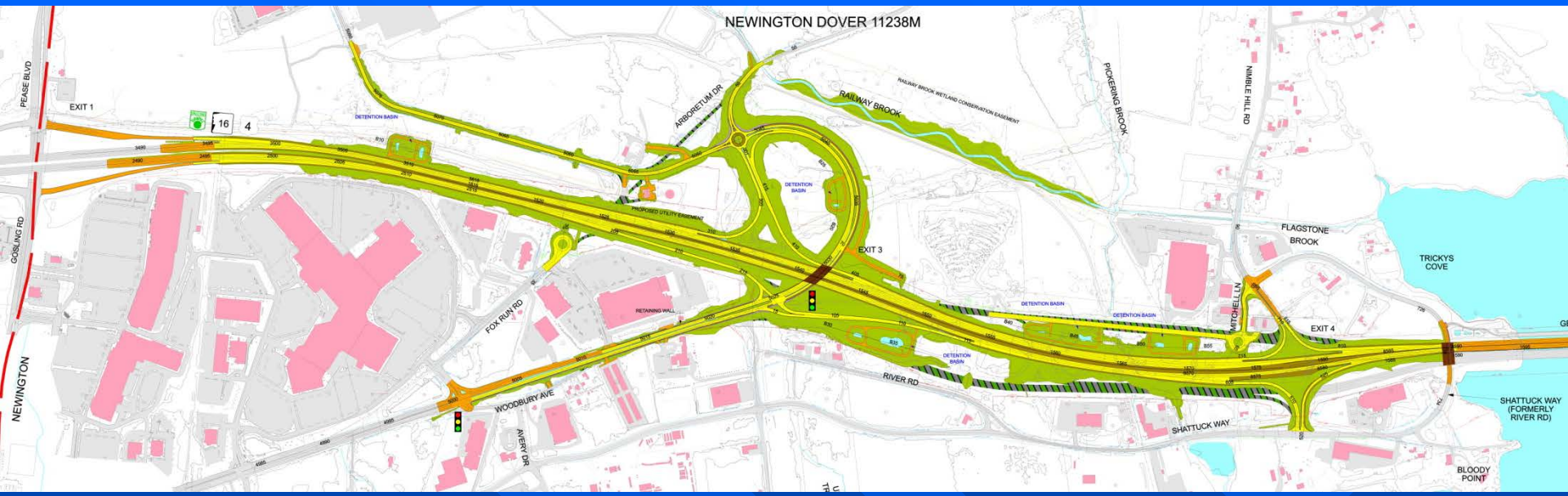
Contract M



Contract M Construction (Ongoing)

- Contractor: A. J. Coleman
- Construction Cost: $48.7M
- Construction Duration: 2012 – 2016

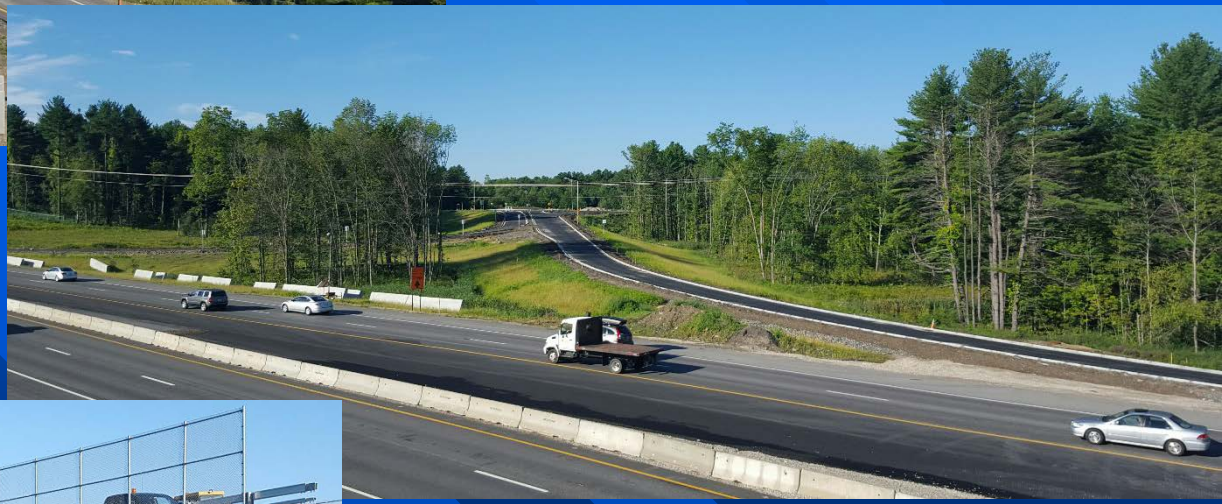
Contract M (continued)



- Constructs Four Lanes NB & SB along Turnpike within Median of Existing Facility (Minimal ROW Impacts)
- Eliminates Exit 2
- Provides a Full Service Interchange at Exit 3 and Reconstructs Woodbury Avenue with Additional Access into Pease Development Authority
- Reconstruction of Exit 4
- Railway Brook Restoration

Construction – Contract M

Exit 3 NB On Ramp



Exit 3 SB

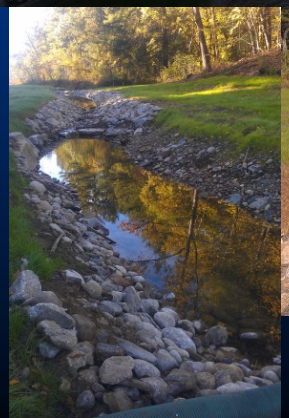
Woodbury Avenue Bridge – looking NB

Construction – Contract M

Railroad Brook Restoration

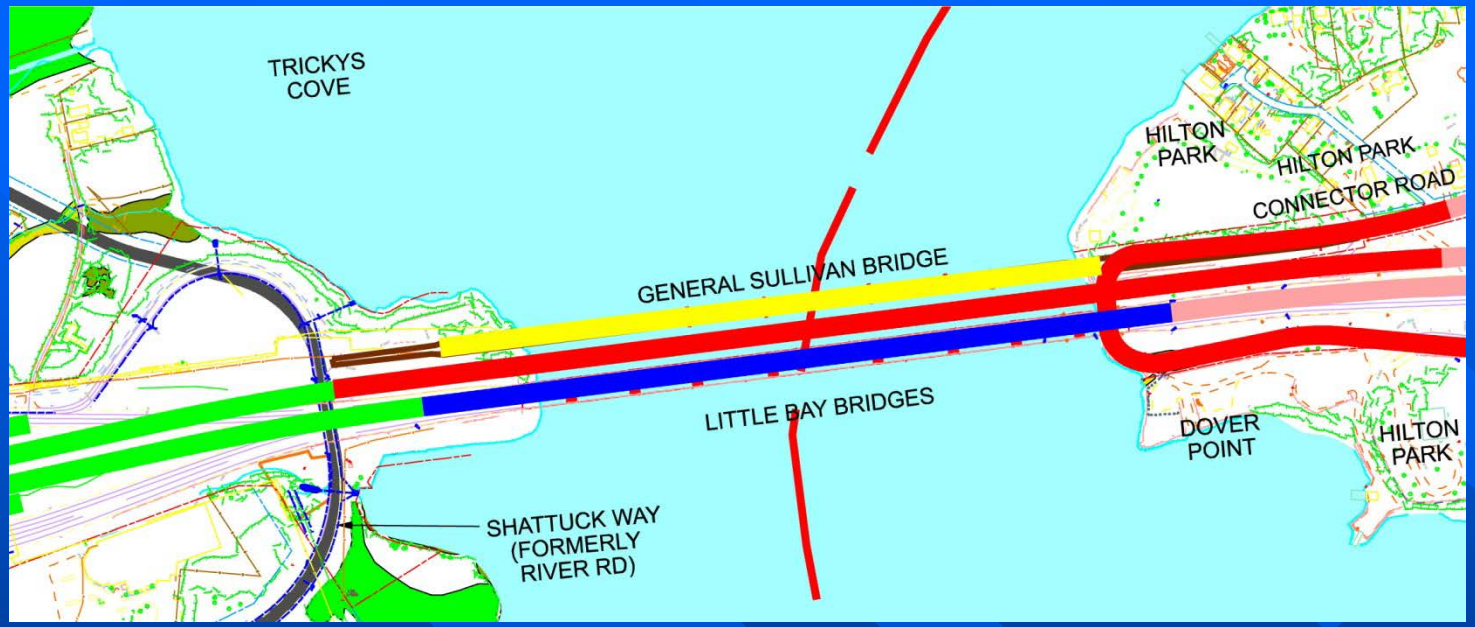
- **Initiated in Summer 2014**
- **Completed in Summer 2015**
- **Cost: $1.0M**

BEFORE



AFTER

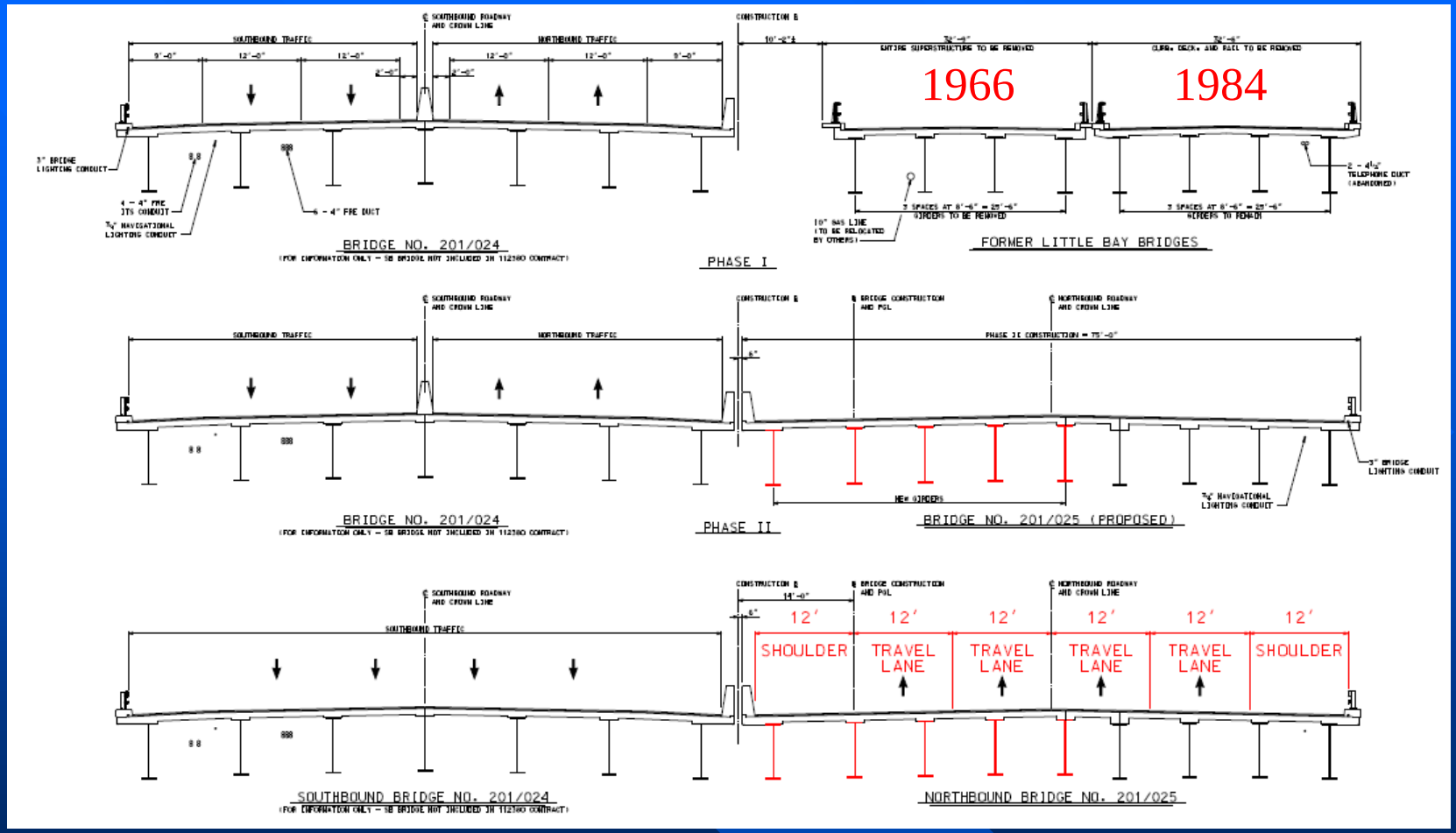
Construction - Contract O



Contract O – Existing Little Bay Bridges Rehabilitation

- Opened Bids on October 23, 2014 ($20.4M)
- Contractor: R. S. Audley, Inc.
- Construction Duration: 2015 – 2017
- Concurrent Construction with Contracts M and Q

Construction – Contract O



- Older Structural Steel Members being Replaced to Meet Current Standards
- Utilize 1984 Superstructure as Work Platform to Replace 1966 Beams & Deck
- Utilize New Beams & Concrete Deck as Work Platform to Replace 1984 Deck
- Reconstruct Wentworth Terrace Retaining Wall Beneath Bridge

Contract Q

Contract Q - Dover

- Advertising Date: June 2016
- Construction: 2016 - 2020
- Completes and Opens All Spaulding Turnpike Improvements
- Concurrent Construction with Contracts O and S

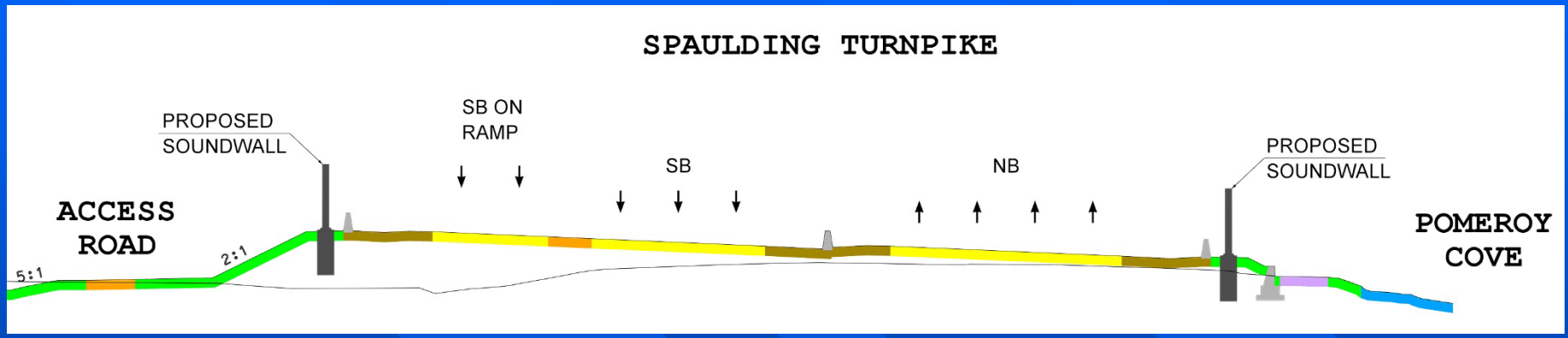
Contract Q (continued)

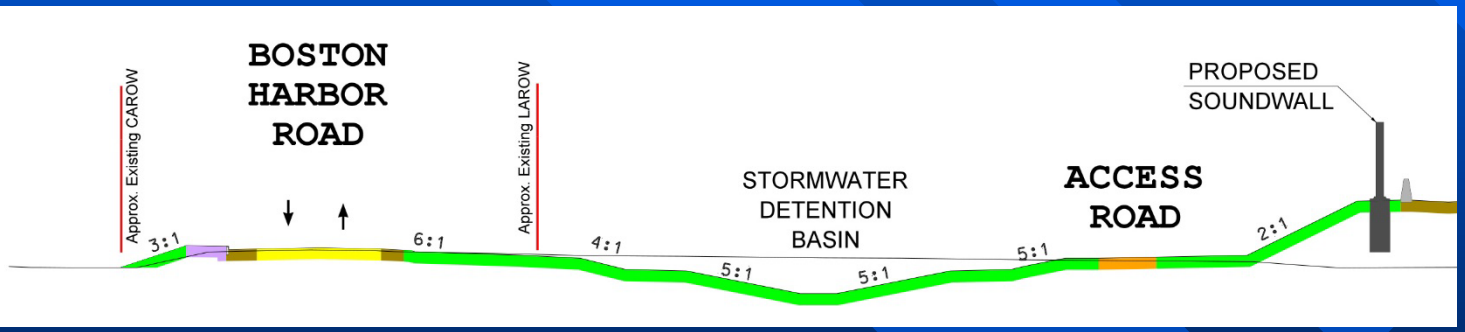
- Provides a Full Service Interchange at Exit 6
- Eliminates Exit 5
- Introduces 2 Signalized Intersections for Exit 6 Ramps
- Roundabout Replaces Signalized Intersection at Boston Harbor Rd.
- Constructs 4 Sections of Soundwall – North and South of Exit 6 and Dover Toll Plaza

Contract Q – Boston Harbor Rd.

- **Roundabout Replaces Signalized Intersection at Boston Harbor Rd.**
- **Two-Lane Hybrid Roundabout**
- **Pedestrian Hybrid Beacon Signal West of Roundabout**
- **Roundabout Website Link:** http://www.nh.gov/dot/org/projectdevelopment/highwaydesign/roundabouts/index.htm

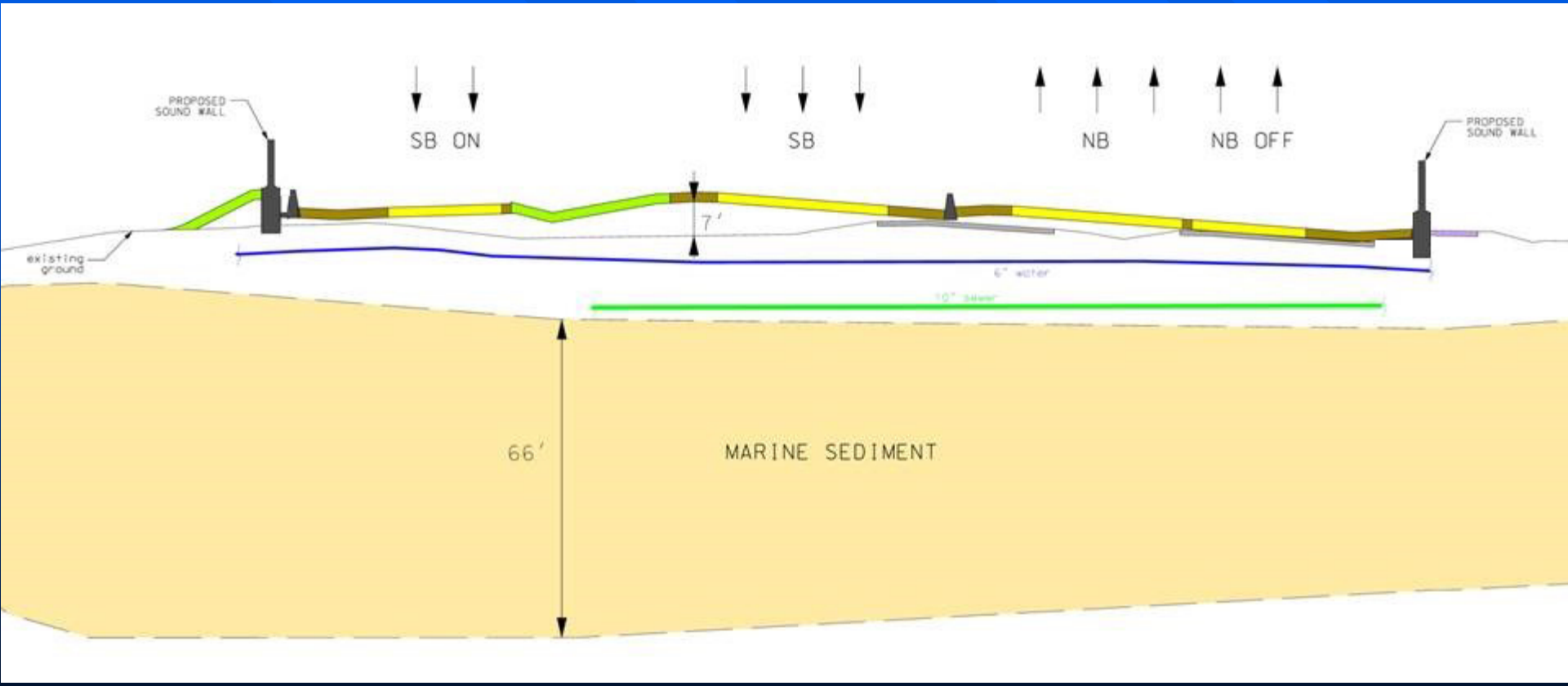
Contract Q
Spaulding Turnpike



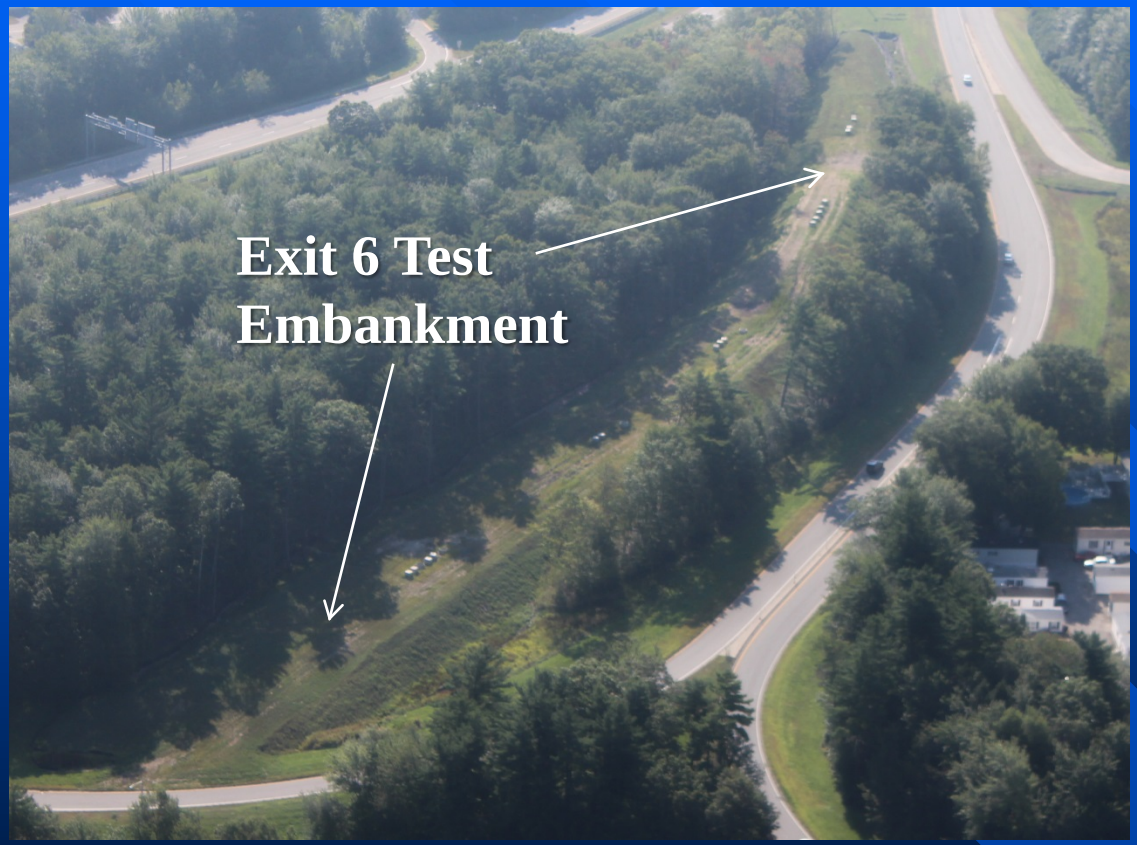


- Turnpike Raised 2’ – 10’
- Stormwater Detention Basins
- Boston Harbor Road Rehabilitation
- Soundwalls along NB and SB

Engineering Challenges
Cross Section
Just North of Pomeroy Cove



Settlement Platform Constructed under Contract M



Initial Construction Phase

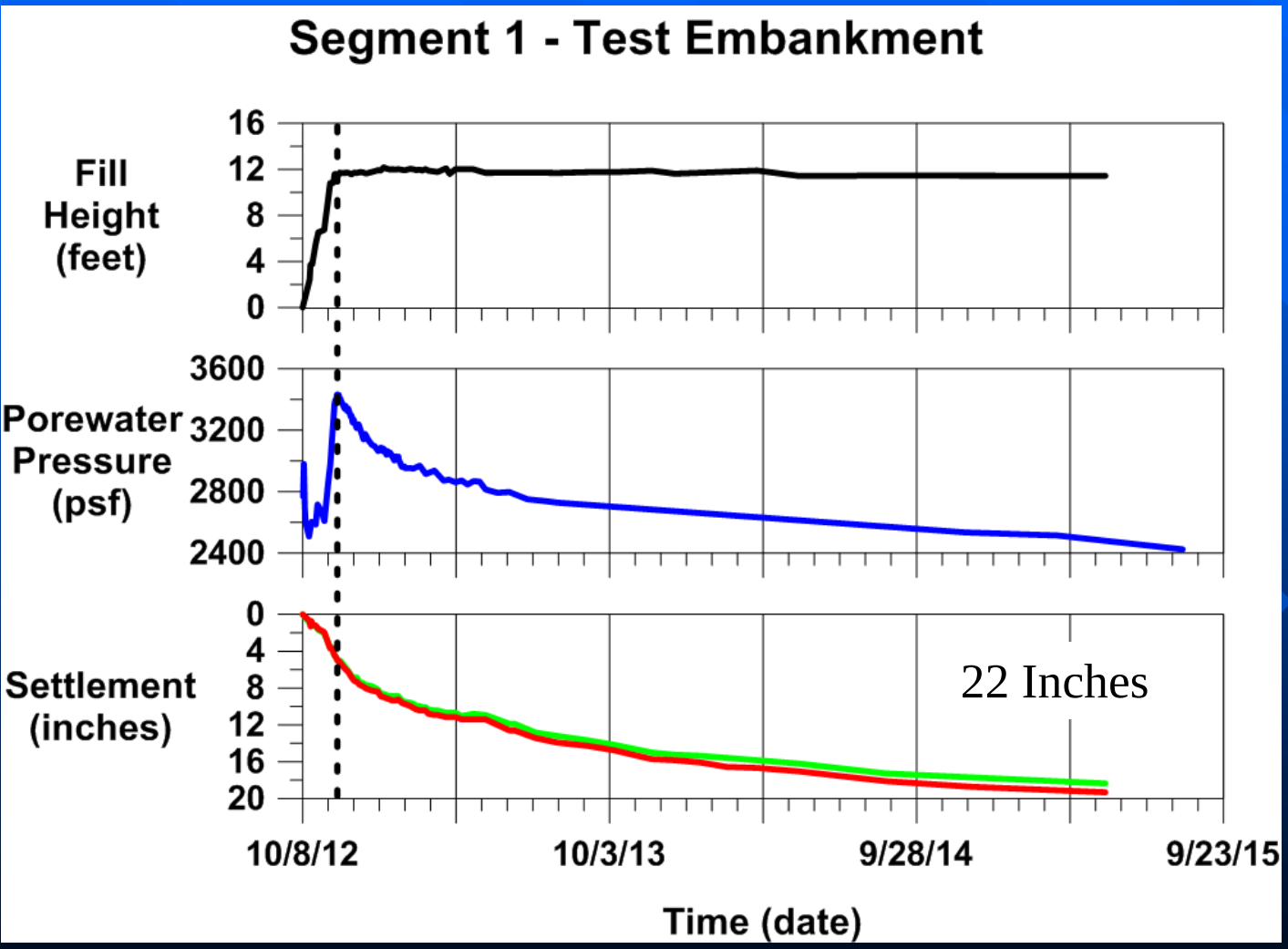
- Exit 6 Test Embankment Area
- Settlement Testing
- UNH Study

Settlement Platform

Embankment Area

- Installation of Sand Drains

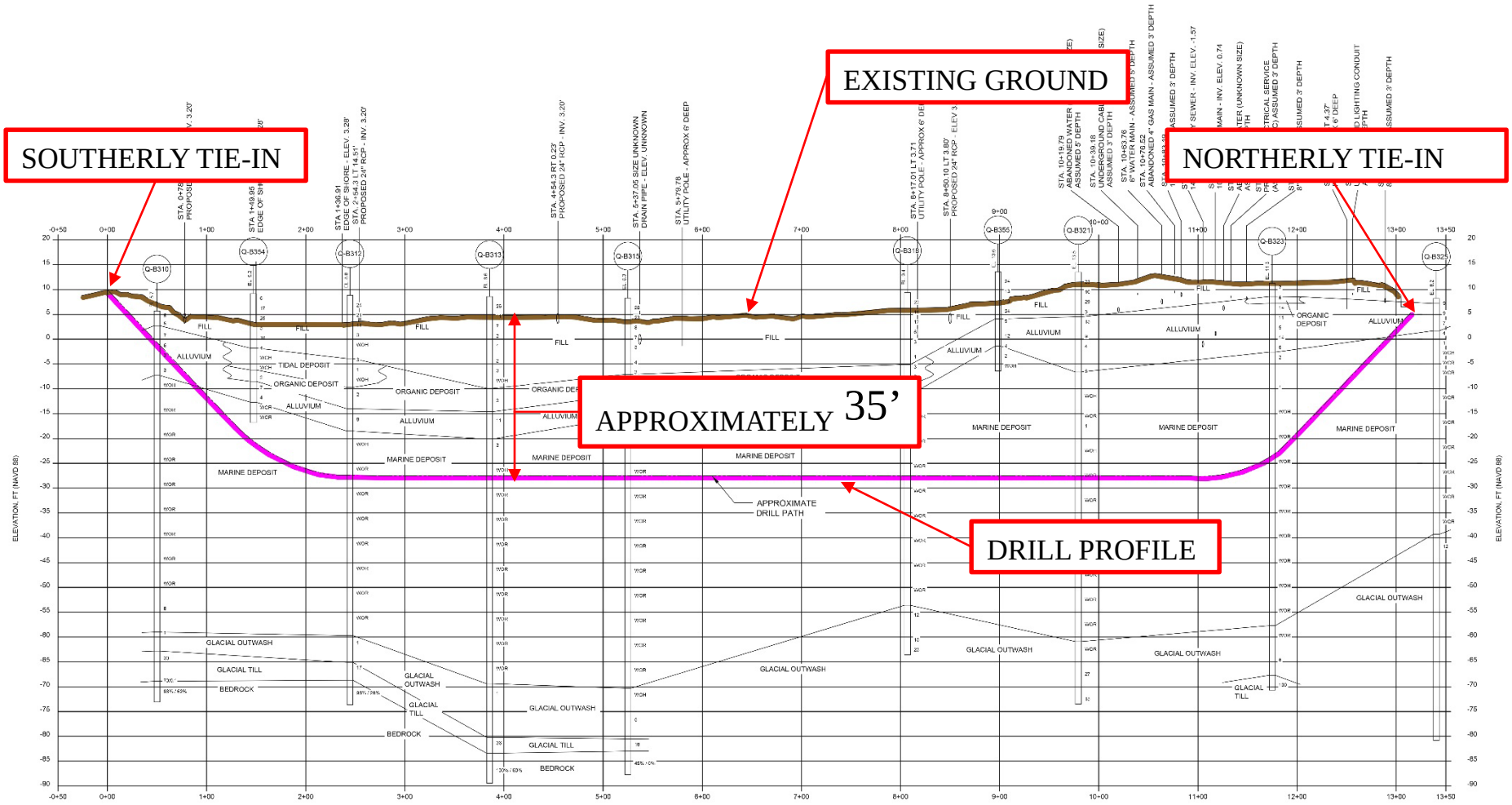
Contract Q
Soft Soil Settlement Predictions



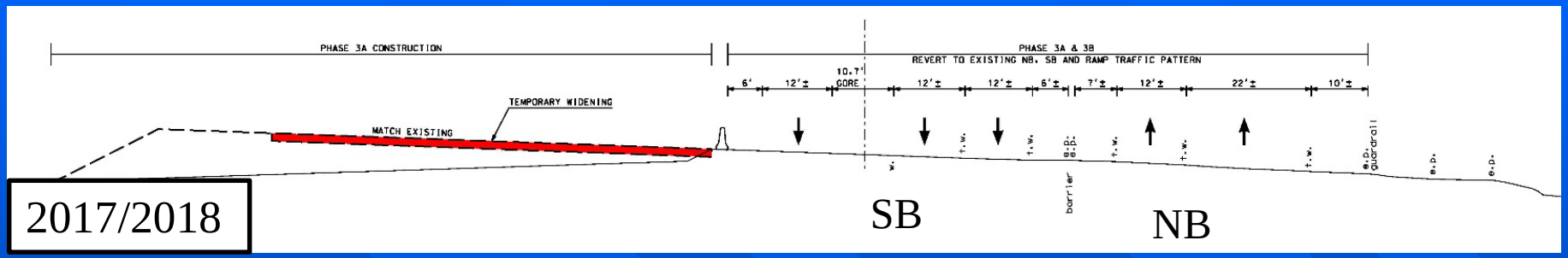
- Have seen over 22 inches of settlement
- Anticipate settlement periods of a minimum 45 days to be included in each construction phase

Unitil Gas Line Improvements

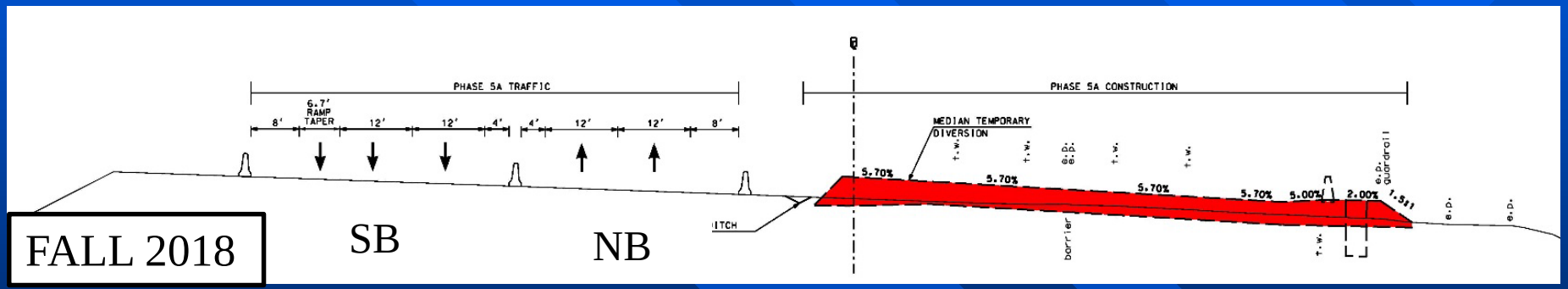
Unitil Gas Line Improvements
Pomeroy Cove
Horizontal Directional Drill



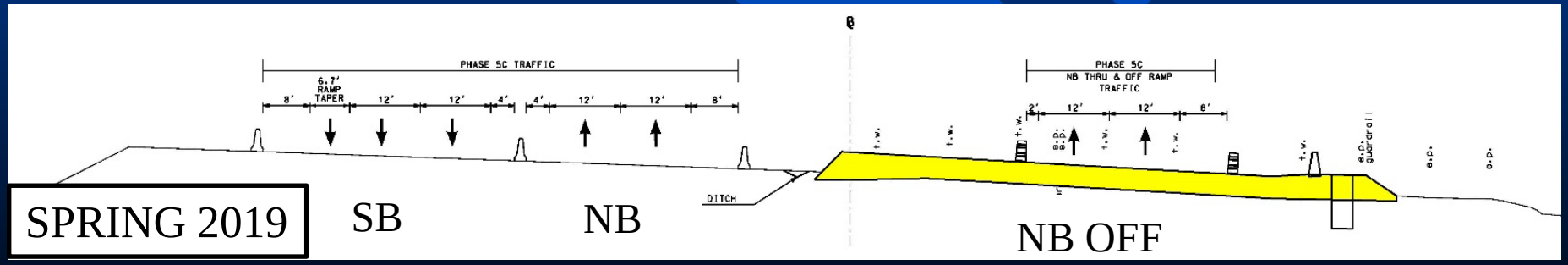
Contract Q
Construction Milestones



2017/2018

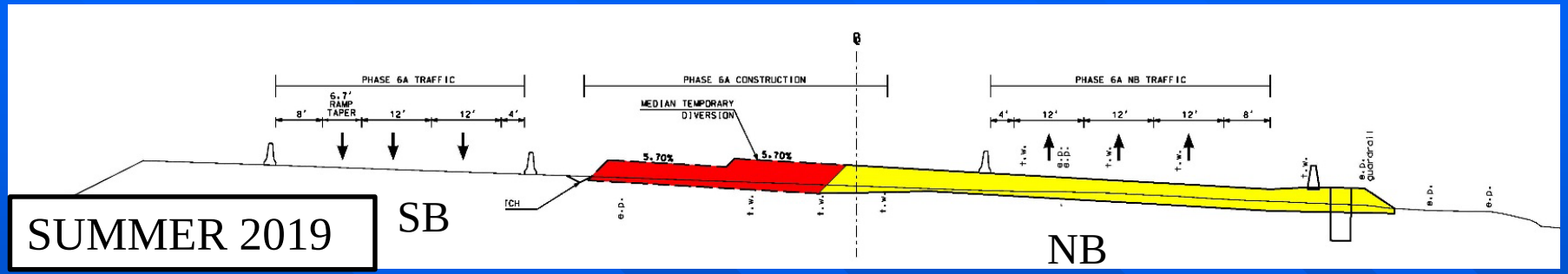


FALL 2018

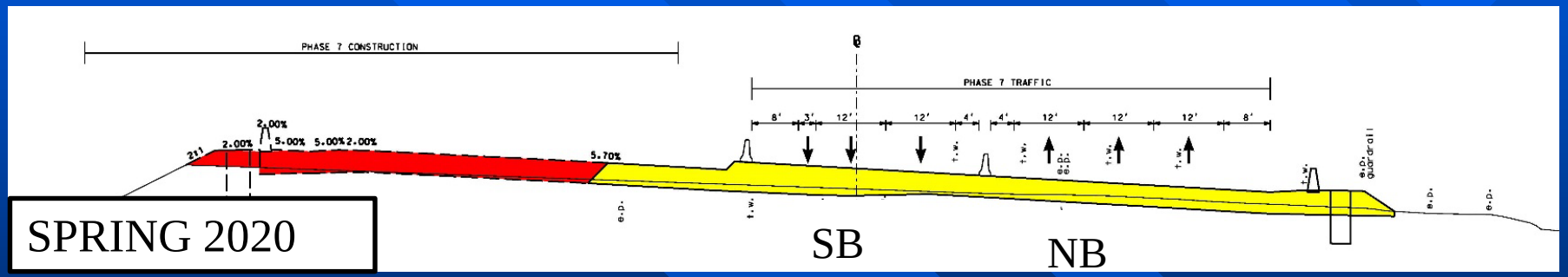


SPRING 2019

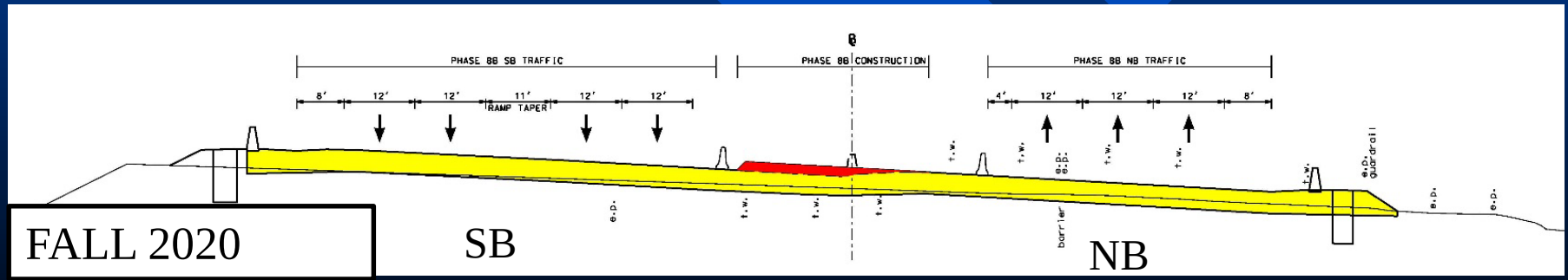
Contract Q
Construction Milestones



SUMMER 2019

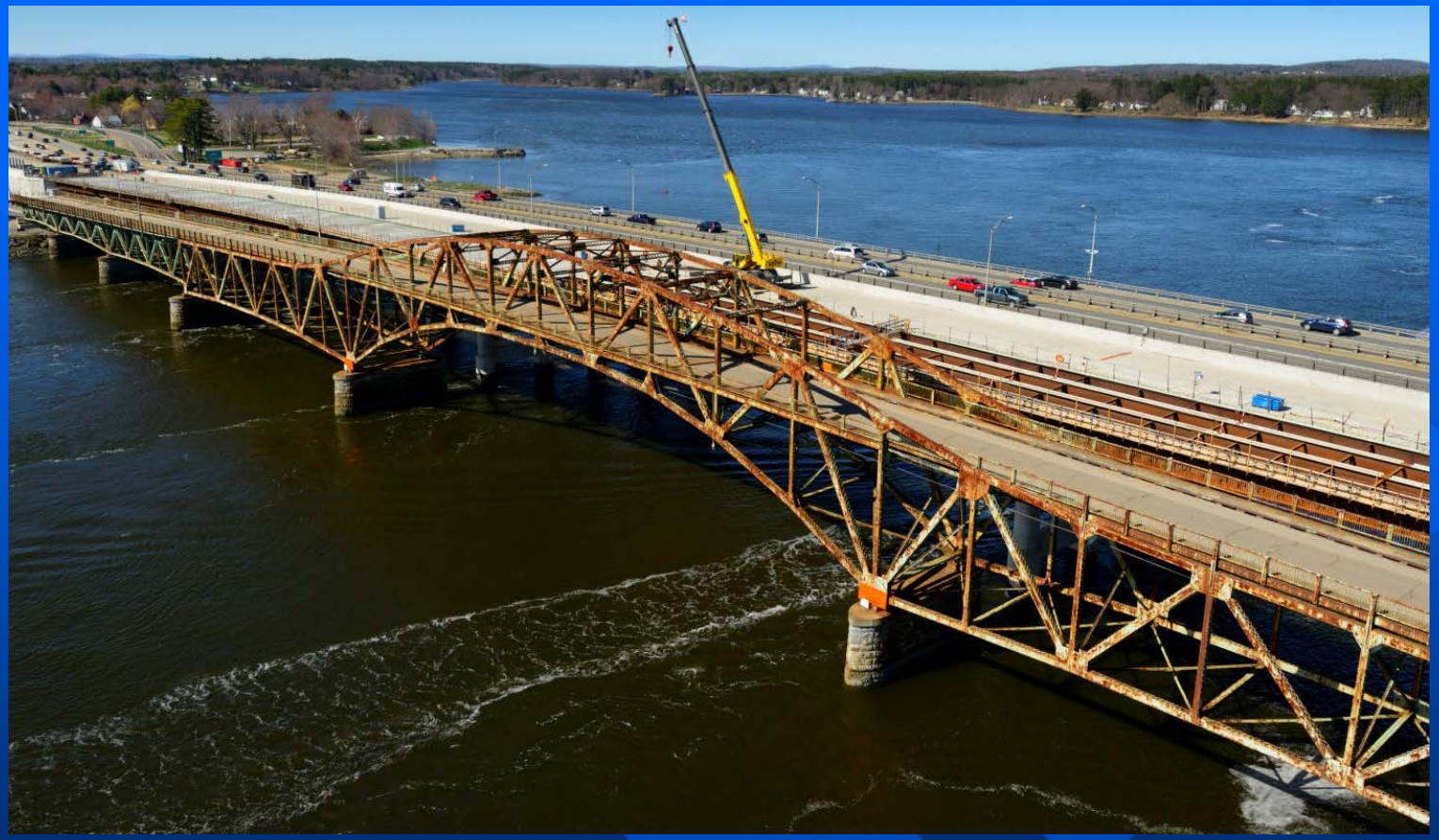


SPRING 2020



FALL 2020

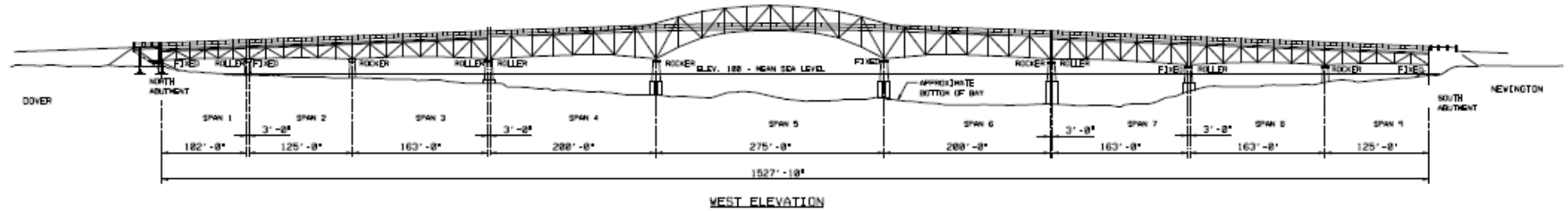
Contract S



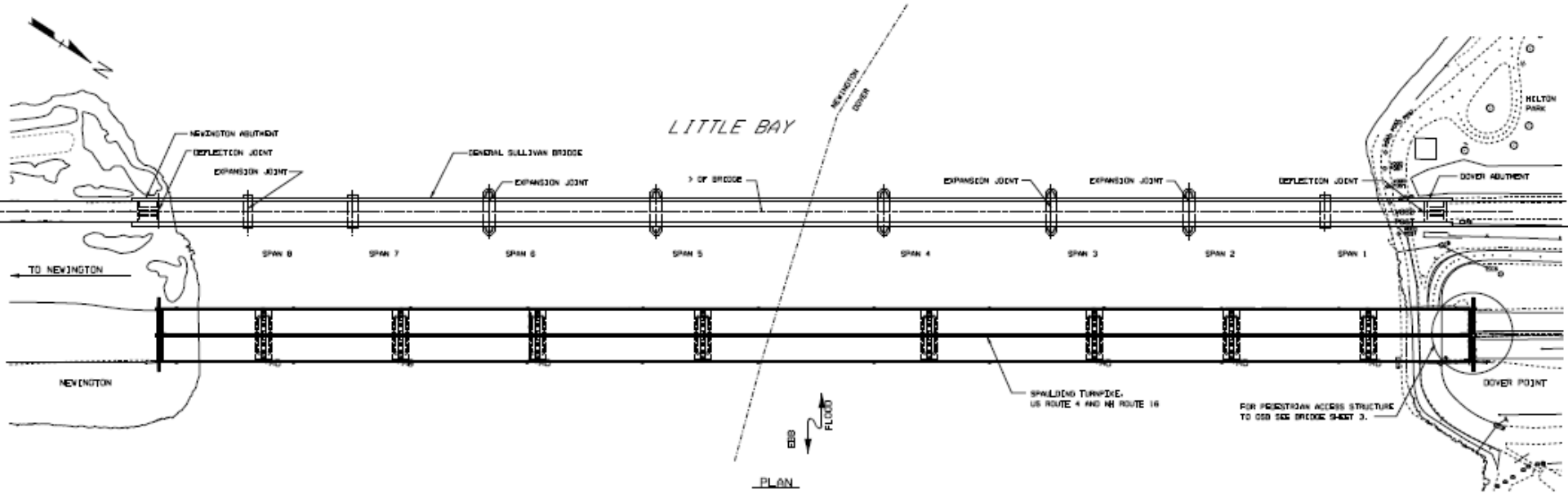
Contract S – General Sullivan Bridge Rehabilitation

- **Tentative Advertising Date: Summer 2019**
- **Tentative Construction: 2019 – 2022**
- **Concurrent Construction with Contract Q**

Contract S - General Sullivan Bridge



WEST ELEVATION

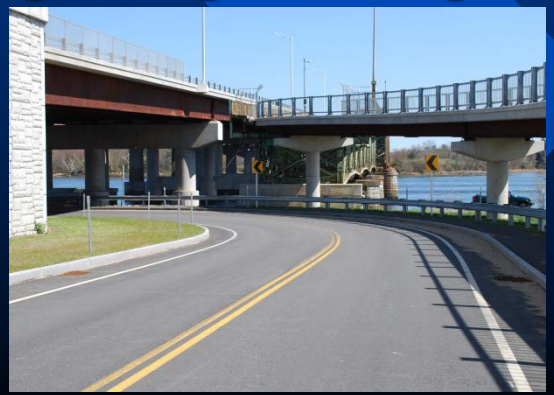


PLAN

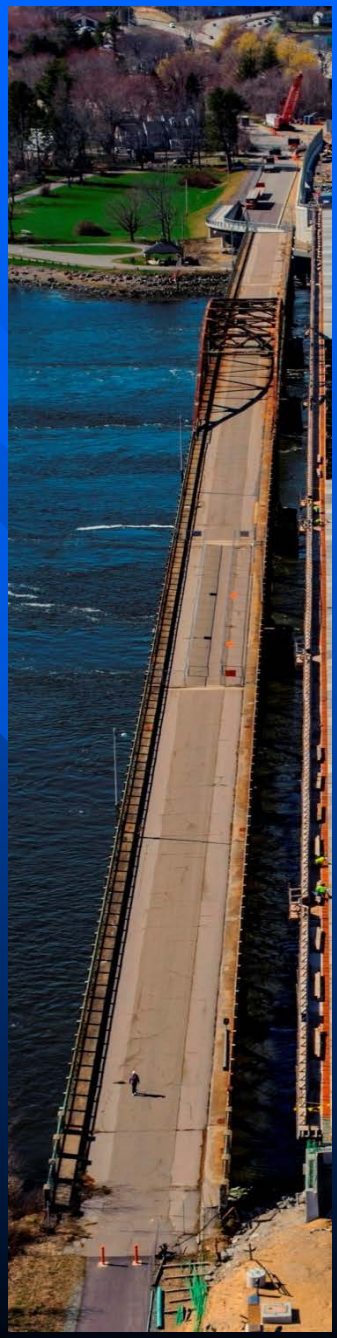
- **Rehabilitates Existing 9-Span (1527 ft.) General Sullivan Bridge for Pedestrian and Bicycle Use**

General Sullivan Bridge - Work To Date

- First Detailed Inspection Completed in 2009
- Underwater Inspection Completed in 2011
- New Dover Approach Bridge Constructed in 2013 (Contract L)
- Dover Abutment Rehabilitated 2013 (Contract L)
- In-Depth, Hands-On Inspection Completed in May 2014
- Capacity Load Rating Completed September 2014



General Sullivan Bridge –
Preliminary Results from 2014 Inspection

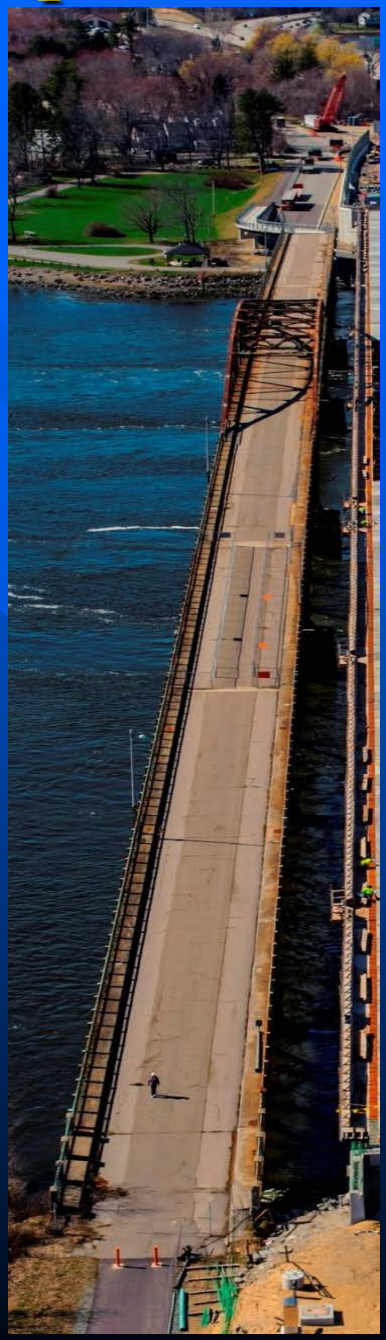


- Deterioration Continues - Worse than 5 Years Ago
- Deck Concrete Significantly Spalled on Underside
- Outside Stringers **Critically** Deteriorated
- Interior Three Stringers in Fair to Good Condition
- Floor Beams Fair to Poor
- Span 7 (previously fenced) Span - Truss Limited Capacity
- Lattice Trusses for All Other Spans Fair to Poor

General Sullivan Bridge - Overview

General Sullivan Bridge - Next Steps

- Detailed Structural Analysis/Evaluation Continues
- Evaluate Environmental Commitments (Historic Preservation) – Fall 2015
- Assess Rehabilitation/Replacement Options - Winter 2015-2016
- Develop Rehabilitation or Replacement Plans – 2016-2017
- Follow-up Inspection in 2016



Intelligent Transportation Systems

Transportation Systems Management and Operations

Accidents → **Construction** → **Weather** → **Recurring** → **DELAY**

Crashes

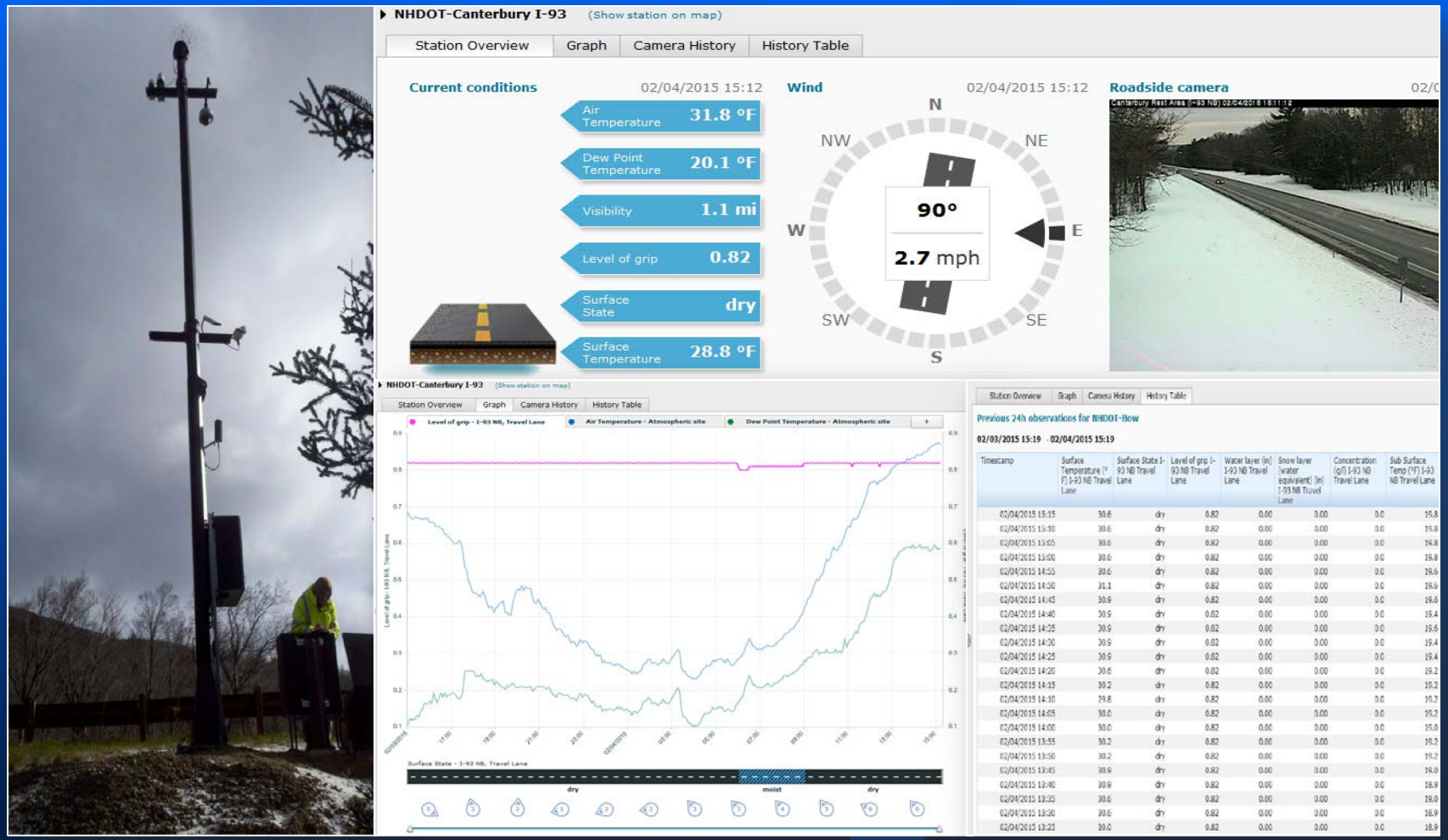
Improved Situational Awareness for Incident Response through the use of CCTV & DMS

Construction

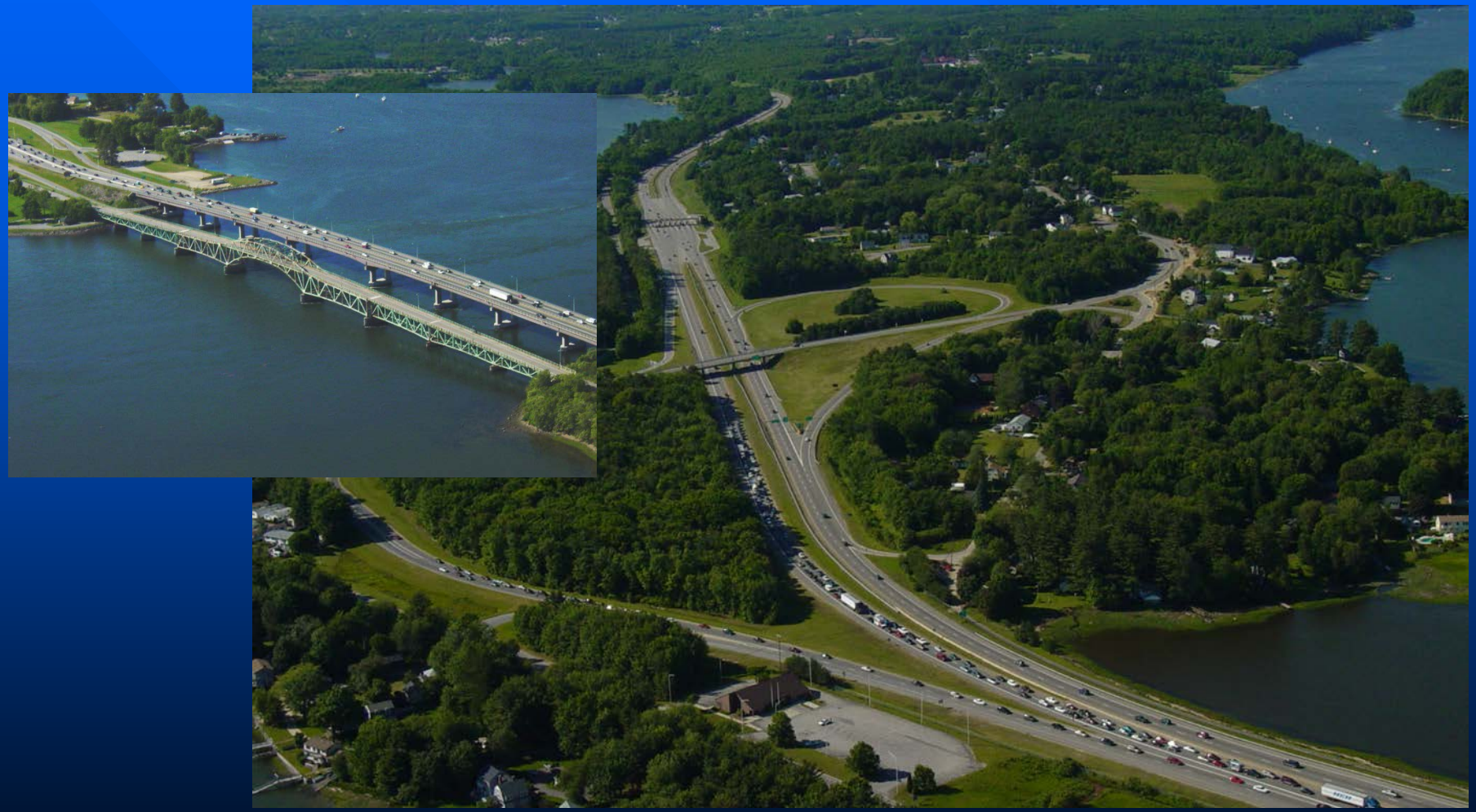
CCTV work to improve traveler information when there are lane shifts, traffic pattern changes and long queues

Weather Related Incidents are the most common types of events that involve situational response

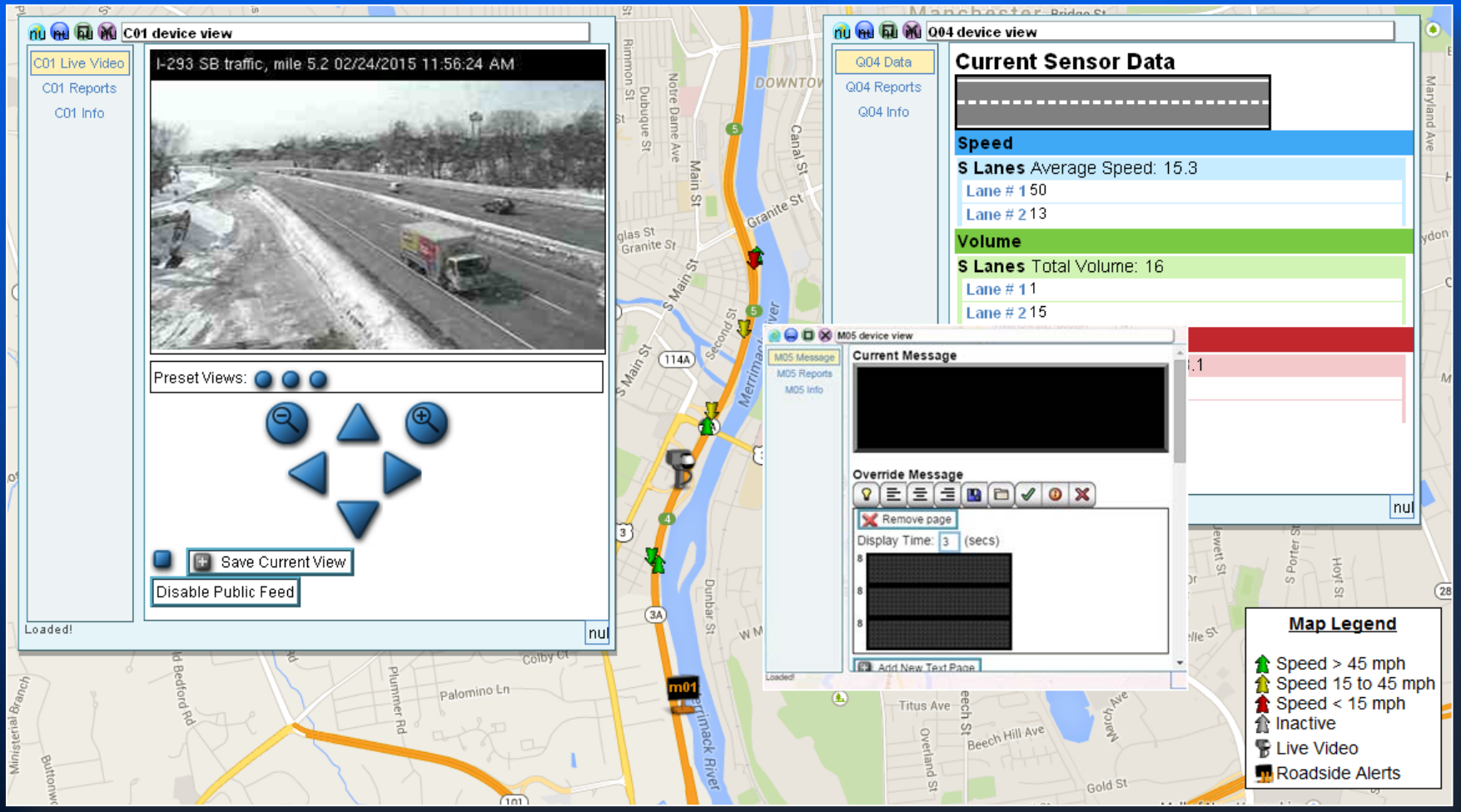
Road and Weather ITS Systems are used to improve response to Weather Related Incidents



Travel Times will provide traveler info in areas of Recurring Congestion



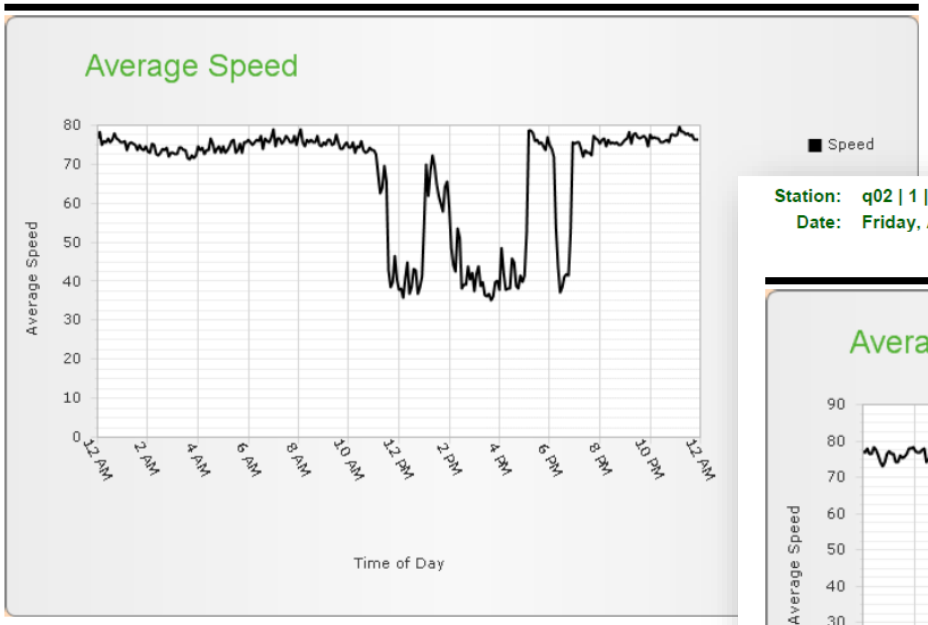
WorkZone ITS provides temporary traveler information during construction



WorkZone ITS Data can provide situation awareness as project phases are complete.

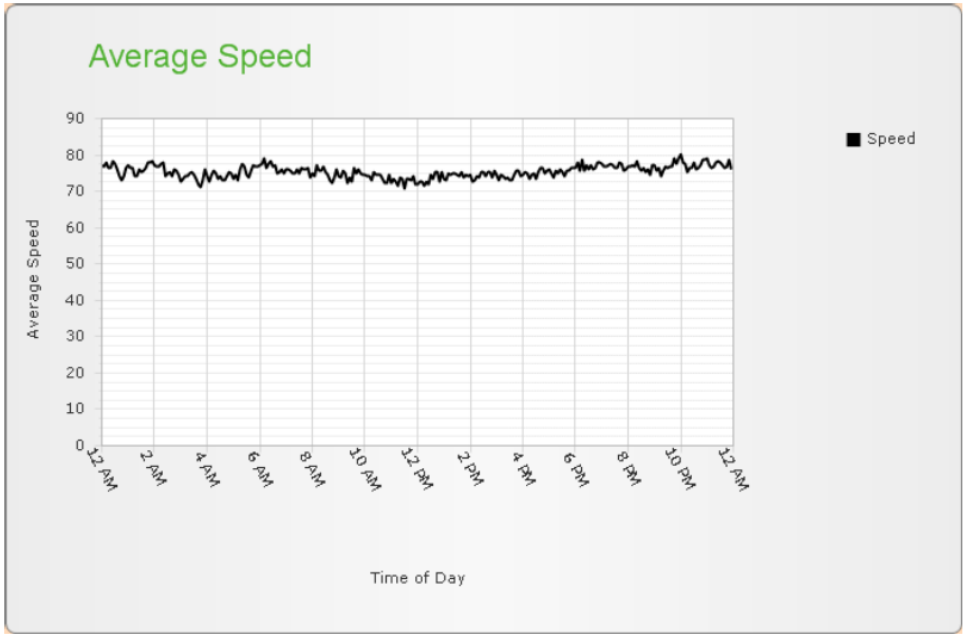
Station: q02 | 1 | I-93 NB | 00.60 | N | 000033
Date: Friday, Jul 31, 2015 Interval Size: 5 Minute

Average Speed



Station: q02 | 1 | I-93 NB | 00.60 | N | 000033
Date: Friday, Aug 07, 2015 Interval Size: 5 Minute

Average Speed



Contact Information

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http://www.Newington-dover.com/

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THANK YOU

Questions/Comments

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New Hampshire
DOT
Department of Transportation

DRIVING TOWARD ZERO
One Death Is Too Many

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