

# **NEWINGTON-DOVER**

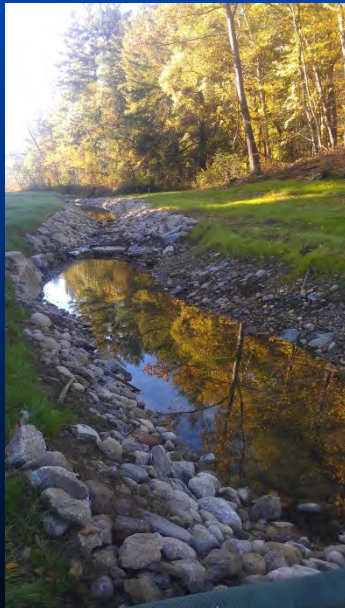
## **Improvements to NH Rte. 16 / Spaulding Turnpike / Little Bay Bridges**

Tenants Association at Pease

AT

Great Bay Community College

May 16, 2016



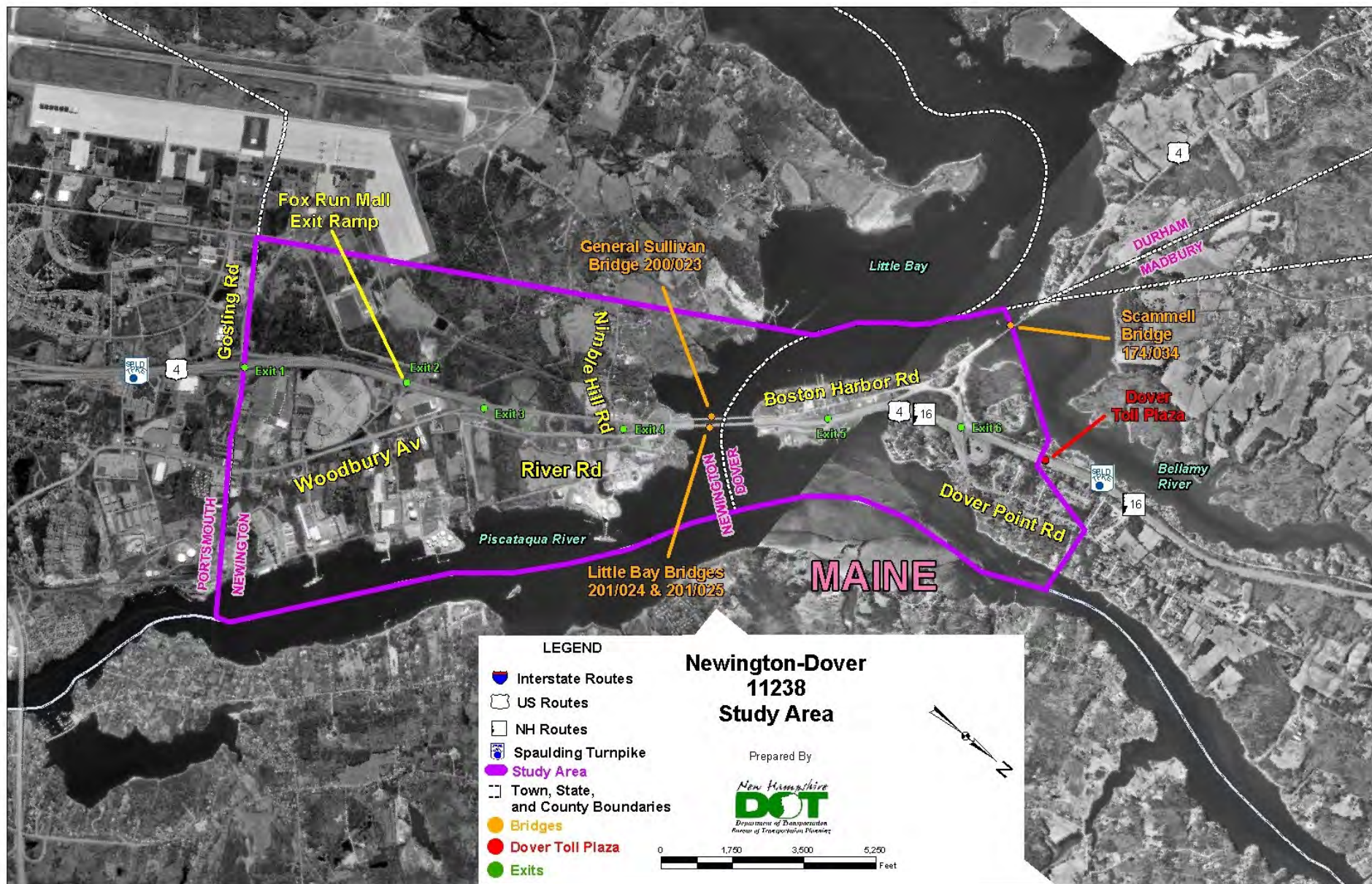
# Meeting Agenda

- **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**
    - **Condition & Status - General Sullivan Bridge**





# Project Area





# Project Need





# Project Need



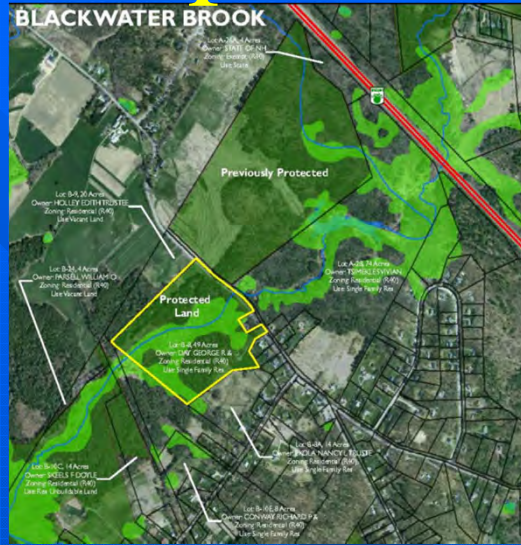
# Project Funding & Estimated Cost



- Total Estimated Project Cost - \$269.7M
  - Engineering - \$20.4M
  - ROW - \$8.9M
  - Environmental Mitigation & TDM (Bus, Park'n'Rides) - \$20.9M (2010 Dollars)
    - ❖ \$12.66M federal CMAQ & Advanced ROW funding
  - Construction - \$207.2M (2010 Dollars)
    - \$219.5M (w/ inflation)
  
- Project Primarily Funded with Turnpike Toll Revenue & Bond Proceeds
  - \$31.4M dedicated Federal Earmarked Funds & Grants
  - CMAQ/Federal Funding for TDM Elements (P&R)
  - Final two contracts to be paid through combination of toll revenue and bonding, and is on schedule as approved through the State Ten Year Transportation Improvement Plan (STIP-2014).



# Components



- Environmental Mitigation - \$4.37M (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)

# NEWINGTON-DOVER 11238

## Park 'n' Ride

- Park'n'Ride at Exit 9 in Dover – completed (\$3.49M)
- Park'n'Ride at Exit 13 in Rochester - completed (\$1.35M)
- Multi-use Park'n'Ride in Lee – CMAQ Location under review (est. \$85k)





# NEWINGTON-DOVER 11238

## Improved Downeaster Rail Service

- CMAQ Investment of \$2.0 M with N-D Turnpike Match



# NEWINGTON-DOVER 11238

## Expanded Transit Service

- ❖ NH – Boston Bus Service (C&J)
- ❖ Express Coast Bus Service from Rochester, Dover, Somersworth/Berwick to Portsmouth Naval Shipyard
- ❖ Direct Bus Service – COAST Bus Service from Rochester to Pease





# NEWINGTON-DOVER 11238

## Transportation Demand Management

- ❖ Commute SMART Seacoast – a new Transportation Management Association (TMA) to promote:
  - Carpooling/vanpooling
  - Ride mass transit
  - Bicycle/walk
  - Telecommuting
  - Compressed work schedules
- ❖ Focus is employers and employees at Pease and within the Greater Seacoast
- ❖ More information at [www.commuteSMART.org](http://www.commuteSMART.org)



# NEWINGTON-DOVER 11238



Post Construction

Pre-Construction

NEWINGTON  
SOUTHERLY  
RENDERING





# NEWINGTON-DOVER 11238



Post Construction

Pre-Construction



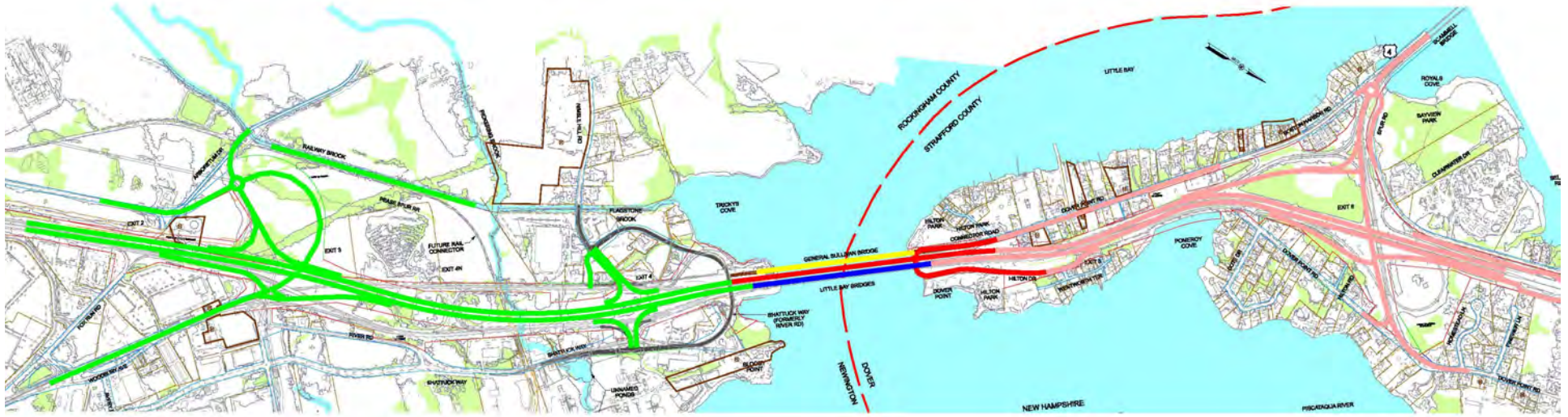
DOVER  
NORTHERLY  
RENDERING

# 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      |
|------------|------|------|------|------|----------|----------|------|------|-----------|------|------|-----------|
| CONTRACT L |      |      |      |      | \$54.1 M |          |      |      |           |      |      |           |
| CONTRACT M |      |      |      |      |          | \$48.8 M |      |      |           |      |      |           |
| CONTRACT O |      |      |      |      |          |          |      |      | \$34.0 M* |      |      |           |
| CONTRACT Q |      |      |      |      |          |          |      |      |           |      |      | \$49.2 M* |
| CONTRACT S |      |      |      |      |          |          |      |      |           |      |      | \$31.7 M* |

- Contracts Q & S estimate and schedule subject to change

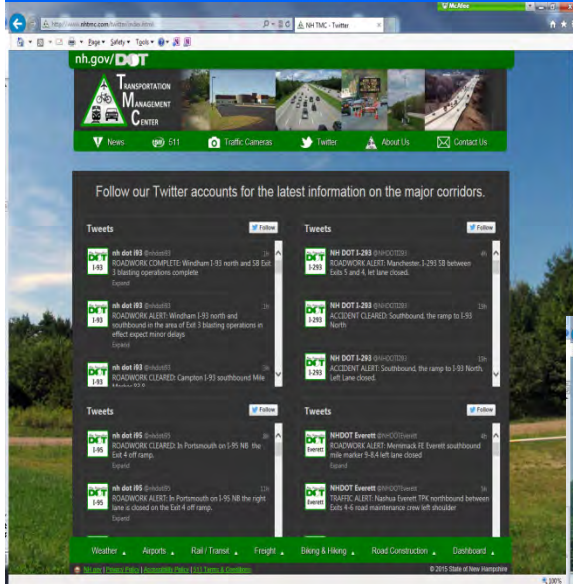
# CONSTRUCTION OUTREACH



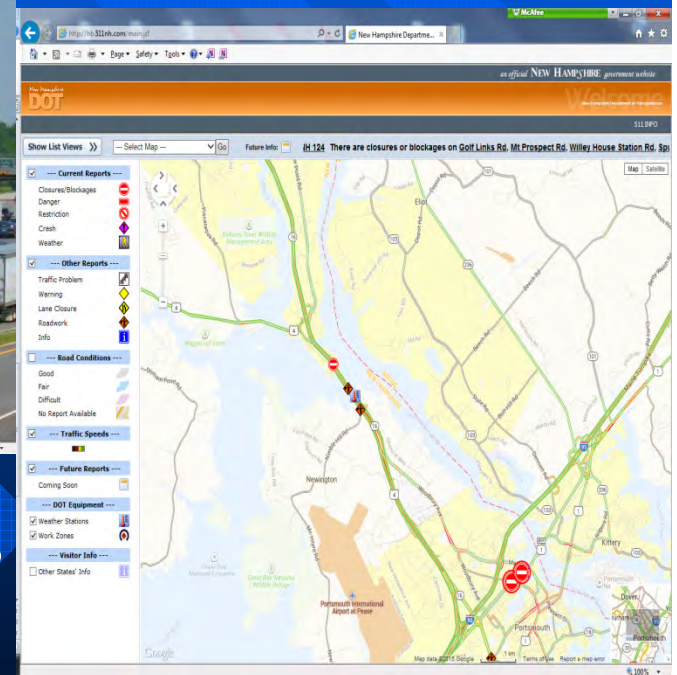
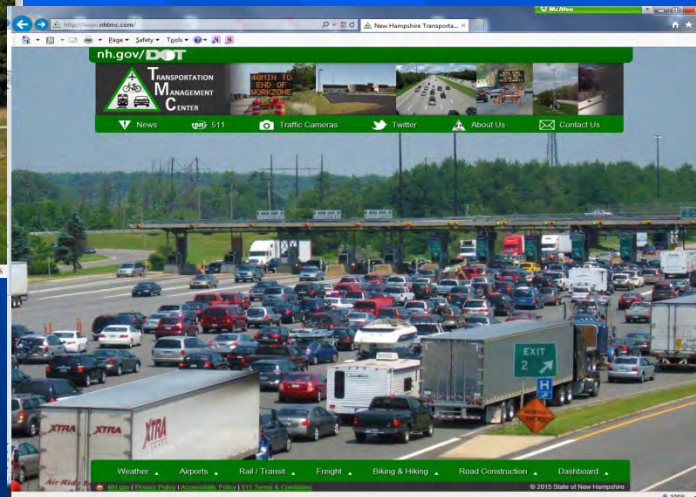
WEB SITE: [www.newington-dover.com](http://www.newington-dover.com)



# CONSTRUCTION OUTREACH



TWITTER



TRAFFIC CAMERAS

■ For traveler/real-time information, please visit [www.nhtmc.com](http://www.nhtmc.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

## Little Bay Bridge



**Temporary Trestle to Construct Phase I - Cost  
\$5 Million (2010-12)**



# Construction – Contract L

## Little Bay Bridge

FOUR YEARS IN  
SIX PHOTOS



# Construction – Contract L

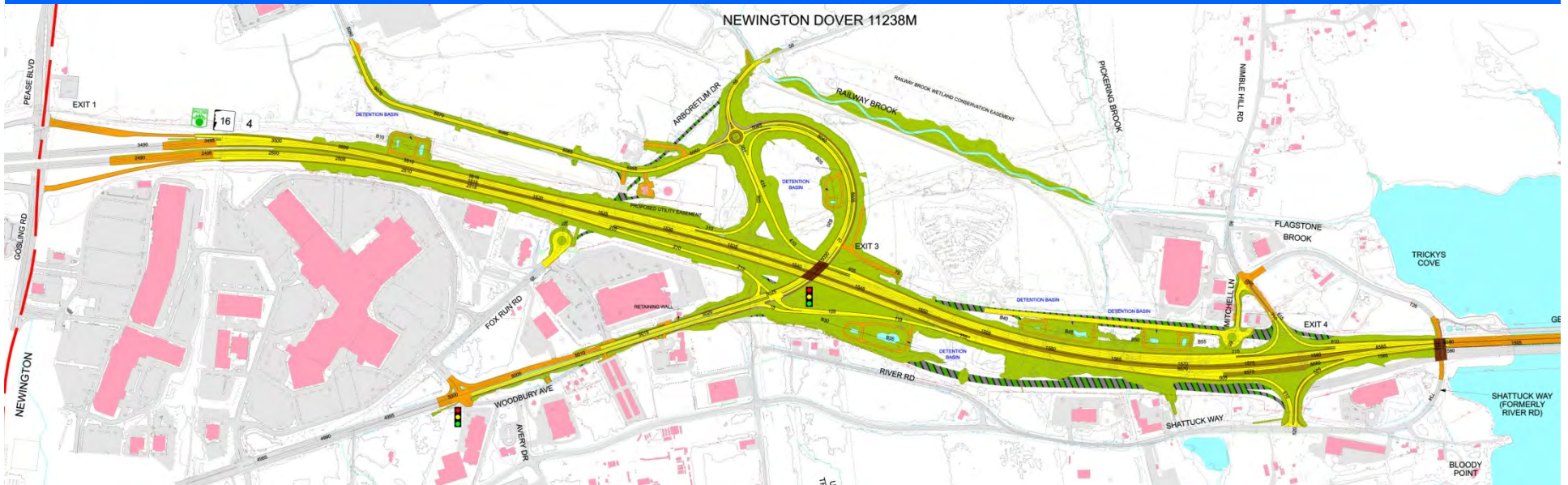
## Ped and Bikeway

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





# Contract M



## Contract M Construction

- Contractor: A. J. Coleman
- Construction Cost: \$48.7M
- Construction Duration: 2012 – 2016
  - Completion May 20, 2016



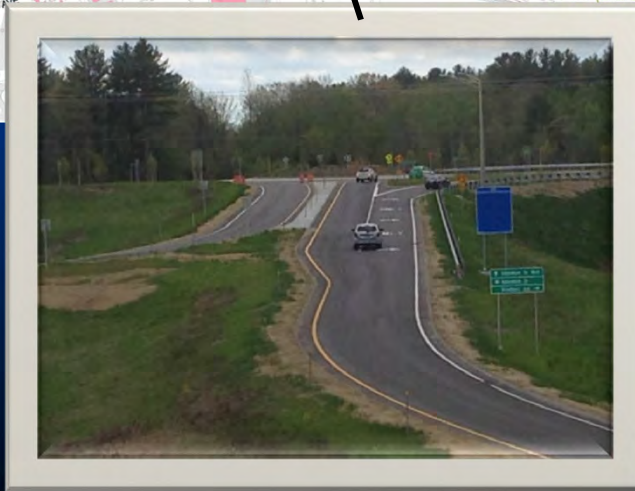
# Construction – Contract M





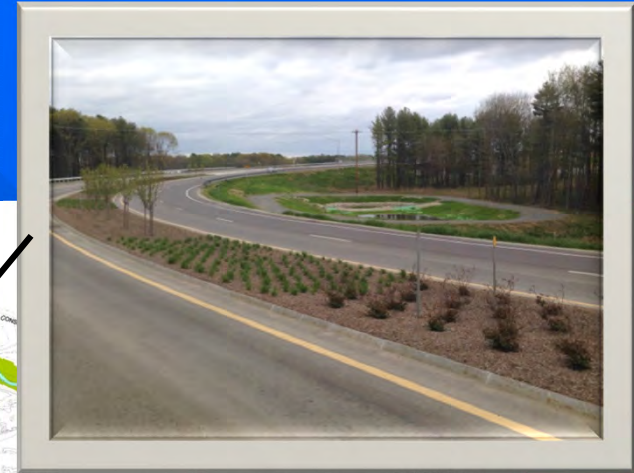
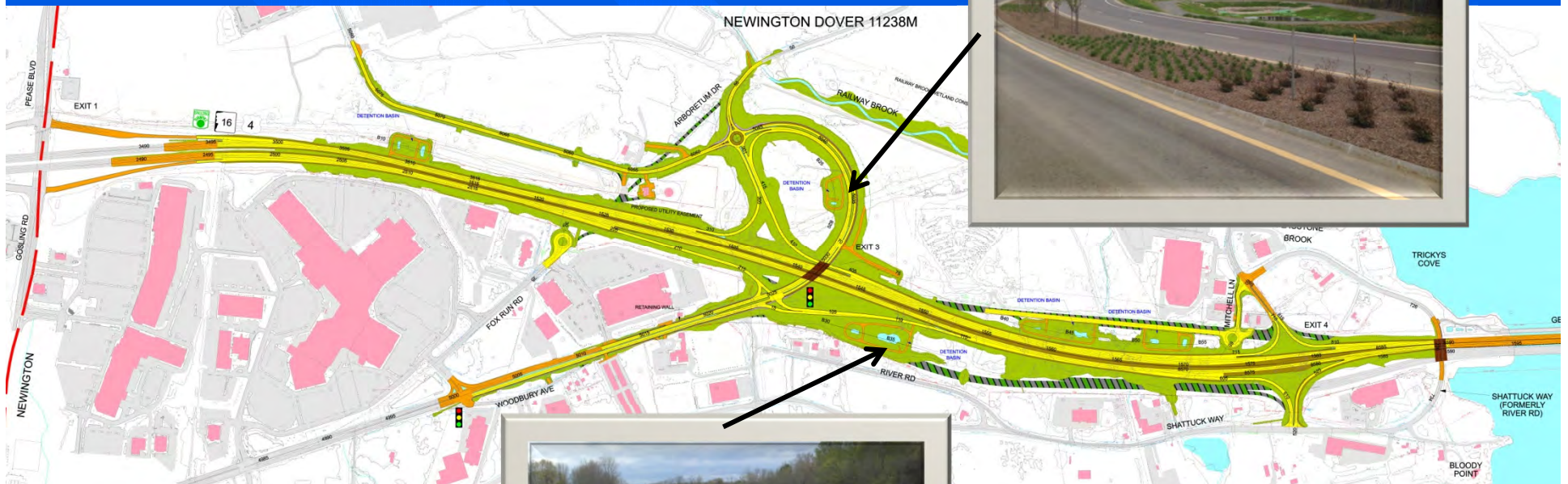
# Contract M

## ROADWAY CONSTRUCTION





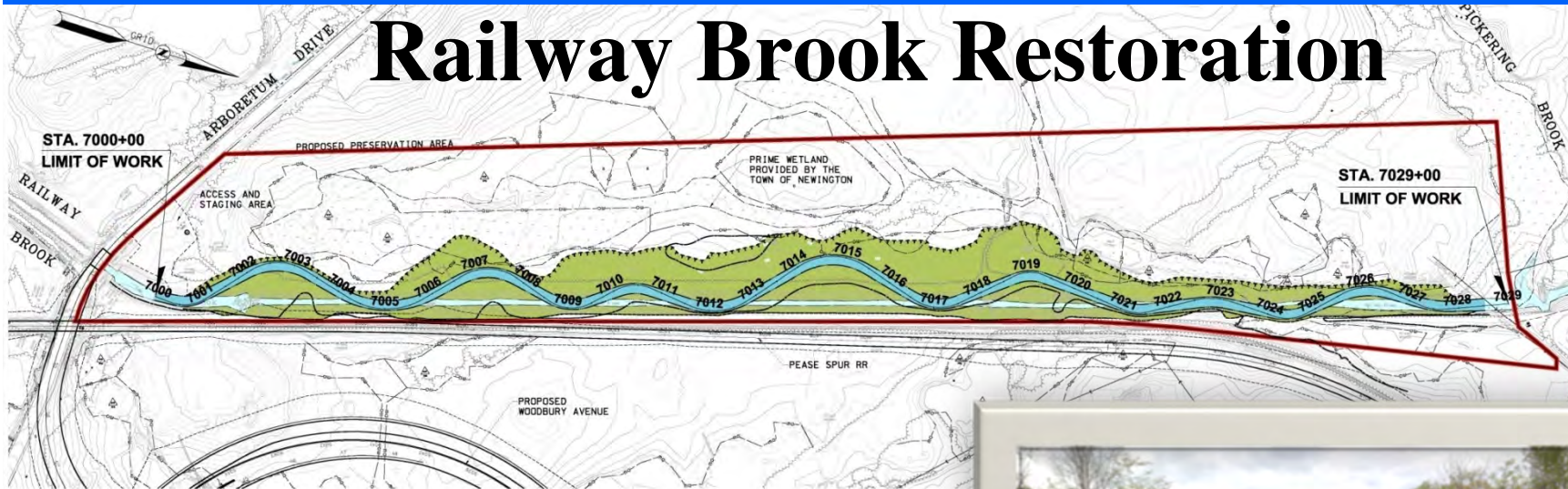
# Contract M (Stormwater Improvements)





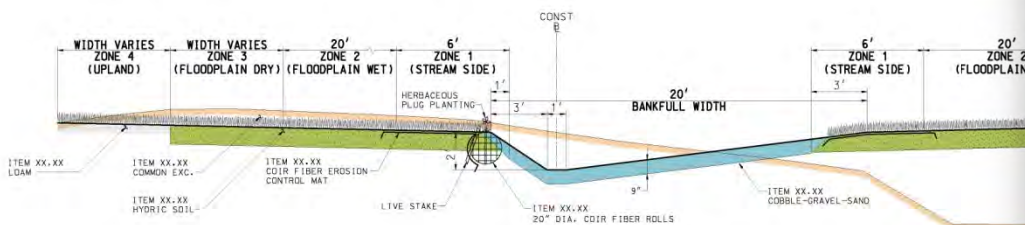
# Construction – Contract M

## Railway Brook Restoration



Plan View  
100 0 100 200  
SCALE IN FEET

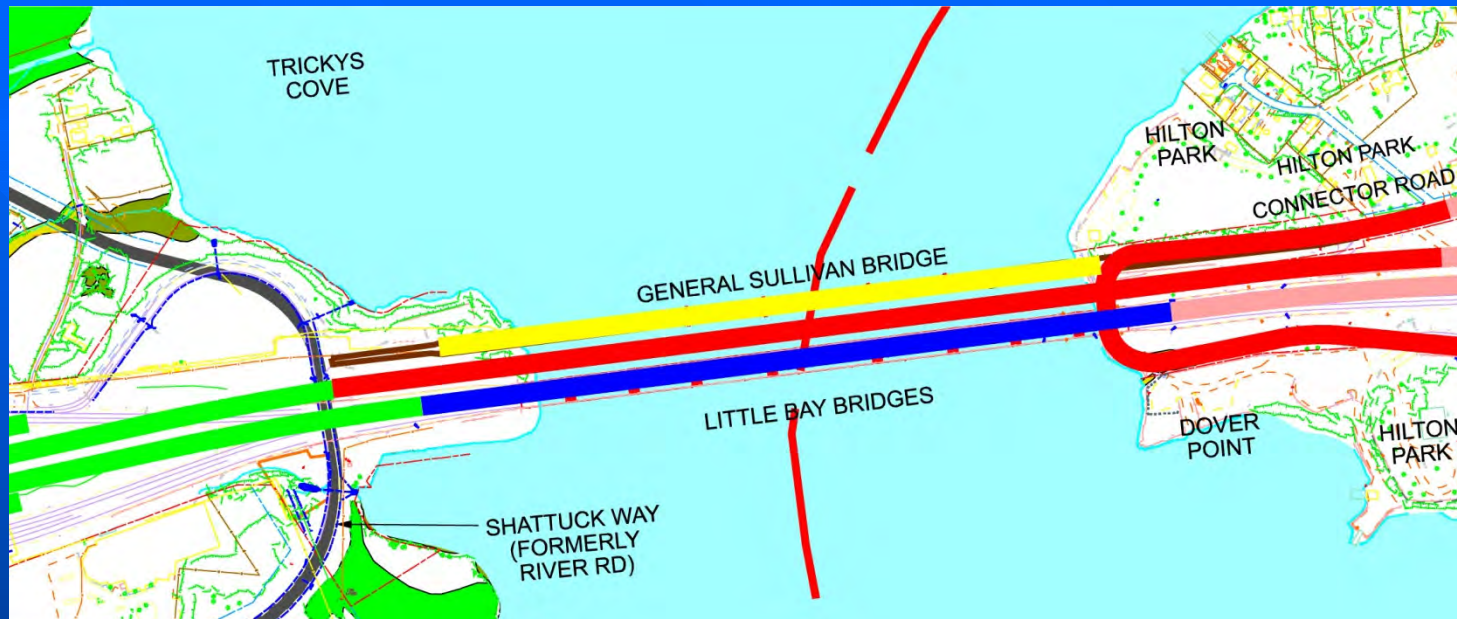
### CONCEPTUAL DESIGN



TYPICAL SECTION @ APEX OF MEANDER (LEFT)  
NOT TO SCALE



# Construction - Contract O

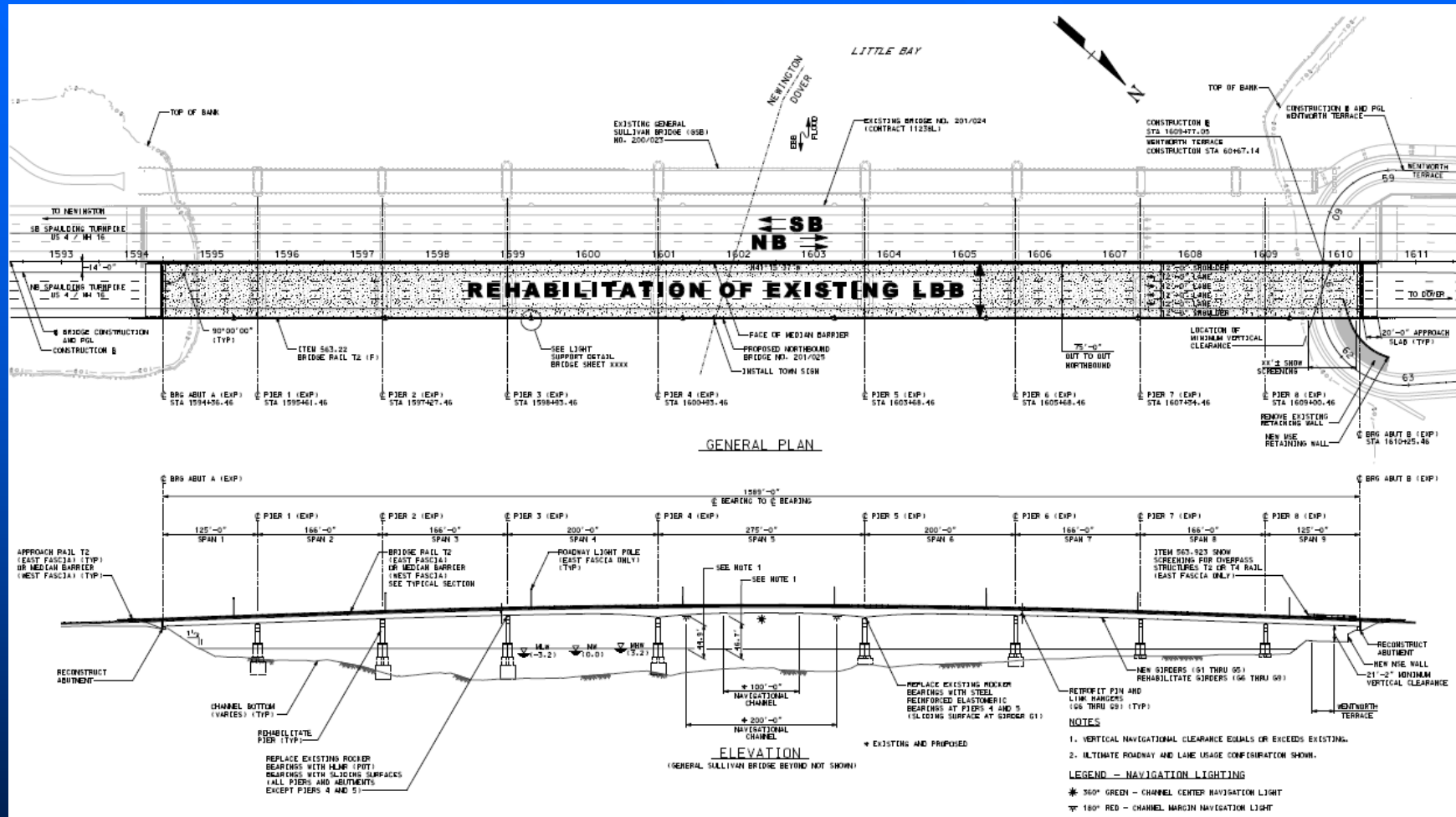


## Contract O – Existing Little Bay Bridges Rehabilitation

- Opened Bids on October 23, 2014 (\$20,444,479.01)
- Contractor: A. R. S. Audley, Inc.
- Construction Duration: 2015 – 2017
- Concurrent Construction with Contracts M and Q

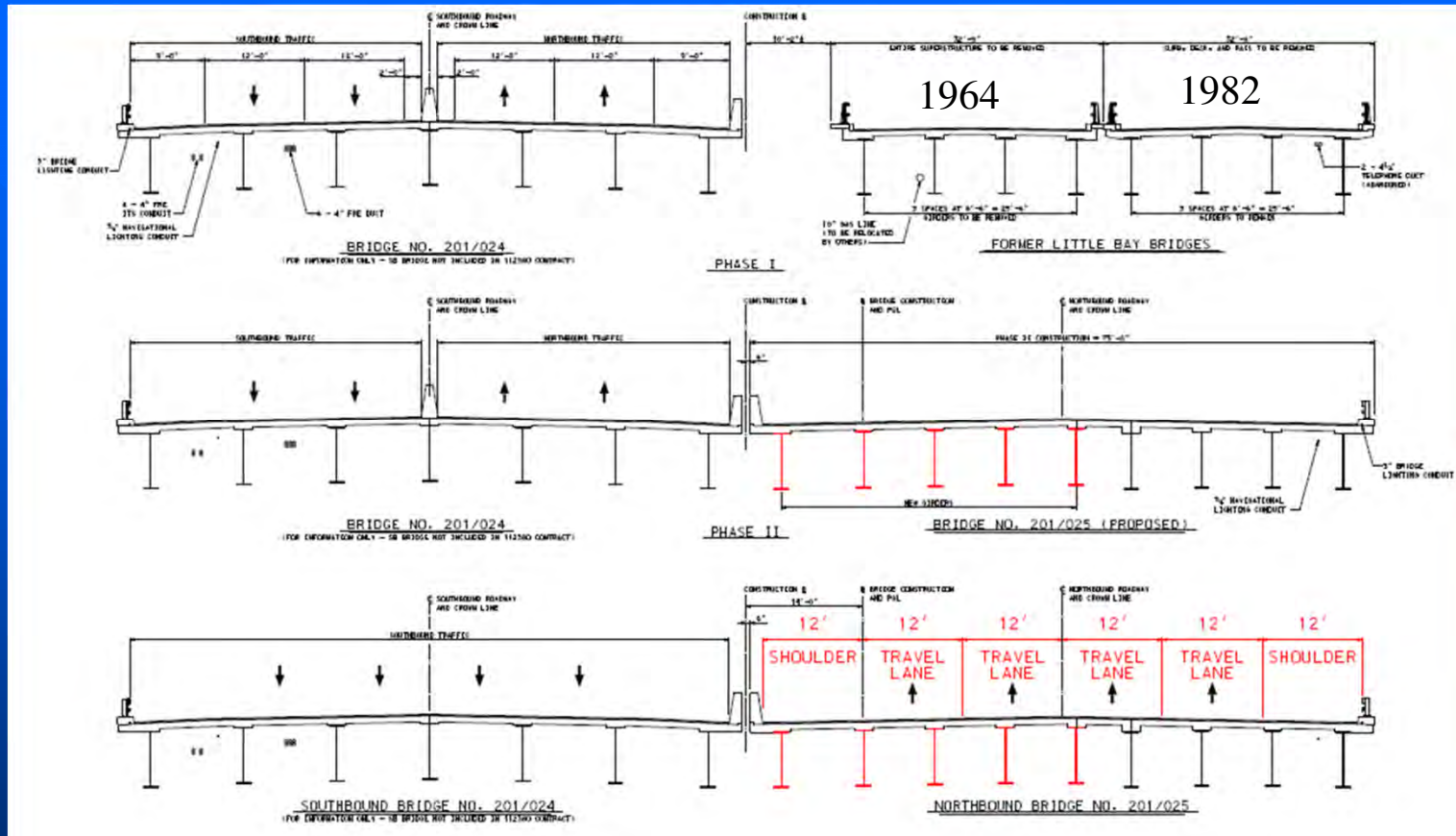


# Construction - Contract O



- Rehabilitates Existing 9 Span 1,589' Little Bay Bridges to provide Four Lanes of NB Traffic

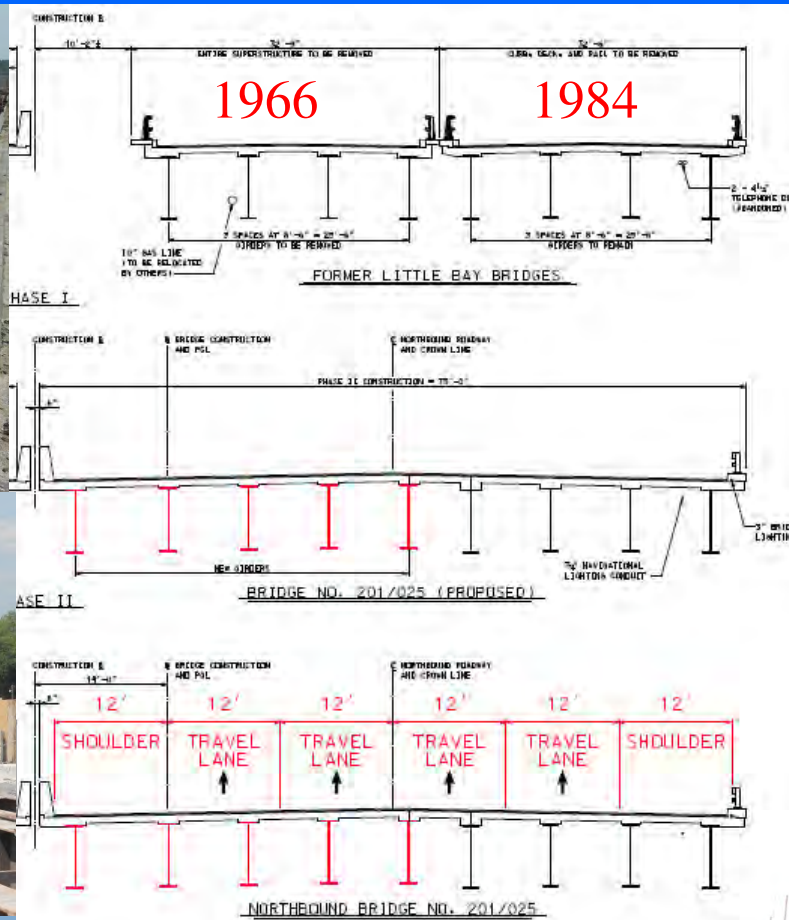
# Construction - Contract 0



- **Original Bridge Opened to NB Traffic in 1964 for NB Traffic with SB Traffic on General Sullivan Bridge**
- **Easterly Half of Bridge Opened to NB Traffic in 1982, SB Shifted to 1964 Bridge and General Sullivan Bridge Closed to Vehicular Traffic**



# Construction – Contract 0





# Contract Q



## Contract Q - Dover

- Advertising Date: May 24, 2016
- Estimated Costs: \$60.5 Million
- Construction: 2016 - 2020
- Completes and Opens All Spaulding Turnpike Improvements
- Concurrent Construction with Contracts O and S



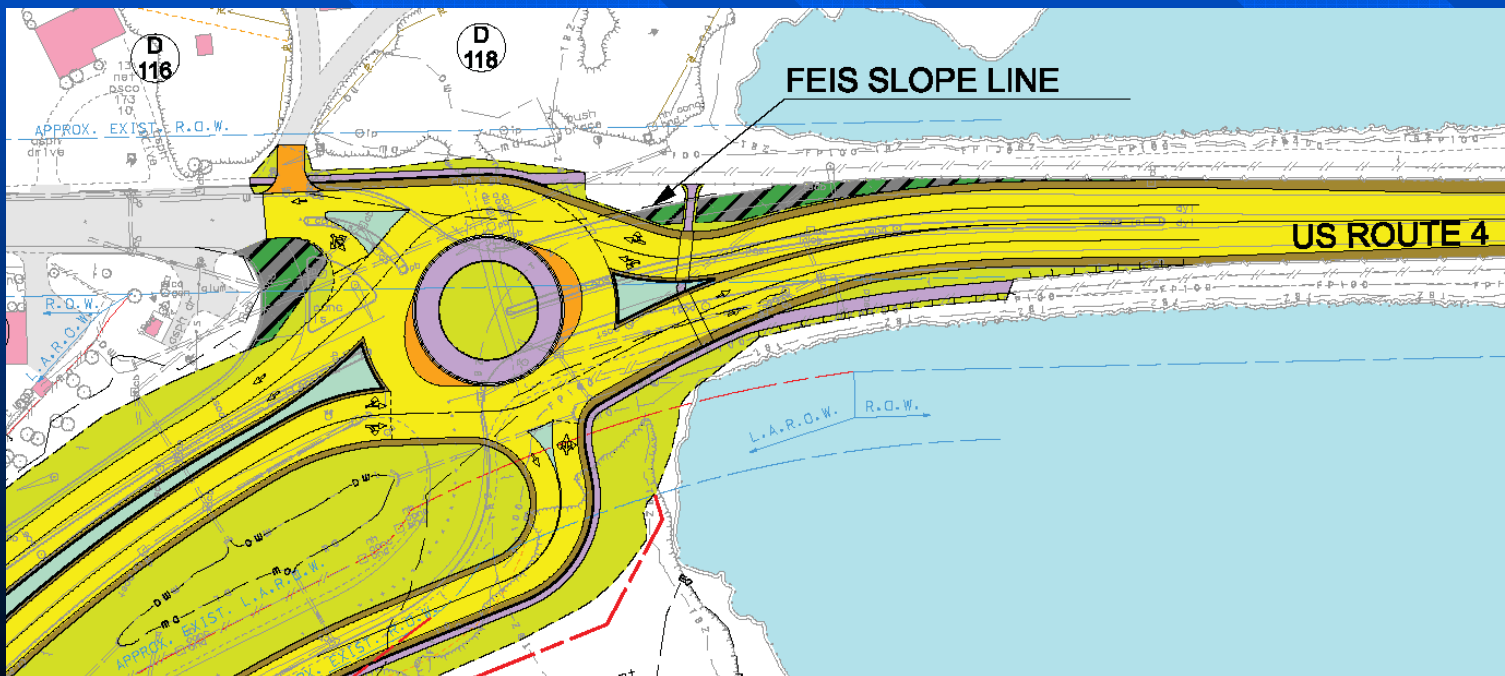
# Contract Q (continued)



- 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.

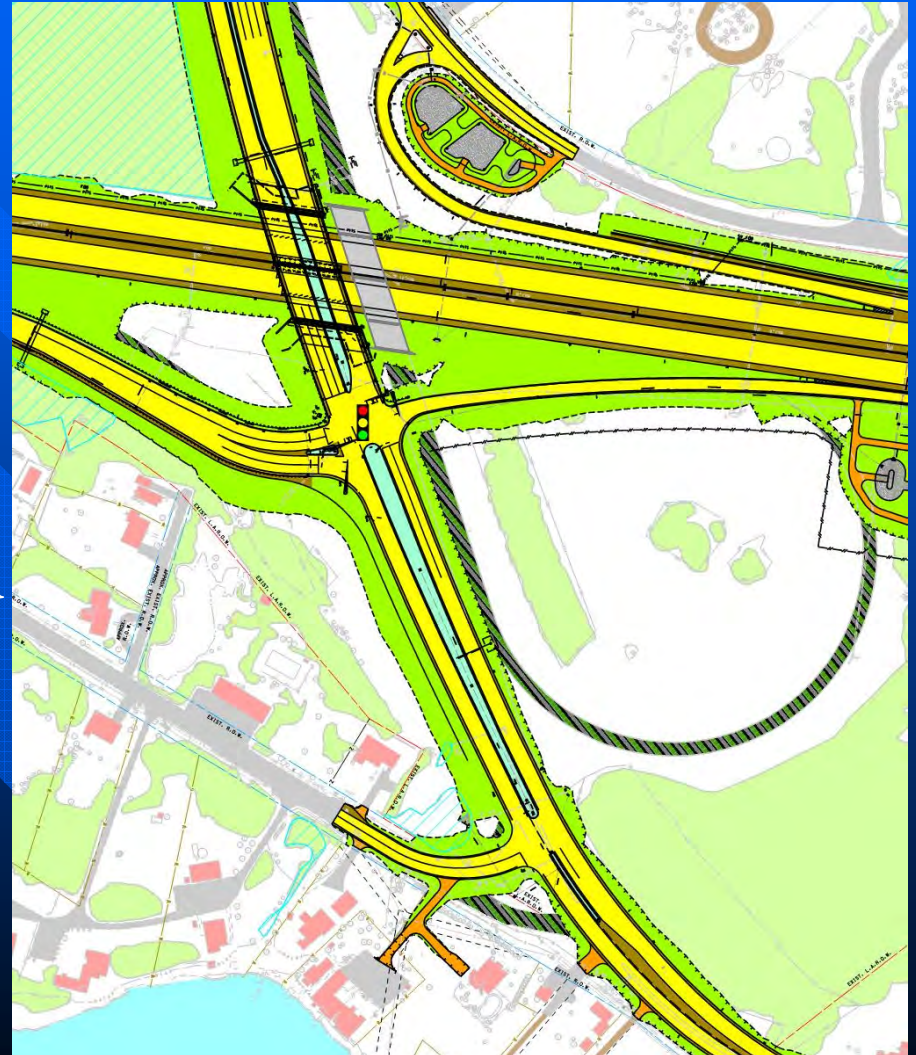
- Roundabout Replaces Signalized Intersection at Boston Harbor Rd.
- Two-Lane Hybrid Roundabout





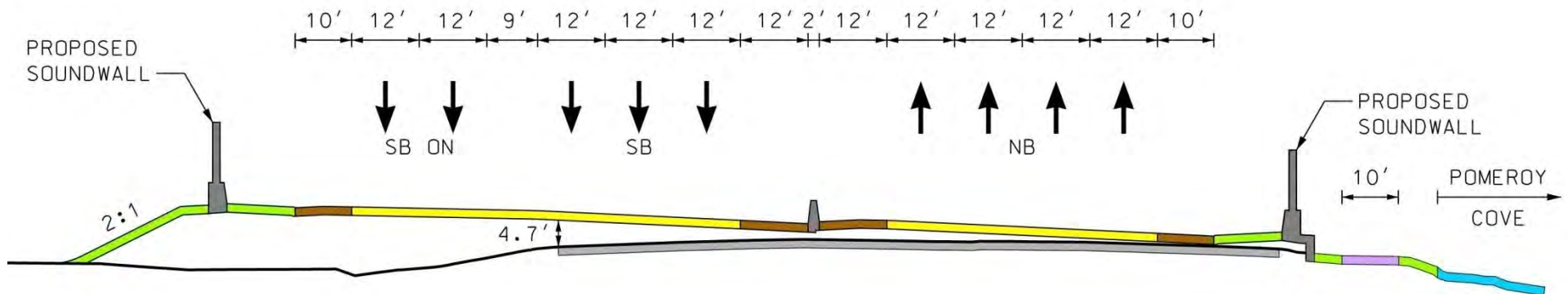
# Contract Q - Exit 6

- New Bridge South of Existing
- Signalized Intersection at Exit 6 NB Ramps
- New Eastbound Access Along Dover Point Road



# Contract Q

## Spaulding Turnpike



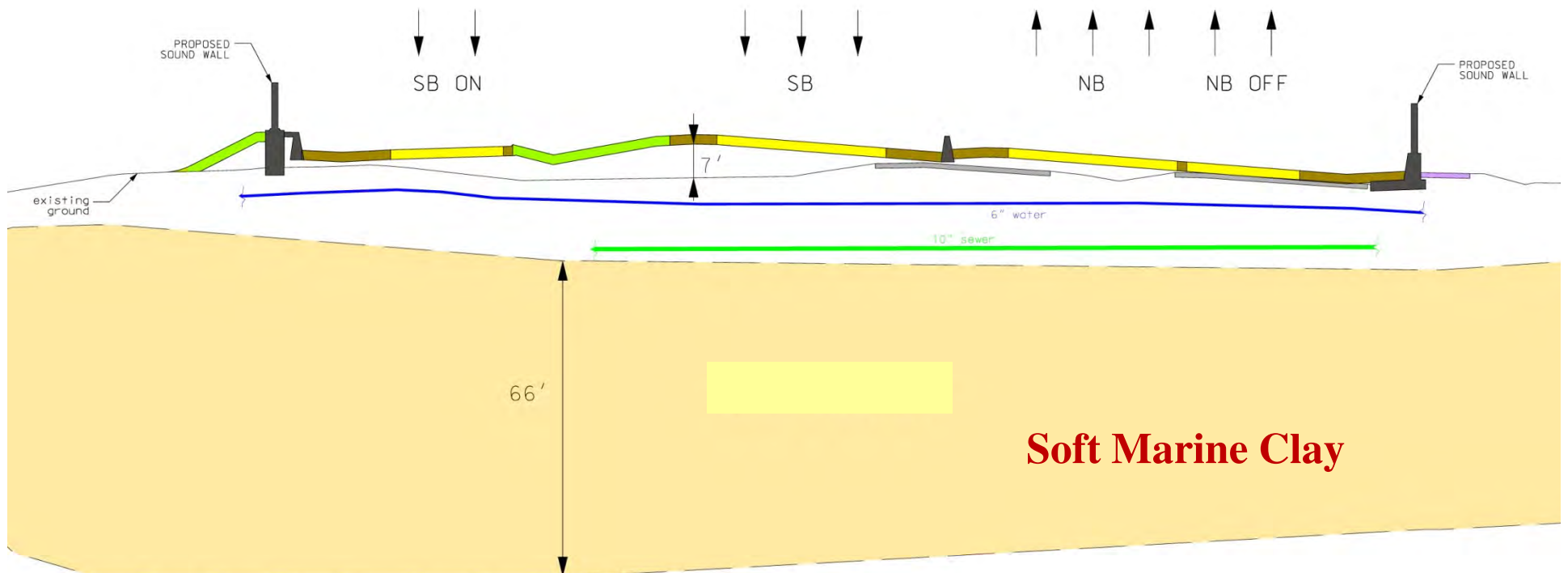
- 40' of Spaulding Turnpike Widening
- SB Raise in Elevation
- Soundwalls along NB and SB
- Pomeroy Cove Bike and Pedestrian Paved Pathway (10' wide) is maintained



# Engineering Challenges

## Cross Section

### Just North of Pomeroy Cove



# Settlement Platform Constructed under Contract M



## Initial Construction Phase

- Exit 5 Test Embankment Area
- Settlement Testing
- UNH Study



# Settlement Platform

## Embankment Area

- Installation of Sand Drains



Settlement  
Monitors

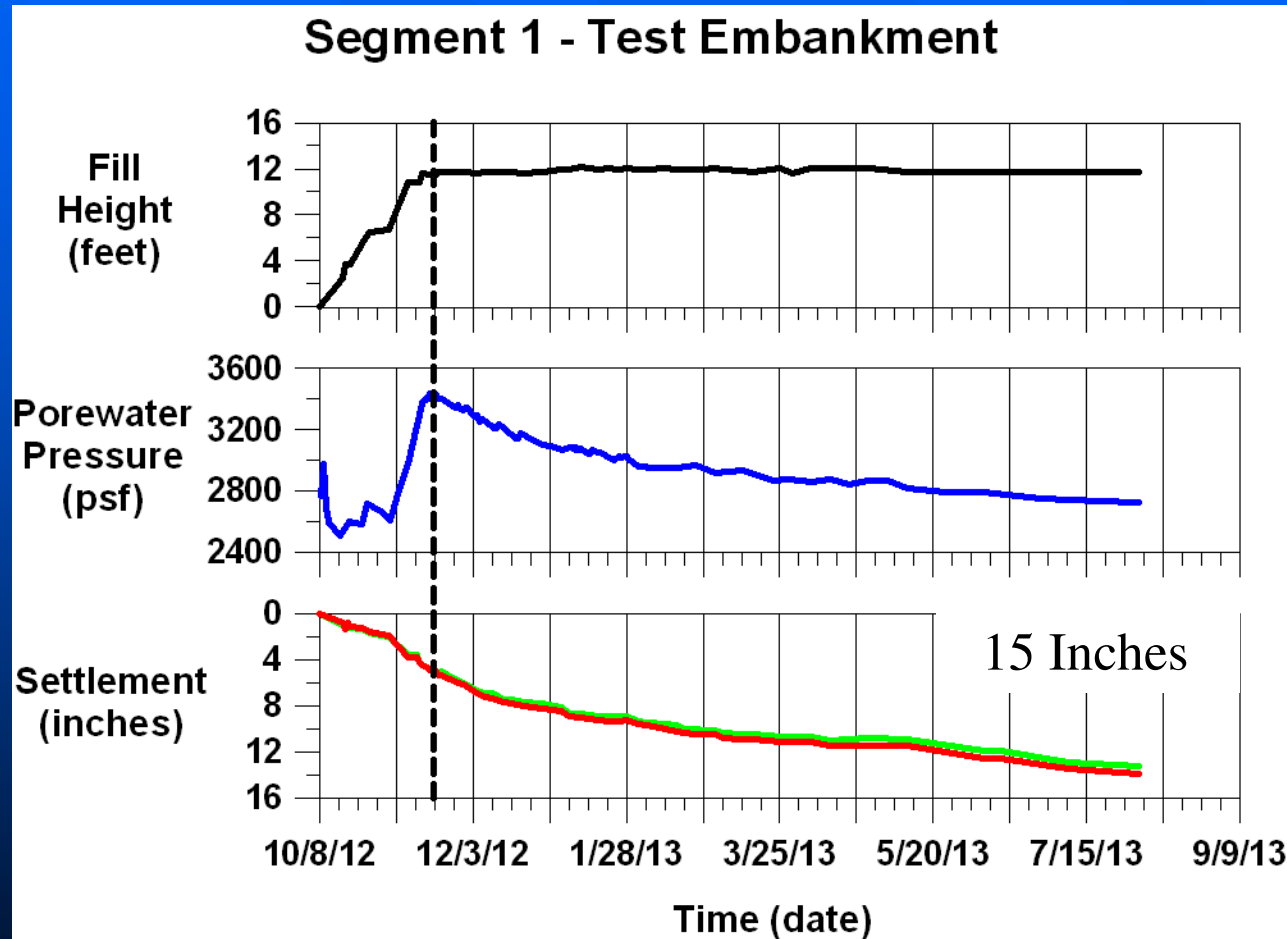


Sand Wick Drains



# Contract Q

## Soft Soil Settlement Predictions



- Over eight months, have seen over 15 inches of settlement
- Anticipate settlement periods of 45 days to be included in each construction phase

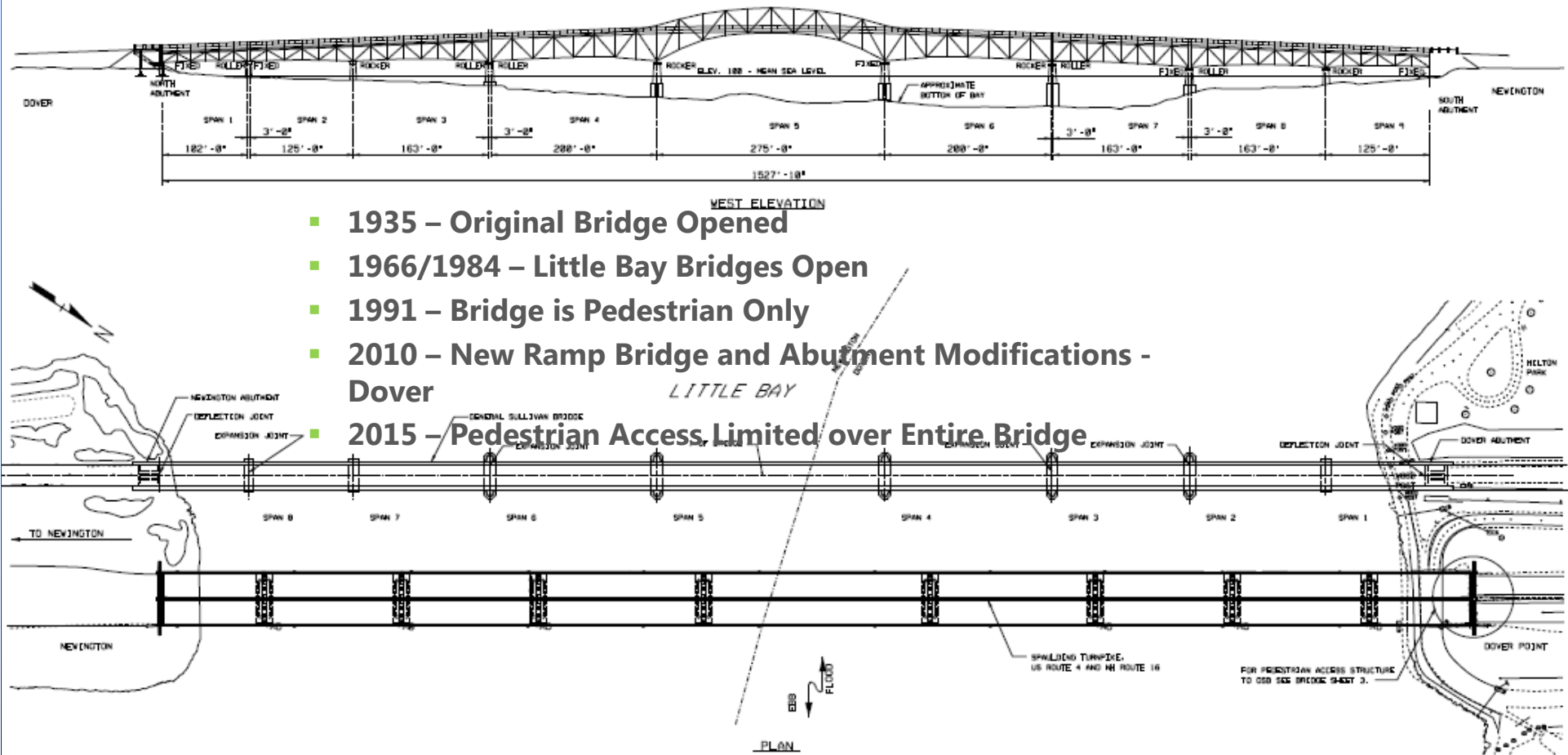


# Contract S – General Sullivan Bridge Rehabilitation



- Tentative Advertising Date: Late 2018
- Tentative Construction: 2018 – 2021
- Concurrent Construction with Contract Q

# Contract S - General Sullivan Bridge



- 1935 – Original Bridge Opened
- 1966/1984 – Little Bay Bridges Open
- 1991 – Bridge is Pedestrian Only
- 2010 – New Ramp Bridge and Abutment Modifications - Dover
- 2015 – Pedestrian Access Limited over Entire Bridge

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



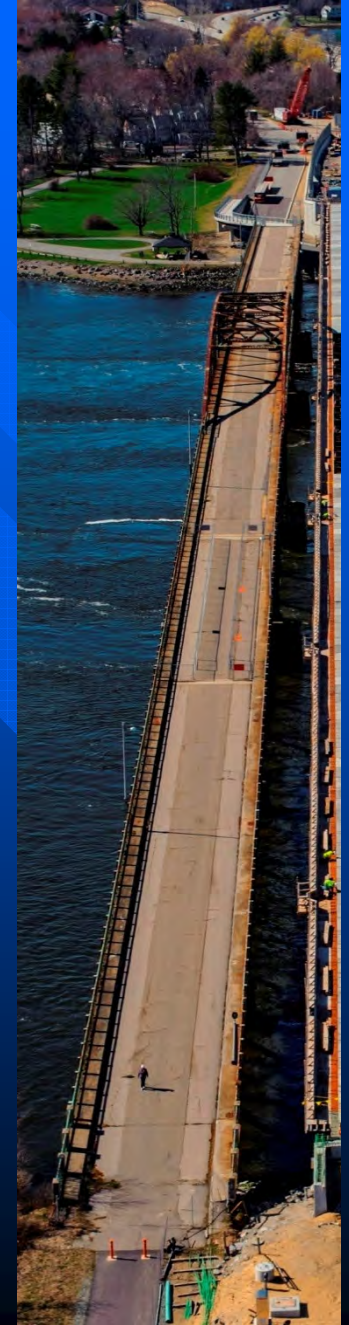
# General Sullivan Bridge - Work To Date



- 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 Sept. 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



**Spans 1-2-3 (Dover)**



**Spans 7-8-9 (Newington)**



**Spans 4-5-6 (Center Spans)**



# General Sullivan Bridge

## 2014 Inspection Overview





# General Sullivan Bridge 2014 Inspection Deck





# General Sullivan Bridge 2014 Inspection

## Stringers





# General Sullivan Bridge 2014 Inspection

## Truss Members





# General Sullivan Bridge - Next Steps

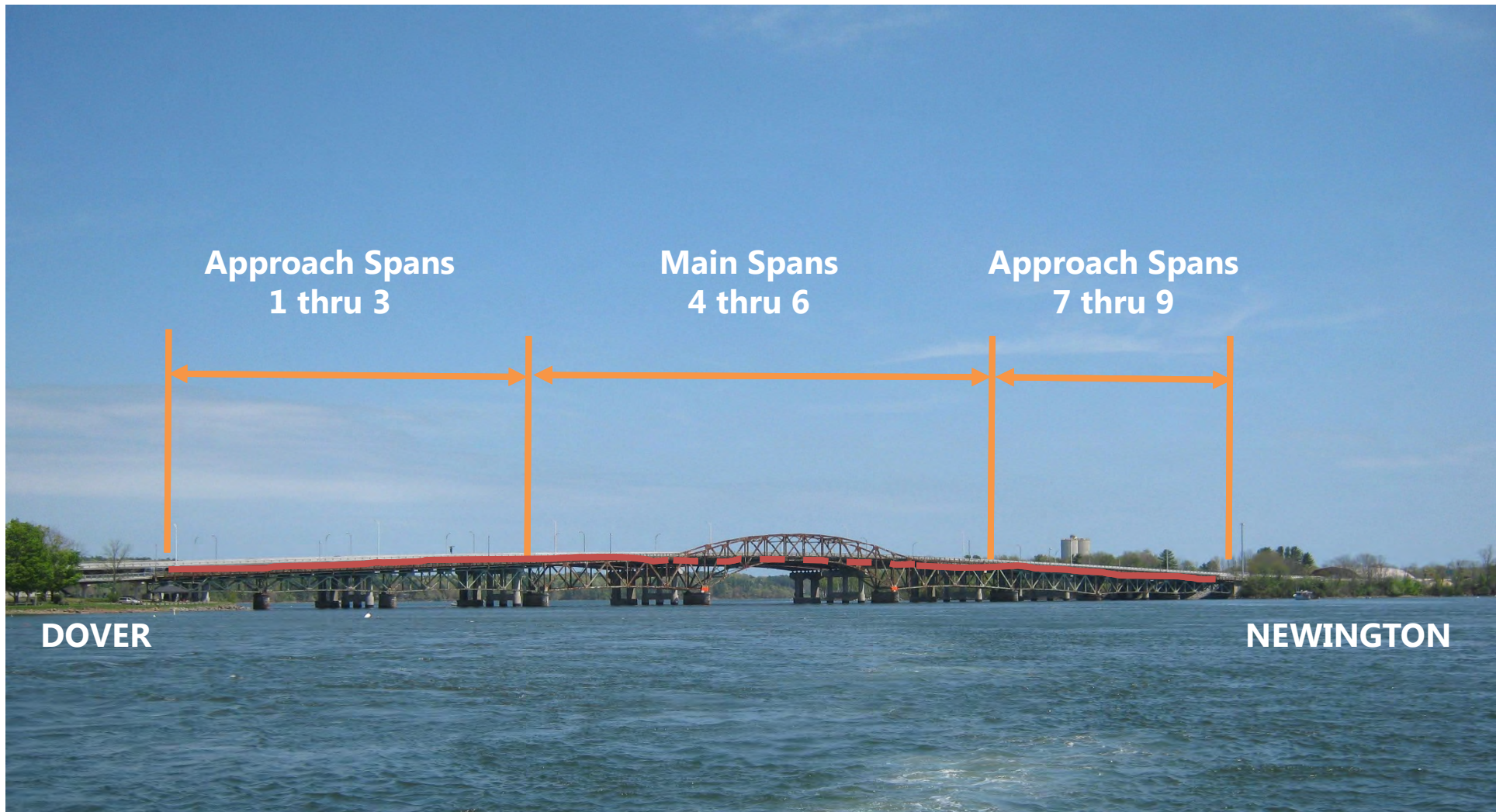
## TS&L Study Alternatives



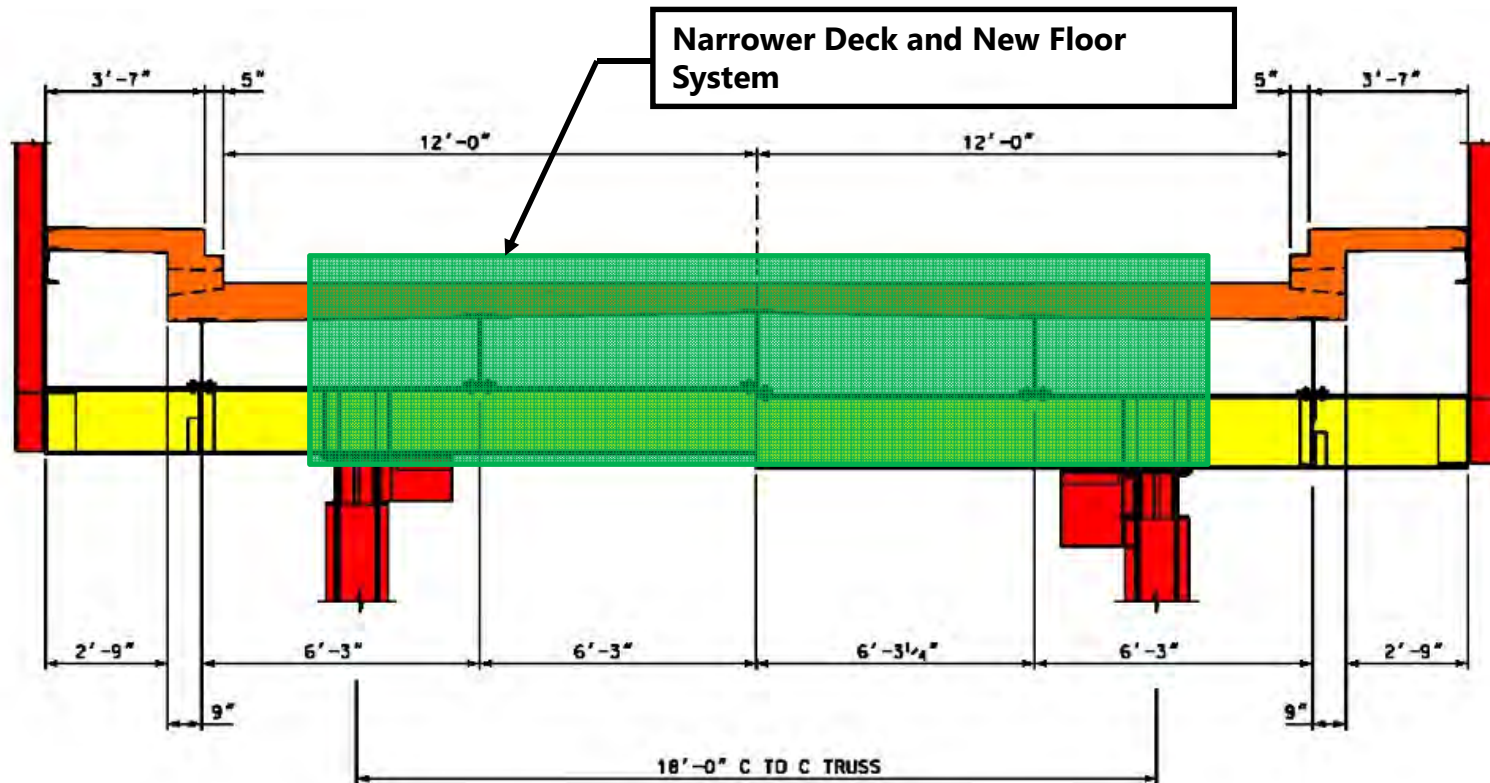
### ■ Assess Rehabilitation & Replacement Options

- Alternative #1 - Rehabilitation (including new floor system, deck, and railings)
  - ❖ 1A = 21' wide deck; 1B = 16' wide deck
- Alternative #2 - Complete Superstructure Replacement, Retain Substructure
  - ❖ 2A = Steel Girder; 2B = Concrete Girder; 2C = Metalized Truss
- Alternative #3 - Rehabilitation of Spans 4 thru 6, Replacement of Spans 1 thru 3 and 7 thru 9 with new metalized trusses (simple spans), Retain Substructure
- Alternative #4 - Complete Bridge Replacement (for broad cost comparison only)



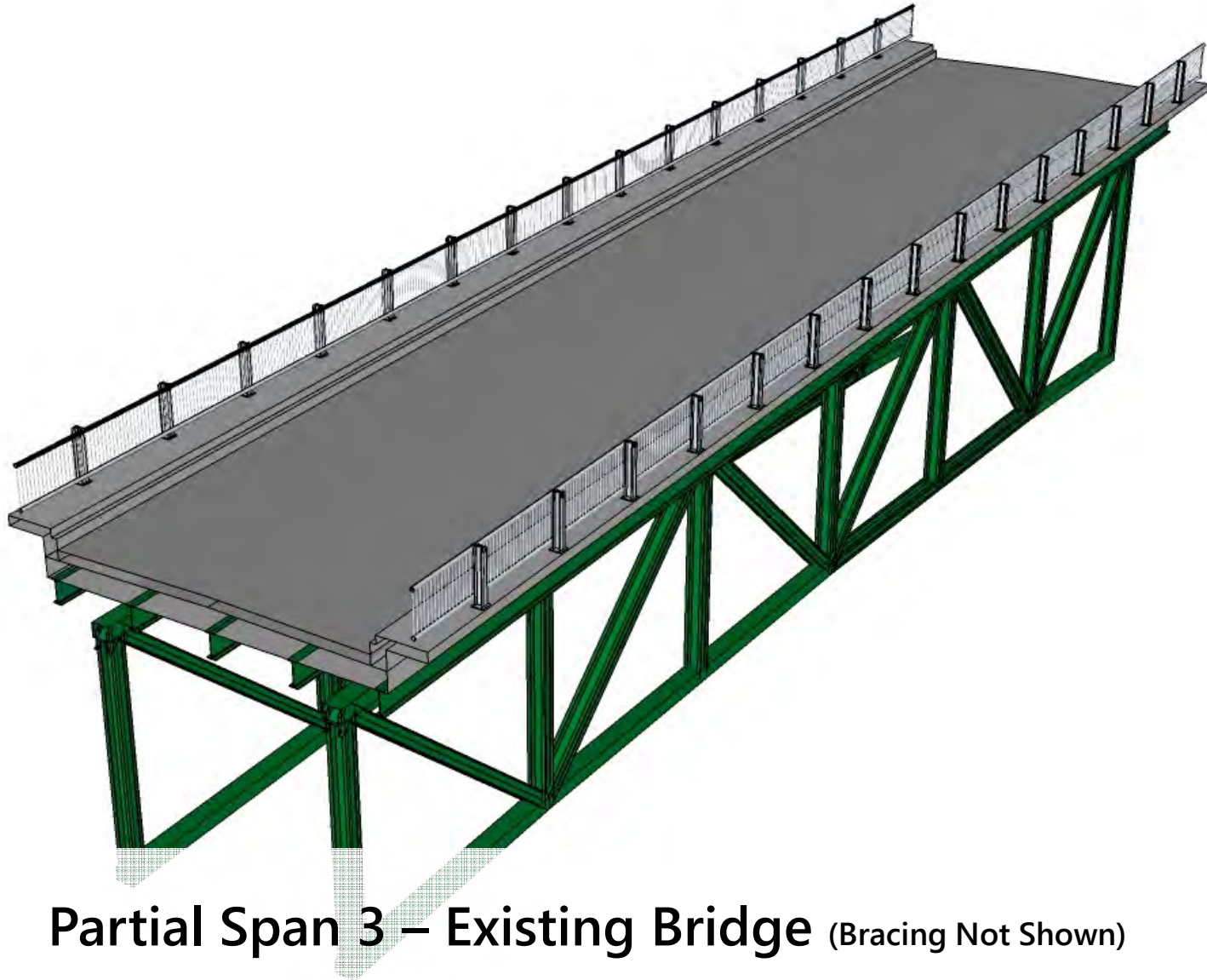


## Alt. #1 - Rehabilitation

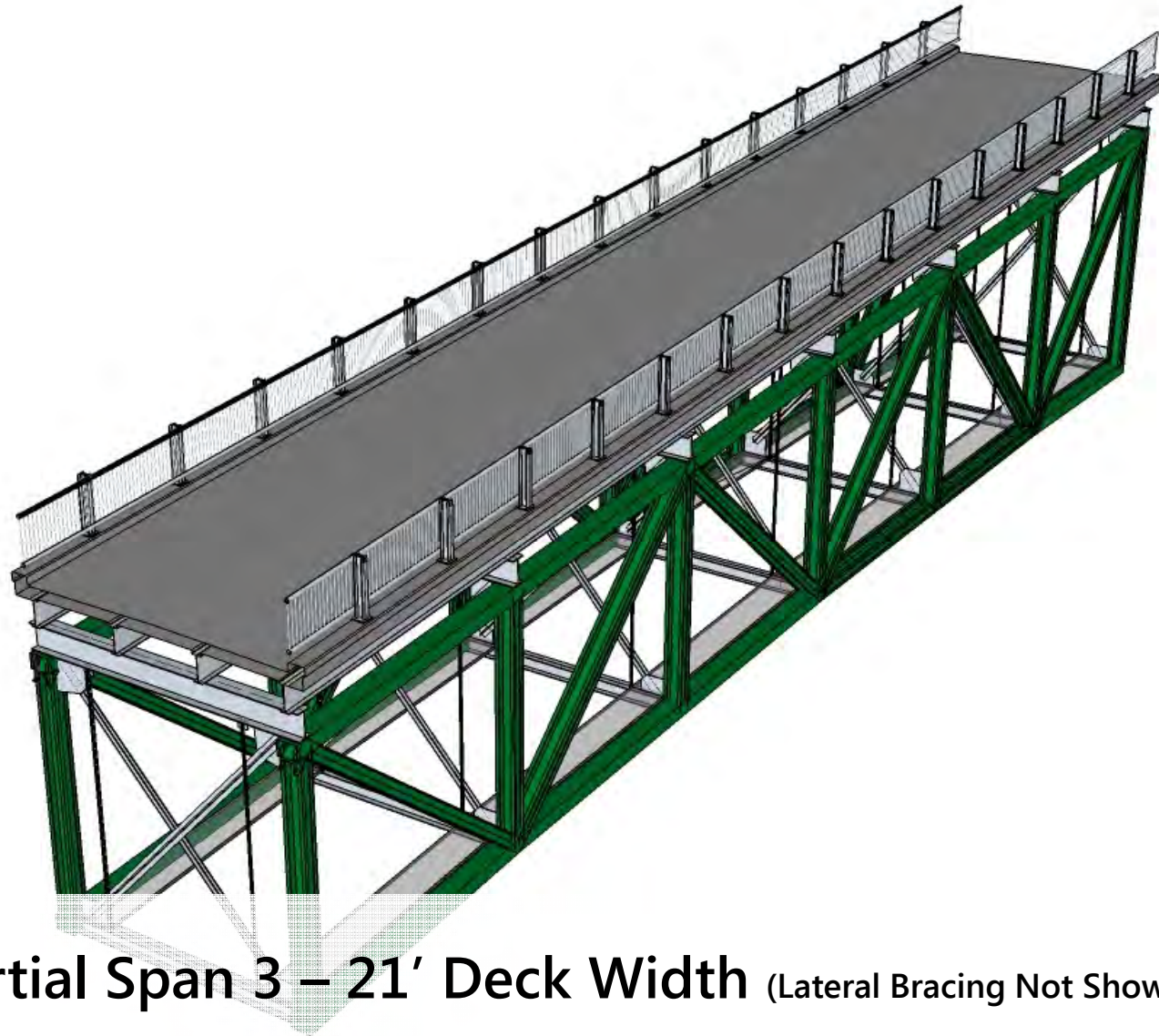


**Alt. #1 – Rehabilitation Section**  
(Approach Spans shown)



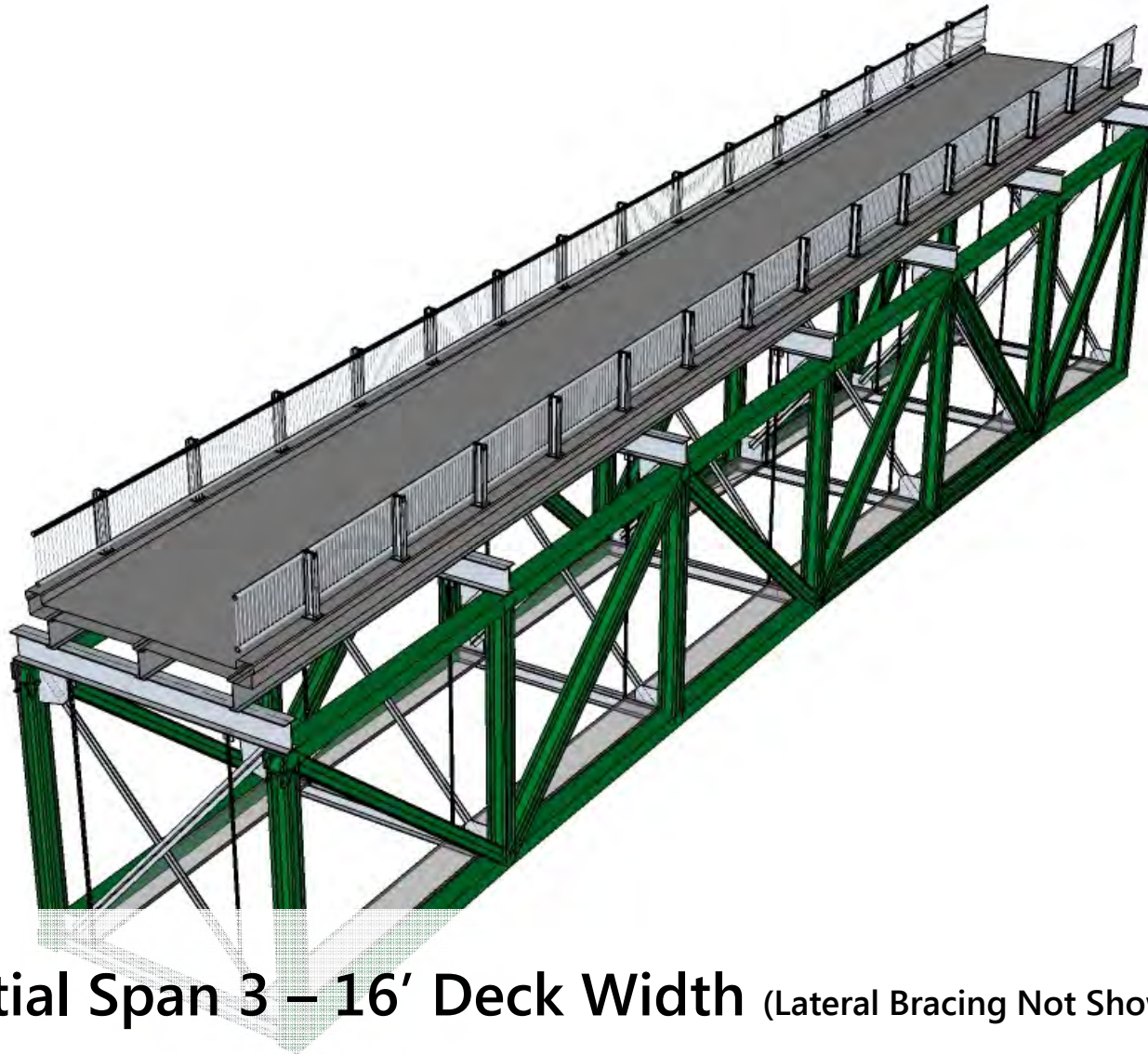


**Partial Span 3 – Existing Bridge** (Bracing Not Shown)



**Partial Span 3 – 21' Deck Width** (Lateral Bracing Not Shown)



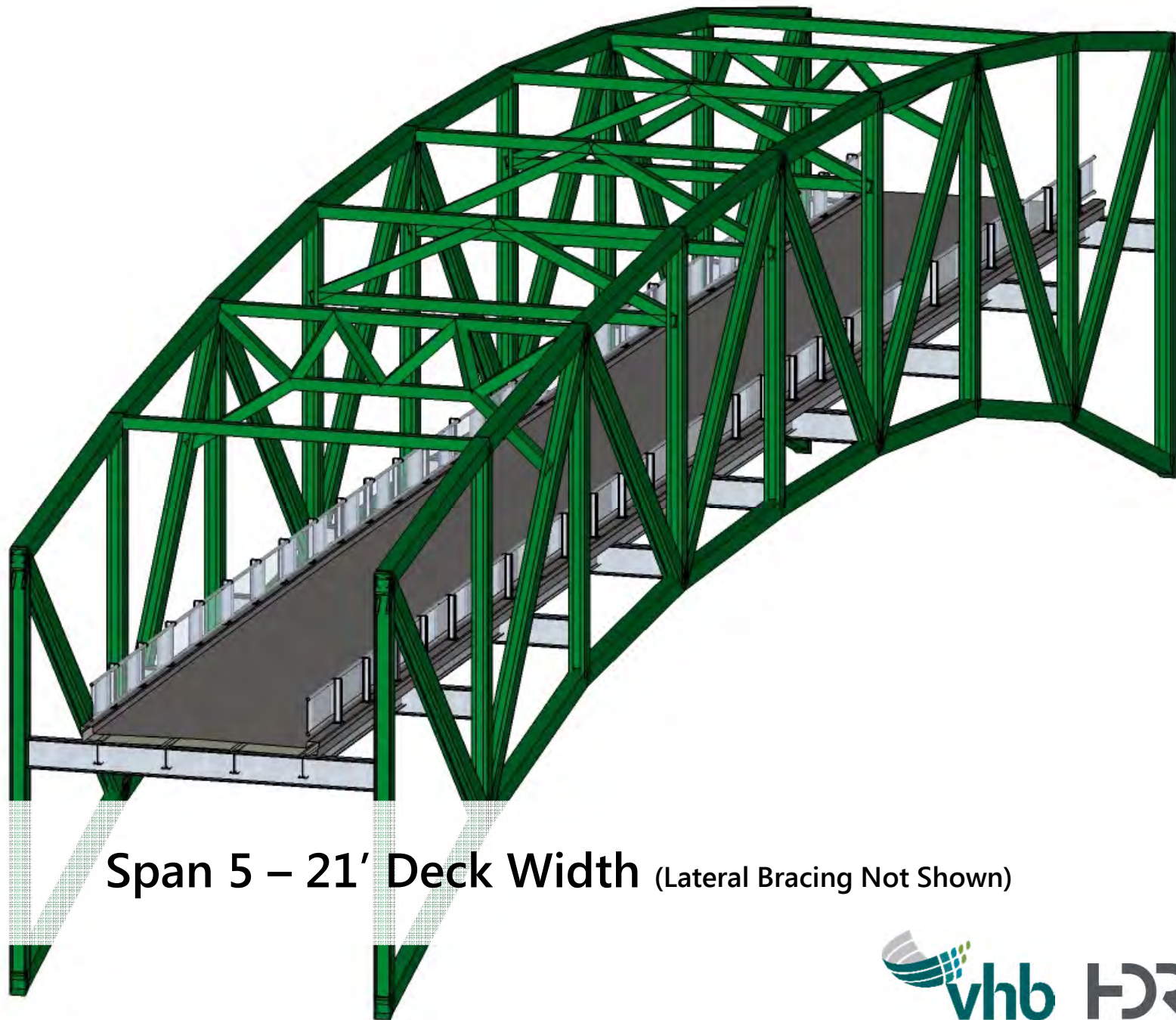


**Partial Span 3 – 16' Deck Width** (Lateral Bracing Not Shown)

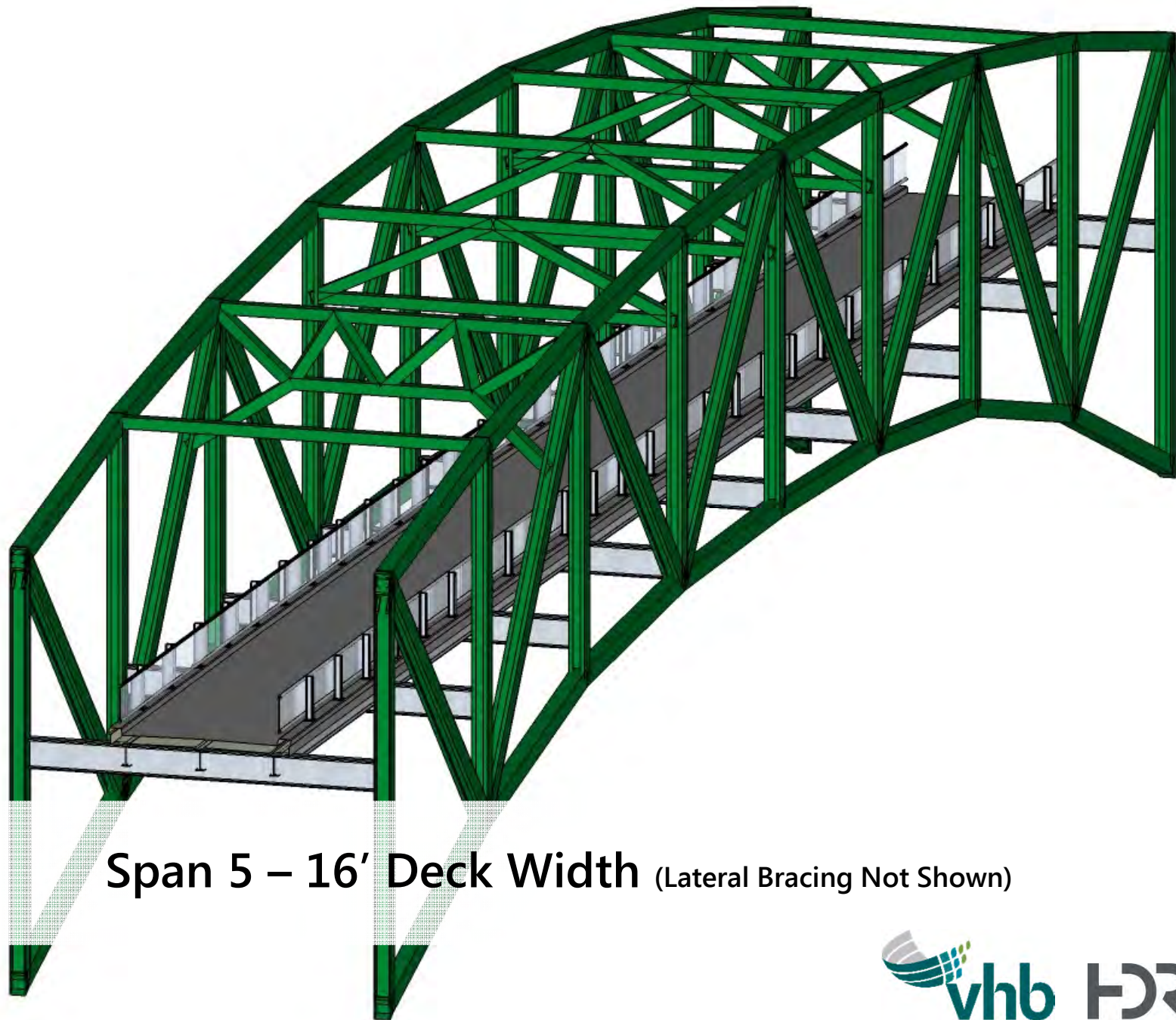


**Span 5 – Existing Bridge** (Lateral Bracing Not Shown)





**Span 5 – 21' Deck Width** (Lateral Bracing Not Shown)



Span 5 – 16' Deck Width (Lateral Bracing Not Shown)





## Alt. #2 – Complete Superstructure Replacement





**Alt. #3 – Span 4 thru 6 Rehabilitation w/ New Approach Spans**





# Alternatives Evaluation Considerations

- Capital Cost
  - Construction Cost including Construction Engineering (CE)
- Life-Cycle Cost / Maintenance
  - 75-year planning horizon. Residual value credit for full replacement
  - Considers routine maintenance and rehabilitation required to maintain service and state of good repair
- Constructability
  - Difficulty and duration of construction. Swift tidal currents and limited overburden
  - Existing Pier age and modifications to support higher loads
  - Existing superstructure age and complexities of rehabilitating built-up elements
  - Water access primarily limited to the west (SB Little Bay Bridge is along east side)
- Historic Resource Impacts
  - Compliance with MOA conditions or degree of departure from the original rehabilitation scope

# **General Sullivan Bridge - Next Steps**

## **TS&L Study Alternatives**



- **Coordinate Alternative Designs through FHWA and SHPO**
- **Seek Public Input Through Public Informational Meeting, Summer 2016**
  - **Need for Ped and Bike Detour and/or Shuttle Service**
- **Proceed with Final Design**
- **Advertise, Fall 2018**
- **Completion, Fall 2021 (or Earlier)**



# Contact Information

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**<http://www.newington-dover.com/>**



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**THANK YOU**  
Questions/Comments

