

NEWINGTON-DOVER

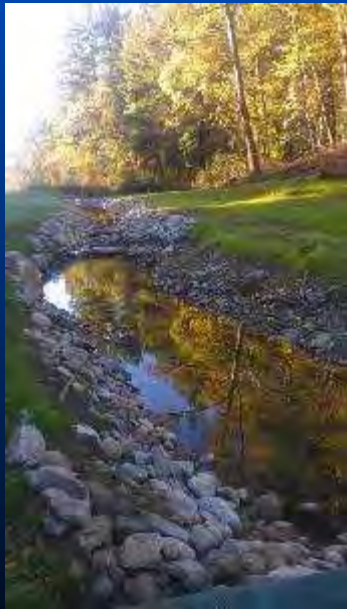
Improvements to NH Rte. 16 /

Spaulding Turnpike / Little Bay Bridges

Public Informational Meeting

Dover City Hall

OCTOBER 25, 2016

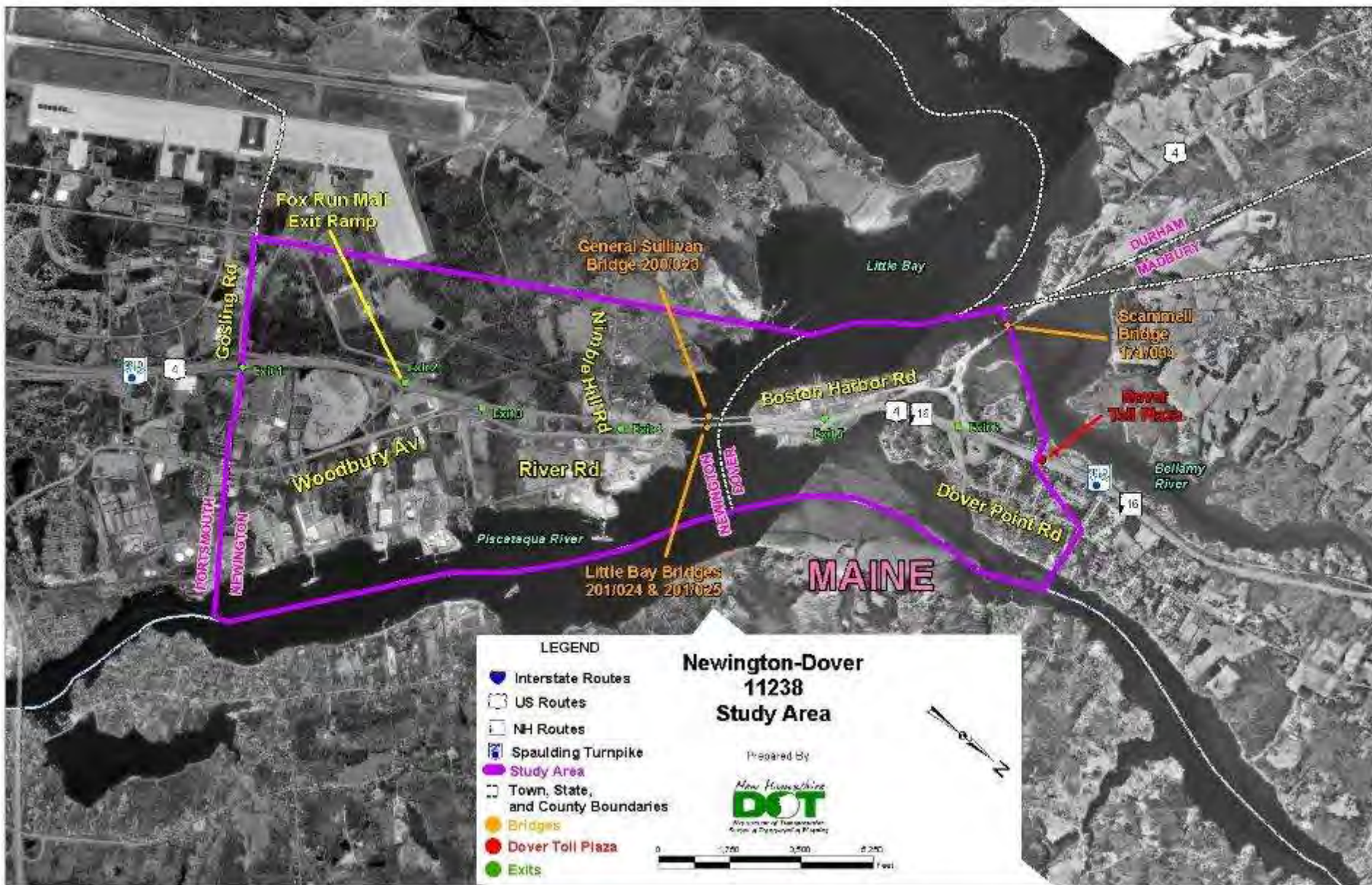


Meeting Agenda

- **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**
- **Upcoming Turnpike Projects**
 - **Dover Open Road Tolling**
 - **Newington Maintenance Facility**



Project Area

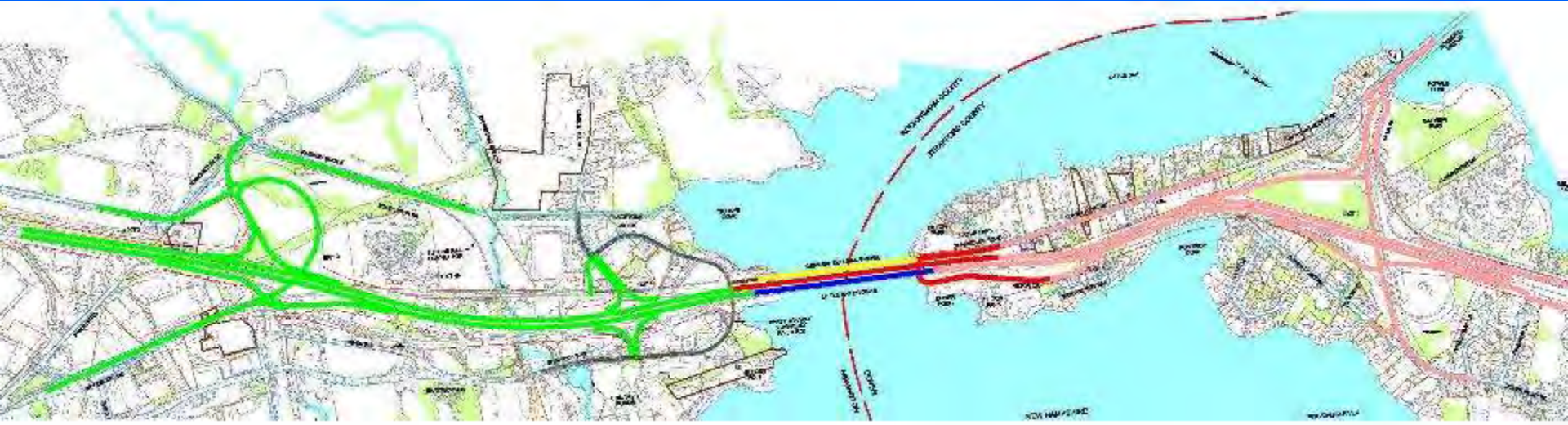


Project Need

■ Spaulding Turnpike

- **Limited Capacity – Chronic Congestion**
 - ❖ Four Lane Facility – 2 Lanes in each direction
 - ❖ High Traffic Volumes
 - ❖ 30,000 (1980) 70,650 (2003) 71,000 (2005)
 - ❖ Projected 94,300 (2025)
- **Level of Service E & F (during peak hours)**
- **High Number of Interchanges**
 - ❖ 5 Interchanges in 2 ½ miles
- **Geometric Deficiencies**
 - ❖ Substandard Shoulders (Little Bay Bridges)
 - ❖ Substandard Ramp Geometry, Accel & Decel Lanes
 - ❖ Inadequate Weave Areas
- **Poor Local & System Connectivity**
- **Accident Data – Long Delays**

Current Contract Breakout & Schedule



	CONSTRUCTION SCHEDULE													
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
CONTRACT L	[Red bar]				\$57.5 M									
CONTRACT M		[Green bar]				\$47.5 M								
CONTRACT O					[Blue bar]			\$21.9 M						
CONTRACT Q							[Red bar]					\$70.6 M		
CONTRACT S									[Yellow bar]				\$29.9 M	
DOVER TOLL PLAZA												[Black bar]		\$18.0 M
NEWINGTON MAINTENANCE SHED											[Black bar]		\$8.0 M	

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



CONSTRUCTION OUTREACH



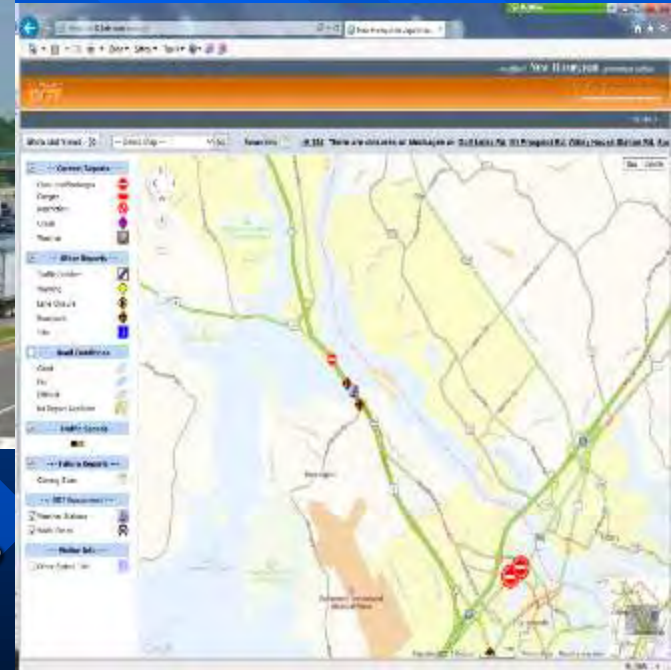
The screenshot shows a web browser displaying the project website. The browser's address bar shows the URL <http://www.newington-dover.com/>. The website header features the New Hampshire DOT logo and a navigation menu with links for 'Home', 'Project Information', 'Project Process', 'Details/Maps', 'Selected Alternatives', 'Schedule', 'Project Documents', 'Final Environmental Impact Statement', 'Roundabouts', 'Meetings', 'FAQs', 'Contact Us', 'Feedback/Meeting List', 'Newsletters/Fact Sheets', 'Construction Updates and Alerts', and 'Website Listing'. The main content area is titled 'Welcome to Spaulding Turnpike Newington-Dover Project Website' and includes a 3D rendering of the highway interchange, a text block describing the project's history and goals, and a 'Construction Updates and Traffic Alerts' section with a traffic cone icon. A 'What's New...' section lists recent news items such as 'Northbound Lanes Shift onto New Little Bay Bridge - Major Traffic Impacts Anticipated on June 3 and 4' and 'Planned Northbound Lane Closure on Little Bay Bridge - Pavement Repairs Scheduled'. The bottom of the page features logos for 'NH Recovery' and 'NH Turnpike Authority'.

WEB SITE: www.newington-dover.com

CONSTRUCTION OUTREACH



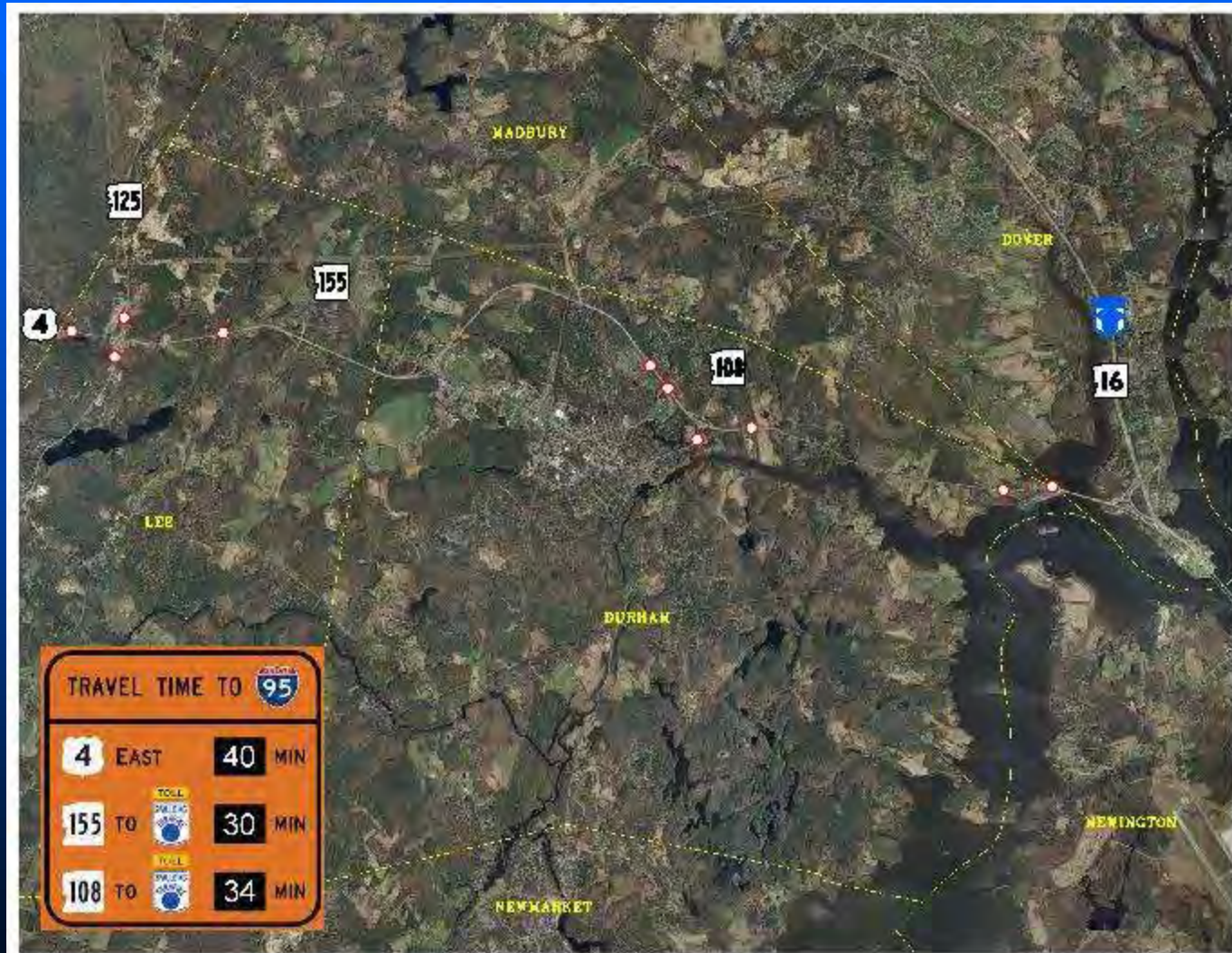
TWITTER



TRAFFIC CAMERAS

- For traveler/real-time information, please visit www.nhtmc.com.

Real-Time Traffic Management System



Contract L (Completed)

New Little Bay Bridge



A detailed engineering map of the Contract L project area. The map shows a long bridge structure crossing a body of water, with various approaches and structures. Key features include 'LITTLE BAY BRIDGE' in the center, 'DOVER POINT' on the right, and 'NEWINGTON ROADWAY' on the left. The map is color-coded with yellow and green to highlight specific project components. A north arrow is visible in the top left corner.

Contract L

Contract L - SB New Little Bay Bridge Construction

- Project completed by Cianbro 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 Terrace/Hilton Park Access Under LBB's



Contract M (Completed)

Newington



Contract M



- Project completed by A. J. Coleman at cost of \$47.5M
- Construction initiated in 2012 and completed in fall 2016
- Constructed four lanes NB & SB along turnpike with two or three lanes currently open
- Railway Brook restoration
- Accommodates future consideration for Railroad Spur

Contract M – Exit 3

Exit 3 NB On Ramp



Exit 3 Roundabout



Exit 3 SB Traffic



Exit 3 Dynamic Message Sign



Contract M – Exit 4

Exit 4 - Aerial



Exit 4 Wet Detention Basin



SB Off Ramp



Mitchell Lane Cul-De-Sac



Contract M – Railway Brook

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



BEFORE

AFTER

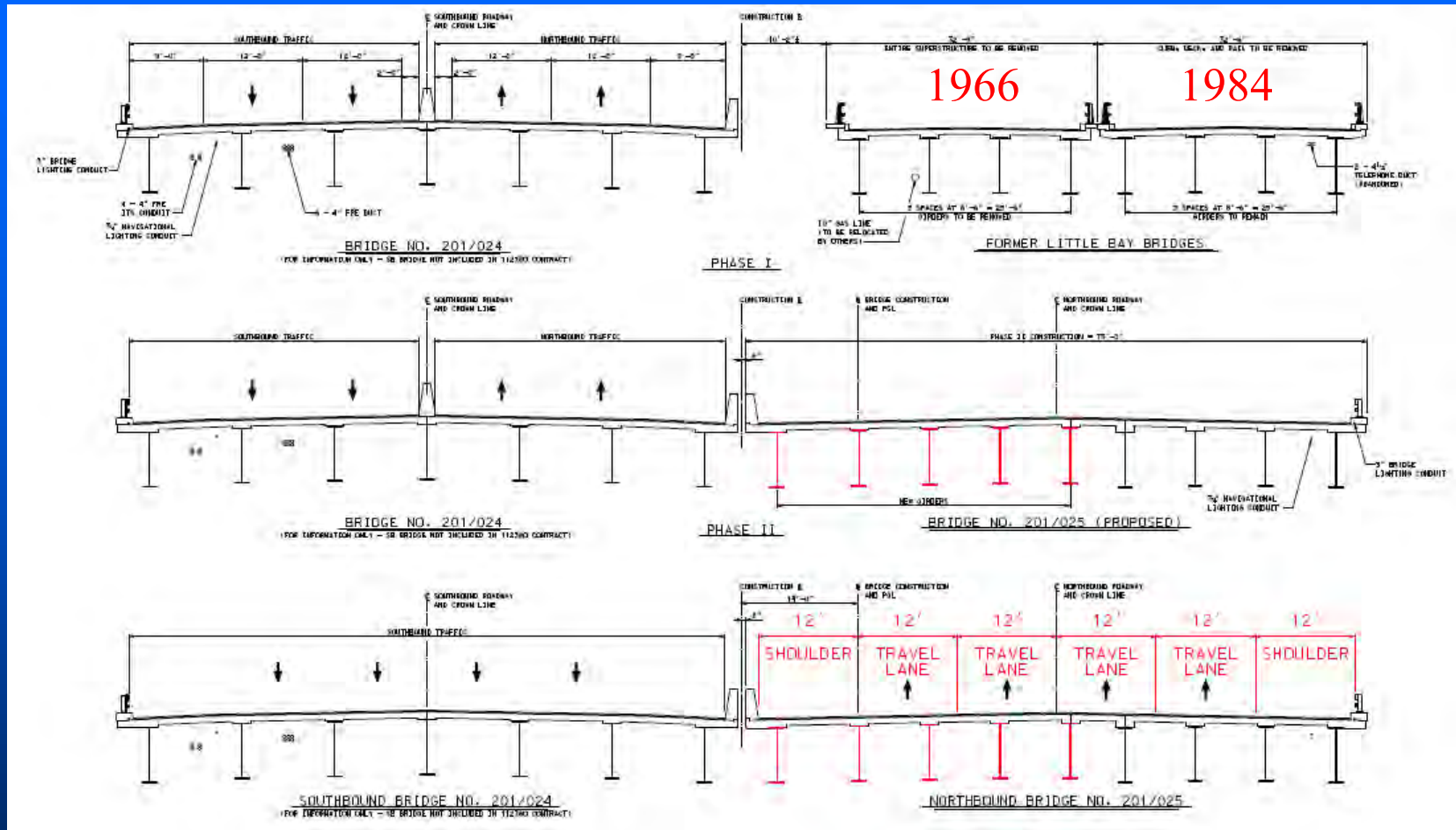
Construction - Contract O



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

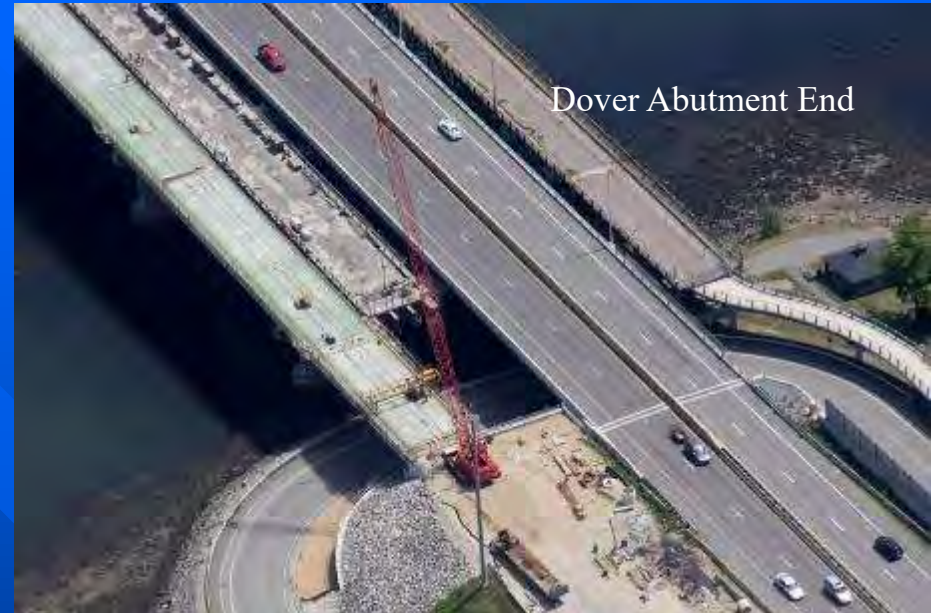


- Older Structural Steel Beams being Replaced to Meet Current Standards
- Use 1966 Beams/Deck to Replace 1984 Deck
- Use 1984 Beams/New Deck to Replace 1966 Deck and Beams
- Reconstruct Wentworth Terrace Retaining Wall Beneath Bridge

Contract O



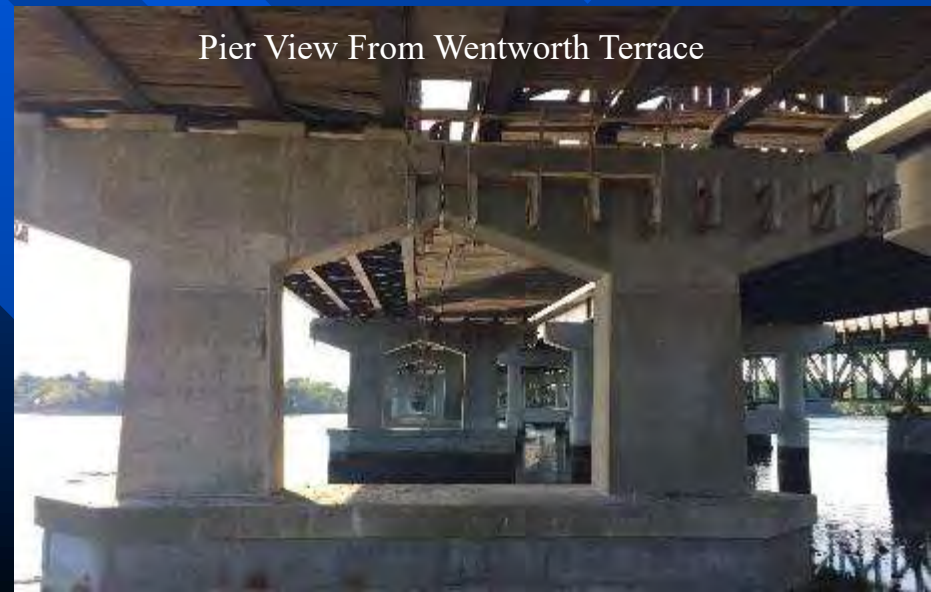
Aerial Looking East



Dover Abutment End



Dover Side Steel Removed



Pier View From Wentworth Terrace

Contract O

Pavement Removal



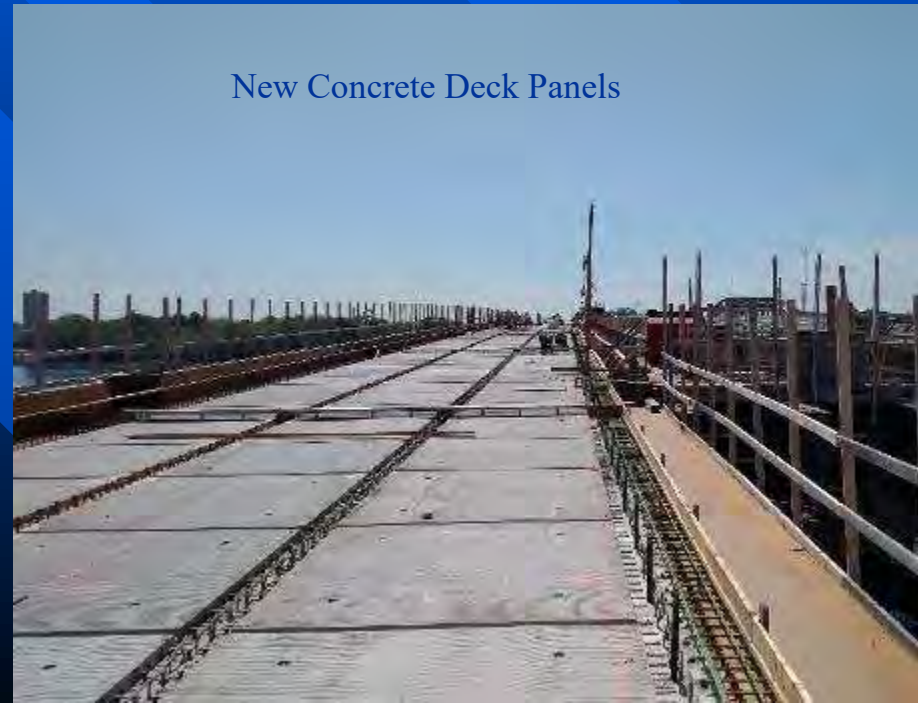
1960's Steel To Be Removed



Construction Layout



New Concrete Deck Panels



Contract Q



Contract Q - Dover

- Contractor: Severino Trucking Co, Inc. – Candia, NH
- Construction: 2016 – 2020 (\$70.6M)
- Completes and Opens All Spaulding Turnpike Improvements
- Concurrent Construction with Contracts O and S

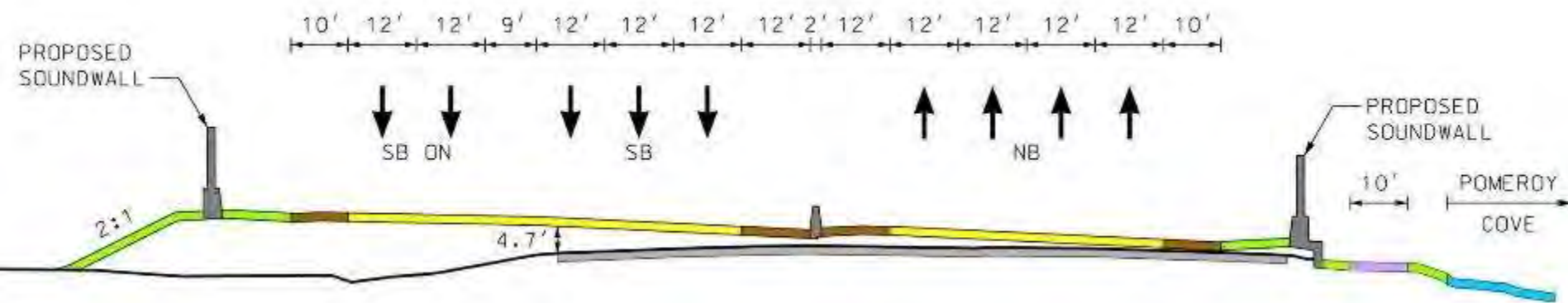
Contract Q (continued)



- 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

Spaulding Turnpike

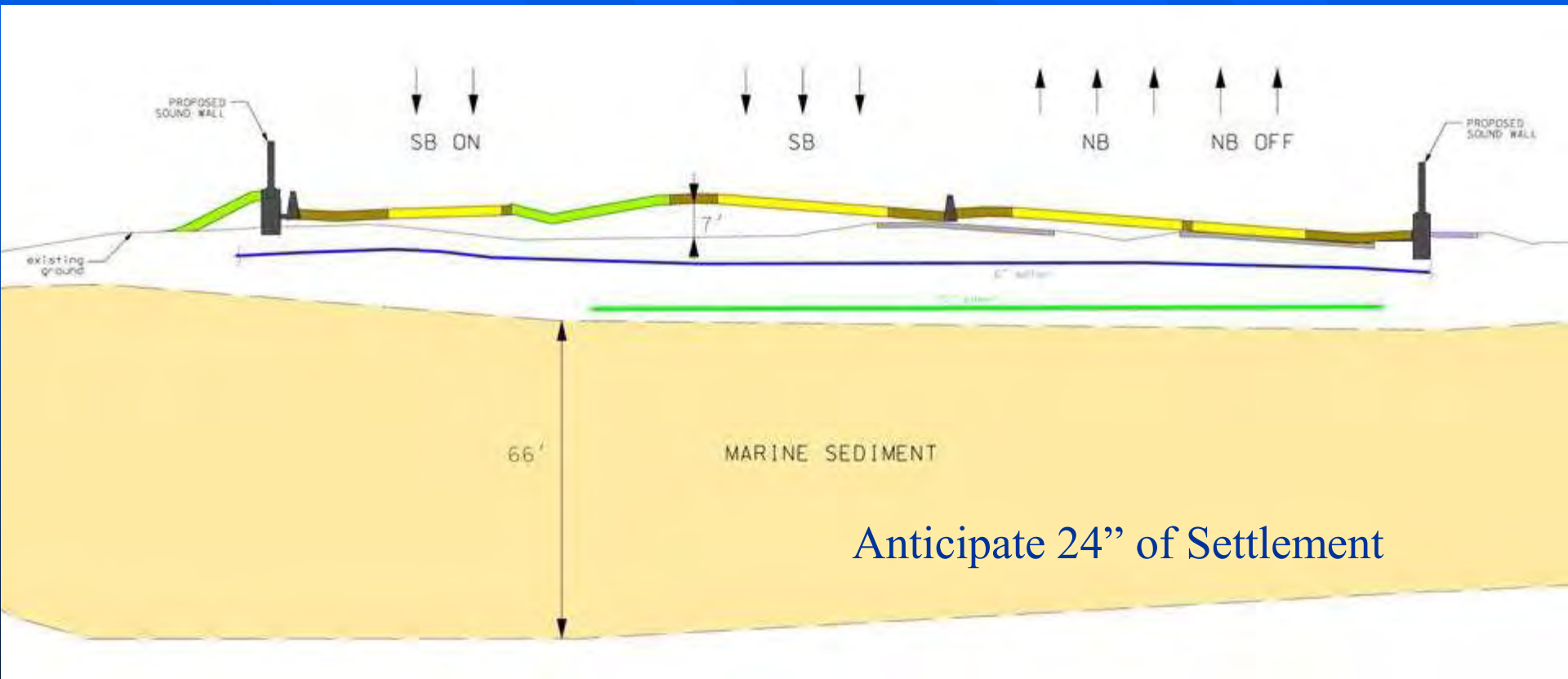


- 40' of Spaulding Turnpike Widening
- SB Raise in Elevation
- Soundwalls along NB and SB
- Pomeroy Cove Bike and Pedestrian Paved Pathway (10' wide) is maintained

Engineering Challenges

Cross Section

Just North of Pomeroy Cove



Water and Sewer Improvements



- Boston Harbor Road and Route 4 Locations
- Wentworth Terrace & Pomeroy Cove
- Dover Toll Plaza

Unitil Gas Line Improvements



Contract S



Contract S – General Sullivan Bridge Rehabilitation

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

Project Goals

Maintain the existing bridge to provide pedestrian and bicycle access and allow for fishing use.

MOA Stipulations

- Rehabilitate the General Sullivan Bridge (GSB) including:
 - Removal and Replacement of the deck and floor system
 - Replacement of rivets with high strength bolts as necessary
 - Removal of the north embankment and portions of the north abutment
(COMPLETED 2011 under Contract 11238L)
- Mitigate impacts by providing large format photographs with supplemental descriptions, key map, and an individual property inventory form
(COMPLETED, follow-up inventory for abutments in 2012)

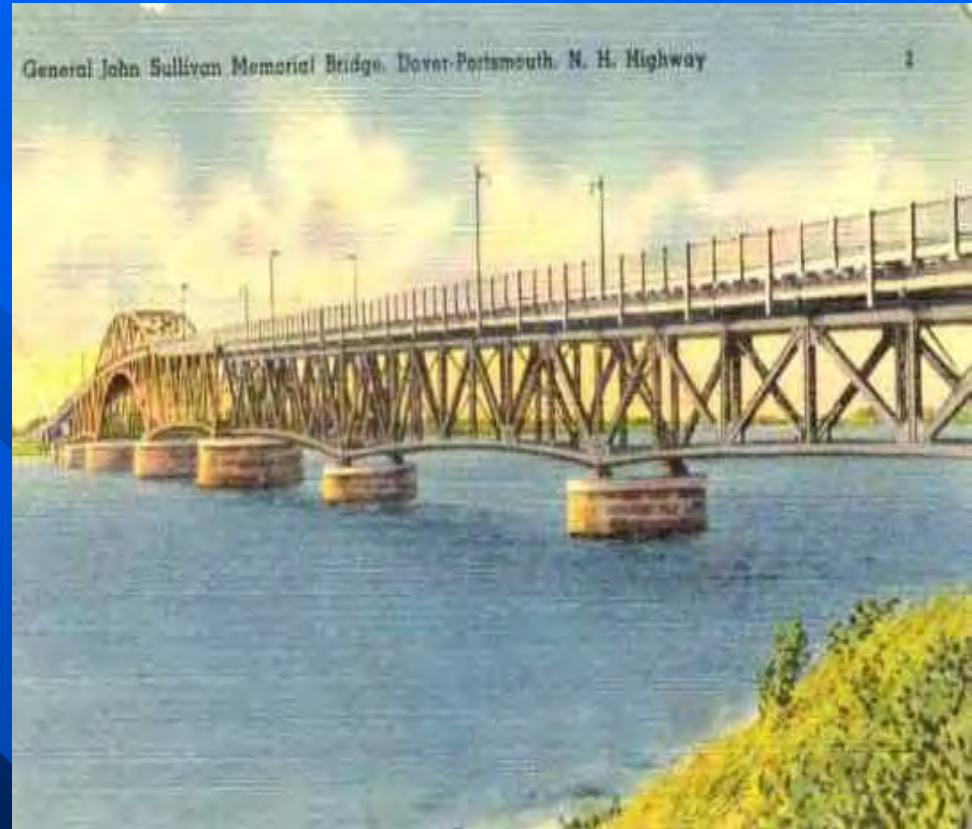
Background and Functional Use

- 1935 – Original Bridge Opened
- 1966/1984 – Little Bay Bridges Open
- 1991 – GSB is Pedestrian and Bicycle Use Only
- 2010 – New Ramp Bridge and Abutment Modifications - Dover
- 2015 – Pedestrian and Bicycle Access Width Limited to 15' max with Chain Link Fencing



Cultural Resource

- **August 11, 2016** – Cultural Resource Agency Meeting (NHDOT, FHWA, NHDHR, VHB, HDR)
 - Overview of TS&L scope and project schedule
 - NHDHR considers the GSB a nationally significant bridge
 - Additional meetings once preferred alternative selected



Condition and Structural Capacity

- Floorsystem and deck in critical condition and must be replaced
- Truss member conditions and capacity vary



Several truss elements require strengthening or replacement to support full design loads and maintenance vehicles

TS&L Study Alternatives

- **Alternative #1** - Rehabilitation (including new floor system, deck, and railings) – **Consistent with MOA**
- **Alternative #2** - Complete Superstructure Replacement, Retain Substructure
~~2A = Steel Girder; 2B = Concrete Girder; 2C = Metalized Truss~~
- **Alternative #3** - Rehabilitation of Spans 4 thru 6 to maintain the character-defining three-part continuous truss; 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)

Alternatives Evaluation Considerations

- Capital Cost
- Life-Cycle Cost / Maintenance
- Constructability
- Historic Resource Impacts

Note: If Alternative #1 (Rehabilitation) is not the selected alternative, this will require reopening the Section 106 process

National Historic Preservation Act

Section 106 – Consulting Parties

- **Consulting Parties**
 - State Historic Preservation Officers
 - Indian Tribes
 - Local Governments
 - Historical Societies
 - Historical Commissions
 - Individual Owners in Project Area

- **Federal Highway Administration**

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Environmental Program Manager

Federal Highway Administration

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Approach Spans 1 thru 3

Main Spans
4 thru 6

Approach Spans 7 thru 9

396'

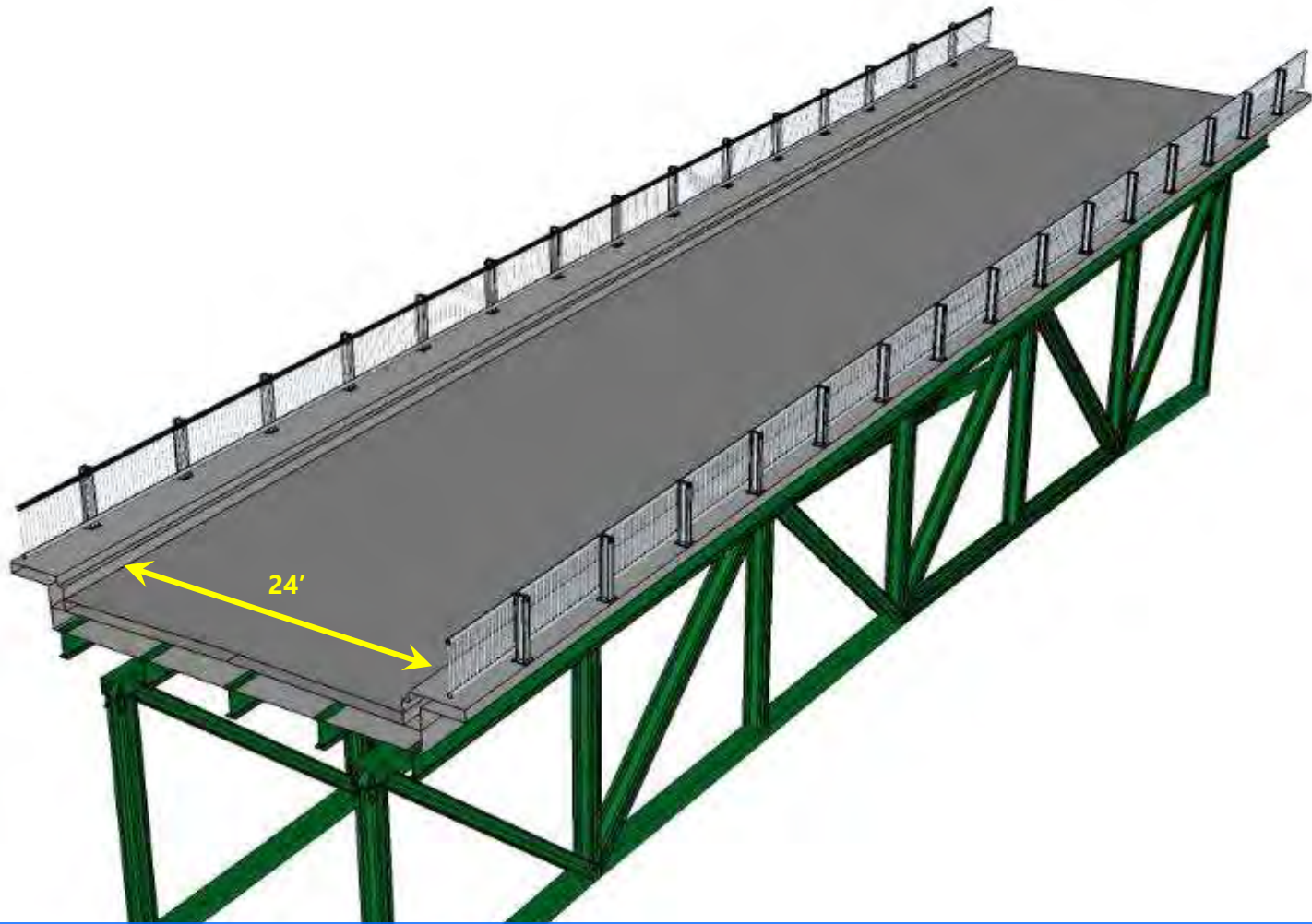
675'

457'

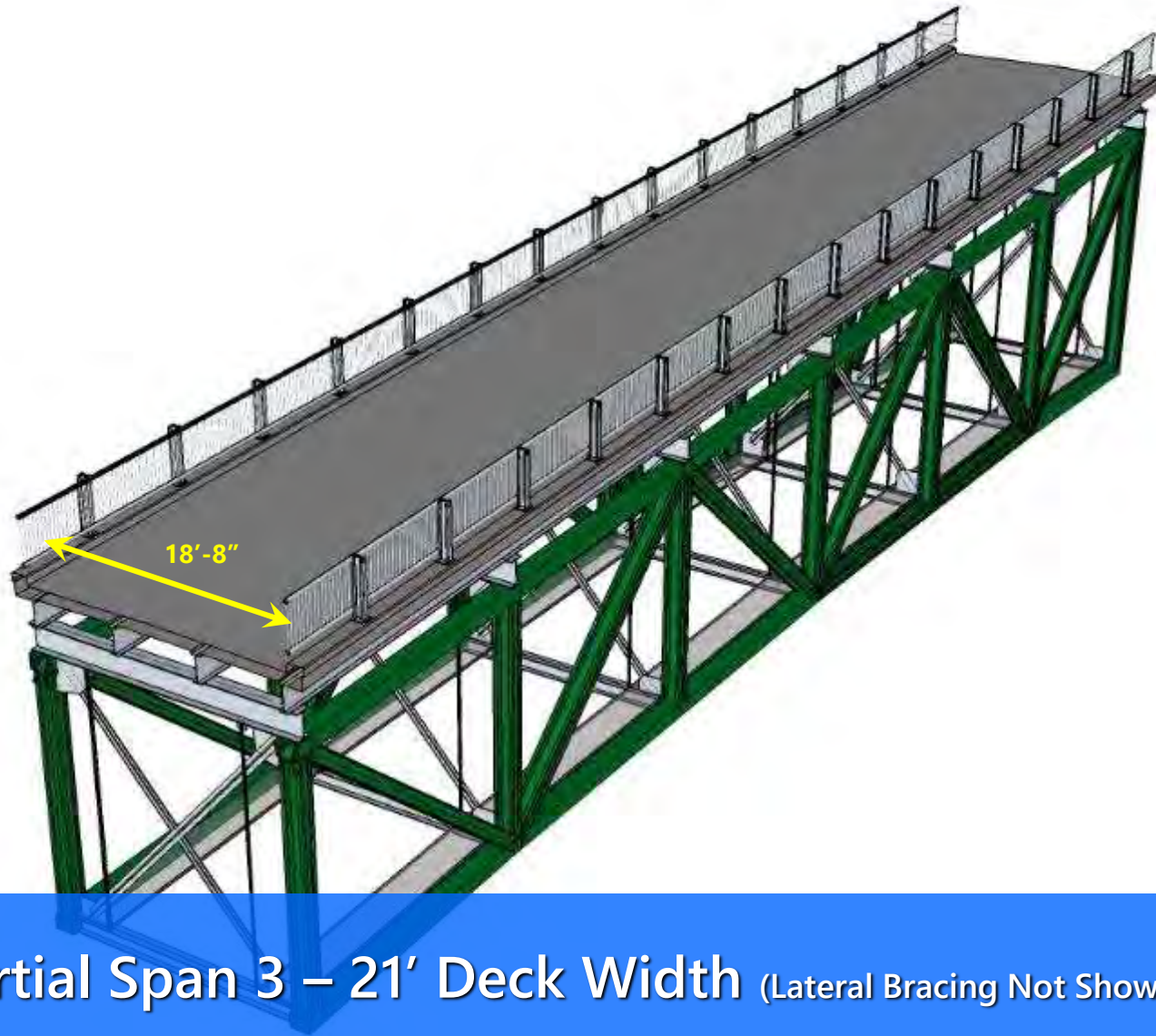
DOVER

NEWINGTON

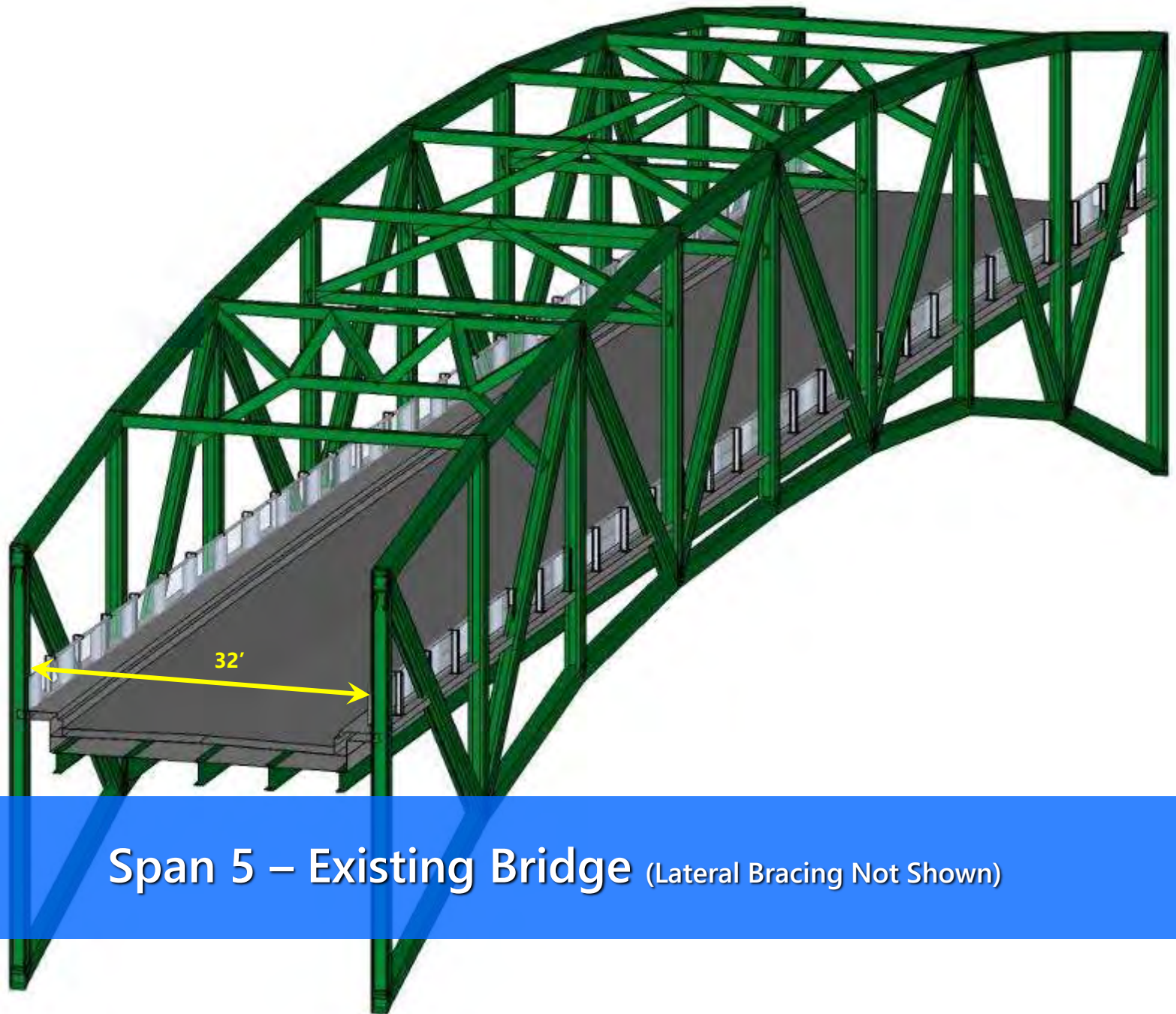
Alt. #1 - Rehabilitation



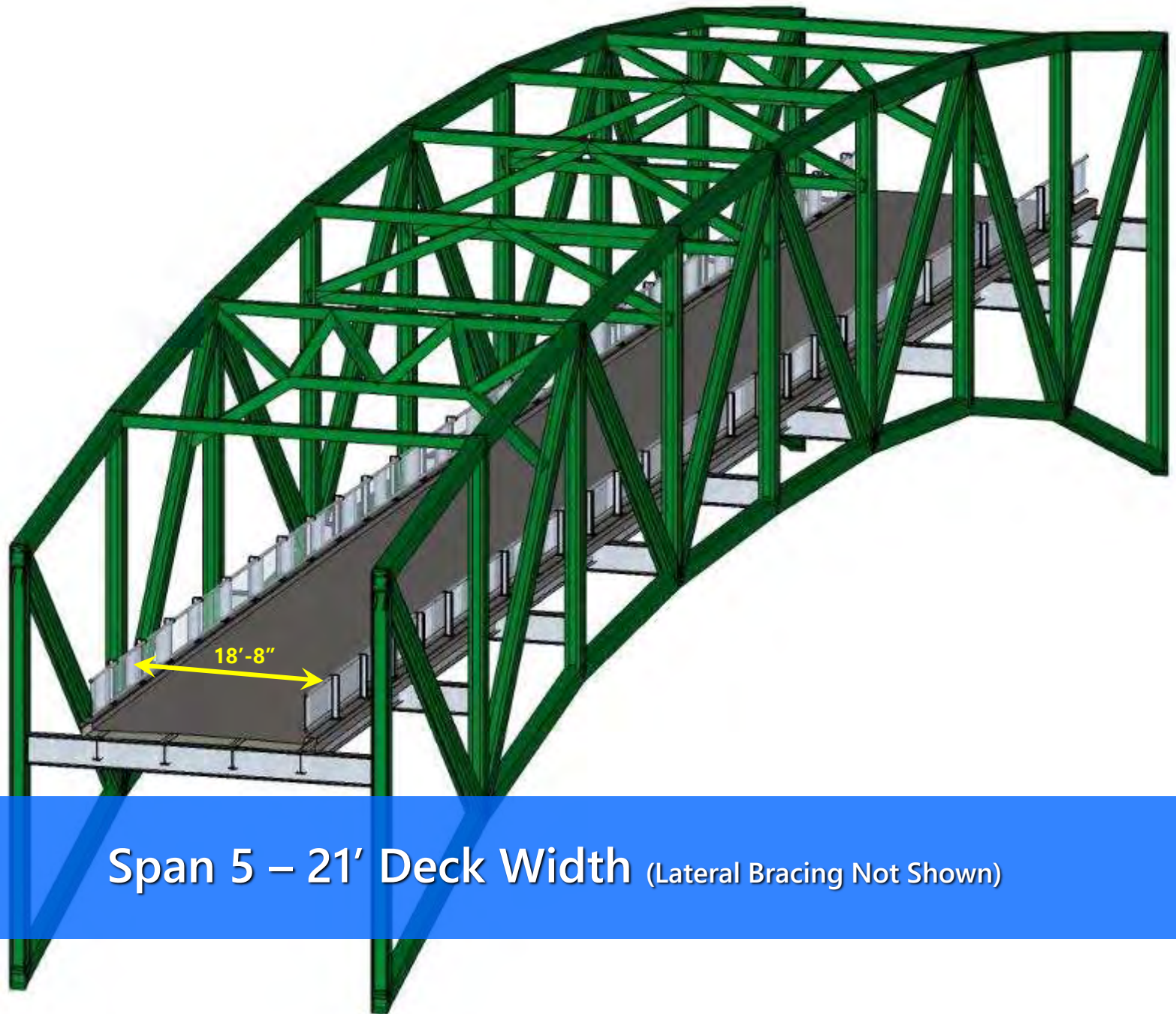
Partial Span 3 – Existing Bridge (Bracing Not Shown)



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



Span 5 – Existing Bridge (Lateral Bracing Not Shown)



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

Existing Bridge



Rehabilitated Bridge





Rehabilitated Bridge (Granite Gray)





**Existing and Rendered Views
from the North End of the Bridge**





Existing Bridge Details



New Floorsystem
and Deck Not Shown



New Bracing

New Floorsystem &
Deck



New Access Door @ Newington Abutment

New Fiberglass Access Platform

Truss Repairs & Strengthening

Repoint Piers



Alt. #2 – Complete Superstructure Replacement

Existing Bridge



New Truss on Existing Piers







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

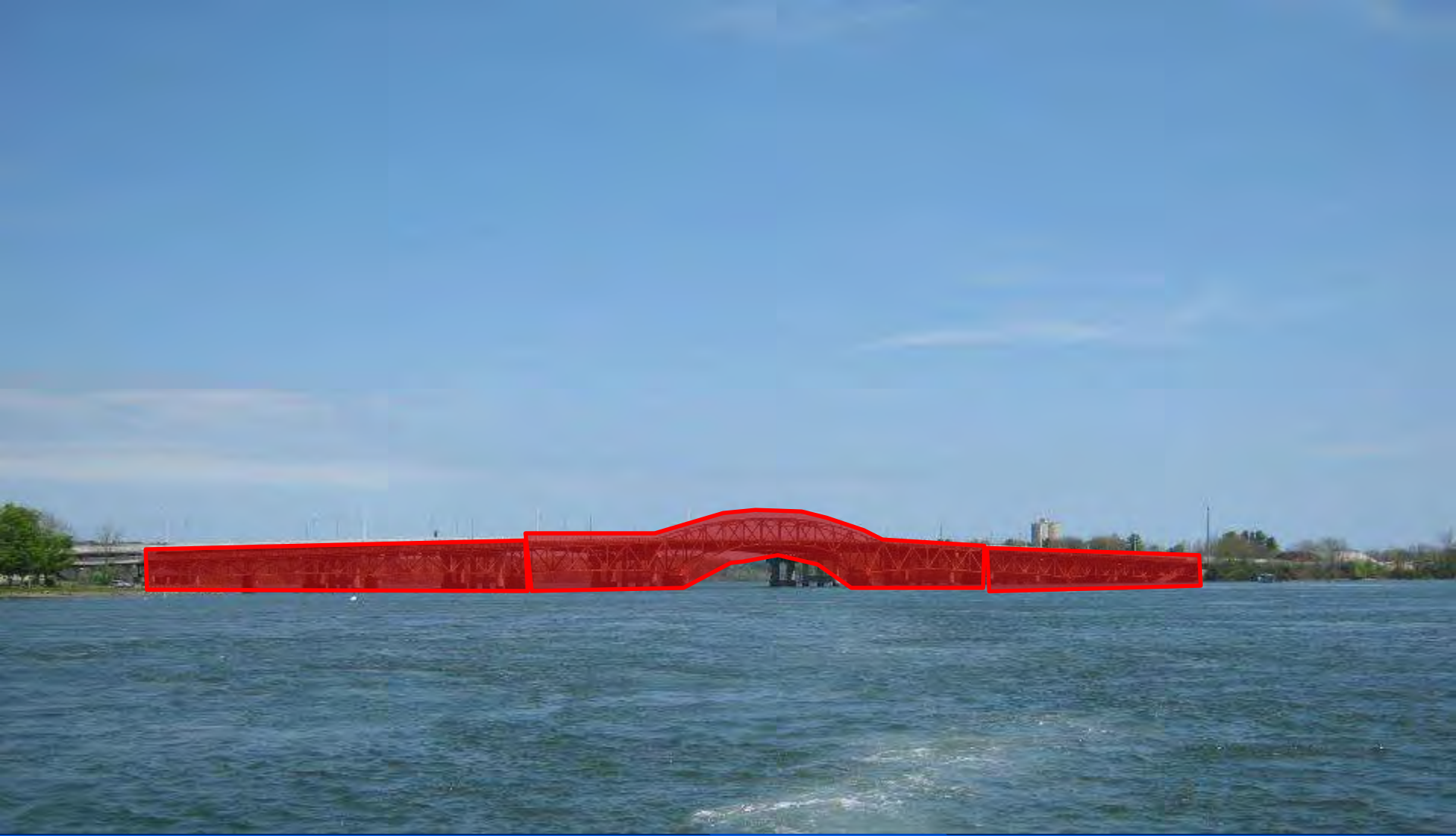
Existing Bridge



Rehabilitated Main Spans w/ New Trusses at Approach Spans





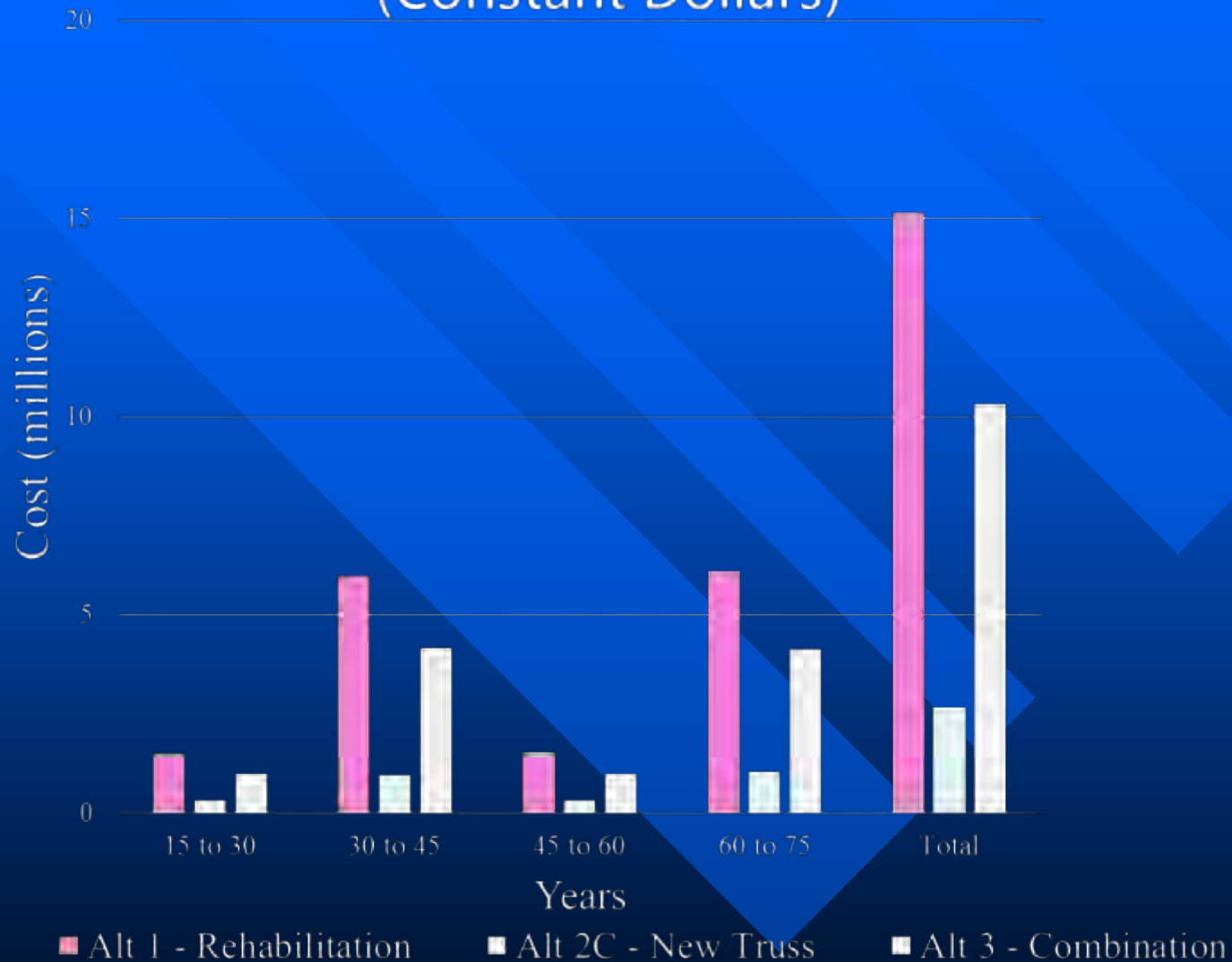


Alt. #4 – Complete Bridge Replacement

Alt.#4 Complete Bridge Replacement

- Weathering Steel Plate Girders with Concrete Deck supported on drilled shaft foundations (similar to new Little Bay Bridge)
- Requires costly access trestle for pier construction
- Complete demolition of the superstructure AND substructure
- Similar span arrangement to the existing truss
- Most costly of all alternatives (capital cost and life-cycle cost)

Maintenance Life-Cycle Cost (Constant Dollars)



Summary of Practical Alternatives

Alternative	Cost	LCC (Present Value)	LCC (Constant Dollars)	Const. Risk	Const. Duration	Historic Impact	Maint- enance
1 – Truss Rehab	\$32.7 M	\$36.8 M	\$49.2 M	High	3 years	Low	High
2C – Truss Replacement	\$31.7 M	\$32.5 M	\$34.7 M	Low	1 year	High	Mod.
3 – Approach Spans Replaced	\$32.4 M	\$35.2 M	\$43.6 M	Moderate	2 years	Moderate	High

Alternative 1A – Rehabilitation is consistent with MOA

Alternative 2C – Truss superstructure replacement is least cost (capital and life-cycle cost)

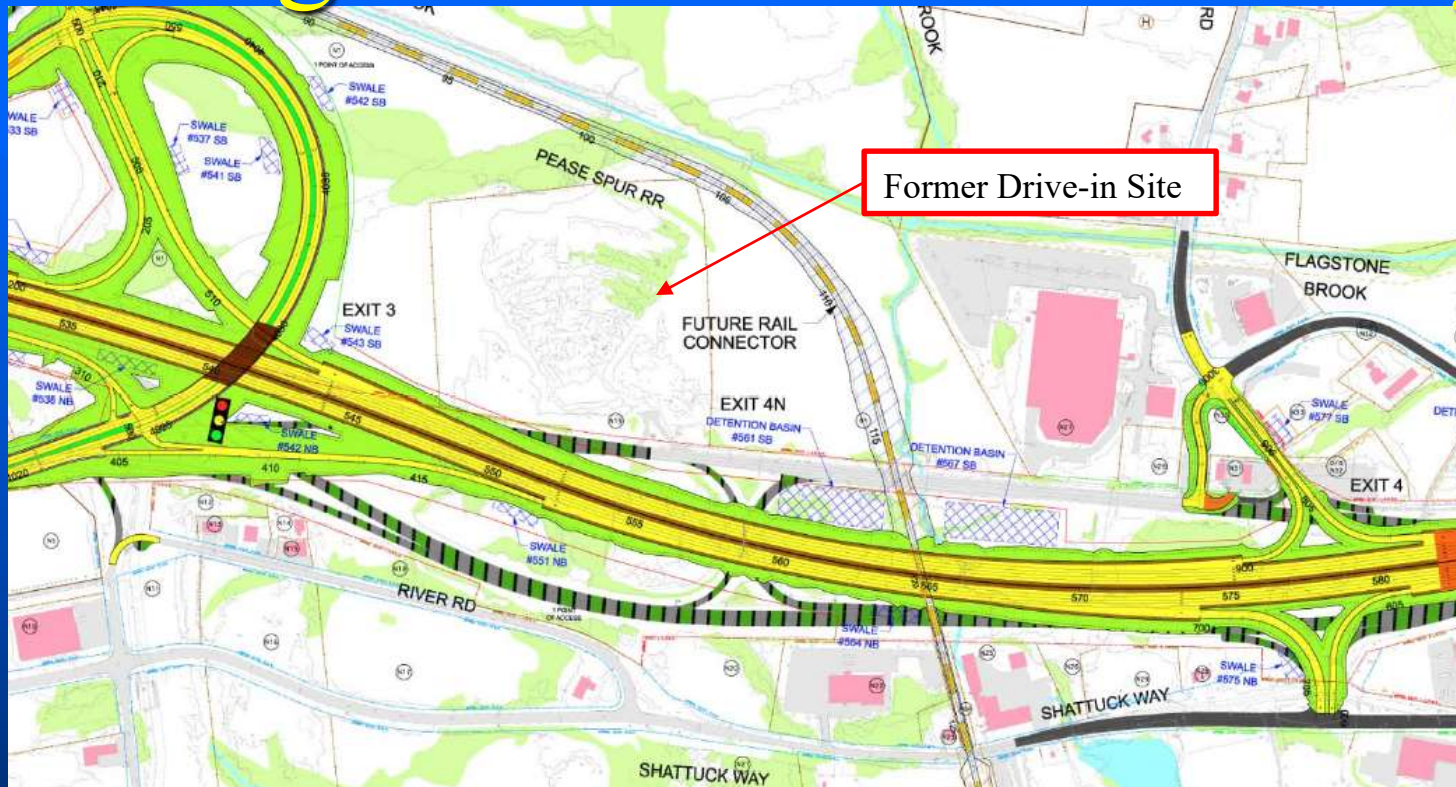
Alternative 3 – Truss replacement of approach spans and rehabilitation of main spans to maintain the character-defining three-part continuous truss

Note: Alternative 4 (Complete Bridge Replacement) has an estimated construction cost of \$43.7 M for comparison purposes.

Upcoming Turnpike Projects

- Newington Maintenance Facility
- Dover Toll Plaza Conversion to Open Road Tolling (ORT)

Newington Maintenance Facility



- Need Results from Expansion of Spaulding Turnpike
- Proposed Location on Turnpike Owned Parcel
- Between Exits 3 and 4 on West Side of Spaulding Turnpike (Former Drive-in Site)

Newington Maintenance Facility

- Funded in Ten Year Plan 2017 - 2026
- Anticipated Start of Construction – Fall 2019
- Anticipated Completion of Construction – Fall 2020



Newington Maintenance Facility

- Existing Dover Maintenance Shed Use Discontinued in Fall 2020
- Facility/Site to progress through State's surplus property process



Dover Toll Plaza

Existing Conditions

- Existing Facility Built in 1956
- Rehabilitation Results in No Realized Benefits to Customers
- Operational Challenges Exist with Exit 6 at Current Location
- Construction and Toll Operations not Feasible Rebuilding at Same Location



Dover Toll Plaza Conversion to Open Road Tolling (ORT)

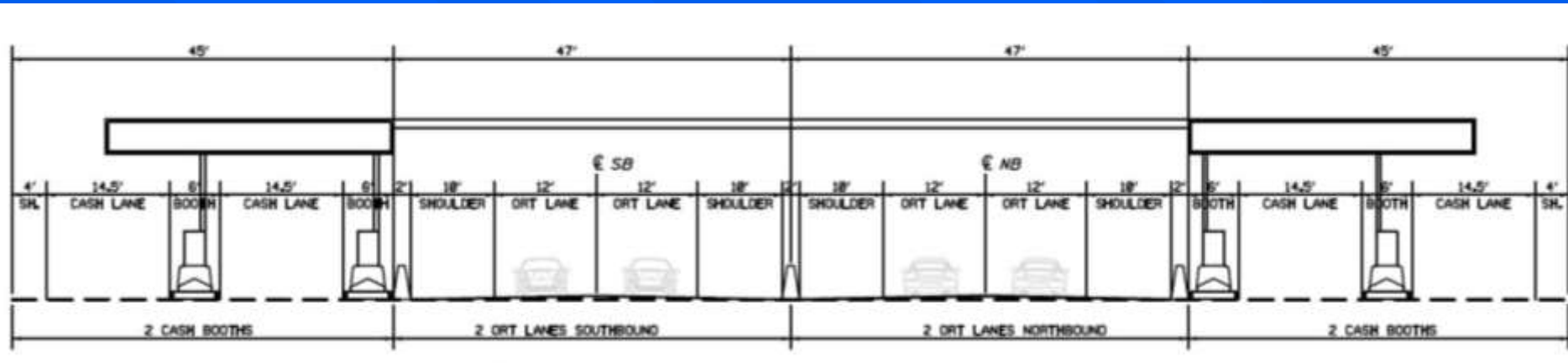


- Existing Location – Reconstruction not feasible
- Potential Relocation to 1.25 miles North of Existing Toll Plaza

Dover Toll Plaza Conversion to Open Road Tolling (ORT)

- Increased Mobility
- Reduced Travel Times
- Improved Safety for Employees
- Reduction in Accidents
- Reduce Energy Consumption
- Consistency with all other Mainline Plazas

Dover Toll Plaza ORT Typical Section



- 2 Open Road Tolling (ORT) Lanes in Each Direction (E-ZPass only)
- 2 Conventional Toll Plaza Lanes in Each Direction (E-ZPass and Cash)

Dover Toll Plaza Schedule

- Funded in Ten Year Plan 2017 – 2026
- Anticipated Start of Construction Spring 2021
- Anticipated Completion of Construction Fall 2022

Contact Information

Newington-Dover

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Upcoming Turnpike Projects

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

THANK YOU

Questions/Comments

