HAMPTON HARBOR BRIDGE

# Public Information Meeting

## Seabrook-Hampton 15904

January 14, 2021

New Hampshire DOT Department of Transportation

HDR

Innovative Planning BETTER COMMUNITIES

# Welcome

HAMPTON HARBOR BRIDGE

- Meeting should last about 90 minutes
- Meeting is live and being recorded
- Presentation will be posted to NHDOT project website https://www.nh.gov/dot/projects/seabrookhampton15904/index.htm



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# Key Project Team Members

HAMPTON HARBOR BRIDGE

- Jennifer Reczek, PE, Project Manager (NHDOT)
- Bob Juliano, PE, Senior Project Engineer (NHDOT)
- Marc Laurin, Senior Environmental Manager (NHDOT)
- Jill Edelmann, Cultural Resource Manager (NHDOT)
- Roch Larochelle, PE, Consultant Team Project Manager (HDR)
- John Stockton, PE, Structural Lead (HDR)
- Dan Hageman, PSS, Environmental Resources (FHI)
- Stephanie Dyer-Carroll, AICP, Environmental and Cultural Resources (FHI)

Meeting facilitator:

- Marcy Miller, AICP, Public Involvement Manager (FHI)

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# Agenda

HAMPTON HARBOR BRIDGE

1. Virtual Meeting Instructions
2. Alternatives Considered
3. Identification of Preferred Alternative
4. Environmental & Cultural Resources Coordination Update
5. Next Steps

Seabrook-Hampton Bridge looking northwest

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# Zoom Meeting Functions

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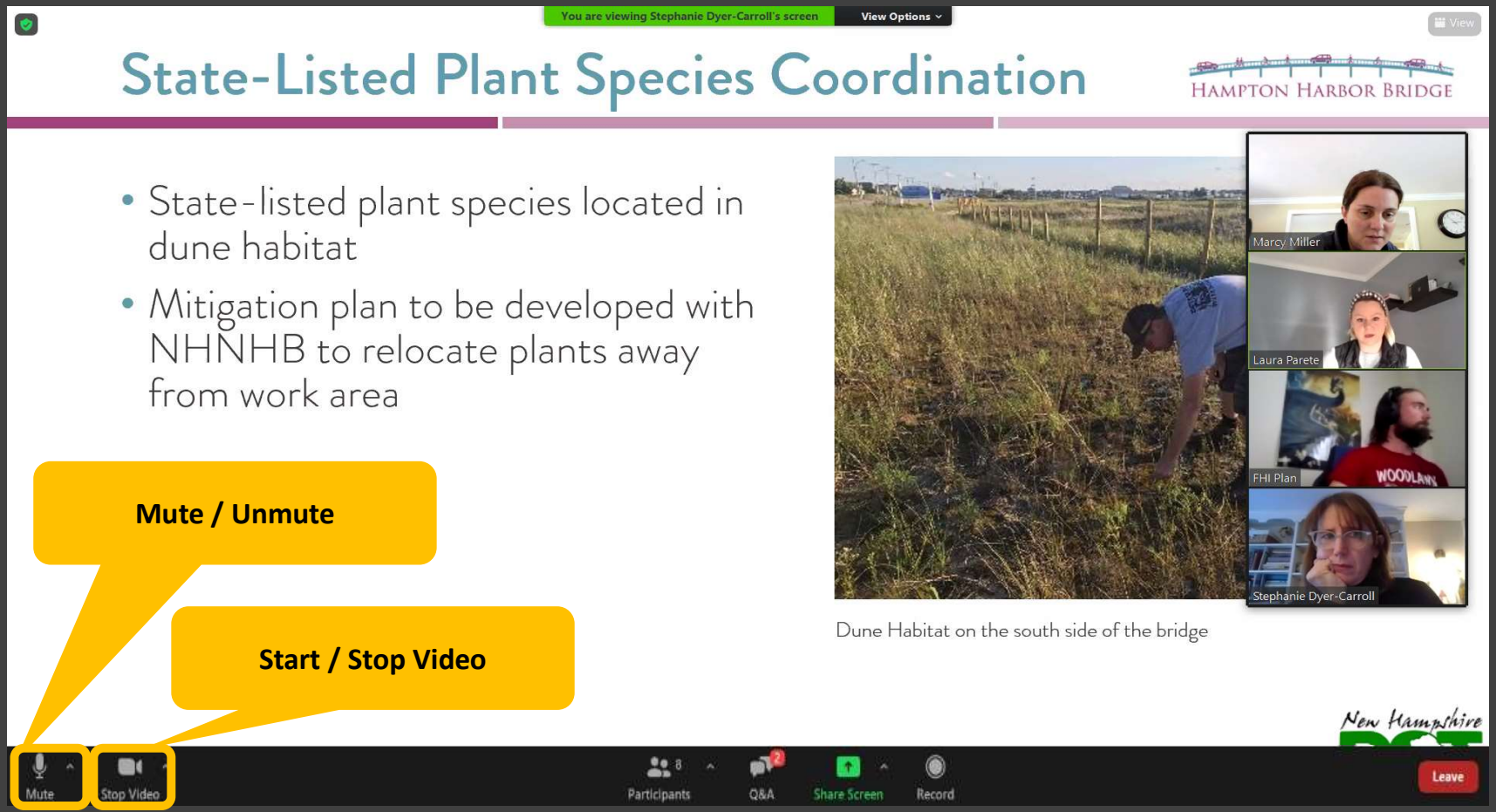

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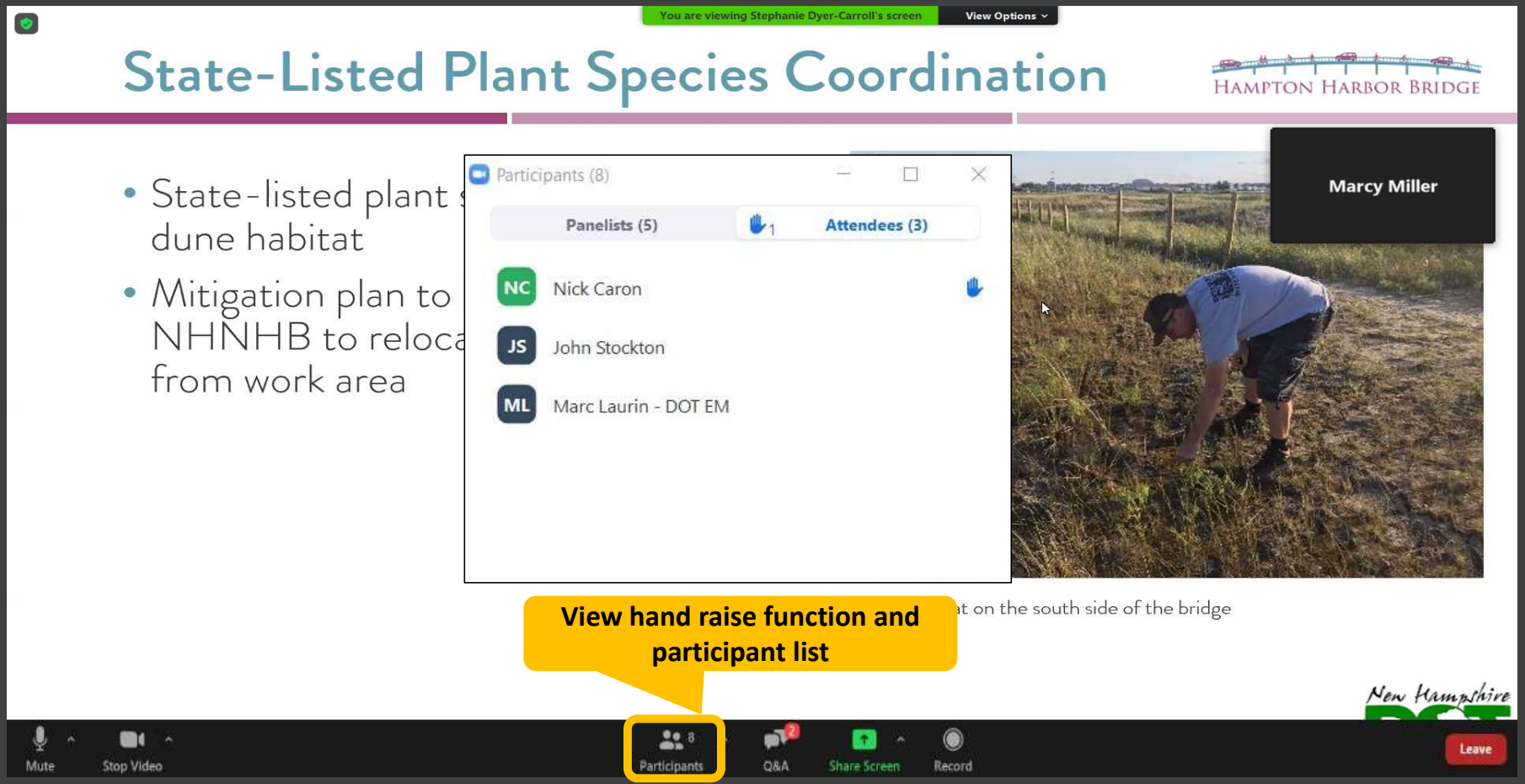

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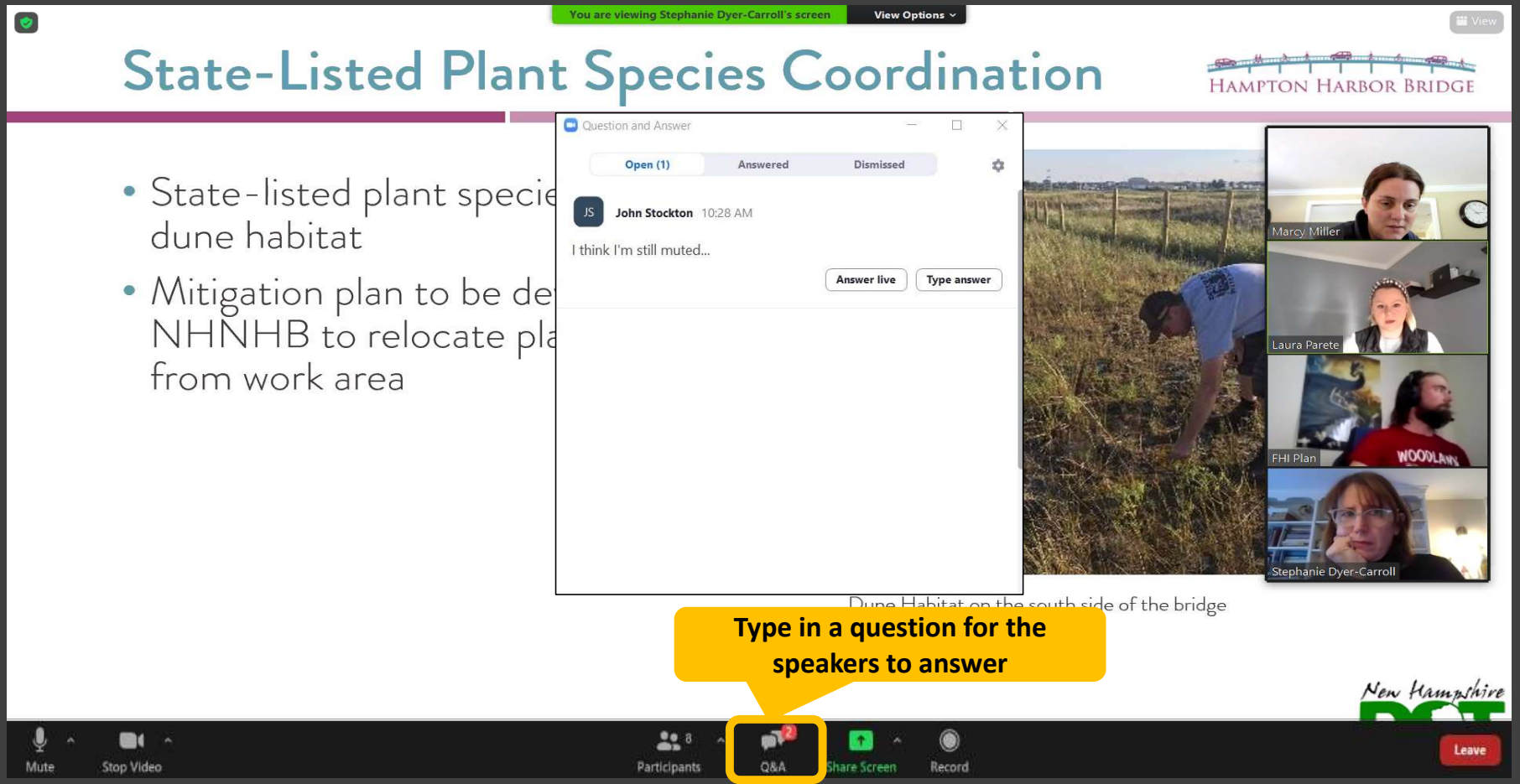

# Project Purpose and Need

HAMPTON HARBOR BRIDGE

Purpose

- Provide a safe, reliable, and structurally sound crossing
- Improve mobility for the travelling public (vehicles, bicyclist, and pedestrians) and marine users

Need

- Structurally deficient and functionally obsolete bridge
- Many original mechanical components and outdated electrical system
- Substandard shoulder and sidewalk widths

Bascule span coupler

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# Concurrent Projects on NH 1A

HAMPTON HARBOR BRIDGE

- Seabrook-Hampton 15904 (Hampton Harbor Bridge Project)
  - Improve crossing at Hampton Harbor
- Hampton 40797 (Ocean Boulevard Project)
  - Improve safety and mobility for all users along Ocean Boulevard corridor
- Need for and type of improvements at State Park driveway will be evaluated through Ocean Boulevard Project
  - Hampton Harbor Bridge project will not change State Park driveway
  - Hampton Harbor Bridge Project will not prohibit future improvements at State Park entrance

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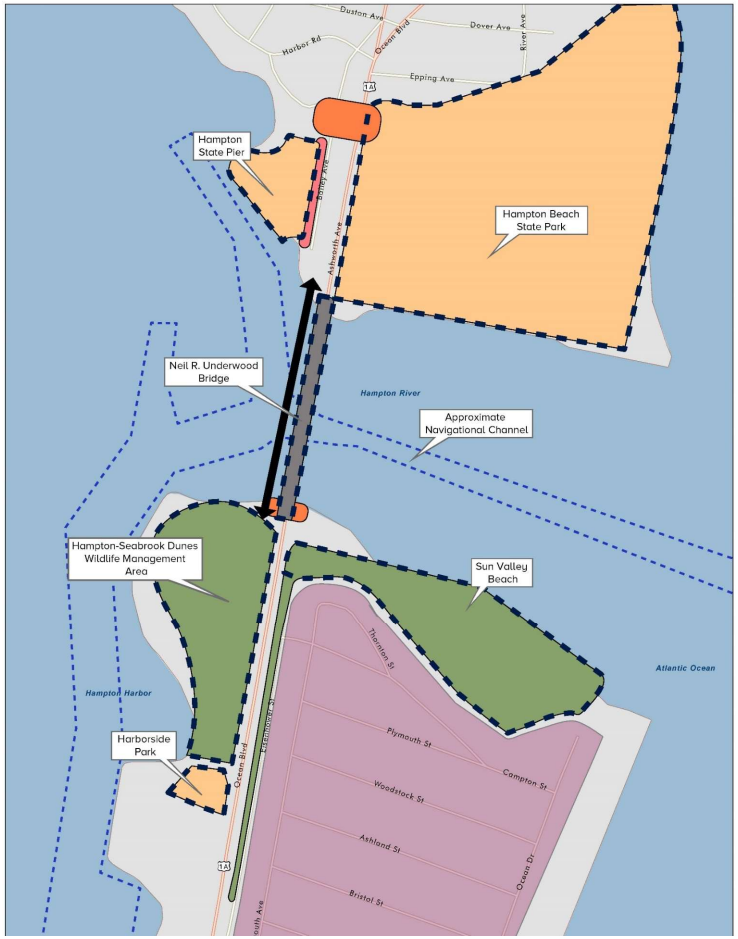
# Key Site Considerations

HAMPTON HARBOR BRIDGE

Impacts to:

- Federal Navigation Channel
- State Park and State Pier properties (6(f) properties)
- Threatened and Endangered species
- Sensitive habitat
- Cultural resources
- 4(f) properties
- Utilities (Water, Sewer, Gas, Aerial)
- Businesses
- Residences

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# Key Design Considerations

HAMPTON HARBOR BRIDGE

- Clearances for Vessel Navigation
  - Existing opening is 40’ horizontal by 18’ vertical
- Roadway slope
- Increase in Roadway Height at Abutment
- East vs. West vs. Existing Alignment
- Number of lanes
- Traffic Control (during construction)
- Climate Change (Sea Level Rise)
  - “Intermediate-High” scenario of 3.9’ included in the underclearances
- Constructability and Cost

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# Coordination To Date

HAMPTON HARBOR BRIDGE

Discussions have informed key decisions throughout the project's development

- Meetings to date
  - ✓5 Project Advisory Committee Meetings
  - ✓2 Public Informational Meetings
  - ✓Meeting with maritime users
  - ✓Meeting with abutters
- Reviewing Agencies
  - ✓US Coast Guard (USCG)
  - ✓US Army Corps of Engineers (USACE)
  - ✓NH Division of Historical Resources (NHDHR)
  - ✓National Oceanic and Atmospheric Administration (NOAA)
  - ✓US Fish and Wildlife Service (USFWS)
  - ✓NH Natural Heritage Bureau (NHNHB)
  - ✓NH Fish & Game (NHFG)
  - ✓NH Department of Environmental Services (NHDES)
  - ✓Additional Environmental Agencies

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HAMPTON HARBOR BRIDGE

# Review of Alternatives Considered and Identification of Preferred Alternative

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# What Alternatives Have Been Considered?

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- Rehabilitation (superstructure replacement & widening)
- Twin Bridge Concept (superstructure replacement + new bascule bridge) – added through coordination with NH Division of Historical Resources
- Replacement with mid-level Bascule bridge
- Replacement with high-level Fixed bridge (steel or concrete girders)

All alternatives meet project Purpose and Need

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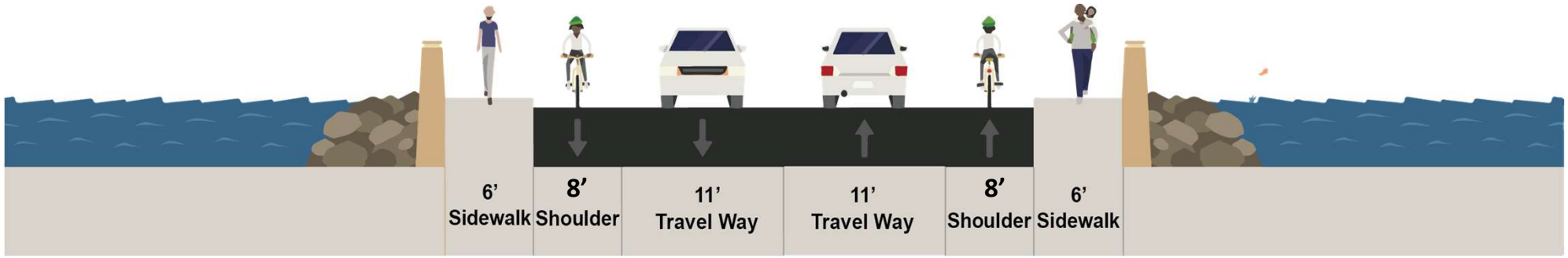
# Typical Roadway Section

HAMPTON HARBOR BRIDGE

Proposed Section is 50 feet rail-to-rail (currently 26' curb-to-curb w/ 4'-7" sidewalk):

- Two 11' travel lanes
- 8' shoulders
- 6' sidewalks with bumpouts at some piers

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# Roadway Alignments

HAMPTON HARBOR BRIDGE


✓ Western Alignment


Eastern Alignment

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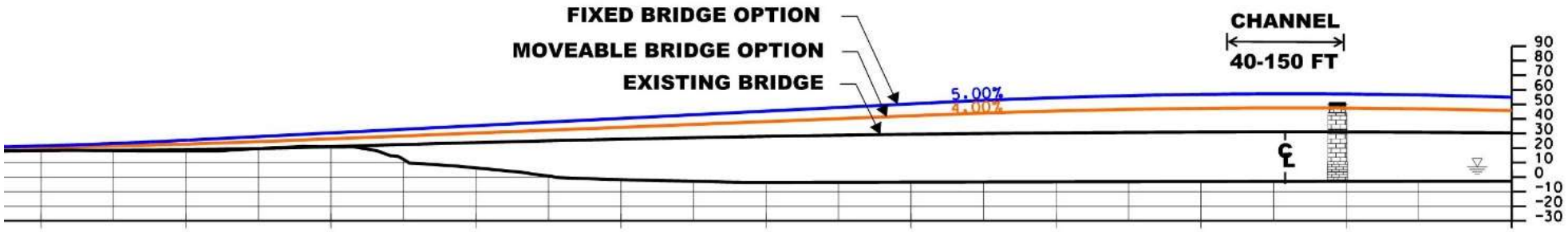
# Profile - Navigational Vertical Clearance

HAMPTON HARBOR BRIDGE




Lines shown are roadway surface at center of roadway

Notes:

1. MHW: Mean High Water
2. Clearances include 3.9' for Sea Level Rise

Vertical Underclearance at Channel (at MHW):

- Replacement with high-level Fixed bridge = 48'
- Replacement with mid-level Bascule bridge = 34' (closed)
- Existing Bridge = 20' (closed)

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# Rehabilitation (with Widened Bridge)

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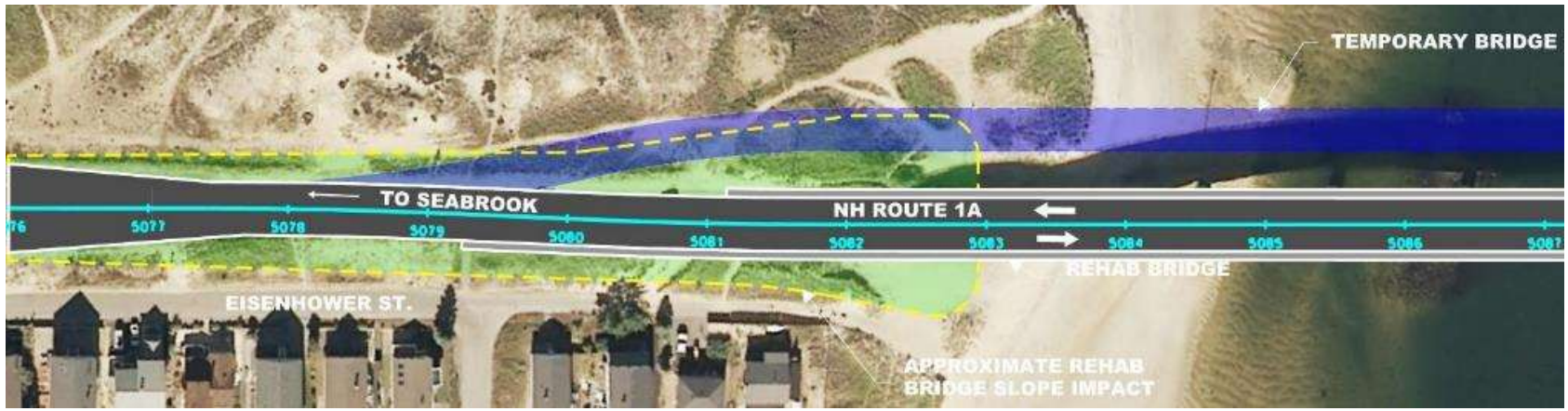



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# Rehabilitation (with Widened Bridge)

HAMPTON HARBOR BRIDGE

- Replaces superstructure, and widens substructure to east
- Retains operator house
- Extensive modifications to structure, new mechanical and electrical systems
- Requires temporary bridge (lift span assumed)
- Approach roadway impacts minimized
- No improvement to navigational channel (width or height)
- Traffic movement delayed when opened
- Results in adverse effect under Section 106
- Life cycle cost = $98 million

Bascule span, looking east

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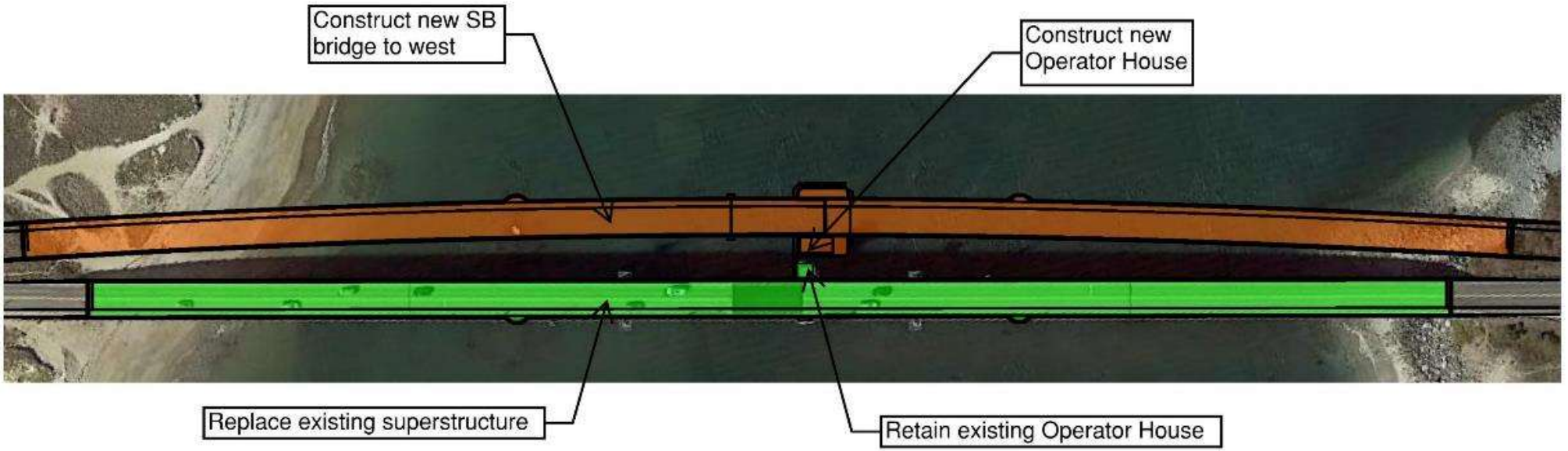
# Twin Bridge (with Rehabilitated Bridge)

HAMPTON HARBOR BRIDGE

- Alternative considered based on comments from NH Division of Historical Resources




Aerial Plan of Twin Bridge Alternative



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# Twin Bridge (with Rehabilitated Bridge)

HAMPTON HARBOR BRIDGE

- New bascule bridge west of existing
- Replaces existing superstructure (due to deterioration), rehabilitates substructure
- Splits traffic onto two bridges (one NB, one SB)
- Each bridge has 30’ roadway width
- Two independent lift-spans (simultaneous operation)

- No improvement to navigational channel (width or height) & reach of restricted channel increased
- Impacts to navigational channel within Hampton Harbor – may require blasting
- Traffic movement delayed when opened
- Results in adverse effect under Section 106
- Life cycle cost = $128 million


Twin Bridge Typical Section

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# Replacement with Bascule Bridge

HAMPTON HARBOR BRIDGE

- Modern version of existing bridge
- Vertical underclearance increased to 34', reducing required lifts by 55%
- Navigational channel width increased to 80'
- Traffic movement delayed when opened
- Impacts to navigational channel within Hampton Harbor – may require blasting
- Results in adverse effect under Section 106
- Life cycle cost = $115 million

Aerial of Proposed Bascule Bridge

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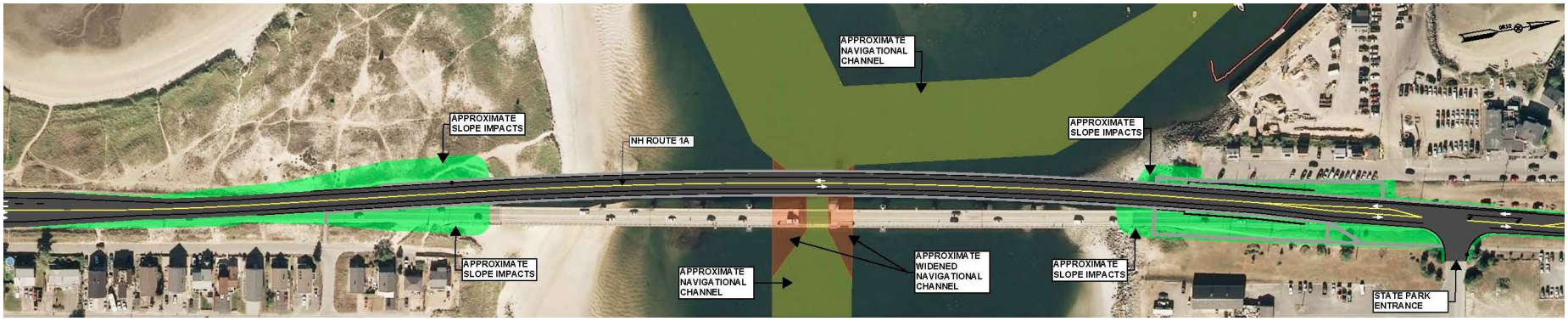
# Replacement with Fixed Bridge - Preferred Alternative

HAMPTON HARBOR BRIDGE

Fixed bridge alignment moved closer to existing bridge to avoid impacts to navigational channel within Hampton Harbor

- Navigational channel width increased to 150’
- Vertical underclearance increased to 48’




Alignment of Fixed Bridge Alternative

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# Replacement with Fixed Bridge - Preferred Alternative

HAMPTON HARBOR BRIDGE

- Sufficient vertical clearance for vessels
- Wider channel with fewer obstructions
- No vehicular delays due to bridge lifts
- Avoids impacts to navigational channel within Hampton Harbor
- Results in adverse effect under Section 106
- Shortest construction duration
- Substantial reduction in cost
- Life cycle cost = $71 million

Aerial of Proposed Fixed Bridge

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# Type, Size and Location Study – March 2020

HAMPTON HARBOR BRIDGE

## TS&L Cost Estimates:

| Alternative | Widened Rehab. | Twin Bridge | Bascule Bridge | Fixed Bridge* |
|---|---|---|---|---|
| Initial Construction Cost | $85M | $110M | $101M | $67M-$72M |
| Life Cycle Cost Constant Dollars | $156M | $212M | $181M | $85M-$91M |
| Life Cycle Cost Present Day Dollars | $98M | $128M | $115M | $71M-$75M |

* Note: Range accounts for concrete and steel girder options.

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# Alternatives Comparison Summary

HAMPTON HARBOR BRIDGE

| | Widened Rehab | Twin Bridge | Bascule Bridge | Fixed Bridge |
|---|---|---|---|---|
| Roadway Width | 50’ | 2 x 30’ | 50’ | 50’ |
| Approach Roadway Impacts | Easterly | Westerly | Westerly | Westerly |
| No Temporary Bridge Required | 🔴 | 🟢 | 🟢 | 🟢 |
| Historic Impact (Adverse Effect on Bridge) | 🔴 | 🔴 | 🔴 | 🔴 |
| Impacts to Natural Resources | 🟡 | 🔴 | 🟡 | 🟡 |
| Navigational Channel Improvements | 🔴 | 🔴 | 🟡 | 🟢 |
| Avoids Impacts to Harbor Channel (No Blasting) | 🟢 | 🔴 | 🔴 | 🟢 |
| Accommodates Future Utilities On Bridge | 🔴 | 🔴 | 🔴 | 🟢 |
| Reduced Traffic Delays w/ Bridge Openings | 🔴 | 🔴 | 🟡 | 🟢 |
| Initial Construction Cost | 🟡 | 🔴 | 🔴 | 🟢 |
| Construction Duration | 3.5 Years | 4 years | 3.5 Years | 3 Years |

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# Type, Size and Location Study – March 2020

HAMPTON HARBOR BRIDGE

- TS&L identifies Replacement with Fixed Bridge as **Preferred Alternative** because:
  - Accommodates widening of navigational channel under bridge
  - Allows vertical clearance for all vessels documented to have entered the harbor
  - Accommodates C*urrituck* (US Army Corps of Engineers dredge vessel)
  - Avoids impacts to navigational channel within Hampton Harbor
  - Eliminates roadway traffic delays
  - Accommodates future utilities on bridge
  - Shortest construction duration of four alternatives
  - Lowest life cycle cost of four alternatives

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# Anticipated Bridge Construction

HAMPTON HARBOR BRIDGE

- Timeline
  - Year 1 – Substructure construction
  - Year 2 – Superstructure construction
  - Year 3 – Complete superstructure (end spans), approach roadway, and demo of existing bridge
- Vehicular traffic maintained on existing and proposed bridge throughout construction period
- Current navigational channel will be maintained throughout construction with only brief scheduled interruptions



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# Replacement with Fixed Bridge – Preferred Alternative

HAMPTON HARBOR BRIDGE



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# Fixed Bridge from Eisenhower Street

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# Fixed Bridge from Hampton Beach State Park

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# Fixed Bridge from Ashworth Ave.

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# Questions

HAMPTON HARBOR BRIDGE

Before moving to the next section, please ask any questions you may have regarding the alternatives considered or the preferred alternative

Existing Bridge Looking West

HAMPTON HARBOR BRIDGE

# Environmental and Cultural Resource Agency Coordination

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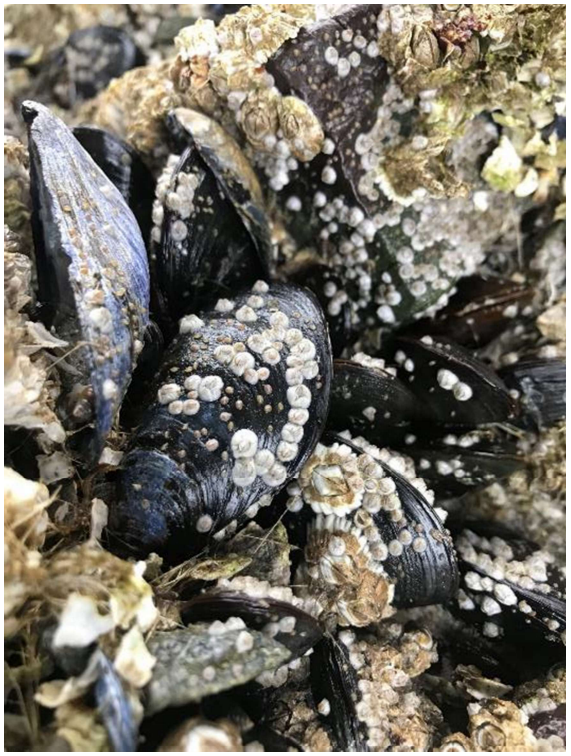
# Aquatic Species Coordination

HAMPTON HARBOR BRIDGE

- Federally-listed aquatic species
  - Atlantic and shortnose sturgeon
  - Sea turtles
  - Submitted Programmatic Biological Assessment to NOAA and received concurrence (Dec 2020)
- Essential Fish Habitat including Blue Mussel bed
  - Submitted Essential Fish Habitat Assessment to NOAA (Dec 2020)
- In-water construction restricted to between November 15 and March 15



Mussels in bed on north side of bridge

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# Avian Species Coordination

HAMPTON HARBOR BRIDGE

- Federally-listed avian species
  - Piping Plover
  - Red Knot
  - Roseate Tern
- Submitted Biological Assessment to USFWS (Dec 2020)
- Conservation measures will be included in the construction contract

Piping Plover



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# State-Listed Plant Species Coordination

HAMPTON HARBOR BRIDGE

- State-listed plant species located in dune habitat
- Mitigation plan to be developed with NHNHB to relocate plants away from work area

Dune Habitat on the south side of the bridge

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# USCG Coordination

HAMPTON HARBOR BRIDGE

- Navigation Impact Report Submitted (July 2019)
- USCG Preliminary Determination concurring with proposed clearances (Jan 2020)

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# Cultural Resources Coordination

HAMPTON HARBOR BRIDGE

- Cultural resources documentation
  - Individual Inventory Forms for 8 properties
  - District Area Form
  - Phase 1A Archaeological Assessment Survey & Addendum
  - Phase 1B Archaeological Survey
- Historic properties identified
  - Neil R. Underwood Bridge (NR Eligible)
  - Hampton Beach Cottages Historic District (NR Eligible)
  - Eastern Railroad Historic District (NR Eligible)
  - 197 Ashworth Avenue (NR Eligible)
- Effects Memorandum signed spring 2020
- Mitigation coordinated with New Castle-Rye Bridge Project

Concord Avenue within the Hampton Beach Cottages Historic District

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# Cultural Resources Mitigation

HAMPTON HARBOR BRIDGE

- Marketing of bridge
- Interpretive signage
- Website
- Archival documentation
- Archaeological survey/monitoring
- Documentary focused on NH bascule bridges

Bridge looking south

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# Section 4(f) Resources

HAMPTON HARBOR BRIDGE

- Hampton Beach State Park
- Hampton State Pier
- Hampton Beach Cottages Historic District
- 197 Ashworth Avenue
- Neil R. Underwood Bridge
- Hampton-Seabrook Dunes Wildlife Management Area
- Sun Valley Beach
- Preparing Programmatic 4(f) Evaluation for bridge and *de Minimis* Finding for the State Pier

Seabrook-Hampton Bridge with Hampton State Pier (left) and Hampton Beach State Park (right) in the distance

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# Section 6(f) Properties

HAMPTON HARBOR BRIDGE

- Hampton Beach State Park & State Pier
- Coordinating with NH State Parks, NH Port Authority and National Park Service regarding potential 6(f) conversion and replacement mitigation

# Questions

HAMPTON HARBOR BRIDGE

Before moving to the next section, please ask any questions you may have regarding agency coordination and environmental considerations

Existing Bridge Looking West

HAMPTON HARBOR BRIDGE

# Next Steps

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# Next Steps – Preliminary Design

HAMPTON HARBOR BRIDGE

To move from Preferred to Selected Alternative:

- Conclude:
  - Identification of potential mitigation measures for loss of historic bridge and execute Memorandum of Agreement
  - Formal consultation with USFWS regarding potential adverse effects to avian species
  - Consultation with NOAA regarding Essential Fish Habitat Assessment
  - Identification of property impacts to State Pier for 6(f) coordination and mitigation
- Publish Environmental Assessment (EA) and 4(f) Evaluation for agencies and public reviews
- National Environmental Policy Act (NEPA) Public Hearing (March 2021)
- Finalize EA/4(f), as appropriate, based on comments received
- FHWA concludes NEPA

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# Next Steps – Final Design

HAMPTON HARBOR BRIDGE

To move from Selected Alternative to Construction:

- Prepare permit applications
- Finalize all necessary mitigation measures
- Transfer property rights between State entities
- Complete roadway design, drainage and stormwater treatment
- Coordinate utility relocations
- Complete final design of the bridge and roadway approaches



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# Next Steps

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# Questions and Comments?