HAMPTON HARBOR BRIDGE

Public Advisory Committee Meeting

April 1, 2020

New Hampshire DOT Department of Transportation

HDR

Innovative Planning BETTER COMMUNITIES

Agenda

HAMPTON HARBOR BRIDGE

- Recap of Progress to Date
- Type, Size and Location Study Conclusions
- Review of Four Alternatives
- Update on Consultation
- Next Steps

Seabrook-Hampton Bridge looking northwest

New Hampshire DOT Department of Transportation

Coordination To Date

HAMPTON HARBOR BRIDGE

- Meetings to date
  - ✓4 PAC Meetings
  - ✓2 Public Informational Meetings
  - ✓Meeting with maritime users
  - ✓Meeting with abutters
- Reviewing Agencies
  - ✓US Coast Guard
  - ✓US Army Corps of Engineers
  - ✓NH Division of Historical Resources
  - ✓National Oceanic and Atmospheric Administration
  - ✓US Fish and Wildlife Service
  - ✓Additional Environmental Agencies
- These have informed key decisions throughout the project's development

New Hampshire DOT Department of Transportation

Alternatives

HAMPTON HARBOR BRIDGE

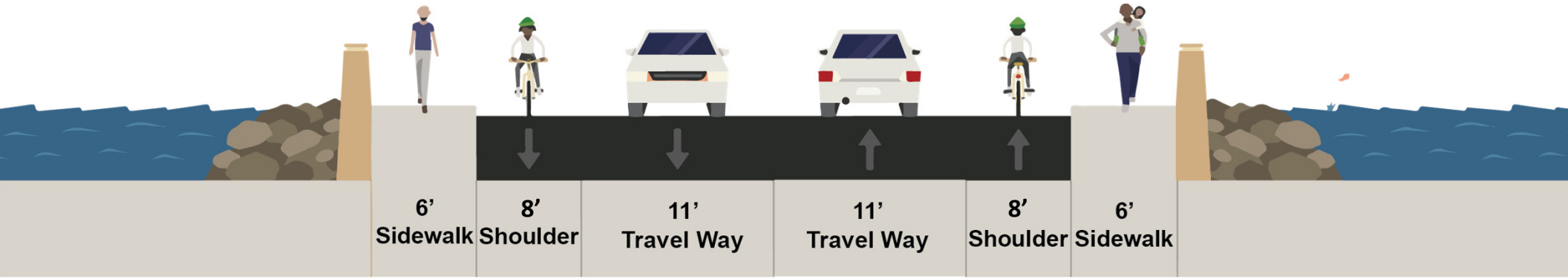
- Initially, three alternatives considered:
  - Rehabilitation (with Widened Bridge)
  - Replacement with Bascule Bridge
  - Replacement with Fixed Bridge
- Through Coordination with NH Division of Historic Resources, a fourth alternative was added:
  - Twin Bridge (with Rehabilitated Bridge)
- All meet project Purpose and Need

New Hampshire DOT Department of Transportation

Typical Roadway Section

HAMPTON HARBOR BRIDGE

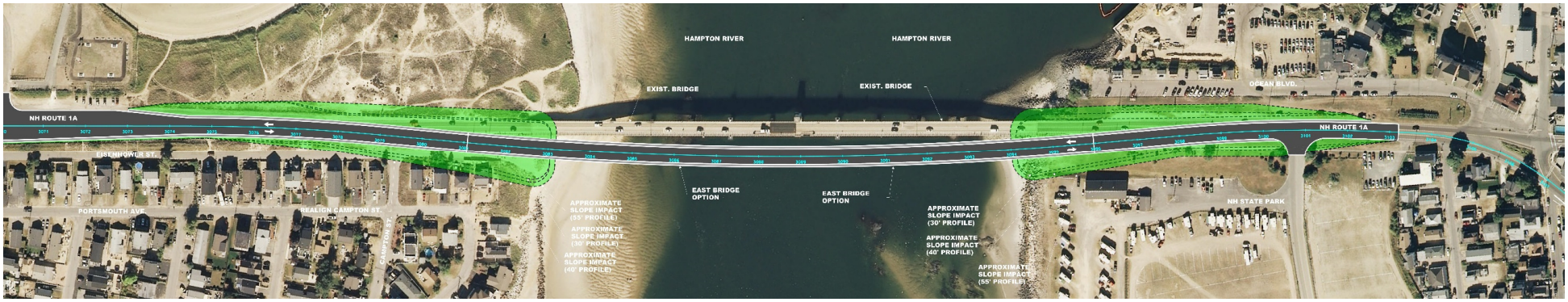
- 2 travel lanes
- 8’ shoulders
- 6’ sidewalks with bumpouts



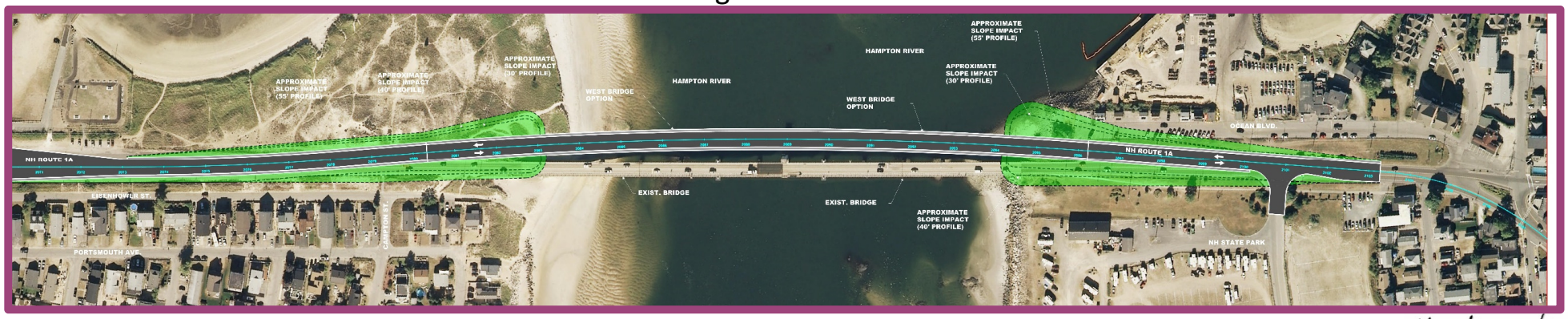
New Hampshire DOT
Department of Transportation

Roadway Alignments

HAMPTON HARBOR BRIDGE



Eastern Alignment



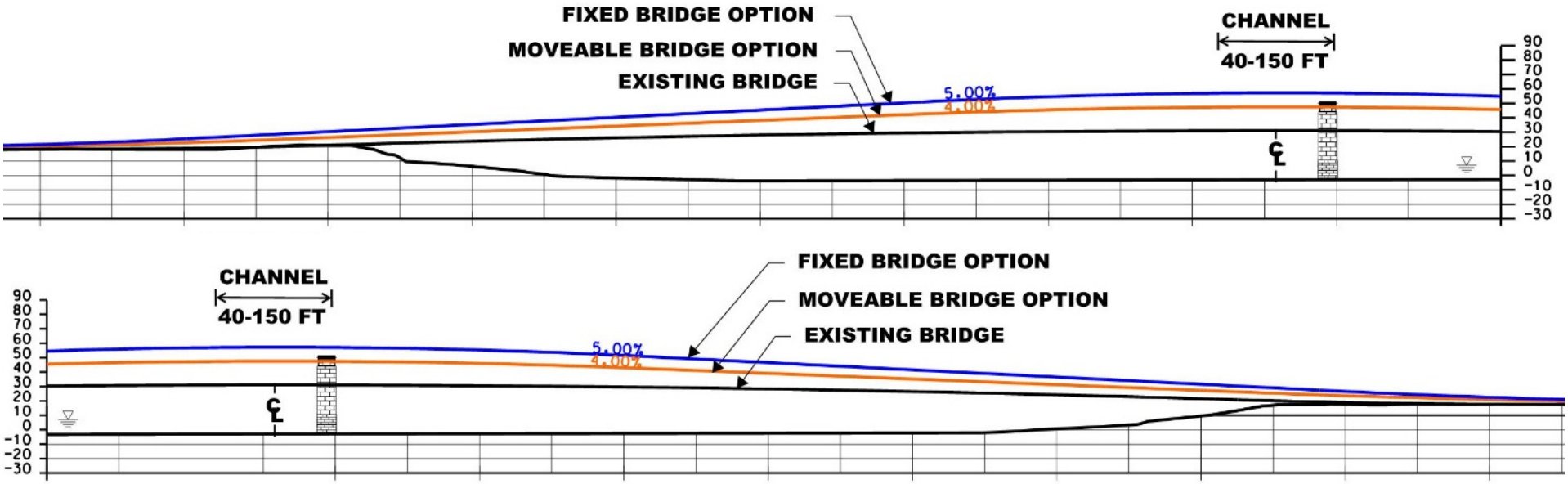
✓

Western Alignment

New Hampshire DOT Department of Transportation

Navigational Vertical Clearance

HAMPTON HARBOR BRIDGE



Lines shown are roadway surface at center of roadway

- Replacement with Fixed - 48’ Vertical Underclearance at Channel
- Replacement with Bascule - 34’ Vertical Underclearance at Channel
- Existing Bridge – 18’ Posted Vertical Underclearance

New Hampshire DOT Department of Transportation

Questions

HAMPTON HARBOR BRIDGE

- Before moving to the next section, please ask any questions you may have regarding progress to date

Bridge Looking West

Type, Size and Location Study

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 traffic delays
  - Shortest construction duration of four alternatives
  - Lowest life cycle cost of four alternatives

New Hampshire DOT Department of Transportation

Rehabilitation (with Widened Bridge)

HAMPTON HARBOR BRIDGE

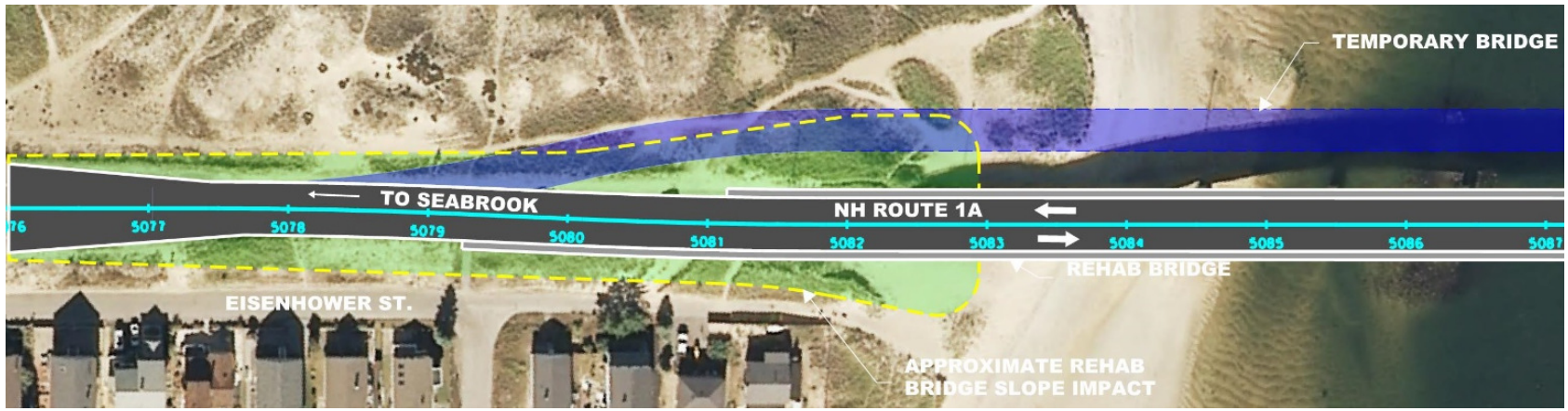
- 50’ roadway
- Requires temporary bridge
- Approach roadway impacts minimized
- Retains operator house
- Alters overall form of existing bridge
- Extensive modifications to structure and new mechanical and electrical systems
- Would result in adverse effect under Section 106
- No improvement to navigational channel
- Vertical underclearance unchanged (20’ in closed position)
- Traffic movement delayed when opened
- Life cycle cost = $98 million

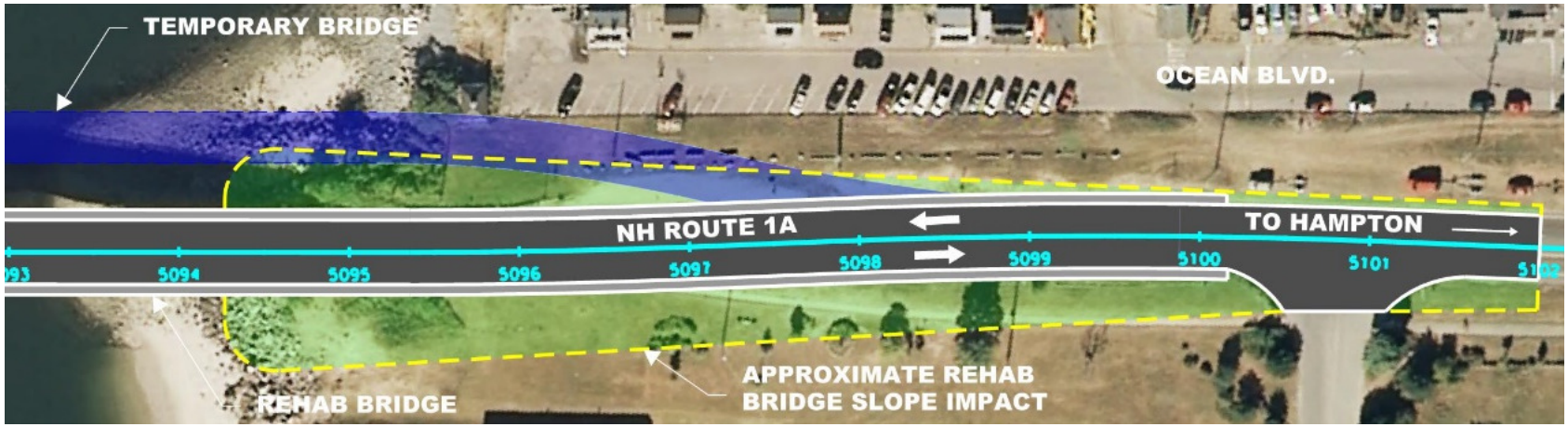
Bascule span, looking east

New Hampshire DOT Department of Transportation

Rehabilitation (with Widened Bridge)

HAMPTON HARBOR BRIDGE



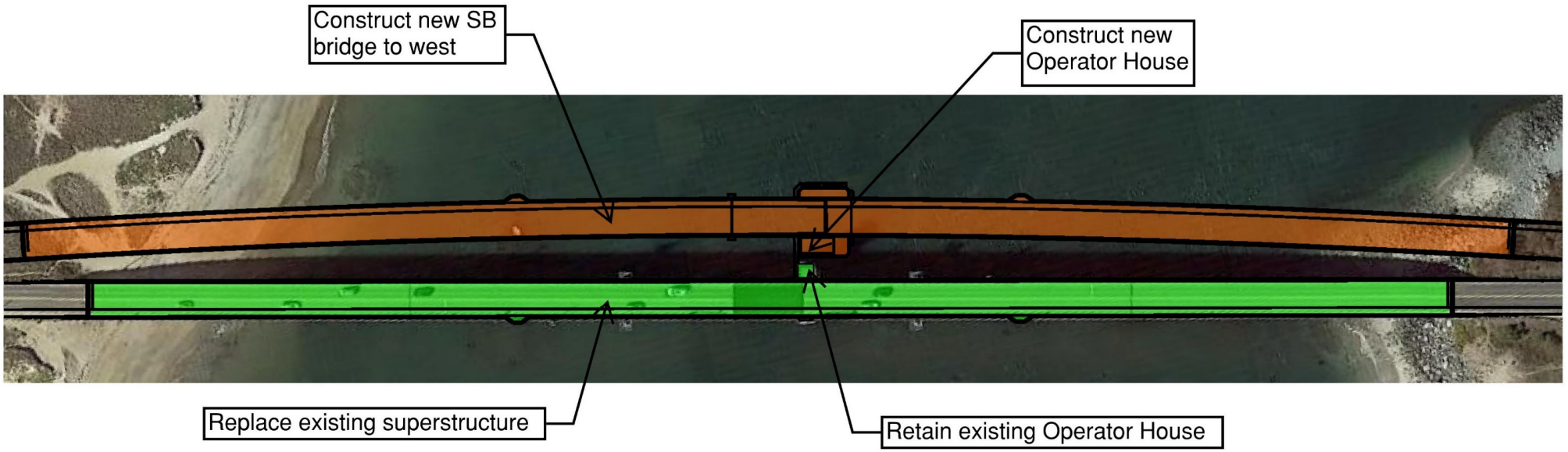


New Hampshire DOT
Department of Transportation

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

New Hampshire DOT Department of Transportation

Twin Bridge (with Rehabilitated Bridge)

HAMPTON HARBOR BRIDGE

- New bascule bridge west of existing
- Rehabilitates existing substructure– replaces superstructure due to deterioration
- Splits traffic onto two bridges
- Each bridge has 30'-6" roadway width
- Width of navigational channel unchanged (40')
- Length of restricted channel increased
- Impacts to navigational channel within Hampton Harbor – may require blasting
- Vertical underclearance unchanged (20')
- Traffic movement delayed when opened
- Would result in adverse effect under Section 106
- Life cycle cost = $128 million

Twin Bridge Typical Section

New Hampshire DOT Department of Transportation

Replacement with Bascule Bridge

HAMPTON HARBOR BRIDGE

- Modern version of existing bridge
- Steel bascule span
- Proposed underclearance increased to 34', reducing required lifts by 55%
- Traffic movement delayed when opened
- Navigational channel width increased to 80' at crossing
- 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

New Hampshire DOT Department of Transportation

Repl. with Fixed Bridge - Preferred Alternative

HAMPTON HARBOR BRIDGE

- Fixed bridge alignment "tucked in" - moved closer to existing bridge to eliminate impacts to Harbor Channels
  - Underclearance increased from 44' to 48' but engineering refinement allows for minimal increase in structure height

Alignment of Replacement Alternatives

New Hampshire DOT Department of Transportation

Repl. with Fixed Bridge - Preferred Alternative

HAMPTON HARBOR BRIDGE

- Sufficient vertical clearance for vessels
- Widens channel to 150' and fewer obstructions for small vessels
- Avoids impacts to navigational channel within Hampton Harbor
- Results in adverse effect under Section 106
- Shortest construction duration
- No vehicular delays due to bridge lifts
- Substantial reduction in cost
- Life cycle cost = $71 million

Aerial of Proposed Fixed Bridge

New Hampshire DOT Department of Transportation

Questions

HAMPTON HARBOR BRIDGE

- Before moving to the next section, please ask any questions you may have regarding
  - Preferred Alternative
  - Other Alternatives

Bridge Looking West

Alternative Comparison Summary

HAMPTON HARBOR BRIDGE

	Widened Rehab	Twin Bridge	Fixed Bridge	Bascule Bridge
Roadway Width	50’	2 x 30’-6”	50’	50’
Approach Roadway Impacts	Easterly	Westerly	Westerly	Westerly
No Temporary Bridge Required	●	●	●	●
Historic - Adverse Effect on Bridge	●	●	●	●
Navigational Channel Improvements	●	●	●	●
No Blasting Required	●	●	●	●
Future Utilities On Bridge	●	●	●	●
Reduced Traffic Delays with Bridge Operation	●	●	●	●
Construction Duration	3.5 Years	4 years	3 Years	3.5 Years

New Hampshire DOT Department of Transportation

Alternative Cost Analysis

HAMPTON HARBOR BRIDGE

Alternative	Widened Rehab.	Twin Bridge	Fixed Bridge*	Bascule Bridge
Initial Construction Cost	$85M	$110M	$67M-$71M	$101M
Life Cycle Cost – Constant Dollars	$156M	$212M	$85M-$90M	$181M
Life Cycle Cost – Present Day Dollars	$98M	$128M	$71M-$74M	$115M

* Note: Range accounts for concrete and steel as options for girders.

New Hampshire DOT Department of Transportation

Next Steps

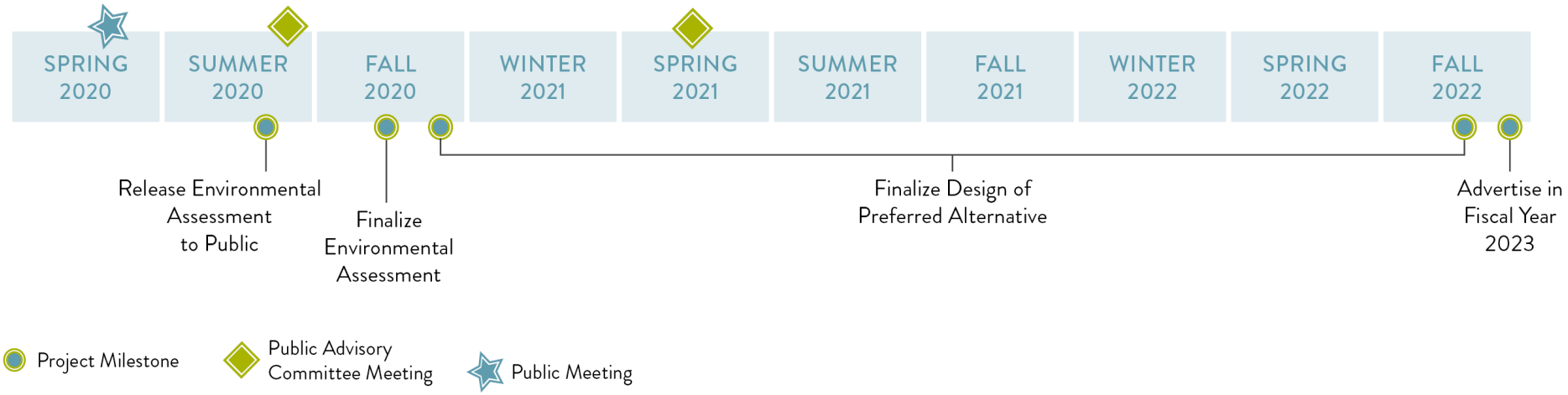
HAMPTON HARBOR BRIDGE

- Further identify mitigation measures for loss of historic bridge
- Develop Memorandum of Agreement with NH Division Historic Resources and Consulting Parties
- Complete Biological Assessments and Essential Fish Habitat Assessment
- Hold Public Informational Meeting
- Prepare and release Draft Environmental Assessment and 4(f) Evaluation (summer 2020)
- Develop US Coast Guard Permits

New Hampshire DOT Department of Transportation

Next Steps

HAMPTON HARBOR BRIDGE



New Hampshire DOT
Department of Transportation