DENNIS-YARMOUTH BRIDGE REPLACEMENT

Br. No. D-07-004 = Y-01-003
Route 28 over Bass River
Project Location
Project Location

Project Limits
- Pleasant Street, Yarmouth
- Driveway at Bass River Park, Dennis

Adjacent Yarmouth Project
- Coordinating with adjacent project
- Main Street (Route 28) at North Main St. and Old Main St.
02 Concept Cross Section, Elevation, and Plan
Concept Bridge Cross Section

Bridge Cross Section

Bridge Deck Width: 60’-1”
Roadway Width: 36’-0”
2 Lanes Each: 12’-0”
Shoulders: 7’-0”
South Sidewalk: 12’-0”
Shared Use Path
North Sidewalk: 6’-8”
Concept Bridge Elevation

Concept Navigational Channel:
- 45’-8” Clear Span
- 15’-6” Vertical Clearance

Concept Approach Spans:
- 6 Spans at 72’-0”
- 2 Spans at 80’-6”
- 1 Nav. Channel at 50’-0”

Total Bridge Length = 643’-0”
Conceptual Bridge Plan View for a Shared Use Path
03 Superstructure Selection
Span Arrangement & Superstructure Materials

Span Arrangement
• Existing Piers are spaced at 18’-0” apart
• Conceptual Plan to open up the Approach Span Piers to be spaced at 72’-0”

Superstructure Materials
• Structure Type best addresses the project constraints and parameters and best fits the site conditions (Aesthetics).
• Use of Accelerated Bridge Construction (ABC) innovative rapid construction techniques.
• Bass River Bridge lends itself to a bridge to use ABC construction techniques.
• Northeast Extreme Tee (NEXT) beams with a composite concrete deck and 3” Bituminous Pavement.
Current Project Status
Design Progress and Milestones

Design Status:
- Bridge Type Selection Worksheet submitted. (NEXT Beams)
- Addressing Type Study Comments
- Moving 25% Bridge/Highway Design forward.
- Ongoing Coordination with the Adjacent Projects.

Field Work:
- Survey has been Completed
- Preliminary Environmental Impact Evaluation is Complete
- Geotechnical Borings have been Completed
- Hydraulic Study is near completion.
Aesthetics
Span Arrangement & Aesthetics

Current Proposals
• Shared Use Path and Sidewalk Provide Ample Pedestrian Areas.
• Concrete Next Beams Maintain the Classic “Cape Look”, Compared to more Urban Steel Beams.
• Ornamental Lights and Railings will Provide a Traditional Look During the Day and Night.
• Minor Walkway Entrance Enhancements will Provide a Welcoming Environment.

Limitations
• Shared Use Path will Utilize Majority of the Southern Available Right of Way.
• Next Beams are not Conducive to Overhangs / Bulb outs.
• End Transitions will Need to be Coordinated with Towns.
• Any Significant Increase in Bridge Height / Clearance over the Channel will lead to an Uncomfortable Walking and Riding Surface
Lighting Aesthetics

High Overheads:
Positives:
• Full Width Shared Use Path
• Away from Traffic
Negatives:
• Unsightly
• More Exposed to Sea Spray
• More Light Pollution
Lighting Aesthetics

Low Side-Bys:
Positives:
• Easy to Maintain
• Low Profile (Less Pollution)

Negatives:
• Reduce Shared Use Path at Points
• Possible Damage from Oversized Loads
Bulbout Aesthetics

Bulbout Advantages:
• Location for Informational Signs.
• Resting area for Pedestrians away from Foot Traffic.
• Area for Fishermen.

Bulbout Disadvantages:
• Will require ROW permanent easements.
• Presents Unique Design Challenges and Must be Located at a Pier.
• May encourage Loitering.
Bulbout Aesthetics
Bulbout Aesthetics

At Pier 3 and 6:
- Avoids the Navigation Opening
- Symmetric Bulbouts along the Bridge (One Yarmouth, One Dennis)
- Not Centered on the River
- North Side May Impact Docks
Bulbout Aesthetics

At Pier 5 and 6:

- South Bulbout is Centered on River
- Avoids the Docking Zones
- Not Symmetric to the Bridge (Both on Dennis Side)
- South Side Fishing will Impact Boat Navigation
Abutment Aesthetics

Stepped Monument

Sloped Sail Monument
Abutment Aesthetics

Abutment Treatments:
- Will Provide An Entrance Way
- Allow for Local Art Installations
- Allow the Towns to Add Character
- Provide a Location for Historic Plaques
Abutment Aesthetics

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Aesthetics

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Questions?