Herring River Restoration Project
Chequessett Neck Road Bridge Design

Friends of Herring River Annual Meeting

Herring River Restoration Committee
Towns of Wellfleet and Truro
Friends of Herring River
Cape Cod National Seashore

August 18, 2015
PRESENTATION OVERVIEW

• Bridge Layout and Design Elements/Approach
  • Tide Control Structures and Operation/Management
  • Public Access and Safety
• Construction Duration and Traffic Management
• Conceptual Portage and Water Access Improvements
• Next Steps
BRIDGE STRUCTURE DESIGN CRITERIA

• Provide Functional Requirements
  – Tidal Control to Support Incremental Restoration of Vegetative, Fishery, Shellfish and Wildlife Communities
  – Support Increased Tidal Flushing, Improved Water Quality, Increased Sediment Transport, Other Restoration Goals

• Minimize Operation & Maintenance Requirements/Costs
• Minimize Construction Cost
• Minimize Environmental Impacts
• Fit Natural Character of Site
• Provide Safe Public Access and Recreational Use
BRIDGE REPLACEMENT STRUCTURAL ALTERNATIVES

Example Four-sided Precast Concrete Box Culvert

Example Three-sided Precast Concrete Box Culvert

Example Box Beam Bridge
# REPLACEMENT BRIDGE STRUCTURE ALTERNATIVES EVALUATION

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>NATURAL RESOURCES MINIMIZE IMPACTS &amp; MAXIMIZE BENEFITS</th>
<th>PHYSICAL PROCESSES MINIMIZE IMPACTS &amp; MAXIMIZE BENEFITS</th>
<th>CONSTRUCTION COST &amp; TIMELINE MINIMIZE COST &amp; DURATION</th>
<th>OPERATION &amp; MAINTENANCE MINIMIZE O&amp;M &amp; MAXIMIZE RELIABILITY/ADAPTABILITY</th>
<th>ACCESS AND AESTHETICS MAXIMIZE SAFE ACCESS &amp; FIT NATURAL CHARACTER OF SITE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUR-SIDED BOX</td>
<td>LOW (0.42)</td>
<td>MEDIUM (1.08)</td>
<td>MEDIUM (0.47)</td>
<td>HIGH (0.98)</td>
<td>LOW (0.64)</td>
<td>3.59</td>
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<tr>
<td>THREE-SIDED BOX</td>
<td>MEDIUM (0.53)</td>
<td>LOW (1.02)</td>
<td>LOW (0.48)</td>
<td>LOW (0.86)</td>
<td>MEDIUM (0.73)</td>
<td>3.62</td>
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<tr>
<td>BOX BEAM BRIDGE</td>
<td>HIGH (0.68)</td>
<td>HIGH (1.09)</td>
<td>HIGH (0.56)</td>
<td>MEDIUM (0.89)</td>
<td>HIGH (0.76)</td>
<td>3.98</td>
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CONCEPTUAL RENDERING OF BRIDGE

View of Bridge From Griffin Island
CONCEPTUAL RENDERING OF BRIDGE

View of Bridge Looking Upstream – Gates Closed
CONCEPTUAL RENDERING OF BRIDGE

Herring River Restoration Project
Chequessett Neck Road Bridge Structure
Preliminary Design – August 2015

View of Bridge Looking Upstream – Gates Fully Open
CONCEPTUAL RENDERING OF BRIDGE

View of Bridge Facing Upstream – Gates & Panels Removed
RECREATIONAL BOATING PORTAGE AND WATER ACCESS

- Conceptual Design Being Developed for Designated Portage and Water Access Improvements
- Ongoing Review by HRRC, Cape Cod National Seashore and Town Officials
RECREATIONAL BOATING PORTAGE AND WATER ACCESS

- Conceptual Design Being Developed for Designated Portage and Water Access Improvements
View of Water Access Parking Area and Path, Facing Griffin Island
View of Portage and Water Access Improvements, From Griffin Island
CONSTRUCTION PHASE TRAFFIC BYPASS

- Estimated 8-10 Month Traffic Bypass Duration
  - Approx. 10-12 Month Total Construction Duration
- Construction Phase Traffic Bypass Approach
  - Current Tidal Exchange Maintained Throughout Project
  - Alternating One-way Traffic With Temporary Traffic Signals
  - Separate Pedestrian Lane Along The Bypass Route/Bridge
  - Overhead Utilities Temporarily Located Along Bypass Route Through Construction

Wellfleet Harbor

Temporary Single-Lane Bridge with Cantilevered Pedestrian Walkway

Temporary 5 ft. Pedestrian Walkway
DESIGN STATUS AND NEXT STEPS

- 2015
  - Continued Design Coordination with Towns and Cape Cod National Seashore
  - 75% Design Submission to MassDOT
  - Initiate Permitting Phase
- 2016
  - Develop Final Design Plans and Technical Specifications
  - Initiate Bidding Process
- 2017 - 2018
  - Construction Phase (funding dependent)
END OF PRESENTATION