



Town of Yarmouth

Riverwalk Park and Boardwalk Feasibility/Concept Design Study

Project Number: 17-2-CD
Meeting - March 24, 2017



ENGINEERING SUCCESS TOGETHER

Design Approach



The Essence of the Site

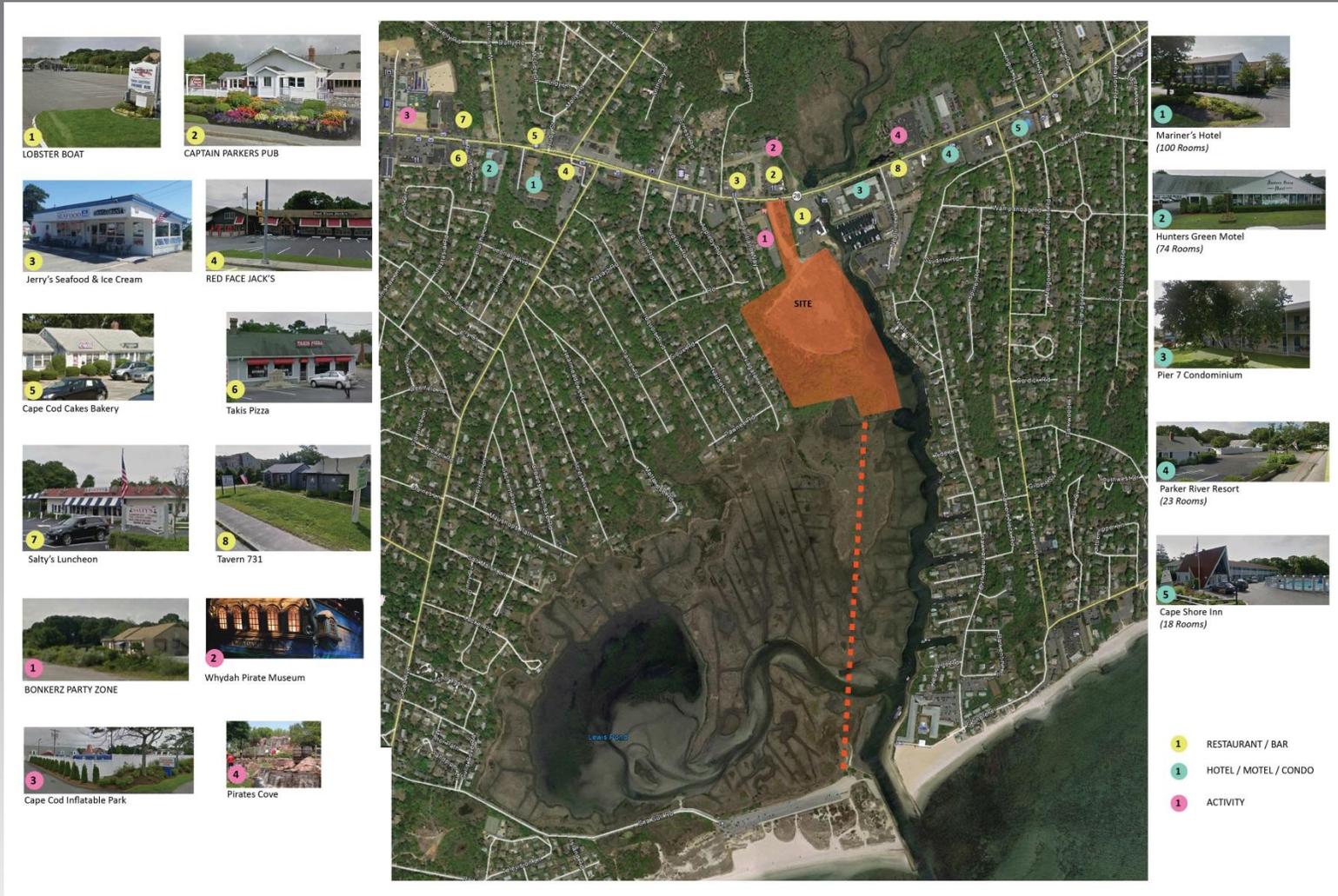


Site Context Considerations

- Expand on nearby attractions (restaurants, ice cream, mini-golf and the pirate museum) to enhance visitor retention.
- Generate pedestrian connectivity to the Parkers River resource area for people who live and stay nearby.
- Create a destination that celebrates the ecology of the site.

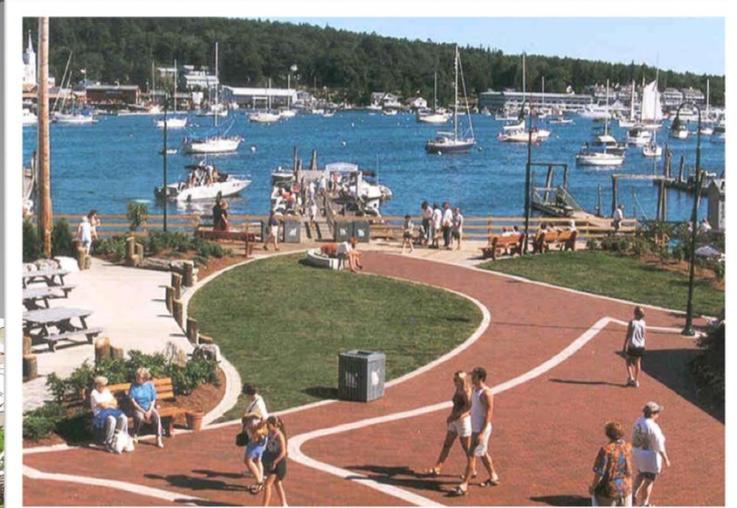


Site Context : Route 28 Corridor



Gateway Connections

- create a strong visual and walkable connection between the interior portions of the Park and Route 28
- Construct safe roadway crossings
- Showcase the estuary theme in the park's gateway treatment



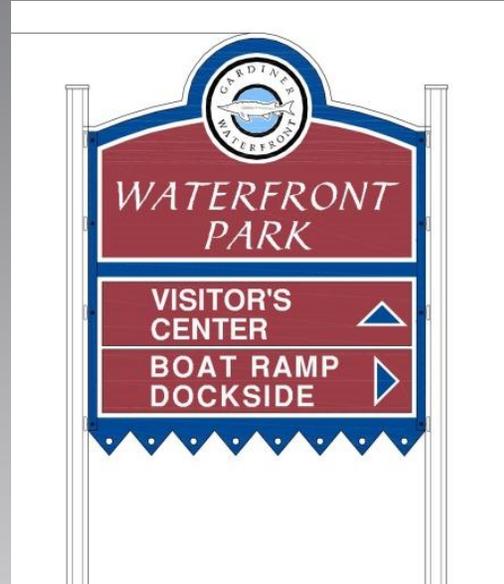
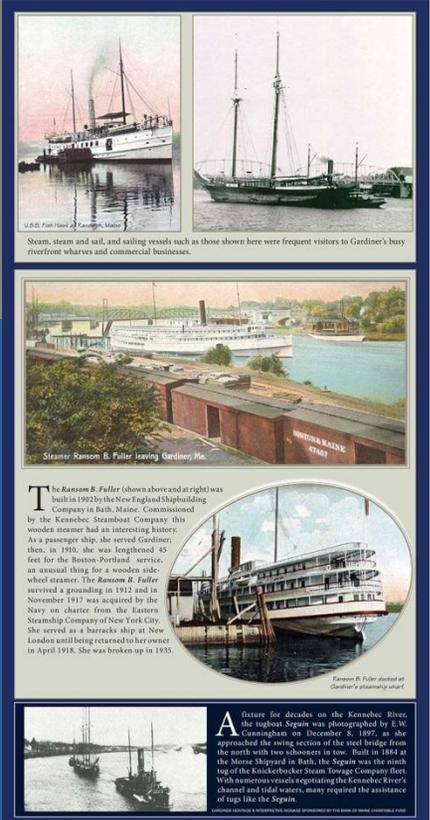
Site Ecology

Theme opportunity for educational experience and awareness

- Shellfish propagation facility
- Kayak ecological rows
- Marine art and crafts
- Seafood
- Plant life
- Water fowl
- Fishing
- Salt marsh boardwalk
- Walking trail
- Interpretation



Interpretive & Park Signage



THE RECOVERY OF A RIVER

Pollution of the Merrimack River with sewage and industrial waste poisoned the river in the 19th and early 20th centuries. After passage of the Federal Clean Water Act of 1949 and 1972 and massive spending on wastewater treatment, pollution was reduced and the Merrimack rebounded. Now the improved water quality supports a variety of bird and fish species and attracts people to live, work, and play nearby.

EAGLES ON THE MERRIMACK A SYMBOL OF HOPE

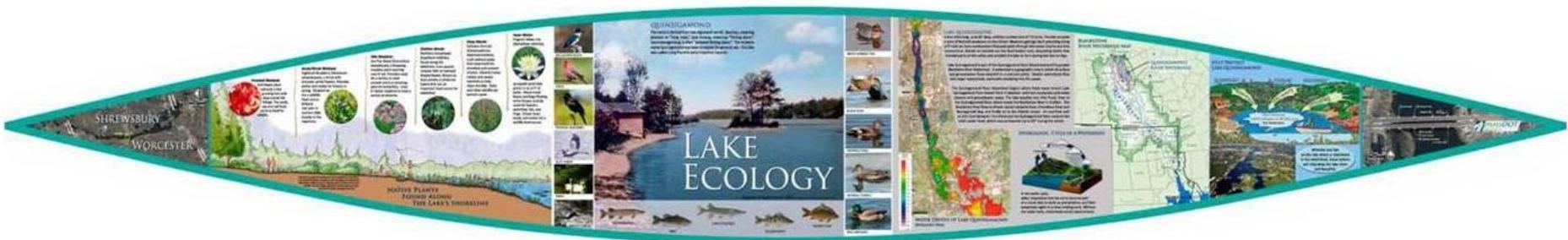
The lower Merrimack is a prime wintering location for Bald Eagles. They prey on fish and waterfowl and provide an exciting winter diversion for bird watchers.

*"If all I say, in earth and sky,
— Stone, flower, hawk, bee,
— what part have I?
The universal life, — is it the same
Which binds the universal frame..."*
— from "Aurora of Life,"
— John Gardner Peabody

*"Country changed, fish to a man,
— John Gardner Peabody"*

*"Bald Eagles roosting over a fish."
— John Gardner Peabody"*

Striped Bass, American Eel, Sand Eel, Blueback Herring, Alewife, Atlantic Sturgeon, Shortnose Sturgeon, Bluefish, Winter Flounder



Engineering Success Together

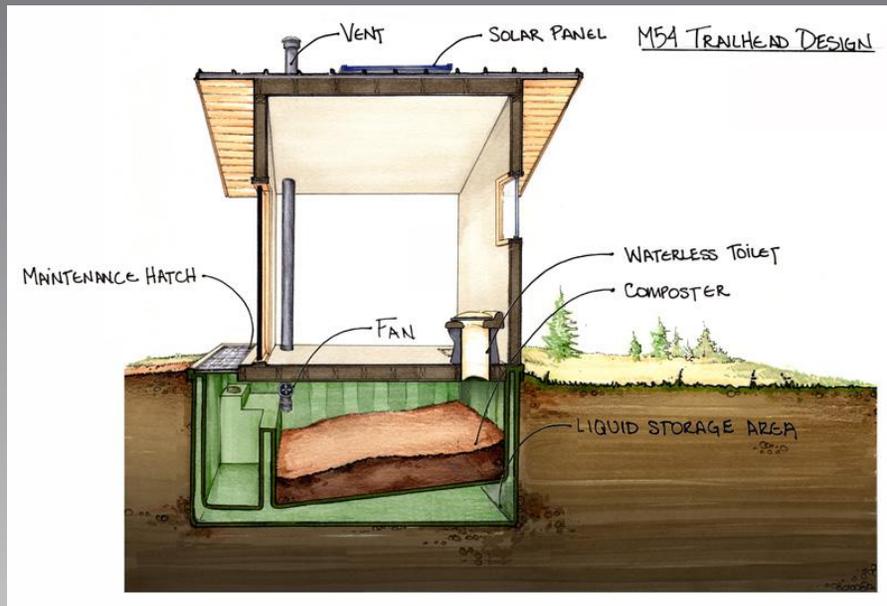
Initial Thoughts: The Park



Riverwalk Park and Boardwalk Feasibility Conceptual Design Study

Site: 669 Rte. 28, West Yarmouth, MA

Initial Thoughts: The Park

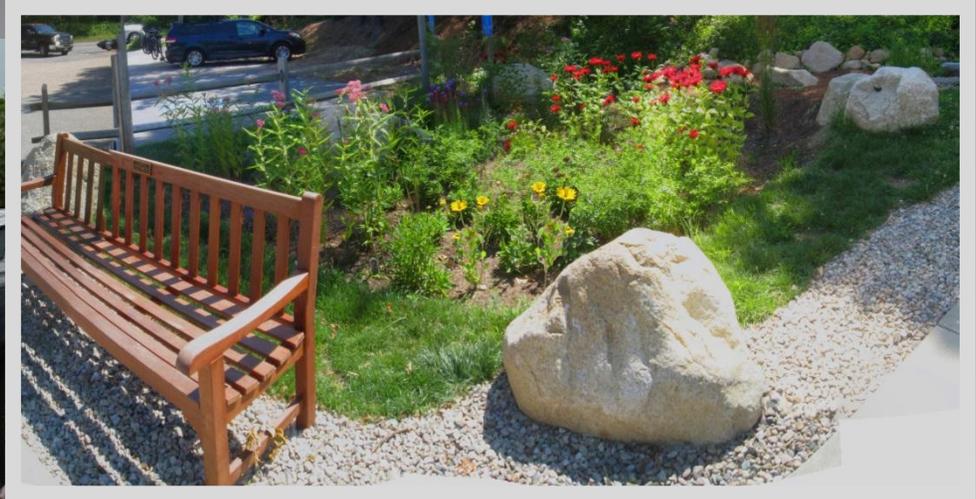


Pre-fabricated/Composting restrooms

- Self-contained waste treatment systems
- Emit no pollution
- Site disturbance minimized to the footprint of the buildings
- Traditional looking buildings.

Green Infrastructure

Stormwater swales, rain gardens and pervious pavement



Engineering Success Together

Initial Thoughts - Boardwalk



Look at Alternate Configurations



Initial Thoughts - Boardwalk



 'NOOKS & NODES'



The length of boardwalk offers an opportunity to create an attractive visitor experience especially if the layout design incorporates 'nooks & nodes' for overlooks, interpretive signage and possibly fishing as well.

If permitting allows, the alignment should avoid the 'straight shot' railroad track approach and instead offer a meandering walkway that provides a sense of discovery around every bend or corner.



Initial Thoughts: Boardwalk

- Coordinate design to:
 - Provide public access between the Riverwalk Park and Seagull Beach while minimizing impacts to protected coastal wetland resources
 - Establish concept designs that are aesthetically interesting
 - Minimize shading and achieve structure width and height
 - Meet DEP Chapter 91 requirements
 - Minimize potential storm and flood impacts.
- Key Issues > Bridge At Lewis Pond
 - Navigation Requirements
 - Width of Channel
 - Height of structure
 - ADA Transitions



Boardwalk - Key Design Issues

- Design Criteria
 - Pedestrian Loading
 - Vehicles – Gator utility vehicle/ golf cart
 - Flood Loads
 - ADA Compliance – Gradients, Material, Edge Protection, Kayak Launch
 - Wind, wave, geotechnical
- Boardwalk Height
 - FEMA Flood Elevations – VE Zone (+13 NAVD)
 - Chapter 91 requirements for clearances under structure
 - Sea level rise
 - Channel crossing
- Materials
 - Foundations – helical vs piles
 - Decking – tropical hardwood, composite, grating
- Construction/ Constructability/ Costs
 - Salt marsh impacts
 - Access for construction
 - Boardwalk width/alignment to accommodate vehicles



Sandwich Boardwalk
Sandwich MA

Permitting Considerations

Complex permitting environment with significant protected natural resources:

- Evaluate alternatives with respect to statutory & regulatory requirements/processes
- Develop permitting strategy
- Key permitting programs:
 - Massachusetts Environmental Policy Act (MEPA) – would thresholds be exceeded > Mandatory EIR?
 - Wetlands Protection Act & Yarmouth Wetlands By-Law
 - Chapter 91 Waterways Licensing – Crossing of Lewis Pond inlet
 - US Army Corps of Engineers – Individual Permit may be required – boardwalk & navigation issues

