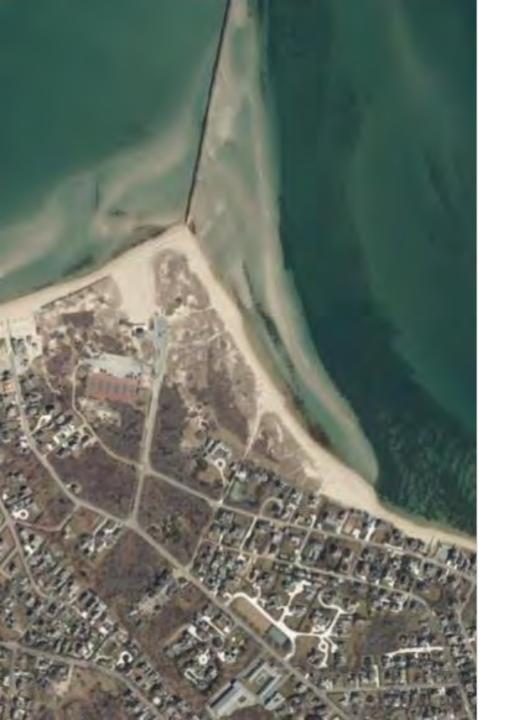
Jetties Beach: The Pavilion and the Department of Natural Resources Building

Created By: Annelise Boylan and Catie DeCosmo





Site Overview

- Site Location
- 2007 PIN report
- Historic Structures
 Report
- Historic Development Timeline
- Cultural Landscape
- Research Statements
- Project Significance
- Built Environment
- Natural Environment

Source: MassMapper GIS

Site Location



Site Images



Site Images





Source: Courtesy of the Nantucket Historical Association

2007 PIN Report

- Historical Context
- Architectural History
- Land Transfers (1839 - 2007)
- Interior & Exterior Condition Assessment
- Social Context
- Environmental Significance
- Drawings & HABS Drawings, Photos, Maps, and Elevations

Jetties Beach Pavilion And Bath House

Historic Structures Report



Prepared by:
Preservation Institute: Nantucket
Class of 2007

Preservation Institute: Nantucket Sherburne Hall 11 Centre Street Nantucket, MA 02554

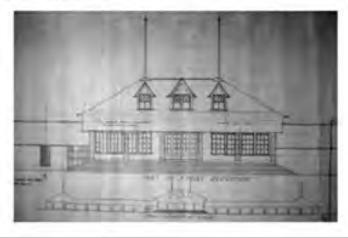
Appendix/VOL II

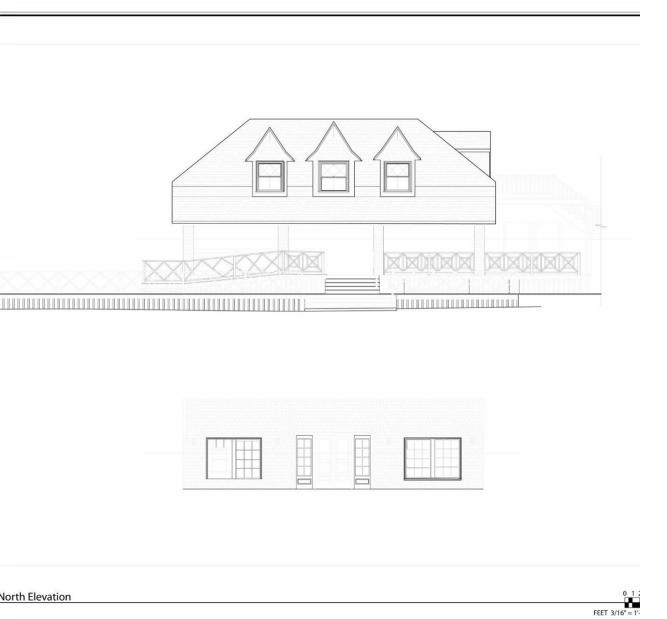
There is mention of a previous bathing establishment that was located nearby.

The 1904 structure was "located at a point farther west than the previous bathing houses, on the edge of the knoll nearest the water, and will stretch out over the sands about 300 feet," (see fig. 1)



Fig. 2 Peabody and Stearns Drawing for Clifford Folger Casino and Bath-Houses, Nantucket





The Jetties Beach Pavilion

4 Bathing Beach Road

Historic Structures Reports

BUILDINGS SURVEY

"Provides documentary, graphic, and physical information about a property's history and existing condition." - National Park Service, Preservation Briefs #43

Research Questions

Have any alteration been made since 2007?

What does Jetties beach mean to the community?

What are the vulnerabilities the historic structure faces?

As the most accessible beach on Nantucket, how do we preserve access?

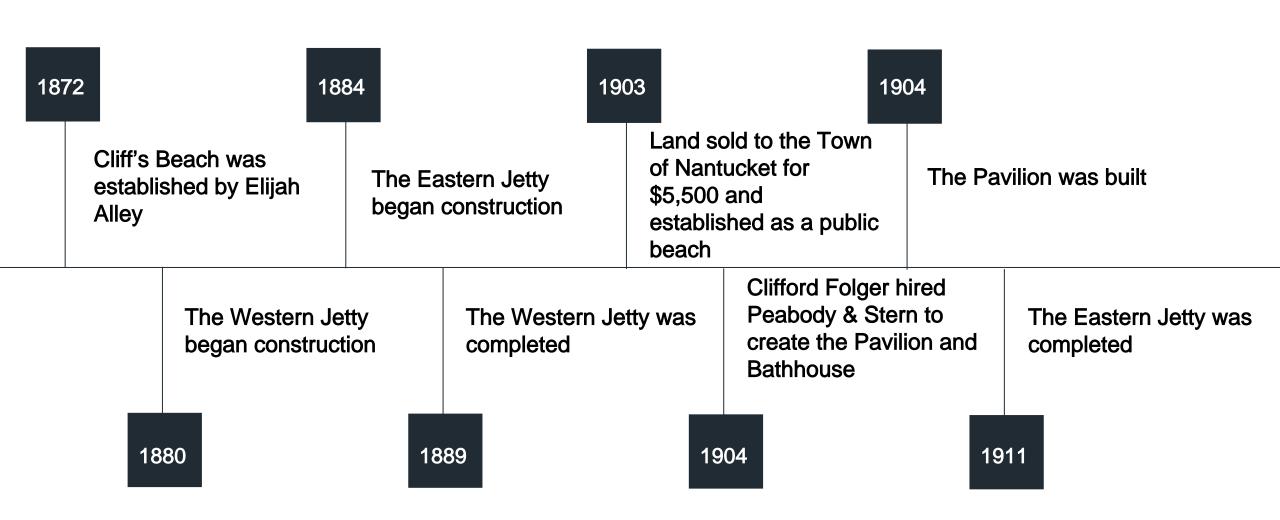
What mitigation measure could be applied to the area to help adapt the existing structures while maintaining their historic character?

How can the protection of endangered species be emphasized?

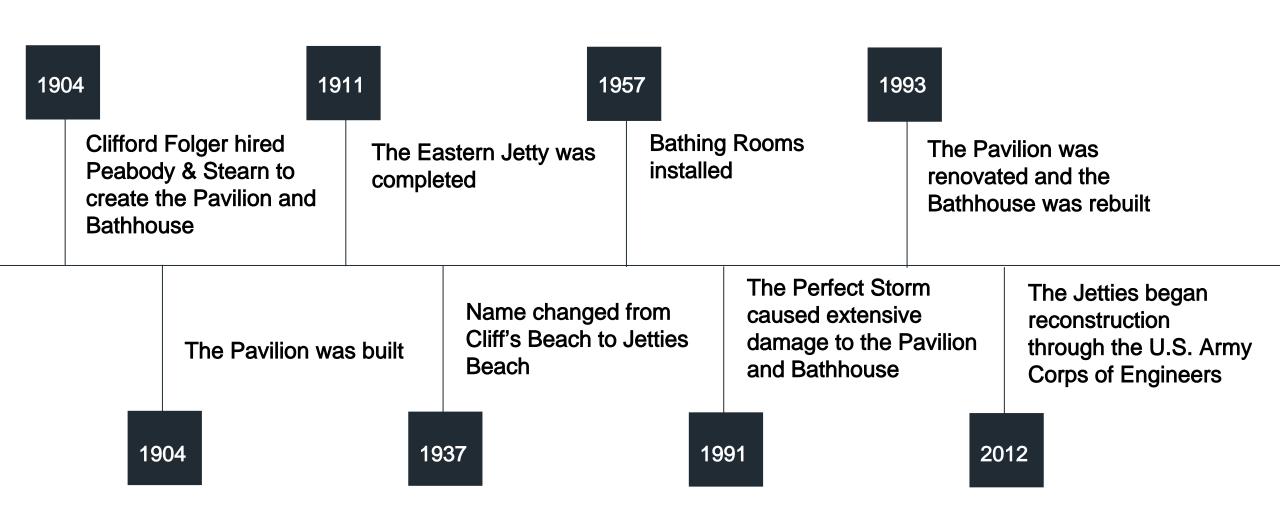
Who is going to maintain the structures?

How can better infrastructure be incorporated for pedestrians and cyclists?

Historic Development Timeline



Historic Development Timeline



Cultural Landscape



Cultural Landscapes

"A cultural landscape is defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values." -National Park Service, Preservation Briefs #36.

Four Types of Cultural Landscapes



Historic Sites



Historic Designed Landscapes



Historic Vernacular Landscapes



Ethnographic Landscapes

Transition of Use

Tourism

Cliff's beach was promoted for the new sport of swimming and being accessible from downtown.

1870's

Life Saving Station

A Massachusetts Humane Society: Cliff's - station 58.

1900's

Commercial Use

With the Pavilion brought larger crowds to enjoy food, shade and bathrooms.

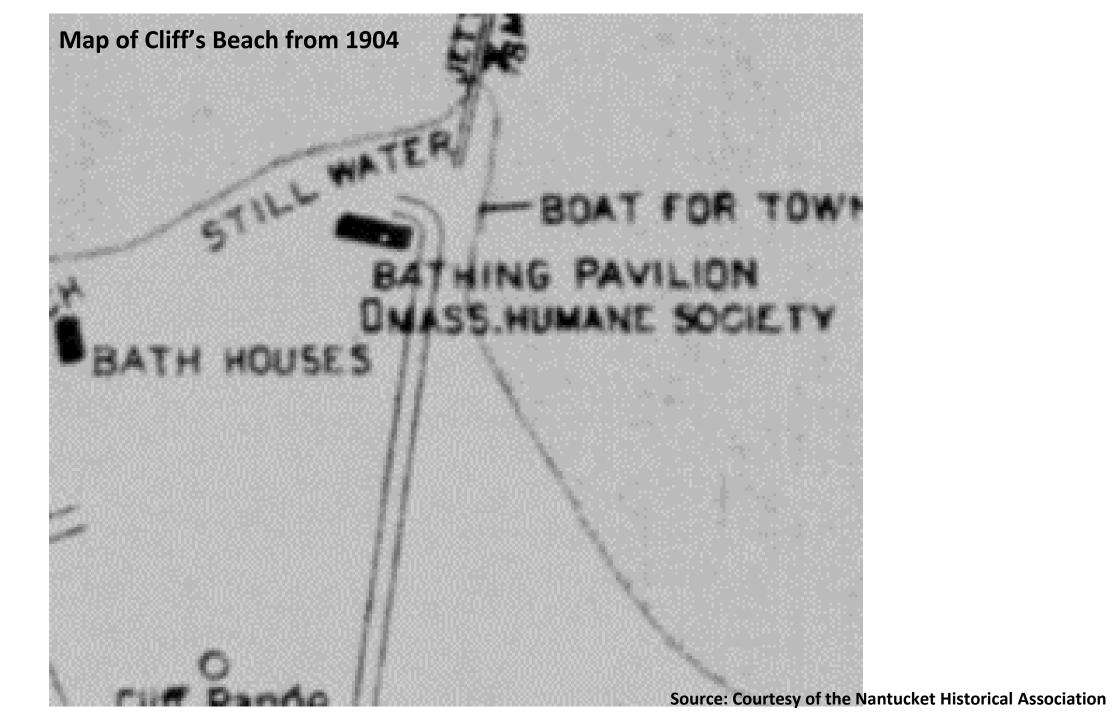
1904

Recreational Use

Recreation activities increased creating a demand for access to public space.

1960's







Source: Courtesy of the Nantucket Historical Association









Research Statements

Annelise Boylan

Jetties Beach - Pavilion Resilient Adaptation Strategies

Catie DeCosmo

Jetties Beach - Department of Natural Resources Building Education Center and Green Infrastructure







Project Significance

- Developing plans for long term use of Cultural Landscapes.
- Reimagining Jetties Beach and the buildings in a new way.
- Protect and Educate the public about Natural resources.

Source: PlanetWare.com

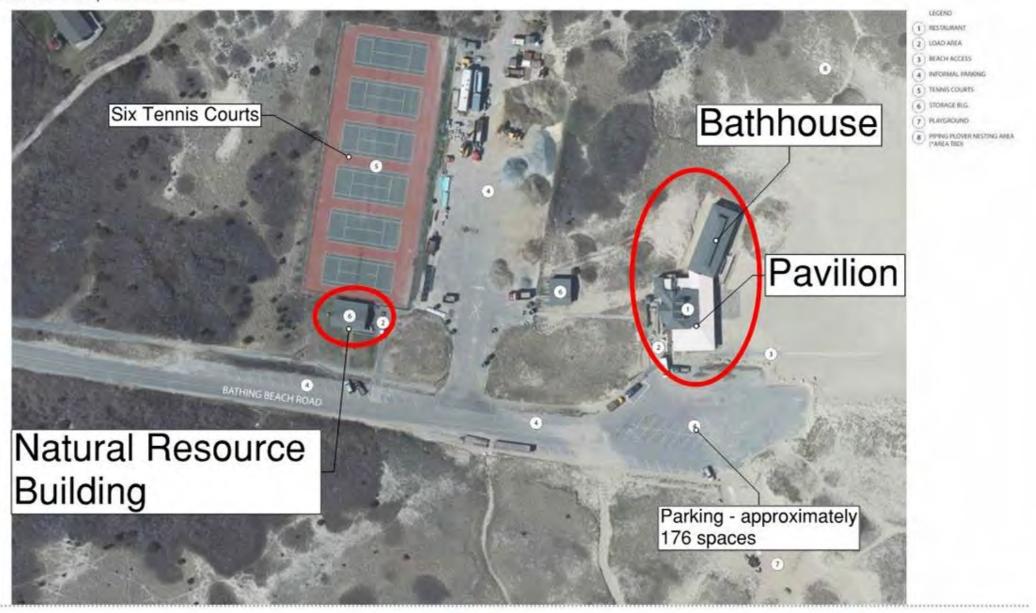
Built Environment



Site Amenities

- Pavilion and Bathhouse
- Restaurant
- Bar
- Restrooms
- Gift Shop
- Natural Resources Building
- Two Storage Building
- Parking
- Playground
- Six Tennis courts
- Beach access
- Sailing school area
- Bike racks
- Trash receptacles

Source: PlanetWare.com





Natural Environment



Catie DeCosmo, 2022



Catie DeCosmo, 2022





Vegetation



Native Plant Trust, 2022



Lands tylist, 2019

American Beach Grass

Salt Spray Rose

Vegetation



Bayberry

Wild Plant Culture, 2016

Coastal Landscaping in Massachusetts Plant List

This PDF document provides additional information to supplement the Massachusetts Office of Coastal Zone Management (CZM) Coastal Landscaping website.

The plants listed below are good choices for the rugged coastal conditions of Massachusetts. The Coastal Beach Plant List, Coastal Dune Plant List, and Coastal Bank Plant List give recommended species for each specified location (some species overlap because they thrive in various conditions). Photos and descriptions of selected species can be found on the following pages:

- Grasses and Perennials
- Shrubs and Groundcovers
- Trees

CZM recommends using native plants wherever possible. The vast majority of the plants listed below are native (which, for purposes of this fact sheet, means they occur naturally in eastern Massachusetts). Certain non-native species with specific coastal landscaping advantages that are not known to be invasive have also been listed. These plants are labeled "not native," and their state or country of origin is provided. (See definitions for native plant species and non-native plant species at the end of this fact sheet.)

Coastal Beach Plant List

Plant List for Sheltered Intertidal Areas

Sheltered intertidal areas (between the low-tide and high-tide line) of beach, marsh, and even rocky environments are home to particular plant species that can tolerate extreme fluctuations in water, salinity, and temperature. The following plants are appropriate for these conditions along the Massachusetts coast.

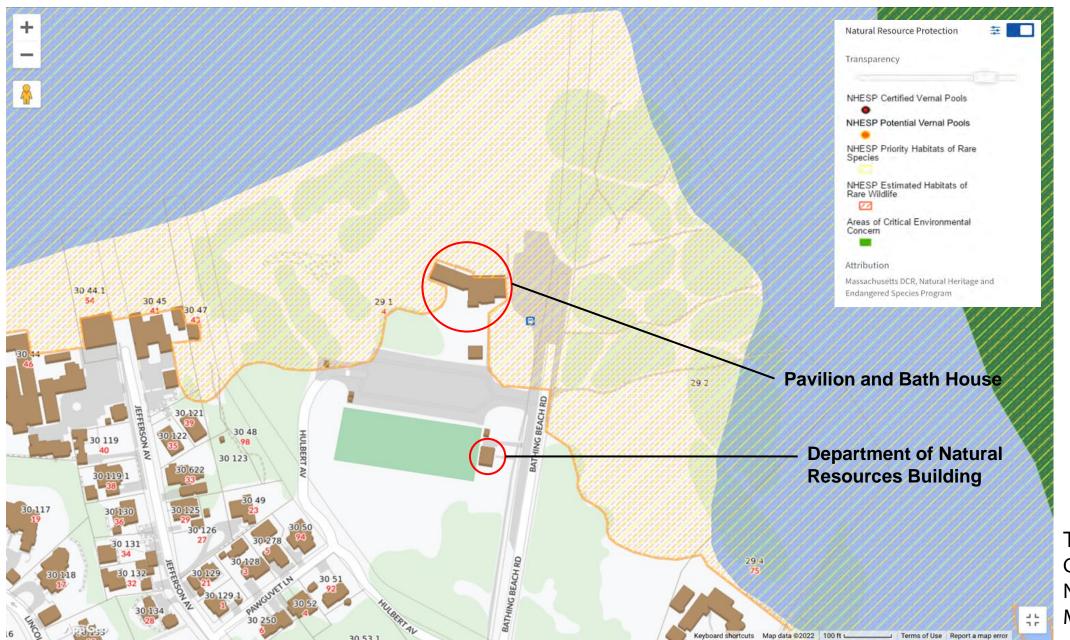
Black Grass (Juncus gerardii)	native
Marsh Elder (Iva frutescens)	native
Saltmarsh Cordgrass (Spartina alterniflora)	native
Saltmeadow Cordgrass (Spartina patens)	native
Sea Lavender (Limonium carolinianum or nashii)	native
Spike Grass (Distichlis spicata)	native
Switchgrass (Panicum virgatum)	native

Plant List for a Dry Beach

Dry beach areas are home to plants that can tolerate wind, wind-blown sand, salt spray, and regular interaction with waves and flood waters. Certain plants actually thrive on accumulations of sand to help them grow. The plants listed below are appropriate for dry beach conditions in Massachusetts.

American Beachgrass (Ammophila breviligulata)	native
Beach Pea (Lathyrus japonicus)	native
Saltmeadow Cordgrass (Spartina patens)	natív
Sea Rocket (Cakile edentula)	native
Seabeach Sandwort (Honckenya peploides)	native
Seaside Goldenrod (Solidago sempervirens)	native

Natural Resource Protection Zone



Town and County of Nantucket, MAGIS

Piping Plovers

- Federal Status: Threatened
- State Status: Threatened
- Main reason beaches are fenced
- Nesting overlaps the busiest months for tourism in Nantucket



Birds of Nantucket, Town and County of Nantucket, MA

Protected Ground for Plovers and Terns





Other Wildlife









Least Tern

Northern Harrier

Snowy Owl

Roseate Tern



Bufflehead



Herring Gull



American Oystercatcher



Common Tern

Dunes

- Provide natural coastal protection
- Reduce flooding and structural damage
- Provide habitat for many species, including Piping Plovers



Catie DeCosmo, 2022

Driving on Jetties Beach

- Open for beach driving in the off-season
- Beach driving permit required
- Must stay within established vehicle tracks
- Cannot drive through dune vegetation
- Can frighten away and kill seabirds
- Should driving be permitted at all on Jetties Beach?

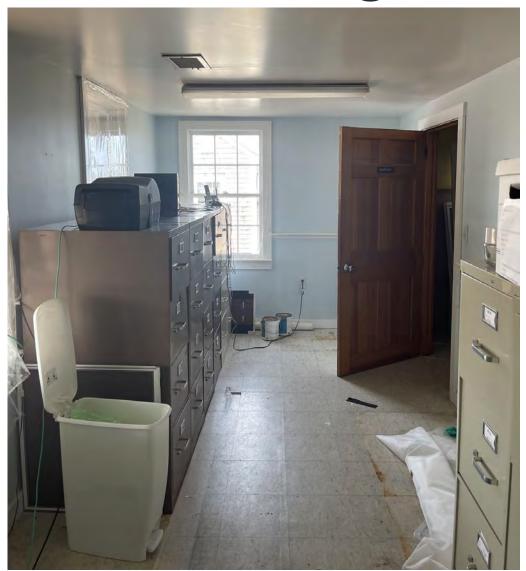


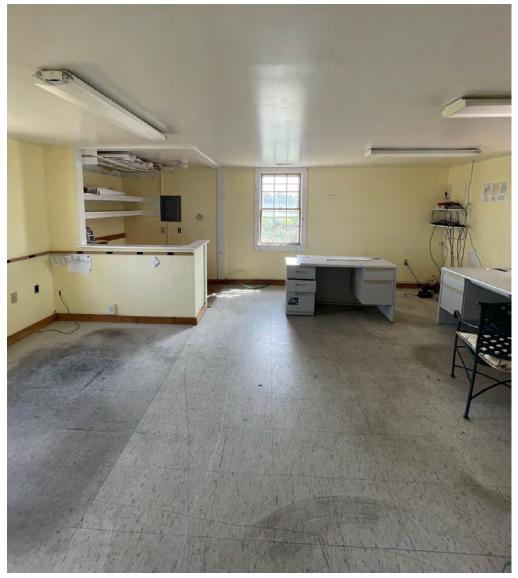








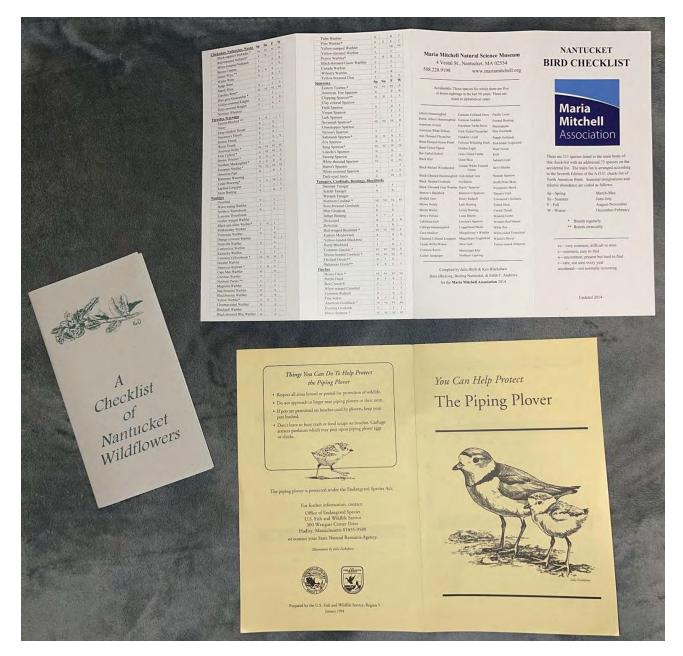




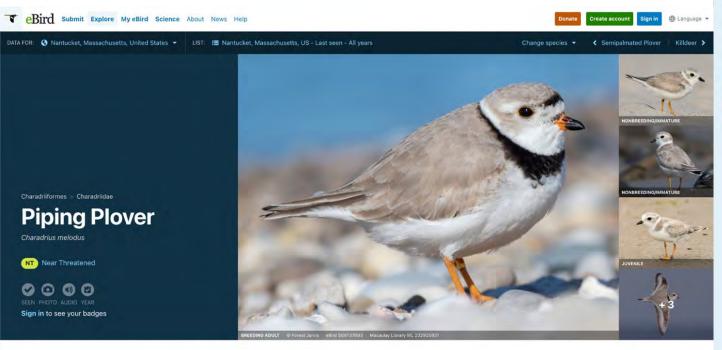


Benefits of Having an Education Center

- Access to information
- Can also provide additional information in take home pamphlets
- Interactive experience to enhance learning
- Hands-On Exhibits
- Increased Tourism
- Understanding the past, current, and futures issues of Nantucket
- Promote sustainable engagement



Linda Loring Nature Foundation



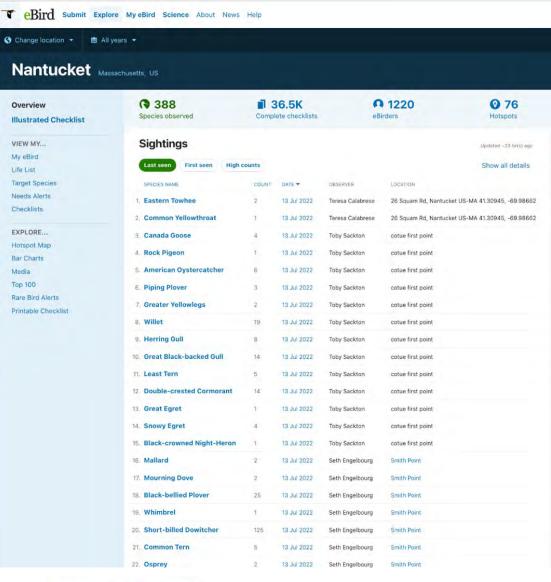
Identification

Small, plump, pale plover; the color of dry sand. In breeding plumage look for thin broken black collar across chest, black stripe across forehead, orange legs, and orange bill with black tip. Nonbreeding and immature birds have black bills and sandy-colored breastbands. White wingstripe visible in flight. Notably paler than other small plovers, with the exception of Snowy, from which Piping is distinguished by thicker bill and orange legs.

Sometimes seen near other shorebirds, but rarely ventures far from the high, dry side of the beach. Often quite vocal; gives a sad-sounding two-parted whistle that drops in pitch: "pwee-doo." A species of great conservation concern, due to coastal development and disturbance at nesting sites on beaches.









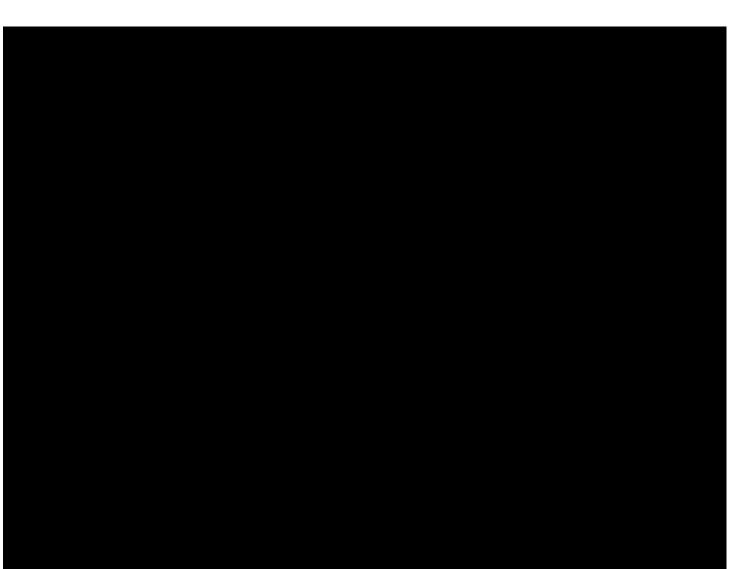
The Linda Loring Nature Foundation and eBird, 2022

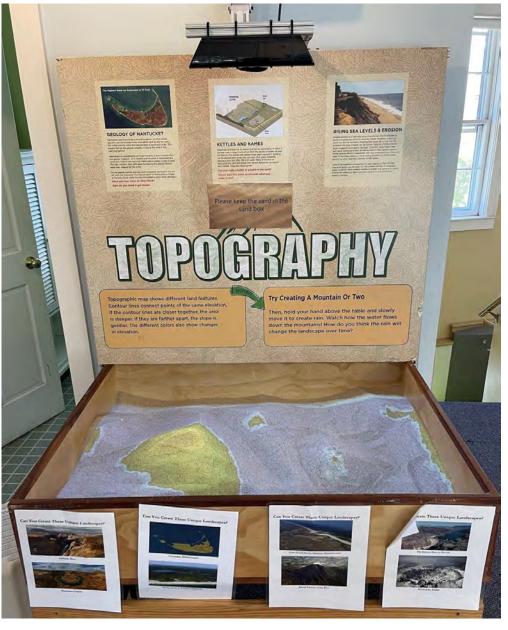
Maria Mitchell Association





Maria Mitchell Association

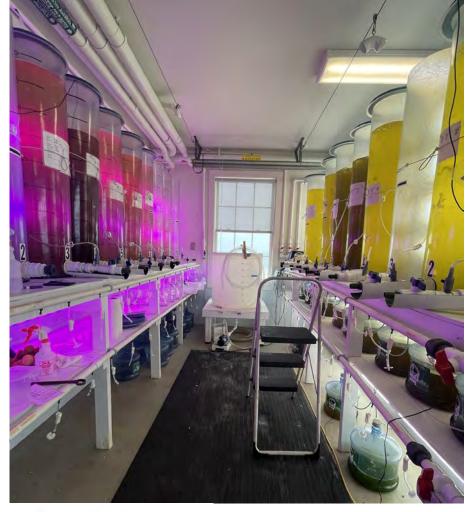




Brant Point Shellfish Hatchery









Include a QR-Code so people can sign up for tours and learn more

Catie DeCosmo, 2022

Envision Cedar Key Sea Level Rise Model







Jetties Beach Pavilion



Significant Contributions

There are 14 Parks owned by the Parks and Recreation Department

Vulnerability Assessment



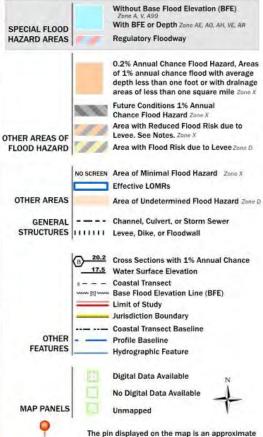
National Flood Hazard Layer FIRMette





Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



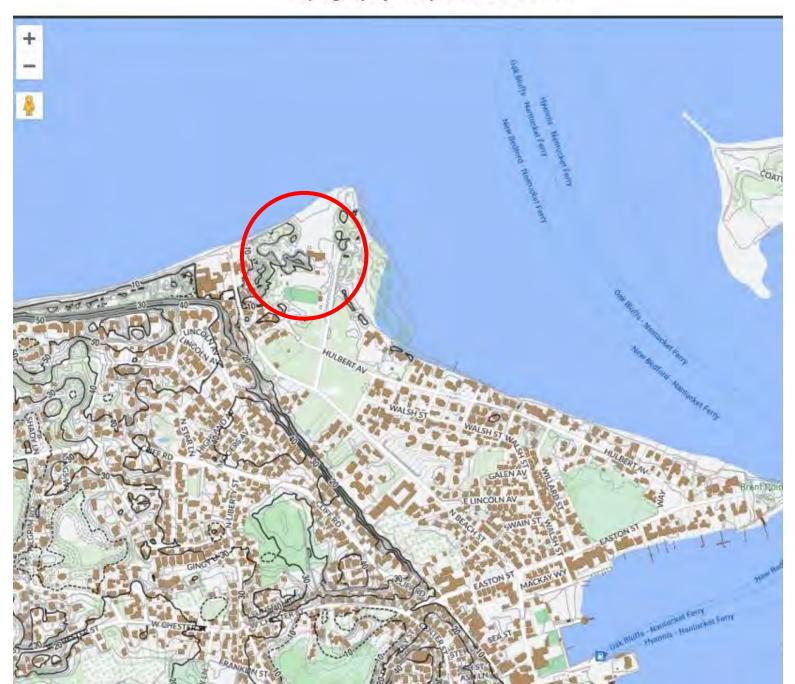
point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/12/2022 at 4:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Topography Map-Jetties Beach

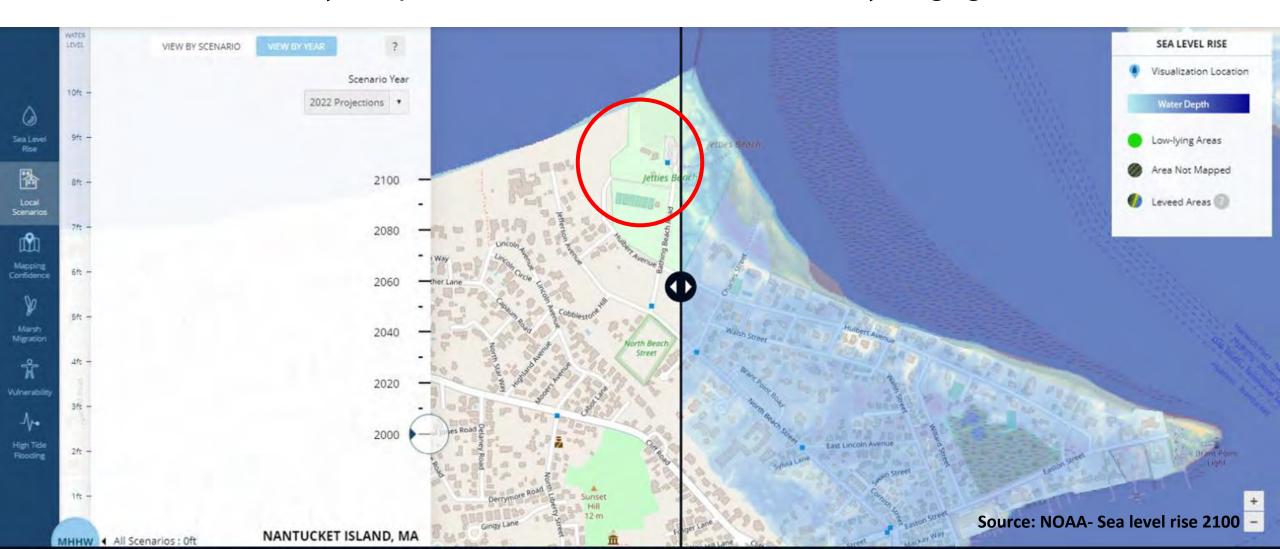


Source: Nantucket GIS Map

Sea Level Rise

Story Map link: https://arcg.is/11Giby2

An ArcGIS Story Map is an online tool for community engagement.



MC-FRM data



Resilient Adaptation Strategies

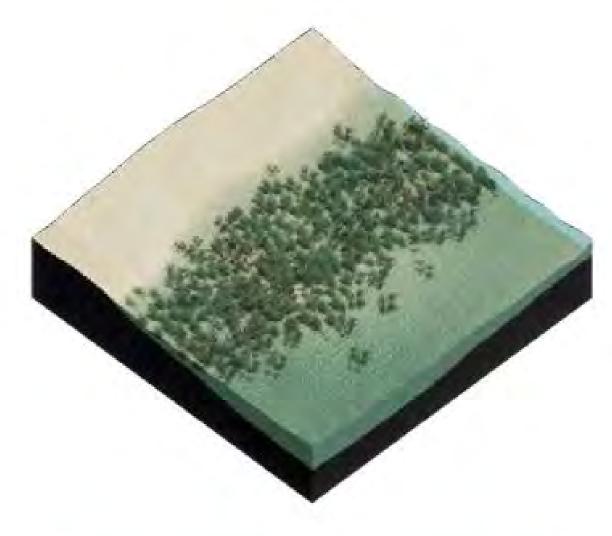
Natural Based Approaches



Natural Based Approaches



Natural Based Approaches



ECOLOGICAL RESTORATION^

Building Elevations



Phased Resilient Strategies

Jetties Beach 2050-Resilient Adaptation Strategies



Legend

Amenities



Pavilion



Bathhouse



Natural Resource Building



Tennis/Pickle Ball Courts

F Playground

G Community Sailing

Hazard Mitigation Strategies

Dune Restoration

2 Dune Construction

Climate Adaption Strategies

Transportation Access

1-A Cobblestone Hill

Jefferson Ave

Pawquvet Lane

Jetties Beach 2070-Resilient Adaptation Strategies

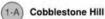


Legend

Hazard Mitigation Strategies

Ecological Restoration

Climate Adaption Strategies



Jefferson Ave

(1-C) Pawquvet Lane

Relocation of Structures

Demolition of pavement

Boardwalk Access

Bike racks / Benches

Boardwalk Features

Evaluating Resilient Strategies

Jetties Beach Concept Plan-Resilient Adaptation Strategies



Legend

Relocated Amenities



- B Bathhouse
- Natural Resource Building
- Storage Building
- F Tennis/Pickle Ball Courts
- F Playground
- G Community Sailing

Hazard Mitigation Strategies

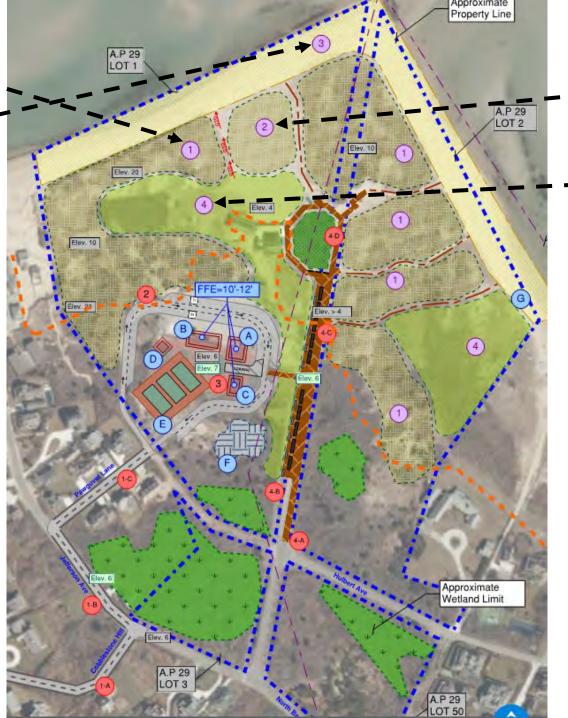
- 1 Dune Restoration
- Dune Construction
- 3 Beach Nourishment
- 4 Ecological Restoration

Climate Adaption Strategies

- 1 Transportation Access
 - 1-A Cobblestone Hill
 - 1-B Jefferson Ave
 - 1-C Pawquvet Lane
- 2 Site Circulation
- 3 Relocation of Structures
- 4 Elevated Boardwalk
 - 4-A Demolition of pavement
 - 4-B Boardwalk Access
 - 4-C Bike racks / Benches
 - 4-D Boardwalk Features

Hazard Mitigation Strategies

- 1 Dune Restoration
- 2 Dune Construction
- 3 Beach Nourishment —
- 4 Ecological Restoration

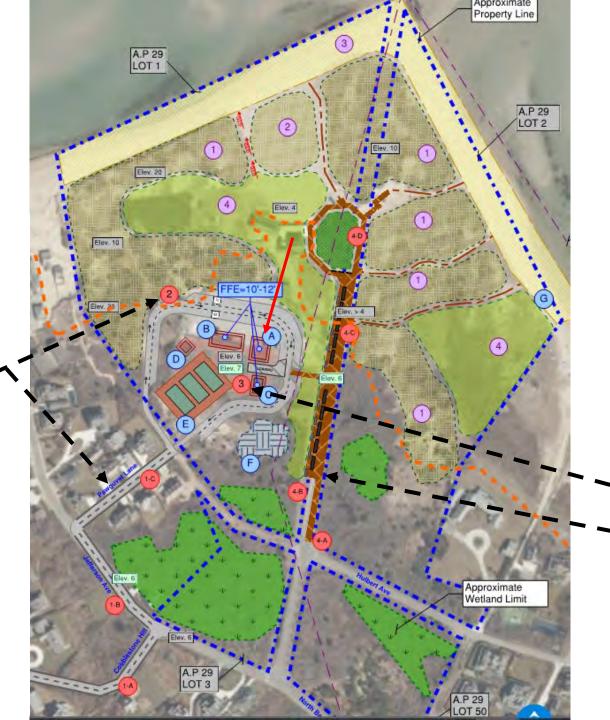


Hazard Mitigation Strategies

- 1 Dune Restoration
- 2 Dune Construction
- 3 Beach Nourishment
- _ 4 Ecological Restoration

Climate Adaption Strategies

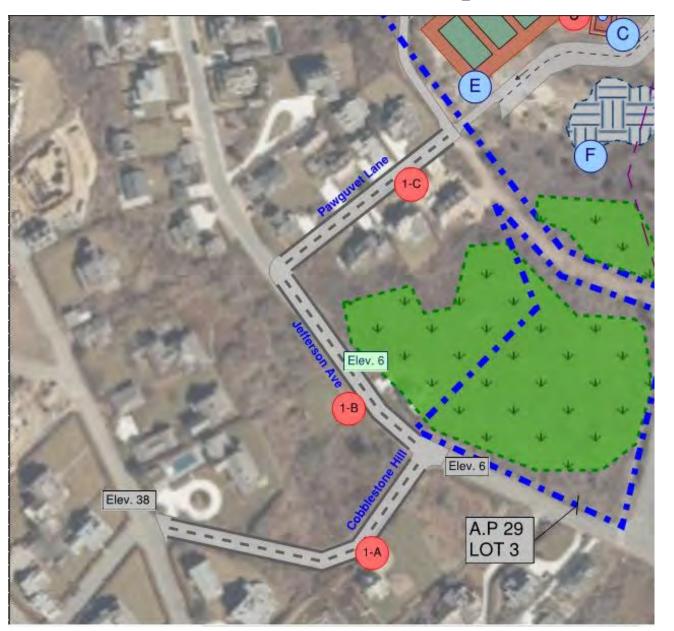
- 1 Transportation Access
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 - 1-B Jefferson Ave
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- 2 Site Circulation
- Relocation of Structures
- 4 Elevated Boardwalk
 - 4-A Demolition of pavement
 - 4-B Boardwalk Access
 - 4-C Bike racks / Benches
 - 4-D Boardwalk Features



Climate Adaption Strategies

- 1 Transportation Access
 - 1-A Cobblestone Hill
 - 1-B Jefferson Ave
 - 1-C Pawquvet Lane
- 2 Site Circulation
- Relocation of Structures
- Elevated Boardwalk
 - 4-A Demolition of pavement
 - 4-B Boardwalk Access
 - 4-C Bike racks / Benches
 - 4-D Boardwalk Features

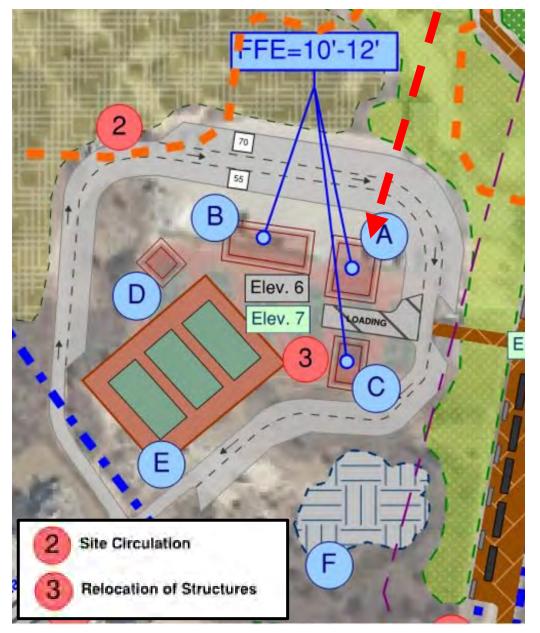
Transportation Access







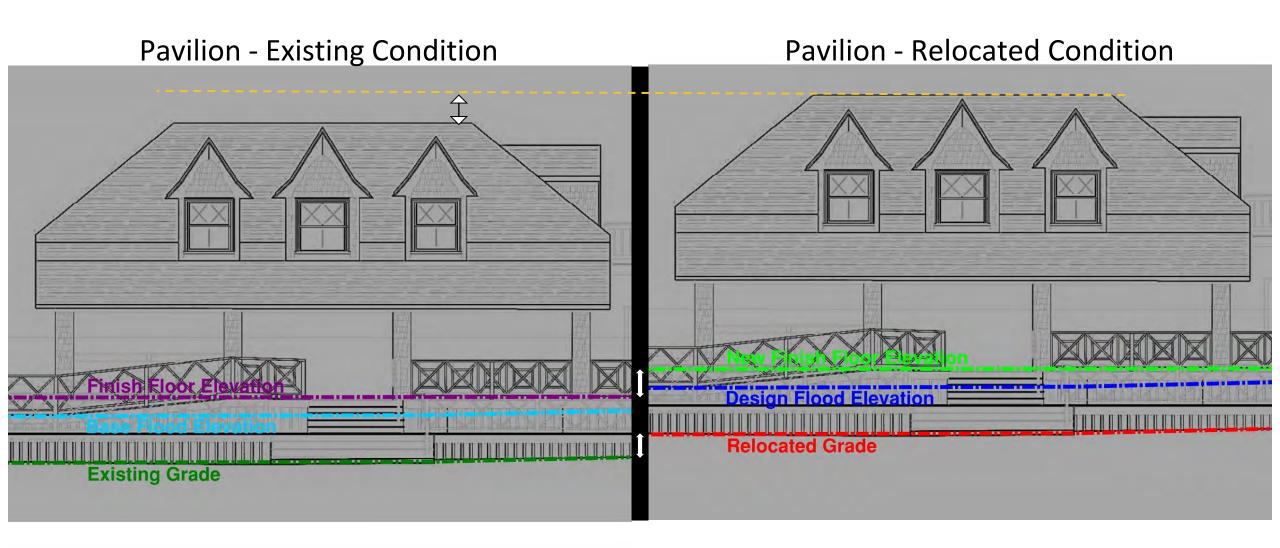
Building Relocation





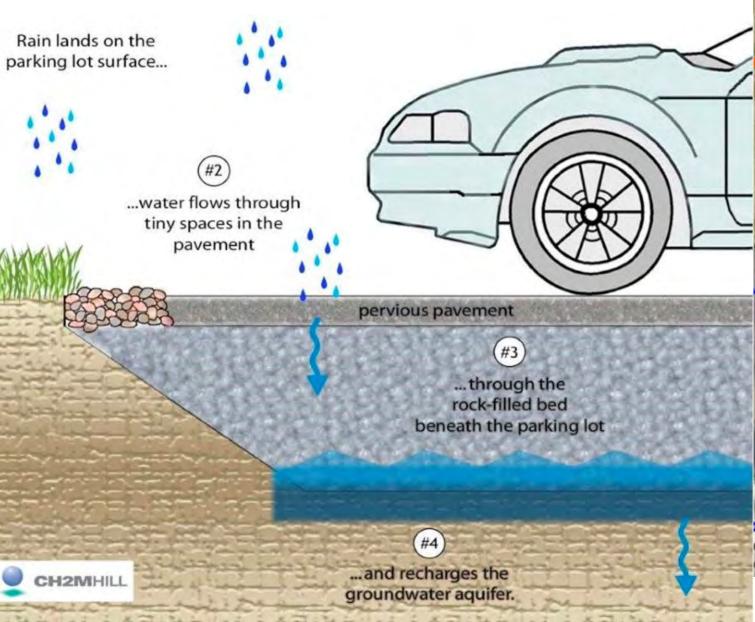
Source: Resilient Nantucket: Flooding Adaptation & Building Elevation Design Guidelines 2021

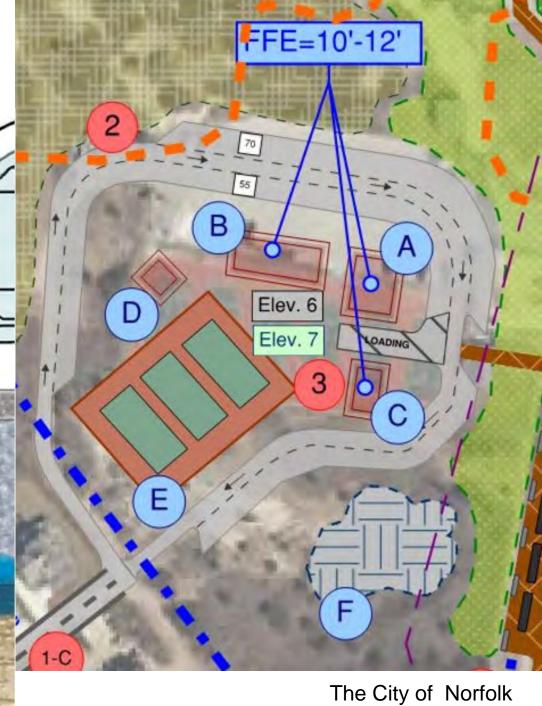
Building Relocation



Green Infrastructure

Permeable Pavement





Permeable Pavement



Bioswales

Pros

- Reduces flooding
- Lower costs
- Aesthetically pleasing
- Promotes green infrastructure and education in sustainability

Cons

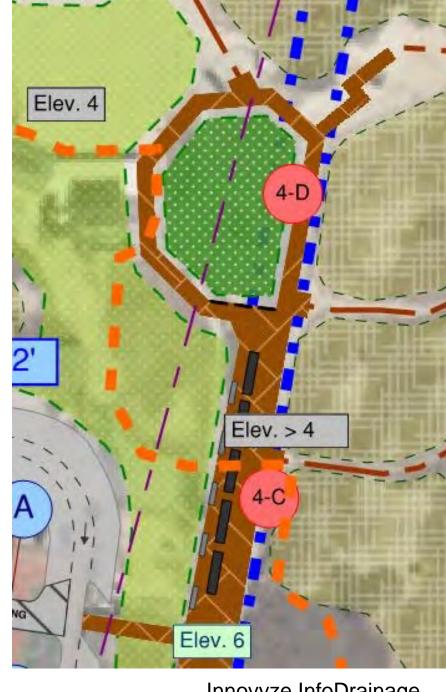
- Can require maintenance
- Heightened safety concerns



RSI, What is a bioswale?, 2018 and City of Bothell

Bioretention Basin





Innovyze InfoDrainage

Elevated Boardwalk

- Allow for less damage to the environment
- Provides habitat
- Allow for less flooding
- Aesthetically pleasing



Current Area of Proposed Boardwalk & Bioretention Basin





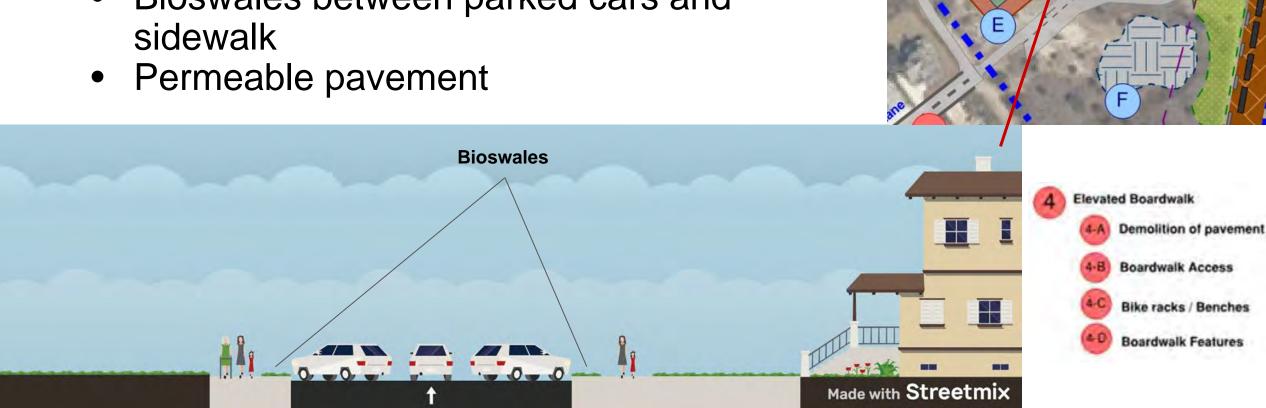
Elevated Boardwalk Section





Street Section and Site Circulation

- One way traffic with angled parking for safety
- Bioswales between parked cars and sidewalk



Hazard Mitigation Strategies

Hazard Mitigation Strategies

- 1 Dune Restoration
- Dune Construction
- 3 Beach Nourishment
- 4 Ecological Restoration



Strength

- -Relocated to highest Elev.
- -Reduced impervious surface.
- -Use of existing roadway networks.
- -Green infrastructure.

Opportunity

- -Increase multimodal transportation.
- -Balance site for compensatory storage.
- -Relocated without altering the historic character (>4')

SWOT ANALYSIS

Weakness

- -Dune disturbance within the NHESP area.
- -Potential fill within the floodplain.
- Designed for DFE for year 2070.

Threat

- -Reduction in parking and tennis courts.
- -Infrastructure: Sewer, water, electric.

Transition of Use-Jetties in 2100

Jetties Beach 2100-Resilient Adaptation Strategies



Legend

Relocated Amenities

- A Pavilion
- B Bathhouse
- C Natural Resource Building
- D Storage Building
- E Tennis/Pickle Ball Courts
- F Playground
- G Community Sailing

Hazard Mitigation Strategies

- 1 Dune Restoration
- 2 Dune Construction
- 3 Beach Nourishment
- 4 Ecological Restoration

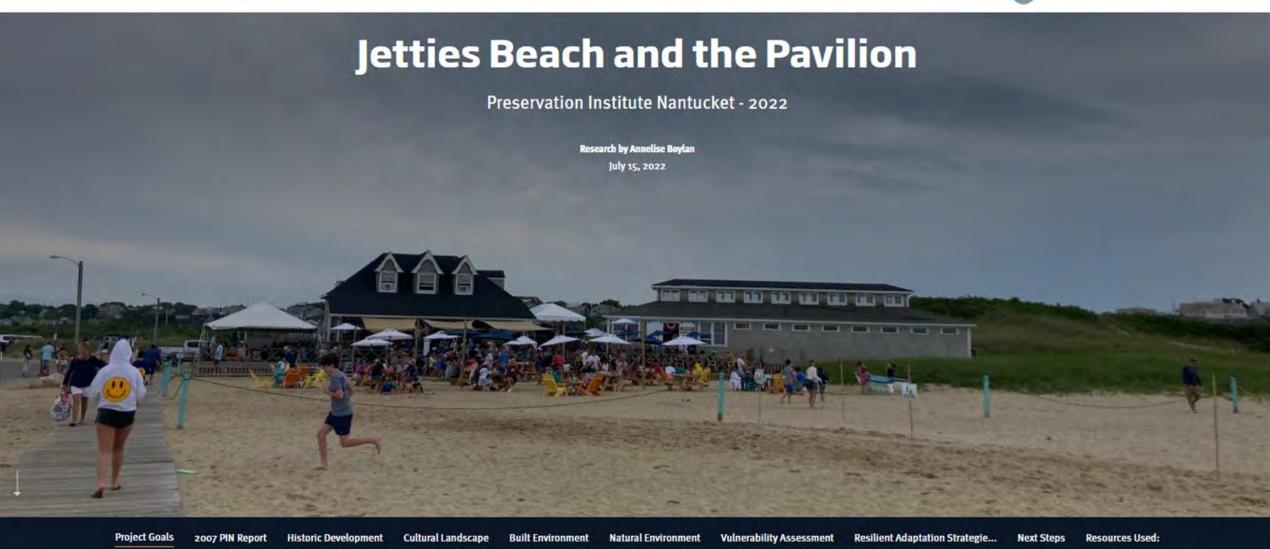
Climate Adaption Strategies

- 1 Transportation Access
 - 1-A Cobblestone Hill
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- 2 Site Circulation
- 3 Relocation of Structures
- 4 Elevated Boardwalk
 - (4-A) Demolition of pavement
 - 4-B) Boardwalk Access
 - 4-C Bike racks / Benches
 - D Boardwalk Features

Story Map - https://arcg.is/11Giby2









Project Significance

- Developing plans for long term use of Cultural Landscapes
- Reimagining Jetties Beach and the buildings in a new way
- Protect and educate the public about natural resources

Potential Grant Funding

Site Development

- Roadway work - Building
Resilient Infrastructure
and Communities
program (FEMA)
-Hazard Mitigation
Strategies - Pre - Disaster
Management Program
(FEMA)

Historic Preservation

-Federal Historic Preservation Fund (CLG program) -Massachusetts Preservation Project Funds

EcologicalRestoration

-Federal Historic
Preservation Fund (CLG
program)
-Massachusetts
Preservation Project
Funds
-Stormwater - MVP Action
Grants

References

Thank you for the support and generosity of the following individuals.

Holly Backus (PLUS department)

Charlie Polochi (Parks and Recreation

Department)

Vince Murphy (Natural Resources

Department)

Kim Rose (PIN)

Cleary Larkin (PIN)

The Nantucket Historical Association

Nantucket Coastal Resiliency Plan (2021)
The 2007 PIN report

NOAA / Massachusetts Coastal Flood Risk Model(MC-FRM)

Natural Hazard Mitigation Plan 2019
Resilient Nantucket: Flooding Adaptation &
Building Elevation Design Guidelines 2021
Parks and Recreation Master Plan 2020
Inquirer & Mirror Newspaper
Nantucket Resilience Toolkit



Preservation Institute Nantucket 1972-2022

Coastal Landscaping in Massachusetts Plant List Town and County of Nantucket, GIS Birds of Nantucket Linda Loring Nature Foundation Maria Mitchell Association Brant Point Shellfish Hatchery Envision Cedar Key