


North Nantasket Beach

Dune Restoration Project for Resiliency

PROJECT OVERVIEW

Beach and dune systems are the interface between water and land. They are naturally dynamic environments that fluctuate in size and form due to the impacts of wind, waves, tides, and storm events. The Town of Hull's Coastal Vulnerability Assessment and Adaptation Planning Study identified North Nantasket Beach and its dune system as the highest priority resource for adaptation to sea level rise, coastal flooding, and storm damage.

The Town is currently working on a design for a restored dune with an accessible crossover ramp at A Street and Beach Avenue. By restoring unpermitted crossovers, the Town aims to enhance the function of the dune to protect abutting residents and neighbors from the impacts of flooding. Crossovers are the places in which pedestrians travel over the dune to reach the beach.

These actions will help establish a continuous dune along the entirety of North Nantasket Beach, significantly enhancing the system's storm damage protection benefits. New beach grass and other native, salt tolerant species will be planted to help with erosion.

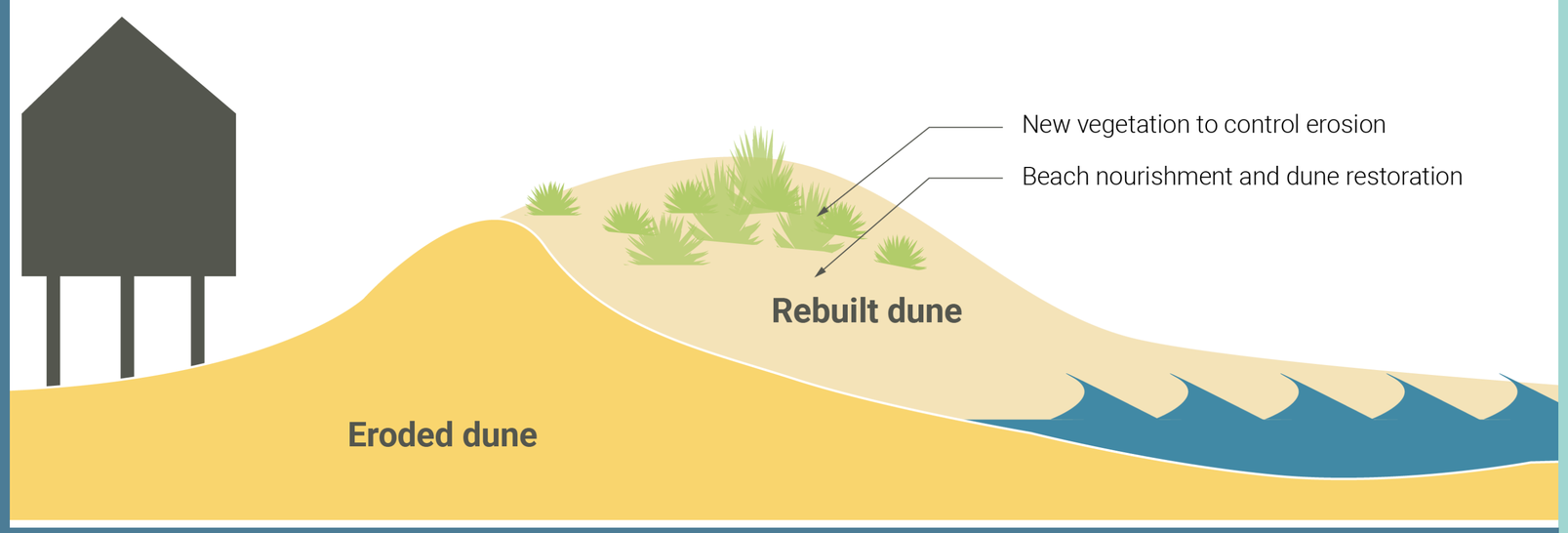
DUNE HEALTH

Dune health is critical to protecting residents from sea-level rise and storm surge flooding. While the health of the dune naturally varies to a certain extent, dune crossings further interrupt the dune and create vulnerabilities in the system. These weak points can result in upland flooding during lower level storm events that may impact larger upland areas.

These lower elevation, unvegetated pathways form conduits for penetration of water during storm events and greatly minimize the overall protection of the dune systems.

PROTECT YOUR DUNE

- Use designated public and permitted crossovers
- Contribute to maintenance
- Follow new signage
- Do not create new crossovers without a permit
- Do not remove cobble dune stones



How the Dune Protects You

The overall volume of sediment in a dune is an important indicator of the level of protection that a dune can provide.

The effectiveness of the North Nantasket dune system was evaluated based on the volume of the existing dunes.

The table provides an indication of the required volume needed in a North Nantasket dune to reach a specific level of protection. These values can be used as a guideline for determining the design of a healthier dune system.

Approximate Volume of Dune (cubic yard/linear foot)	Level of Storm Protection (return period)
5	< 5-yr
10	5- to 10-yr
15	10- to 20-yr
20	20- to 25-yr
25	25- to 30-yr
30	30- to 35-yr
35	35- to 40-yr
40	45- to 50-yr
45	> 50-yr

THE BEACH
OUR COMMUNITY
YOUR HOME

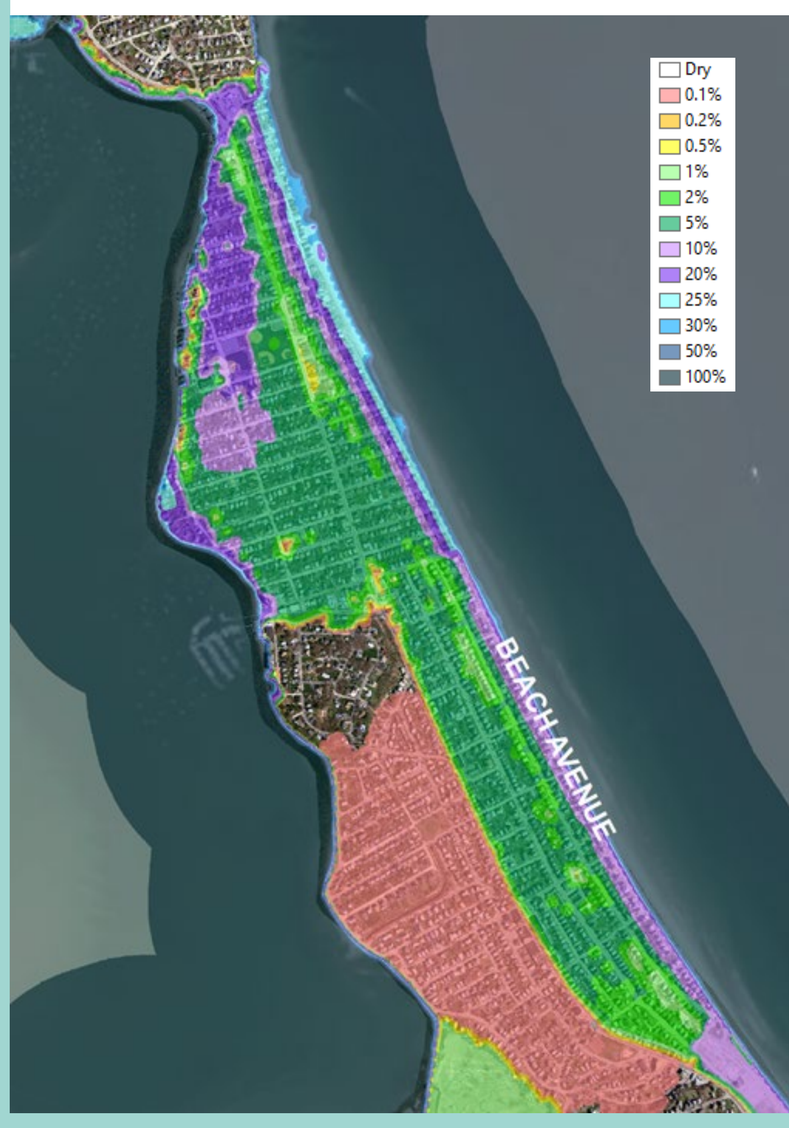


Image depicts 2030 Flood Probability

Understanding Future Flooding

The image above of North Nantasket Beach depicts flood probabilities for 2030 which refers to the future chance of flooding during a storm event.

The dune system provides crucial protections for ocean-front residents as well as the neighborhood behind. Flood probabilities are drastically reduced just behind the dune system, while the beachfront experiences over 30% likelihood.

PROPOSED CHANGES TO NORTH NANTASKET BEACH

Overview

The following design and maintenance changes are proposed to support the resiliency of the North Nantasket Beach Community:

- Close non-permitted crossovers
- Add sediment to build up dune profiles and crest elevations
- Plant beach grass and other native, salt-tolerant vegetation
- Install sand fencing at landward edge of dune to prevent new paths
- Install signage to educate and navigate to nearest crossings

Legend

69 Total Crossings

- 32 Permitted, Town-Maintained
- X 37 Unpermitted
- represents 1 min walk or less
- ADA Acessible crossover

Rendering of proposed ADA accessible crossover at A Street and Beach Avenue