DUXBURY BEACH RESERVATION, INC.

Duxbury Beach Crossover 1 & 2 Dune Restoration

Project Summary: Duxbury Beach Reservation, Inc. has a long and successful history of maintaining Duxbury Beach, including extensive dune restoration. Working with the Woods Hole Group, the Reservation identified the area between the first and second crossovers of Duxbury Beach as very vulnerable due to its narrow width and the high wave energy. The living shoreline approach will provide erosion control, buffer storm surge, and protect critical habitat for wildlife. The Reservation received a $500,000 Coastal Resilience Grant through the MA Office of Coastal Zone Management to contribute to the $1million+ project. This project represents a portion of the resilience work needed and is a step towards implementing a larger-scale dune nourishment project that will provide longer term health and resilience to the beach. This work will bolster the ability of the beach to protect the communities behind it, particularly in the face of sea level rise and increased storm impacts.

Project Basics

Location:
East and west sides of oceanside dune, including Crossovers 1 and 2

Start:
December 2018

Completion:
March 2019

Timing:
Weekdays, 7am-4pm (winter storms willing!)

Impacts & How to Keep Up to Date!

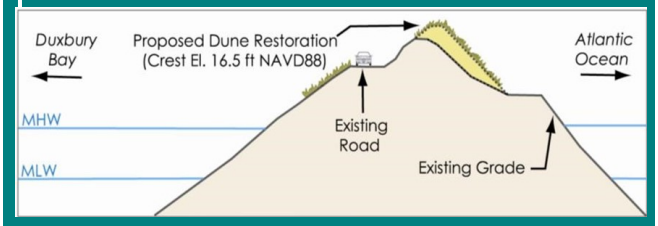
The project will require the cooperation of Marshfield, Duxbury and Plymouth residents as well as any visitors to Duxbury Beach and Gurnet and Saquish. It is vital that work crews are able to work quickly and efficiently as all construction must cease on the beach by April 1st to ensure compliance with regulations protecting nesting shorebirds.

The back road and front beach may be temporarily closed or have delayed access dependent on work being performed. This will limit access to the beach for permit holders and travel to Gurnet and Saquish. Residents or others requiring access down the back road will be issued DBR hangtags. Access for emergency vehicles will remain throughout the project.

Duxbury Beach Reservation, Inc. will provide updates about the restrictions and restoration progress on social media, the Reservation website (www.duxburybeach.com), and through emails for those signed up for the DBR mailing list (sign up on the website!).

Follow DBR on Social Media
@duxburybeachreservation

Why? Dune Restoration on Duxbury Beach

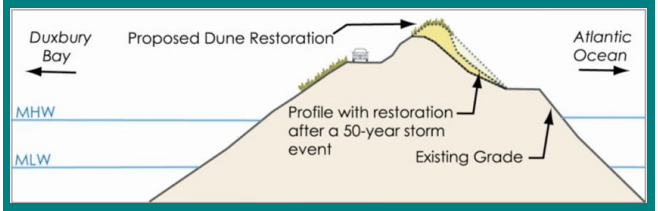


Proposed dune restoration shown in yellow

Impacts Expected from 50 Year Storm (solid line represents post-storm grade)

Erosion expected WITHOUT the proposed project.

- Dune is destroyed
- Beach is overwashed



Erosion expected WITH the proposed project.

- Dune provides increased protection
- Beach is not overwashed

How We Got Here...

The restoration of the oceanside dune between the first and second crossovers is a product of extensive research and modeling work. The dune restoration represents the third step in the process of project conception, design, and implementation—created by Woods Hole Group and funded in part by CZM Coastal Resilience Grants.

2016 "Coastal Processes Study and Resiliency Recommendations for Duxbury Beach and Bay" report

2018 "Dune Restoration Final Design and Performance Modelling"

2019 "Duxbury Beach Dune Restoration Project"

Dune Restoration through Nourishment: Benefits to the Barrier Beach

⇒ Beach nourishment does not stop erosion, but it does strengthen this sand-starved system by adding compatible material

⇒ Assist in strengthening the barrier beach structure

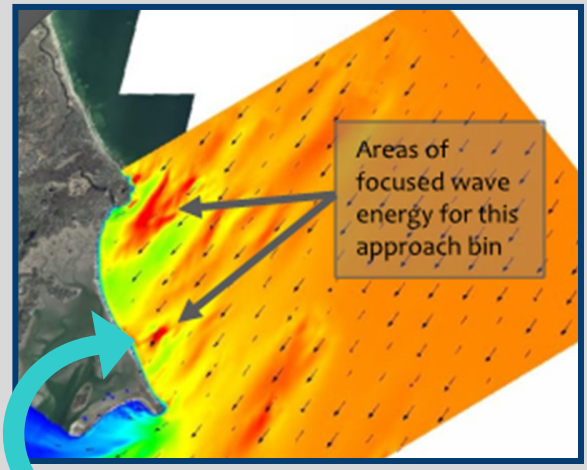
⇒ The damage to landward areas is postponed by extending the shoreline toward the ocean.

⇒ Nourished area will weather storms much better than non-restored sites. If some sand is eroded and moves it is doing its job!

⇒ Some sand will move to new parts of the beach. This adds critical protection to the overall system and builds the health of the barrier beach system!

Project Details—What to Expect from Now to Project Completion

- Preparatory work: Grade back road, remove snow fence and permanent symbolic fence, remove RFID system wires at crossovers
- Furnish and grade sand: Raise dune to 17 ft, widen dune >45 ft, and create slopes appropriate for wildlife and coastal resilience
- Replace snow fence and permanent symbolic fence to strengthen and protect the dune
- Plant beach grass to trap sand and hold the dune in place
- Site clean-up: Fix post and cable along the road, grade the back road



Wave energy modeling by the Woods Hole Group shows that the area between First and Second Crossovers suffers higher wave energy than other areas of the beach.

Sample Cross-section

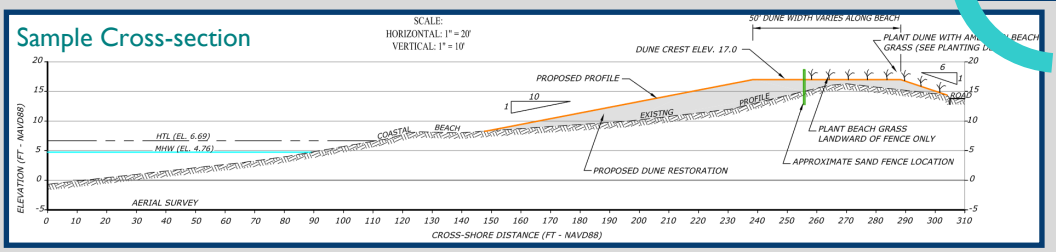


Photo credits: Woods Hole Group "Coastal Processes Study and Resiliency Recommendation for Duxbury Beach and Bay"