

# DUXBURY BEACH RESERVATION, INC.



## Duxbury Beach Park Dune & Beach Restoration

### Project Overview

Duxbury Beach Reservation, Inc. has a long and successful history of maintaining Duxbury Beach, including extensive dune restoration. This work is undertaken both proactively in vulnerable areas and in response to storm impacts. The only major structure on Duxbury Beach, The Duxbury Beach Park Pavilion, was originally constructed in 1941. Its use for day parking, bath house, and home to Blakeman’s Restaurant has been an integral and beloved part of Duxbury Beach. However, with little sediment making its way naturally to Duxbury Beach, the shoreline is eroding at a rate of 1-2ft per year in this area and the dune and beach fronting Duxbury Beach Park are among the narrowest sections of the barrier. By adding sand to the dune and beach, Duxbury Beach will be better able to protect the communities behind it, particularly in the face of sea level rise and increased storm impacts.

### Project Benefits

- **Strengthen** the barrier beach by adding sand to the beach and dune
- **Lessen likelihood of breaching** by widening the beach and dune
- **Reinforce** the dune by planting beach grass and woody shrubs
- **Protect** the mainland, bay, saltmarsh, and recreational infrastructure
- **Increase** resilience of Duxbury Beach as sand moves south from the nourished area
- **Improve** knowledge of project success through continued monitoring



### How You Have Helped

Thanks to the community’s support, DBR has raised \$450,000 towards this vital project through its annual fundraising events. The Reservation also secured \$190,000 in federal funding through a North American Wetlands Conservation Act (NAWCA) grant and a \$1.8 million Massachusetts Office of Coastal Zone Management (CZM) Coastal Resilience grant.

### Project Costs

Construction Oversight	\$17,228
Finalize Survey and Plans	\$40,000
Construction and Site Prep	\$10,000
Dune and Beach Install and Grading	\$2,320,198
Planting of Beach Grass & Shrubs	\$35,000
Post Construction Monitoring	\$8,880
Public Outreach and Education	\$10,794
<b>Estimated Total Project Cost</b>	<b>\$2,442,100</b>

## Project Specs

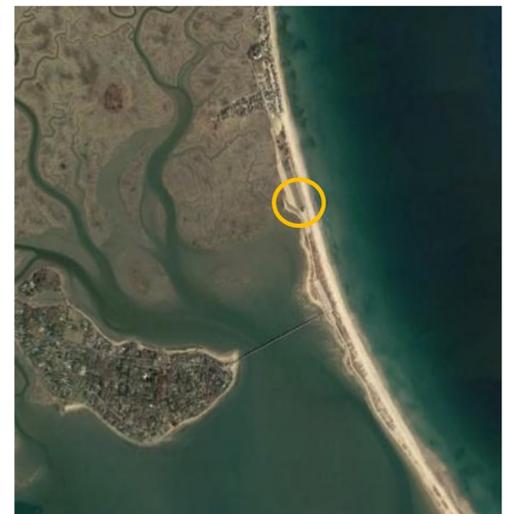
- ⇒ 2,750 linear feet
- ⇒ Add 75,000 cubic yards of compatible material
- ⇒ Elevate crest of dune to 16.5ft NAVD88
- ⇒ Widen dune width to 30ft
- ⇒ Elevate beach berm to 6.5ft NAVD88
- ⇒ Widen beach berm to 40ft
- ⇒ Create slopes 10H:1V or milder
- ⇒ Plant 28,000 culms American Beach Grass 36in on center



Before & After

## Restoration Steps

- 1) Survey the project area for changes
- 2) Design project to regulations and to increase coastal resilience
- 3) Permit construction through appropriate agencies
- 4) Re-survey and confirm grain size and project plans
- 5) Import & Grade compatible material
- 6) Improve access pathways
- 7) Reinstall fencing
- 8) Plant beach grass and woody shrubs
- 9) Monitor changes to the dune and beach post construction



Circled area indicates project location

## A Look Back...

Historically, many of the attempts to protect the Pavilion and surrounding infrastructure through cement blocks and tie-rods have been unsuccessful. Dune and beach re-nourishment bolsters the natural state of the beach—even when sand is lost, it remains in the system and continues to strengthen the barrier beach.



Dec 1992: DBP dunes overwashed



March 2013: Flooding in DBR lot



March 2018: Sand and cobble washed through pathways