

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 beach and dune are poorly equipped to protect the Pavilion should a storm occur. By adding sand to the dune and beach, this section of barrier beach will be better able to protect the resources and 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 Pavilion, parking lots, saltmarsh, and bay
- **Increase** resilience of Duxbury Beach as sand moves south from the nourished area
- **Improve** access via raised wooden boardwalks



## How You Can Help

DBR secured \$190,000 through a North American Wetlands Conservation Act (NAWCA) grant to help fund the project. We plan to apply for the next round of Coastal Zone Management (CZM) Coastal Resilience grants, which if awarded would cover a large portion of the project cost. However, CZM grants require a 25% match. Fundraising from *Party in a Box* will help secure the required matching funds.

## Project Costs

Permitting and Construction Oversight	\$20,000
Finalize Survey and Plans	\$12,000
Equipment Mobilization & Demobilization	\$13,000
Sand Import	\$1.38mil*
Remove/Reset Sand Fence	\$16,000
Planting of Beach Grass & Woody Shrubs	\$5,400
<b>Estimated Total Project Cost</b>	<b>\$1,446,400</b>

\*(based on \$23 per ton delivered and installed)

## Project Specs

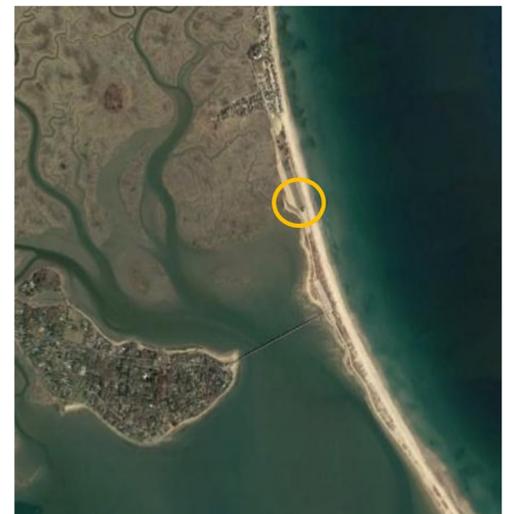
- ⇒ 1,000 linear feet
- ⇒ Add 50,000-60,000 tons of compatible material
- ⇒ Elevate crest of dune to 16.5ft NAVD88
- ⇒ Widen dune width to 50ft
- ⇒ Elevate beach berm to 6.5ft NAVD88
- ⇒ Widen beach berm to 90ft
- ⇒ Create slopes 1:10 or milder
- ⇒ Plant 22,000 culms American Beach Grass 36in on center



Before & After

## Restoration Steps

- 1) Survey the project area for changes
- 2) Design dune to regulations and to increase coastal resilience
- 3) Permit construction through appropriate agencies
- 4) Re-sample and confirm grain size
- 5) Import & Grade compatible material
- 6) Install raised wooden boardwalks over pathways
- 7) Reinstall fencing
- 8) Plant beach grass and woody shrubs
- 9) Monitor changes to the dune, vegetation, and sediment color



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