Plymouth Long Beach
Mixed Sediment Nourishment

Funding

Design & Permitting
2020-2021

$142,000
CZM Coastal Resilience Grant Award

$49,740
Town Match

Construction
2022-2023

$2,000,000
CZM Coastal Resilience Grant Award

$1,052,744
Town Grant Match

Partners

Massachusetts Office of Coastal Zone Management (CZM)

Plymouth Long Beach is a barrier beach that provides flood control and storm protection for Plymouth Harbor and the downtown waterfront area. Long Beach is also a popular recreational area and an important breeding and staging area for several species of protected coastal waterbirds.

Severe storms have caused significant erosion in the area between the Day Parking Area and the Crossover that resulted in lowering of beach elevation, reduced volume, loss of vegetation and bird nesting habitat, and damage to the road, parking area and nearby private properties. Continued degradation in this area will negatively impact the beach's ability to function as a barrier and provide flood and storm protection for the shoreline beyond.

The goal of the project was to increase the resilience of the barrier beach to severe storms and rising sea level with a nature-based solution. To accomplish this, a survey of existing conditions, including sediment sampling, and coastal modeling were performed during the design phase. Alternatives with variables such as elevation and dune and/or beach nourishment were considered. An alternatives analysis determined that dune nourishment with an elevation of 12' would have the greatest longevity and accomplish the project goals. Permit applications were submitted following consultation with regulatory agencies to obtain the necessary permits.

During the construction phase, approximately 35,030 cubic yards of nourishment material comprised of a mix of sand, gravel and cobble, was delivered to and mixed in the staging area (Plymouth Beach parking lot) and trucked out and graded to the designed slopes in the 2,000ft long project area. The dune crest was stabilized with beachgrass plantings.

Funding and technical assistance for this project are provided by the Massachusetts Office of Coastal Zone Management through the Coastal Resilience Grant Program.