

**NEW ENGLAND DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
699 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751**

**REAL ESTATE PLANNING REPORT**

**NANTASKET BEACH COASTAL STORM  
DAMAGE REDUCTION PROJECT**

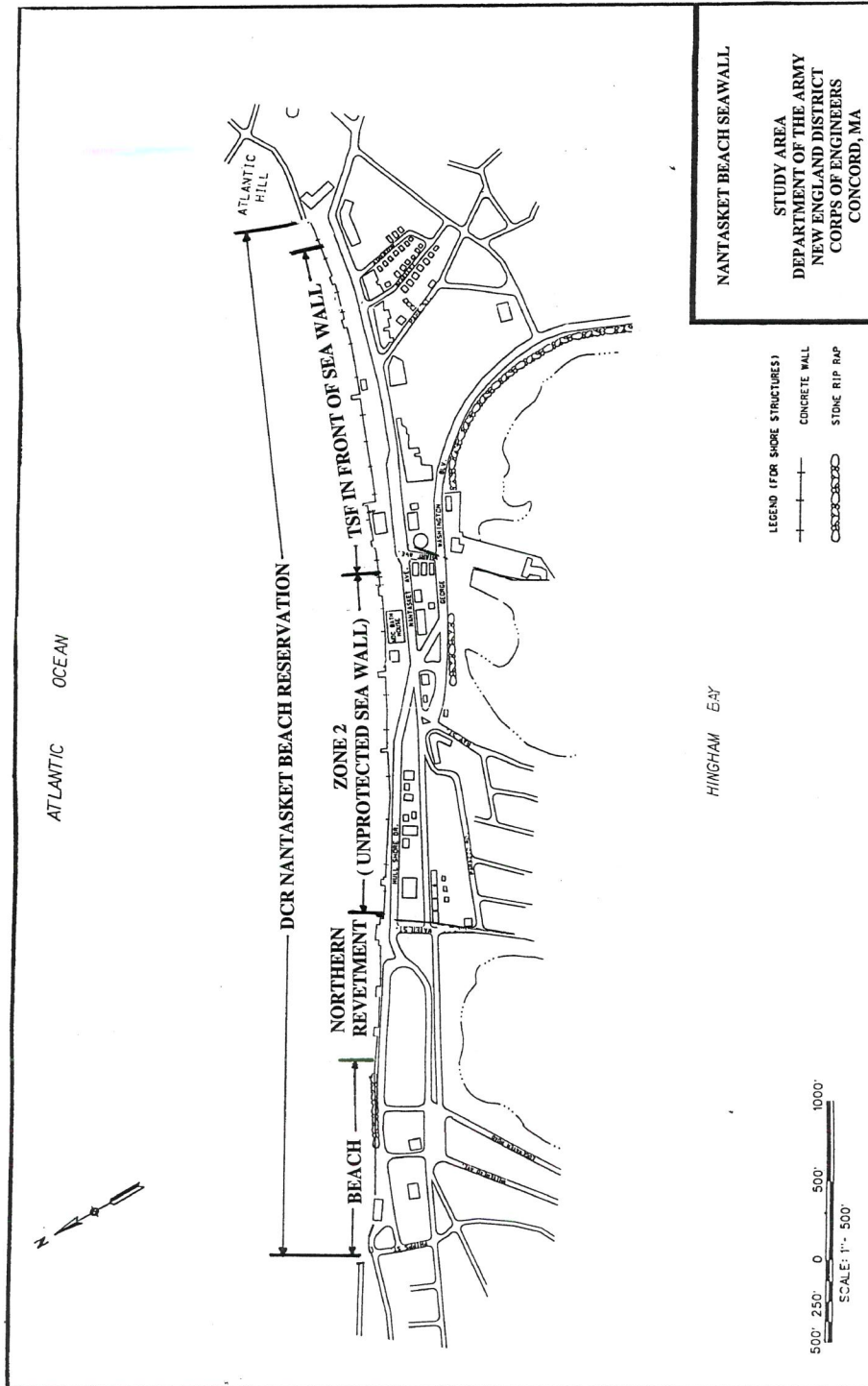
**HULL, MASSACHUSETTS**



**PREPARED BY:**

**A. MARY DUNN, STAFF APPRAISER**

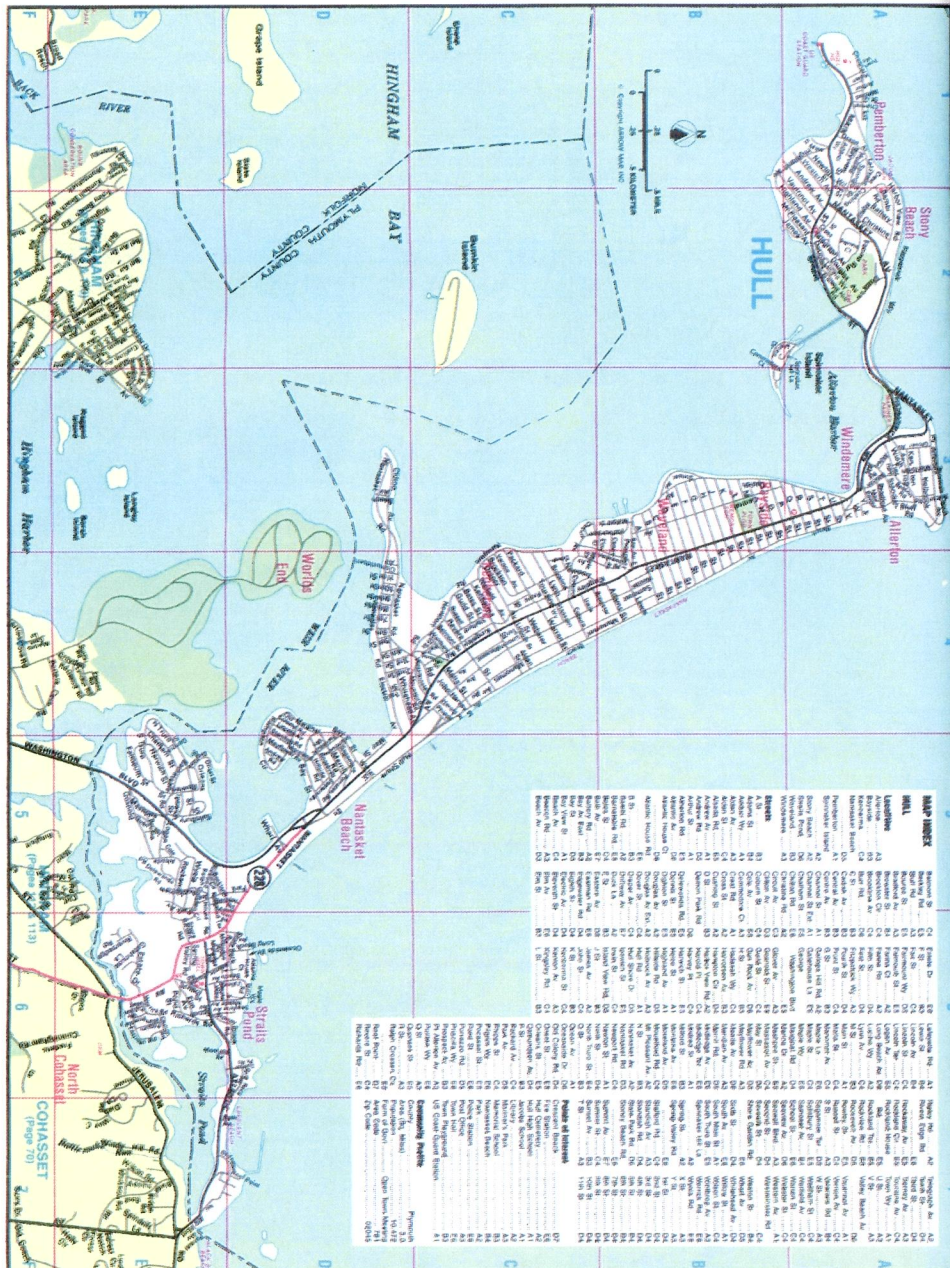
**FEBRUARY 2010**



**PROJECT AREA**



**PHOTO OF SUBJECT AREA**



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## **1. PURPOSE:**

This Real Estate Plan is for the Nantasket Beach Coastal Storm Damage Reduction Project Feasibility Report and Environmental Assessment. This study has been prepared under Section 103 of the 1962 River and Harbor Act, as amended, which authorizes the Corps of Engineers to participate in the cost of projects and studies for reducing coastal storm damages. This study was requested by the Commonwealth of Massachusetts, Department of Conservation and Recreation (formerly, the Metropolitan District Commission), to determine the cause of the flooding and erosion problem at Nantasket Beach and to present feasible solutions for reducing damages in the Nantasket Beach back shore. This study is the product of detailed investigations conducted by the New England District, Corps of Engineers, in cooperation with the Commonwealth of Massachusetts, Department of Conservation and Recreation (DCR) and other state and Federal agencies.

### **2.a. PROJECT AREA DESCRIPTION:**

The Nantasket Beach Coastal Storm Damage Reduction Project is located in the town of Hull, Plymouth County, Massachusetts, and concerns the Commonwealth of Massachusetts Department of Conservation and Recreation (DCR), Nantasket Beach Reservation, and adjoining back shore area. The area is located approximately 4 miles southeast of the main entrance to Boston Harbor and 12 miles southeast of the City of Boston.

Coastal storms cause extensive damages to the publicly-owned Nantasket Beach, its protective works and back shore public, commercial and residential properties. Storm driven waves from the east are responsible for the removal of sand in front of the concrete seal wall, exposing the footings, and the consequent lowering of the beach. In December 1992, a coastal storm with an approximately 10-year recurrence interval caused the failure and weakening of about 650 feet of sea wall at its northern end. The DCR has invested an estimated \$2 million to restore the bathhouse, located further south, which would be at risk if the sea wall is not protected.

The project area is the southerly 6,800-foot long portion of an elongated spit extending along a SE-NW axis into Massachusetts Bay from the Atlantic Hill section of Hull to Point Allerton. Storm driven waves have caused the removal of sand in front of a concrete sea wall, exposing the footings and lowering the beach. The study area can be described by dividing it into four areas. From the south, the historic seawall is fronted by a 2,200 foot long stone revetment called the TSF, which was placed as an emergency measure in 2002. North of the TSF, the historic sea wall has no protection other than sand and cobble that comprises the beach itself and that protection varies seasonally in elevation. This 2,200 foot long reach is labeled Zone 2 in the Corps analysis. Further north is the Northern Revetment, a structure built in 2005 to replace the wall segment that failed in 1992. From the end of the Northern Revetment, there are lesser stone and natural dune between the beach and the backshore areas running north to the reservation boundary near Phipps Street.

## **2.b. RECOMMENDED PLAN:**

After an initial screening of alternatives was performed, several plans for shore protection were selected for further study. The first was to replenish the beach with sand fill nourishment to create a 10-year level of protection beach berm in front of the sea wall in Zone 2. The second was to replenish the beach with sand fill nourishment to create a 25-year level of protection beach berm in front of the sea wall in Zone 2. A third plan was to construct a stone revetment providing a 10-year level of protection in front of the existing sea wall. A fourth plan was to construct a stone revetment providing a 25-year level of protection in front of the existing wall. A no action, or "do nothing" alternative rounded out the analysis. Although analysis indicated that the sand fill nourishment alternatives were effective at causing waves to break a distance from the sea wall and thereby reduce overtopping volumes, the high sand quantities required made them very expensive.

Since the 10-year stone revetment plan for protecting the 2,200 feet Zone 2 reach is economically feasible, maximizes coastal storm damage reduction benefits (annual benefits minus annual costs) and meets pertinent environmental and cultural resources criteria, it is the National Economic Development (NED) Plan and, therefore, qualifies for further Federal participation.

## **2.c. OWNERSHIPS:**

The replenishment of the sand will be completed on the existing beachfront, seaward of the sea wall. The beach, from the public ways to the seaward side of the sea wall, is owned by the Commonwealth of Massachusetts, Department of Conservation and Recreation. The required staging area will probably be in the DCR parking lot. Traffic patterns to be established for the construction phase may impact the current assumptions in regard to the particular areas that will be required. No other ownerships will be impacted by this project.

## **2.d. ESTIMATED VALUE:**

The temporary easement required for the staging area, covering about 12,000 square feet of land, includes parking spaces which are in high demand during the summer beach season, from May until September. The value of this easement, for a duration of one year, is approximately \$30,000. The project will also require the acquisition of a temporary easement along the beach, encompassing about 5 acres of land, during the construction phase. Any acquisition value for the temporary easement along the beach is offset by the benefit to the project and no value estimate is required for this area. The estimated value of the property rights acquired does not include all costs necessary to acquire those rights.

**3. DESCRIPTION OF NON-FEDERAL SPONSOR’S EXISTING OWNERSHIP:**

The Commonwealth of Massachusetts owns below the low water mark. The beach from the low water mark landward is owned by the Commonwealth of Massachusetts, Department of Conservation and Recreation.

**4. RECOMMENDED ESTATES:**

The construction, operation, and maintenance of the sea wall and beach to the seaward side will required two standard Temporary Work Area Easement (Estate Number 15) for one year. One easement will be required along the seawall for the construction of the project. A second easement, over the DCR parking lot, will be required for the staging area.

**5. EXISTING FEDERAL PROJECTS:**

There are no federal projects currently within the study area.

**6. EXISTING FEDERAL OWNERSHIPS:**

There are no federally owned lands in the project area.

**7. NAVIGATION SERVITUDE:**

Navigation Servitude does apply in this project since the purpose of the project is to prevent inland flooding. The temporary easement required along the beach will exclude land subject to Navigation Servitude. The construction area is below the mean high water mark.

**8. REAL ESTATE MAPPING:**

The maps included in this report are for general information only; detailed maps will be provided in the Plans and Specs phase.

**9. INDUCED FLOODING:**

No induced flooding is anticipated due to the proposed project.

**10. BASELINE COST ESTIMATE FOR REAL ESTATE:**

The total real estate costs for this project is estimated to be \$35,000. The costs consist of the value of the parking spaces which will be lost during the construction phase and administrative costs. The value of the temporary work area easement on the beach is offset by the benefit provided by the project. The construction area is subject to navigation servitude. This land is or was located below the mean high water mark.

**11. PUBLIC LAW 91-646 RELOCATIONS:**

There are no potential Public Law 91-646 relocations required in connection with this project.

**12. MINERAL/TIMBER ACTIVITIES:**

There is no present or anticipated mineral or timber harvesting activity in the vicinity of the project that may affect the operation thereof.

**13. ASSESSMENT OF THE NON-FEDERAL SPONSOR'S REAL ESTATE ACQUISITION CAPABILITIES:**

The non-Federal sponsor is the Commonwealth of Massachusetts, Department of Conservation and Recreation. The DCR has real estate acquisition and eminent domain authority in the project area, however, all the lands required for this project are owned by the local sponsor.

**14. ZONING CHANGES:**

No zoning changes are proposed in lieu of, or to facilitate, real estate acquisitions.

**15. ACQUISITION SCHEDULE:**

- a. PCA Execution – November 2014
- b. Survey – N/A
- c. Mapping – Provided by PM showing locations and sq. ft of temp. easements – December 2014
- d. Appraisals – Completed March 2014
- e. Closings – N/A
- f. Possession - N/A
- g. Sign Authorization for Entry for Construction – March 2014

**16. FACILITIES AND UTILITIES RELOCATIONS:**

The proposed project will not require any utility and/or facility relocations.

**17. HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE:**

There is no known on-site contamination and the real estate estimates contained in this report do not reflect the presence of contamination.

**18. LANDOWNER SENTIMENT:**

The sponsor, DCR, the town of Hull, and the general public are in favor of this project.