

# COASTAL TEXAS STUDY

## BEACH AND DUNE SYSTEMS



US Army Corps  
of Engineers®  
Galveston District



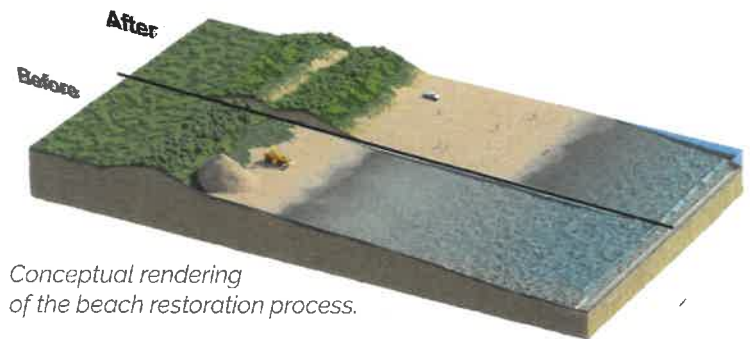
Texas has some of the highest erosion rates in the United States, with 64 percent of the Texas coast eroding at an average rate of 5.9 feet per year and some areas experiencing greater than 30 feet per year. When the Texas coast erodes, homes are lost, property values decrease, tourism suffers, local economies are negatively impacted, and the impact of major storms is more severe.

A vital factor in maintaining a healthy Texas Gulf shoreline is the construction and restoration of beach and dune systems in areas vulnerable to high rates of erosion. Beach and dune construction and restoration involves the placement of sand dredged from offshore sources or from nearby navigation channels on degraded gulf shorelines to create or restore dune and beach habitat. Beach and dune systems are maintained by replacing sand at regular intervals after storm events. These systems provide habitat to many plant and animal species and protect habitat, homes, and infrastructure that may be washed away due to erosion and severe storms.

### **Proposed beach and dune construction and/or restoration projects include:**

- Construction of a beach and dune system along the Gulf-side of Bolivar Peninsula;
- Construction of a beach and dune system along the Gulf-side of the west end of Galveston Island; and
- Maintenance and re-nourishment of the existing beach and dune system along the Gulf-side of South Padre Island.

The proposed beach and dune system along Bolivar Peninsula and the west end of Galveston Island will provide pedestrian and vehicular beach access by incorporating walk and drive over infrastructure at locations designated in each local government's Beach Access and Dune Protection Plan. Beach access will follow the Texas Open Beaches Act and any federal access requirements.



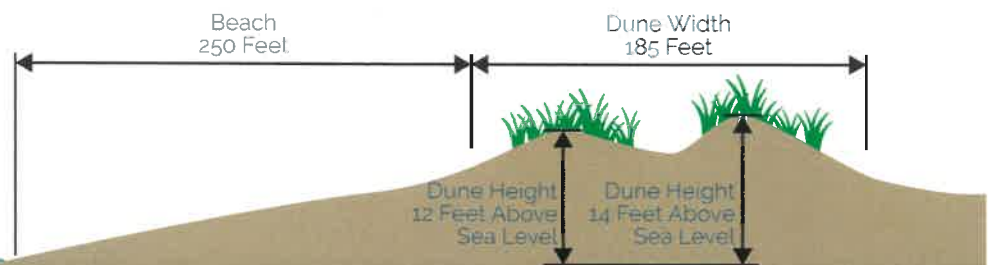
Conceptual rendering of the beach restoration process.



Conceptual rendering of a proposed beach and dune field system.

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## Beach and Dune System Components

(Drawing is representational and for illustrative purposes only. All dimensions are approximate)

More information is available online at: [coastalstudy.texas.gov](http://coastalstudy.texas.gov)

## Study Approach

The Coastal Texas Protection and Restoration Feasibility Study, also known as the Coastal Texas Study, has been developed to identify coastal storm risk management and ecosystem restoration measures. These measures are evaluated based on long-term benefits, costs, feasibility and resiliency.

A "multiple lines of defense" strategy is utilized in the formulation of the measures and alternatives in the Coastal Texas Study. Employing four primary goals – prepare, adapt, withstand, and recover – coastal communities could consider a system of comprehensive, resilient and sustainable coastal storm risk management and ecosystem restoration solutions. The system could include a combination of measures (structural, natural and nature-based features, and nonstructural) to form resilient, redundant, robust and adaptable strategies that promote life and safety based on local site conditions and societal values. To achieve a multiple lines of defense strategy, the Coastal Texas Study evaluates the following coastal problems:

- Economic damage from coastal storm surge
- Bay shoreline erosion
- Gulf shoreline erosion

## BEACH AND DUNE SYSTEM MISCONCEPTIONS

**Misconception: The study would use eminent domain to acquire and demolish any property along the proposed barrier alignment.**

The levee system solution along Galveston Island and Bolivar Peninsula has been dropped completely. The Study team is now investigating a beach and dune system along the front of Bolivar Peninsula and west of the Galveston seawall. The non-federal sponsor will have the responsibility of acquiring all necessary real estate interests for the project and ensuring that relocation of utilities and facilities is accomplished. Where necessary, access easements, voluntary relocations and acquisitions will be pursued, and eminent domain would only be used as a last resort.

**Misconception: Simply building a beach and dune system is not going to help protect the coastline.**

The Coastal Texas Study utilizes a "multiple lines of defense" approach/strategy. The system would include a combination of structural, natural, and non-structural systems that work together to provide the greatest level of safety possible based on societal values and site conditions.

**Misconception: The proposed beach and dune systems along Bolivar Peninsula and the west end of Galveston Island would severely restrict both pedestrian and vehicular access.**

The proposed beach and dune systems will provide pedestrian and vehicular beach access by incorporating walk and drive over infrastructure at locations designated by each local government. Beach access will be in compliance with the Texas Open Beaches Act and any federal access requirements.

**Misconception: Owners of pedestrian crossovers will not be compensated for the removal of their crossover if the proposed beach and dune system is constructed.**

Compensation for the removal of privately owned pedestrian cross over structures will be evaluated on a case by case basis. The evaluation will include the confirmation of valid crossover permit and determination of owner's eligibility to compensation for a substitute crossover. Owners of crossovers that were constructed without proper permits will not be eligible for compensation, however they will have the opportunity to submit an application for a permit to construct a new crossover.

