

Rickenbacker Causeway Shoreline & Roadway Protection, Florida

coastal engineering



The Rickenbacker Causeway connects Key Biscayne to downtown Miami, crossing Virginia Key and Hobie Island in Biscayne Bay. The Causeway serves as an important transportation corridor with approximately 2.5 miles of recreational shoreline with sandy beaches used for swimming and water sports. Coastal Systems designed the causeway shoreline improvement project incorporating shoreline stabilization and upland improvements. Field investigations were conducted including beach profiling and marine resource (seagrass) surveys, as well as upland native and exotic vegetation mapping.

Coastal engineering analyses were completed to determine winds, waves and sediment transport along the Project shoreline. Designs were developed for the shoreline stabilization including rock revetment, mangrove planter and beach nourishment stabilization. The beach nourishment was designed to avoid impacts to sensitive seagrass beds immediately adjacent to the Project shoreline. Sand sources were evaluated based on geotechnical analyses to determine the most economical and compatible beach fill. The beach restoration project includes upland paving and grading as well as stormwater management improvements. The project combines an extensive upland exotic vegetation removal effort with replanting of native species. In addition, mangrove planters were designed to enhance the shoreline and protect existing mangrove vegetation.

Coastal Systems processed environmental regulatory permits for the Project from the South Florida Water Management District, Miami-Dade County DERM and the U.S. Army Corps of Engineers. Coastal Systems prepared construction plans and specifications, and assisted the County with construction administration.



Beach Nourishment



Shoreline and Stormwater Management Construction

Client: Miami-Dade County Public Works

Location: Miami-Dade County, Florida

Date of Completion: 2010 (Est.)

Construction Cost: \$6,000,000

