RESOLUTION NUMBER 21-40

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF FORT MYERS BEACH, AUTHORIZING TOWN STAFF TO SUBMIT A FUNDING REQUEST TO FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR THE ESTERO ISLAND SHORE PROTECTION PROJECT; SEEK ADDITIONAL FUNDING FROM THE TOURIST DEVELOPMENT COUNCIL; AND AUTHORIZING LOCAL MATCHING FUNDS; AND PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, Florida Statutes provide that municipalities shall have the governmental, corporate, and proprietary powers to enable them to conduct municipal government, perform municipal functions, and render municipal service, and exercise any power for municipal purposes, except when expressly prohibited by law; and

WHEREAS, Article X of the Town Charter of the Town of Fort Myers Beach ("Town") empowers the Town to adopt, amend, or repeal such ordinances and resolutions as may be required for the proper governing of the Town; and

WHEREAS, Estero Island's coastal beach, which is among the Town of Fort Myers Beach ("Town") most important ecological, economic, and recreational assets, is subject to erosion that results in detrimental impacts to nesting and wintering areas for wildlife species such as sea turtles and shorebirds; loss of outdoor recreational opportunities for the Town's residents and visitors; and damage to and loss of public and private property; and

WHEREAS, beach erosion control and restoration projects are an effective tool for preventing and offsetting some of the negative impacts of beach erosion, including loss of habitat, loss of recreational opportunities, and endangerment of public and private property; and

WHEREAS, the Town Council finds that beach erosion control and restoration projects are in the public interest and in the best interest of the health, safety, and welfare of the residents, property owners and visitors of the Town of Fort Myers Beach.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE TOWN OF FORT MYERS BEACH AS FOLLOWS:

Section 1. The above recitals are true and correct and are hereby incorporated by reference as though fully set forth herein.

Section 2. The Town Council expresses its support for the Estero Island Shore Protection Project (the "Project"), depicted in Exhibit "A", a copy of which is attached hereto and made a part of this Resolution.

Section 3. To conserve sand resources and/or reduce Project costs the Town supports regionalization of the Project and work with Lee County to coordinate bidding and construction of the Project where possible.

Section 4. The Town authorizes Town staff to take all necessary actions to request and obtain funds from the Florida Department of Environmental Protection for the Project and will provide matching funds/local cost share for the Project and serve as local sponsor for the Project including matching funds from the Town Beach Restoration Reserves and Lee County Tourist Development Council.

Section 5. This Resolution shall become effective immediately upon its adoption.

The foregoing Resolution was adopted by the Town Council upon a motion by Council Member Allers and seconded by Council Member Veach, and upon being put to a vote, the result was as follows:

Raymond P. Murphy, Mayor	aye
Rexann Hosafros, Vice Mayor	aye
Dan Allers, Council Member	aye
Jim Atterholt, Council Member	aye
Bill Veach, Council Member	aye

ADOPTED this 9th day of September 2021 by the Town Council of the Town of Fort Myers Beach, Florida.

TOWN OF FORT MYERS BEACH

Raymond P. Murphy, Mayor

ATTEST:

Amy Baker, Town Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY FOR THE USE AND RELIANCE OF THE TOWN OF FORT MYERS BEACH SOLELY:

John R. Herin, Jr., Town Attorney

This Resolution was filed in the Office of the Town Clerk on this 9 day of September 2021.

EXHIBIT A

ESTERO ISLAND SHORE PROTECTION PROJECT
PROJECT DESCRIPTION
CEC FILE NO. 21.504
JULY 30, 2021

I. PROJECT DEFINITION

The Project provides erosion control and includes beach nourishment for approximately 5.5 miles of critically eroding gulf shoreline along Estero Island, Lee County. The Project boundary extends from the terminal groin in the vicinity of Florida Department of Environmental Protection (FDEP) Reference Monument C-174A.5 to R-198, and from R-203 to R-207. The total length of shoreline within the Project boundary is 28,790 feet. The total length of shoreline within the Project boundary that is designated critically eroding by FDEP is approximately 28,790 feet. Measurements and lengths presented herein and within the funding application are based on Mean High Water (MHW) measurements conducted by Coastal Engineering Consultants, Inc. (CEC) in May 2021 as part of the design survey.

The Project is consistent with the State's Strategic Beach Management Plan (FDEP, 2021) including these components:

- Restore critically eroding beaches;
- Maximize the infusion of beach-quality sand into the coastal system;
- Implement projects that contribute most significantly to addressing the state's beach erosion problems;
- Extend the life of beach restoration projects and reduce the frequency of nourishment.

II. HISTORY

In December 2011, Lee County completed construction of the Estero Island Beach Restoration Project including sand placement along the north segment of the island and the addition of a terminal groin on the northern end of the beach fill.

The 2011 initial beach restoration project was constructed between April 2011 and December 2011. Approximately 403,000 cubic yards (CY) of sand were excavated and placed in the beach fill area between C-174A.5 and R-181.5. The beach was constructed to a berm height of 2.9 feet NAVD88 over a shoreline distance of approximately 6,700 feet (1.3 miles). The design berm extended seaward at the 2.9 feet NAVD88 elevation an average of 236 feet and then sloped to the -1.2 feet NAVD88 elevation at a 15H:1V slope. The design then adjusted to a 20H:1V slope seaward until it connected with existing grade. All dredging was conducted in the Primary Borrow Area. The terminal groin was constructed with approximately 3,630 tons of limestone rock for a length of 240 feet with a maximum crest width of approximately 12.7 feet. A single vinyl sheetpile row was installed along the centerline of the structure to make it sand tight (Lee County, 2003).

In 2016, the U.S. Army Corps of Engineers (USACE) dredged Matanzas Pass and placed dredge material (estimated quantity was 130,000 CY based on USACE Project Plans) in the nearshore area between R-182 and R-187.

In 2017, the West Coast Inland Navigation District and Lee County completed the initial dredging of the Big Carlos Pass Navigation Channel. Over 55,000 CY were excavated and placed between R-203 and R-206 (Humiston and Moore, 2018).

In 2017, Lee County imported over 2,000 CY via truck haul to address erosion due to Hurricane Irma along the Crescent Beach shoreline in the vicinity of R-181.

In 2020, the Town of Fort Myers Beach took over the local sponsorship from the County. The Town contracted with CEC to conduct a project performance assessment (CEC, 2020). Based on the assessment, the Town and CEC applied to the Lee County Tourist Development Council for funding and received a grant in the amount of $300,000 to initiate the Project's design and permitting specific to renourishment of the original fill limits along the north segment. The Town and CEC successfully applied for funding assistance through the State of Florida's Beach Management Funding Assistance Program and the Town is set to receive $150,000 for the design and permitting phase.

In 2020, Lee County imported over 4,000 CY via truck haul to address erosion due to Tropical Storm Eta along the Lynn Hall Beach Park shoreline in the vicinity of R-180.

In 2020, the USACE dredged Matanzas Pass and placed dredge material (estimated quantity was 124,000 CY based on USACE Project Plans) in the nearshore area between R-182 and R-187.

In 2020 and 2021, the Island was impacted by multiple tropical storms and hurricanes, most notably Tropical Storm Eta and Hurricane Elsa. Multiple beachfront property owners located primarily in the south segment, which has never been restored, requested the Town include them in their beach management program. The Town engaged CEC as their consultant to design and permit the next renourishment project as well as expand the beach management program to include all of the designated critically eroding beach segments on Estero Island.

III. PROPOSED ACTIVITY

A. North Segment (Terminal Groin to R-182)

Based on eight years of monitoring results and CEC's project performance assessment, the 2011 project has performed well. The background erosion rate was measured equal to approximately 20,000 CY/YR. The updrift and downdrift beach segments adjacent to the beach fill limits were generally accretional due to the spreading of the beach fill alongshore as well as the beneficial use of the maintenance dredging of Matanzas Pass. There were no documented adverse impacts from the terminal groin or from dredging the Borrow Area.

CEC performed cross-shore sediment transport modeling utilizing SBEACH to analyze the existing conditions along Estero Island and determine the optimal beach width to provide storm damage reduction benefits for the 25-year design storm. Based on the modeling CEC selected 75 feet as the design beach fill width noting the majority of the existing shoreline is on the order of 75 feet as measured during the May 2021 design survey. Utilizing the pre-and post-construction surveys and monitoring results, CEC computed the average initial profile equilibrium adjustment equaled 60 feet, and the 9-year background erosion averaged approximately 10 feet per year. The Town desires a 10-year renourishment interval. Combining the design width (75 feet), advanced nourishment (100 feet), and equilibrium profile adjustment (60 feet) totals 235 feet.

The berm crest elevation of 3.2 feet NAVD88 was established by conducting a sea level change analysis which resulted in raising the 2011 crest elevation of 2.9 feet NAVD88 by 0.3 feet. The design template slopes include a 1:200 beach berm slope, a 1:15 seaward slope from the crest to approximate mean low water (MLW), and a 1:20 slope below MLW. Based on the 2021 design survey, the volume for the north segment was computed equal to 276,000 CY.

B. Central Segment (R-182 to R-198)

CEC applied the results of their analysis for the north segment to the central segment. The model results for the central beach profiles indicate the majority of the beach currently provides the storm damage reduction benefits for the design storm thus the 75-foot wide design template was adopted for the central segment. During the original shore protection project design and permitting, the Erosion Control Line was established along the Island extending to approximately R-198. While the original fill limits ended at R-181.5, the routine maintenance dredging and beneficial use of dredge spoil has benefited this shoreline segment. The average shoreline change rate has been net accretional, averaging 7 to 8 feet per year. CEC recommends using 1 foot per year of erosion for the advanced nourishment and adopting 60 feet from the north segment analysis to account for equilibrium profile adjustment. Combining the design width (75 feet), advanced nourishment (10 feet), and equilibrium profile adjustment (60 feet) totals 145 feet. The template berm and slopes

are the same as the north segment. Based on the 2021 design survey, the volume for the central segment was computed equal to 338,000 CY.

C. South Segment (R-203 to R-207)

CEC also applied the results of their analysis for the north segment to the south segment. While some portion of the south segment beach is in good condition, the reach from R-203.5 to R-204.5 has been extremely erosional and little to no dry beach remains along multiple properties. The model results indicated the 75-foot design width would provide the desired benefit except in this reach, where an additional 40 feet of width was added to achieve the design goal. Utilizing the monitoring data, CEC computed the background erosion averaged approximately 11 feet per year. Combining the design width (75 feet), advanced nourishment (110 feet)), and equilibrium profile adjustment (60 feet) totals 245 feet plus an additional 40 feet at R-204. The template berm and slopes are the same as the north and central segments. Based on the 2021 design survey, the volume for the south segment was computed equal to 316,000 CY.

D. Borrow Area

Based on the 2019 survey, the originally permitted Borrow Area has over 1 MCY of available volume. It is anticipated that with shoaling between the monitoring survey and time of construction, there will be sufficient volume for Project construction.

E. Path Forward

The Town and CEC are moving forward with development of the Joint Coastal Permit Application for the Project based on CEC's preliminary beach fill design plan set (CEC, 2021) for the north, central, and south segments. In total, approximately 930,000 CY are proposed for Project construction. The Preliminary Opinion of Probable Project Cost including design and permitting, construction, construction phase services, and first year monitoring is approximately $23,068,000.

IV. REFERENCES

Coastal Engineering Consultants, Inc. (2021). Estero Island Beach Fill Preliminary Design Plans.

Coastal Engineering Consultants, Inc. (2020). Estero Island Beach Renourishment Due Diligence.

Florida Department of Environmental Protection (FDEP). (2021). Strategic Beach Management Plan.

Humiston & Moore Engineers. (2018). Big Carlos Pass Channel Dredging Project Post Construction Monitoring Report #1.

Lee County. (2003). Estero Island, Lovers Key and Bonita Beach Restoration; Contingency Plan. DEP Permit 0173059-JC and 0200803-JC. Fort Myers.