INDIAN RIVER COUNTY, FLORIDA
BOARD MEMORANDUM

DEPARTMENTAL

TO: Jason E. Brown, County Administrator

THROUGH: Richard B. Szpyrka, P.E., Public Works Director

FROM: Kendra L. Cope, M.S., Coastal Resources Coordinator

SUBJECT: **Sector 7 Beach and Dune Renourishment Project Design Response to FDEP Request for Additional Information**

DATE: June 28, 2019

BACKGROUND

On January 9, 2018, the Board approved a contract with Coastal Technology Corporation (Coastal Tech) for professional coastal engineering and biological support services related to the management and re-nourishment of the Sector 7 (Porpoise Point) Beach Project area. The Sector 7 Project area sustained damage from Hurricane Matthew (2016) and Hurricane Irma (2017) and is in need of a large-scale beach and dune nourishment project to maintain protection to upland properties and infrastructure.

The County currently has two Project Worksheets (PW) issued by FEMA for Sector 7 Beach and Dune Re-nourishment. Both the Hurricane Matthew PW #616 and the Hurricane Irma PW #3018 are under FEMA/Environmental Planning & Historic Preservation (EHP) review. Once awarded, this FEMA funding will aid the County is recovering associated storm losses within the project area.

The County has also received additional supplemental funding from Florida Department of Environmental Protection (FDEP) due to losses incurred by Hurricane Irma within the Sector 7 project area, in the amount of $307, 538.00.

Sector 7 Project Area

The Sector 7 Project area is a 2.2-mile section of shoreline that extends from Seagrove south to The Moorings in the southern portion of the County. The project area has been identified by FDEP as a critically eroded beach and has become heavily armored due to high erosion rates. This area has no public access. This makes it difficult to receive State cost-share through annual local government funding requests.

Brief History of the Sector 7 Project Area

In 2004, the Sector 7 Project area sustained damages from both Hurricane Jean and Francis creating the need for the first a large-scale nourishment project within the southern critically eroded beaches of IRC. This project was designed not impact nearshore hardbottom and used

362,000 cy of sand to fill a no impact design template based on current beach conditions. After three years of post-construction monitoring, following the 2007 construction, FDEP declared the project a success, resulting in no significant impacts to the nearshore hardbottom resources. Other than small scale private post-storm maintenance, no beach nourishment project has been completed since 2007.

2014 Beach Preservation Plan Recommendation for Sector 7

In the 2014 update to the County Beach Preservation Plan (BPP), the Sector 7 strategies of Beach Fill and No Action were evaluated. The cost-effective recommendation from this evaluation was for No Action due to the lack of funding assistance and no public access within the project boundaries. However, if public access was created or funding assistance was available, the recommendation suggested Beach Fill as the best option. The 2014 BPP update recommends for beach maintenance projects to avoid adverse impacts to environmental resources including the nearshore hardbottom.

DESCRIPTION AND CONDITIONS

Permit Application for Sector 7 Renourishment

In order to expedite the permitting process staff instructed Coastal Tech to design a project applying the previously permitted 2007 beach fill template to the current beach conditions. This originally permitted template proved successful resulting in no impacts to nearshore hardbottom, and thus should perform similarly. Permit applications were prepared based on a project design modeled after the original template. The FDEP permit application was submitted on January 25, 2019 and ACOE permit application on February 1, 2019.

FDEP Request for Additional Information

On February 22, 2019 Indian River County received a Request for Additional Information (RAI) from FDEP related to the Sector 7 Project application. The RAI indicated the proposed design would in fact impact the nearshore hardbottom due to the current beach conditions being more deflated than in 2007. The RAI asked the County to explain how they would calculate acreage of hardbottom within the sediment mixing zone that was subject to impacts and how the County would mitigate for such impacts. The RAI also required additional hardbottom delineation through a reconnaissance survey with diver verified transects.

In response to the RAI, staff worked with Coastal Tech to estimate the amount of hardbottom that may be adversely affected by the original design and come up with scenarios for how the County can respond to the FDEP's concerns outlined in the RAI related to the project design. Staff confirmed the original design would in fact impact nearshore hardbottom. Staff is seeking direction on which of the following scenarios to pursue as a response to FDEP's RAI.

Possible Scenarios for Staff Action

Scenario 1: Permit the original design and mitigate for adverse impacts. This option would provide approximately 440,000 cy of sand to the project area. Depending on location within the project area the beach berm would be widened approximately 50-150 feet, with an average width of 96 feet. Based on current beach conditions, this quantity of fill would likely cover nearshore hardbottom exposed seaward of the 2007 Equilibrium Toe of Fill (ETOF) line that was identified in the 2015 hardbottom delineation surveys. The estimated amount of coverage would equal approximately 11 acres of hardbottom and would require mitigation costing approximately $750,000/acre. Due to the large volume of sand needed for this design, this project would likely utilize an offshore sand source. Total costs for this scenario are estimated between $21-25 million.

Scenario 2: Revise the design with a lower quantity of fill. This option would provide approximately 215,000 cy of sand based on the draft revised design created by Coastal Tech. Depending on location within the project area the beach berm would be widened approximately 0-60 feet, with an average width of 42 feet. Staff will work with Coastal Tech at no additional costs to the County to strategically enhance the feeder beach design where feasible to compensate for lower fill quantities throughout the project area. No adverse impacts are anticipated to occur based on the draft revised design and no mitigation would be required. Due to the minimized quantity of sand, it is likely this project would utilize an upland sand source. Costs for this scenario are estimated between $7.2 - $7.5 million.

Scenario 3: Remove permit application and pursue a "No Action" strategy. Background erosion rates in this area will continue, and the beach berm will continue to lower. Based on the 2014 BPP update, impacts from erosion in this area will cost the County $3 million/year.

During the June 17, 2019 Beach Committee meeting, the Sector 7 RAI and project scenarios were discussed. The committee all agreed that due to available funding, which would be lost if not utilized, it was important to continue with a project in Sector 7. A motion was unanimously made to recommend Scenario 2 as the most cost-effective way to sustain the beaches within the project area and provide protection to upland structures.

FUNDING

Local funding of Beach Restoration includes a portion of Local Option Tourist Tax Revenue. Funding for the required pre-construction services is budgeted and available for the Sector 7 Beach Restoration Project in the Beach Restoration Fund, Hurricane Matthew Account - Sector 7, No. 12814472-066512-17001.

Construction of the Sector 7 Beach and Dune Renourishment project is not anticipated until Winter 2020/2021.

RECOMMENDATION

Staff recommends the Board support the Beach Committee's June 17, 2019 recommendation and thereby approve Scenario 2: move forward with the Sector 7 project, but with a revised design which will strategically minimize fill to ensure no impacts to nearshore hardbottom.

ATTACHMENT

1. Sector 7 Opinion of Probable Construction Costs for Scenarios 1 and 2

APPROVED AGENDA ITEM FOR: JULY 16, 2019