

# Project Updates for Shell Key North Pass and Grand Canal Feasibility Study

*By APTIM, Coastal, Ports & Marine, under contract with Pinellas County*

## January 17, 2020

The primary focus since December's progress update has been to finalize the alternatives, completing 5-yr modeling runs, and developing the final report. Aptim's updates by task and study topic are summarized below.

### Task 4 Preliminary Alternatives Analysis

- Completed development of sand management alternatives based on permitting agencies, County, and stakeholder input
- Held conference call with County to confirm combinations of options for final alternatives and general parameters for final modeling runs
- Added an alternative as a result of modeling analysis that includes a hybrid breakwater structure, which is under evaluation

### Task 5 Presentation of Findings

- Continued to receive and organize comments following Stakeholder Meeting #2
- Generated graphics and content for report and presentation
- Prepared draft presentation for Board of County Commissioners (BOCC) meeting in February

### North Shell Key Morphology Study

- Finalized engineering alternatives for final production model runs and storm analysis
- Completed all but one "combined" alternative model run
- Drafted much of the modeling report including the preliminary alternatives analysis
- Continued ongoing development of the final alternatives analysis and set of overall conclusions
- Developed graphics for inclusion in the BOCC March 5<sup>th</sup> workshop presentation.

## December 4, 2019

In summary, over the past month the APTIM team held Stakeholder Meeting #2 on November 13<sup>th</sup>, 2019 and continued development of the engineering alternatives based on numerical modeling results.

### Task 4 Preliminary Alternatives Analysis

- Continued development of sand management alternatives based on permitting agencies, County and stakeholder input
- Prepared cost estimates for preliminary alternatives

### Task 5 Presentation of Findings

- Prepared for and presented at Stakeholder Meeting #2

### **North Shell Key Morphology Study**

- Presented preliminary findings at Stakeholder Meeting #2
- Selected engineering alternatives for production model runs

The final report is expected to be presented to the Board of County Commissioners at a regular public meeting in February 2020.

### October 11, 2019

Over the past month the APTIM team has made considerable progress with the morphology modeling study and continued work developing the feasibility study report.

### **Morphology Modeling Study**

- Model calibrations are ongoing
- Met with small group of Tiera Verde Community Association stakeholders on September 11, 2019 and presented results for the:
  - model calibration,
  - sediment budget, and
  - set of draft conceptual engineering alternatives.

#### **Task 4 – Preliminary Alternatives Analysis**

A conference call with County staff and regulatory agency representatives from the Florida Dept. of Environmental Protection, the U.S. Army Corps of Engineers (Jacksonville and Tampa), NOAA National Marine Fisheries Service, and the U.S. Fish and Wildlife Service was held October 2, 2019.

The project progress and findings were presented, and the conceptual engineering alternatives were discussed. Meeting minutes are being developed and will be an appendix to the final feasibility report.

In consultation with County staff, APTIM has narrowed down the conceptual alternatives to be modeled in a strategic phased approach.

#### **Task 5 Presentation of Findings**

Over the next month Aptim will be preparing to present the final study results on November 13<sup>th</sup> at 6 p.m. at Tampa Bay Watch.

#### [September 3, 2019](#)

Over the past month the APTIM team has finalized survey deliverables, made significant progress on modeling calibrations, and are preparing for next small group meeting.

#### **Task 1 -- Literature Review and Data Gap Analysis**

- Continued review of ownership determinations from the State
- Developed an ownership figure for inclusion in the Feasibility Report

#### **Task 4 -- Preliminary Alternatives Analysis**

- Continued internal development of preliminary sand management alternatives for evaluation

#### **Field Assessment and Data Collection**

- Delivered survey data and drawings via email 8/29/19

#### **North Shell Key Morphology Study**

- Developed sediment budgets to assess rate of sand movement for two time periods
- Worked towards completion of wave & morphology calibrations
- Prepared for small group meeting to discuss the details of the model set up, calibration, and alternatives selected for analysis: 9/11/19 at 10am

## August 7, 2019

In summary, over the past month our team has continued work developing alternatives, collected current condition measurements, and is continuing to work with the County on approval for the North Shell Key Modeling/Morphology Study discussed at the small group meeting with Bob Weisberg on May 28, 2019.

### **Task 1 – Literature Review and Data Gap Analysis**

- Reviewed ownership determinations from the State
  - FDEP has determined the area where the old pass existed as well as the portion of the sand north of Collany Key outside the preserve boundary are in private ownership.
- Developing an ownership figure for inclusion in the Feasibility Report

### **Task 4 – Preliminary Alternatives Analysis**

- Continued internal development of preliminary sand management alternatives for evaluation

### **Field Assessment and Data Collection**

- Continued processing of collected survey data
- Reviewed collected acoustic Doppler current profiler (ADCP) data
- Initial preparation of survey deliverables

### **North Shell Key Modeling/Morphology Study**

- Received Notice to Proceed on 7/5/19
- Development of regional wave and flow grids
- Development of nested, local wave and flow grids
- Wave & morphology calibrations ongoing
- Sediment budget development ongoing

## July 3, 2019

### **Task 2 – Evaluate Ongoing Monitoring Program**

- Established beach profile locations for repeatable physical monitoring of north Shell Key

### **Task 4 – Preliminary Alternatives Analysis**

- Internal development of preliminary sand management alternatives for evaluation

## **Field Assessment and Data Collection**

- Survey crew collected:
  - Beach profiles along northern Shell Key
  - Bathymetric survey data of Grand Canal entrance study area
  - ADCP deployed and measured currents and water levels within Grand Canal

Modeling scope of work reviewed by County and submitted by APTIM on 7/2/19

## June 4, 2019

### **Task 1 – Literature Review and Data Gap Analysis**

- Reviewed Dr. Weisberg's report
- County is researching ownership

### **Task 3 – Field Assessment and Data Collection**

- APTIM lead numerical modeler conducted a site visit 5/31/19
- Preparing for a late June survey of the study area – pending approval of separate survey proposal

### **Task 4 – Preliminary Alternatives Analysis**

- Lindino Benedet, Tom Pierro, Tara Brenner, and Beau Suthard attended and discussed a presentation by Dr. Weisberg at TVCA 5/28/19

## May 7, 2019

### **Task 1 – Literature Review and Data Gap Analysis**

- County is researching ownership

### **Task 2 – Evaluate Ongoing Monitoring Program**

- Reviewed water quality monitoring data
- Reviewed existing survey data

### **Task 3 – Field Assessment and Data Collection**

- Tom, Tara, and Beau conducted a site visit on 4/30/19
- Comparison plots of 2016 and 2019 survey data
- Aerial shoreline change analysis

### **Task 4 – Preliminary Alternatives Analysis**

- Stakeholder Meeting #1 held 4/30/19
- Reviewed comment cards from Stakeholder Meeting #1

## April 4, 2019

### **Task 1 – Literature Review and Data Gap Analysis**

- County provided data:
  - Robert Weisberg’s report
  - Legislative Appropriation Request
- County is researching ownership

### **Task 2 – Evaluate Ongoing Monitoring Program**

### **Task 3 – Field Assessment and Data Collection**

- Processing of imagery collected 3/4/19 via unmanned aerial vehicle (UAV/drone)
- Developed georeferenced orthomosaic

### **Task 4 – Preliminary Alternatives Analysis**

- Scheduled Stakeholder Meeting #1 for 4/30/19
- Drafted agenda and news release for Meeting #1

## March 7, 2019

### **Task 1 – Literature Review and Data Gap Analysis**

- County provided data:
  - Shell Key Digital Elevation Model
  - Beach profile data
  - Water quality data
- Confirmed USF-Coastal Research Laboratory beach profiles (only pre- post-storm available)
- Reviewed condition assessment of the Pass-a-Grille southwest jetty
- Reviewed photos and information provided by Shell Key/Grand Canal Committee
- County is researching ownership

### **Task 2 – Evaluate Ongoing Monitoring Program**

- Reviewed 2018 Shell Key Management Plan Update
- Reviewed Shell Key Management Plan 2017 Update memo
- Received County water quality data

### **Task 3 – Field Assessment and Data Collection**

- Performed a site visit and collected imagery with unmanned aerial vehicle (UAV) this week

### **Task 4 – Preliminary Alternatives Analysis**

- Coordinating with County to schedule Stakeholder Meeting #1

February 8, 2019

**Task 1 – Literature Review and Data Gap Analysis**

- Generated a time series using aerial photos from 1994 to present
- Compiled pertinent resources and identified 9 reports to be used as citations in this feasibility study
- Reviewed pertinent literature in detail to understand the dynamic evolution of this coastal system
- Identified the following potential data gaps:
  - Water quality monitoring data
  - Seagrass monitoring data
  - Beach profile surveys of Shell Key
  - Beach profile surveys of Pass a Grille beach
  - Condition assessment of the Pass a Grille southwest jetty
- Met with County to discuss data gaps

**Task 2 – Evaluate Ongoing Monitoring Program**

- Reviewed 2018 Shell Key Management Plan Update

**Task 3 – Field Assessment and Data Collection**

- Initial field planning
- Coordinating with County for assistance in gaining access to Shell Key