

## City of Palm Coast

**Description:**

The estimated population of Palm Coast, in 2018, was 87,607. In 2016 the City Stormwater Engineer was a non-supervisory position and reported to the Construction Management & Engineering Manager. After two hurricanes in approximately one year (Mathew and Irma) and the realization that the City's aging Stormwater infrastructure was falling into disrepair and very much in need of attention the City decided to embark on an enhanced approach to Stormwater Infrastructure Management, Maintenance, and Repair. It was determined that, with the funding and staffing levels at that time, the City would continue to fall behind in its' efforts to maintain the City's Stormwater infrastructure.

In early 2018, re-organization of the City's Construction Management & Engineering (CM&E) Division resulted in the establishment of a Stormwater Group. This group included the City's Stormwater Engineer, a project manager/coordinator, two engineering technicians, and a survey crew. The objective was to develop a Stormwater management program and a strategic plan and cost analysis for addressing Stormwater infrastructure needs. Tasks included developing a comprehensive 5 and 10 year Capital Improvements Plan with alternatives for an accelerated Stormwater program to address infrastructure assessment, inventory, inspections, maintenance, regulatory requirements, monitoring, and tracking. These alternatives were developed in coordination with a detailed financial analysis to determine, and support, necessary changes to the existing Stormwater utility fees and financing resources to help fund planned improvements. Two levels of programming and funding were developed. These plans were presented to City Council in August, 2018, and an Enhanced Program Approach was approved. The Stormwater budget was increased in FY19 by 48 percent (from \$8.7 million in FY18 to \$12.9 million in FY19).

In the 3<sup>rd</sup> quarter of FY19 another reorganization resulted in the establishment of a new Stormwater & Engineering Department. A Stormwater Division was created combining personnel and assets associated with all aspects of Stormwater infrastructure operations. The Division is managed by the City's Stormwater Engineer and is divided into three groups: Stormwater Design and Construction, Stormwater Operations, and Stormwater Maintenance. During FY19 a Citywide Stormwater Master Planning and Modeling Program was developed and enhancements to the maintenance and operations programs were implemented. Programs associated with infrastructure assessment, inspections, planning, and capital improvements were accelerated. In the 4<sup>th</sup> quarter of FY19 plans were implemented to relocate all operations, maintenance, and engineering personnel (including all associated maintenance equipment and materials) to a central facility. The Stormwater Division includes a staff of approximately 48 personnel.

In FY20 the total Stormwater Program budget was increased to approximately \$18.4 million. The goals of the City's Stormwater Program continue to be to:

- Improve system capacity, conveyance, and water quality;
- Develop and enhance standards and levels of service associated with all Stormwater operations;
- Improve capabilities for tracking, monitoring, planning, maintenance, and capital improvements through the use of GIS and Stormwater modeling technology;
- Continue to build and develop the Citywide Stormwater Model and Master Plan, and;
- Provide the highest level of service to the Citizens of Palm Coast.

# City of Palm Coast – FSA 2020 Excellence Awards

## FY 2018

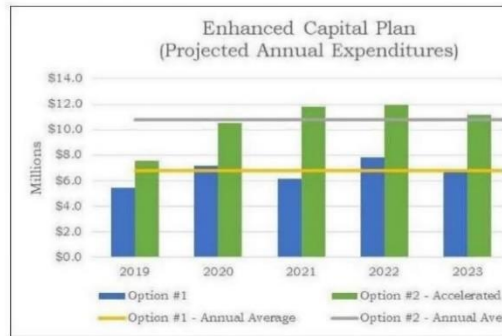
- Develop 5 and 10 Yr. Stormwater Infrastructure CIP and funding Strategies for accelerating Stormwater Program
- Present program alternatives, findings, and funding recommendations to City Council
- City Council approves FY19 budget and enhanced Stormwater Program recommendations
- Begin acquisition of data and preliminary efforts for developing a Citywide Master Drainage Plan

### Stormwater Rate Study

2018

#### Projected Capital Expenditures

#### Projected Revenues



- ▶ Based on an existing month
  - ▶ An ERU = 1.0 Equivalent Residential Unit
  - ▶ Current rate effective January
  - ▶ The City has not increased
- ▶ Projected revenues estimate
  - ▶ Amount based on recent billings
  - ▶ Revenues projected to increase with growth-related property construction
  - ▶ The annual average growth rate is less than annual inflation since the additional revenue above the existing vacant parcels
- ▶ Projected revenues include
  - ▶ The ad valorem contribution during the study period

#### Stormwater Rate Study Objectives

- ▶ Develop a funding strategy to pay for Stormwater System Operations, R&R and Major Capital Improvements
- ▶ Estimate revenue requirements to be recovered from stormwater rates
  - ▶ Preliminary results based on enhanced capital plan options to address system deficiencies
- ▶ Identify the projected rate adjustments necessary to:
  - ▶ Maintain adequate cash reserve balances
  - ▶ Achieve a positive cash flow over time
  - ▶ Meet or exceed the minimum debt service coverage requirements established for existing and future loans

▶ 23

#### Enhanced Stormwater Plan:

##### Operating:

- Additional funding to meet MS4 permitting requirements
- Develop Citywide Master Stormwater Plan
- Additional staff members

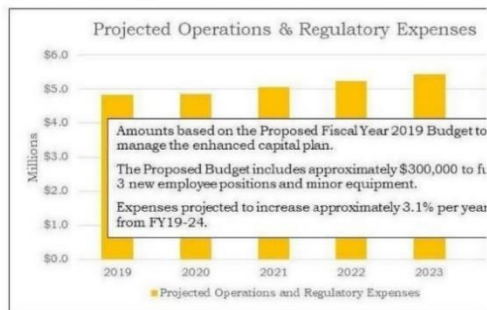
##### R&R Items to be enhanced

- Clean/Inspect/Line Major pipe Crossing
- Accelerate pipe lining program
- 45 Additional pipe & valley gutter replacements/year
- Increase level of effort for swale and ditch maintenance
- Establish ditch spray program

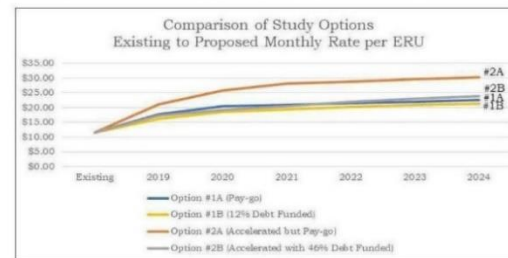
#### Study Tasks

- ▶ Prepare a Financial Forecast
  - ▶ Fiscal Years 2019 to 2024
- ▶ Develop projections of:
  - ▶ Stormwater Revenues
  - ▶ Operations and Regulatory Expenses
  - ▶ R&R and Major Capital Improvements
  - ▶ Principal & Interest Payments on Existing Debt
  - ▶ Adequacy of Revenues under Existing Conditions

#### Projected Operations & Regulatory Expenses



#### Comparison of Study Options



#### Major Capital Improvement Projects to be added:

- Freshwater canals – dredging and detention
- Purchase additional equipment for establishing ditch rehabilitation program



## COPC ENHANCED STORMWATER PROGRAM - FY19

- Implement new GIS applications for Stormwater assessment, inventory, and tracking maintenance activities
- Implement Citywide Stormwater Modeling (ICPR V4) and Master Planning Program
- Accelerate program for cleaning, inspecting, & lining major pipe crossings
- Improvements to major outfalls and ditches to improve conveyance and capacity
- Develop designs and plans for canal dredging and identifying opportunities for increasing storage & capacity

### COPC Stormwater Drainage System Components



**1,222 Miles of Swales**



**58 Miles of Freshwater Canals**



**31 Control Structures**



**154 Miles of Ditches**

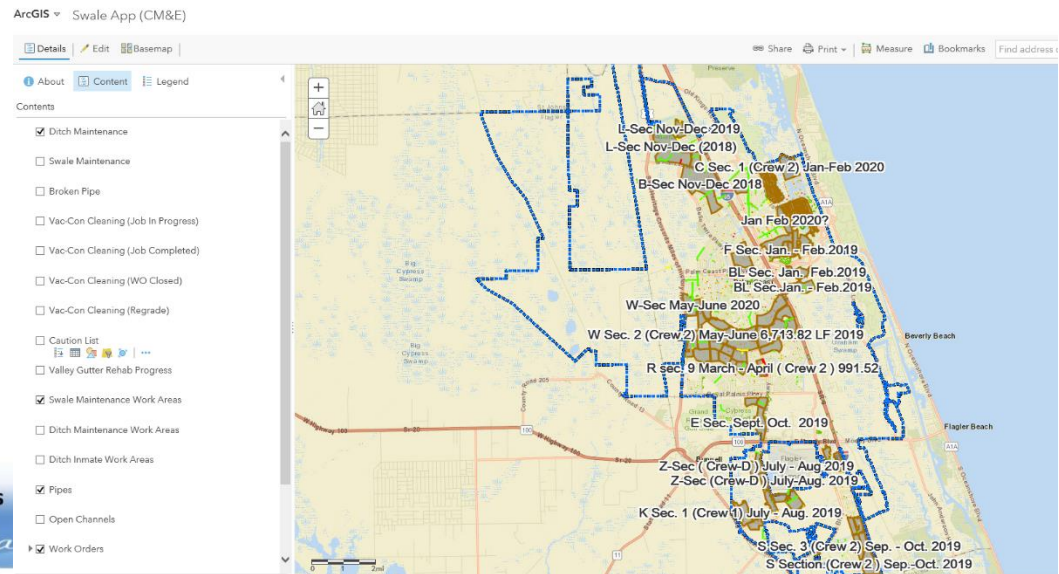


**26 Miles of Saltwater Canals**



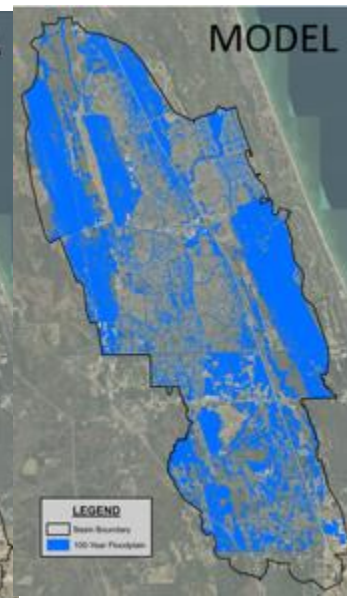
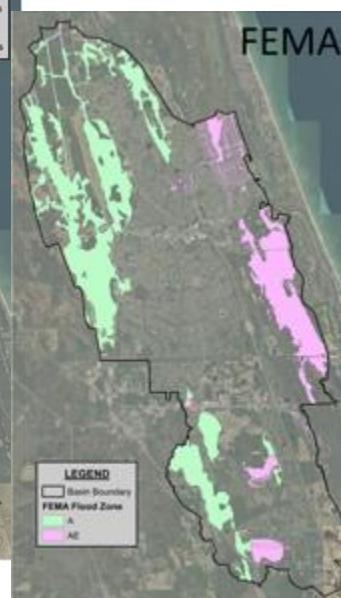
**13 Freshwater Lakes – 111 Acres**

*Find Your Florida*



### Surface Water Model ICPR v4

- Basins: 1,418
- Nodes: 1,568
- Links: 2,345
- Boundary Conditions: 9
- Stormwater Pump Stations: 1





## COPC ENHANCED STORMWATER PROGRAM – FY19/20

- Implement program improvements and accelerated infrastructure rehabilitation and repairs

### Ditch and Swale Projects FY19

- W-Section Ditch restoration and pipe cleaning (Pine Lakes Pkwy to Woodside Dr.)
- E-Section ditch restoration and pipe cleaning, Emerson Drive to Easthampton Waterway, Eagle Harbor Trl. To East Hampton, Eastwood Dr. to East Hampton
- R-Section ditch restoration
- Ditch maintenance:
  - Fellowship Drive
  - Riverside Lane
  - Bud Hollow Drive
  - Lee Drive
  - Red Mill
- 22 miles of swales

### On-going Projects & Programs

- Developing detailed, regularly scheduled stormwater infrastructure inspection program
- Accelerated canal and ditch maintenance program and Increasing level of service for swale maintenance
- Consolidating stormwater engineering, operations, & maintenance personnel and equipment within one facility
- Improving Communications, coordination, efficiency of operations, and level of service
- Accelerated Capital Improvements Program to help identify and replace or repair failing, and potentially failing, infrastructure.
- Enhanced more pro-active approach at developing ideas, programs, & projects to address existing drainage issues as well as future growth and development

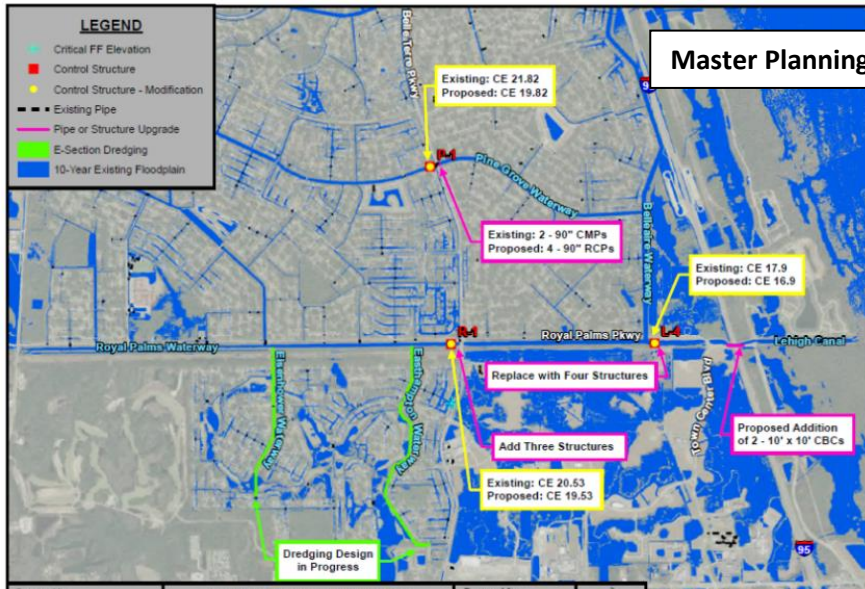
### Swale Maintenance:



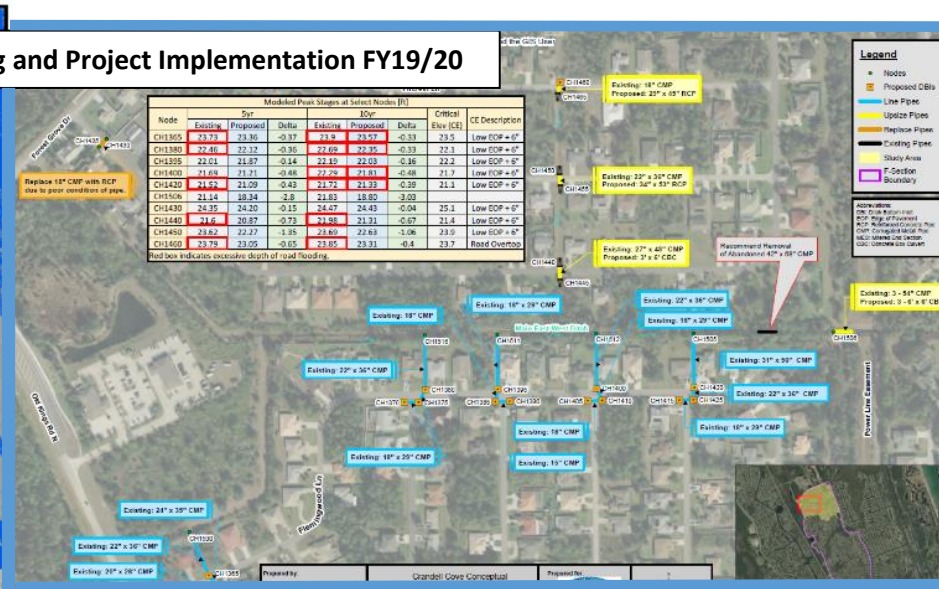
### Ditch Restoration/Pipe Cleaning:







## Master Planning and Project Implementation FY19/20



**E-Section Canal Dredging: Ditch & Pipe Rehabilitation**  
Design FY19/FY20 – Construction FY20/FY21



**STORMWATER & ENGINEERING DEPARTMENT**

Enhanced Program

**K-6 WEIR/SMITH TRAIL & E, F, & R - Sections**

City Council Workshop  
Tuesday, May 28<sup>th</sup> 2019



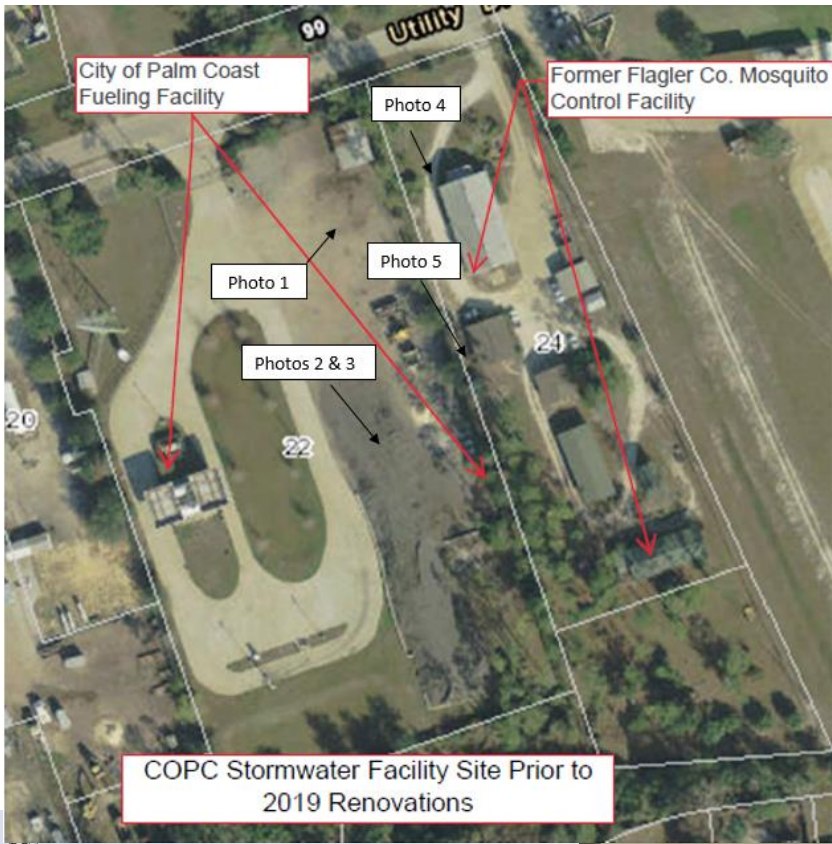
**CITY OF PALM COAST**

SECTION F DITCH REPLACEMENT

CITY OF PALM COAST, FLAGLER COUNTY, FLORIDA

City of Palm Coast logo and technical drawing showing ditch layout and engineering details.





City of Palm Coast  
Fueling Facility

Former Flagler Co. Mosquito  
Control Facility

Photo 4

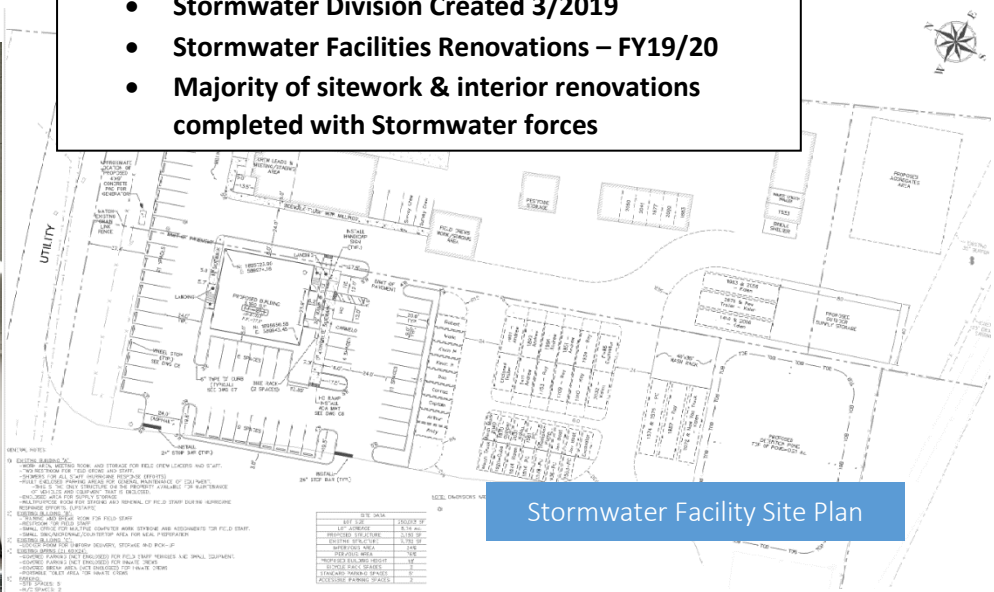
Photo 1

Photo 5

Photos 2 & 3

COPC Stormwater Facility Site Prior to  
2019 Renovations

- Stormwater Division Created 3/2019
- Stormwater Facilities Renovations – FY19/20
- Majority of sitework & interior renovations completed with Stormwater forces



Stormwater Facility Site Plan

## Stormwater Division

(Total Staff – 48)

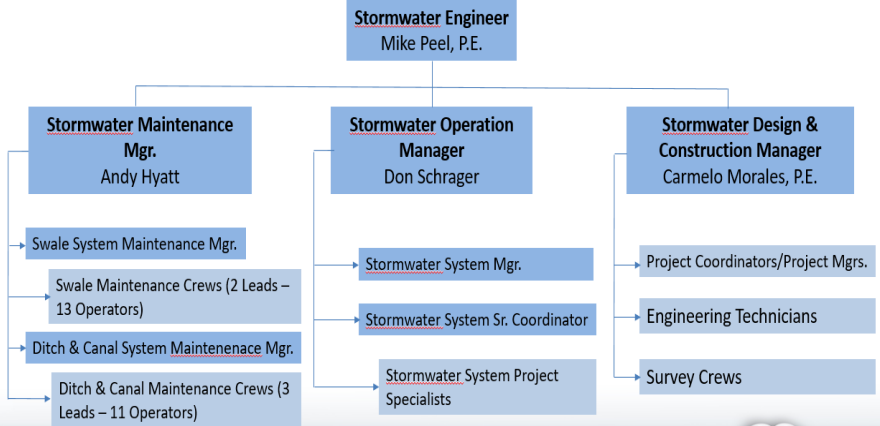


Photo 1 – Admin Bldg



Photo 4 – Leads Bldg



Photo 2



Photo 3



Photo 5

