

# City of Palm Coast, Florida Agenda Item

**Agenda Date:** October 15, 2024

<b>Department</b>	CONSTRUCTION MANAGEMENT & ENGINEERING	<b>Amount</b>
<b>Division</b>	STORMWATER	<b>Account #</b>
<b>Subject:</b> PRESENTATION - STORMWATER OVERVIEW AND ANNUAL UPDATE		
<b>Presenter:</b> Lynn Stevens, Deputy Director of Stormwater & Engineering and Carmelo Morales, Stormwater Engineer III		
<b>Attachments:</b> 1. Presentation		
<b>Background:</b> <b>Council Priority:</b> <b>D. Sustainable Environment and Infrastructure</b>  Staff will provide the City Council with an annual update regarding the Master Stormwater Plan.		
<b>Recommended Action:</b> <b>FOR PRESENTATION ONLY</b>		



# STORMWATER & ENGINEERING Overview & Update

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## Stormwater

Rehab & Renewal  
System Modeling  
Drainage  
Improvements  
Capital Improvement  
Projects

## Utilities

Water & Wastewater  
Capacity Analysis  
System Modeling  
Capital Improvement  
Projects



## Transportation

Streetlighting  
Safety Improvements  
Capital Improvement  
Projects

## Parks & Facilities

Rehab & Renewal  
Expansion  
Capital Improvement  
Projects





## Purpose - Stormwater

- To provide superior flood protection for our residents and their property through maintenance, improvement, and innovation.

## Purpose - Engineering

- To provide unsurpassed support and protection of our community through collaborative and technical methods to manage public safety and quality of life.







# Stormwater Maintenance & Operations Division



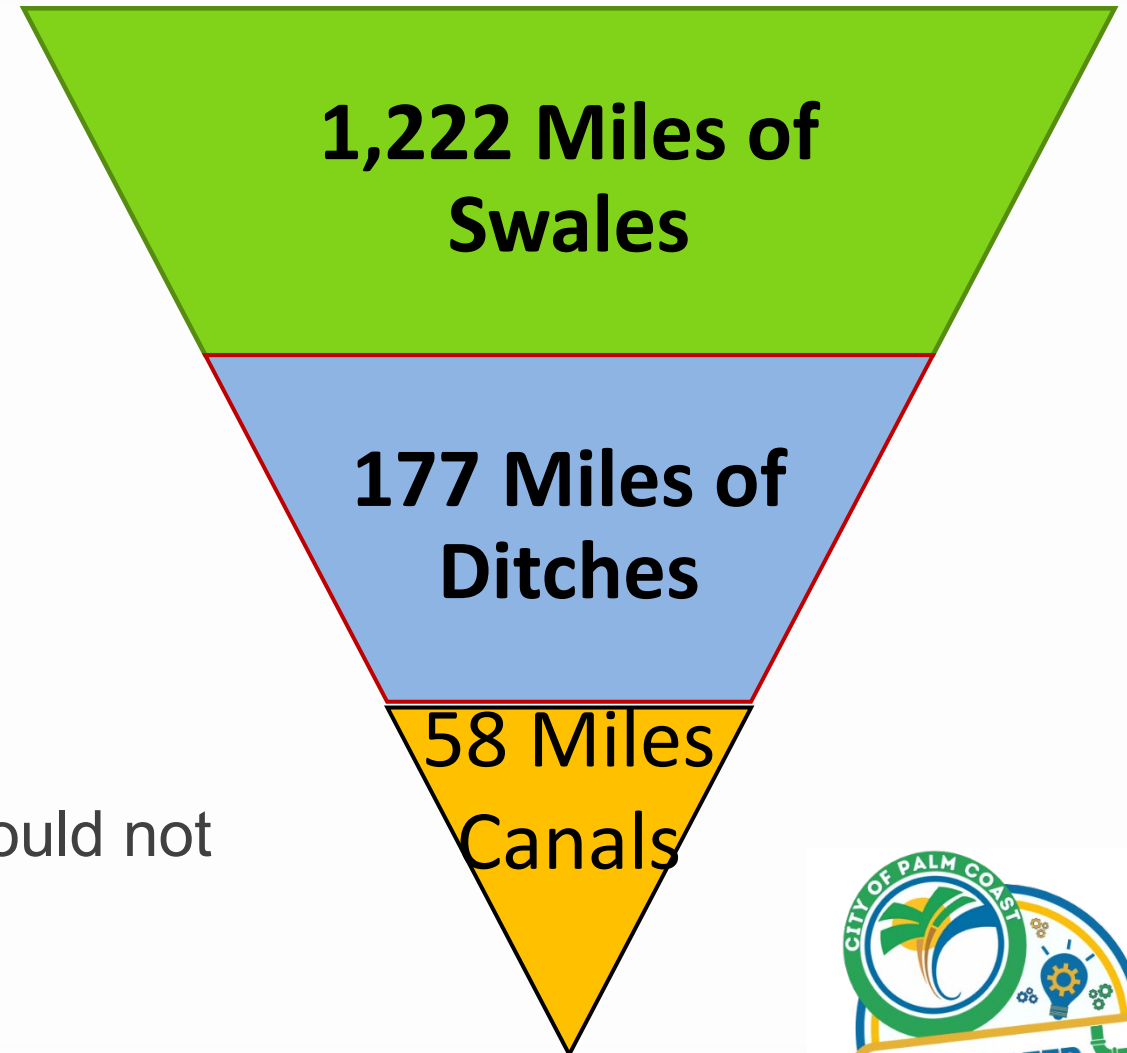


## System Overview

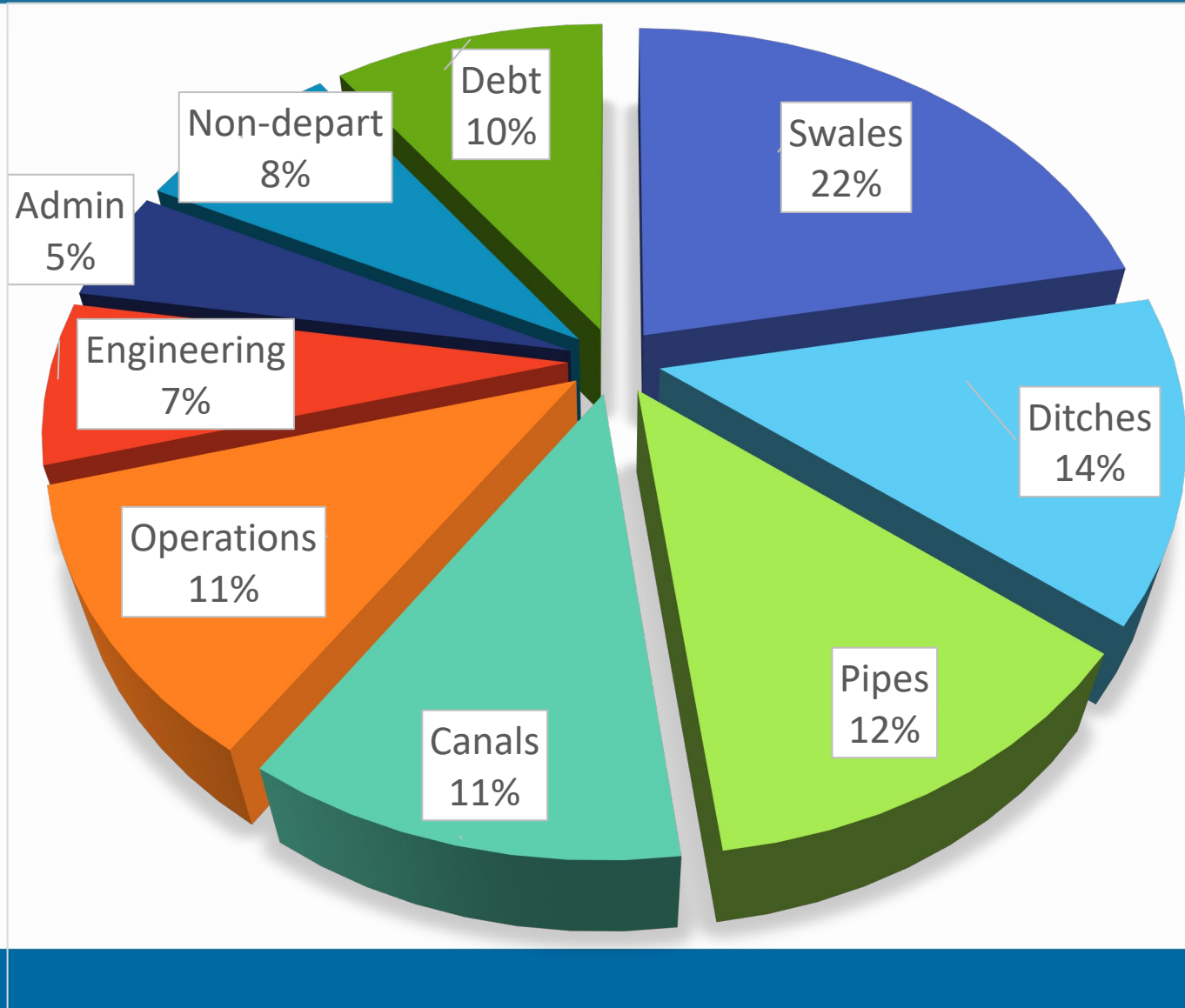


System operates like an inverted pyramid

- ▶ Canals are most important
  - Failure affects entire system
- ▶ Ditches flow into the canals
  - Failure of ditches affect homes and roadways
- ▶ Swales Flow into the ditches
  - Road designed to convey, homes would not flood
  - More aesthetic







## Level of Service

- Inspections
- Work Orders  
(Citizen Inquiries)
- Permit Reviews
- Residential Outreach
- Survey Work

### Operations Supervisor

Inspectors (5)

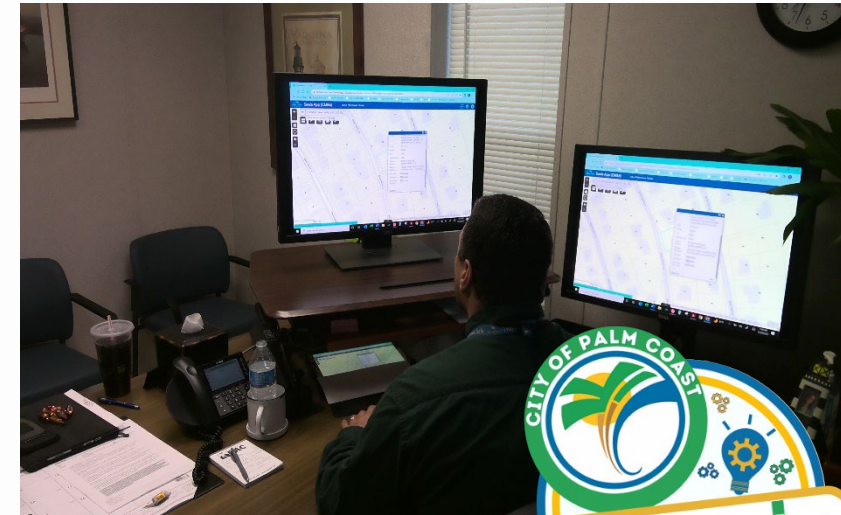
### Survey Supervisor

Crew Chief (2)

Survey Techs (2)

Engineering Tech (2)

Asset/GIS Specialist (1)



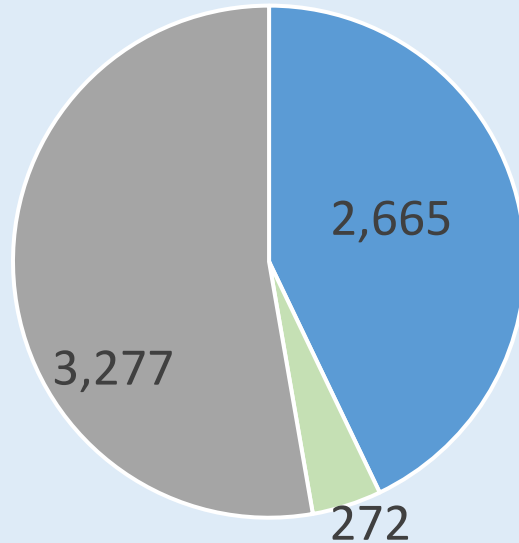




## Number of Stormwater Permit Inspections



### Total Stormwater Cases



- New
- Open (Awaiting Inspection)
- Resolved, Awaiting Regrade, or Other Action



## Canal Crew

- Canals and weirs affect entire system
- Canal crew identified/approved in 2023 rate study
- Crew started June 2024
  - 58 miles of canals
  - 14 weirs, 1 pumping station
  - 96 canal access points

Supervisor

Crew Lead (1)

Equipment Operator (3)

Temporary Worker (1)







**Supervisor**

**Foreman (1)**

**Equipment Operator (5)**

**Temporary (1)**

**Inmate Crew Lead (2)**

**Maintenance Worker (2)**

## Ditch Maintenance





## Ditch Maintenance





**Supervisor**

**Foreman (2)**

**Equipment Operator (12)**

**Maintenance Worker (1)**

**Swale Specialist (2)**

**Temporary Worker (2)**

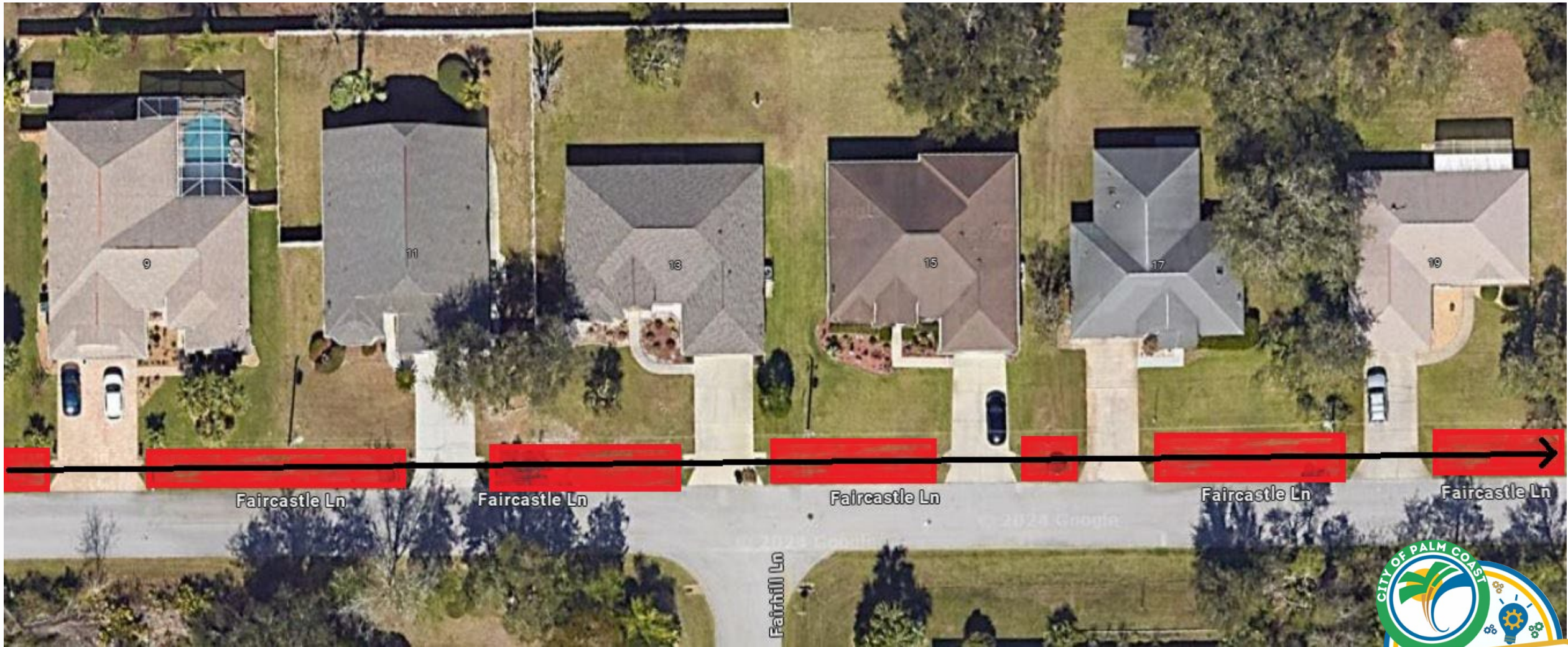
## Swale Maintenance





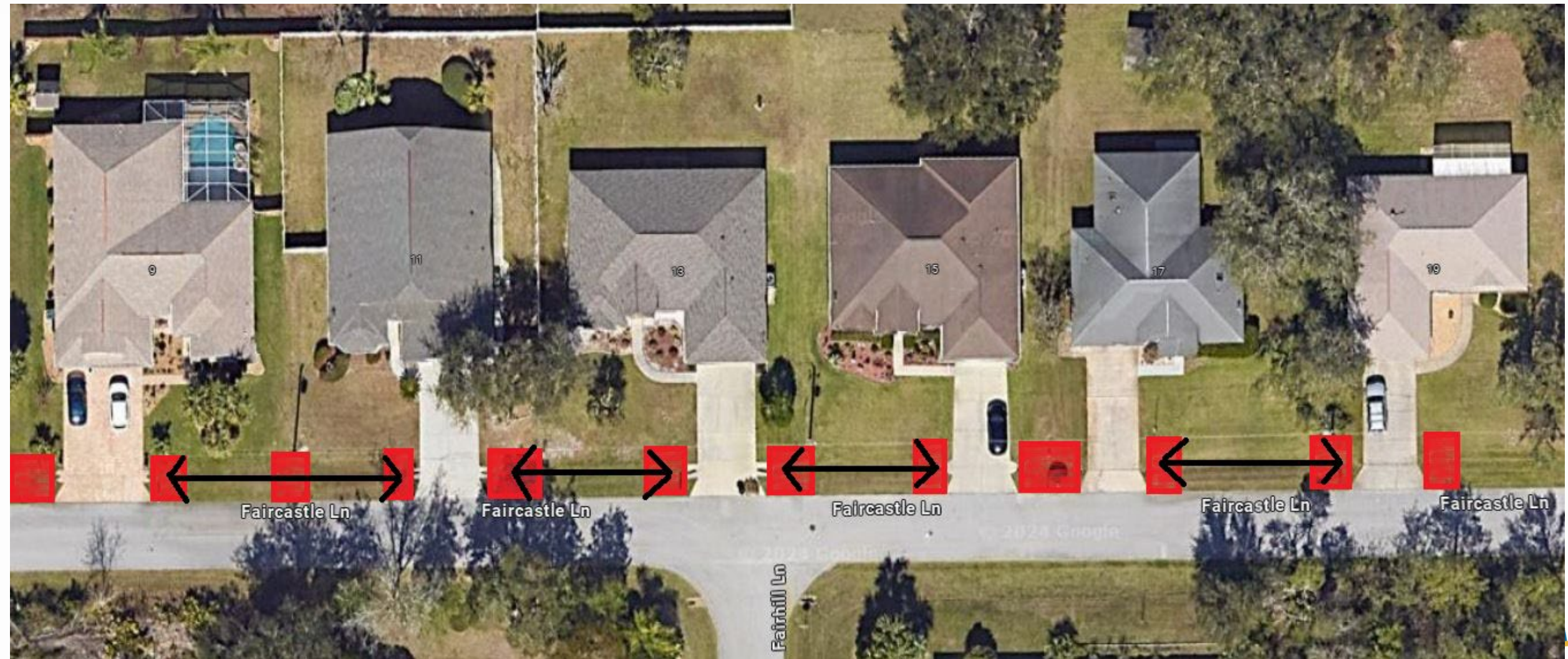
## Two Swale Crews





## Full Swale Regrade

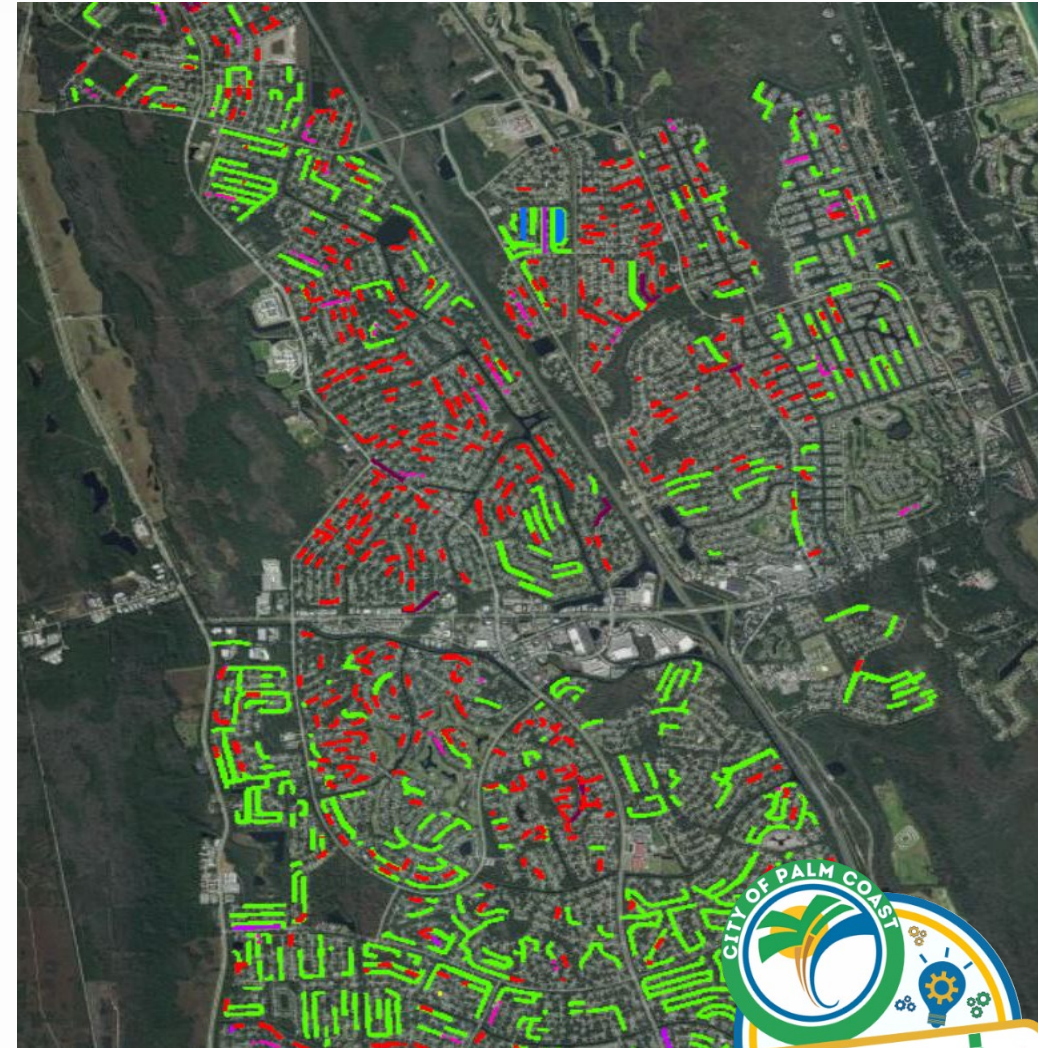
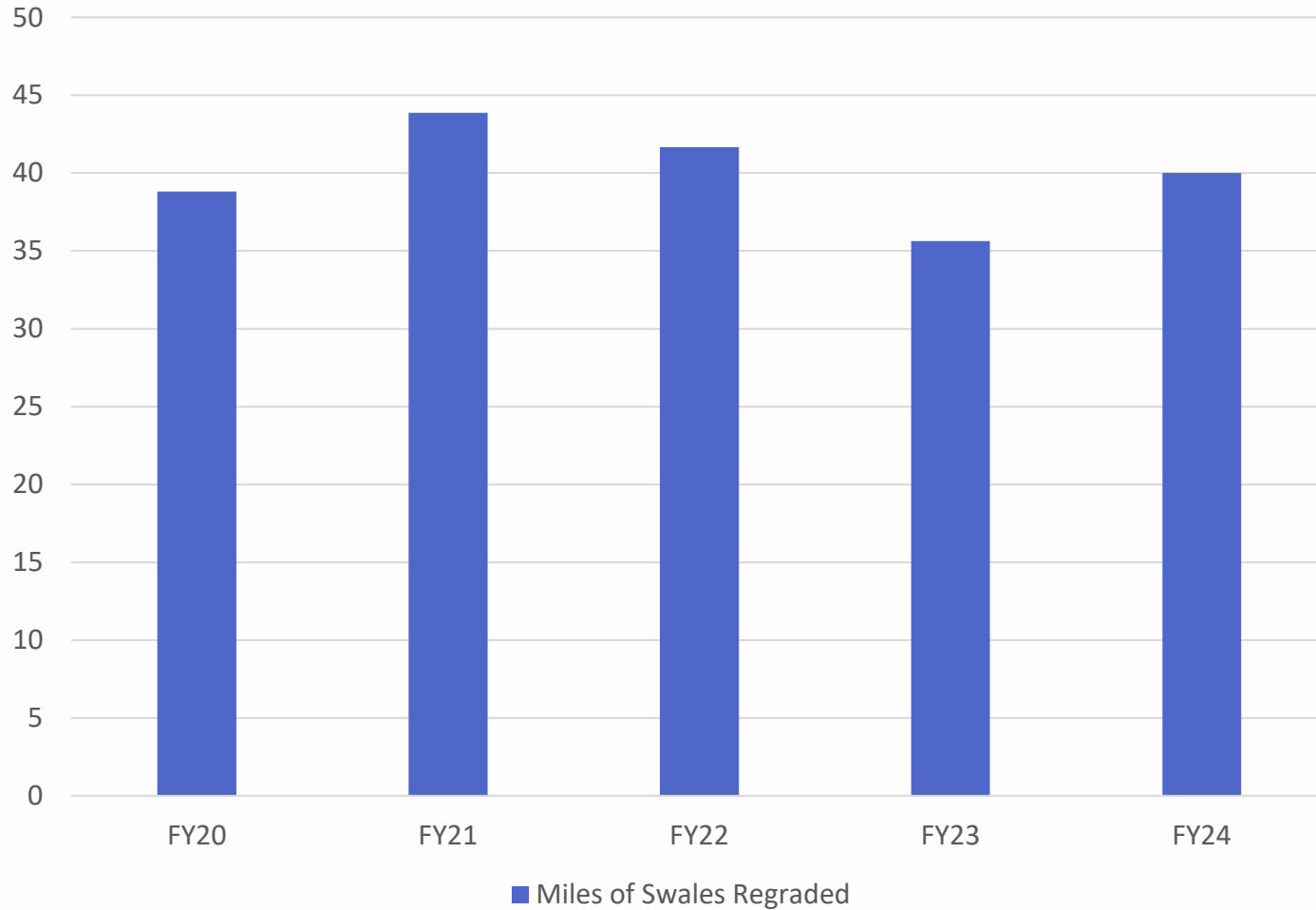




## Partial or Spot Regrade



### Miles of Swales Regraded



# Two Swale Crews





Two Culvert Crews





**Supervisor**

**Foreman (1)**

**Equipment Operator (3)**

**Maintenance Worker (2)**

**Temporary (1)**

## Pipe Maintenance





## One Pipe Crew



## ➤ New FY25 Personnel

- Additional Swale Specialist (1 FTE)
- Hybrid Swale/Ditch crew (5 FTE)
- Second Culvert Crew (2 FTE)
- Additional Engineering Technician (1 FTE)

## ➤ Equipment loan

- Purchase Vacuum truck, second Pontoon  
Excavator purchase delayed
- Purchase remaining swale/ditch crew equipment  
& concrete/asphalt crew equipment





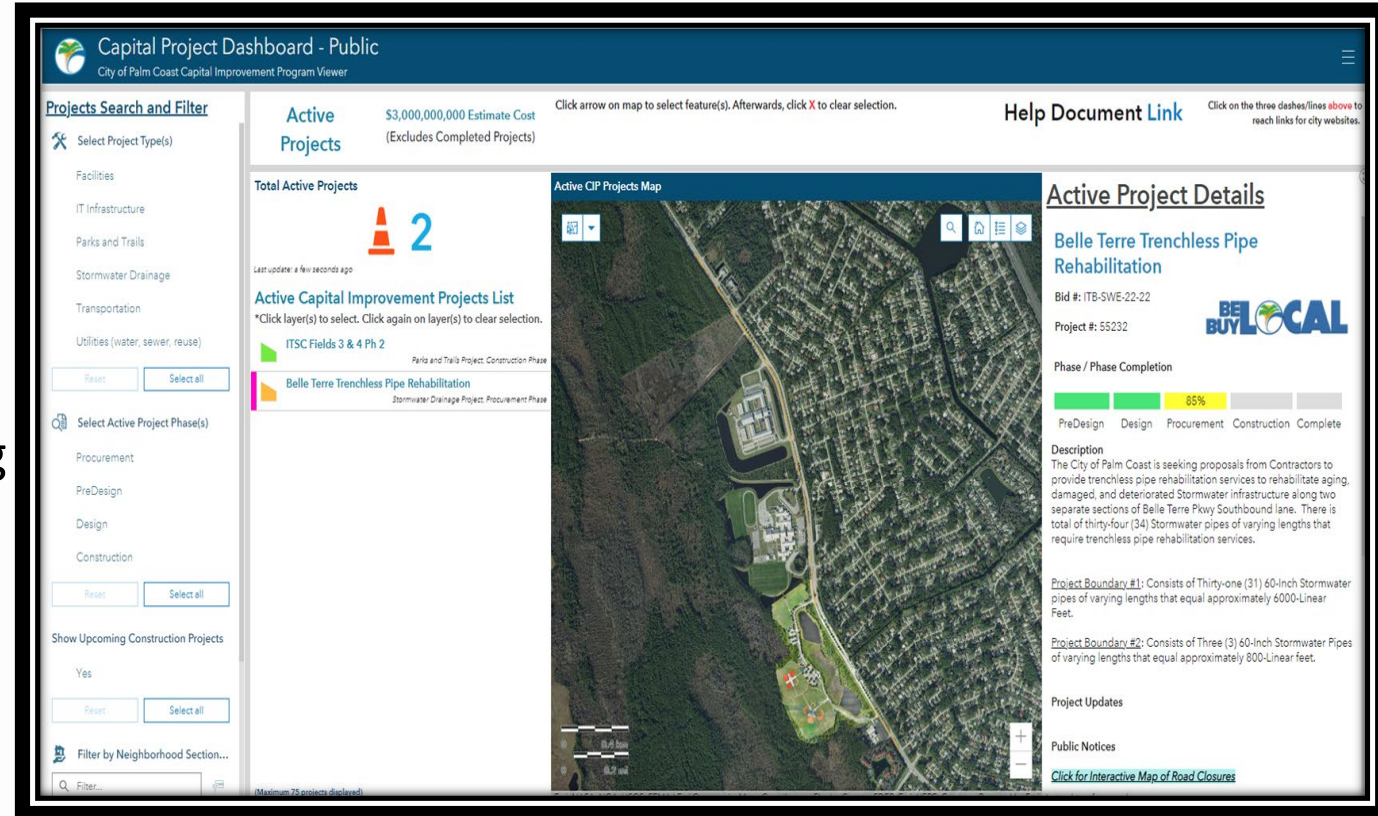


# Engineering Division



## Primary Functions

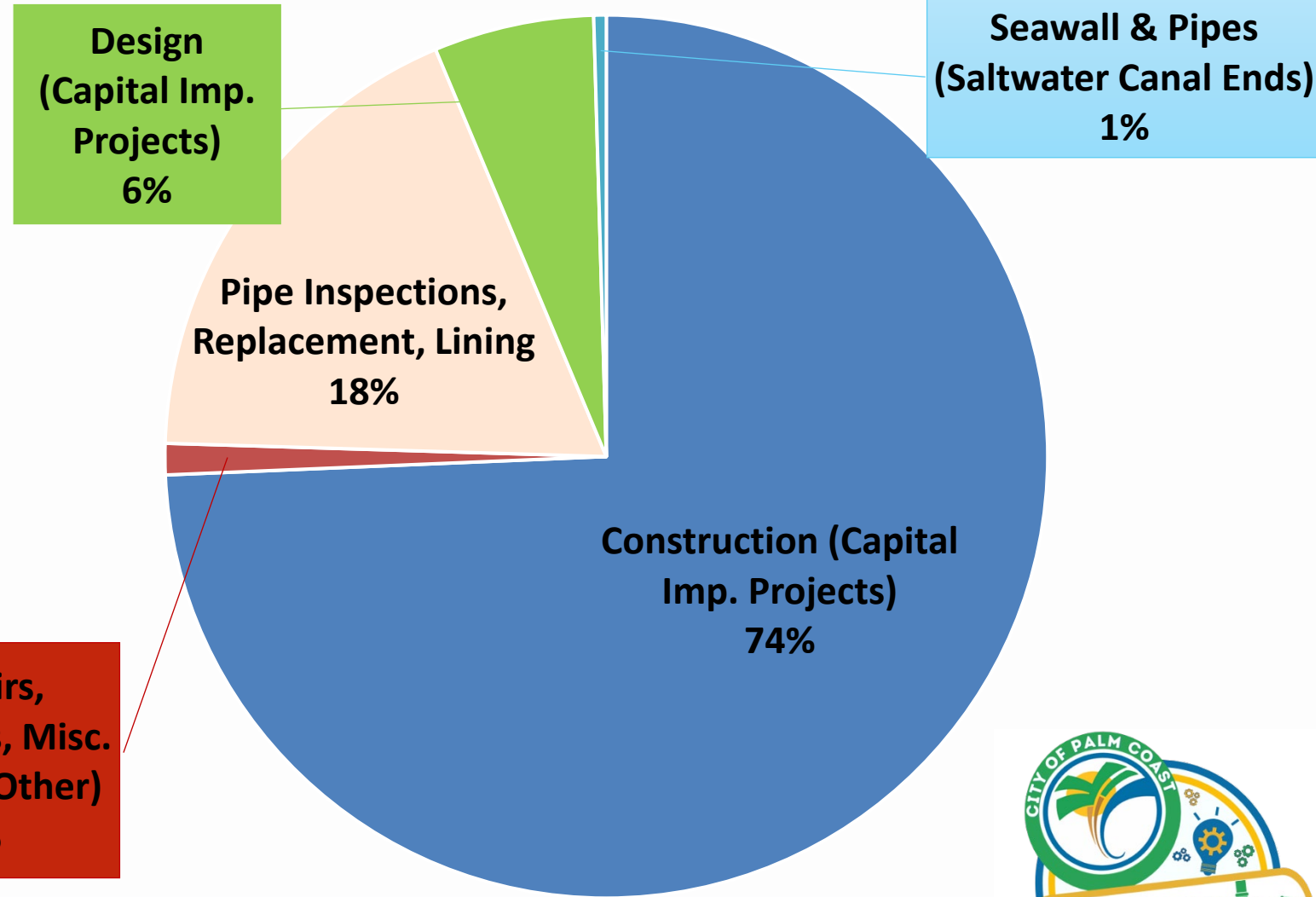
- **Capital Improvement Program**
  - 10-Year & 5-Year Annual Updates
  - Project Management
  - In-House Design
  - Master Planning & Long-Range Planning
  - Grant Applications & Management
- **Technical Reviews**
  - New Development & Permits
- **Operation Oversight & Assistance**
  - Stormwater, Utility, and Traffic



The screenshot displays the 'Capital Project Dashboard - Public' for the City of Palm Coast. It features a search and filter sidebar on the left, a central map of active projects, and a detailed view of the 'Belle Terre Trenchless Pipe Rehabilitation' project on the right. The dashboard shows 2 total active projects with an estimated cost of \$3,000,000,000. The project details include a progress bar at 85% completion, a description of the trenchless pipe rehabilitation services, and project boundaries.



Project Type	Budget Amount
Construction (Capital Imp. Projects)	\$17,871,442
Repairs, Upgrades, Misc. Constr. (Other)	\$275,000
Pipe Inspections, Replacement, Lining	\$4,375,000
Design (Capital Imp. Projects)	\$1,410,000
Seawall & Pipes (Saltwater Canal Ends)	\$110,000
<b>Total</b>	<b>\$24,041,442</b>

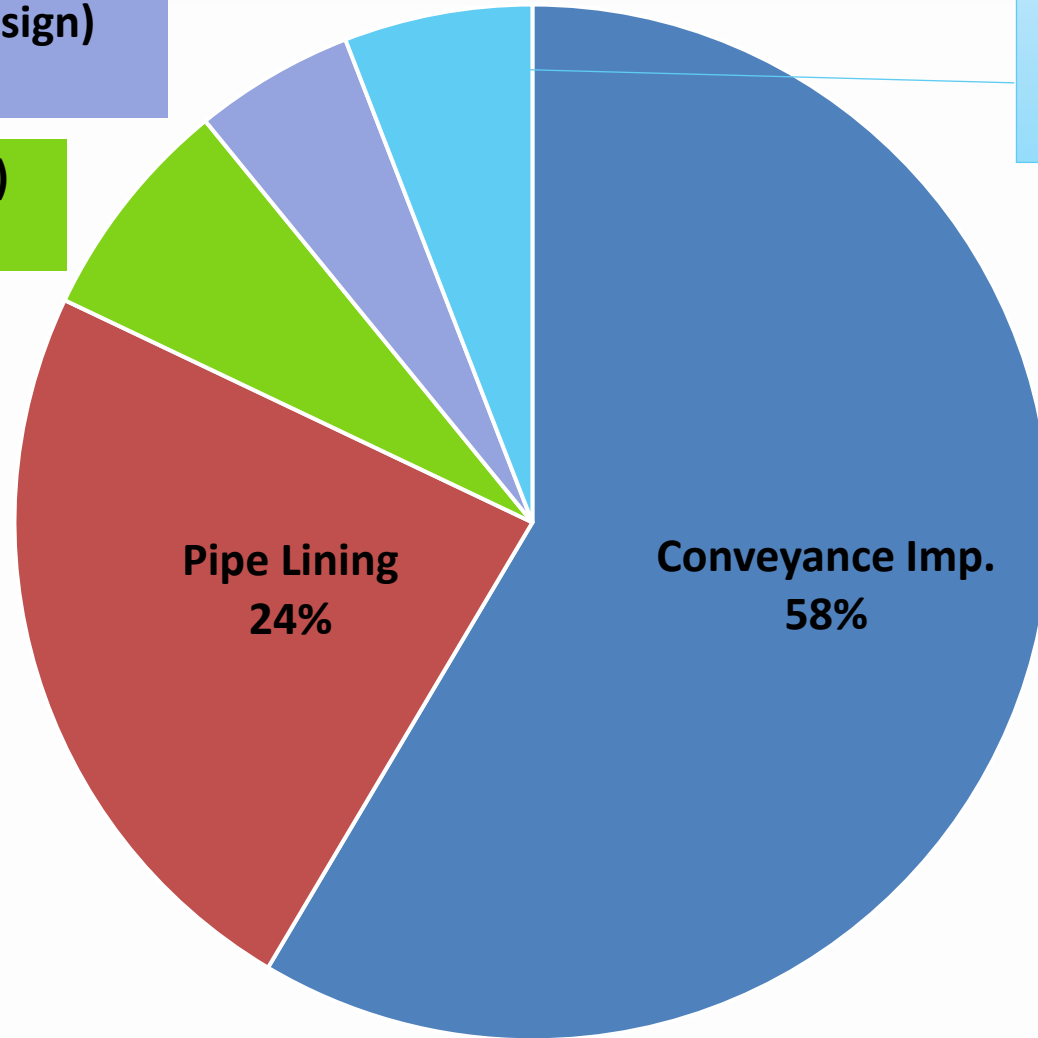




Capacity Imp. (Design)  
5%

Dredging (Freshwater)  
7%

Pipe Repl.  
6%



## FY25 Stormwater CIP Loan

Project Type	Locations	Amount
Conveyance Imp.	2	\$9,950,000
Pipe Lining	Various	\$4,000,000
Dredging (Freshwater)	1	\$1,200,000
Capacity Imp. (Design)	1	\$850,000
Pipe Replacements	1	\$1,000,000
<b>Total</b>	<b>5</b>	<b>\$17,000,000</b>



## Stormwater Engineering

- **Capital Project Management** - (15 Projects, over \$24 million)
  - Rehabilitation and Renovation
  - Capacity & Conveyance Improvements
- **Operations** - (New Staff in FY25 to Manage Floodplain & MS4)
  - Stormwater System Modeling
  - Municipal Separate Storm Sewer System (MS4) Permit Management
- **Technical Reviews**
  - Development Projects - (FY24 = 51 Projects)
  - Permit Reviews - (FY24 = 175 Reviews)
  - Floodplain (LOMR-CLOMR) Reviews
  - Equivalent Residential Unit (ERU) Stormwater Fee Calculations

**City Stormwater Engineer**  
Carmelo Morales, PE, CFM

**Project Managers (2)**

**Engineering Technician**

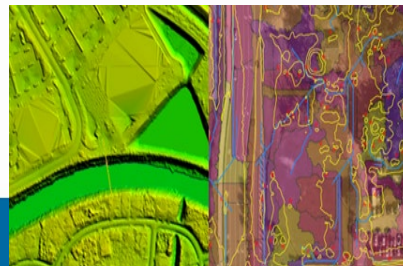
**MS4 & Floodplain  
Management Coordinator**



14 Weirs



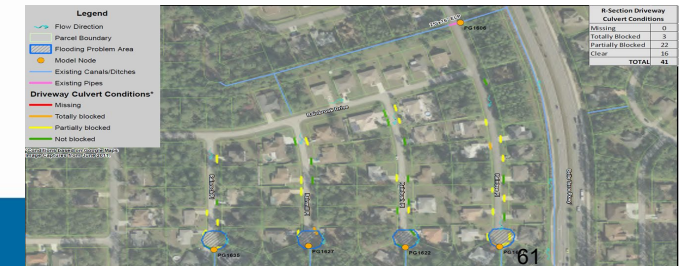
Pipe Lining



LiDar



Add Capacity



Modeling - Conveyance



## London Waterway Expansion Update

- Still under construction
- Expected Final Completion Dec. 2024
- Pond Construction 95% Complete
- Fill movement to MOC Site Complete
- Docks and Boardwalks Complete
- Stormwater Infrastructure 75%



## Trenchless Pipe Rehabilitation Projects:

- Completed FY24 – Approximately 1,500 LF
  - President Ln, Bud Hollow Dr, Filbert Ln, Beachway Dr, Welling Ln, Palm Coast Pkwy, Fairbank Ln, Westrobin Ln, Cold Springs Ct (saltwater outfall), Plainview Dr, and Belleaire Dr.
- Scheduled for FY25 (Loan):
  - Various: Seminole Woods Blvd, Farragut Dr, Sentinel Tr, Fortress Pl, President Ln, Seneca Path, Seaton Pl, and Ferndale Ln.
  - Belle Terre Parkway – (FY25 Loan)
    - Lining of +/- ½ mile 60" CMP (Remainder of pipes not lined in FY23 due to budget constraints)
  - Others (unforeseen) to be determined





## 5-Year Capital Improvement Projects

### ➤ P-1 Weir Replacement (Pine Grove Waterway)

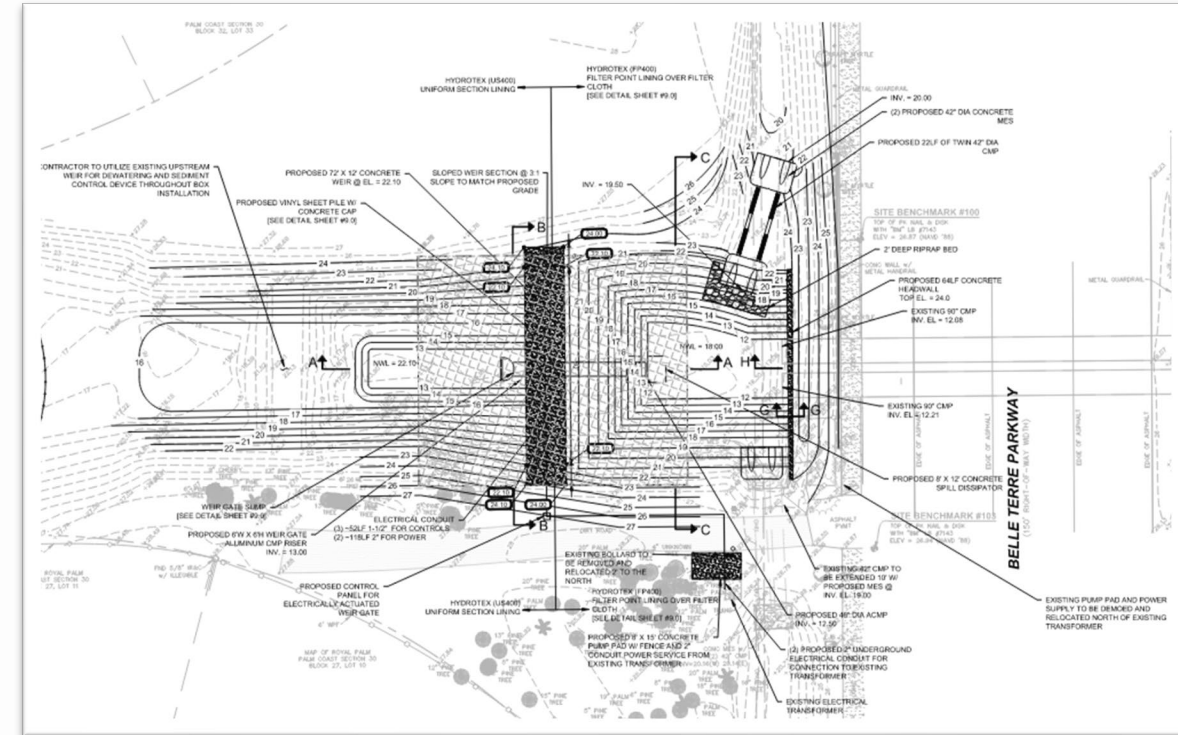
- Project Bid & Awarded
- State Appropriations
- Construction FY25
- Dredge upstream (Loan)

### ➤ K-Section Drainage Improvements

- Upsizing of 4 culvert crossings
- Bidding and Construction (FY25 Loan)

### ➤ B-1, B-2, & B-3 Structures – Bellaire Waterway

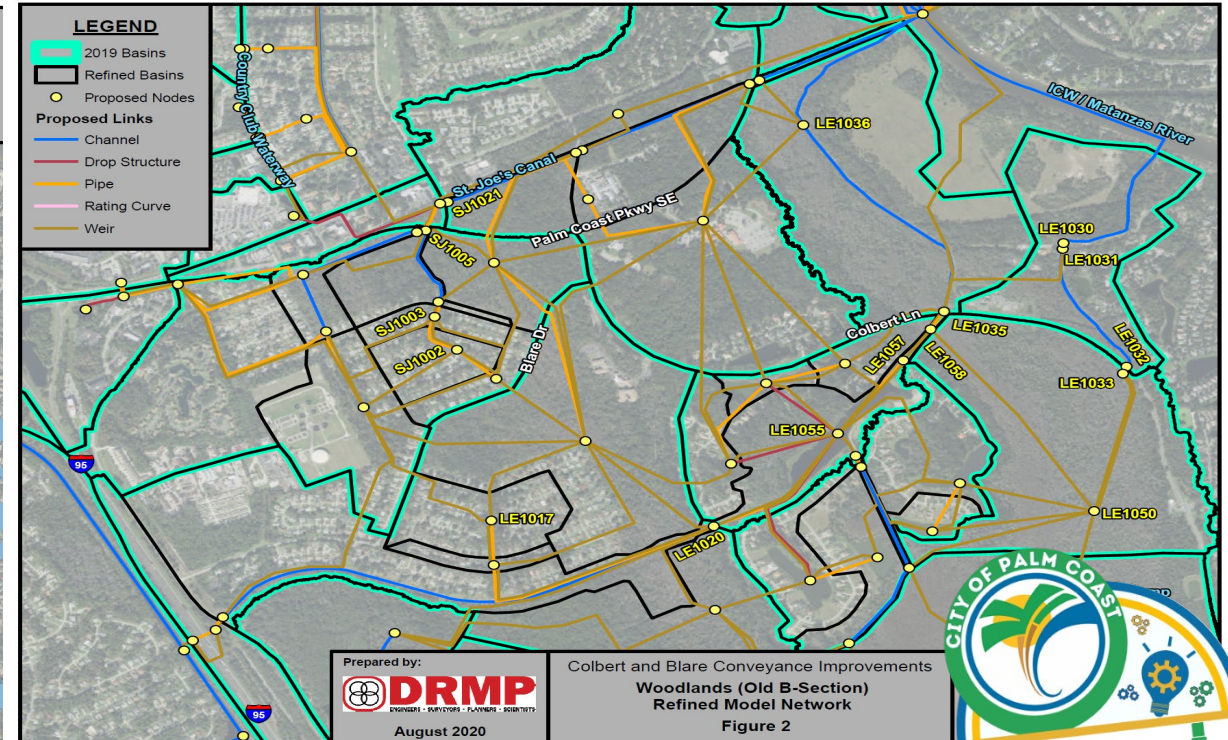
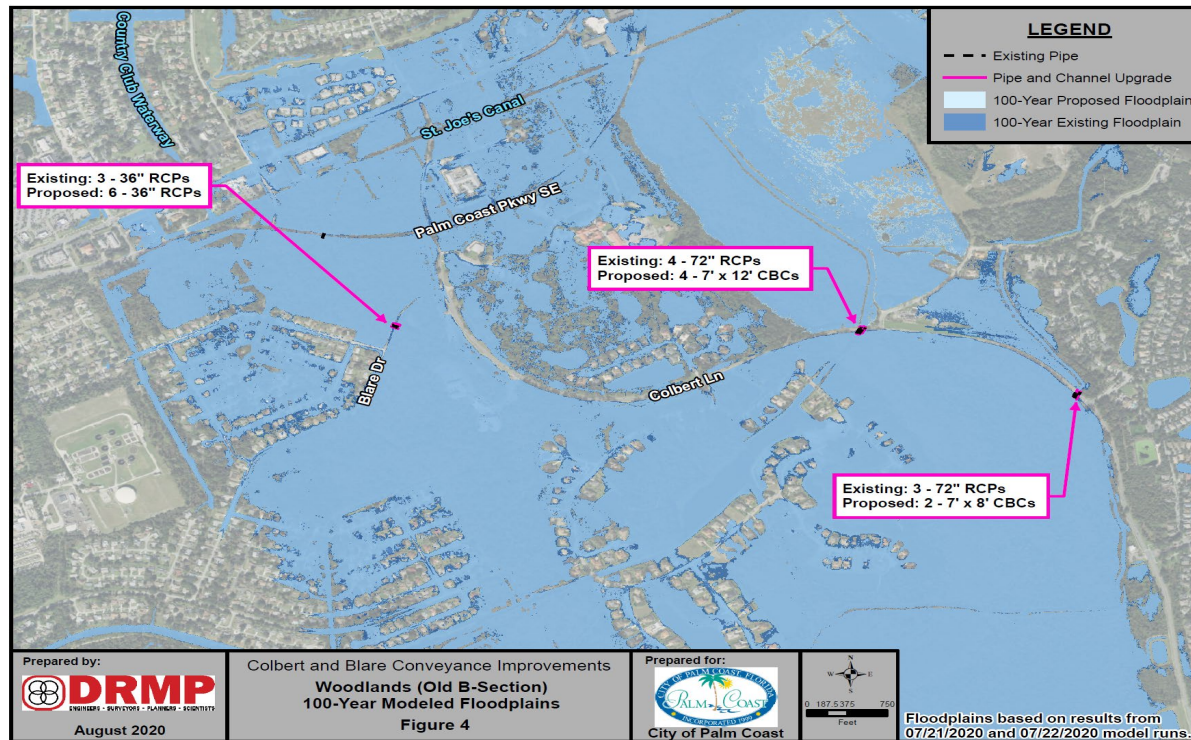
- Drainage Improvement, Flood Protection, Assist with Infiltration/Inflow
- FY26 Design & FY27 Construction Loan





## Program Highlights

- Major Rehabilitation and Capacity Projects:
  - Blare Castle & Colbert Culvert Replacement (upsize)





## Next Steps:

- City Council approval (upcoming agenda items today):
  - Loan for Stormwater Equipment and Capital
  - Equipment Purchase