

# Stormwater System Management


Public Works



# What is a Stormwater System




- ◆ A stormwater system is a tool for managing the runoff from rainfall. When rainwater lands on rooftops, parking lots, streets, driveways and other surfaces that water cannot easily go through, the runoff (called stormwater runoff) flows into grates, swales or ditches located around your neighborhood. Stormwater is the water from rain that travels down our gutters into the storm drain.



## What is a Stormwater System

- ◆ The goals of the stormwater management system include protecting our environment; reducing flooding to protect people and property; reducing demand on public stormwater drainage systems; improving water quality; supporting the Turkey Creek and Indian River Lagoon; and creating healthier, more sustainable communities.



# Two types of Stormwater Systems

## ◆ 1. Retention Systems

- ◆ A retention system is designed to retain runoff and allow the water to seep through soil into the shallow groundwater aquifer.

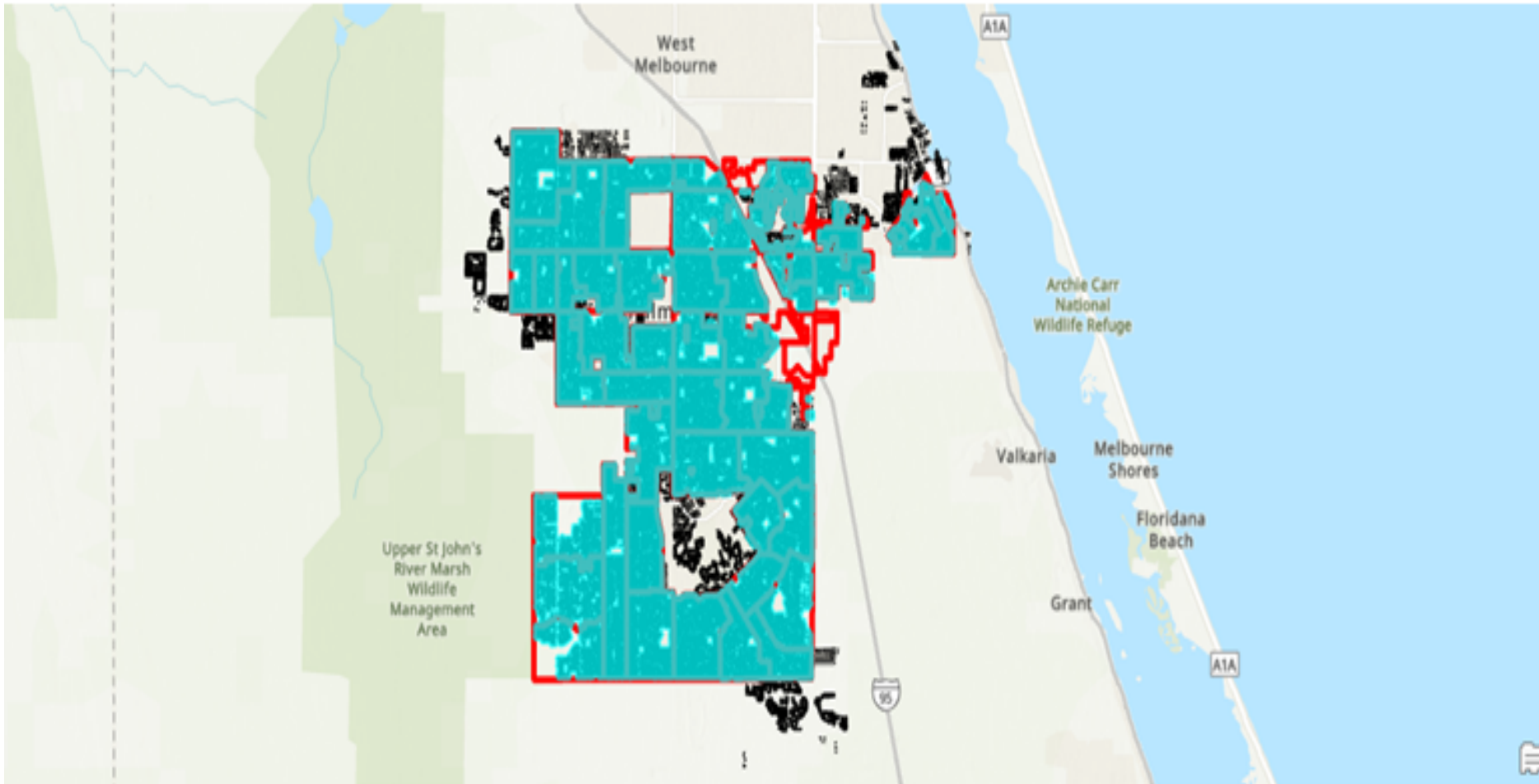
# Two types of Stormwater Systems



## ◆ 2. Detention System

- ◆ Detention systems (ponds) are the most recognizable stormwater system. They are designed to allow pollutants to settle and be absorbed. After a storm, water slowly drains from the pond through a pipe in the “outflow” structure

# Scattered Lots



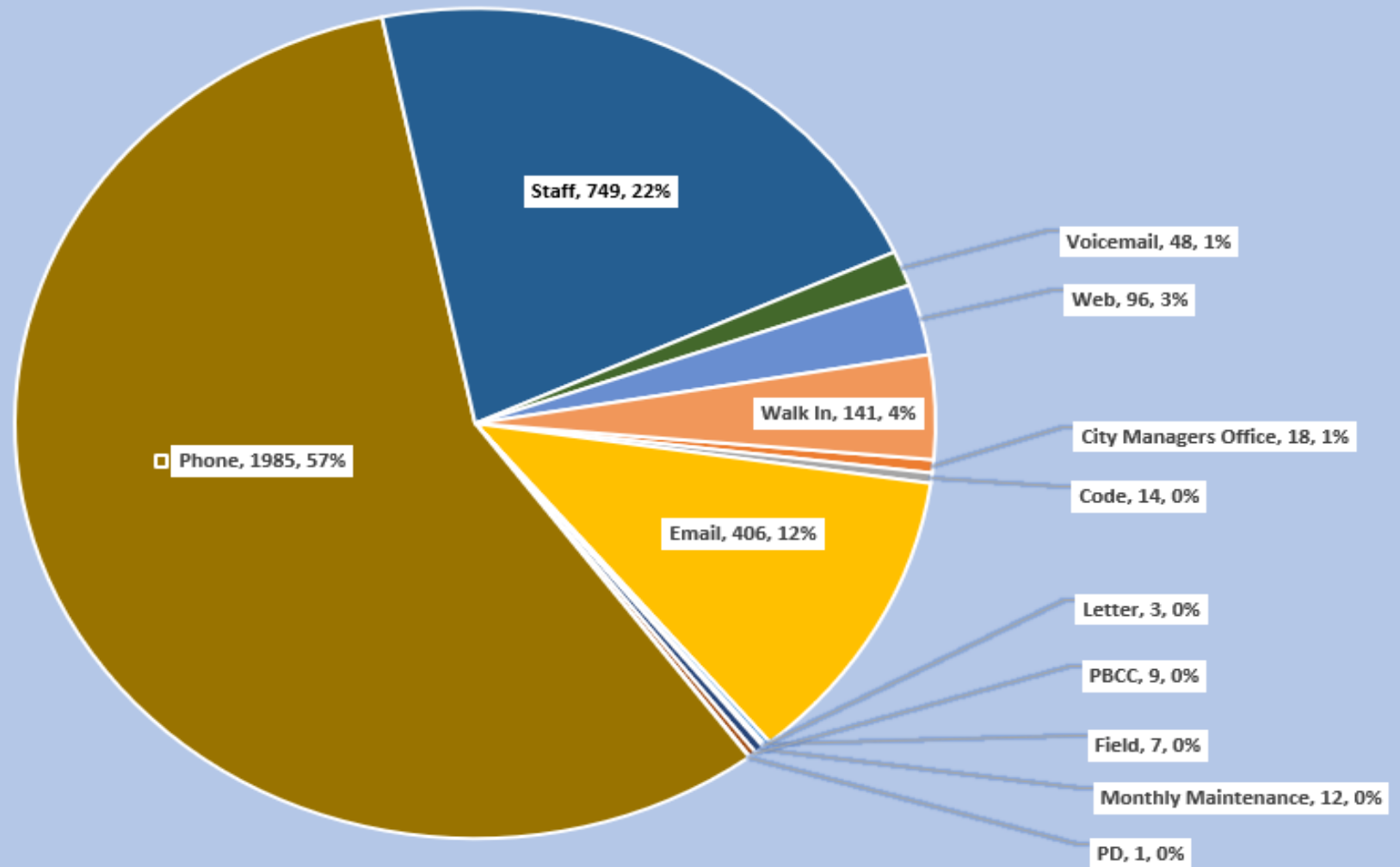
There are 64,500 single-family residences and vacant residential lots in the city.

# Stormwater Maintenance



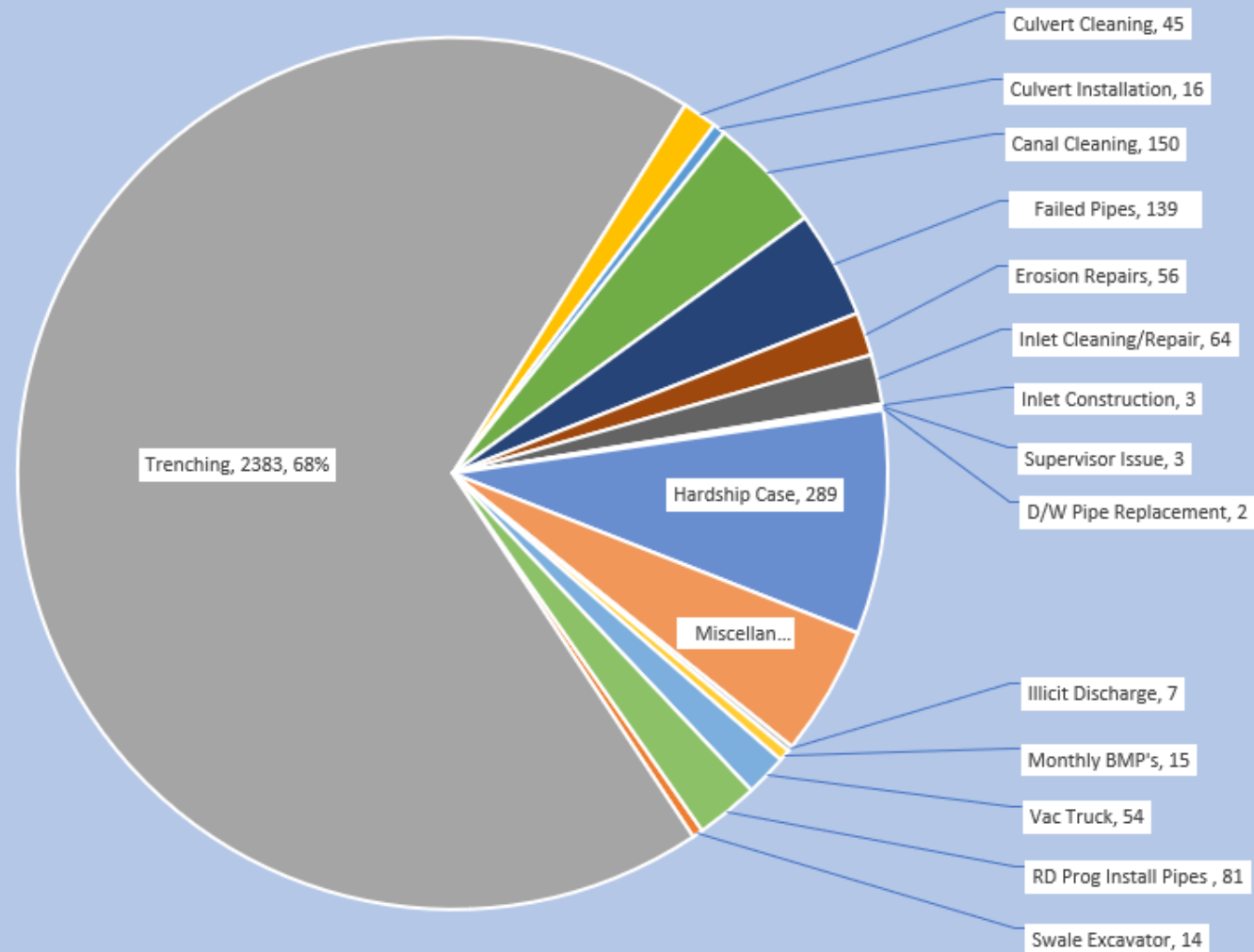
# Drainage/Trenching Inquiries

Drainage Request Request Origin for Public Works 2022 & 2023



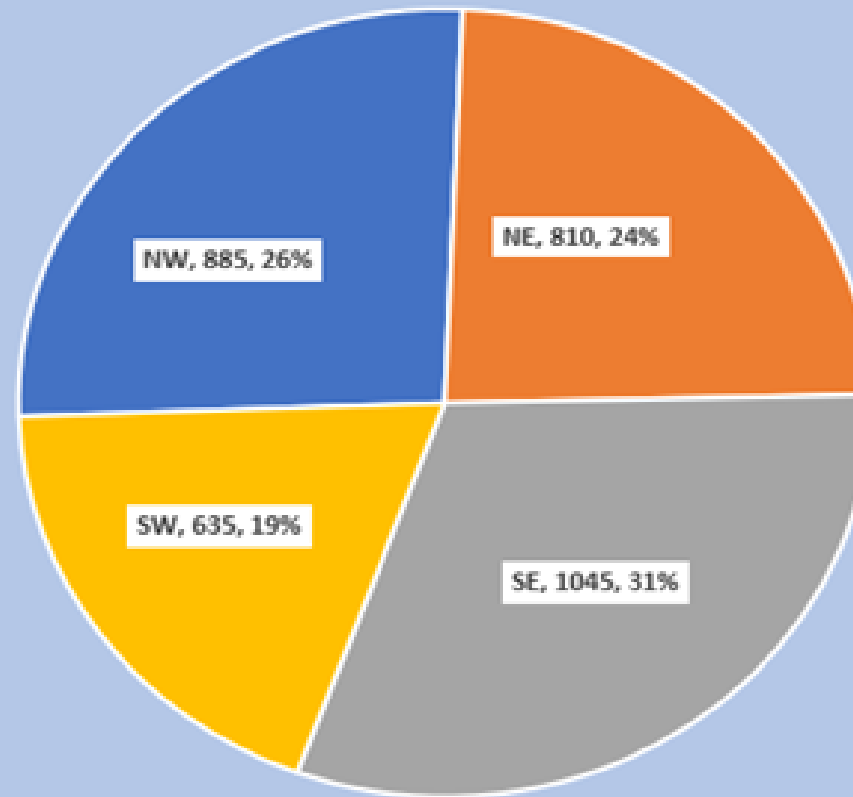
# Drainage/Trenching Service Requests

Drainage Services Requested from Public Works 2022 & 2023



# Drainage/Trenching Service Requests

Number of Drainage Service Requested by Quadrant from Public Works 2022 & 2023



■ NW ■ NE ■ SE ■ SW

# Pipe Replacements on City ROW Impacting Neighborhood Drainage Elevations.



Homes built more than 30 years ago may be affected by current drainage standards.



When cross drains are updated to the current condition, the change may affect some older drainage systems upstream and downstream.

# Driveway Conflict on Neighborhood Drainage

Elevation Conflicts,  
driveways were not  
originally installed  
at the proper grade

Unpermitted  
access, no culvert  
installed

Paved swale  
driveways

Failed driveway  
culverts

Blocked driveway  
culverts

# Example of Driveway Conflict on Neighborhood Drainage



# Driveway Conflict on Neighborhood Drainage

Our Public Works engineering inspectors have identified defective culverts in all four quadrants that must be repaired to support the drainage flow within the city's drainage system.



Total locations with defects - 341



Estimated cost to repair these defects - \$2,186,500 (16' wide driveway w/ 6' culvert pipe)

# Pipe Replacements on City ROW Impacting Neighborhood Drainage Elevations.

- ◆ Using a comparable city to gather a quick cost analysis based on Demographics, Population, and shared issues. The City of Port St. Lucie recently conducted a cost for re-work of swales. See Below: (for full pipe and apron re-work, the going rate cost of culvert pipes and concrete needs to be added)

Natural Swale		Swale Rework to a Swale using a Liner	
Estimated cost per standard property (56 feet) for swale rework per linear foot.		Estimated cost per standard property (56 feet) for swale rework per linear foot.	
Installation Costs	\$21.50	Installation Costs	\$28.00
Material/Labor	\$24.50	Material/Labor	\$9.10
Total (Per LF)	\$46.00	Total (Per LF)	\$37.10
Est. Per Lot	\$2,576.00	Est. Per Lot	\$2,077.60
*Prices do not include costs for mobilization of equipment			

# Stormwater Capital Improvement Projects (CIP)

Stormwater Capital Project 2023-2024	
Total \$14,503,963	
Completed or Under Construction	
Unit 44 Pipe Replacement	\$ 518,103.00
Unit 57 Pipe Replacement	\$ 166,464.00
Unit 37 Pipe Replacement	\$ 191,662.00
Unit 22 Pipe Replacement	\$ 357,186.00
Unit 30 Pipe Replacement	\$ 267,662.00
Walden @ C-42 Culvert Replacement	\$ 518,103.00
Harper Blvd @ C-18 Culvert Replacement	\$ 440,620.00
Unit 50 Culvert Replacement	\$ 1,151,537.00
Unit 6 Culvert Replacement	\$ 495,113.00
Total \$4,106,450	
To Be Awarded FY 24	
Malabar Road Spin Casting	\$ 3,000,000.00
Rockabye @ C-41 Culvert Replacement	\$ 401,513.00
Unit 45 Pipe Replacement	\$ 1,796,000.00
Yukon @ C-50 Pipe Replacement	\$ 100,000.00
Highland @ C-68 Pipe Replacement	\$ 450,000.00
Weldon St @ C-42-R Culvert Replacement	\$ 450,000.00
Unit 10 Culvert Replacement	\$ 600,000.00
Unit 12 Culvert Replacement	\$ 800,000.00
Unit 16 Culvert Replacement	\$ 800,000.00
Cured in Place Pipes	\$ 2,000,000.00
Total \$10,397,513	



# Planned Stormwater CIP Projects

Planned Stormwater Projects 2024-2028	
Total \$13,519,420	
2024 Funded/2025 Construction	
Unit 7 Culvert Replacement	\$ 600,000.00
Unit 8 Culvert Replacement	\$ 600,000.00
Unit 9 Culvert Replacememnt	\$ 600,000.00
Total \$1,800,000	
2025-2028 Funded	
13 Culverts Replacement Projects	\$7,400,000.00
6 Unit Pipe Replacement Projects	\$3,600,000.00
1 Baseflow Pond Project	\$ 719,420.00
Total \$11,719,420	



# Population Growth

## Fiscal Years 2022 and 2023



The city's population has increased by 7,640 over the past two years.



The Building Department receives approximately 5,237 permits for single-family dwellings over two years.

# Strategic Funding for Stormwater/Swale improvements

- ◆ Some Funding sources that can be used for stormwater improvement are:
  - ◆ Available Grants – State and Federal Stormwater
  - ◆ Penny Tax for Roads, Canals, Swales
  - ◆ General Funding
  - ◆ Bonds issued or loans obtained using future Stormwater Charges as collateral
  - ◆ Stormwater Assessment

# Stormwater Revenue Sources

- ◆ Stormwater Utility Fees
- ◆ Stormwater permit and inspection fees;
- ◆ Other funds or income obtained from federal, state, local, and private grants or revolving funds
- ◆ Any other revenues budgeted by the City Council for Stormwater Management Services and Stormwater Management Facilities

# Financial Impact of Stormwater fees not being collected on the Tax roll.

Public Works Stormwater Utility Billing							
Stormwater Utility Billing Effective October 1, 2010							
Individual Billing							
	2011	2012	2013	2014	2015	2016	2017
SWU Rate	\$ 53.70	\$ 53.70	\$ 53.70	\$ 53.70	\$ 53.70	\$ 53.70	\$ 53.70
	4,308,110.06	3,013,934.01	3,841,846.83	3,993,719.62	3,135,766.90	3,514,568.14	3,505,447.22
Non-Ad Valorem Effective October 1, 2017							
Tax Roll							
	2018	2019	2020	2021	2022	2023	2024
SWU Rate	\$ 177.13	\$ 153.00	\$ 148.13				
Non-Ad Valorem	11,569,250.49	9,995,261.43	9,799,135.20				
Residuals form Previous year		13,273.64	10,675.94	78,360.84	6,058.01	521.42	82.94
Total Collected	\$11,569,250.49	\$ 10,008,535.07	\$ 9,809,811.14	\$ 78,360.84	\$ 6,058.01	\$ 521.42	\$ 82.94
Stormwater Utility Billing Effective October 1, 2020							
Individual Billing							
	2021	2022	2023	2024 to date			
SWU Rate	\$ 131.00	\$ 131.00	\$ 131.00	\$ 131.00			
SWU Charges Billed by Utilities	8,745,567.38	9,311,345.33	9,826,714.88	5,547,952.91	Billing to date		
SWU Late Penalties Billed	110,886.86	279,144.36	159,423.10	197,452.41			
Residuals form Previous year	(78,360.84)	(6,058.01)	(521.42)	(82.94)			
Revenue Collected	(7,391,130.52)	(8,810,898.43)	(9,365,274.08)	(2,043,395.11)	Revenue Collected to date		
Uncollected Amount	\$ 1,386,962.88	\$ 773,533.25	\$ 620,342.48	\$ 3,701,927.27			
Total Uncollected Amount (2021-2023)	\$ 2,780,838.61						

◆ Approximately \$2.78 million is currently uncollected.

# Strategies to Recover Uncollected Stormwater Fees

For Public Works to maximize collecting all stormwater fees billed:

- ❖ Add the stormwater assessment to the tax roll.
- ❖ Apply a lien to the property for non-payment permitted by Ordinance 174.

J.R. KROLL  
SEMINOLE COUNTY TAX COLLECTOR

2022 SEMINOLE COUNTY REAL ESTATE TAX BILL NUMBER 999999

NOTICE OF AD VALOREM TAXES AND NON-AD VALOREM ASSESSMENTS

PROPERTY ID NUMBER 01-23-45-678-9101-1213 ESCROW CODE 0687 APPLICABLE VALUES AND EXEMPTIONS BELOW 01

#6 PUBLIC, JOHNNY Q  
123 SEMINOLE COUNTY WAY  
SANFORD, FL 32771 #7

#5 LAKE BEAUTIFUL  
PGS 46-56  
PAD: 123 SEMINOLE COUNTY WAY

#10 PRIOR YEAR TAXES UNPAID

TAXING AUTHORITY	MILLAGE RATE DOLLARS PER \$1,000 OF TAXABLE VALUE	ASSESSED VALUE	EXEMPTION (S)	TAXABLE VALUE	TAXES LEVIED
COUNTY	4.8751	\$73,040	#3	\$73,040	3,281.14
FIRE	2.7649	\$73,040		\$73,040	1,862.89
ROAD	9.1187	\$73,040		\$73,040	74.51
SCHOOL	5.4800	\$73,040		\$73,040	3,674.80
ST JOHN'S WATER MANAGEMENT	9.1914	\$73,040		\$73,040	132.86

PAY ONLINE WWW.SEMINOLECOUNTY.TX

TOTAL MILLAGE 13.4501 TOTAL AD VALOREM TAXES \$9,024.20

LEVYING AUTHORITY NON-AD VALOREM ASSESSMENTS

SOLID WASTE MANAGEMENT VARNESBU 306.00

TOTAL NON-AD VALOREM ASSESSMENTS \$306.00

COMBINED TAXES AND ASSESSMENTS \$9,324.20

PAY ONLY ONE AMOUNT

BY NOV 30 8,951.23 BY DEC 31 9,044.47 BY JAN 31 9,137.72 BY FEB 28 9,230.96 BY MAR 31 9,324.20

J.R. KROLL  
SEMINOLE COUNTY TAX COLLECTOR

2022 SEMINOLE COUNTY REAL ESTATE TAX BILL NUMBER 999999

NOTICE OF AD VALOREM TAXES AND NON-AD VALOREM ASSESSMENTS

PROPERTY ID NUMBER 01-23-45-678-9101-1213 ESCROW CODE 0687 APPLICABLE VALUES AND EXEMPTIONS ABOVE 01

PLEASE DETACH AND RETURN THIS ORIGINAL STUB WITH PAYMENT

#6 PUBLIC, JOHNNY Q  
123 SEMINOLE COUNTY WAY  
SANFORD, FL 32771 #7

#5 LAKE BEAUTIFUL  
PGS 46-56  
PAD: 123 SEMINOLE COUNTY WAY

#10 PRIOR YEAR TAXES UNPAID

FOR PROCESSING PURPOSES, PLEASE DO NOT WRITE ON THIS NOTICE

PAY IN U.S. FUNDS TO: J.R. KROLL, SEMINOLE COUNTY TAX COLLECTOR • P.O. BOX 830 • SANFORD, FL 32773-0830

PAY ONLY ONE AMOUNT

BY NOV 30 8,951.23 BY DEC 31 9,044.47 BY JAN 31 9,137.72 BY FEB 28 9,230.96 BY MAR 31 9,324.20

YOUR BILL HAS BEEN REQUESTED BY SELECT PORTFOLIO SERVING INC

# Public Works Deficiency in Stormwater Services

- ◆ These arise due to;
  - ◆ Capacity
  - ◆ Equipment
  - ◆ Funding
  - ◆ Contractors
  - ◆ No companies with rental equipment for trenching.



# Cost for Improving Our Stormwater System Using Stormwater Funding

Estimated Cost for Additional Trenching Crew			
Equipment	Units	Cost	Total Cost
John Deere 6110M Tractor with Creeper Gear w/ Alamo Maverick Boom with Ditching Head.	2	\$ 252,000	\$ 504,000
F-150 Super Cab	2	\$ 46,000	\$ 92,000
F-150 Extended Cab	1	\$ 46,000	\$ 46,000
Estimated Cost for Additional Staffs			
Heavy Equipment Operator I	2	\$ 58,022	\$ 116,044
Maintenance Worker	4	\$ 55,960	\$ 223,840
Operation Inspector	1	\$ 72,751	\$ 72,751
Administive Assitant	1	\$ 64,848	\$ 64,848
<b>TOTAL COST FOR STAFFS AND EQUIPMENT</b>			<b>\$1,119,483</b>

❖ Cost for adding two trenching crews to the Operations trenching team.



# Cost for Improving Our Stormwater System Using Stormwater Funding

Cost for adding two Canal Maintenance crew to the Operations team.



## Estimated Cost for Additional Canal Maintenance Crew

Equipment	Units	Cost	Total Cost
CAT Excavator	1	\$ 275,000	\$ 275,000
Mini CAT Excavator	1	\$ 52,000	\$ 52,000
Bulldozer	1	\$ 181,000	\$ 181,000
International Dump Truck	2	\$ 185,000	\$ 370,000
Slope Mower	1	\$ 256,000	\$ 256,000
RC Mower	1	\$ 70,000	\$ 70,000
F-150 Super Cab	2	\$ 46,000	\$ 92,000

## Estimated Cost for Additional Staffs

Heavy Equipment Operator I	4	\$ 58,022	\$ 232,088
Maintenance Worker	4	\$ 55,960	\$ 223,840

**TOTAL COST FOR STAFFS AND EQUIPMENT \$1,751,928**

## Two Year Stormwater Overview

	Fiscal Year 2022	Fiscal Year 2023
<b>ERU Rate</b>	<b>\$ 131.00</b>	<b>\$ 131.00</b>
<b>Revenue</b>	<b>\$ 8,810,898.00</b>	<b>\$ 9,365,274.00</b>
Personnel	\$ 2,391,044.00	\$ 2,615,527.00
Operational	\$ 2,774,772.00	\$ 2,164,896.00
Capital Equipment	\$ 557,762.00	\$ 1,362,800.00
Capital Projects	\$ 2,502,271.00	\$ 2,535,439.00
<b>Total Operational Cost</b>	<b>\$ 8,225,849.00</b>	<b>\$ 8,678,662.00</b>
<b>Estimated Unaudited SWU Fund Balance as of 2/29/24</b>		<b>\$4.3 million</b>

# Questions



Thank You For Your Time