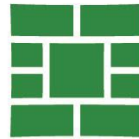


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Stormwater
Management
Program
(SWMP) Update

City Council
Workshop
November 7, 2024

Ron Feldner, PE
Chief of Water Resources

Zack Hoffman, PE
Director of Stormwater

AGENDA



Recent Rainfall Events (2024)



City's Role & Responsibility



Stormwater Program Overview



Stormwater Program Funding



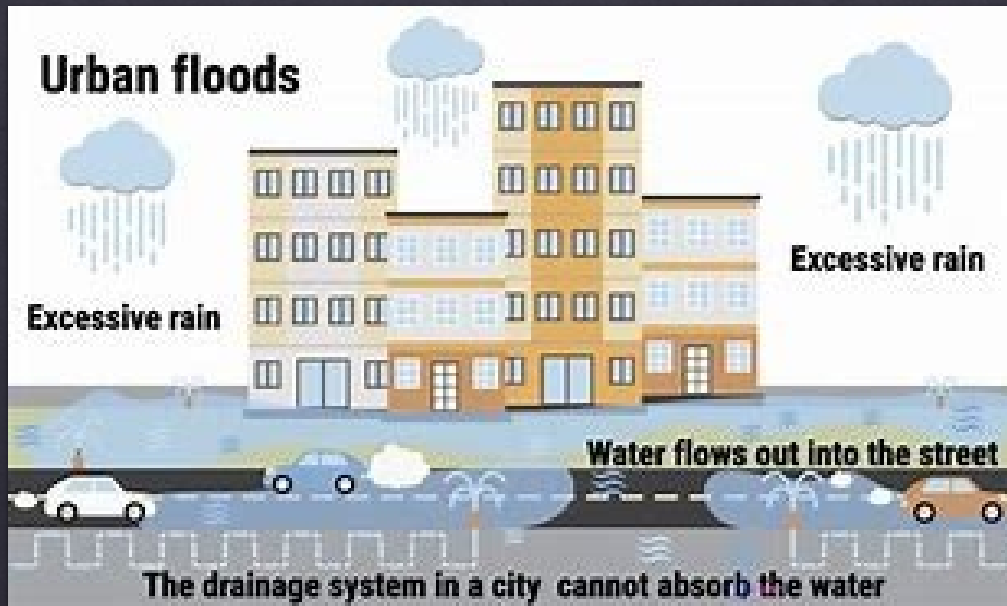
Questions & Discussion



Recent Rainfall Events

Urban Flooding: Very Likely in Savannah

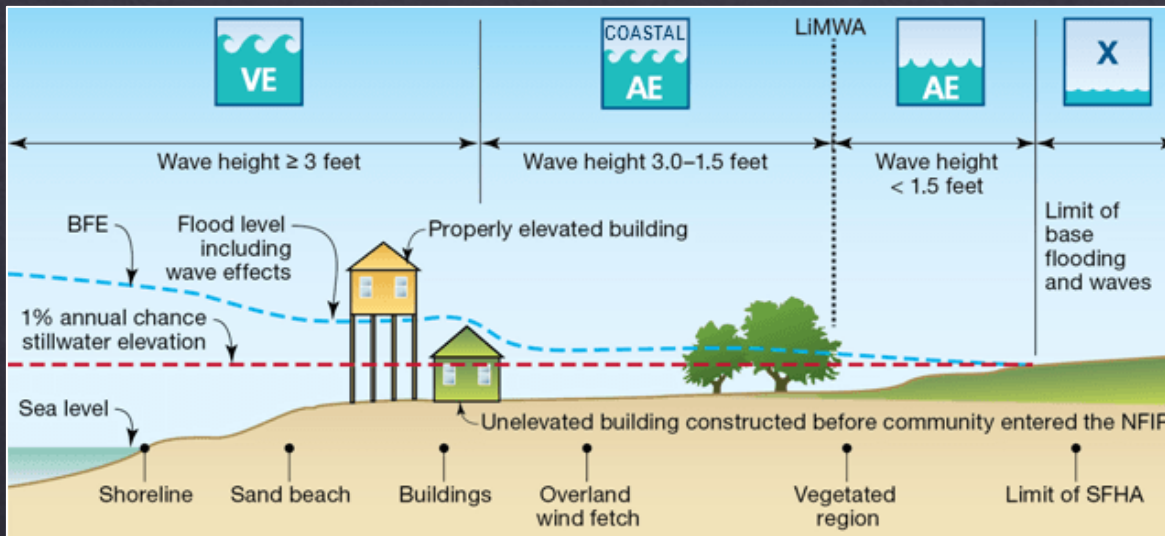
Large amount of rain occurs very quickly and locally



Heavy rainfall overwhelms the storm drains in the streets then flows into the canals, rivers, etc.

Coastal Flooding: Increasing Frequency

Very high tide from astronomical event or tropical storm.



Tidal waters flow back into storm drains near the ocean, marsh, and tidal rivers.

Riverine Flooding: Infrequent in Savannah

Heavy rainfall over a large upstream watershed



River water expands beyond its banks, fills the floodplains, and flows back into storm drains systems.



Whitaker Street



Tremont Park

2024 Urban Flooding Events

◆ *Select Events:*

- ◆ July 20, 2024 – 2.8 inches in 4 hours
- ◆ July 22, 2024 – 3.6 inches in 3 hours
- ◆ Aug 20, 2024 – 3.1 inches in 1 hour

◆ *Result:*

- ◆ Urban Stormwater Flooding

◆ *Causes:*

- ◆ Rainfall rate (inches/hour)
- ◆ Undersized infrastructure
- ◆ Drainage system maintenance needs
- ◆ Tide cycles (i.e. heavy rain during high tide cycle)

2024 Riverine Flooding Event (T.S. Debby)

- ◇ Rainfall Data
 - ◇ 10 inches in 48 hours*
- ◇ *Results:*
 - ◇ Urban Flooding
 - ◇ Riverine Flooding
- ◇ *Causes:*
 - ◇ Heavy rainfall in the Ogeechee River Watershed
 - ◇ Canoochee River flooding
 - ◇ Development within the floodplain

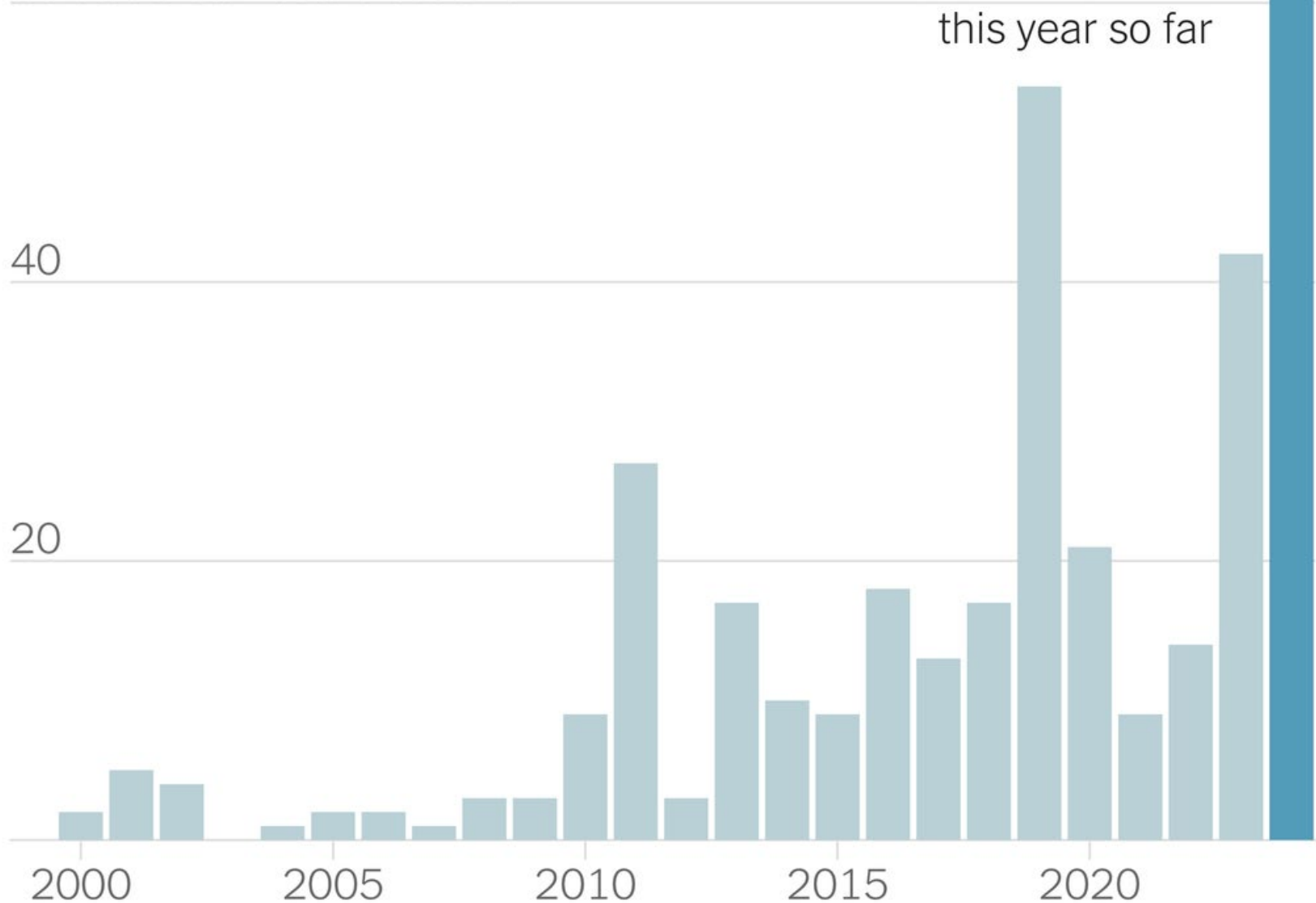


Dunnoman Dr and Grayson Ave
Bradley Pointe Subdivision

A surge in U.S. flood disasters

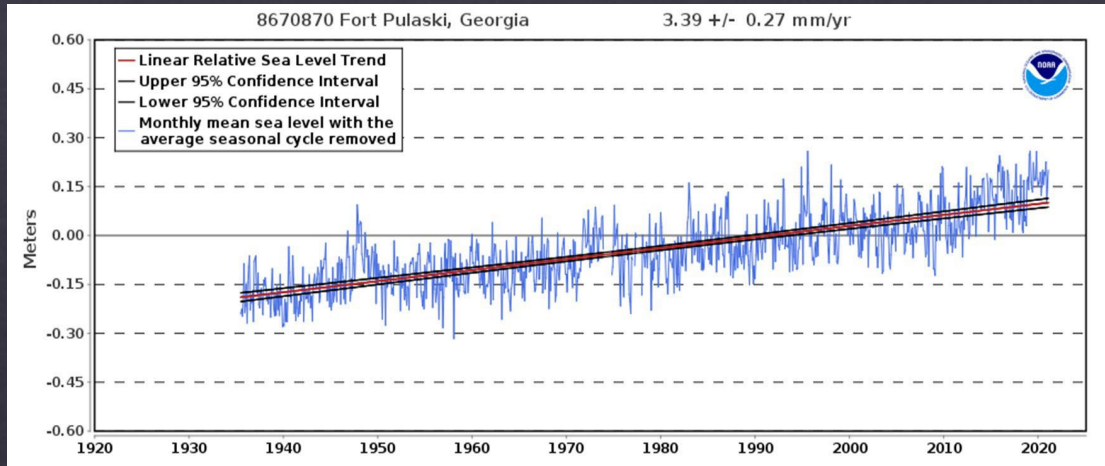
60 declared flood disasters

66 declarations
this year so far



Source: Federal Emergency Management Agency | Note: The 2024 total reflects declarations as of Oct. 22, 2024. | By The New York Times

Drainage System Resiliency



Issues

- Storm Surge
- Sea Level Rise (~1 foot since 1940)

Mitigation Measures

- Pump Stations
- Tide Gates
- Berms, Dikes, Sea Walls
- Design Standards



City SWMP
Role &
Responsibilities

City SWMP Service Delivery Responsibilities




Drainage System Operations, Maintenance, and Repair



Regulatory Compliance activities required by the State and Federal Governments



Capital Improvement Program for Flood Control, Drainage Conveyance, and Water Quality



Stormwater Program Overview

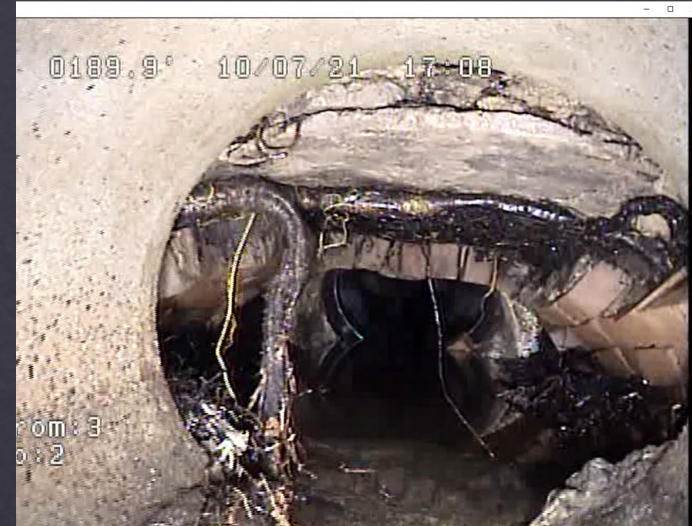
City of Savannah Drainage System Data



- **416.16 miles of pipe**
(closed system)
- **147.37 miles of ditches/canals**
(open system)
- **7 pump stations**
- **6 stormwater detention ponds**
- **31 tide gates**
- **14,620 inlets**
- **6,423 manholes**

City Drainage Infrastructure Issues

- System Expansion
- System Age
- Climate Impacts
- Capacity Challenges



Stormwater Department Work Order Statistics (2024)

Total Reports to Date: **141**

Total Reports Open: **41**

Total Reports Closed: **100**

Average Time to Close: **48 Days**

Fastest Closed Request Type:

- *Broken Storm Sewer Top/Lid*

Slowest Closed Request Type:

- *Stormwater Cave In*

Most Common Request Type:

- *Clogged Storm Drain*



Capital Improvement Projects (5 to 20 year)

Flood Studies/ Masterplan

Stormwater Pump Station Improvements

- 12 Projects
- Total Cost: \$46.6 Million (*Funded at \$16.25 Million*)

Localized Stormwater Infrastructure Construction Improvements

- 13 Projects
- Total Cost: \$22.3 Million (*Funded at \$4.01 Million*)

Stormwater Yearly Capital Programs and Repairs

- 3 Projects
- Total Cost: \$2 Million/Year (*90% Funded Annually*)

Flood Study Modeling and Basin Studies

- 14 of 24 Basins Remain to be Modeled
- Total Cost : \$1.4 Million (*Funded at \$150,000 Annually*)

Drainage Basin Stormwater Infrastructure Construction Improvements

- 25 Projects
- Total Cost: \$330 Million (*Funded at \$135 Million*)

Total Funding Need: \$402.3M

Total Funding Secured: \$157.2M (or 39%)

Stormwater
Program
Funding

City Utility Operation & Funding Overview

◆ City Operates Three “Pipe Systems”

◆ (1) Water, (2) Sewer, and (3) Stormwater Pipes

◆ Water & Sewer fees provide dedicated funding for the first two pipe systems

◆ Third pipe system (Stormwater) does not have a dedicated funding source

◆ Funding Opportunity for Stormwater System

◆ SWMP Funding similar to Water & Sewer Funding

◆ Develop comprehensive, dedicated funding strategy

City SWMP Funding Strategy

◆ Current Capital Project Funding Sources

- ◆ General Fund Revenues

- ◆ SPLOST

- ◆ Federal and State Grant Funding

- ◆ Public-Private Partnerships

◆ Potential Future Funding Mechanisms

- ◆ Stormwater Utility User Fee Revenues

- ◆ Amortized Funding (Bonds, GEFA Loans)

Stormwater Utility Overview

Functions as a user fee-based system similar to other City utilities (water, sewer, sanitation)

User fee revenues dedicated to the City SWMP budget

Customer user fee bill amount based on runoff contribution & service delivery

Stormwater Utility Overview

- ◇ Assigns SWMP Costs to Parcels in an Equitable Manner
 - ◇ *Impervious area* → *stormwater runoff*
 - ◇ *Increased runoff* = *Increased service delivery demands*
- ◇ Stable/Consistent/Dedicated Annual Revenue Stream
- ◇ Funds all stormwater services (O&M, Capital, etc)
- ◇ Revenues can pay for bond and GEFA loans debt service as well as “City Match” for Grants
- ◇ User fee credits offered for reduced runoff contribution and/or reduced service delivery demands

Georgia Stormwater Utilities (SWUs)

How Many SWUs?

- ◆ First Georgia SWU -- Griffin, GA (1998)
- ◆ Approximately 75 SWUs in 2024
- ◆ Seven SWUs nearby to Savannah

Nearby Georgia SWUs

City	Residential Rate/Month
Garden City	\$4.75
Richmond Hill	\$4.75
Brunswick	\$5.25
Hinesville	\$5.86
Augusta	\$6.42
Statesboro	\$5.00
Valdosta	\$3.50

Garden City SWU Customer Bills

Customer Examples	Billing Units	Stormwater User Fee/Month*
Single Family Residential	1.0	\$4.75
Small Professional Office	1.4	\$6.65
Fast Food Restaurant	11.9	\$56.53
Bank Branch	13.1	\$62.23
Hotel	35.9	\$170.25
Institutional Building	52.7	\$250.33
Truck/Container Storage Yard	53.5	\$254.13
Retail Shopping Center	66.9	\$317.78
Multi-Family Apartment Complex	109.3	\$519.18
Large Industrial Warehouse	344.4	\$1,635.90

** SWU fee with a billing rate of \$4.75 per each 3,000 square feet of impervious area per month -- and before SWU credits have been applied.*

SWU Funding Study

Project Tasks

Procure Stormwater Utility Consultant –
August 8, 2024

Develop Stormwater Education &
Community Outreach Program

Conduct community outreach and gather
citizen/customer input

Analyze historic and future SWMP Expenses

*Establish Stormwater Management Cost Center
& SWU Enterprise Fund*

Assess historical, current, and future SWMP
service delivery data

Evaluate SWMP program level of service and
identify needed service delivery enhancements

Identify and develop potential SWMP funding
strategies for O&M, Capital, etc

Future City Council decision on the path
forward regarding SWMP Funding

Questions & Discussion