Stormwater Master Plan
Public Input

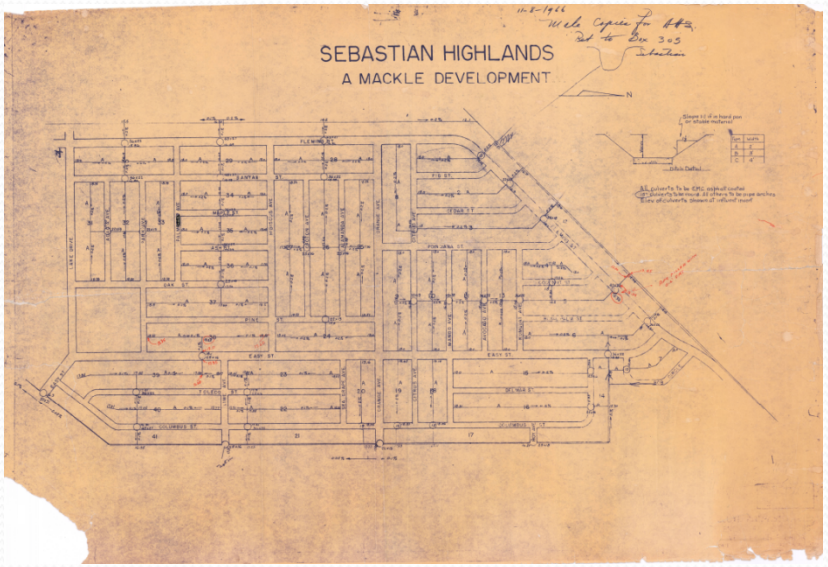
May 23rd 2024

SEBASTIAN
CENTENNIAL CELEBRATION
1924 - 2024

CITY OF
SEBASTIAN
HOME OF PELICAN ISLAND

Sebastian Stormwater System

- Designed by General Development Corporation (GDC) – **1950s**



- Open Channel system
- Designed for quantity not quality

System Intentions

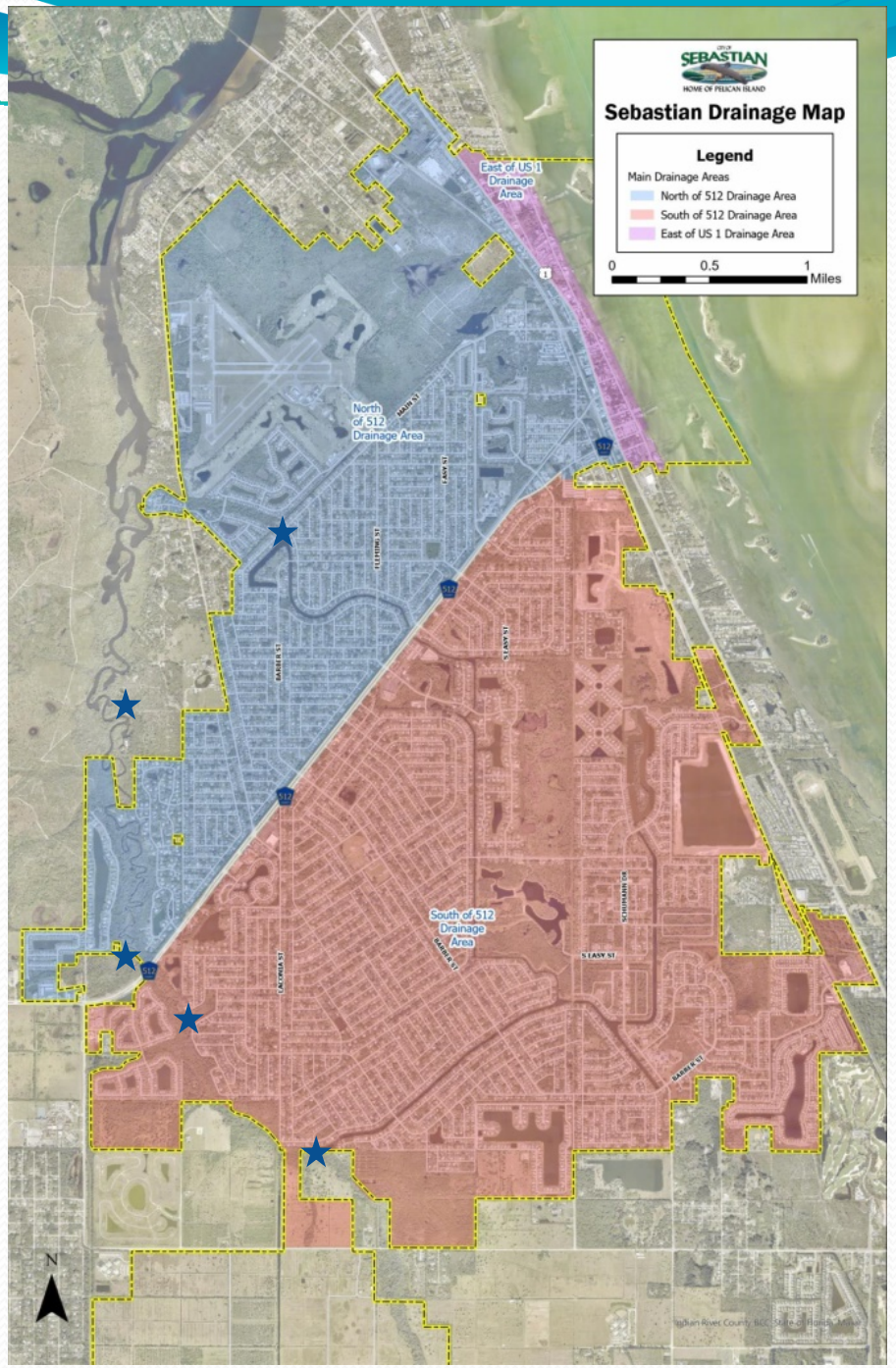
- Transportation & Conveyance
- Storage and Attenuation
- Treatment

Level of Service

Roadside Swales (and associated culverts)	**Backyard Ditches and Side Yard Swales** (and associated culverts)	**Roadways**	**Canals**	**All Stormwater Discharges**
Convey a **10-year**, **24-hour** storm event (**7.24 inches** of rainfall)	Convey a **25-year** **24-hour** storm event (**9.17 inches** of rainfall)	Do not exceed **2 inches** above the lowest elevation on the centerline profile of the roadway for a **25-year**, **24-hour storm**	Convey a **100-year**, **72 –hour** storm event (**14.9 inches** of rainfall)	Maintain compliance with Total Maximum Daily Loads (TMDL) of Florida Water Quality Standards

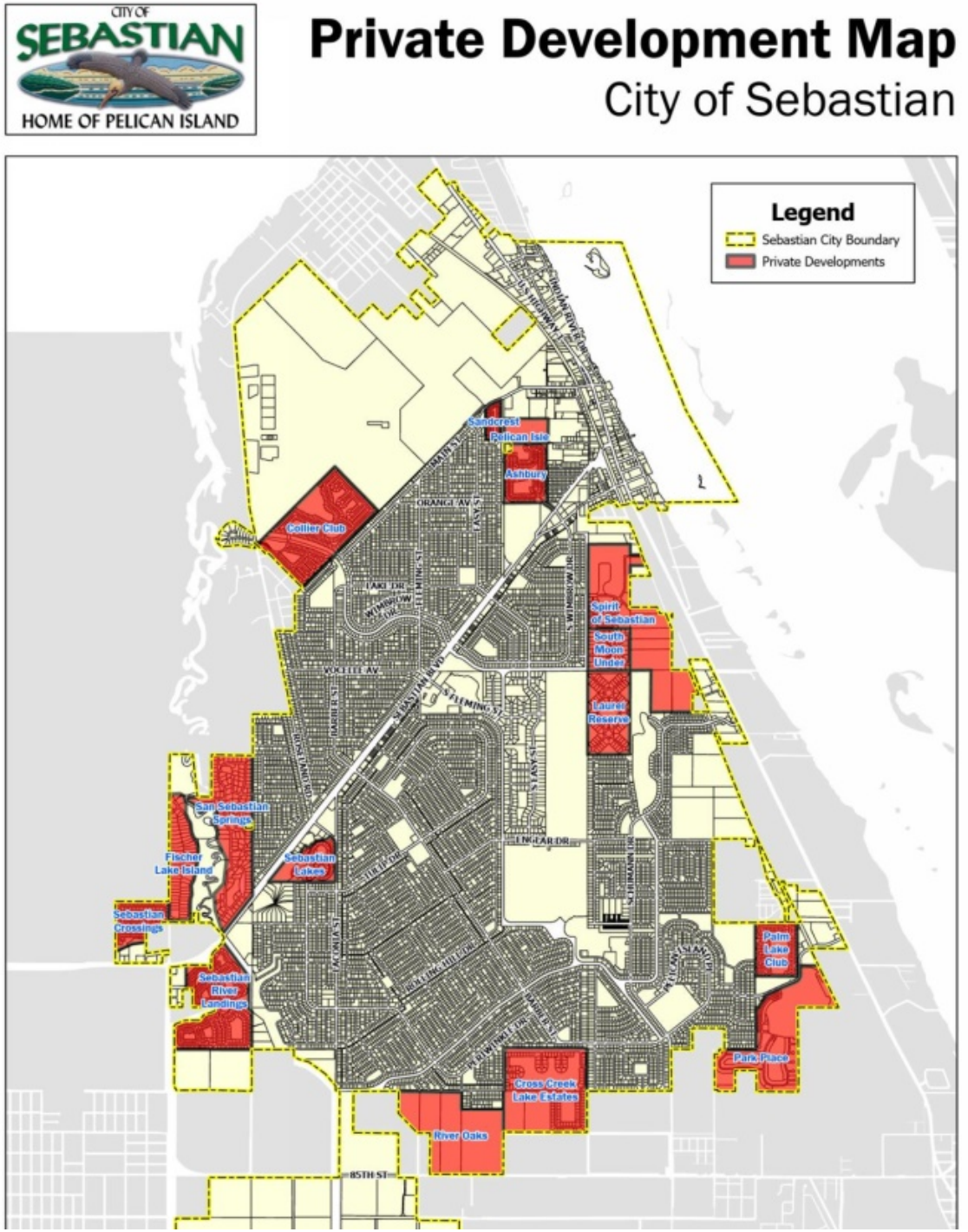
Drainage Areas

- East of US-1
- South of CR 512
- North of CR 512



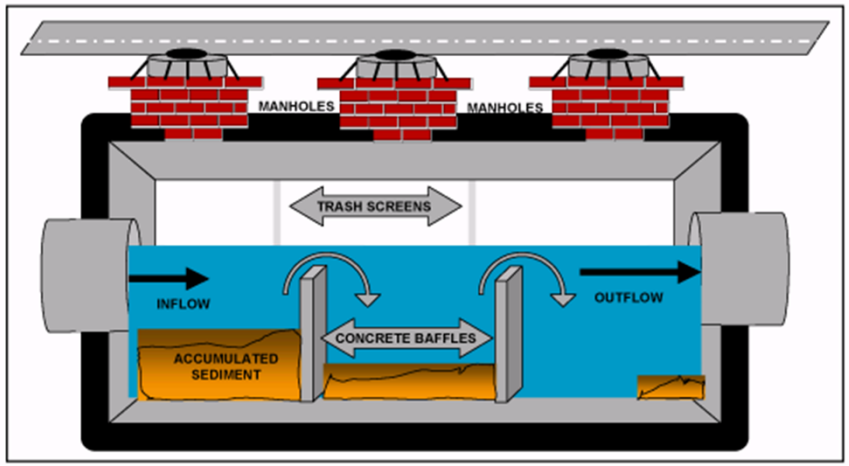
Private Development

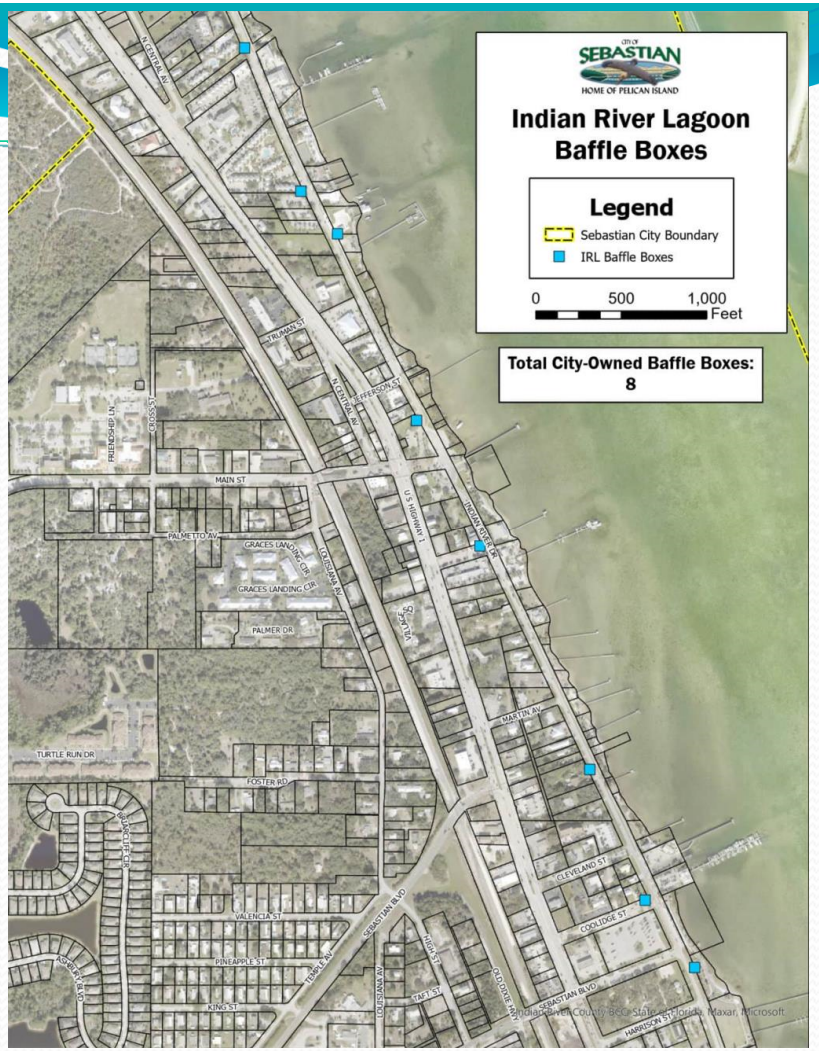
- City does not maintain areas in shown in red
  - SJRWMD jurisdiction



East of US-1

- Baffle Boxes along Indian River Drive
- Removes pollutants





How?

Path of water from roadway and each lot directed to its front swale*

Swales (or curb and gutter)

↓

Road Crossings / Catch Basins

↓

Side Yard Swales (Easement)

↓

Rear Ditches

(Right of Way / Easement)

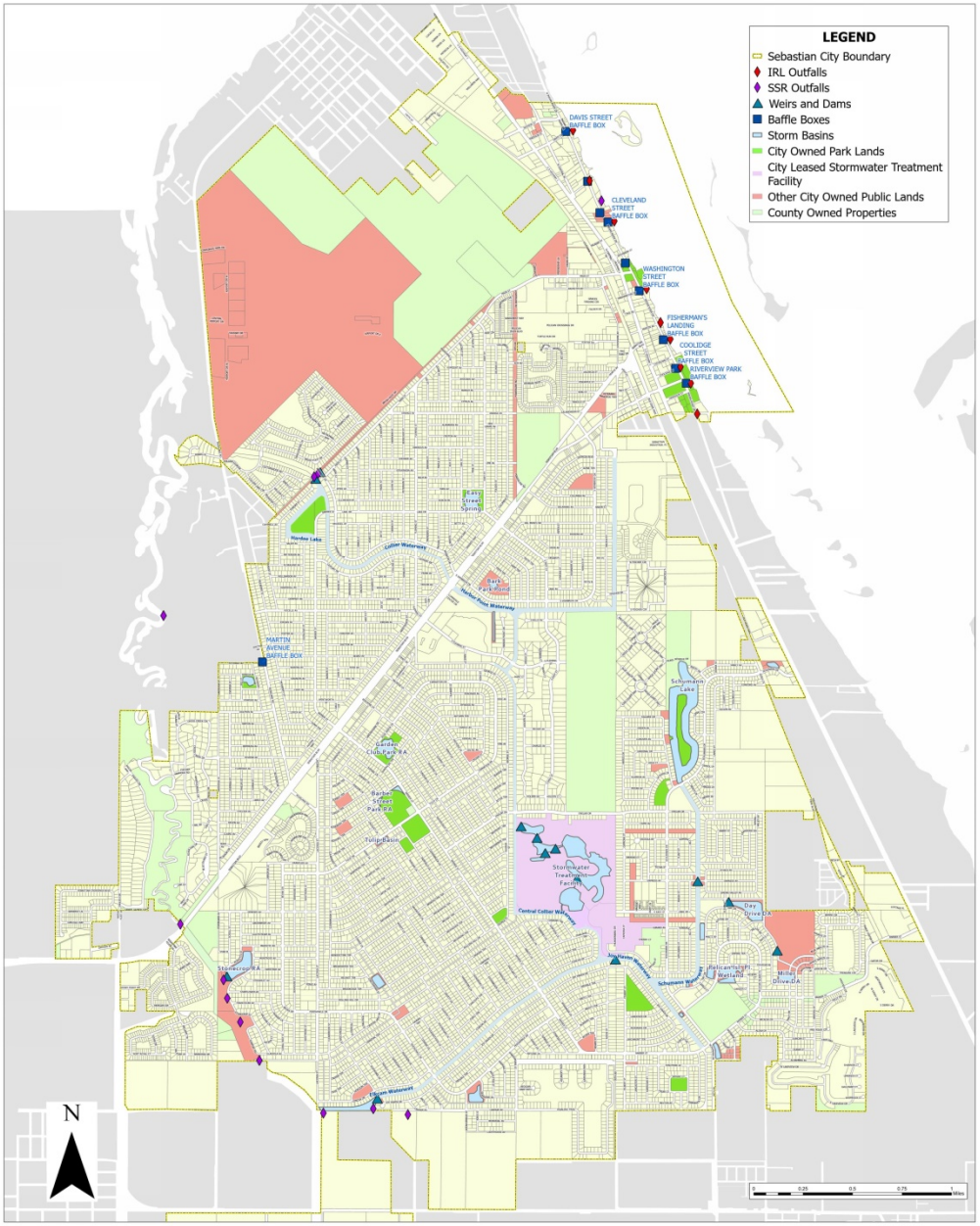
↓

Canals / Ponds / Wetlands

CITY OF SEBASTIAN
HOME OF PELICAN ISLAND

Stormwater Assets

City of Sebastian, Florida



Revised January 2023

How Does it Work?

Open Conveyance

Miles of Canals	Acres of Stormwater Ponds (Dry and Wet)	Miles of Ditches
8.54 miles	92.3 acres	52.25 miles

TOTAL ACRES OF CANALS AND PONDS
230.15 acres

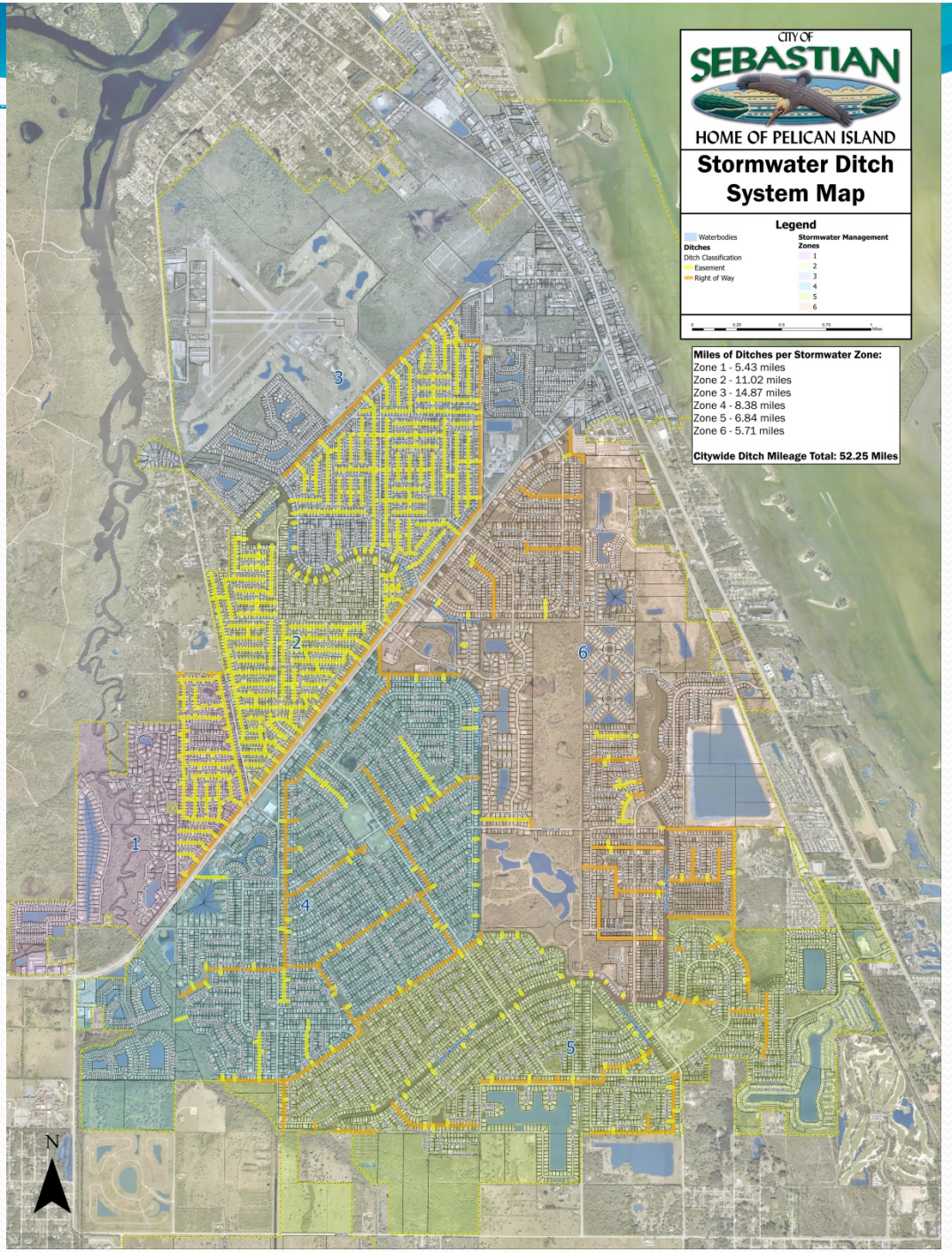
Structures

Road Crossings	Catch Basins	Baffle Boxes
857	770	9

Ditch System

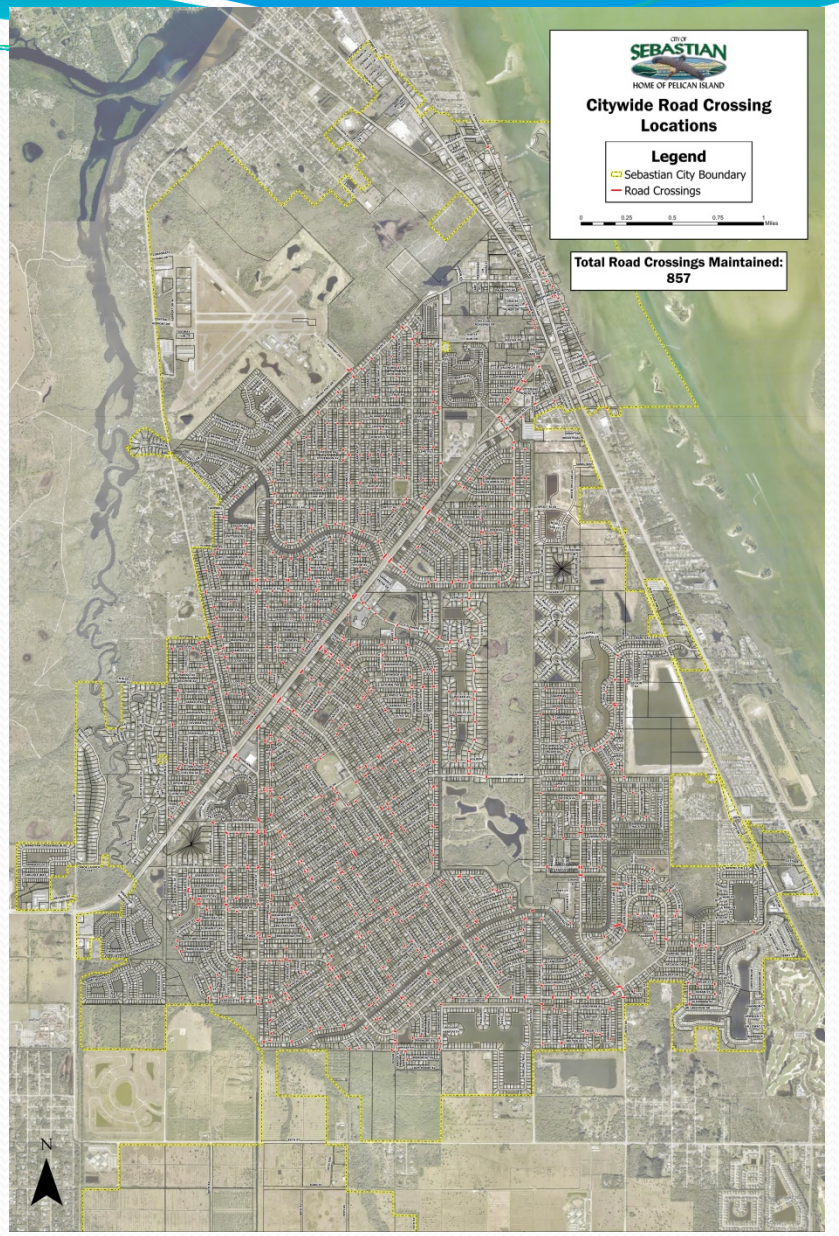
- **Easement Ditches**
  - Owned by Homeowner
    - Still maintained by the City

- **Right of Way Ditches**
  - Owned by City



Road Crossings

- 857 Total Citywide
- All City Owned and Maintained
  - Clean and replace as necessary
  - Corrugated Metal Pipe (20 year lifespan)



Improvements to Original System

EAST OF US-1

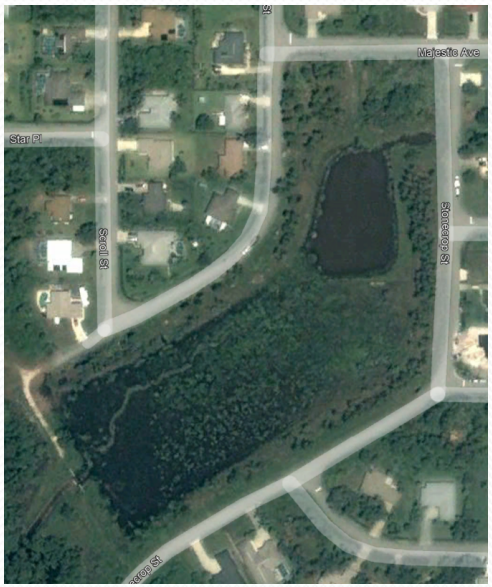
- Baffle Boxes along Indian River Lagoon (1998, 2013)
  - Main Street Dry Detention Areas

NORTH OF 512

- Twin Ditches expansion
- Powerline Road (2010)

SOUTH OF 512

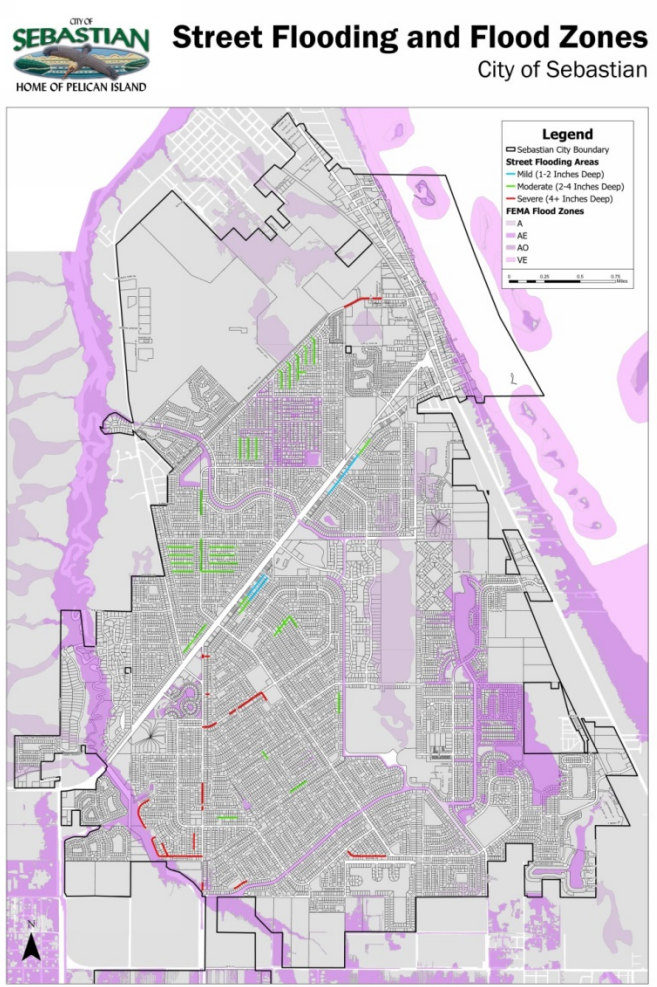
- Concha Dam (2000)
- Stormwater Treatment Facility (2010)
- Tulip Pond (2016)
- Stonecrop Pond and Wetland (2005)
- Periwinkle Pond



Your Opinion of the System

Please complete the Public Survey

https://arcg.is/1iTW4C0



Stormwater Master Plan

- Historical – 1996, 2004, 2011, 2013, 2018
- Latest Completed 2021-2023
  - Encompasses House Bill 53 requirements passed in 2021
    - **20 year infrastructure needs analysis to be updated every 5 yr**

2023 SWMP Process

- Reviewed historic documents
- Surveyed existing assets / GIS collection
- Created an updated Stormwater Model
  - (H&H) Hydrologic & Hydraulic Model
- Reviewed financial status
- Created O&M as well as CIP recommendations
  - Operation and Maintenance
  - Capital Improvement Projects

2023 SWMP Survey & Model

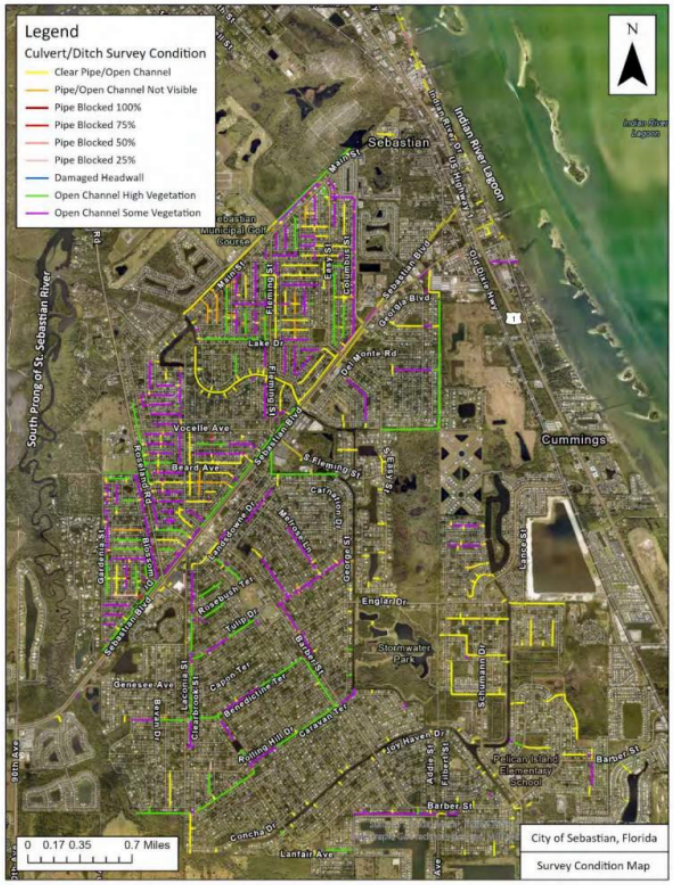


Figure 3-2. Observed Drainage Conditions

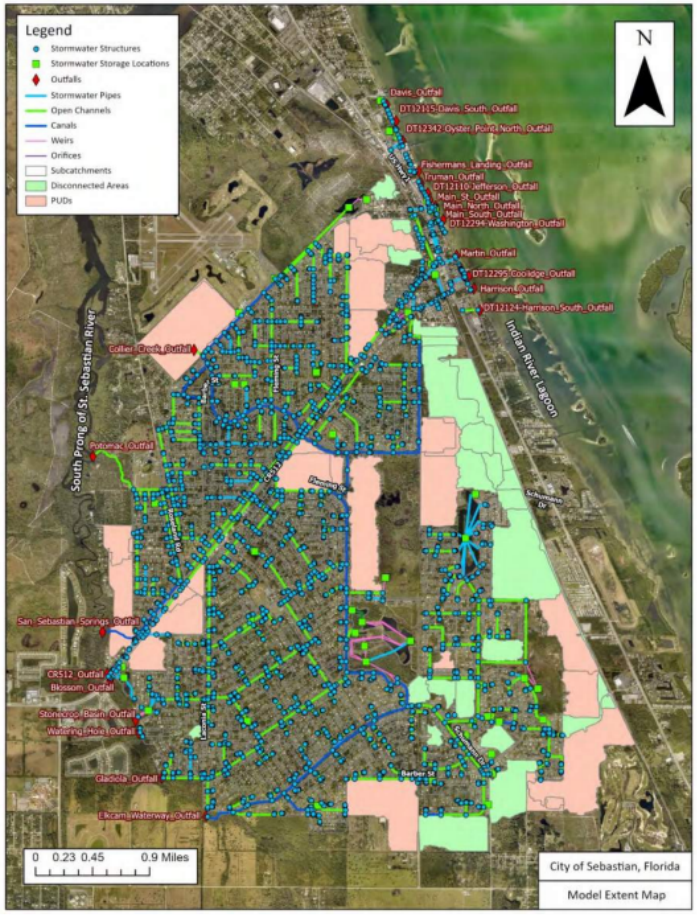


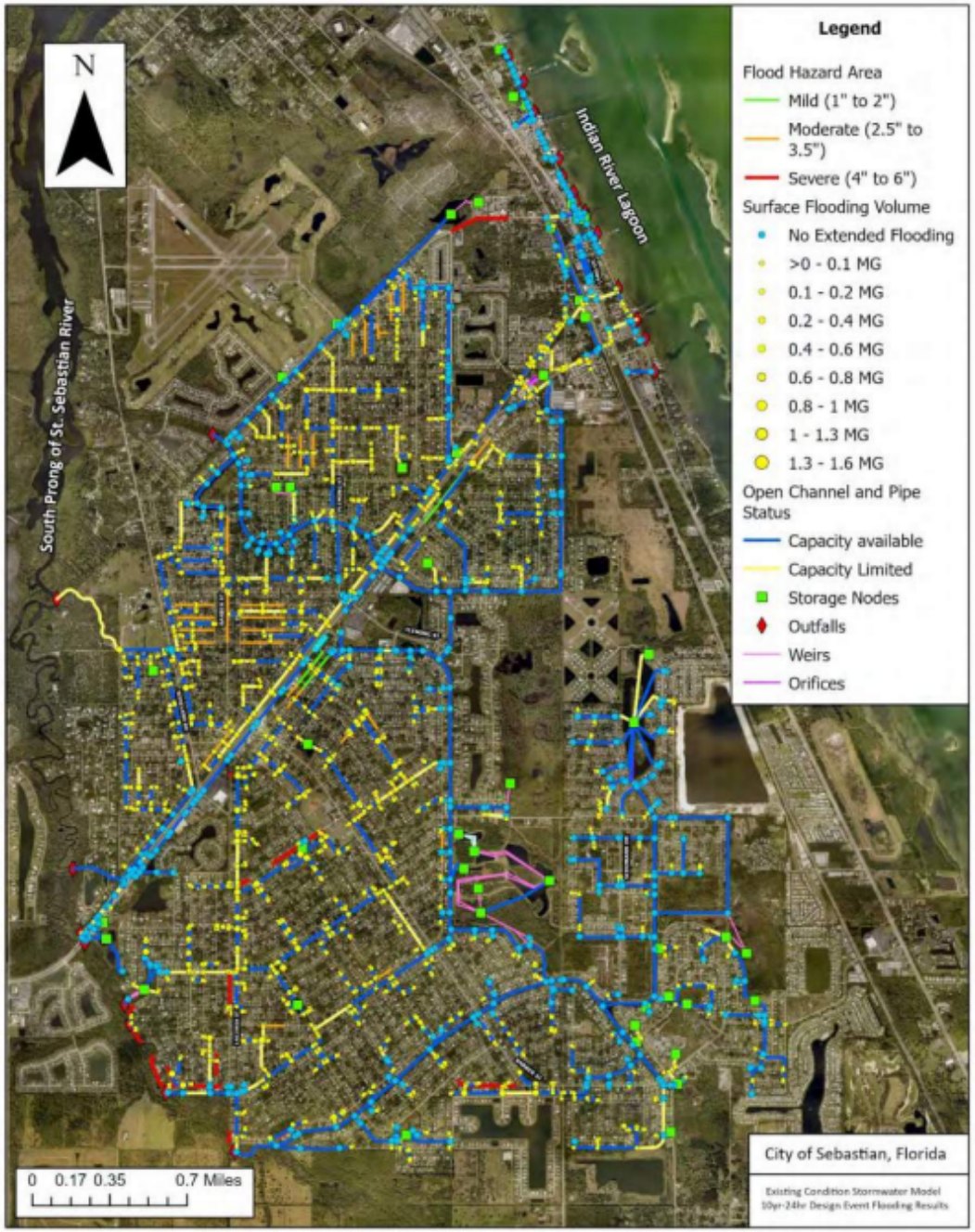
Figure 3-3. Hydrologic and Hydraulic Modeling Extents

2023 SWMP General Findings

- Maintenance Intensive System
  - Due to open channels – affected by sedimentation, erosion, and vegetation
- Poorly Draining Soils
- High Groundwater Level – limits infiltration
- Relatively Flat – minimal slopes

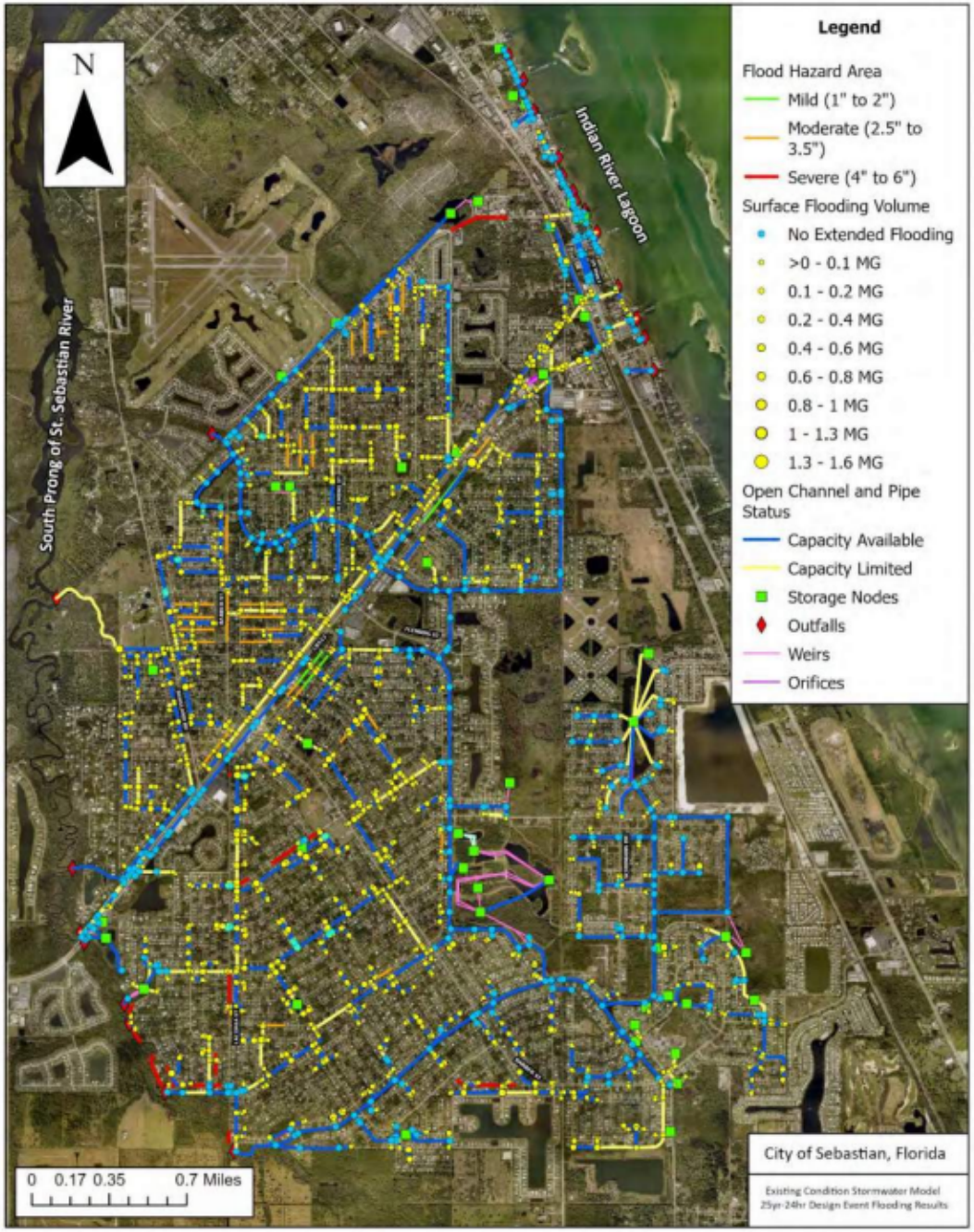
Modeling Results

- Results considering a 100% clear system
- 10 yr 24 hr storm
  - 7.24 inches of cumulative rainfall



Note: Simulated flooding locations with a flooding duration less than two hours are not included in the presented results.

Figure 3-4. Surface Flooding Locations & Volumes, 10yr-24hr Design Storm



Note: Simulated flooding locations with a flooding duration less than two hours are not included in the presented results.

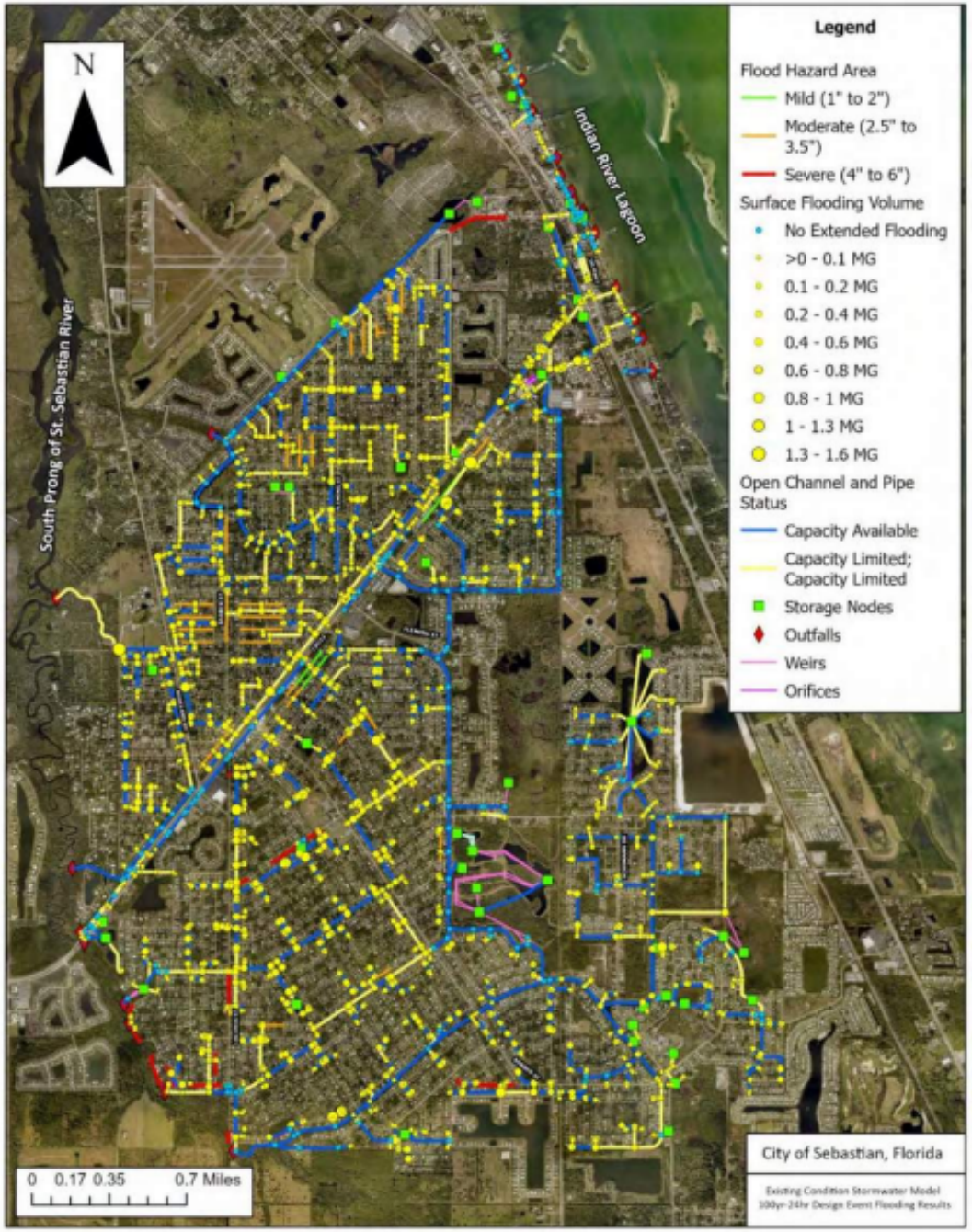
Figure 3-5. Surface Flooding Locations & Volumes, 25yr-24hr Design Storm

Modeling Results

- Results considering a 100% clear system
- 25 yr 24 hr storm
  - 9.17 inches of cumulative rainfall

Modeling Results

- Results considering a 100% clear system
- 100 yr 24 hr storm
  - 12.4 inches of cumulative rainfall



Note: Simulated flooding locations with a flooding duration less than two hours are not included in the presented results.

Figure 3-6. Surface Flooding Locations & Volumes, 100yr-24hr Design Storm

2023 SWMP Results

- Operation and Maintenance Recommendations
  - Minimum maintenance activities
    - Keep system working as is, base level of functionality
- Capital Improvement Plan
  - Larger Repair / Maintenance for the System

2023 SWMP Recommendations

- Adjust and increase maintenance activities
- Implement Computerized Management System
- Modernize Fleet
- Increase Canal Storage
- Coordinate with SJRWMD for maintenance at private property – where maintenance has not occurred
- Obtain Total Maximum Daily Load credits from FDEP
- Establish Private System Certificate Program
- Reduce Costs – Eliminate Quarter Round at Vacant Lots
- Continue Updating SW Management System Survey
- Policy Changes – Update ordinances

What has the City Done Since?

RECOMMENDATION	ACTION TAKEN
Increase Maintenance Frequencies	-Have adjusted our maintenance schedule for many of the items in the list
Implement Computerized Maintenance Management System & Enhance Documentation	-Hired GIS technician -Logging maintenance items via GIS maps -Moved to electronic work orders -Using map based Citizen Request system to help determine problem areas
Increase Staffing with 10 additional Stormwater Employees (Doubling staff)	-Have filled two vacancies since SWMP was finalized, one additional vacany to fill -Stormwater Department is proposing four additional staff members in FY24/25
Modernize and Increase Fleet	-Replaced one excavator and waiting on three additional replacements that have been ordered (Brush Truck, Backhoe, Excavator) -Also requesting fleet updated in FY24/25
Increase Canal Storage (adjustable weir)	-Proposing a canal study in FY24/25 to review impacts and feasibility

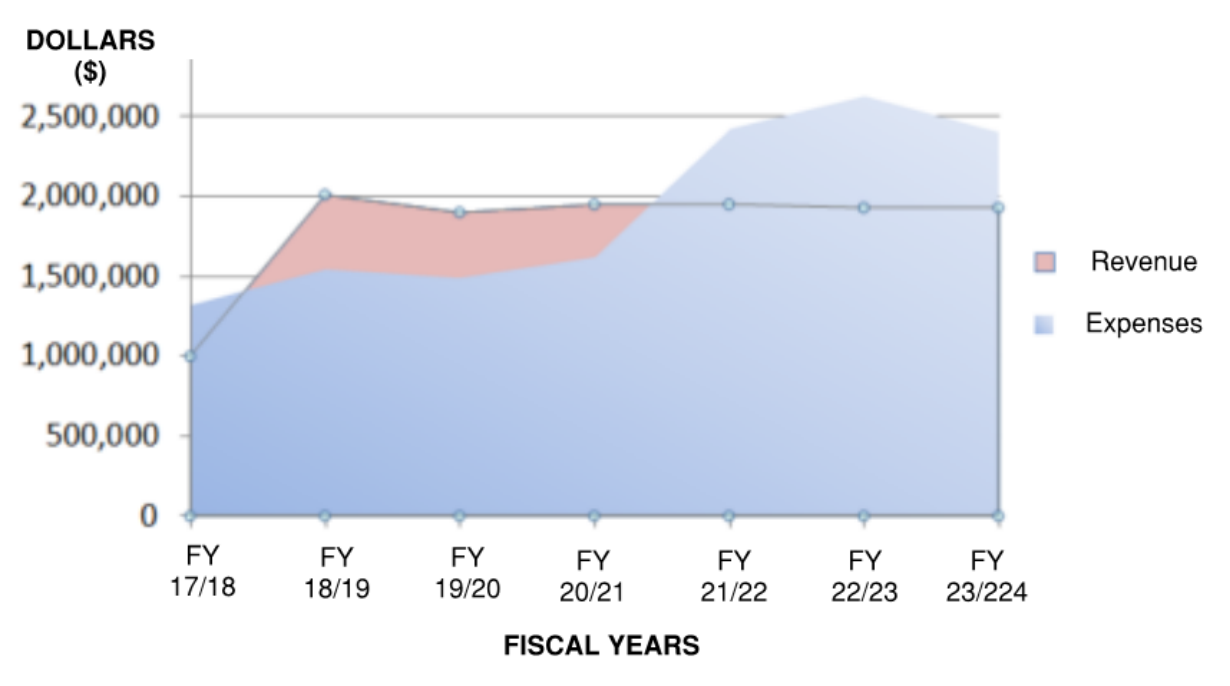
Next Steps

- Continue to plan and review SWMP
- Get Public Input on Important Items
- Release Stormwater Action Plan that will be updated Yearly

Budgeting Exercise

- Review of Operation and Maintenance Budget
  - Place stickers next to each item you would like to see within the budget
  - Note each sticker accounts for $100,000
    - See notes on pages for # to place on each line
    - If you would like more of that activity, place double or triple the required dollar value

Current Financial Status



	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY22/23	FY23/24
SW Fees (revenue)	$1,000,000	$2,010,000	$1,900,000	$1,950,000	$1,950,000	$1,930,000	$1,930,000
Budget Costs	$1,325,500	$1,545,000	$1,490,000	$1,620,000	$2,425,000	$2,630,000	$2,400,000

Funding Increase Proposed by SWMP

- 41% Stormwater Fee increase needed
- $4.10 increase per month
  - To help fund minimal maintenance on the system not including Capital Projects

Current Monthly Rate	New Monthly Rate
$10.00	$14.10

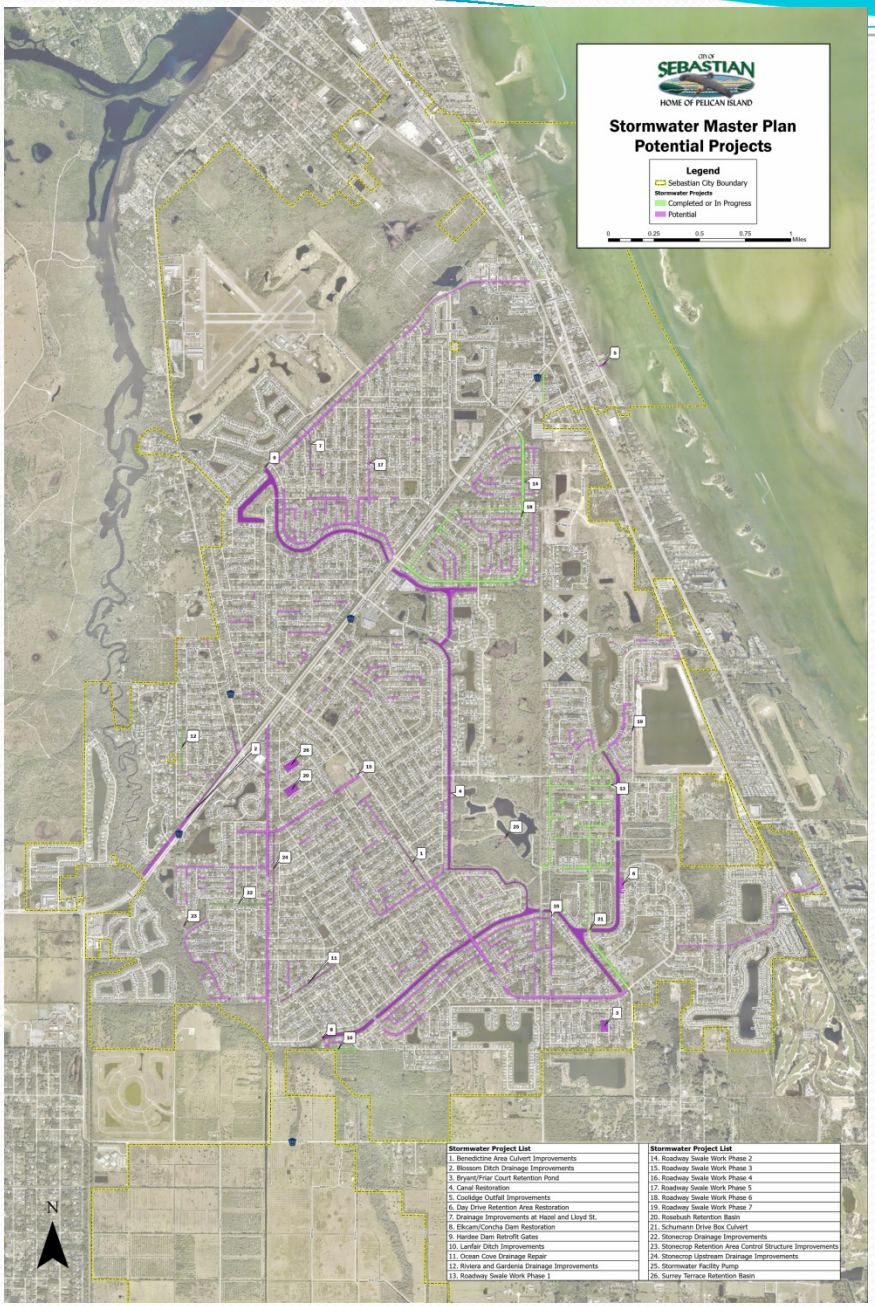
Current Yearly Rate	New Yearly Rate
$120.00	$169.20
YEARLY REVENUE = $2,000,000	YEARLY REVENUE = $2,820,000

Budgeting Exercise

- Considering an additional SW Utility Fee Revenue, how would you adjust the activities?

- Place an additional 10 stickers for activities you would like to see more of
  - Correlates to 41% increase

Capital Improvement Plan Recommendations



Capital Improvement Projects

- Rank the CIP projects

Project Name	COST
Benedictine Area Culvert Improvements	$700,000
Blossom Ditch Drainage Improvements -Needs IRC Coordination	$1,700,000
Canal Restoration (Includes clearing, dredging, and seawall repair)	$200,000,000 ($20 Million each year for 10 years)
Coolidge Outfall Improvements	$75,000
Roadway Swale Work	$750,000
Stonecrop Retention Area Control Structure Improvements	$100,000
Stonecrop Upstream Drainage Improvements	$2,000,000
TOTAL	
	$25,250,000

Canals = $20,000,000 per year for 10 years

Questions? Comments?

Please Reach Out for Further Questions

- Cards for Citizen Request and Today's Survey
  - Citizen Request Website:

https://citizen-problem-reporter-cos1225.hub.arcgis.com/

- kmiller@cityofsebastian.org