

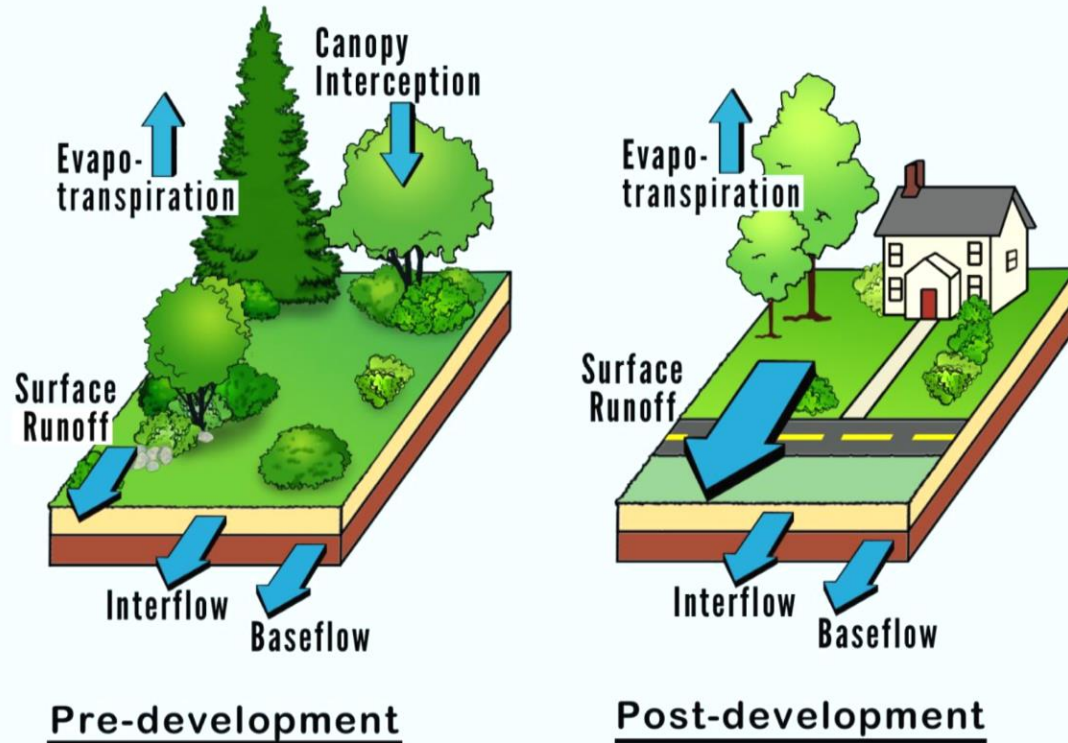
The background of the slide is black and features several realistic water droplets of various sizes. Some droplets are large and elongated, while others are small and perfectly spherical. They are scattered across the right side and top of the slide, with some appearing to be in motion or about to fall.

STORMWATER MANAGEMENT IN SAVANNAH

CITY COUNCIL BRIEFING

APRIL 8, 2021

Figure 1.1 Water Balance at a Developed and Underdeveloped Site
(Source: Schueler, 1987)

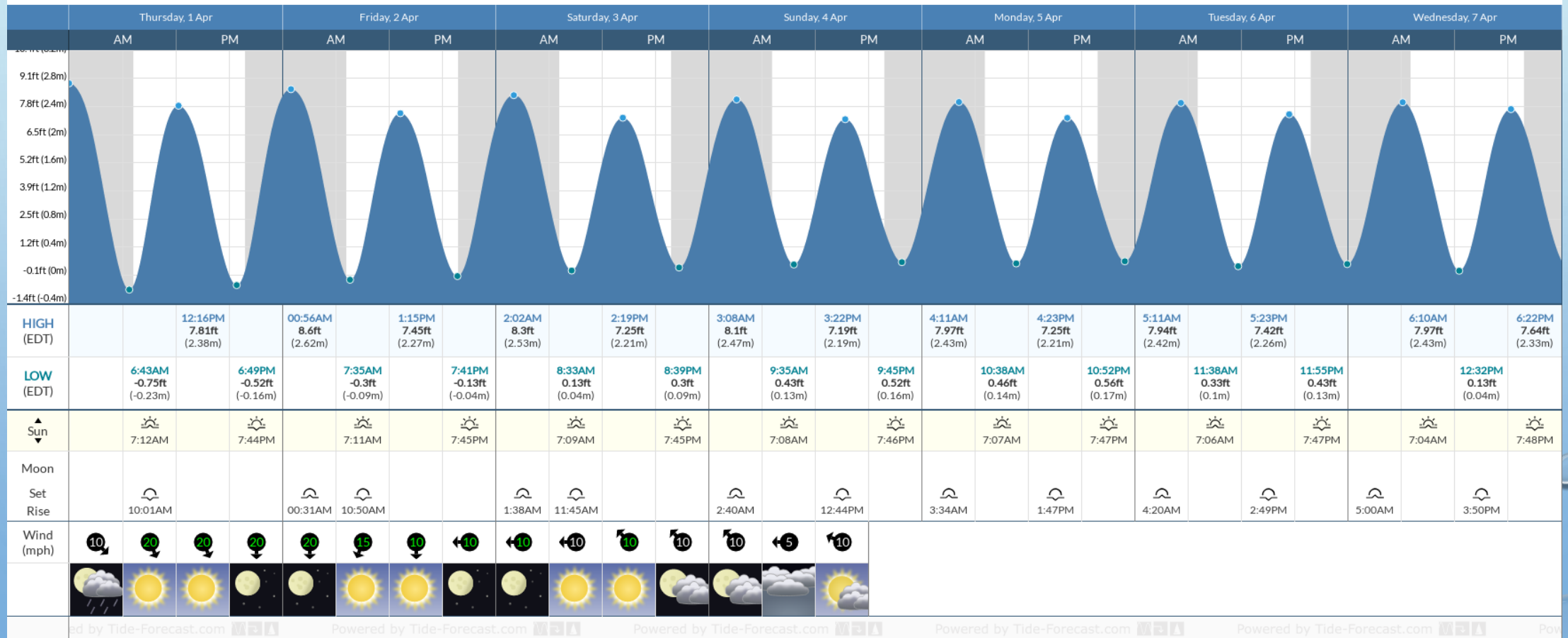


Surface runoff is minimal in an undeveloped site, but dominates the water balance at a highly impervious site.

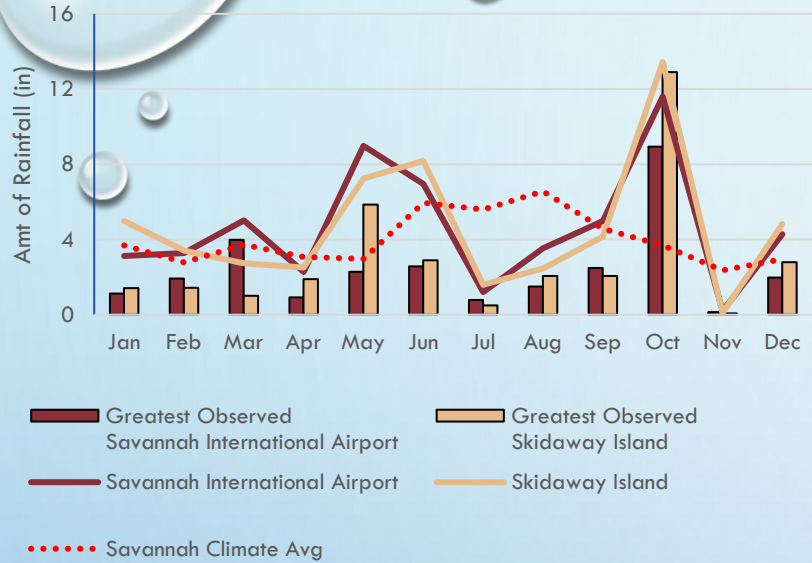
STORMWATER HYDROLOGY

TIDAL FLUCTUATION AFFECTS ON STORM DRAINAGE

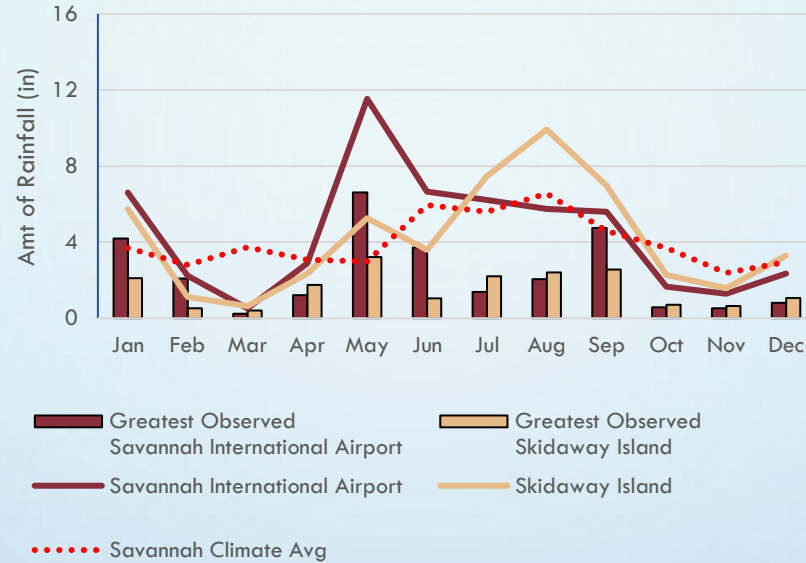
Savannah (Bull Street), Georgia, Tide Times. Times are EDT (UTC-04:00)



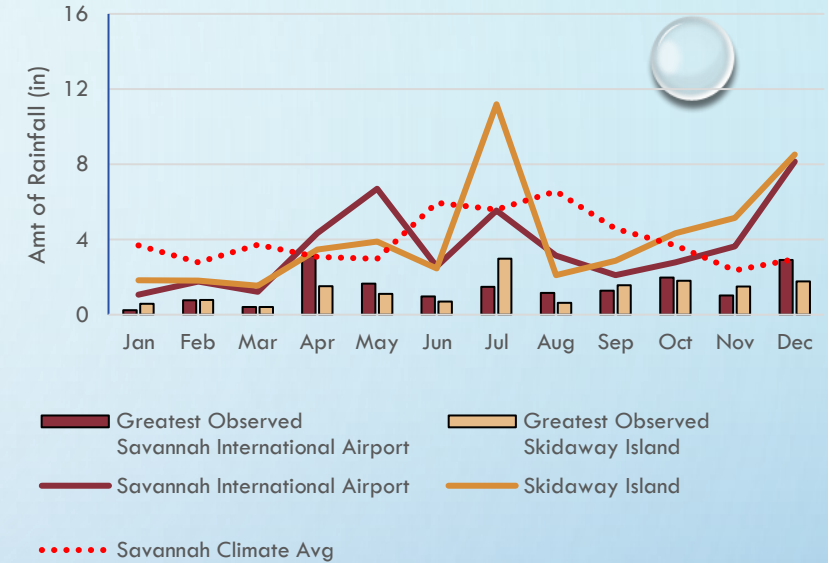
Monthly Rainfall Totals Compared with Monthly Greatest Observed Rainfall Events in Chatham Co
2016



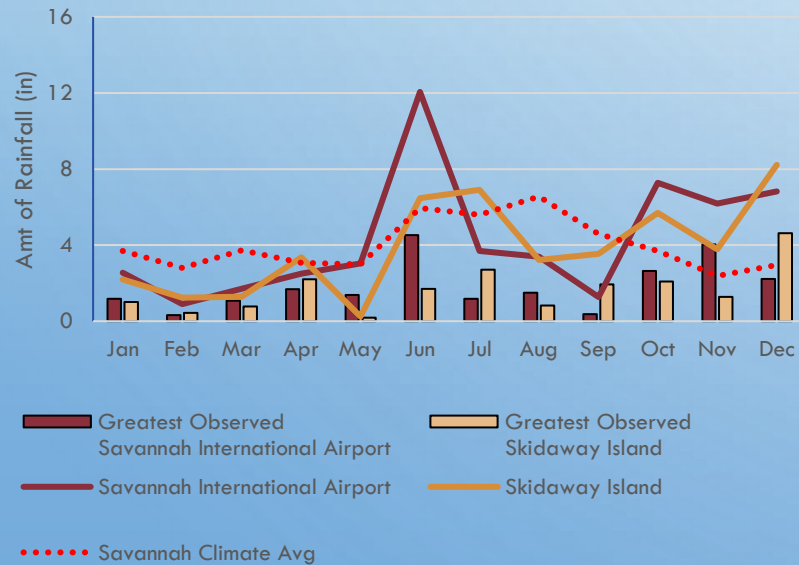
Monthly Rainfall Totals Compared with Monthly Greatest Observed Rainfall Events in Chatham Co
2017



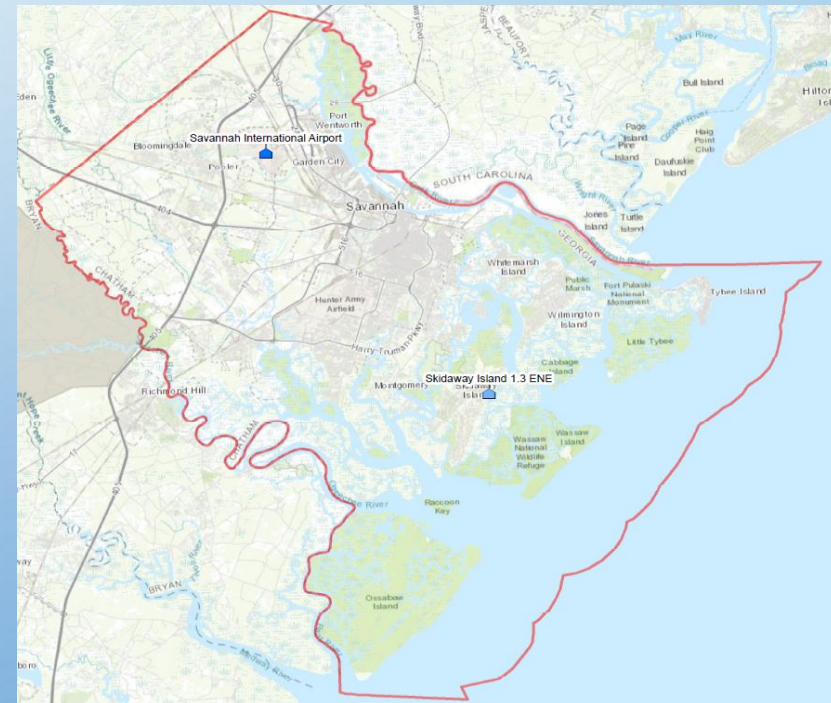
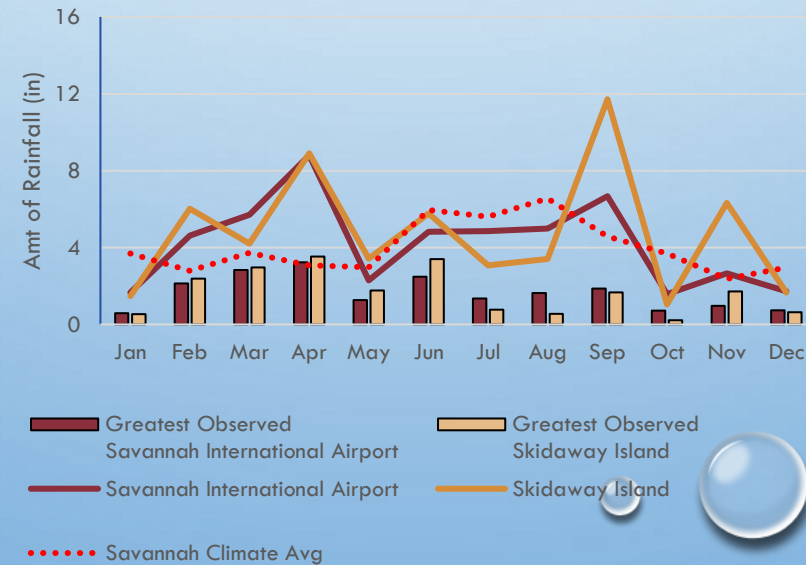
Monthly Rainfall Totals Compared with Monthly Greatest Observed Rainfall Events in Chatham Co
2018



Monthly Rainfall Totals Compared with Monthly Greatest Observed Rainfall Events in Chatham Co
2019



Monthly Rainfall Totals Compared with Monthly Greatest Observed Rainfall Events in Chatham Co
2020



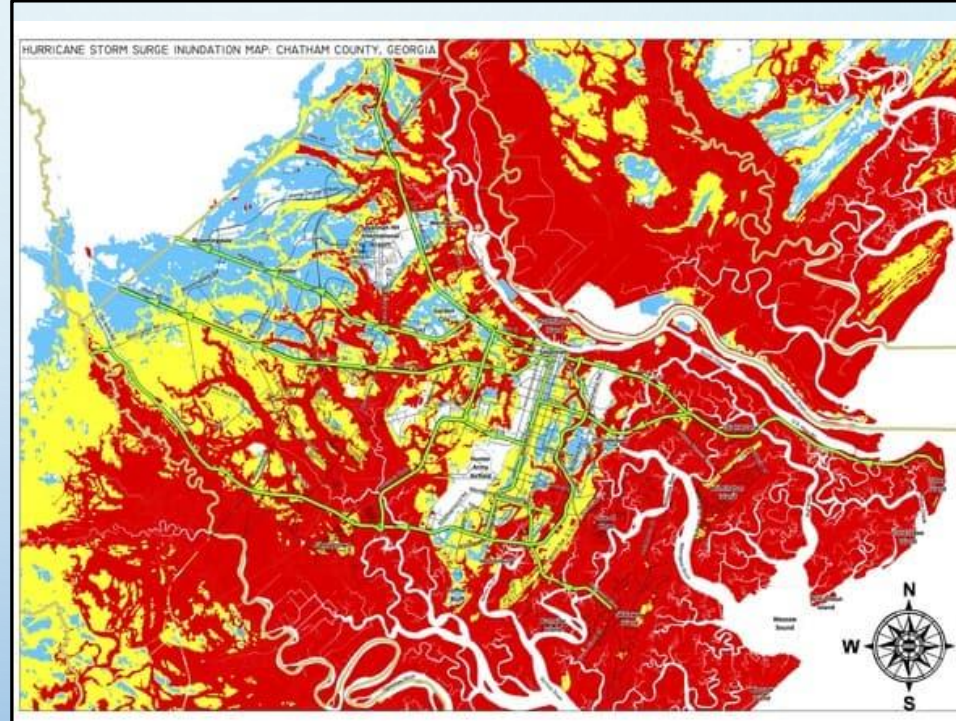
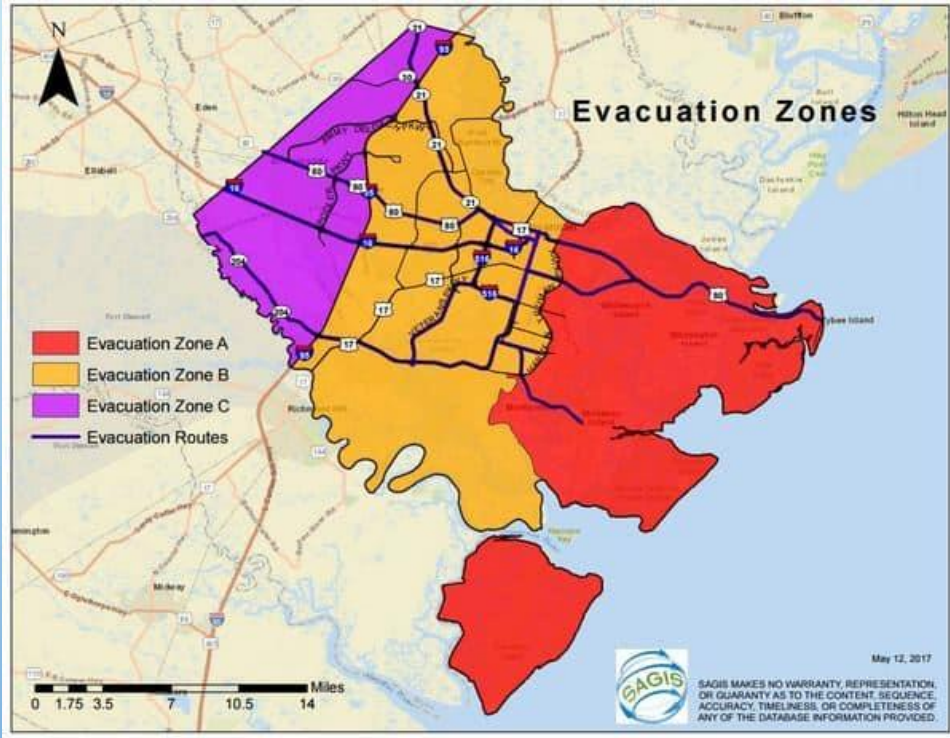


HURRICANE/MAJOR STORMS



HURRICANE STORM SURGE

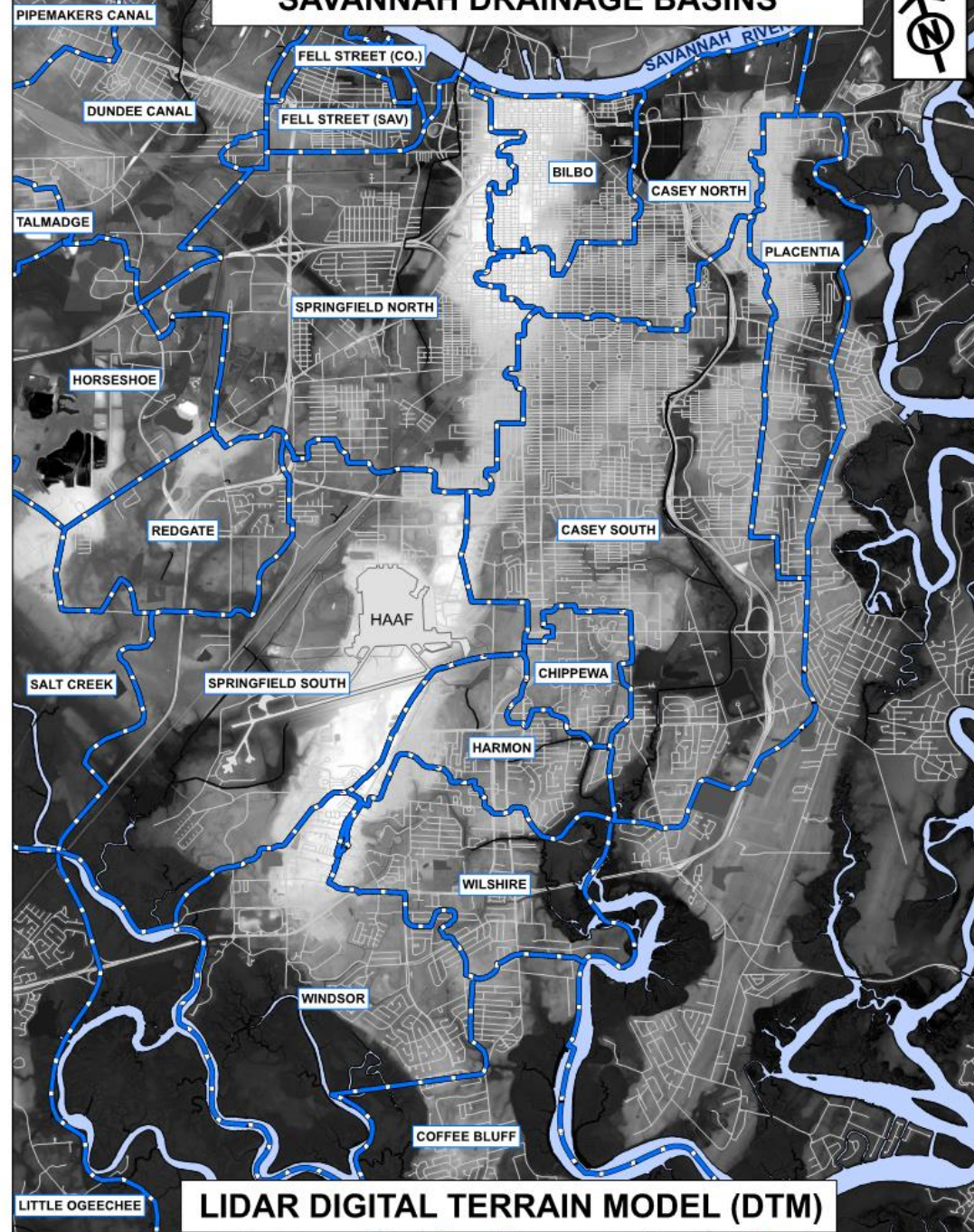
CATEGORY 1 TO 5 STORMS

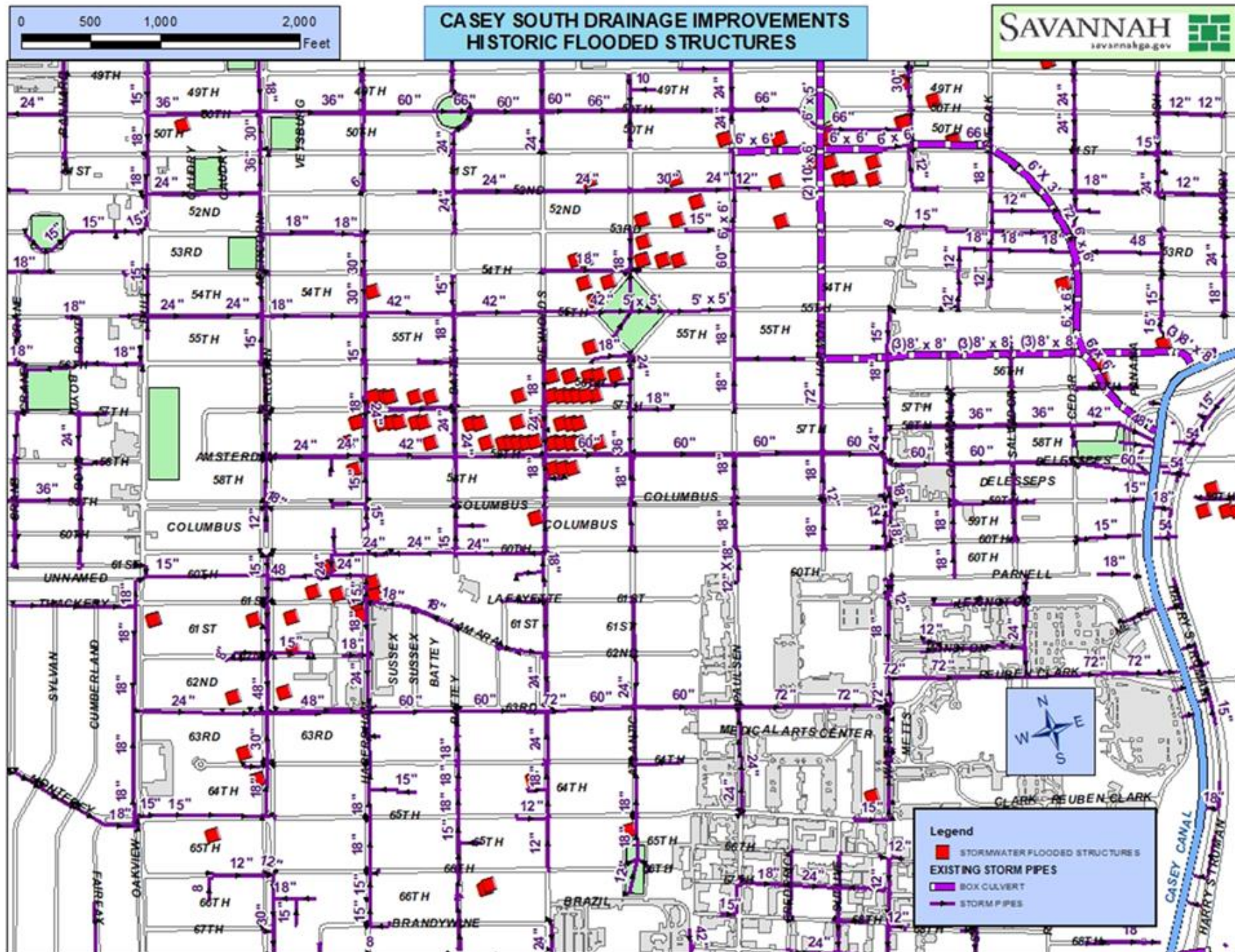


MAP LEGEND

- Major Evacuation Routes
- County Boundary
- Areas Potentially Flooded by Categories 1 & 2 Hurricanes
- Areas Potentially Flooded by Category 3 Hurricane
- Areas Potentially Flooded by Categories 4 & 5 Hurricanes

SAVANNAH DRAINAGE BASINS



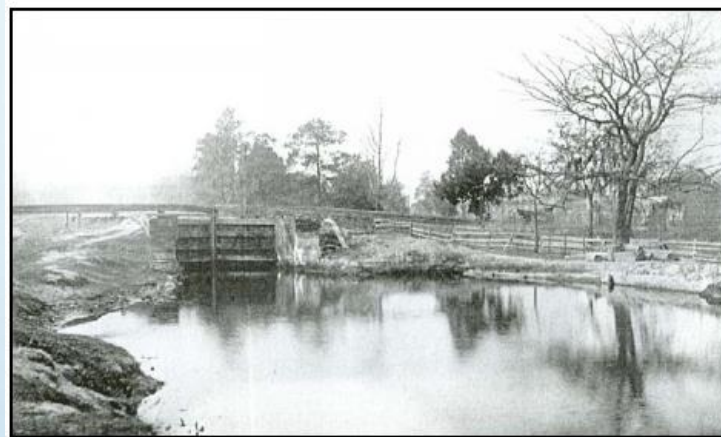
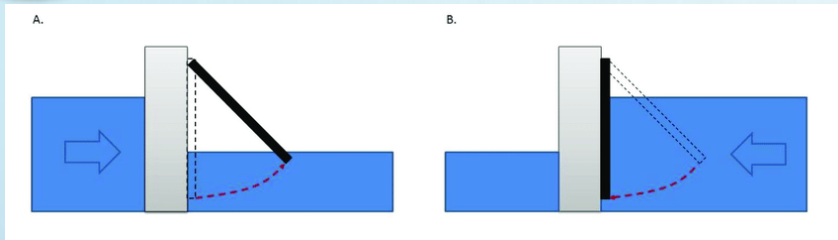


LONDON TIDE GATES



The Thames Barrier (pictured in action), which is operated by the Environment Agency, has 10 steel gates that can be raised into position across the River Thames. When raised, the gates stand as high as a five-storey building and as wide as the opening of Tower Bridge

CITY OF SAVANNAH LOCKS AND TIDE GATES



Looking west at Lock No. 2 near Springfield Plantation, c.1888-1889¹⁰⁰

¹⁰⁰ VM 1361PH, Box 28, Folder 11, GHS.

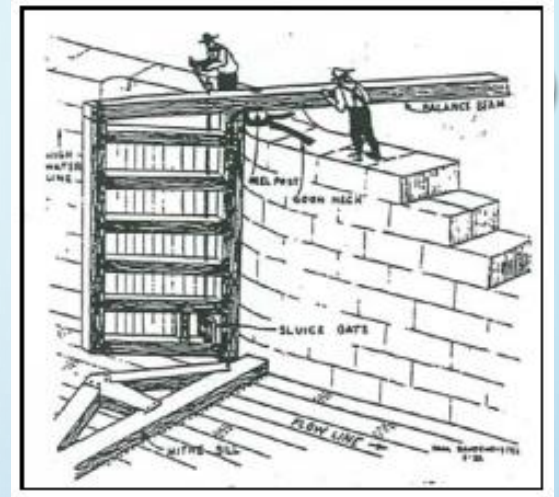


Diagram depicting canal lock gate operation using a wood balance beam.¹⁰⁶

¹⁰⁶ City Manager's Files, Box 0120-001-184, Canals-Savannah & Ogeechee, 1991-1997, RLMA.



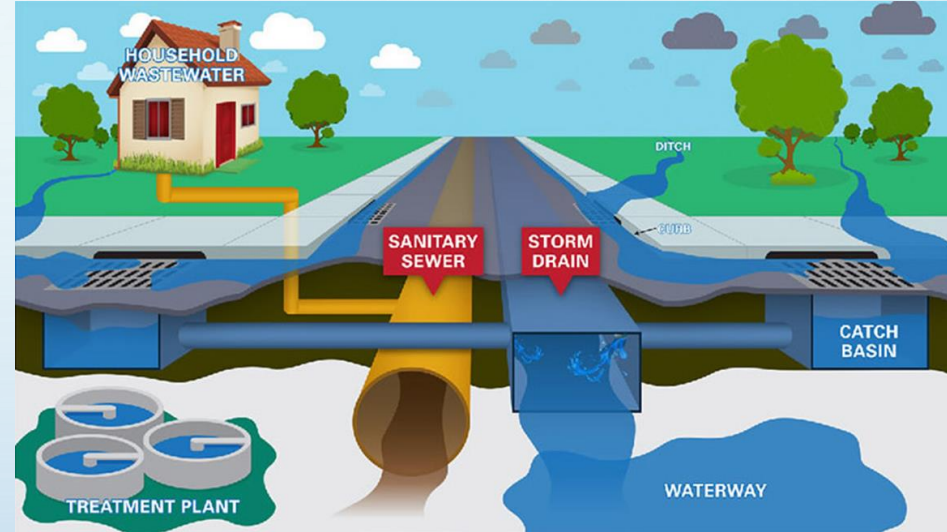
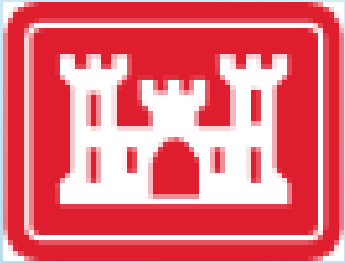
CITY OF SAVANNAH STORMWATER PUMP STATIONS



NEW ORLEANS STORMWATER PUMP STATIONS



DEVELOPMENT AND STORMWATER MANAGEMENT



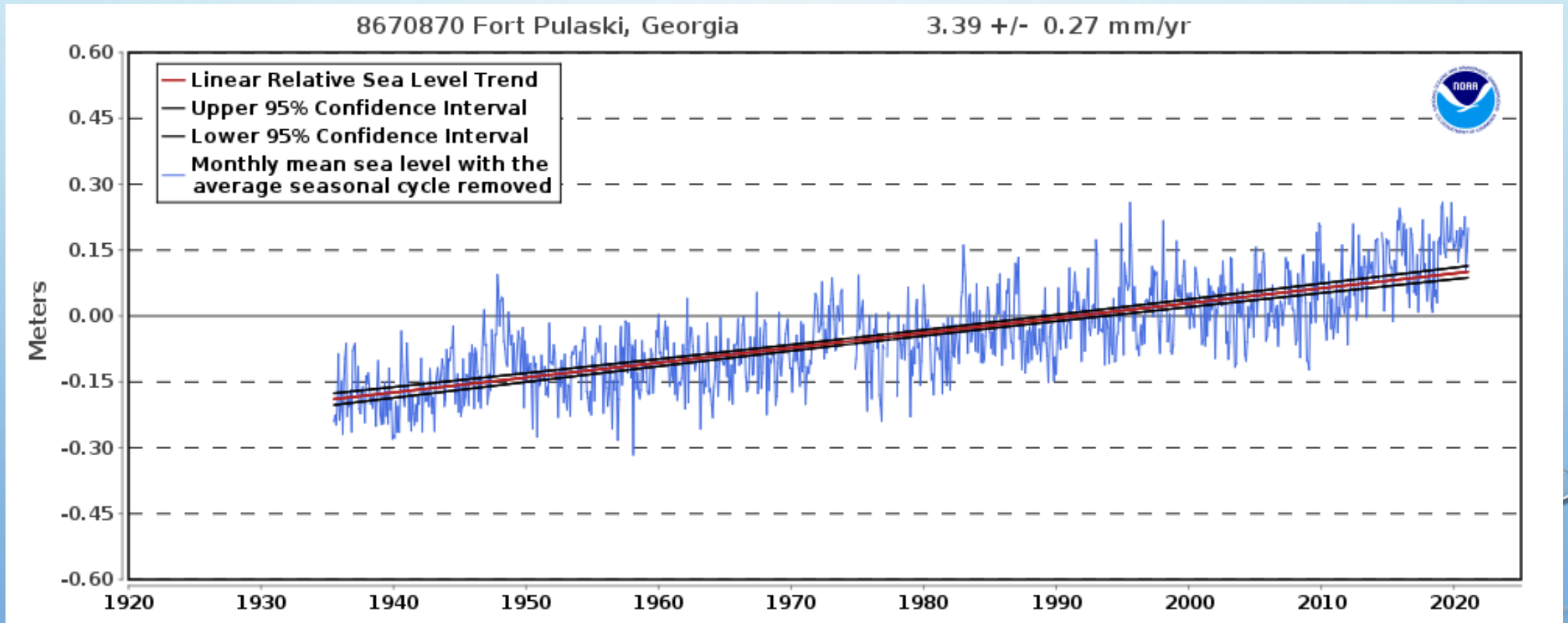
- CITY OF SAVANNAH STORMWATER MANAGEMENT ORDINANCE
- CITY OF SAVANNAH STORMWATER MANAGEMENT LOCAL DESIGN MANUAL
- CITY OF SAVANNAH EROSION AND SEDIMENTATION CONTROL ORDINANCE
- CITY OF SAVANNAH FLOOD DAMAGE PREVENTION ORDINANCE
- CITY OF SAVANNAH SUBDIVISION REGULATIONS
- WETLAND AND STATE WATERS BUFFER REQUIREMENTS (DNR)
- GEORGIA NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REGULATIONS (EPD/DNR)
- FEDERAL CLEAN WATER ACT REGULATIONS (EPA/USACE)

CLIMATE AND CLIMATE CHANGE

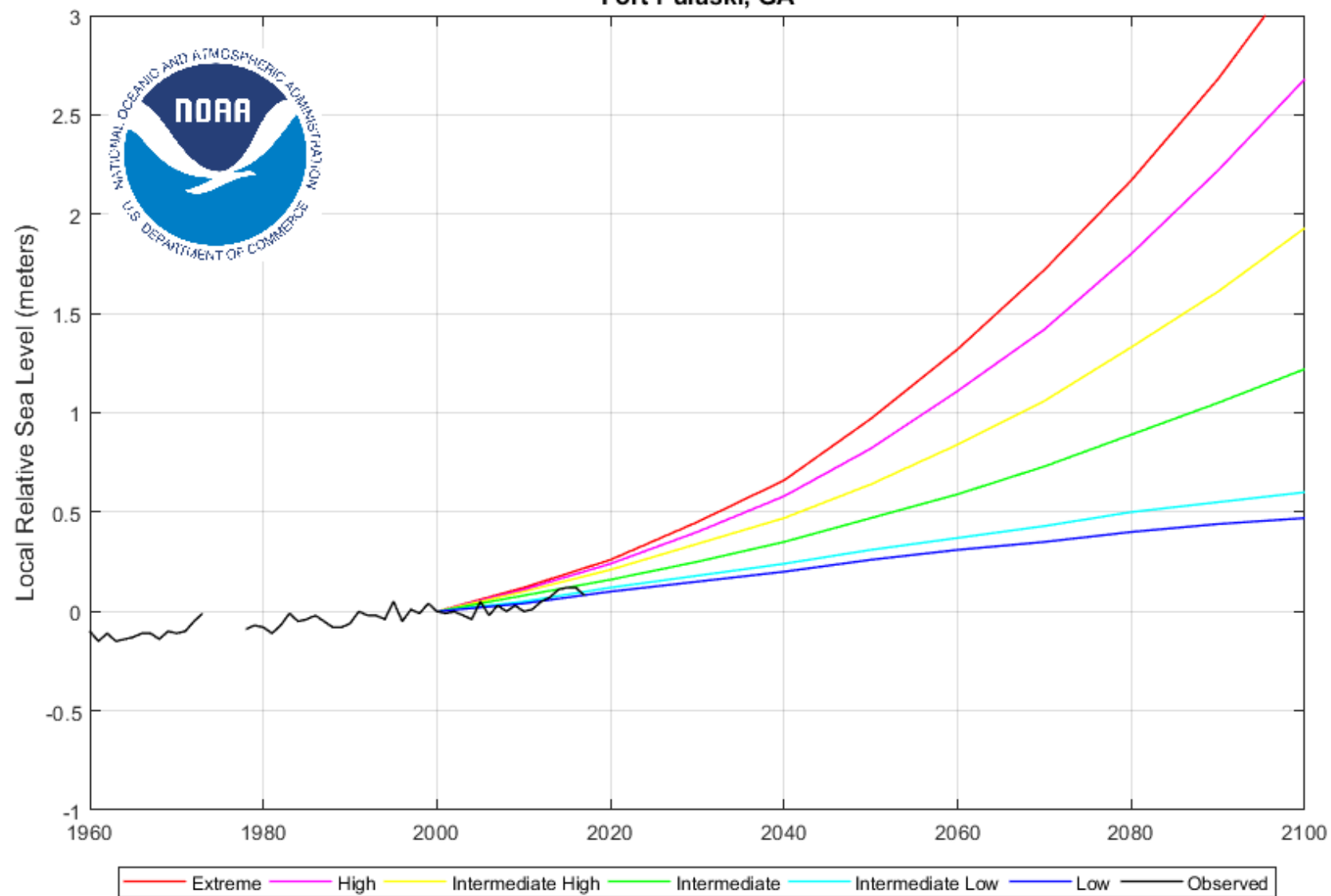
STORM SURGE AND SEA LEVEL RISE



SEA LEVEL RISE



Fort Pulaski, GA



SAVANNAH SMART SEA LEVEL SENSORS



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Sea

The Rising Tides: Savannah Smart Sea Level Sensors

July 24, 2020 | Atlanta, GA

This story first appeared on the new [Georgia Tech: Our State site](#).

"Savannah is water, and water is Savannah," says Mayor Van R. Johnson II. "And water could be the life, or it could be the end, of Savannah."

This is neither hyperbole nor pessimism. Rather, it's the reality that has shaped this coastal community — Georgia's oldest city and one that has long been a vital part of the state's economy. As flooding events continue to increase in frequency and intensity and sea level continues to rise, Savannah, like other coastal cities, stands at a crossroads: adapt now or face an uncertain and likely perilous future.

City and county officials chose the former. And they turned to Georgia Tech as a research partner.

For the past two years, Tech scientists and engineers have been working with the people of flood-vulnerable Savannah and Chatham County to improve emergency response and preparedness in a coastal region whose past, present — and future — are inextricably linked to water.

The **Smart Sea Level Sensors project** originated in 2018, funded by a [Georgia Smart Communities](#) grant. Its primary purpose was to build and install real-time, internet-equipped sensors to relay data on the status of water levels across the county. That data in turn is used by officials to make decisions about where to deploy resources. Previously, a large swath of coastal Georgia had relied on a single gauge. Now there are more than 40 sensors in Chatham County alone, providing hyperlocal, instantaneous data.

That data is also used in local classrooms. Students at Jenkins High School in Savannah study and work with the information gathered by the sensors, but they also helped assemble them. And for the Tech professors involved in the project, this is one of the most gratifying aspects of the work, as are the regular public meetings held with local residents who are invested in safeguarding their community through new technology — today, and for the benefit of future generations.

Related Media



Savannah - GA Smart Communities Challenge



Graphic title, The Rising Tides - Savannah Smart Sea Level Sensors



LEGEND

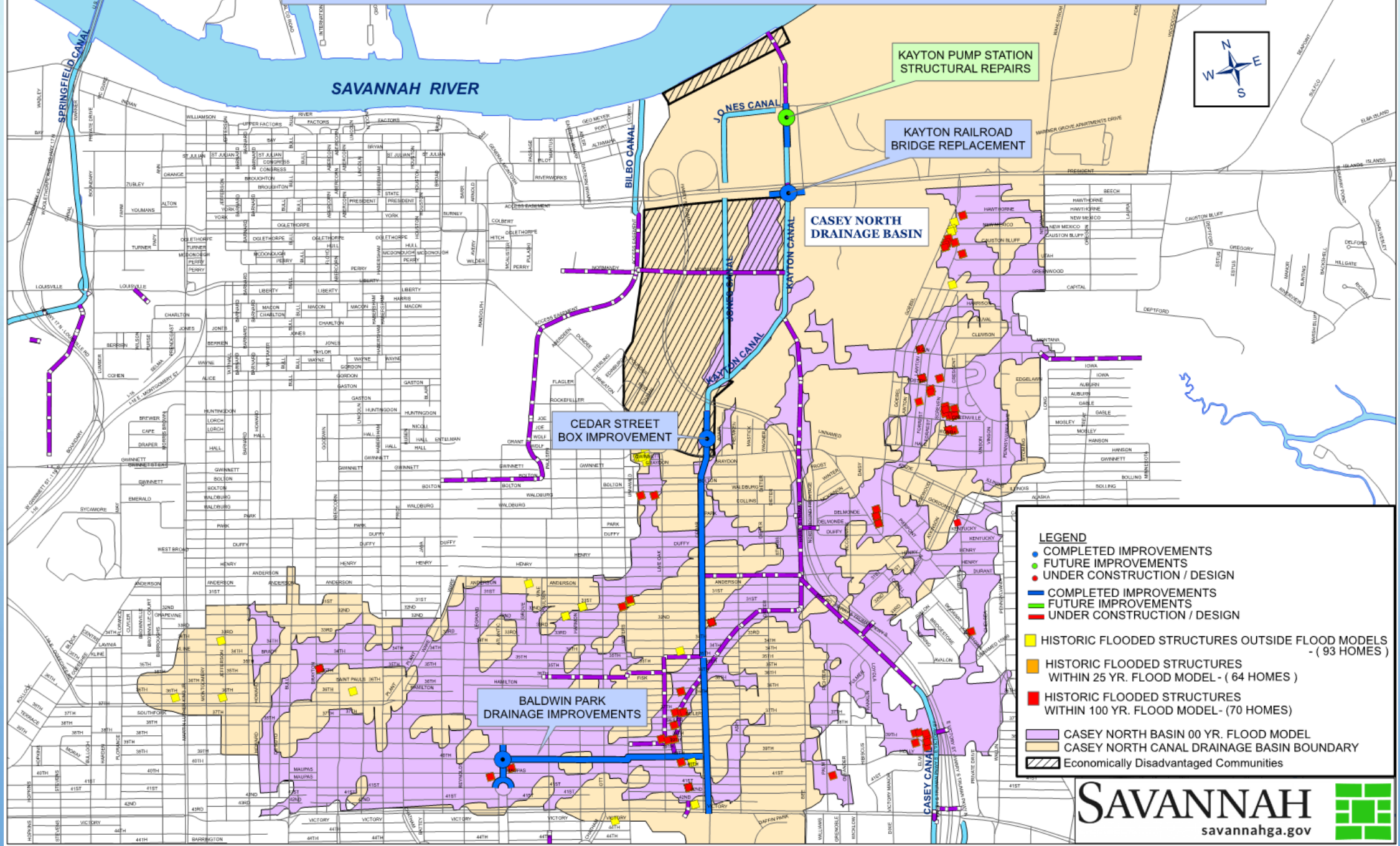
DRAINAGE BASIN LARGE CIP PROJECTS

● COMPLETED IMPROVEMENT

● FUTURE IMPROVEMENT

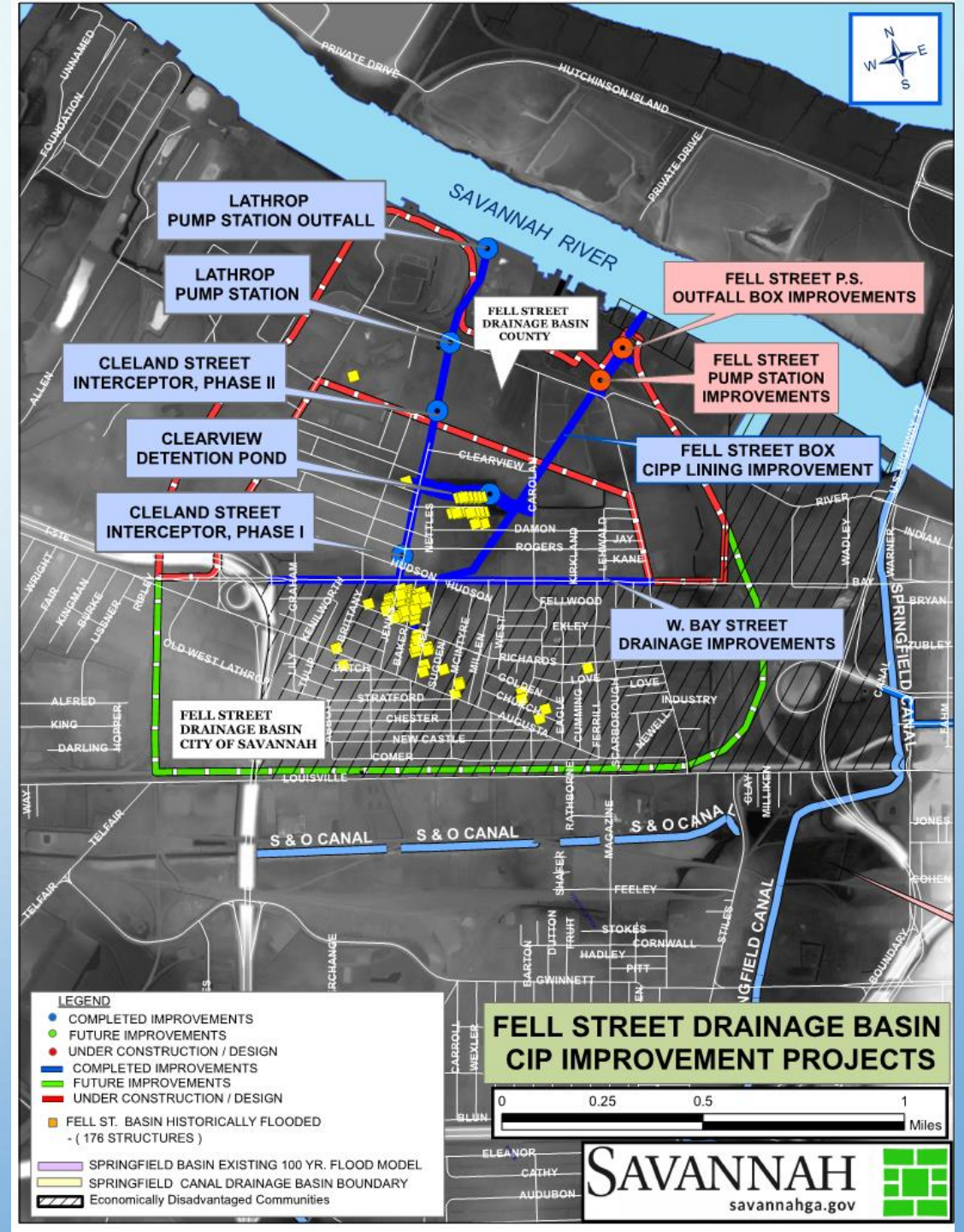
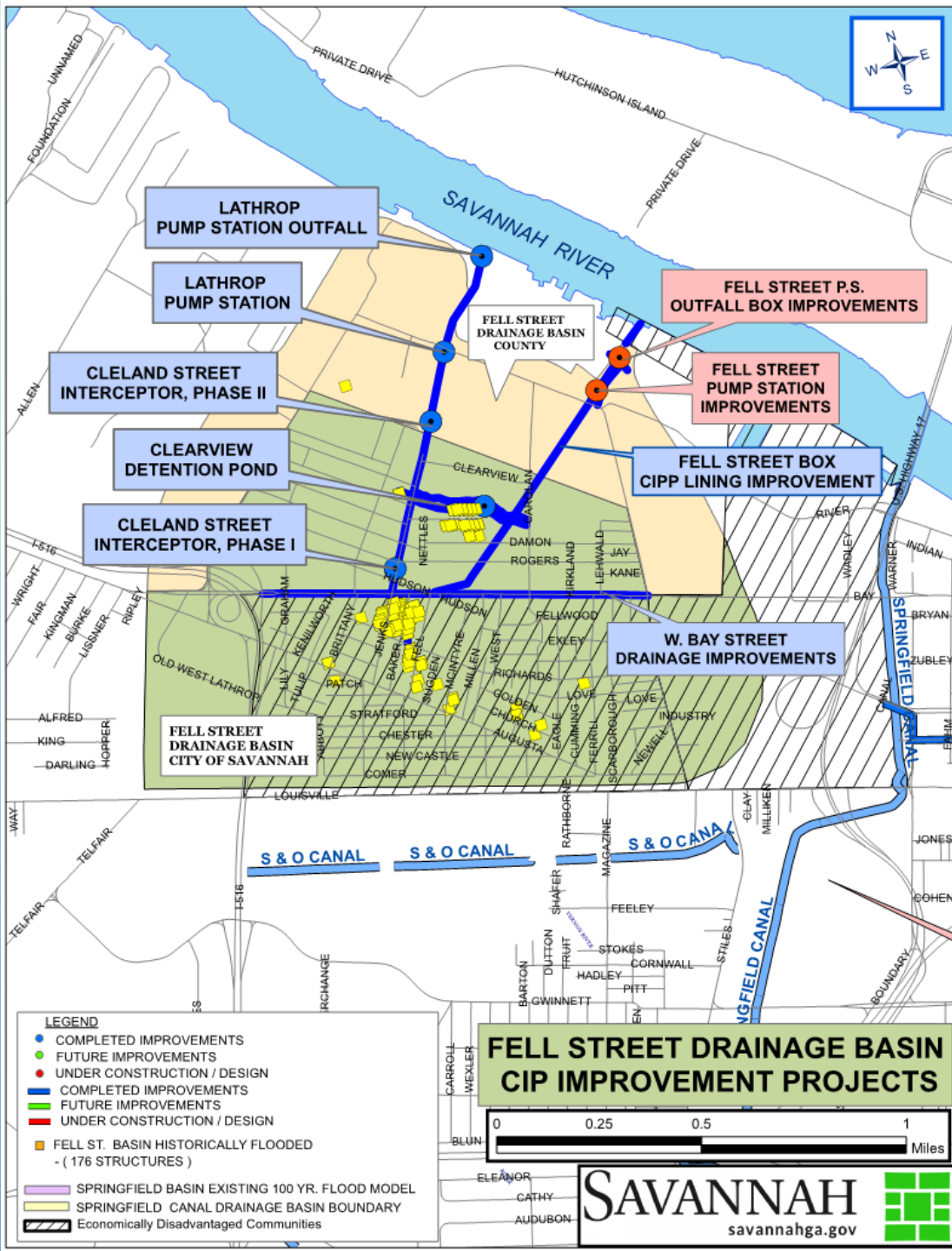
1. WINDSOR
2. WILSHIRE
3. HARMON
4. COFFEE BLUFF
5. CHIPPEWA
6. CASEY SOUTH
7. CASEY NORTH
8. PLACENTIA
9. BILBO
10. FELL ST.
11. PIPEMAKERS CANAL
12. DUNDEE CANAL
13. TALMADGE
14. HORSESHOE
15. REDGATE
16. SALT CREEK
17. SPRINGFIELD SOUTH

CASEY NORTH DRAINAGE BASIN CIP IMPROVEMENT PROJECTS

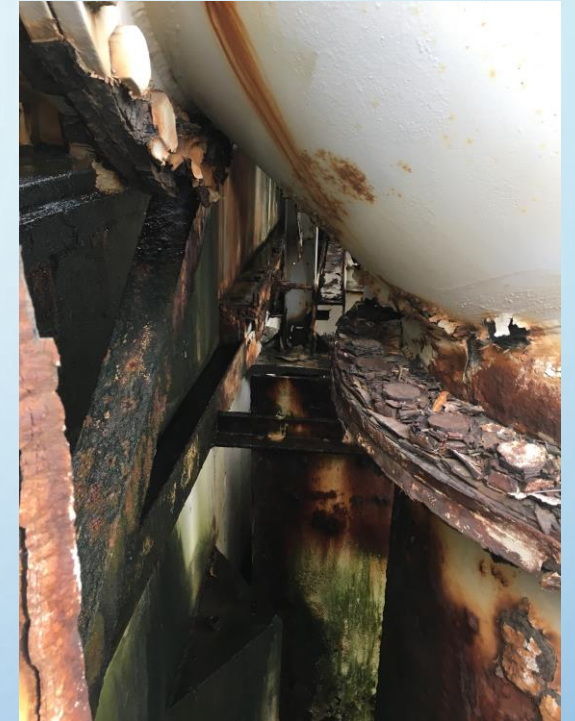
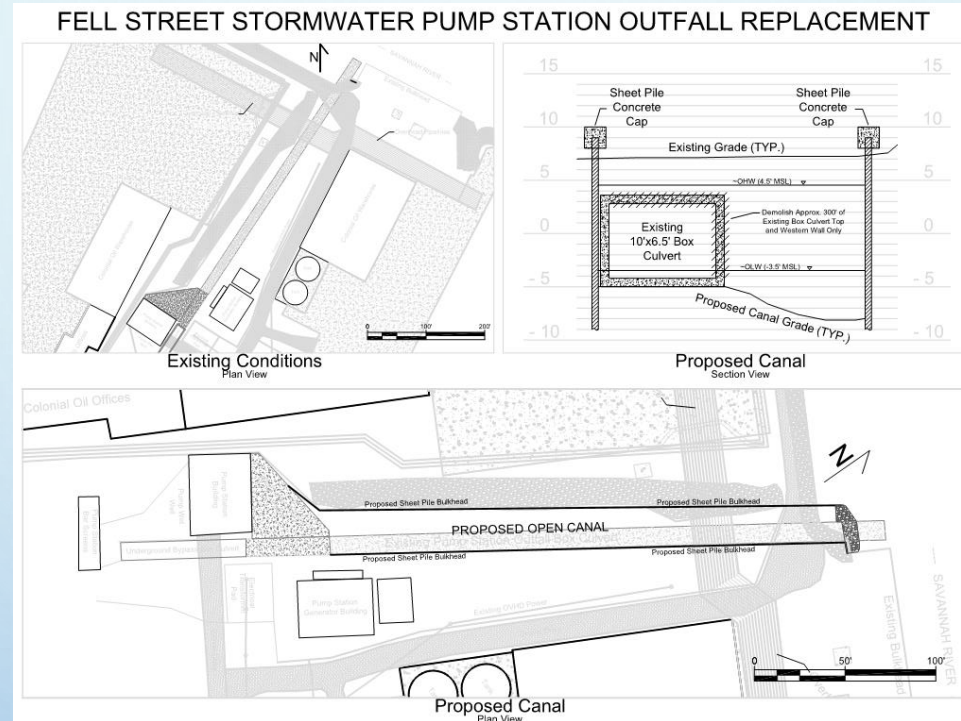


LEGEND

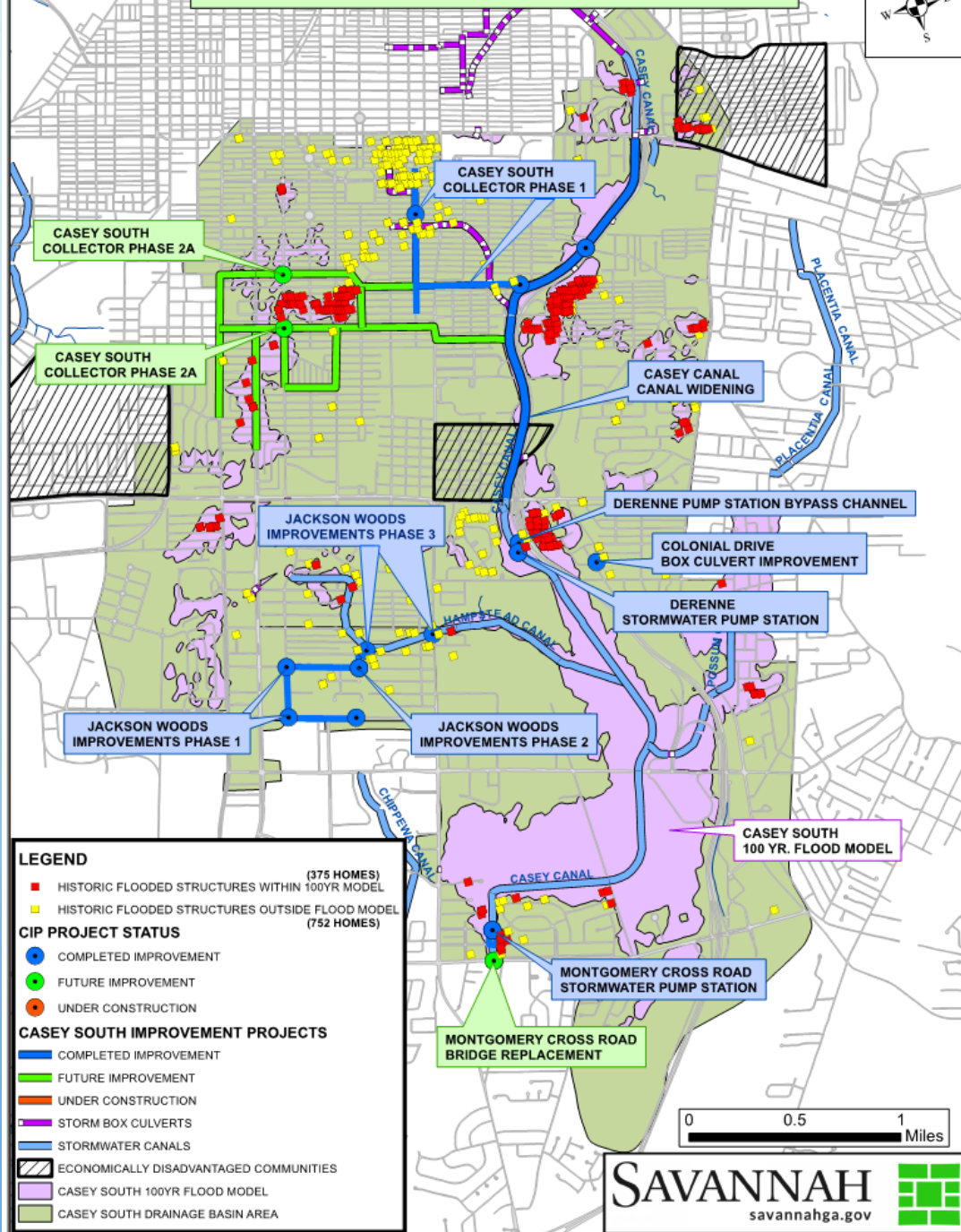
- COMPLETED IMPROVEMENTS
- FUTURE IMPROVEMENTS
- UNDER CONSTRUCTION / DESIGN
- COMPLETED IMPROVEMENTS
- FUTURE IMPROVEMENTS
- UNDER CONSTRUCTION / DESIGN
- HISTORIC FLOODED STRUCTURES OUTSIDE FLOOD MODELS - (93 HOMES)
- HISTORIC FLOODED STRUCTURES WITHIN 25 YR. FLOOD MODEL - (64 HOMES)
- HISTORIC FLOODED STRUCTURES WITHIN 100 YR. FLOOD MODEL - (70 HOMES)
- CASEY NORTH BASIN 00 YR. FLOOD MODEL
- CASEY NORTH CANAL DRAINAGE BASIN BOUNDARY
- Economically Disadvantaged Communities



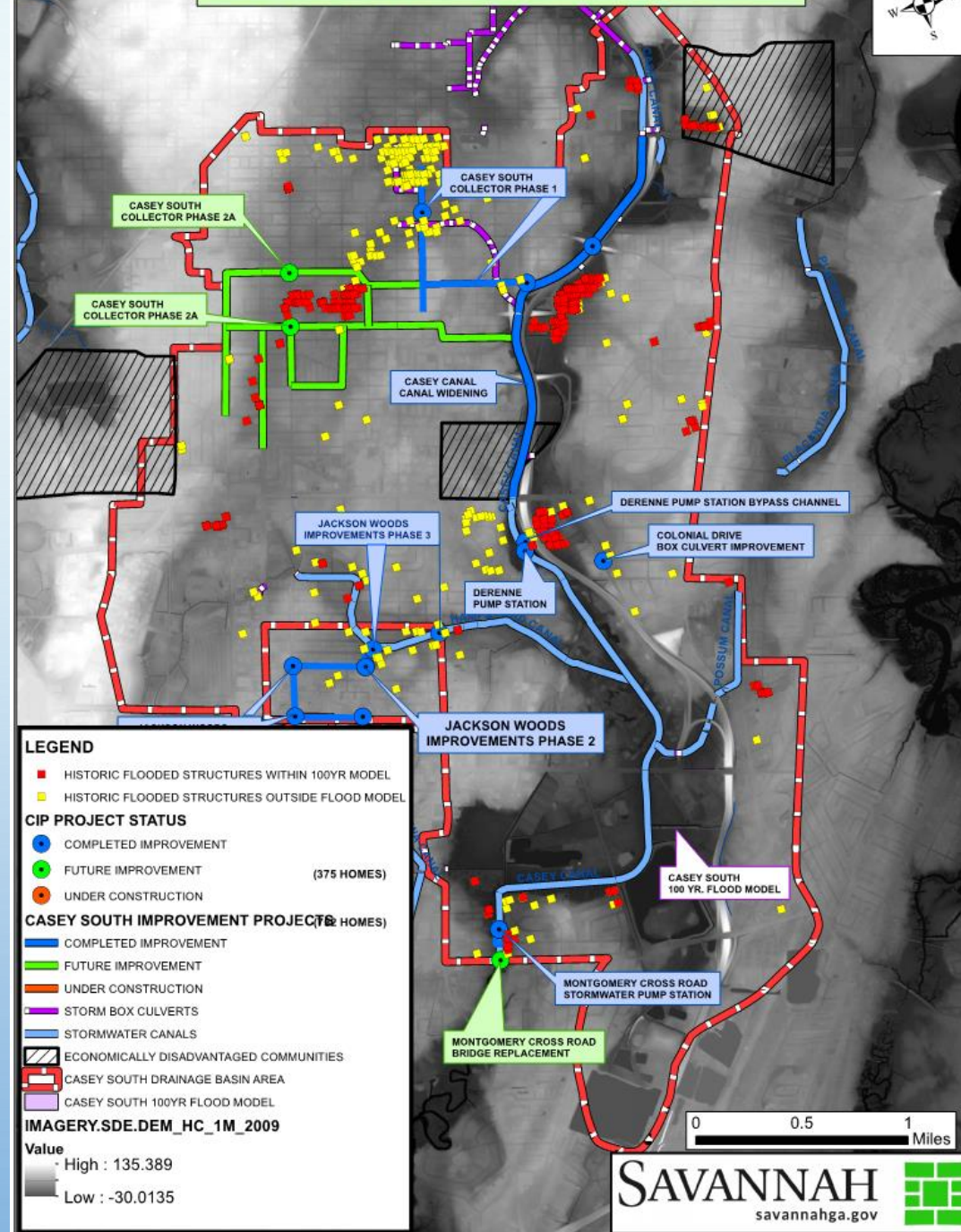
FELL STREET PUMP STATION OUTFALL, STRUCTURAL STEEL, AND PROTECTIVE COATING IMPROVEMENTS



CASEY SOUTH DRAINAGE BASIN



CASEY SOUTH DRAINAGE BASIN

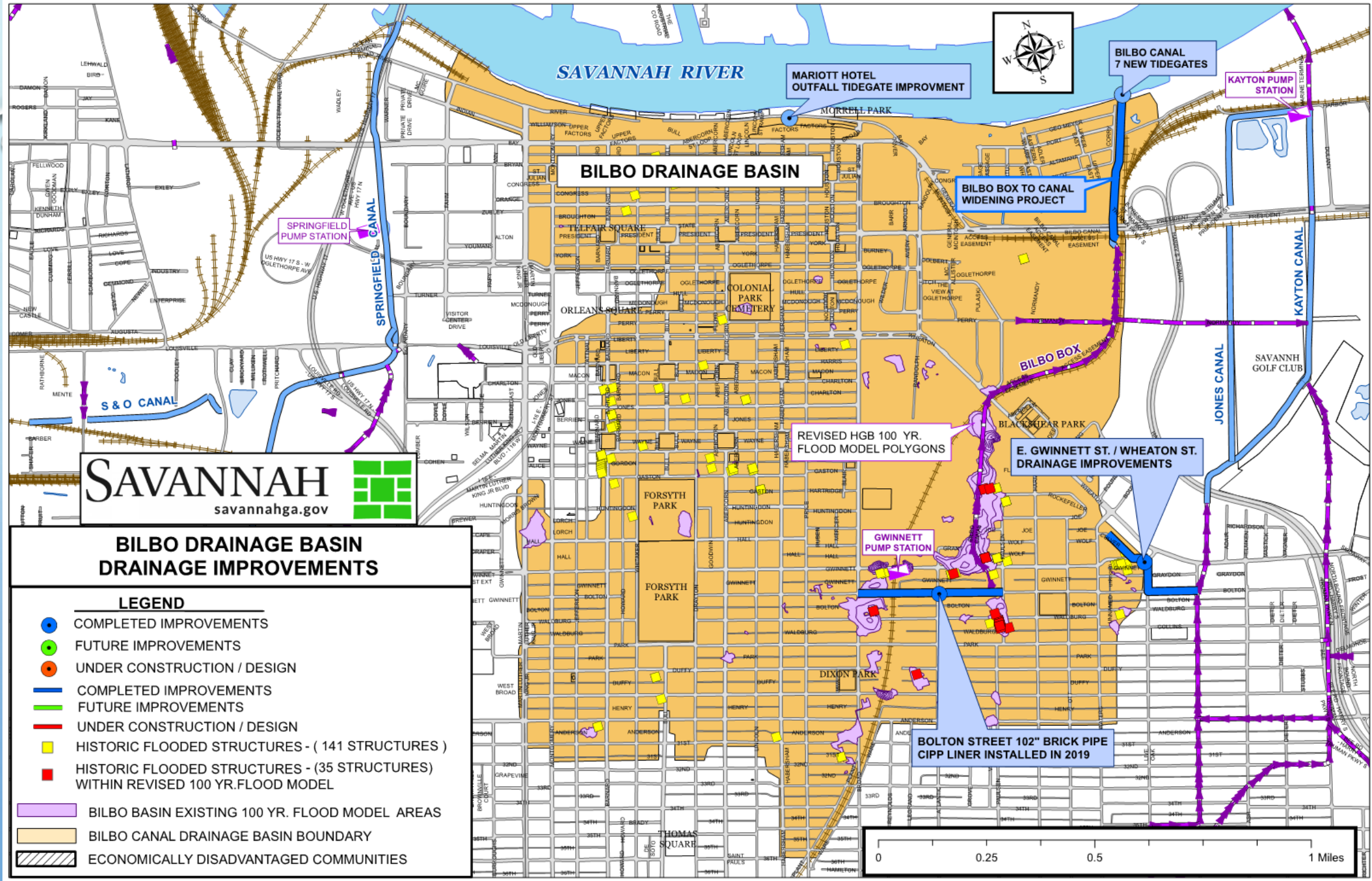


COLONIAL DRIVE BOX CULVERT AND ROAD CROSSING REPLACEMENT

LOCATION: COLONIAL DRIVE (MAGNOLIA PARK NEIGHBORHOOD)

PROJECT COST: \$1.1 MILLION

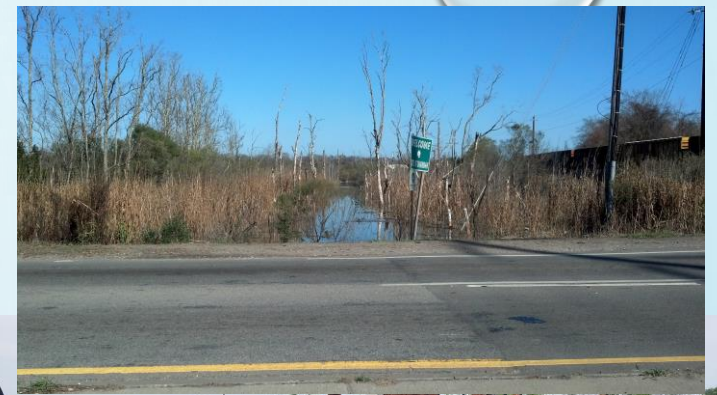




BILBO CANAL IMPROVEMENTS

LOCATION: EAST SIDE OF CITY OFF PRESIDENT STREET

PROJECT COST: \$26 MILLION



GENERAL MCINTOSH AND PRESIDENT STREET IMPROVEMENTS AND UTILITY RELOCATIONS

LOCATION: PRESIDENT STREET (EAST SIDE OF DOWNTOWN)

PROJECT COST: \$32 MILLION

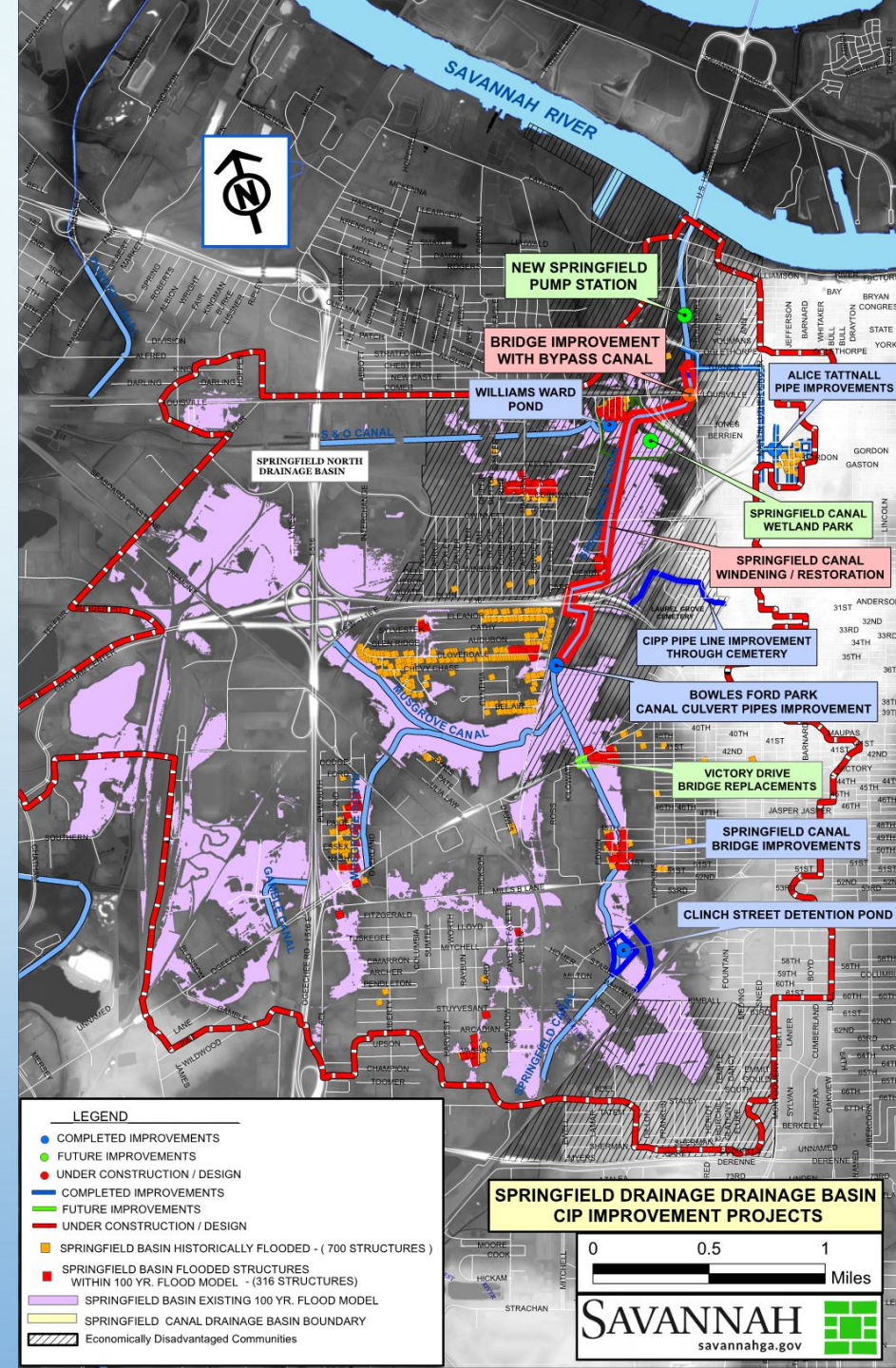
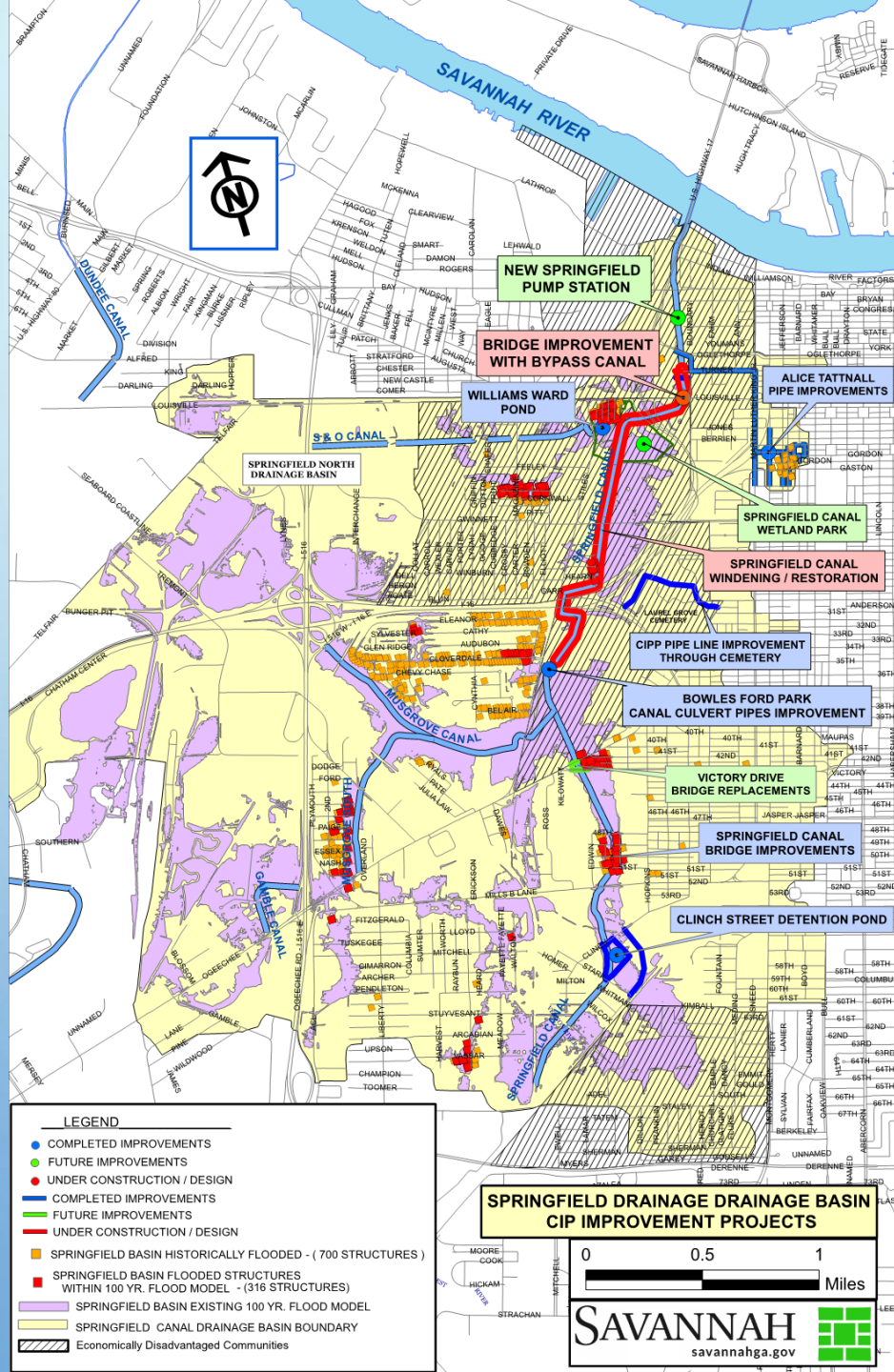


BOLTON STREET BRICK LINED PIPE CIPP

LOCATION: BOLTON STREET BETWEEN EAST BROAD AND PAULSON

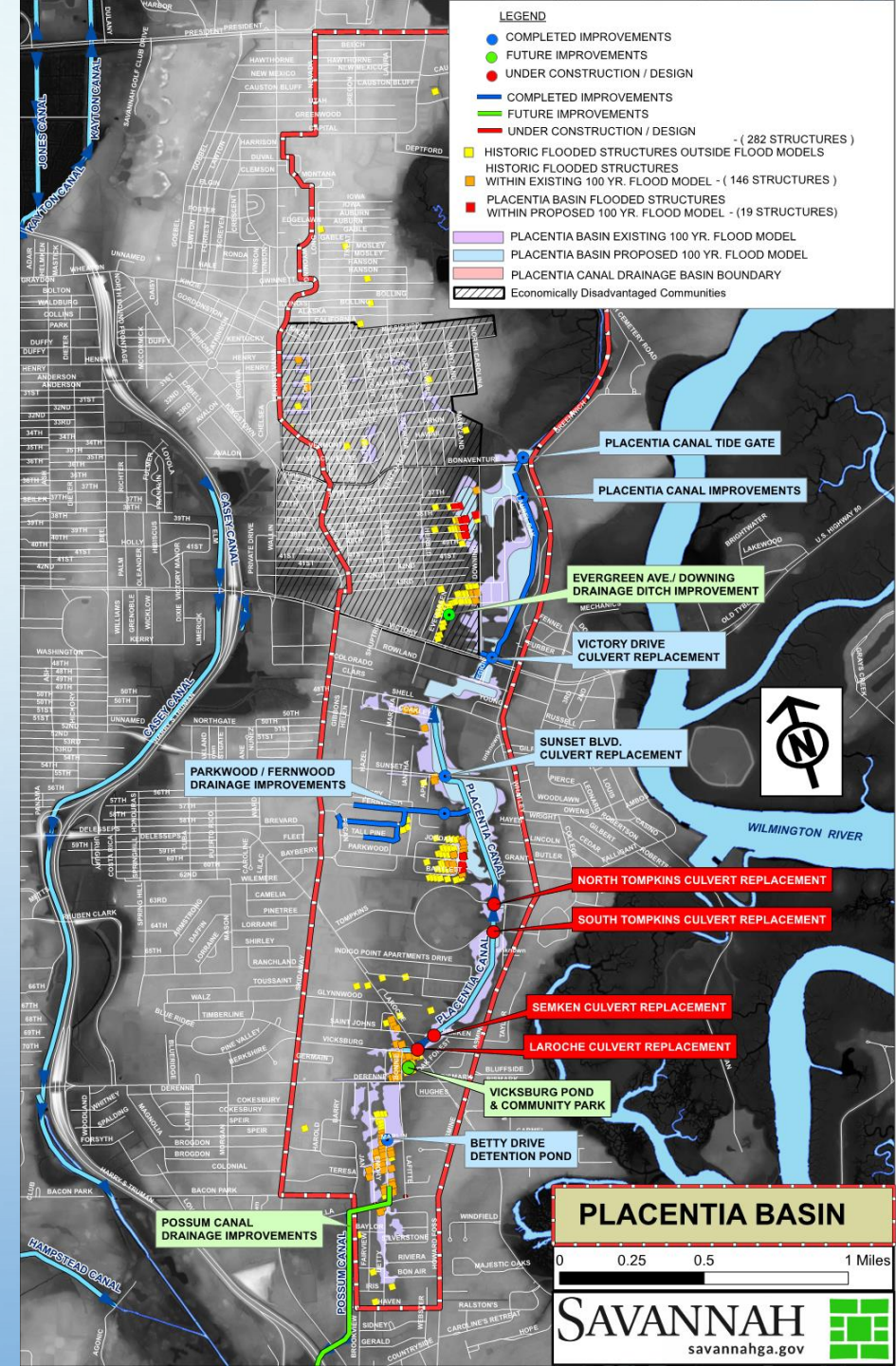
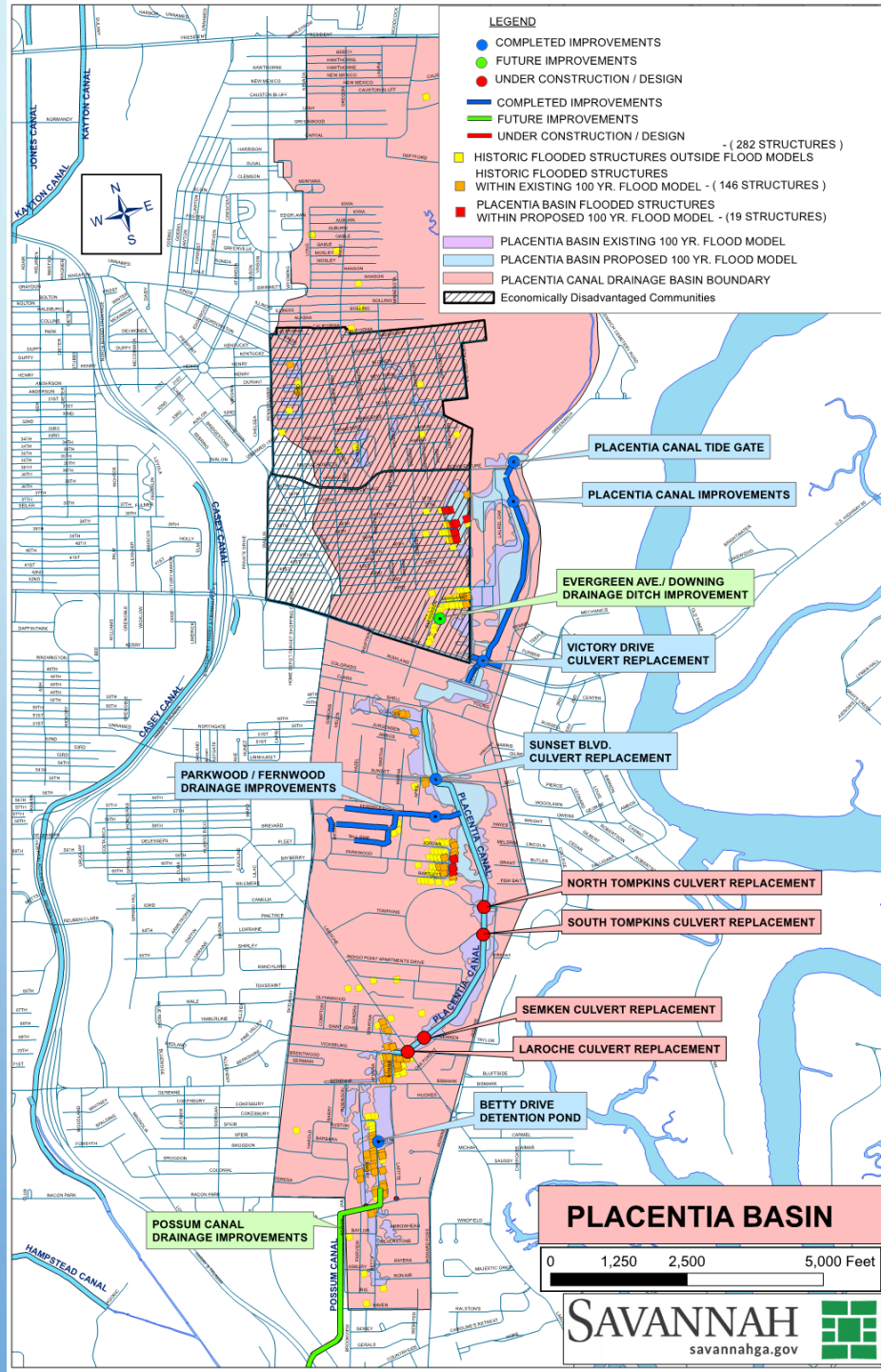
PROJECT COST: \$2.75 MILLION





SPRINGFIELD NORTH BASIN PROPOSED DRAINAGE IMPROVEMENTS





SUNSET BOULEVARD CULVERT REPLACEMENT

LOCATION: SUNSET BOULEVARD BETWEEN SKIDAWAY AND WHATLEY ROADS

PROJECT COST: \$498,000



STORMWATER DIVISION INFRASTRUCTURE ASSETS AND ASSOCIATED MAINTENANCE

- **OPERATIONS AND MAINTENANCE OF:**

- 412.97 MILES OF STORM PIPE (CLOSED SYSTEM)
- 152.48 MILES OF DITCHES/CANALS (OPEN SYSTEM)
- 7 PUMP STATIONS
- 6 STORMWATER DETENTION PONDS
- 31 TIDE GATES
- 14,000 CATCH BASINS
- 6,200 MANHOLES



CapEx, City Area, and FTE by Year

