



City of Savannah, GA

FLOODPLAIN MANAGEMENT PLAN



SAVANNAH
savannahga.gov

September 4, 2026

Executive Summary

The purpose of this Floodplain Management Plan is to reduce or eliminate risk to people and property from flood hazards. Every community faces different hazards, and every community has different resources to draw upon in combating problems along with different interests that influence the solutions to those problems. Because there are many ways to deal with flood hazards and many agencies that can help, there is no one solution for managing or mitigating their effects. Planning is one of the best ways to develop a customized program that will mitigate the impacts of flood hazards while accounting for the unique character of a community. The plan provides a framework for all interested parties to work together and reach consensus on how to move forward. A well-prepared flood mitigation plan will ensure that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and activities, preventing conflicts and reducing the costs of implementing each individual activity.

The City of Savannah followed the planning process prescribed by the Federal Emergency Management Agency (FEMA), and this plan was developed under the guidance of a Floodplain Management Planning Committee (FMPC) comprised of representatives of City departments, citizens and other stakeholders. The FMPC conducted a risk assessment that identified and profiled flood hazards that pose a risk to the city and assessed the city's vulnerability to these hazards. The flood hazards profiled in this plan include:

- Climate Change and Sea Level Rise
- Coastal & Canal Bank Erosion
- Dam Failure
- Riverine & Coastal Flooding
- Stormwater/Localized Flooding
- Hurricane and Tropical Storm

The FMPC also examined the capabilities in place to mitigate the identified flood hazards and associated vulnerabilities. This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by floods. Based on the findings of the risk assessment and the capability assessment, the FMPC identified goals and objectives to guide the City's flood mitigation and floodplain management efforts. The goals and objectives are summarized as follows:

Goal 1 – Protect the public health, safety, and welfare of Savannah residents from flood hazards.

- Objective 1.1: Protect critical and essential facilities from flood damage.
- Objective 1.2: Reduce damage to development through flood resilient strategies and measures.
- Objective 1.3: Preserve open space areas, especially sensitive natural areas.

Goal 2 – Holistically address repetitive loss areas

- Objective 2.1: Reduce number of repetitively flooded structures.
- Objective 2.2: Leverage local, state, and federal grant funding to facilitate mitigation actions on repetitive loss properties.
- Objective 2.3: Reduce damage to buildings in repetitively flooded areas.

- Objective 2.4: Develop policies that address repetitive loss areas and compliment mitigation activities.

Goal 3 – Enhance and diversify flood related public education and outreach efforts.

- Objective 3.1: Expand the City's flood hazard communication and outreach program.
- Objective 3.2: Utilize education and outreach tools to encourage residents to undertake mitigation projects on individual properties.
- Objective 3.3: Develop partnerships with local schools to provide flood education to students.
- Objective 3.4: Educate the public on stormwater management techniques, low-impact development, and the benefits of acknowledging water as a resource.

Goal 4 – Monitor projections for changing weather and climate conditions and implement plans, policies, and property protection measures to reduce potential damages.

- Objective 4.1: Prioritize critical facilities and infrastructure with projected sea level rise impacts for elevation and/or relocation.
- Objective 4.2: Implement growth management policies to guide new development away from current or future high-risk areas.
- Objective 4.3: Monitor shorelines and wetlands to identify and mitigate erosion hotspots.
- Objective 4.4: Create models to help understand stormwater and compound flooding and enable planning for needed improvements through a Watershed Master Plan.

To meet the identified goals and objectives, this plan recommends 20 mitigation actions, which are summarized in the following table. More details on each action can be found in Section 7.4.

Action ID & Description	Goal(s) Addressed	Mitigation Category	Responsible Office	Potential Funding Source	Timeline
1. Complete a comprehensive stormwater master plan (FEMA CRS Activity 450 Watershed Master Plan) to support identification and implementation of drainage improvement projects. Fourteen basins need to be modeled. Ten existing models need to be updated to account for sea level rise and improvements completed to date.	1, 4	P, SP	CIP Management	SPLOST	Ongoing Next 5 years
2. Enhance Drainage system maintenance program to unclog storm drains and clear drainage channels, and implement a public education component on proper yard waste disposal to eliminate brush disposal in canals.	1, 3	P, NRP, PIO	Water Resources Environmental Office	Water Resources Budget	Ongoing Next 5 years
3. Reserve vacant low-lying/flood-prone/wetland areas for open space through acquisition or regulation.	1, 4	P, NRP	Development Services and Real Estate Services	City Budget and FEMA Mitigation Grant Funds	Ongoing Next 5 years
4. Evaluate FEMA-purchased properties for the highest use in floodwater/stormwater storage.	1, 2	P, SP, NRP	Real Estate Services; Stormwater Management	City Budget	Ongoing Next 5 years
5. Reduce future vulnerability of Vallambrosa area through acquisition or regulation.	2, 4	P, PP	Development Services	City Budget	2-3 Years
6. Continue acquisition/demolition of high-risk flood-prone properties.	2	P, PP	Real Estate Services	FEMA Mitigation Grant Funds and SPLOST	Ongoing Next 5 years
7. Implement a floodproofing program for homes where acquisition is not an option – especially historic structures.	1	P, PP	Development Services and Real Estate Services	FEMA Mitigation Grant Funds for eligible type projects and SPLOST	Ongoing Next 5 years
8. Protect existing critical facilities through floodproofing, retrofitting, backup power systems, and structural projects, and use site planning and building regulations to minimize flood vulnerability of any new critical facilities.	1	P, PP, ES	Various City agencies	SPLOST and FEMA Mitigation Grant Funds	Ongoing Next 5 years
9. Post flood mitigation information at libraries, post offices, heavily trafficked municipal buildings and community centers.	3	PIO	Development Services	City Budget	Ongoing Next 5 years
10. Provide flood mitigation update and outreach to neighborhood groups and other interested parties via an email group address.	3	PIO	Steering Committee and Development Services	City Budget	Ongoing Next 5 years

Action ID & Description	Goal(s) Addressed	Mitigation Category	Responsible Office	Potential Funding Source	Timeline
11. Organize annual/semi-annual single-focus public workshops/meetings to discuss flood mitigation.	3	PIO	Public Information Office, Development Services, and CEMA	City Budget	Ongoing Next 5 years
12. Strategically focus SPLOST funds toward identified drainage improvement projects.	1	SP	CIP Management	City Budget	Ongoing Next 5 years
13. Document drainage improvements in SFHAs and request revisions to the applicable FIRM maps to reflect new conditions through the FEMA LOMR process.	1	P	Development Services	FEMA	Ongoing Next 5 years
14. Prioritize CIP projects to address flooding in the following areas: Victory Drive, Martin Luther King, Jr. Blvd. Corridor, Abercorn between Victory and DeRenne, West Savannah Flood Mitigation Project (Springfield Canal, Cloverdale, Carver Village), Bilbo basin, Placentia basin, Fell St pump station and outfall, Habersham/Casey Stormwater Tunnel Project (Habersham Village, Casey South basin), and White Bluff Road/Hunter Army Airfield.	1, 2	SP	Stormwater Management	SPLOST Funding	3-5 years
15. Implement Stormwater Utility Enterprise Fund to provide a dedicated funding source for stormwater operations, maintenance and CIP.	1	SP	Stormwater Management and Savannah City Council	City Budget	3 years
16. Support the Chatham County-Savannah MPC Greenway Plan and coordinate with the MPC on the Plan as needed.	1	P, NRP	Parks and Recreation Department	City and Council Combined funding of the MPO	3-5 years
17. Consider participation in FEMA's high water mark initiative or develop and post "potential high water mark" signs.	1, 3	PIO	Development Services	City Budget	3 years
18. Coordinate with the Chatham County Resource Protection Land to acquire lands vulnerable to flooding through SPLOST funds.	1, 2	P, NRP	Parks and Recreation Department in cooperation with the Chatham County-Savannah MPO and the Savannah City Council	SPLOST Funding	3-5 years

Action ID & Description	Goal(s) Addressed	Mitigation Category	Responsible Office	Potential Funding Source	Timeline
19. Educate the public and promote the use of permeable concrete paving, rain gardens, and other low impact development techniques and green infrastructure projects to reduce flash flooding impacts.	1	P, PP, NRP	Water Resources Environmental Office	Water Resources Budget	Ongoing Next 5 years
21. Springfield Basin Phase 1 improvements. Canal District DR-905	1, 2	P, PP, SP	Stormwater Services	SPLOST Funding	2-3 years

The plan has been formally adopted by the City of Savannah and will be updated every five years at a minimum. This plan fulfills the requirements of Section 104 of the Disaster Mitigation Act of 2000 and CRS Activity 510 Floodplain Management Planning. The table below provides the 10-step CRS planning credit activity checklist and the section within this plan that documents the completion of each requirement.

CRS Planning Credit Activity Checklist

CRS Step	Section/Page
1. Organize to prepare the plan.	
a. Involvement of office responsible for community planning	Section 4.1
b. Planning committee of department staff	Section 4.1
c. Process formally created by the community's governing board	----
2. Involve the public.	
a. Planning process conducted through a planning committee	Section 4.1 / Table 4.1 Section 4.2.1 / Table 4.4 Appendix A
b. Public meetings held at the beginning of the planning process	Section 4.2.1 / Table 4.5 / Appendix A
c. Public meeting held on draft plan	Section 4.2.1 / Table 4.5 / Appendix A
d. Other public information activities to encourage input	Section 4.2.1 / Table 4.6 / Appendix A
3. Coordinate with other agencies.	
a. Review of existing studies and plans	Section 4.2.1 / Table 4.7
b. Coordinating with communities and other agencies	Section 4.2.1 / Appendix A
4. Assess the hazard.	
a. Plan includes an assessment of the flood hazard with:	----
(1) A map of known flood hazards	Sections 5.4.1, 5.4.2, 5.4.4, 5.4.5
(2) A description of known flood hazard	Sections 5.4.1, 5.4.2, 5.4.4, 5.4.5
(3) A discussion of past floods	Sections 5.4.1, 5.4.2, 5.4.4, 5.4.5
b. Plan includes assessment of less frequent floods	Sections 5.4.3
c. Plan includes assessment of areas likely to flood	Section 5.5.2 – 5.5.3
d. The plan describes other natural hazards	Section 5.4.6
5. Assess the problem.	
a. Summary of each hazard identified in the hazard assessment and their community impact	Section 5.4 – 5.5
b. Description of the impact of the hazards on:	Section 5.5
(1) Life, safety, health, procedures for warning and evacuation	Section 5.5.4
(2) Public health including health hazards to floodwaters/mold	Section 5.5.4
(3) Critical facilities and infrastructure	Section 5.3.1, 5.4.4
(4) The community's economy and tax base	Section 2.5
(5) Number and type of affected buildings	Section 5.3, 5.4.4
c. Review of all damaged buildings/flood insurance claims	Section 5.4.4
d. Areas that provide natural floodplain functions	Section 2.3, 5.4.4
e. Development/redevelopment/Population Trends	Sections 2.6 – 2.7
f. Impact of future flooding conditions outline in Step 4, item c	Section 5.5.3

CRS Step	Section/Page
6. Set goals.	Section 7.2
7. Review possible activities.	
a. Preventive activities	Section 7.3 / Appendix B
b. Floodplain Management Regulatory/current & future conditions	Section 7.3 / Appendix B
c. Property protection activities	Section 7.3 / Appendix B
d. Natural resource protection activities	Section 7.3 / Appendix B
e. Emergency services activities	Section 7.3 / Appendix B
f. Structural projects	Section 7.3 / Appendix B
g. Public information activities	Section 7.3 / Appendix B
8. Draft an action plan.	
a. Actions must be prioritized	----
(1) Recommendations for activities from two of the six categories	----
(2) Recommendations for activities from three of the six categories	----
(3) Recommendations for activities from four of the six categories	----
(4) Recommendations for activities from five of the six categories	Sections 7.3 – 7.4 / Appendix B
b. Post-disaster mitigation policies and procedures	Section 6.1.1
c. Action items for mitigation of other hazards	----
9. Adopt the plan.	Section 8
10. Implement, evaluate and revise.	
a. Procedures to monitor and recommend revisions	Sections 9.1 – 9.2
b. Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation	Section 9.1.1

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1 Introduction

Section 1 provides a general introduction to hazard mitigation and an overview of the purpose, background, and scope of the City of Savannah Floodplain Management Plan. It contains the following subsections:

- 1.1 Purpose and Authority
- 1.2 Background and Scope
- 1.3 Plan Organization

1.1 Purpose and Authority

As defined by FEMA, “hazard mitigation” means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event. Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented. The purpose of this plan is to identify, assess and mitigate flood risk in order to better protect the people and property of the City of Savannah from the effects of flood hazards. This plan documents the City of Savannah’s flood hazard mitigation planning process and identifies relevant flood hazards and vulnerabilities and strategies the City will use to decrease vulnerability and increase resiliency and sustainability.

This plan was developed in a joint and cooperative venture by members of a Floodplain Management Planning Committee (FMPC) which included representatives of City departments, federal and state agencies, citizens and other stakeholders. This plan will ensure Savannah’s continued eligibility for federal disaster assistance including the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), and the Flood Mitigation Assistance Program (FMA). Completion of this plan also earns credit for the National Flood Insurance Program (NFIP) Community Rating System (CRS), which allows for discounted flood insurance premiums for residents and property owners in Savannah. This plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S. C. 5165, enacted under Section 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and 201.7 dated October 2007.

Information in this plan will be used to guide and coordinate mitigation activities and future local policy decisions. Proactive mitigation planning will help reduce the cost of disaster response and recovery to the City and its residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by floods. This plan fulfills the requirements of Section 104 of the Disaster Mitigation Act of 2000 (DMA), qualifies for CRS credit, and most importantly provides Savannah with effective actions for reducing flood hazard impacts on people and properties.

1.2 Background and Scope

The City of Savannah is a participant in both the NFIP and CRS program; Savannah is currently rated as a Class 5 community in the CRS program. Under the CRS, flood insurance premium rates are adjusted to

reflect the reduced flood risk resulting from community activities that (1) reduce flood losses, (2) facilitate accurate insurance ratings, and (3) promote the awareness of flood insurance. As part of the CRS program requirements for a Class 5 rating, Savannah must demonstrate action taken to eliminate or minimize future flood losses by adopting and implementing a floodplain management plan (FMP) under Activity 510 of the CRS program. The City must accurately identify flood hazards, analyze their impacts on people and property, and identify ways to reduce those impacts through hazard mitigation.

It is the goal of the FMPC to continue to work to make improvements to this plan to better serve the people of the City of Savannah, and to strive to improve the City's CRS class rating, so that the highest reduction in flood insurance premium rates can be available for its citizens. Through the City's participation in the NFIP and Class 5 rating with the CRS, policyholders in the city are entitled to a 25% discount on their flood insurance premiums.

1.3 Plan Organization

The City of Savannah Floodplain Management Plan is organized as follows:

- Section 1: Introduction
- Section 2: Community Profile
- Section 3: Plan Update
- Section 4: Planning Process
- Section 5: Flood Risk Assessment
- Section 6: Capability Assessment
- Section 7: Mitigation Strategy
- Section 8: Plan Adoption
- Section 9: Plan Implementation and Maintenance
- Appendix A: Planning Process Documentation
- Appendix B: Mitigation Alternatives
- Appendix C: References

2. Community Profile

Section 2 provides a summary of current conditions in the City of Savannah, including information on factors that influence flood risk and vulnerability. It contains the following subsections:

- 2.1 Overview of the Community
- 2.2 Topography and Climate
- 2.3 Cultural, Historical, and Natural Resources
- 2.4 History
- 2.5 Economy
- 2.6 Population
- 2.7 Growth and Development Trends

2.1 Overview of the Community

The city of Savannah has a total land area of nearly 104 square miles located in southeastern Georgia, nestled near the Savannah River and the Atlantic Ocean. In 2024, the city had an estimated total population of 148,809. As Georgia's first city, with a rich history dating back to 1733, Savannah receives millions of visitors each year with tourism being an active and rapidly growing segment of the economy. The city's attractiveness as a visitor destination is enhanced by its internationally renowned historic districts, abundant accommodations, and easy accessibility. It is served by several primary highways including Interstates 95 and 16, as well as the Savannah / Hilton Head International Airport. The city of Savannah is in Chatham County. Figure 2.1 reflects the location of the city of Savannah and Chatham County within the state. Figure 2.2 reflects the city of Savannah in comparison to the surrounding jurisdictions within Chatham County. Figure 2.3 provides a base map for the city.

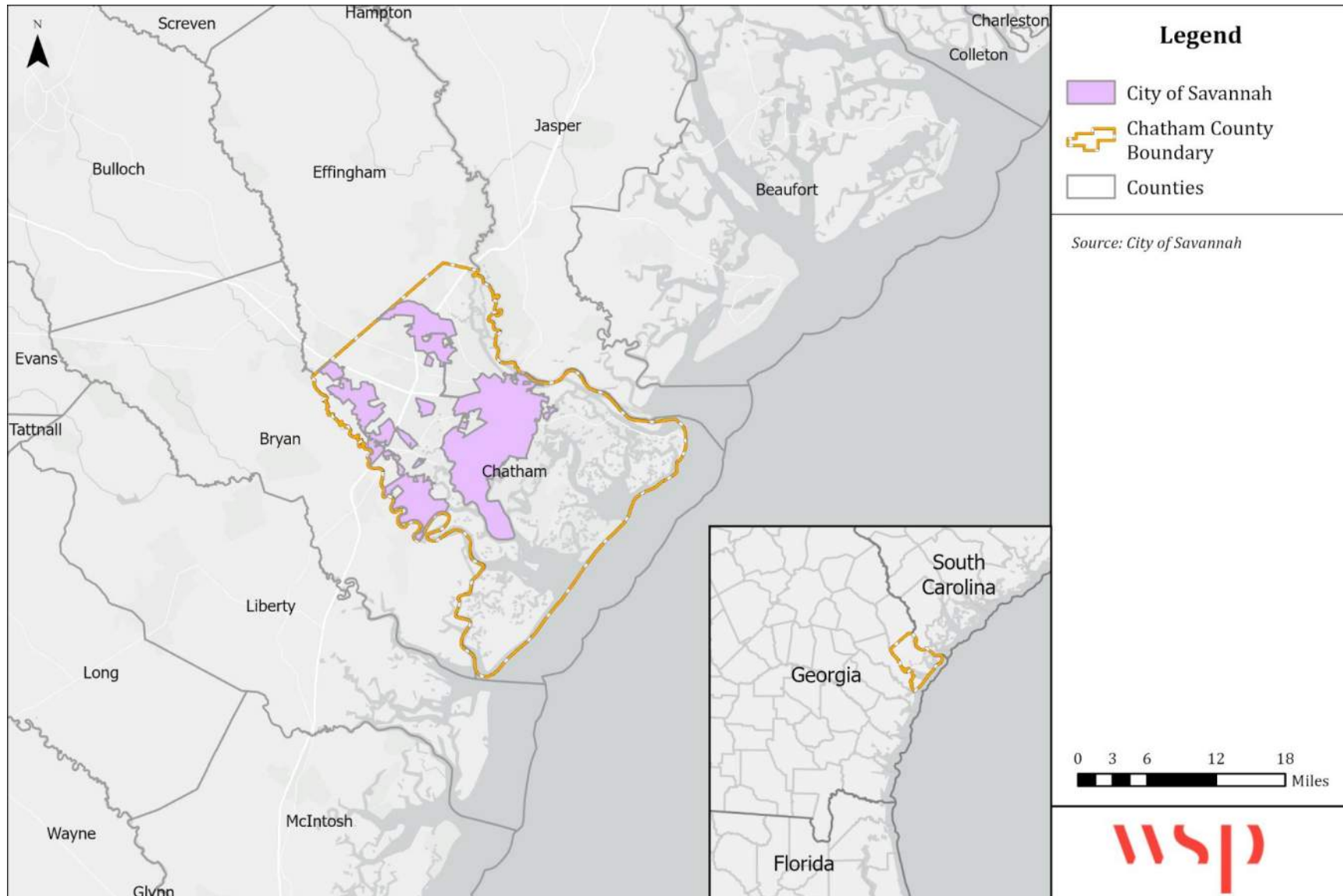
**Figure 2.1 – City of Savannah Location Map**

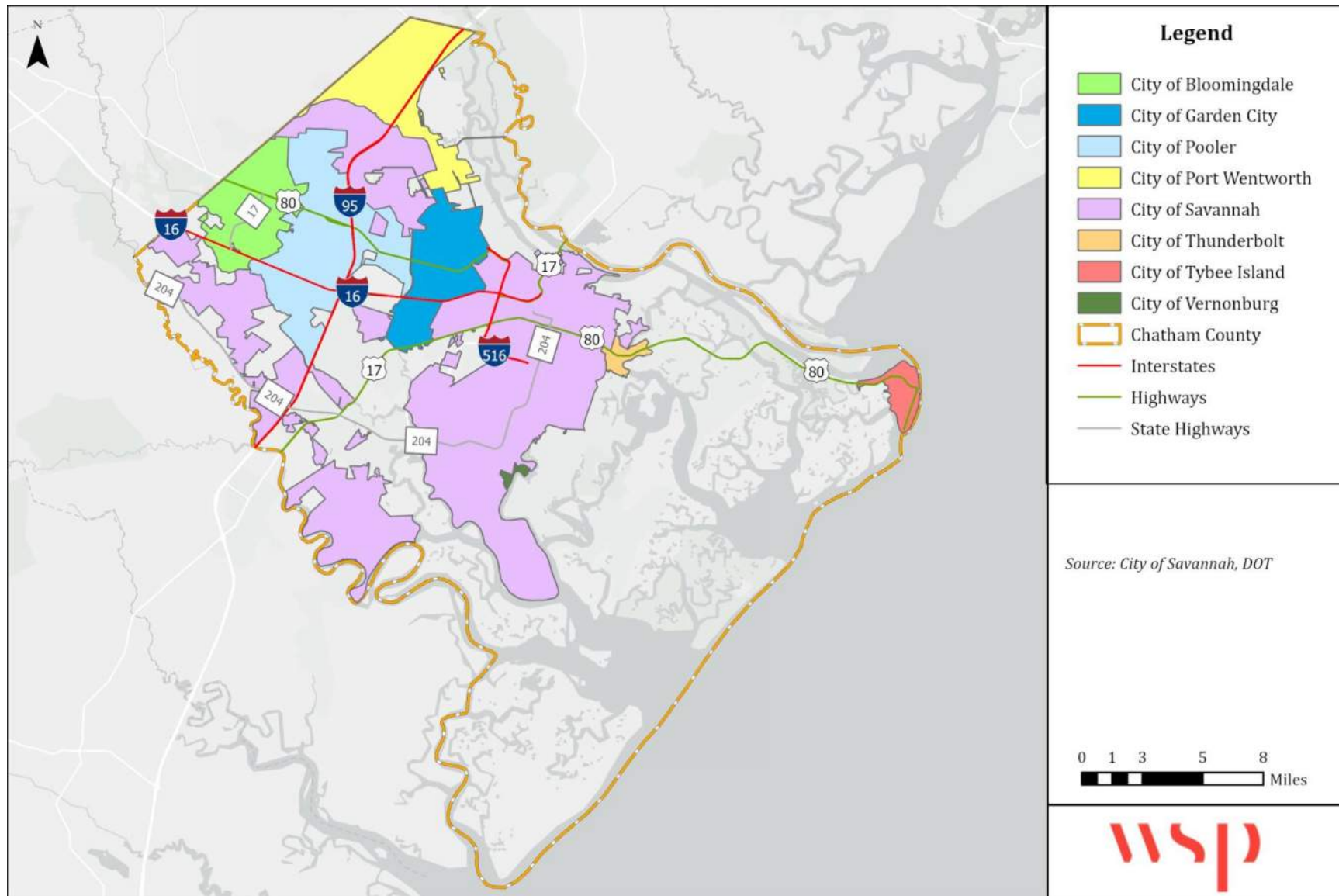
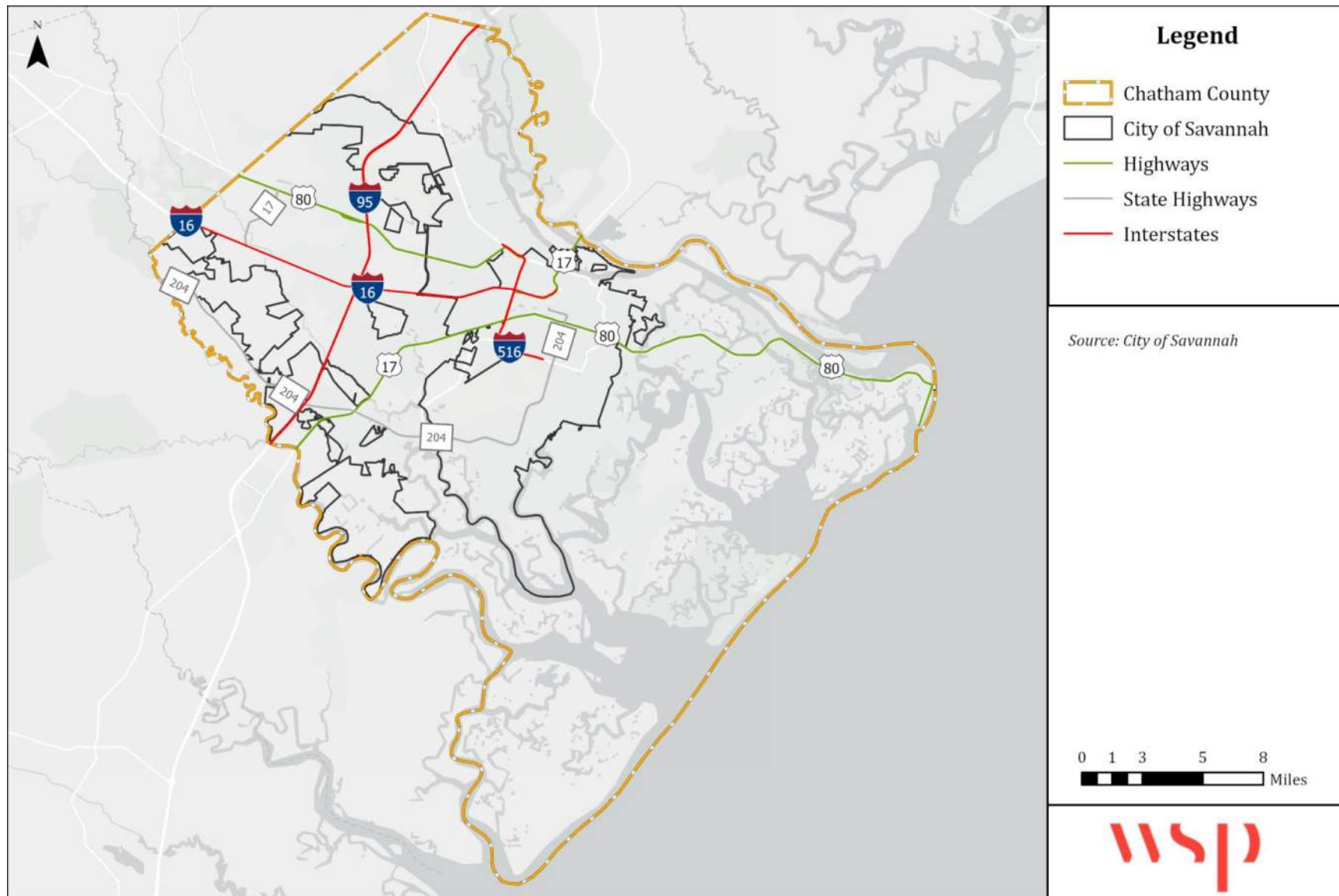
Figure 2.2 – Chatham County Jurisdictions

Figure 2.3 – City of Savannah Base Map



2.2 Topography and Climate

The City of Savannah is situated on a low coastal plain with much of its surrounding area consisting of tidal marshes. Elevations range from sea level along the coast to approximately 40 feet above sea level in downtown Savannah. The Savannah River (north of City) and the Ogeechee River (south of City) have drainage areas extending far beyond the limits of Savannah and Chatham County. Other streams and creeks have chiefly tidal estuaries within the area and include the Little Ogeechee River, Vernon River, Bear River, Wilmington River, Bull River, and numerous tributaries to these. Main openings to the Atlantic Ocean are Ossabaw Sound and Wassaw Sound. Figure 2.4 illustrates the HUC-12 drainage basins within the City of Savannah.

According to the Köppen Climate Classification, Savannah is categorized as a subtype Cfa (Humid Subtropical Climate); this subtype is characterized by relatively high temperatures and evenly distribute precipitation throughout the year. The average maximum temperature in January is 59.9°F and in July is 90.8°F. Average annual precipitation is approximately 48.9 inches, with most precipitation occurring in June through August. Annual temperature and precipitation for the City of Savannah are shown in Figure 2.5 and Figure 2.6 according to data from the National Oceanic and Atmospheric Administration (NOAA). Per this data, average temperature in the City has been trending upward by approximately 0.5°F per decade; average precipitation has been trending downward by approximately 0.61 inches per decade.

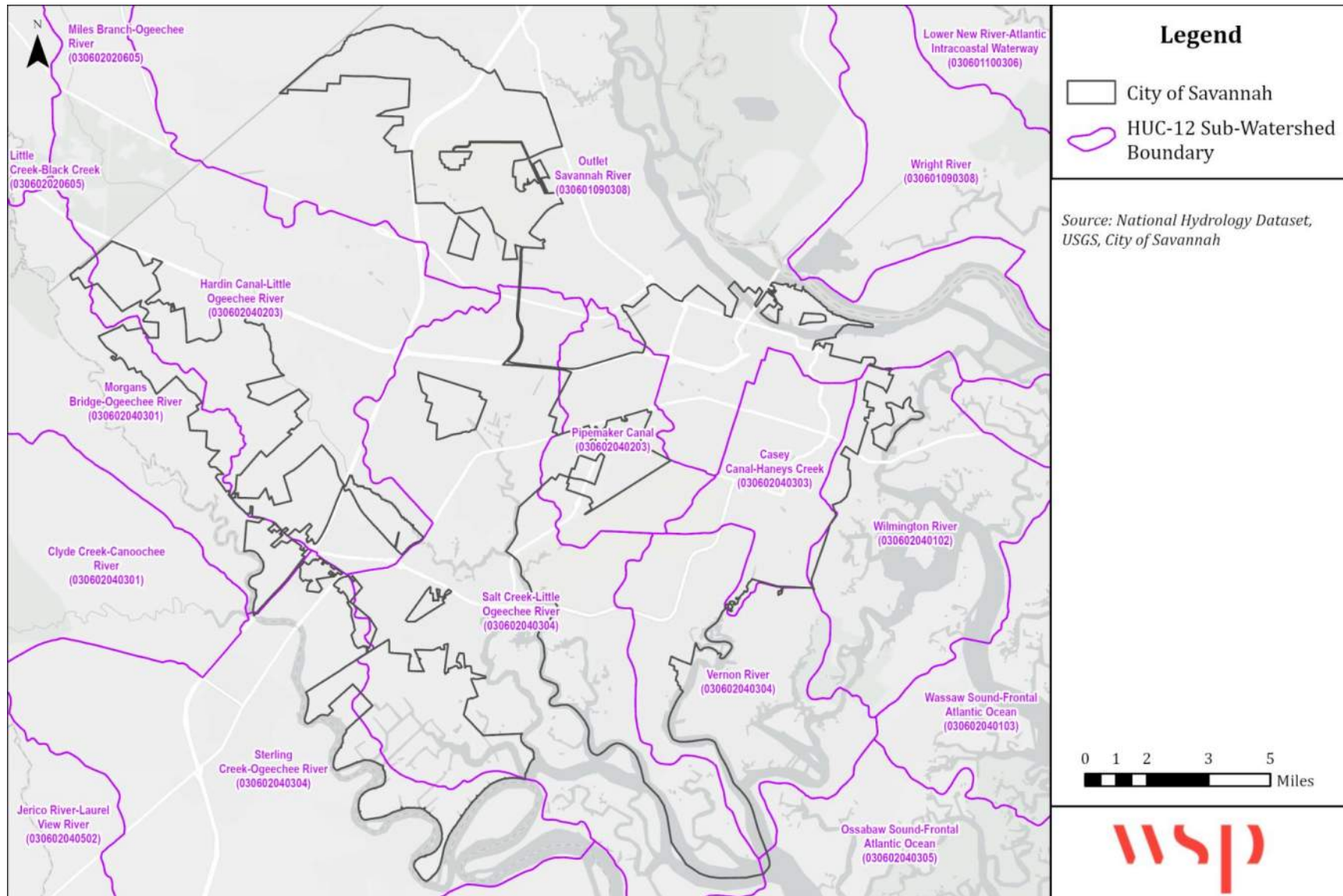
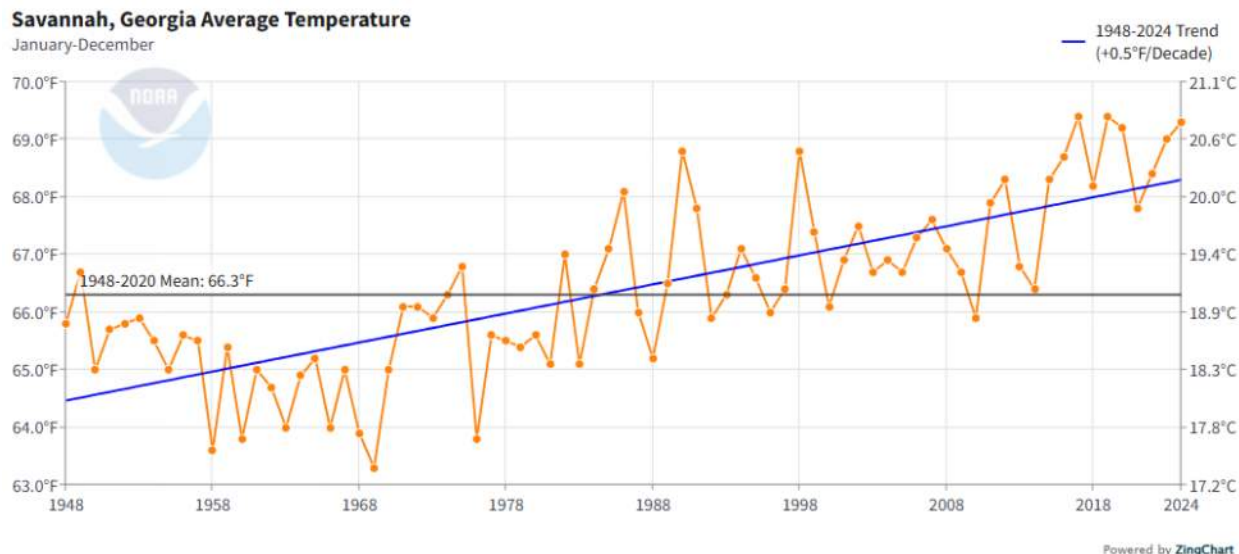
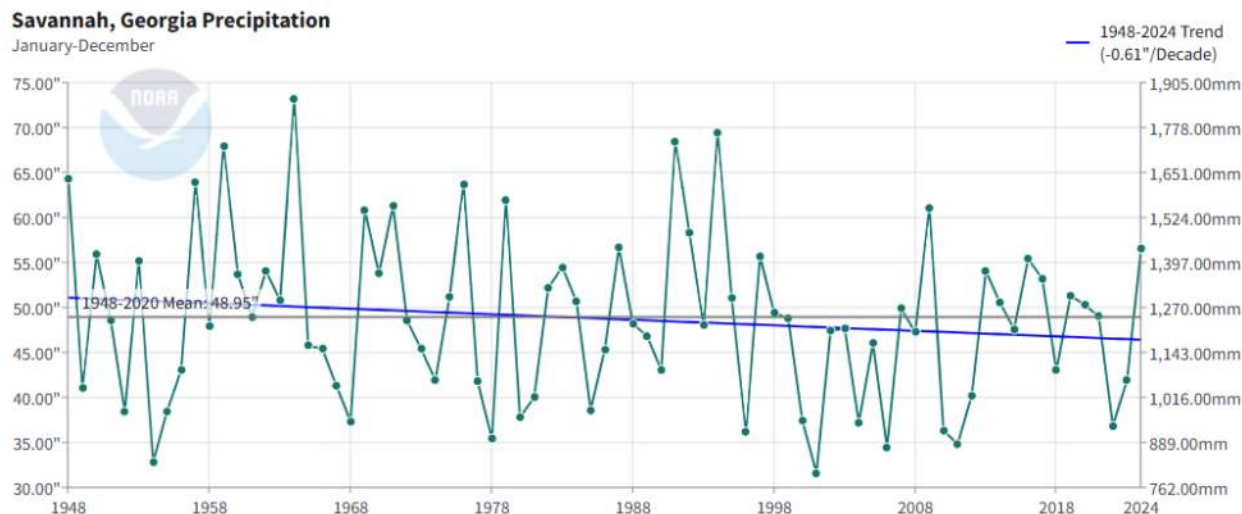
Figure 2.4 – Savannah HUC-12 Drainage Basins

Figure 2.5 – Average Annual Temperature, City of Savannah**Figure 2.6 – Average Annual Precipitation, City of Savannah**

2.3 Cultural, Historical, and Natural Resources

Historical and Archeological Resources

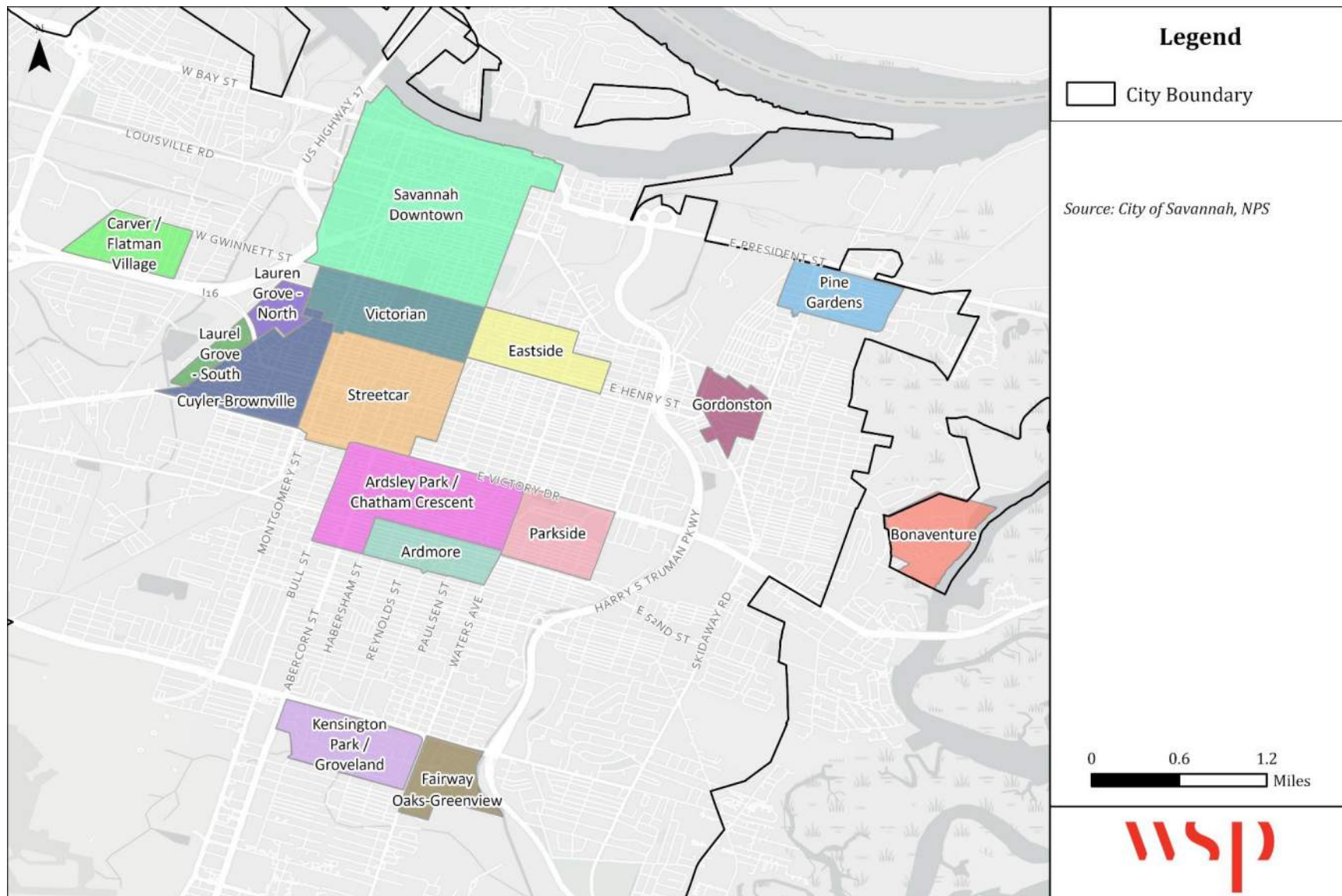
There are 13 identified historic neighborhoods within the City of Savannah, listed below in alphabetical order; they are all listed on the National Register of Historic Places. There are additional districts within the city eligible for listing on the Historic Register – these districts can be found in the Chatham County-Savannah Comprehensive Plan.

- **Ardmore Conservation District:** This district was established in 2018 to preserve the character of Savannah's older and historic neighborhoods. It was designed in the 1920s-1930s as a "highly restricted residential subdivision" with amenities such as city sewers and parks.

- **Ardasley Park-Chatham Crescent Historic District:** This district is bounded by Victory Drive on the north to 55th Street on the south, and by Waters Avenue on the east to Bull Street on the west.
- **Carver Village Historic District:** Named for George Washington Carver, the Village was established in 1948 and provided affordable housing for black community members. It includes approximately 600 homes, churches, and other buildings. The district is roughly bounded by W. Gwinnett & Endley Streets, Allen Blun & Collat Avenues.
- **Cuyler-Brownsville Historic District:** This district is the result of two land developments which have grown into one community rich in history and character. It is roughly bounded by Anderson Lane, West 31st Street, Montgomery Street, Victory Drive, Ogeechee Road, and Hopkins Street.
- **Daffin Park-Parkside Place Historic District:** Featuring a large city park, a neighborhood of arts and crafts style houses, and Georgia's most intact minor league baseball stadium, this district is bounded by Victory Drive, Waters Avenue, Bee Street and 51st Street Lane.
- **Eastside Historic District:** This district features two-story homes with broad porches as well as smaller cottages and workmen rows, mature live oaks, and flowering azaleas. It is bounded by Gwinnett Street, Anderson Street, East Broad Street, and Cedar Street.
- **Fairway Oaks-Greenvview District:** This district consists of two contiguous suburban and residential subdivisions developed between 1950 and the early 1960s on the outskirts of the City. It is bounded approximately by DeRenne Drive, Waters Avenue, Truman Parkway, the Casey Canal, and the Live Oaks Golf Course.
- **Gordonston Historic District:** This district consists of various sizes and types of residential structures, ranging from brick mansions to small craftsmen style cottages. It is roughly bounded by Skidaway Road, Goebel Avenue, Gwinnett Street, and Pennsylvania Avenue.
- **Kensington Park – Groveland Historic District:** This district features one of the best collection of mid-20th century domestic architecture representing a variety of architectural styles and house types built in middle- to upper-class neighborhoods in Savannah. The district is roughly bounded by DeRenne and Waters Avenues and Abercorn and Johnston Streets.
- **Pine Gardens Historic District:** Bounded by Goebel Avenue and Beach & Capitol Streets, this residential district, listed on the National Register of Historic Places but not the Historic Savannah Foundation, was developed to serve the Southeastern Shipbuilding Corporation and features the American Small House.
- **Savannah Downtown Historic District:**
 - **Central of Georgia Railroad: Savannah Shops and Terminal Facilities:** This is an antebellum industrial district, established in the 1850s, and is the nation's oldest surviving and best remaining example of an integrated, comprehensive railroad facility of its period. This district is located at the Georgia State Railroad Museum between W. Jones Street and Louisville Road.
 - **Savannah National Historic Landmark District:** This district contains park-like squares surrounded by residential, commercial and institutional properties, many of them dating from the City's early years (c1733). It is bounded by East Broad Street on the east, Gwinnett Street on the south, West Broad Street on the west, and the Savannah River on the north.
- **Savannah Victorian District:** This district consists of wood frame houses dating from the 1870s and 1880s that are a mixture of several Victorian styles of architecture. The boundaries of the Savannah Victorian Historic District are Gwinnett Street on the north, Anderson Lane on the south, Martin Luther King, Jr. Boulevard on the west, and East Broad Street.
- **Thomas Square Streetcar Historic District:** This district contains primarily historic residential, commercial and community buildings and is one of the largest historic districts in Savannah. It is bounded by Anderson Lane on the north, Broad Street on the east, Victory Drive on the south and Montgomery Street on the west.

There are also three historically designated cemeteries within the Savannah city limits, Bonaventure, Laurel Grove North, and Laurel Grove South.

Figure 2.7 illustrates the locations of Savannah's historic districts and cemeteries.


Figure 2.7 – Historic Districts and Cemeteries, Savannah, GA


Natural Features and Resources

According to the U.S. Fish & Wildlife Service (USFWS) Information Planning and Conservation (IPaC) System and the FEMA Flood Risk and Endangered Species Habitat (FRESH) Map, there are 18 threatened, endangered, or candidate species that are known or suspected to occur within the City of Savannah based on the species' current range and/or critical habitat defined by USFWS and the National Marine Fisheries Service (NMFS) as shown below in Table 2-1.

Table 2-1 – Savannah Area Threatened and Endangered Species

Common Name	Species Name	Status
Birds		
Eastern Black Rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	Threatened
Piping Plover	<i>Charadrius melodus</i>	Threatened
Rufa Red Knot	<i>Calidris canutus rufa</i>	Threatened
Red-cockaded Woodpecker	<i>Dryobates borealis</i>	Threatened
Wood Stork	<i>Mycteria americana</i>	Threatened
Fishes		
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	Endangered
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Endangered
Trispot Darter	<i>Etheostoma trisella</i>	Threatened
Insects		
Monarch Butterfly	<i>Danaus plexippus</i>	Proposed Threatened
Mammals		
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered
West Indian Manatee	<i>Trichechus manatus</i>	Threatened
Reptiles		
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	Threatened
Green Sea Turtle	<i>Chelonia mydas</i>	Threatened
Southern Hognose Snake	<i>Heterodon simus</i>	Proposed Threatened
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Endangered
Flowering Plants		
Pondberry	<i>Lindera melissifolia</i>	Endangered
American Chaffseed	<i>Schwalbea americana</i>	Endangered
Canby's Dropwort	<i>Oxypolis canbyi</i>	Endangered

Source: USFWS IPaC and FEMA FRESH Map

Parks, Preserve, and Conservation

The natural and scenic amenities of Chatham County offer many recreational and cultural opportunities. Due to the amount of open space in Chatham County being reduced annually, surveys were performed and a resulting countywide Open Space Plan was completed by the MPC in 1996. This plan was drafted to provide direction in providing and conserving adequate amounts of natural open space for Chatham County to enjoy in the years to follow.

As defined in the open space plan, "open space is an area that is valued for active and passive recreation and protection of the natural resources (including natural processes and wildlife) and which provides

public benefit and which is part of one or more of the following categories: developmentally difficult lands, natural resource areas, commercially used natural resources areas, natural amenity areas, recreational areas and urban form areas.” Under this definition, there are five areas under Federal jurisdiction and six areas under State jurisdiction within Chatham County that fall within this title of conservation/recreation areas. Additionally, there are a number of recreational and conservation areas within Chatham County that are not under State or Federal jurisdiction. Some of the conservation and recreational areas within Chatham County include the following sites:

- Fort Pulaski National Monument
- Savannah National Wildlife Refuge
- Tybee National Wildlife Refuge
- Atlantic Intracoastal Waterway
- Wassaw Island National Wildlife Refuge
- Little Tybee/Cabbage Island
- Skidaway Island State Park
- Ossabaw Island
- University of Georgia Marine Extension Center
- Wormsloe Historic Site
- Oatland Island Education Center
- McQueen’s Island Trail
- Bacon Park
- Lake Mayer
- L. Scott Stell Community Park / The Jim Golden Complex
- King’s Ferry Park
- Tom Triplett Park
- Savannah Ogeechee Canal Trail
- Whitemarsh Preserve
- Lower Ogeechee Conservation Corridor
- Pennyworth Island

Savannah also participates in the Chatham County Community Greenspace Program, which permanently protects valuable natural, recreational, and historic resources throughout the county. In addition to the open space and conservation areas in Chatham County, the City of Savannah maintains over 378 acres of parks and playgrounds, nine walking trails and three biking trails which are listed on the City website as well as in the Chatham County Hazard Mitigation Plan.

Water Bodies and Floodplains

Natural and Beneficial Floodplain Functions: Under natural conditions, a flood causes little or no damage in floodplains. Nature ensures that floodplain flora and fauna can survive the more frequent inundations.

This is the case with Savannah’s local marshes. They are flooded daily during high tide and yet life exists without damaging the environment. Historic floodplain areas are canals, and green spaces such as the Henderson and Bacon Park Golf Course and Lake Mayer. Such areas reduce flood damage by allowing flood waters to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream. Natural and historic floodplains reduce wind and wave impacts and their vegetation stabilizes soils during flooding.

Chatham County and the City of Savannah have barrier islands such as Little Tybee, Ossabaw, Cabbage and Wassaw Islands. These islands serve as a natural protective barrier to incoming hurricane forces such as wave attack, and serve to reduce tidal and wind energies. These islands serve as natural aquatic habitats, wetlands, marshes and estuaries.

Wetlands

The coast of Georgia comprises a vast array of wetlands ranging from freshwater non-tidal and tidal wetlands to estuarine wetlands, or saltmarshes. With approximately 100 linear miles of coastline, Georgia boasts approximately 348,000 acres of estuarine tidal marsh. These marshes are ecologically significant as habitat for aquatic organisms, including fish, shellfish, waterfowl, and other wildlife species. In addition to serving as habitat for specific organisms, saltmarshes also function as feeding grounds for terrestrial vertebrates, as a buffer to protect against coastal storm surge, and as a natural filtration system to improve water quality, transform nutrients and retain sediment.

A unique wetland feature of the Southeastern Coastal Plain is the Carolina Bay. Carolina Bays are oval or teardrop shaped wetlands. Carolina Bays range from 6 to 30 feet deep and from several acres to 6,000 acres in size. Due to varying water levels, the vegetation differs dramatically from one Bay to another. Some are characterized by cypress forests, others marsh and some shrub bogs. Carolina Bays are underlain by a clay layer that keeps the water from draining through the otherwise porous soil of the Coastal Plain.

The benefits of wetlands are hard to overestimate. They provide critical habitat for many plant and animal species that could not survive in other habitats. They are also critical for water management as they absorb and store vast quantities of storm water, helping reduce floods and recharge aquifers. Not only do wetlands store water like sponges, they also filter and clean water as well, absorbing toxins and other pollutants. Based on data from the National Wetland Inventory (NWI), there are estuarine and marine wetlands as well as freshwater wetlands and related waterbodies throughout the City of Savannah. Wetland acreage by NWI category is summarized in Table 2-2 below. According to this data, over 36 percent of the City's land area is wetland area.

Table 2-2 – Wetland Types, Savannah

Wetland Type	Acres	Percent of Total Wetland Acreage	Percent of Total City Acreage
Estuarine and Marine Deepwater	3,231	12%	4%
Estuarine and Marine Wetland	11,591	44%	16%
Freshwater Emergent Wetland	1,134	4%	2%
Freshwater Forested/Shrub Wetland	9,243	35%	12%
Freshwater Pond	724	3%	1%
Lake	346	1%	<1%
Riverine	309	1%	<1%
Total	26,577	100%	36%

Source: National Wetland Inventory

Waterbodies

About 5.2 percent of the City's area is open water. These areas are primarily associated with the waterways surrounding the city, including the Ogeechee River, Little Ogeechee River, Vernon River, Wilmington River, and the South Channel of the Savannah River, as well as ponds and lakes.

Soils and Minerals

Chatham County is within the Atlantic Coast Flatwoods area of Georgia, which occurs along the seaward portion of Georgia and covers approximately seven million acres. It is characterized by nearly level topography and poorly drained soils that are underlain by marine sands, loams or clays.

2.4 History

English settlers led by James Edward Oglethorpe, a politician, soldier and philanthropist, established the 13th colony of Georgia in 1733. Oglethorpe selected a bluff on the south side of a mighty river as the site of the colony's first city, and he christened the fledgling town Savannah after the Indian name for the waterway. By 1766, Savannah was home to almost 18,000 people and a healthy economy based on the exportation of rice. The city became a major exporter of cotton in the early 1800s. The Civil War left Savannah bankrupt, but a resurgence in cotton production soon had Savannah back on its feet and prospering.

The decline of cotton production and the Great Depression threatened to curtail Savannah's progress in the 1920s and 1930s, but the town got a boost when the Union Bag and Paper Company opened a large plant just west of the city. The plant — now a part of the International Paper Company empire and still one of the city's largest employers — helped Savannah through those tough times, as did the presence of the military during World War II. Two large Army Air Corps bases were in operation in Savannah, and one has been retained in the present-day form of Hunter Army Airfield.

2.5 Economy

Tourism

Savannah's tourism and hospitality is regularly one of the largest economic drivers for the region. The City's beauty and charm along with its well-preserved past and many opportunities for outdoor recreation provide a unique and exciting destination for visitors from around the Country and the world. In 2024, over 12.9 million visitors came to the city, including 7.2 million overnight visitors and 5.7 million day trip visitors. While tourists visit throughout the year, the busiest months are April, May, and June. In 2024, visitor spending reached \$4.1 billion, stimulating the ongoing development of new hotels, restaurants, and shops. Tourism support over 28,000 hospitality jobs in Savannah.

Port

The Port of Savannah is the fourth largest container port in the U.S and the fastest growing port on the U.S. East Coast. In FY2025, it handled more than 5.7 million TEUs (Twenty Foot Equivalent Units). Berth and container yard renovations are under way at Savannah's 200-acre Ocean Terminal to serve two large container ships simultaneously and offer 2 million TEU annual capacity.

Manufacturing

The manufacturing firms in the Savannah Metropolitan Statistical Area (MSA), which is centered on Savannah and includes all of Chatham, Effingham, and Bryan Counties, created approximately 18.5% of the area's economic input and accounted for \$6 billion of output in 2023. As of mid-2024, the number of manufacturing establishments in the Savannah CSA was 510 firms employing 29,632 workers with average weekly wage of \$1,724. The sector produces a variety of consumer goods that range from corporate jets to baked goods to dental equipment. Among the high-profile manufacturers are International Paper and Georgia Pacific, two giants of the pulp and paper industry; Gulfstream Aerospace, a producer of world-class business aircraft; and JCB, which produces heavy construction equipment.

Military

The City is the site of Hunter Army Airfield, a vital part of the Fort Stewart complex – the largest military installation east of the Mississippi River. Boasting the U.S. Army's longest runway in the eastern United States, Hunter serves as a location from which troops and equipment based at Hunter and Fort Stewart can be deployed rapidly throughout the world. Fort Stewart, with headquarters located 40 miles southwest of Savannah in the Liberty County town of Hinesville, is home of the 3rd Infantry Division (Mechanized). Stewart and Hunter have a combined economic impact of \$4.9 billion in coastal Georgia; military and civilian pay contribute more than \$1.4 billion to the economy. Savannah is also home to the 165th Airlift Wing of the Georgia Air National Guard, as well as units of the Coast Guard and other components of the Air Guard.

Wages and Employment

According to the 2019-2023 American Community Survey 5-Year Estimates, the median household income for the city of Savannah is \$56,782. Nearly 20 percent of the population is considered to be living below the poverty level. Table 2-3 and Table 2-4 show employment statistics along with industry employment by major classification for the city.

Table 2-3 – Employment Statistics, Savannah, 2023

Employment Status	Estimate	Percentage
Employed	70,310	58.6
Unemployed	5,033	4.2
Not in Labor Force	42,783	35.7

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates; note: employed population estimate based on population 16 years and older, only includes civilian labor force.

Table 2-4 – Occupation Statistics, Savannah, 2023

Occupation	Estimate	Percentage
Management, business, science and arts	24,332	34.6
Service	16,459	23.4
Sales and office	14,975	21.3
Natural resources, construction and maintenance	3,856	5.5
Production, transportation and material moving	10,688	15.2

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

Table 2-5 lists major employers in the city. According to the US Census Bureau's OnTheMap tool (2018), 68.5 percent of employees in Savannah live outside of the city and 31.5 percent live within the city borders. Additionally, 51.8 percent of Savannah residents are employed outside of the city.

Table 2-5 – Major Employers in Savannah, GA

Corporation/Organization	Service/Product	# of Employees
Gulfstream Aerospace Corp.	Jet aircraft, aerospace equipment	13,115
Ft. Stewart/Hunter Army Airfield	Civilian personnel	6,579
Savannah-Chatham County Board of Education	Public schools	5,650
St. Joseph's Candler Health System	Hospital	4,963
Memorial University Medical Center	Hospital	4,300
Walmart	Retail	2,900-5,000
Georgia Southern University	Education	2,707
Chatham County	Government	2,345

Corporation/Organization	Service/Product	# of Employees
Savannah College of Art & Design	Education	2,280
City of Savannah	Government	2,254
Colonial Group	Energy, Chemicals, Logistics	2,249

Source: Savannah Area Chamber

2.6 Population

The City of Savannah has an estimated 147,546 residents, according to the U.S. Census Bureau 2023 5-Year Estimates. Population density is 1,432 people per square mile. Table 2-6 provides demographic profile data from the 2019-2023 American Community Survey 5-year Estimates.

Table 2-6 – Savannah Demographic and Social Characteristics, 2023

Demographic	Percentage
Gender/Age	
Male	47.0
Female	53.0
Median Age (Years)	33.7
Under 5 Years	6.1
65 Years and Over	14.0
Race/Ethnicity	
White	37.2
Asian	2.9
Black or African American	52.2
American Indian/Alaska Native	0.2
Hispanic or Latino, of any race ¹	7.1
Education (Population 25+)	
High School Graduate or Higher	89.9
Bachelor's Degree or Higher	32.0

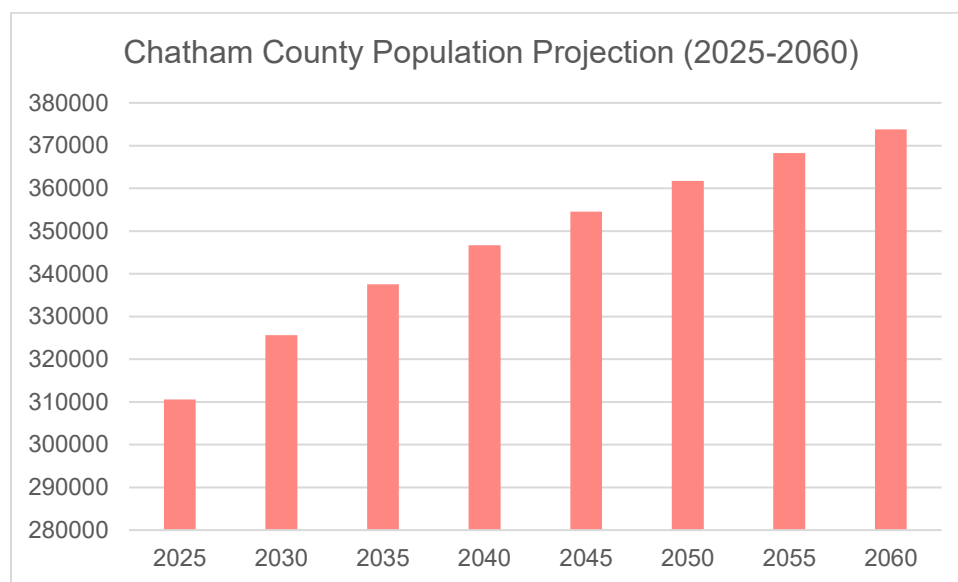
Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-year estimates

¹Hispanics may be of any race, so are also included in applicable race categories.

2.7 Growth and Development Trends

According to the Georgia Office of Planning and Budget, the population of Chatham County is projected to increase to 373,772 by the year 2060, which is a 20 percent increase from the estimated 2025 population. Population projections for Chatham County are shown below in Figure 2.8. As of 2023, residents of Savannah comprised approximately 49 percent of the total population in Chatham County.

According to Census data Savannah experienced a steady but very gradual decline in population from 2000 to 2008. For the next decade, from 2008 to 2018 the City's population steadily increased followed by a minor dip in population growth from 2018 to 2020. Since then, population continues to increase with a projected population of over 180,000 by 2045.

Figure 2.8 – Population Projections for Chatham County, Georgia

Source: State of Georgia Office of Planning and Budget, 2025 Population Projections Data

According to Savannah's Development Services Department, in 2024 the total value of building construction permitted by the City of Savannah was valued at \$930 million representing a 5.6 percent increase in total valuation from 2023 and exceeding the previous record of \$909 million set in 2022. The City's Development Services Department also saw a record level of new residential building construction, with a total construction cost valuation of \$250 million with 1,054 permits issued in 2024. The previous record of \$164 million for new residential construction was set in 2023. Between 2012 and 2023, annual new residential construction permit valuation averaged around \$84 million a year.

It has been noted by the City that Savannah has experienced historic new residential development. In 2024, new residential construction permits included 817 single-family homes (detached), 582 multifamily/apartment units, 169 single-family homes (attached/townhomes), 20 two-family homes (duplex), 43 accessory dwelling units, and 5 master home plans, mobile units and modular units. Overall, the City issued a record 4,749 construction permits in 2024, exceeding the 2023 total permit count of 4,252 and as of early 2025, is the highest volume seen since 2018.

Land Use

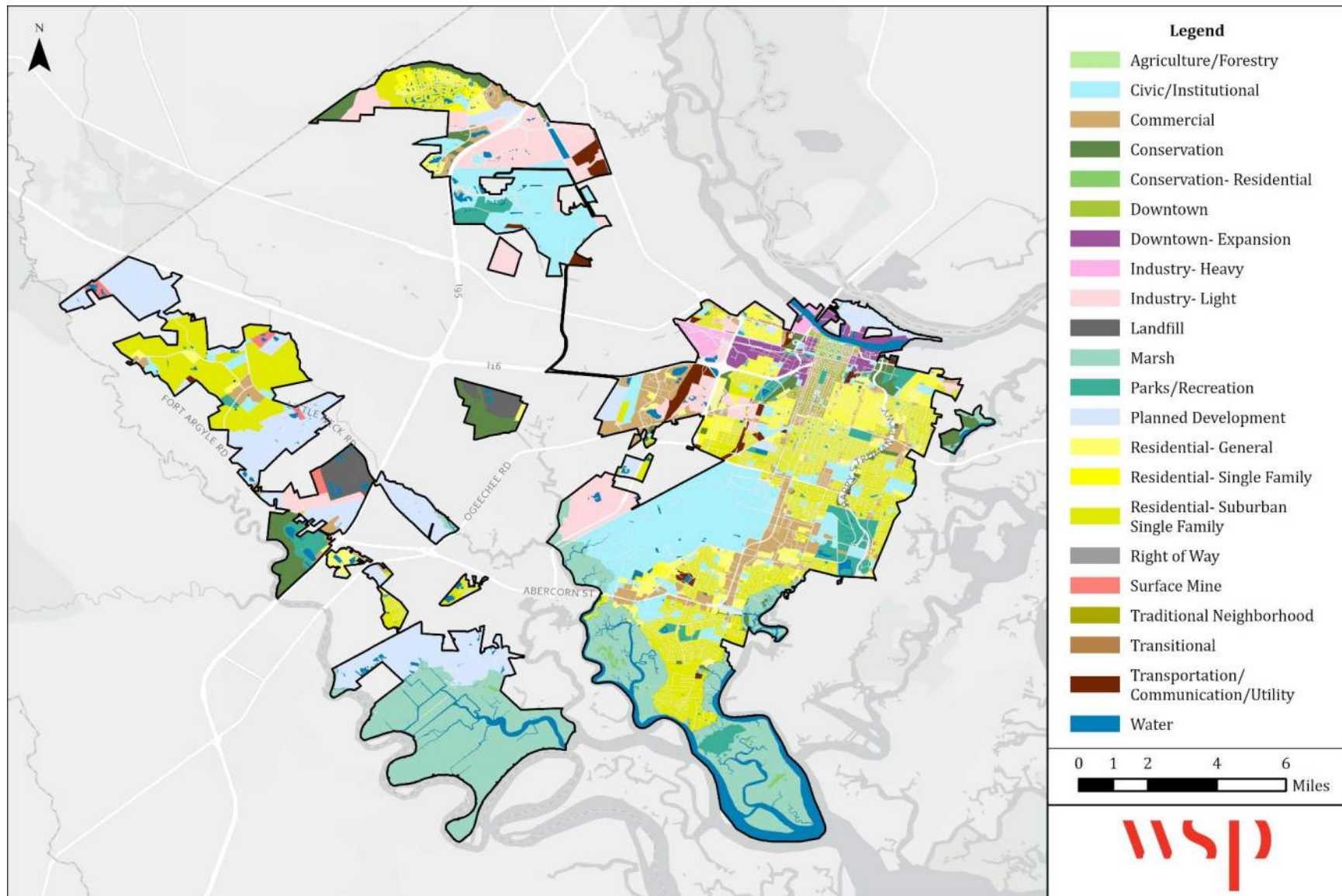
According to the Chatham-County Savannah Comprehensive Plan 2040, developed by the Metropolitan Planning Commission (MPC), the city is highly urbanized with large areas of mixed-use development. Savannah is largely built out and the main mechanism for growth is through annexation or redevelopment.

The City of Savannah is substantially built out and has a limited supply of vacant developable land. Commercial Office and Single Family Residential are the predominant land use types making up 13 and 12 percent of land in the City, respectively. The Chatham County-Savannah Comprehensive Plan includes a Future Land Use Map (FLUM) that is intended to serve as a guide for future zoning decisions. The FLUM is a visual representation of the City's future development and should be used in future zoning decisions and policy reviews. Table 2-7 reflects existing land uses within the City by category and acreage. Figure 2.9 reflects future land uses within Savannah.

Table 2-7 – Existing Land Use in the City of Savannah, 2018

Land Use	Acres	Percent (%)
Single Family	8,934	12.03
Multi-Family	583	0.79
Commercial (includes Office)	2,242	3.02
Industrial	13,726	18.48
Unimproved Properties	3,746	5.04
Open Space (Undeveloped, Wetlands, Marsh, Parks, Conservation lands)	43,621	58.74
Water	1,415	1.91
Total	74,267	100
Total Excluding Water	72,854	98.10

Source: Chatham County – Savannah Comprehensive Plan, Plan 2045

Figure 2.9 – Future Land Use Map

3. Plan Update

Requirements §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

Section 3 provides an overview of the approach to updating the plan, identifies new analyses and information included in this plan update, and highlights key mitigation successes. It contains the following subsections:

- 3.1 What's New in the Plan
- 3.2 2021 FMP Mitigation Strategy Status and Successes

The 2021 Flood Mitigation Plan for the City of Savannah contained a flood risk assessment and a mitigation strategy to address the risk and vulnerability from the identified flood hazards. Since approval of the plan by FEMA, much progress has been made on implementation of the mitigation strategy. This plan update reflects changes to the risks and vulnerabilities associated with the local flood hazards, new mitigation capabilities and priorities, and an updated mitigation action plan.

3.1 What's New in the Plan

This Floodplain Management Plan update involved a comprehensive review, reorganization, and update of each section of the 2021 plan and includes an assessment of the success of the City in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plan. Only the information and data still valid from the 2021 plan was carried forward as applicable into this plan update.

Note that Section 9 Plan Implementation and Maintenance identifies key requirements for updating future plans:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

These requirements and others as detailed throughout this plan were also addressed during this plan update process. New information and analyses contained in this plan update include the following:

- Improved flood risk analysis based on the 2018 DFIRM and the most recent available parcel and tax assessor's data (2023).
- All hazards were updated with recent literature as well as state, regional, and local data updates.
- GIS was used, to the extent data allowed, to analyze all priority hazards as part of the vulnerability assessment. This involved spatial analysis of mapped hazard data and City parcel and critical facility data.
- Populations at risk to identified hazards were identified utilizing GIS and 2023 ACS data. Assets at risk were identified by property type, and values of properties included based on data tax assessor's data in the City's parcel digest.

- The discussion on growth and development trends was enhanced utilizing 2023 ACS data and building permit data.
- Potential hazard impacts to future development were analyzed by evaluating future land use maps and unimproved parcel data based on tax assessor values in the City's parcel digest.
- The critical facility inventory was updated by City of Savannah Emergency Management and vulnerability was re-evaluated for all mapped hazards. Maps of critical facilities at risk to identified hazards were included in this update.
- Enhanced public outreach and agency coordination efforts were conducted throughout the plan update process to meet the more rigorous requirements of CRS, in addition to DMA requirements.

3.2 2021 FMP Mitigation Strategy Status and Successes

Past Mitigation Actions Update

The 2021 mitigation strategy contained 34 mitigation actions. Of these 34 actions, 11 have been completed and three were deleted, two of which were combined with other carried forward actions. The remaining 20 actions are in progress or ongoing; these projects are still considered viable and will be carried forward in this plan. More details on projects carried forward in the updated mitigation action plan can be found in Section 7.4. The status of the 2021 mitigation actions is shown in Table 3-1 below.

Table 3-1 – 2021 Actions and Status Summary

Action ID & Description	Status	Progress
1. Comprehensive evaluation of drainage system and implementation of selected projects.	Carry Forward	Action description revised. The City has developed ten local flood studies and continues to contract with engineers to update these studies and complete other basins. Fourteen basins remain to be completed to CRS specifications. HMGP grant application has been submitted.
2. Enhance Drainage system maintenance program to unclog storm drains/ clear drainage channels and a public education component on proper yard waste disposal and eliminate brush disposal in canals.	Carry Forward	Action description revised. Continue promoting Adopt-A-Drain and other public activities. New promotional yard signs have been installed to encourage proper waste disposal.
3. Reserve vacant low-lying/flood-prone/wetland areas for open space through acquisition or regulation	Carry Forward	No purchases completed at this time. The City continues to evaluate potential opportunities to purchase and limit development. The City maintains a list of requested homes for buyout and is waiting for FEMA to initiate grant programs.
4. Evaluate FEMA-purchased properties for the highest use in floodwater/stormwater storage.	Carry Forward	Neighborhoods continue to request use of these lots for community gardens and green spaces.
5. Require in the revision of the Subdivision Ordinance that all new subdivisions dedicate 20% of land as green space.	Completed	Encourage developers to preserve low-lying areas for flood storage.
6. Designate GDOT properties that are unused as areas for flood storage.	Completed	The City will accept donated GDOT properties for flood storage.
7. Reduce future vulnerability of Vallambrosa area through acquisition or regulation.	Carry Forward	The City does not have funding for acquisitions but will continue seeking opportunities to ensure new construction is built at higher elevations.
8. Add additional higher regulations to the Flood Damage Prevention Ordinance that will prohibit enclosures of areas of greater than 300 square feet below the BFE.	Deleted	Not being pursued at this time.
9. Continue acquisition/demolition of high-risk flood-prone properties.	Carry Forward	Continue maintaining the buyout list and encourage property owners to contact the City if they wish to participate when grant funding becomes available.
10. Evaluate the feasibility of a floodproofing program for homes where acquisition is not an option – especially historic structures.	Carry Forward	Action description revised. Continue outreach efforts to promote mitigation actions and site visits.

Action ID & Description	Status	Progress
11. Target critical facilities for flood mitigation.	Carry Forward	Action description revised. Continue enforcing the flood ordinance to prevent critical facilities from being located within the 100-year and 500-year floodplains.
12. Post flood mitigation information at libraries, post offices, heavily trafficked municipal buildings and community centers. Develop and post “potential high water mark” signs.	Carry Forward	Action description revised. Flood mitigation information is posted in local buildings and at floodplain-related events. Smart Sea Level monitors are being transitioned to Green Stream Water Level Monitors. Combined highwater mark effort with mitigation action #30.
13. Continue to enhance newly implemented City website “flood protection information” webpage.	Completed	Continue maintaining the flood protection website with current and relevant information.
14. Continue coordination with CEMA, NWS and USGS to enhance flood warning system.	Completed	CEMA, the City, and NWS continue to provide flood warnings.
15. Continue flood preparedness and outreach activities at local community events	Completed	Continue utilizing the Wards Flood Model in schools and participating in community outreach events such as Earth Day, the Hurricane Expo, and GIS Day to promote flood awareness and preparedness.
16. Organize public information campaign and organize public cleanups to reduce litter/debris in storm drains.	Completed	Same as previous comment.
17. Conduct public outreach and direct technical assistance – particularly targeting repetitive loss properties and discussion of potential funding.	Completed	Promote site visits as part of outreach efforts.
18. Educate the public on the use of permeable concrete paving and establishment of rain gardens to reduce flash flooding impacts.	Delete	Continue partnering with Chatham County to promote wetlands and green infrastructure. A workshop is scheduled for June 17, 2026. Combined this with mitigation action #33.
19. Interview and coverage on local news, in newspaper articles and through advertisement to promote flood mitigation.	Completed	Accept calls from local news outlets to promote flood awareness. Media requests must be approved through the Public Communication Department before interviews are conducted.
20. Provide flood mitigation update and outreach to neighborhood groups and other interested parties via an email group address.	Carry Forward	Continue outreach efforts. CEMA and COS distribute notices, emails, social media posts, and website updates. The flood protection website is regularly updated to maintain current and relevant information.
21. Organize annual/semi-annual single-focus public workshops/meetings to discuss flood mitigation.	Carry Forward	Hosted a CRS User Group meeting with GADNR to discuss Coastal A requirements. Additionally, the City is hosting a workshop with Chatham County on June 17, 2026, to promote wetlands and green infrastructure.
22. Provide flood protection assistance to vulnerable populations (elderly, disabled and low-income individuals) so they can purchase flood insurance.	Completed	Send newspaper outreach materials promoting flood insurance and attend outreach through STEM Night events to reach parents. However, there are no funding programs at this time.

Action ID & Description	Status	Progress
23. Strategically focus SPLOST funds toward identified drainage improvement projects.	Carry Forward	The City adopted a new Drainage Utility Fee, which will be implemented in 2026 to support drainage studies and improvements.
24. Promote flood insurance through community notification to citizens and business personnel by newspapers, letters, and public outreach.	Completed	Continue outreach efforts regarding flood insurance. Flood insurance information is included in flood determination letters and other outreach materials for repetitive loss areas, including the Savannah Morning News and SFHA mailings.
25. Document drainage improvements in SFHAs and request revisions to the applicable FIRM maps to reflect new conditions through the FEMA LOMR process.	Carry Forward	No change.
26. Remove building code/insurance disconnect through education of builders/realtors and modification of technical review checklist (cross-check NFIP/Insurance/Ordinance/IBC).	Completed	Completed.
27. Prioritize CIP projects to address flooding in the following areas: Victory Drive, Skidaway & 41st, 37th MLK, Montgomery & 52nd, Abercorn & 65th, Springfield Canal, Cloverdale, Detention Pond @ 52nd Derenne, Bilbo basin and Placentia basin.	Carry Forward	Action description revised. Construction on 54th Street (Phase 1) is completed. Construction on 56th and 57th Street are ongoing. The following have been completed: Skidaway & 41st and Detention Pond at 52nd Derenne. Fell Street pump station and outfall are currently in design phase. West Savannah Flood Mitigation Project is currently in design phase. Habersham/Casey Stormwater Tunnel Project is also under design. White Bluff Road/Hunter Army Airfield Project - REPI grant application has been submitted.
28. Complete a study to evaluate the effectiveness of a stormwater utility based on impervious area and its impact on the typical homeowner.	Carry Forward	Action description revised. The Utility Fee has been adopted, and billing is expected to begin in September 2026.
29. Support the Chatham County-Savannah MPC Greenway Plan and coordinate with the MPC on the Plan as needed.	Carry Forward	The City is exploring expansion of the sidewalk along Middle Ground Road to Montgomery Cross Road. Construction is underway on portions of the project.
30. Consider participation in FEMA's high water mark initiative.	Carry Forward	Action description revised. Smart Sea Level monitors are being transitioned to Green Stream Water Level Monitors. City will work toward posting signage.
31. Coordinate with the Chatham County Resource Protection Land to acquire lands vulnerable to flooding through SPLOST funds.	Carry Forward	No change.
32. Develop a Watershed Master Plan for the City	Delete	Action combined with Mitigation Action 1. A CRS compliant Watershed Master Plan will be completed under Action 1.

Action ID & Description	Status	Progress
33. Promote low impact development techniques and green infrastructure projects	Carry Forward	Action description revised. Rain barrel promotion activities were conducted at Wag-O-Ween and neighborhood meetings. Combined with mitigation action 18.
34. Springfield Basin Phase 1 improvements. Canal District DR-905	Carry Forward	Ongoing. All Phase II required permits for construction have been acquired for the utility relocation. Phase II final drawings to be submitted to the SPR team for review and approval. From Mid-June: Debris removal is complete. Ponds 1 and 2 have been cleared. Pond 2 construction is 90% complete. Pond 1 environmental sampling is ongoing.

4. Planning Process

Requirement §201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

- 1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- 2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and
- 3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): The plan shall include the following:

- 1) Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Section 4 provides a detailed review of the process used to update this plan and describes the participation of the City, stakeholders, and the public in the plan update process. It contains the following subsections:

- 4.1 Local Government Participation
- 4.2 The 10-Step Planning Process

Appendix A provides additional information and documentation of the planning process that was implemented for the development of this plan including meeting minutes and attendance as well as public meeting announcements.

4.1 Local Government Participation

The DMA planning regulations and guidance stress that local governments must participate in the hazard mitigation planning effort in the following ways:

- Participate in the process as part of the planning committee;
- Detail where within the planning area the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan.

This Floodplain Management Plan was developed under the guidance of a Flood Mitigation Planning Committee (FMPC). The FMPC's membership included representatives of City of Savannah departments, residents, and other stakeholders. For the City of Savannah FMPC, "participation" meant the following:

- Providing facilities for meetings;
- Attending and participating in the FMPC meetings;
- Collecting and providing requested data (as available);
- Managing administrative details;
- Making decisions on plan process and content;
- Identifying mitigation actions for the plan;
- Reviewing and providing comments on plan drafts;
- Informing the public, local officials, and other interested parties about the planning process and providing opportunity for them to comment on the plan;

- Coordinating, and participating in the public input process; and
- Coordinating the formal adoption of the plan by the governing board of the City.

The FMPC met all CRS participation requirements and included representatives from key City departments, including Planning, Development Services, Emergency Management, Stormwater Management, GIS, and Public Information, along with stakeholders from the insurance, real estate, and lending industries, the public school system, the Red Cross, and citizen volunteers. The participants comprising the Savannah FMPC are listed in Table 4-1.

Table 4-1 – Flood Mitigation Planning Committee Members

Name	Organization/Title	Stakeholder
Subhashi Karunaratne	Savannah Metropolitan Planning Commission (Planner)	
Nusrat Fatema	City of Savannah (GIS)	
David A. Donnelly	City of Savannah (Emergency Management)	
Tom McDonald	City of Savannah (Permitting & Floodplain Manager)	
Laura Walker	City of Savannah (Environmental Administrator)	
Mo Spiessl	City of Savannah (Stormwater Management)	
Saja Aures	City of Savannah (Public Information Officer)	
Rhonda Ruesch, BSc, BS, MPH	American Red Cross of Georgia	✓
Justin Pratt	Savannah-Chatham County Public School System	✓
Ben Barksdale	Realtor	✓
Jeff M. Brady, ANFI	Allstate Insurance	✓
Gloria Williams	Citizen	✓
Angla Bliss	Chatham County Engineering	✓
Michael Caputo	Mortgage Lender	✓

Based on the department and role of each city staff representative participating on the FMPC, Table 4-2 reflects the FMPC's expertise in the six mitigation categories (Prevention, Property Protection, Natural Resource Protection, Emergency Services, Structural Flood Control Projects and Public Information). The City of Savannah Development Services Department and the Savannah-Chatham County Metropolitan Planning Commission are responsible for community land use and comprehensive planning and were active participants on the FMPC and provided data and information to support development of this plan.

Table 4-2 – City of Savannah Staff Capability with Six Mitigation Categories

Community Department/Office	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information
Metropolitan Planning Commission	✓	✓	✓			
Development Services	✓	✓	✓		✓	✓
Emergency Management	✓			✓		✓
Stormwater Management	✓	✓	✓		✓	
GIS	✓		✓		✓	✓
Public Information						✓

4.2 The 10-Step Planning Process

The City of Savannah Floodplain Management Plan was prepared according to the 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance (FMA) programs. This 10-step process aligns with the four-phases of hazard mitigation as established by the Disaster Mitigation Act of 2000 (DMA) and FEMA's associated guidance. Thus, the process used for this plan meets the requirements of six major programs: FEMA's HMGP, BRIC, CRS, FMA, and Severe Repetitive Loss Programs; and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 4-3 shows how the 10-step CRS planning process aligns with DMA planning phases and requirements.

Table 4-3 – Mitigation Planning and CRS 10-Step Process Reference Table

DMA Process	CRS Process
Phase I – Planning Process	
§201.6(c)(1)	Step 1. Organize to Prepare the Plan
§201.6(b)(1)	Step 2. Involve the Public
§201.6(b)(2) & (3)	Step 3. Coordinate
Phase II – Risk Assessment	
§201.6(c)(2)(i)	Step 4. Assess the Hazard
§201.6(c)(2)(ii) & (iii)	Step 5. Assess the Problem
Phase III – Mitigation Strategy	
§201.6(c)(3)(i)	Step 6. Set Goals
§201.6(c)(3)(ii)	Step 7. Review Possible Activities
§201.6(c)(3)(iii)	Step 8. Draft an Action Plan
Phase IV – Plan Maintenance	
§201.6(c)(5)	Step 9. Adopt the Plan
§201.6(c)(4)	Step 10. Implement, Evaluate and Revise the Plan

4.2.1 Phase I – Planning Process

Planning Step 1: Organize to Prepare the Plan

With the City of Savannah's commitment to participate in this planning process and the CRS, City officials worked to establish the framework and organization for update of the plan. An initial meeting was held with key community representatives to discuss the organizational aspects of the plan development process. The FMPC originally established for the development of this plan was reconvened, and invitations were sent out to new members, as needed, to fill vacancies on the committee.

To ensure a variety of viewpoints were included, invitations to participate were extended to City staff from multiple departments as well as city residents and federal, state, and local stakeholders that might have an interest in local floodplain management.

The FMPC kick-off meeting was held on October 14, 2020 at 10:00am via Zoom Video Conference Call. The meeting covered the scope of work and an introduction to the planning requirements. During the planning process, the FMPC communicated through face-to-face and virtual meetings, email, and telephone conversations. Draft documents were posted on the City's website so that the FMPC members could easily access and review them. The formal FMPC meetings followed the CRS Planning Steps. Agendas and attendance for the FMPC meetings are included in Appendix A. The meeting dates and topics discussed are summarized below in Table 4-4. All FMPC meetings were open to the public.

Table 4-4 – Summary of FMPC Meeting Dates

Meeting Type	Meeting Topic	Meeting Date	Meeting Location
FMPC #1 (Kickoff)	1) Introduction to DMA, CRS and the planning process 2) Organize resources: the role of the FMPC, planning for public involvement, and coordinating with other agencies and stakeholders 3) Introduction to hazard identification	September 10, 2025 2:00pm	Adam's Complex - Conference Room 2C & Microsoft Teams
FMPC #2	1) Review/discussion of Flood Risk and Vulnerability Assessment (Assess the Hazard and Assess the Problem)	February 2, 2026 1:30pm	Microsoft Teams
FMPC #3	1) Review and update goals and objectives from 2021 FMP 2) Review and update of local capabilities 3) Review and update of existing mitigation strategies	March 19, 2026 2:00pm	Microsoft Teams
FMPC #4	1) Finalize the mitigation action plan 2) Review draft plan 3) Review draft PPI	August 4, 2026 2:00pm	Microsoft Teams

Planning Step 2: Involve the Public

Early discussions with the FMPC established the initial plan for public involvement. The FMPC agreed to an approach using established public information mechanisms and resources within the community. Public participation is an essential component to any planning process. Through various mechanisms, individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community “buy-in” from those directly affected by the decisions of public officials. More involvement from the public creates a greater appreciation of the flood hazards present within the City and encourages citizens to take the steps necessary to reduce their impact.

Public involvement activities for this plan update included press releases and social media announcements, in-person engagement at city events, public meetings, a public survey, and the collection of public and stakeholder comments on the draft plan. The formal public meetings for this plan update are summarized in Table 4-5. Documentation of public meetings, attendance, and outreach can be found in Appendix A.

Table 4-5 – Summary of Public Meeting Dates

Meeting Type	Meeting Topic	Meeting Date	Meeting Locations
Public Meeting #1	1) Overview of CRS program and FMP intentions 2) Introduction to DMA, CRS and the planning process 3) Discuss hazards, problems, and possible solutions	October 29, 2025 5:30pm	Microsoft Teams
Public Meeting #2	1) Review of the draft plan 2) Solicit public comment and feedback	August 18, 2026 5:30pm	Microsoft Teams

Involving the Public Beyond Attending Public Meetings

The FMPC found 11 different ways to involve the public beyond attending public meetings. Documentation of these additional public outreach efforts can be found in Appendix A. The public outreach activities beyond the formal public meetings are summarized below in Table 4-6.

Table 4-6 – Public Outreach Efforts

Project/Event	Message
Public Survey	A survey on local flood risks, vulnerabilities, and mitigation ideas was provided in online and hard copy format for public response.
Mitigation Flyer	A flyer describing the planning process was developed and shared by city staff
City of Savannah Website	Public Meeting date and the online public survey were posted on City's website for public information
Press Release – October	A press release was issued to the news media informing residents of the plan update and opportunities for public input, including the first public meeting.
City "Wag-o-Ween" Event	Development Services Department staff attended the City's Halloween event on October 25 & 26, 2025 and shared flyers, surveys, and information about the plan. Surveys inserted in 2,000 handout bags and provided at booth.
City of Savannah Social Media – October	Use of Facebook and Instagram to inform residents of the planning process
Draft HIRA	A draft of the Hazard Identification and Risk Assessment Section of the plan was posted on the City's website for public comment
City of Savannah Social Media – March 23-27, 2026	Use of Facebook and Instagram to inform residents of the survey deadline and share online survey link via daily story posts
Mayor's Weekly Press Conference – March 24, 2026	Mayor mentioned flood survey during weekly press conference, which is carried on City's social media and SGTV (government access channel) and was shared via local news station WSAV website and social media.
Draft Plan	A draft version of the final plan was posted on the City's website for public comment
Press Release – August 2026	A press release was issued to the news media concerning information on the final draft plan and the final public meeting

The public survey which requested public input into the Floodplain Management Plan planning process and the identification of mitigation activities that could lessen the risk and impact of future flood hazard events can be found in Appendix A along with a summary of the completed survey results.

The complete draft of the plan was provided to the FMPC in August 2021. A final public meeting was conducted on August 11, 2021. Advertisements for the public meeting indicated where the plan could be accessed on the City website.

Planning Step 3: Coordinate

Early in the planning process, the FMPC determined that the risk assessment, mitigation strategy development, and plan approval would be greatly enhanced by inviting other local, state and federal agencies and organizations to participate in the process. The following local stakeholders were invited to participate in the planning process:

Neighboring Communities

- Chatham County
- Town of Thunderbolt

- Town of Vernonburg
- City of Bloomingdale
- City of Garden City
- City of Pooler
- City of Port Wentworth
- City of Tybee Island

State and Federal Government

- Georgia Emergency Management Agency
- Georgia Department of Natural Resources
- Coastal Regional Commission of Georgia
- FEMA Region 4

Educational Institutions

- University of Georgia Skidaway Institute of Oceanography
- Georgia Institute of Technology
- Savannah State University
- Savannah College of Arts and Design
- Georgia Southern University, Armstrong Campus
- Savannah Technical College

Other Stakeholder Representatives

- Georgia Association of Floodplain Management
- National Weather Service
- Savannah/Hilton Head International Airport
- Home Builders Association of Greater Savannah
- The Georgia Conservancy
- Coastal Georgia Audubon Society
- Ogeechee Audubon Society
- Savannah Boy Scouts
- Wormsloe State Historic Site
- Savannah Tree Foundation
- WSAV 3
- WTOC News

Coordination involved contacting these agencies to request data or input relevant to the plan and informing them on how to participate in the plan development process. These groups and agencies were solicited asking for their assistance and input and telling them how to become involved in the plan development process. An example coordination letter and a list of recipients can be found in Appendix A.

Coordination with Other Community Planning Efforts and Hazard Mitigation Activities:

Coordination with other community planning efforts is also paramount to the success of this plan. Mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. The City of Savannah uses a variety of planning mechanisms, such as a Comprehensive Plan and land development regulations and ordinances to guide growth and development. Integrating existing planning efforts and policies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions, as summarized in Table 4-7.

Table 4-7 – Summary of Existing Studies and Plans Reviewed

Resource Referenced	Use in this Plan
Chatham County-Savannah Plan 2040 Comprehensive Plan	Used to evaluate land use and development patterns in Section 2 and to develop the capability assessment in Section 6.
Unincorporated Chatham County Floodplain Management Plan, 2024	Used to identify flood hazards and develop hazard profiles in Section 5, update capability assessment in Section 6, and update mitigation strategy in Section 7.
Chatham County Flood Insurance Study, 2018	Used to identify and evaluate the flood hazard in Section 5.
Chatham County Multi-Jurisdictional Pre-Disaster Hazard Mitigation Plan, 2020	Used to identify flood hazards and to develop hazard profiles, capability assessment, and mitigation strategy.
State of Georgia Hazard Mitigation Plan, 2024	Used to identify hazards in Section 5.
Savannah Area Geographic Information System	Used to collect GIS data on existing conditions in support of the Community Profile in Section 2 and the Flood Risk Assessment in Section 5.
Savannah Stormwater Management Ordinance, 2018	Used to develop the capability assessment in Section 6.
Savannah Soil Erosion, Sedimentation and Pollution Control Ordinance, 2009	Used to develop the capability assessment in Section 6.

These and other documents were reviewed and considered, as appropriate, during the collection of data to support Planning Steps 4 and 5, which include the hazard identification, vulnerability assessment, and capability assessment. These documents were also used in Planning Steps 6, 7, and 8 to inform the development of the mitigation strategy. Each source document is referenced where the data from existing studies and reports is used in this plan.

4.2.2 Phase II – Risk Assessment

Planning Steps 4 and 5: Identify/Assess the Hazard and Assess the Problem

The FMPC completed a comprehensive effort to identify, document, and profile all flood hazards that have, or could have, an impact on the city, including an evaluation of climate change and sea level rise. Geographic information systems (GIS) were used to display, analyze, and quantify hazards and vulnerabilities. A draft of the risk and vulnerability assessment was posted on the City's website for FMPC and public review and comment. A more detailed description of the risk assessment process and the results are included in Section 5 Flood Risk Assessment.

The FMPC also conducted a capability assessment to review and document the city's current capabilities to mitigate risk and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the FMPC could assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified. The capability assessment is presented in Section 6.

4.2.3 Phase III – Mitigation Strategy

Planning Steps 6 and 7: Set Goals and Review Possible Activities

WSP facilitated a discussion with the FMPC to review and update planning goals and objectives, consider a comprehensive range of mitigation alternatives, brainstorm new mitigation actions, and establish a method of selecting and defending recommended mitigation actions using a series of selection criteria.

This information is included in Section 7 Mitigation Strategy. Additional documentation on the process the FMPC used to develop the mitigation strategy is included in Appendix B.

Planning Step 8: Draft an Action Plan

A complete first draft of the plan was prepared based on input from the FMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7. This complete draft was posted for FMPC and public review and comment on the City's website. Other agencies were invited to comment on this draft as well. FMPC, public, and agency comments were integrated into the final draft for FEMA to review and approve, contingent upon final adoption by the City.

4.2.4 Phase IV – Plan Maintenance

Planning Step 9: Adopt the Plan

To secure buy-in and officially implement the plan, the plan was reviewed and adopted by the City of Savannah on the date included in the corresponding resolution in Section 8 Plan Adoption.

Planning Step 10: Implement, Evaluate and Revise the Plan

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Up to this point in the planning process, all the FMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Section 9 Plan Implementation and Maintenance provides an overall strategy for plan implementation and outlines the method and schedule for monitoring, updating, and evaluating the plan. This section also discusses integrating the plan into existing and future planning mechanisms and how to address continued public involvement.



5. Flood Risk Assessment

Requirement §201.6(c)(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

This section describes the Risk Assessment process for the development of the City of Savannah Flood Mitigation Plan. It describes how the City met Planning Step 4: Assess the Hazard and Planning Step 5: Assess the Problem from the 10-step planning process:

As defined by FEMA, risk is a combination of hazard, vulnerability, and exposure. “It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage.”

This flood risk assessment covers the entire geographical area of the City of Savannah. The risk assessment identifies and profiles the relevant flood hazards for Savannah and assesses the exposure of lives, property, and infrastructure to these hazards. This process allows for a better understanding of Savannah’s potential risk to flood hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events. This risk assessment process followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses (FEMA 386-2, 2002), which breaks the assessment down to a four-step process:



Data collected through this process has been incorporated into the following subsections of this chapter:

- **Section 5.1: Hazard Identification** identifies the flood hazards that threaten the Savannah planning area.
- **Section 5.2: Risk Assessment Methodology** reviews the methodology for evaluating risk and outlines the organization of each hazard profile.
- **Section 5.3: Asset Inventory** summarizes overall asset exposure in Savannah, including buildings; critical facilities; cultural, historic, and natural resources; and potential future growth and development.
- **Section 5.4: Hazard Profiles, Analysis, and Vulnerability** discusses the threat to the Savannah planning area, describes previous occurrences of flood hazard events, and the likelihood of future occurrences. For all moderate and high priority flood hazards, this section assesses the Savannah planning area’s exposure and potential losses that may occur.
- **Section 5.5: Risk and Vulnerability Conclusions** summarizes areas likely to flood, discusses the potential impact of future flooding conditions, and evaluates the health and safety consequences of the flood hazards.

5.1 Hazard Identification

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

The City of Savannah's FMPC conducted a hazard identification study, summarized below, to determine the flood hazards that threaten the planning area.

5.1.1 Hazard Identification Methodology

To identify flood hazards that could affect the planning area, the FMPC started with the list of hazards identified in the 2021 City of Savannah Flood Mitigation Plan and reviewed existing state and local plans, disaster declarations and past flood occurrences, flood hazard data, and input from committee members and the public. Observations and projections of climate change were also evaluated to better understand potential future hazards.

The flood hazards identified in the 2021 City of Savannah FMP are listed in Table 5-1 along with their previously established ratings for probability, impact, spatial extent, warning time, and duration, and their overall risk rating.

Table 5-1 – Flood Hazard Summary

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Risk Rating
Climate Change & Sea Level Rise	Likely	Critical	Small	More than 24 hrs	More than 1 week	Medium
Coastal/Canal Bank Erosion	Possible	Minor	Negligible	More than 24 hrs	More than 1 week	Low
Dam Failure	Unlikely	Limited	Negligible	6 to 12 hours	Less than 1 week	Low
Riverine & Coastal Flooding	Highly Likely	Critical	Moderate	Less than 6 hours	Less than 1 week	High
Stormwater/Localized Flooding	Highly Likely	Critical	Moderate	Less than 6 hours	Less than 1 week	High
Hurricane & Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 1 week	High

All hazards included in the 2021 plan were re-evaluated for this plan update. These list of hazards includes all flood-related hazards identified in the 2024 Georgia Hazard Mitigation Strategy. Flood hazard data from the 2020 Chatham County Hazard Mitigation Plan (HMP), 2024 Chatham County Floodplain Management Plan (FMP), the Georgia Emergency Management Agency (GEMA), FEMA, the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Hurricane Center (NHC), NOAA's National Center for Environmental Information (NCEI), and many other sources were examined to assess the significance of these hazards to the Savannah planning area. For the purpose of hazard identification, significance was measured in general terms and focused on key criteria such as frequency and resulting damage, including deaths and injuries as well as property damage and economic loss.

5.1.2 Disaster Declaration History

The FMPC researched past events that resulted in a federal emergency or disaster declaration for Chatham County, GA, which approximates impacts on the Savannah planning area, in order to identify known flood hazards. Disaster declarations are indicative of severe hazard impacts. When the local

government's capacity to respond or recover from a hazard event has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state government capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance. Federal disaster declarations may be granted when the Governor certifies that the combined local, county, and state resources are insufficient and that the situation is beyond their recovery capabilities whereas emergency declarations are issued by the President prior to any State level request.

Details on federal and state disaster declarations were obtained from FEMA. Table 5-2 displays flood related major disaster declarations that were declared statewide in Georgia (1953-1964) or in Chatham County (1965-present). Table 5-3 displays emergency declarations for Chatham County from 1999-2025. These tables reflect the most significant events and historic patterns of flood hazards for the planning area.

Table 5-2 – FEMA Major Disaster Declarations, Georgia Statewide and Chatham County, 1953-2025

Disaster #	Declaration Date	Incident Type	Event Title
110	1961-03-02	Flood	Floods
150	1963-03-26	Hurricane	Severe Storms & Flooding
177	1964-09-10	Hurricane	Hurricane Dora
180	1964-11-04	Flood	Flooding
1042	1994-10-19	Severe Storms	Heavy Rains, Tornadoes, Flooding, High Winds
1209	1998-03-11	Severe Storms	Severe Storms and Flooding
4284	2016-10-09	Hurricane	Hurricane Matthew
4338	2017-09-16	Hurricane	Hurricane Irma
4821	2024-09-24	Tropical Storm	Tropical Storm Debby
4830	2024-09-30	Tropical Storm	Hurricane Helene

Source: OpenFEMA, Disaster Declaration Summaries, as of October 2025

Table 5-3 – FEMA Emergency Declarations, Chatham County, 1999-2025

Disaster #	Declaration Date	Incident Type	Event Title
3144	1999-09-05	Hurricane	Hurricane Floyd Emergency Declaration
3218	2005-09-05	Hurricane	Hurricane Katrina Evacuation
3379	2016-10-07	Hurricane	Hurricane Matthew
3387	2017-09-08	Hurricane	Hurricane Irma
3406	2018-10-11	Hurricane	Hurricane Michael
3422	2019-09-02	Hurricane	Hurricane Dorian
3607	2024-08-05	Tropical Storm	Hurricane Debby
3616	2024-09-26	Tropical Storm	Hurricane Helene

Source: OpenFEMA, Disaster Declaration Summaries, as of October 2025

Table 5-4 summarizes the Individual Assistance and Public Assistance dollars obligated for each major disaster declaration received by Chatham County since 1994, the first year when Chatham County was specifically designated in a major disaster declaration. Note that disaster-related damage to people and property resulted from wind and flood damage associated with severe storms.

Table 5-4 – FEMA Major Disaster Declarations for Chatham County, 1994-2025

Disaster #	Declaration Date	Event Title	IA Applications Approved	Total IAH Program Dollars Approved	Total PA Grant Dollars Obligated
1402	1994-10-19	Heavy Rain, Tornadoes, Flooding, High Winds	--	--	--
1209	1998-03-11	Severe Storms and Flooding	--	--	--
4284	2016-10-09	Hurricane Matthew	2,093	\$6,611,178	\$95,732,066
4338	2017-09-16	Hurricane Irma	9,371	\$13,643,352	\$120,768,267
4821	2024-09-24	Tropical Storm Debby	2,753	\$10,581,855.00	\$29,561,211
4830	2024-09-30	Hurricane Helene	220,565	\$385,757,627	\$802,515,959

Source: OpenFEMA, Web Disaster Declarations, as of October 2025

¹Assistance applications and dollar amounts are for all Counties included in the disaster declaration.

IA = Individual Assistance, IAH = Individuals and Households, PA = Public Assistance

5.1.3 Flood Event History

NOAA's NCEI has been tracking flood-related weather data since 1996. The NCEI Storm Events Database contains an archive of destructive storm or weather data and information which includes local, intense and damaging events. NCEI receives storm data from the National Weather Service (NWS), which compiles information from a variety of sources, including but not limited to: city, county, state and federal emergency management officials, local law enforcement officials, SkyWarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public. This database contains 225 flood-related weather events that occurred in Chatham County between January 1, 1996 and September 31, 2025. Table 5-5 summarizes these events. Note that some events are listed multiple times with details for separate episodes and associated impacts.

Table 5-5 – NCEI Severe Weather Reports for Chatham County and Savannah, 1996-2025

Type	# of Events	Property Loss	Deaths	Injuries
Coastal Flood	43	\$40,000	0	0
Flash Flood	92	\$8,445,000	0	2
Flood	2	\$2,000	0	0
Heavy Rain	3	\$0	0	0
High Surf	6	\$17,500	0	0
Hurricane (Typhoon)	19	\$10,000,000	1	2
Storm Surge/Tide	5	\$10,000,000	0	0
Tropical Depression	2	\$0	0	0
Tropical Storm	50	\$14,500	0	1
Waterspout	3	\$0	0	0
Total	225	\$28,519,000	1	5

Source: NCEI Storm Events Database

Note: Losses reflect totals for all impacted areas.

¹Hurricane Matthew and Hurricane Irma are reported as Tropical Storms in the NCEI database but were reclassified by the FMPC to account for their having impacted the planning area as hurricanes

5.1.4 Identified Hazards

Based on review of disaster declaration history, flood event history, and discussion by the FMPC, the following hazards were identified for full risk and vulnerability analysis in this plan:

- Climate Change & Sea Level Rise
- Coastal & Canal Bank Erosion
- Dam Failure
- Riverine & Coastal Flooding
- Stormwater & Localized Flooding
- Hurricane & Tropical Storm

5.2 Risk Assessment Methodology

The hazards identified in Section 5.1 Hazard Identification, are profiled individually in Section 5.4. Information provided by members of the FMPC has been integrated into this section with information from other data sources.

Each hazard is profiled in the following format:

Hazard Description

This section provides a description of the hazard followed by details specific to the Savannah planning area. Where available, this section also includes information on seasonal patterns, speed of onset/duration, and any secondary effects.

Location

This section describes or visualizes where the hazard may occur within the planning area.

Extent

This section provides information on the magnitude of the hazard and describes how the severity of the hazard can be measured. If known, the most severe event on record is noted.

Past Occurrences

This section contains information on historical events, including the date, extent, and/or location of past hazard events within or near the Savannah planning area.

Probability of Future Occurrence

This section gauges the likelihood of future occurrences based on past events and existing data. The frequency is determined by dividing the number of events observed by the number of years on record and multiplying by 100. This provides the percent chance of the event happening in any given year (e.g. 10 hurricanes or tropical storms over a 30-year period equates to a 33 percent chance of experiencing a hurricane or tropical storm in any given year).

Climate Change and Future Conditions

This section discusses how climate change may or may not influence the risk posed by the hazard on the planning area in the future.

Priority Risk Index

The findings from the above sections of the hazard profiles are summarized using the Priority Risk Index (PRI) to score and rank each hazard's significance to the planning area. The PRI provides a standardized numerical value so that hazards can be compared against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk was assigned a value (1 to 4) and a weighting factor as summarized in Table 5-6.

PRI ratings are provided by category throughout each hazard profile, and a summary of each hazard's PRI score is provided at the beginning of each hazard profile. The results of the risk assessment and overall PRI scoring are provided in Section 5.5.1.

Table 5-6 – Priority Risk Index

RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK CRITERIA	INDEX	WEIGHT
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 10 & 100% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	100% ANNUAL PROBABILITY	4	
IMPACT In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 DAY	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES > 30 DAYS.	4	
SPATIAL EXTENT How large of an area could be impacted by a hazard event? Are impacts localized or regional?	NEGLIGIBLE	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	4	

RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK CRITERIA	INDEX	WEIGHT
WARNING TIME Is there usually some lead time associated with the hazard event? Have warning measures been implemented?	MORE THAN 24 HRS	SELF DEFINED	1	10%
	12 TO 24 HRS	SELF DEFINED	2	
	6 TO 12 HRS	SELF DEFINED	3	
	LESS THAN 6 HRS	SELF DEFINED	4	
DURATION How long does the hazard event usually last?	LESS THAN 6 HRS	SELF DEFINED	1	10%
	LESS THAN 24 HRS	SELF DEFINED	2	
	LESS THAN 1 WEEK	SELF DEFINED	3	
	MORE THAN 1 WEEK	SELF DEFINED	4	

The sum of all five risk assessment categories equals the final PRI value, demonstrated in the equation below (the lowest possible PRI value is a 1.0 and the highest possible PRI value is 4.0).

$$\text{PRI} = (\text{PROBABILITY} \times 0.30) + (\text{IMPACT} \times 0.30) + (\text{SPATIAL EXTENT} \times 0.20) + (\text{WARNING TIME} \times 0.10) + (\text{DURATION} \times 0.10)$$

The purpose of the PRI is to categorize and prioritize all flood hazards as high, moderate, or low risk. Those hazards determined to be of high or moderate priority were characterized as significant hazards that required further evaluation through the development of a vulnerability assessment. This process and these criteria allowed the FMPC to prioritize hazards of greatest significance and focus resources where they are most needed.

Vulnerability Assessment

The FMPC conducted a vulnerability assessment for the hazards identified as a moderate or high priority in order to assess the impact that these hazards would have on the City. The vulnerability assessment quantifies, to the extent feasible using best available data, assets at risk to natural hazards and estimates potential losses.

Vulnerability assessments followed the methodology described in the FEMA publication *Understanding Your Risks—Identifying Hazards and Estimating Losses*. The vulnerability assessment describes the total vulnerability and values at risk, summarized in the Asset Inventory in Section 5.3, and then discusses vulnerability by hazard.

Data used to support this assessment included the following:

- County GIS data (hazards, base layers, and assessor's data)
- Hazard layer GIS datasets from federal agencies
- Written descriptions of inventory and risks provided by the Chatham County Floodplain Management Plan, Chatham County Hazard Mitigation Plan, and Georgia Hazard Mitigation Strategy
- Other existing plans and studies provided by the City

Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low** – The occurrence and potential cost of damage to life and property is very minimal to nonexistent.

- **Low** – Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium** – Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High** – Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High** – Very widespread with catastrophic impact.

Vulnerability can also be quantified in instances where there is a known, defined hazard area, such as a mapped floodplain. In these instances, the number and types of buildings subject to the identified hazard can be counted and their values tabulated. Additional information, such as the location of critical community facilities (e.g., a fire station), historic structures, and valued natural resources (e.g., an identified wetland or endangered species habitat) can also be evaluated in relation to the hazard area. Together, this information conveys the exposure and vulnerability of the planning area to that hazard.

5.3 Asset Inventory

An inventory of assets was compiled to identify the total count and value of property exposure in the City of Savannah. This asset inventory serves as the basis for evaluating exposure and vulnerability. Assets identified for analysis include developed parcels, critical facilities, and critical infrastructure. Chatham County parcel data was used as the basis for the inventory of developed parcels. Critical facilities data was provided by the City and was updated based on input from community representatives on the FMPC.

Table 5-7 shows the count, land value, improved value, content value and total value of parcels in Savannah. All occupancy types were summarized into the following categories used for analysis by FEMA's Hazus software: Agriculture, Commercial, Education, Government, Industrial, Religious, and Residential.

Table 5-7 – Savannah Parcels at Risk by Property Type

Land Use	Estimated Parcel Count	Structure Value	Estimated Content Value	Total Value
Agricultural	13	\$1,119,900	\$1,119,900	\$2,239,800
Commercial	4,326	\$6,024,291,312	\$6,024,291,312	\$12,048,582,624
Education	95	\$461,368,600	\$461,368,600	\$922,737,200
Government	583	\$2,633,671,237	\$2,633,671,237	\$5,267,342,474
Industrial	605	\$1,820,517,330	\$2,730,775,995	\$4,551,293,325
Religious	618	\$438,621,900	\$438,621,900	\$877,243,800
Residential	43,742	\$8,833,526,353	\$4,416,763,177	\$13,250,289,530
Total	49,982	\$20,213,116,632	\$16,706,612,121	\$36,919,728,753

Source: SAGIS 2023

SAGIS 2023 parcel data was the most recent data available when this analysis began. After its completion, 2025 parcel data became available. For comparison, Table 5-8 summarizes 2025 improved parcel data. There are minor differences between the 2023 and 2025 parcel summaries, including an overall increase of 1,320 improved parcels and an associated increase in total structure value of over \$4.2 billion. Note that 2023 parcel data was used to complete the vulnerability assessment.

Table 5-8 – 2025 Improved Parcels Summary

Land Use	Estimated Parcel Count	Structure Value
Agricultural	9	\$1,736,600
Commercial	4,384	\$7,104,769,605
Education	94	\$481,648,600
Government	587	\$3,005,461,600
Industrial	600	\$2,350,724,645
Religious	612	\$407,671,200
Residential	45,046	\$11,120,967,069
Total	51,332	\$24,472,979,319

Source: SAGIS 2025

5.3.1 Critical Facility Inventory

Of significant concern with respect to any disaster event is the location of critical facilities in the planning area. Critical facilities are often defined as those essential services and facilities in a major emergency which, if damaged, would result in severe consequences to public health and safety or a facility which, if unusable or unreachable because of a major emergency, would seriously and adversely affect the health, safety, and welfare of the public.

For this plan update, critical facilities and infrastructure in the region were categorized based on FEMA's Community Lifelines categories. Community Lifelines are defined as facilities that "enable the continuous operation of critical government and business functions and [are] essential to human health and safety or economic security." Note that FEMA Lifelines are overarching categories and critical facilities were assigned to the most relevant lifeline. Critical facilities in Savannah are shown in Figure 5.1 and listed in Table 5-9.

Table 5-9 – Critical Facilities by Type FEMA Lifeline

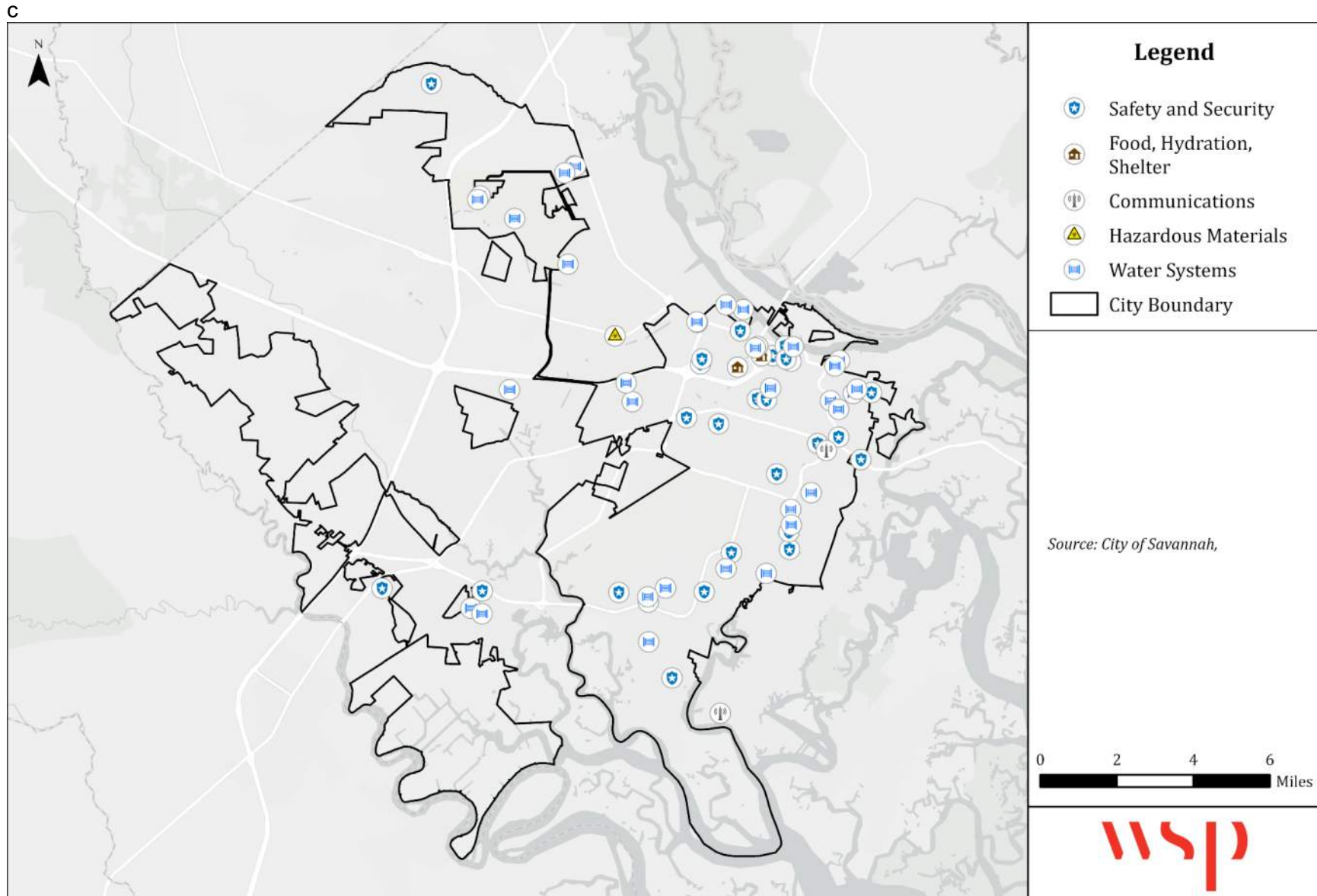
Facility	Address	FEMA Lifeline
Radio Tower	1801 Kerry St	Communications
Radio Tower - Southside	50 Queen Aire Drive	Communications
Coastal Georgia Center	305 Fahm Street	Food, Hydration, Shelter
Enmarket Arena	620 Stiles Avenue	Food, Hydration, Shelter
Critical Workforce Shelter (CWS)	6183 Hwy 21 N	Food, Hydration, Shelter
Sanitation HQ	1809 US-80, Savannah, GA 31408	Hazardous Materials
Civic Center	301 W Oglethorpe Ave	Safety & Security
City Hall	1 E Bay St	Safety & Security
Police Headquarters	201 Habersham	Safety & Security
Fire Station #03	121 E Oglethorpe Ave	Safety & Security
Fire Station #09	2235 Capital St	Safety & Security
Fire Station #05	10 W 33rd St	Safety & Security
Fire Station #13	11 McKenna Dr	Safety & Security
Police Training	3401 Edwin St	Safety & Security
Police Precinct - Central	1710 MLK Jr. Blvd.	Safety & Security
Police Precinct - Eastside	2250 E Victory Dr	Safety & Security
Police Precinct - Northwest	602 E Lathrop Ave	Safety & Security
Police Precinct - Southside	7804 Abercorn, Unit 5	Safety & Security

Facility	Address	FEMA Lifeline
Police Professional Standards	1900 East Victory Drive Suite B5	Safety & Security
Police Traffic Operations	602 E Lathrop Ave	Safety & Security
Fire Station #01	535 E 63rd St	Safety & Security
Fire Station #02	5 Skyline Dr	Safety & Security
Fire Station #04	2402 Augusta Ave	Safety & Security
Fire Station #06	3000 Liberty Pkwy	Safety & Security
Fire Station #07	6902 Sallie Mood Dr	Safety & Security
Fire Station #08	2824 Bee Rd	Safety & Security
Fire Station #10	13710 Coffee Bluff Rd	Safety & Security
Fire Station #11	11844 Apache Rd	Safety & Security
Fire Station #12	1205 Bradley Boulevard	Safety & Security
Fire Station #14	480 Highlands Dr	Safety & Security
Fire Station #15	1751 Grove Point Rd	Safety & Security
Fire Marshalls	10 W 33rd St	Safety & Security
Fire Training	380 Agonic Rd	Safety & Security
Adams City Services Complex Building A	20 Interchange Drive	Safety & Security
Adams City Services Complex Building B	20 Interchange Drive	Safety & Security
Fire Service Support Center (SSC)	6 Interchange Court	Safety & Security
I & D Water	6183 Hwy 21 N	Water Systems
DeRenne Station #A1	Southside DeRenne Ave West of Truman Pkwy	Water Systems
DeRenne Station #A2	Southside DeRenne Ave West of Truman Pkwy	Water Systems
DeRenne Station #B1	Southside DeRenne Ave West of Truman Pkwy	Water Systems
DeRenne Station #B2	Southside DeRenne Ave West of Truman Pkwy	Water Systems
DeRenne House	Southside DeRenne Ave West of Truman Pkwy	Water Systems
Montgomery Xroads #01	End of Madrid Ave East of Water Ave	Water Systems
Montgomery Xroads #02	End of Madrid Ave East of Water Ave	Water Systems
Montgomery Xroads House	End of Madrid Ave East of Water Ave	Water Systems
Springfield Station #01	Oglethorpe & Canal St foot of Talmadge Bridge	Water Systems
Springfield Station #02	Oglethorpe & Canal St foot of Talmadge Bridge	Water Systems
Springfield Station #03	Oglethorpe & Canal St foot of Talmadge Bridge	Water Systems
Springfield Station House	Oglethorpe & Canal St foot of Talmadge Bridge	Water Systems
Kayton Station #01	President St NE corner of WQC Plant Complex	Water Systems
Kayton Station #02	President St NE corner of WQC Plant Complex	Water Systems
Kayton Station #03	President St NE corner of WQC Plant Complex	Water Systems
Fell Street Station #01	E Lathrop near GPA Gate and Colonial Oil	Water Systems
Fell Street Station #02	E Lathrop near GPA Gate and Colonial Oil	Water Systems
Lathrop Street Station #01	Soutside of Lathrop Ave next to NW Precinct	Water Systems
Lathrop Street Station #02	Soutside of Lathrop Ave next to NW Precinct	Water Systems
Crossroads Treatment	125 A Gulfstream Rd	Water Systems
President Street Plant WPCP	1400 E President St	Water Systems
Lift Station #16	11015 Largo Dr	Water Systems
Georgetown Treament Plant	14 Beaver Run Rd	Water Systems
Lift Station #148	400 Airways Ave	Water Systems
Lift Station #149	Agate Dr I-95 Savannah Airport Dr	Water Systems
Lift Station #040	End of Mikell Ave 400 Airways	Water Systems
Lift Station #115	Chatham Pkwy behind Southern Oaks	Water Systems
Lift Station #116	1000 Chatham Pkwy at Hwy 17	Water Systems

Facility	Address	FEMA Lifeline
Lift Station #023	Lousville Rd and 121 W Boundary St	Water Systems
Lift Station #065	Agonic Rd and Eisenhower Dr	Water Systems
Lift Station #064	Bee Rd and Frost Dr	Water Systems
Lift Station #083	11705 Mercey Blvd	Water Systems
Lift Station #063	2212 Elgin St	Water Systems
Lift Station #134*	Wedgefield Crossing at 415 Sothbridge	Water Systems
Lift Station #21*	River St and Lincoln St	Water Systems
Well #05*	Whitaker St and Park Ave	Water Systems
Well #08*	Edgewood Rd and Pierpoint Ave	Water Systems
Well #10*	Augusta Ave and Old West Lathrop Ave	Water Systems
Well #11*	Pennsylvania Ave and Harrison St	Water Systems
Well #29*	Barskdale Dr and Red Fox Dr	Water Systems
Well #1	101 Walz Circle	Water Systems
Well #13	205 East Montgomery Crossroads	Water Systems
Well #23	12517 Largo Drive	Water Systems
Well #27	11889 McAuley Road	Water Systems

Source: City of Savannah, GMIS

*Water systems assets include stormwater, wastewater, and potable water infrastructure

Figure 5.1 – Savannah Critical Facilities

5.4 Hazard Profiles, Analysis, and Vulnerability

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. Plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B): An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate; and

(C): Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

The following sections, detailed in the table below, provide profiles of the natural flood hazards that the FMPC identified in Table 3.1 Flood Hazard Summary. Note that vulnerability assessments were only developed for moderate and high priority hazards, defined using the Priority Risk Index (PRI) as those hazards with a PRI score of 2.0 or greater.

Section	Hazard	PRI Score	PRI Rating
5.4.1	Climate Change & Sea Level Rise	2.7	Moderate
5.4.2	Coastal & Canal Bank Erosion	1.6	Low
5.4.3	Dam Failure	1.7	Low
5.4.4	Riverine & Coastal Flooding	3.3	High
5.4.5	Stormwater/Localized Flooding	3.3	High
5.4.6	Hurricane & Tropical Storm	3.1	High

5.4.1 Climate Change & Sea Level Rise

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Climate Change & Sea Level Rise	Likely	Critical	Small	More than 24 hrs	More than 1 week	2.7

Hazard Description

Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change is a natural occurrence in which the earth has warmed and cooled periodically over geologic time. However, the recent and rapid warming of the earth over the past century has been cause for concern, as this warming is very likely due to the accumulation of human-caused greenhouse gases, such as CO₂, in the atmosphere (IPCC, 2007). This warming is occurring almost everywhere in the world which suggests a global cause rather than changes in localized weather patterns. This global increase in temperatures is having broad range of effects on global, regional, and local climates.

Sea level rise is the increase in sea levels as a result of atmospheric and oceanic warming which causes water expansion as well as ice melt from ice sheets and glaciers. There are generally two separate mechanics involved in global sea level rise. The first is directly attributed to global temperature increases, which warm the oceans waters and cause them to expand. The second is attributed to the melting of ice over land which simply adds water to the oceans. Global sea level rise is likely caused by a combination of these two mechanics and can be exasperated on the local level by factors such as erosion and subsidence.

Due to sea-level rise projected throughout the 21st century and beyond, coastal systems and low-lying areas will increasingly experience adverse impacts such as submergence, coastal flooding, and coastal erosion. The population and assets projected to be exposed to coastal risks as well as human pressures on coastal ecosystems will increase significantly in the coming decades due to population growth, economic development, and urbanization (IPCC, 2014). The City of Savannah is particularly vulnerable to the effects of climate change and sea level rise, due to its coastal location, subtropical environment, porous geology and low topography.

Warning Time: 1 – More than 24 hours

Duration: 4 – More than 1 week

Climate change has the potential to alter the nature and frequency of flood hazards that the City already experiences such as hurricane storm surge, coastal erosion, and stormwater drainage. Sea level rise may also place additional stress on aquifers (saltwater intrusion) and gravity flow stormwater and septic systems to a rising groundwater table. An elevated storm surge due to sea level rise could produce a cascade of consequences affecting things such as land use, infrastructure, facilities, waterway navigation, the local economy, public health and safety, drinking water supplies, and ecosystems. Sea level rise may also exacerbate extreme tides, resulting in more frequent and severe high tide flooding.

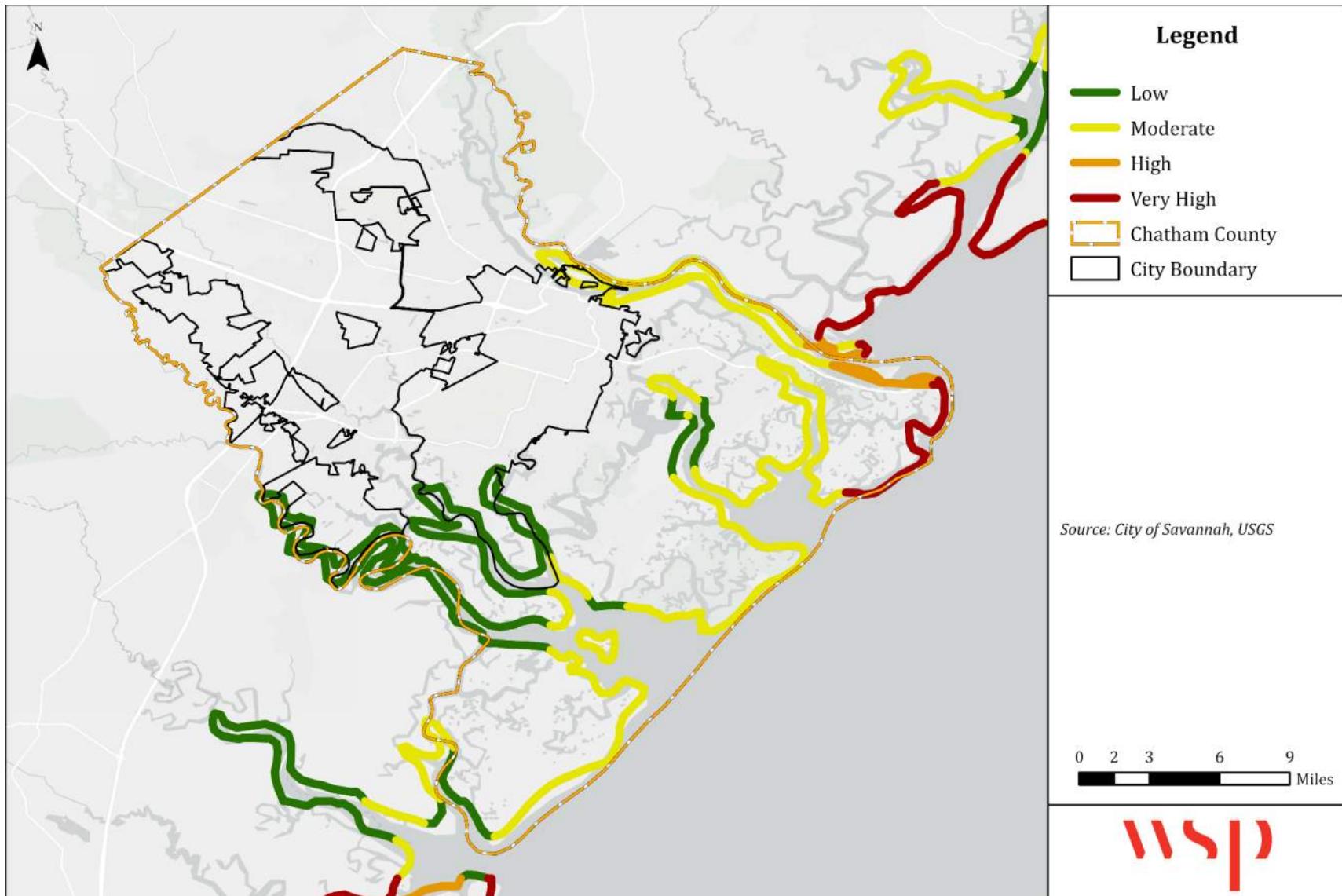
Location

Sea level rise can occur anywhere along major waterways in the City of Savannah. The Coastal Vulnerability Index (CVI), developed by the United States Geological Survey (USGS), provides a preliminary overview of the relative susceptibility of the United States coast to sea level rise. The CVI is based on geomorphology, regional coastal slope, tide range, wave height, relative sea level rise, and

shoreline erosion and acceleration rates. For each study area, each variable is scored on 1-5 scaled based on defined parameters, where “1” indicates low contribution to coastal vulnerability and “5” indicates high contribution to vulnerability. These scores are then aggregated into a single index through a mathematical formula. The resulting index gives an overview of where physical changes may occur due to sea-level rise.

Figure 5.2 shows the CVI for the Savannah area. Shorelines along the Savannah River adjacent to the City are rated as moderate vulnerability. Areas along the Wilmington River have low to moderate CVI ratings. Areas along the Ogeechee River, Little Ogeechee River, and Vernon River have low to moderate CVI ratings.

Spatial Extent: 2 – Small

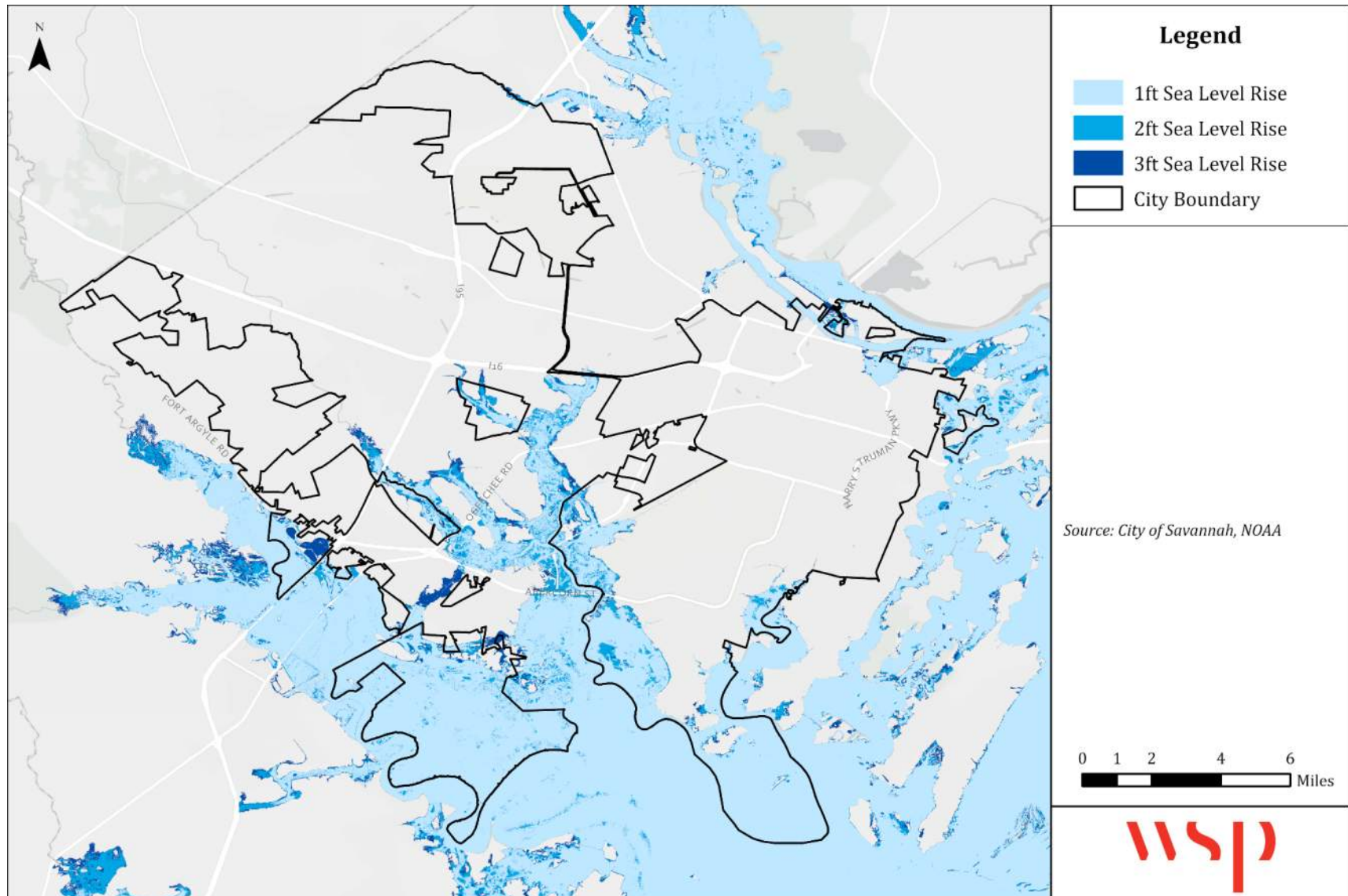
**Figure 5.2 – Coastal Vulnerability Index, Savannah**

Source: USGS Coastal Change Hazards Portal (<https://marine.usgs.gov/coastalchangehazardsportal/>)

Extent

Sea level rise can be measured by the number of feet of relative rise and the areas that such rise would inundate. The estimated impacts of 1-foot, 2-foot, and 3-foot sea level rise are shown in Figure 5.3 according to data from the NOAA Sea Level Rise viewer. The sea level rise estimate maps show inundation above mean higher high water (the average of each day's higher high tide line). Sea level rise will likely affect land along the Savannah River and its tributaries as well as coastal marsh lands along the Atlantic Coast. Sea level rise will likely increase future risk of flooding from the other flood hazards discussed later in this plan, as more land will have a lower elevation relative to sea level. Additionally, with some barrier islands and wetlands inundated, inland areas will lose their natural protection and may become susceptible to coastal flooding with velocity wave action.

Impact: 3 – Critical

**Figure 5.3 – Projected Inundation from 1-Foot, 2-Foot, and 3-Foot Sea Level Rise**

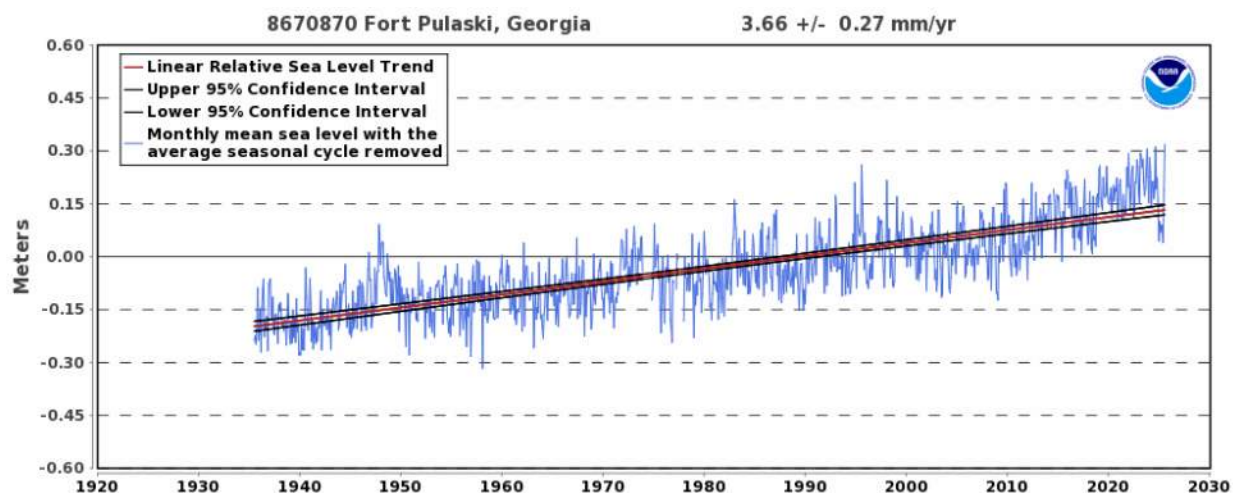
Past Occurrences

The rate of sea level rise has varied throughout geologic history, and studies have shown that global temperature and sea level are strongly correlated. Historic trends in local Relative Sea Level (RSL) are best determined from tide gauge records. Tide gauge measurements are made with respect to a local fixed reference on land. The Center for Operational Oceanographic Products and Services within NOAA has been measuring sea level for over 150 years, with tide stations operating on all U.S. coasts. Changes in RSL, either a sea level rise or sea level fall, have been computed at 142 long-term water level stations using a minimum span of 30 years of observations at each location. These measurements have been averaged by month to remove the effect of higher frequency phenomena (e.g. storm surge) in order to compute an accurate linear sea level trend.

The station in Fort Pulaski, GA is the closest to the Savannah planning area. At this station, the relative sea level trend is 3.66 millimeters/year with a 95% confidence interval of ± 0.27 mm/year based on monthly mean sea level data from 1935 to 2024, which is equivalent to a change of 1.20 feet in 100 years.

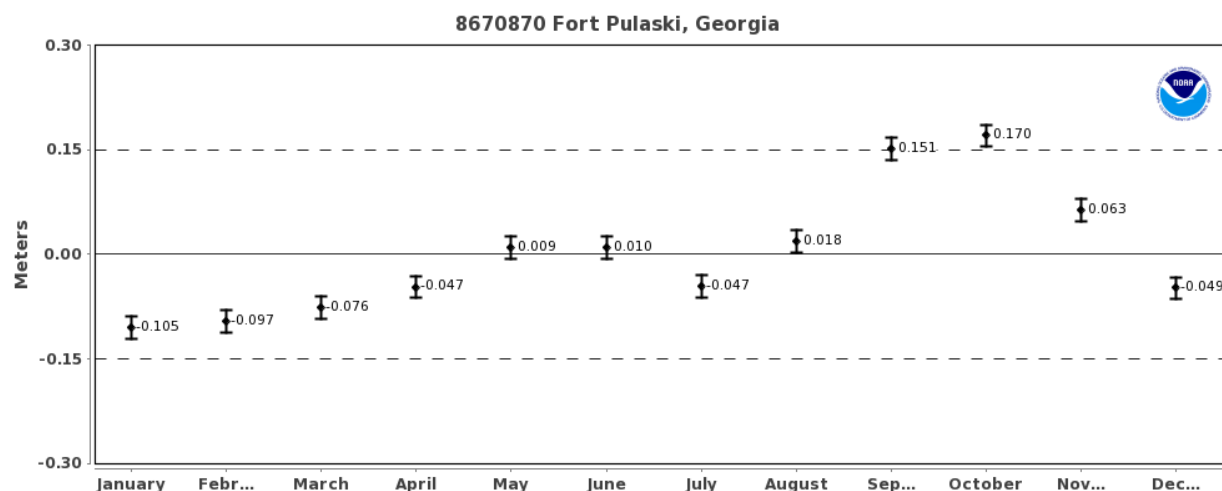
Figure 5.4 shows the monthly mean sea level at NOAA's Fort Pulaski, GA station without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The plotted values are relative to the most recent Mean Sea Level datum established by CO-OPS. The values do not indicate the trend in each year, but the trend of the entire data period up to the present year.

Figure 5.4 – Mean Sea Level Trend for Fort Pulaski, Georgia



Source: <https://tidesandcurrents.noaa.gov/inundationdb/inundation.html?id=8670870#sealevelplot>

According to tide gauge data on the average seasonal cycle of mean sea level, as shown in Figure 5.5, tidal flooding is more likely in September and October.

Figure 5.5 – Average Seasonal Cycle of Mean Sea Level for Fort Pulaski, Georgia

Source: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8670870tabseasonal

Probability of Future Occurrence

Temperature Trends

According to datasets developed for the Fourth National Climate Assessment downscaled using Localized Constructed Analogs (LOCA)¹, Chatham County's average temperature is projected to increase by over 7°F by 2070-2099 with business-as-usual emissions. As previously mentioned, studies have shown that global temperature increases and sea level rise are strongly correlated.

Precipitation Trends

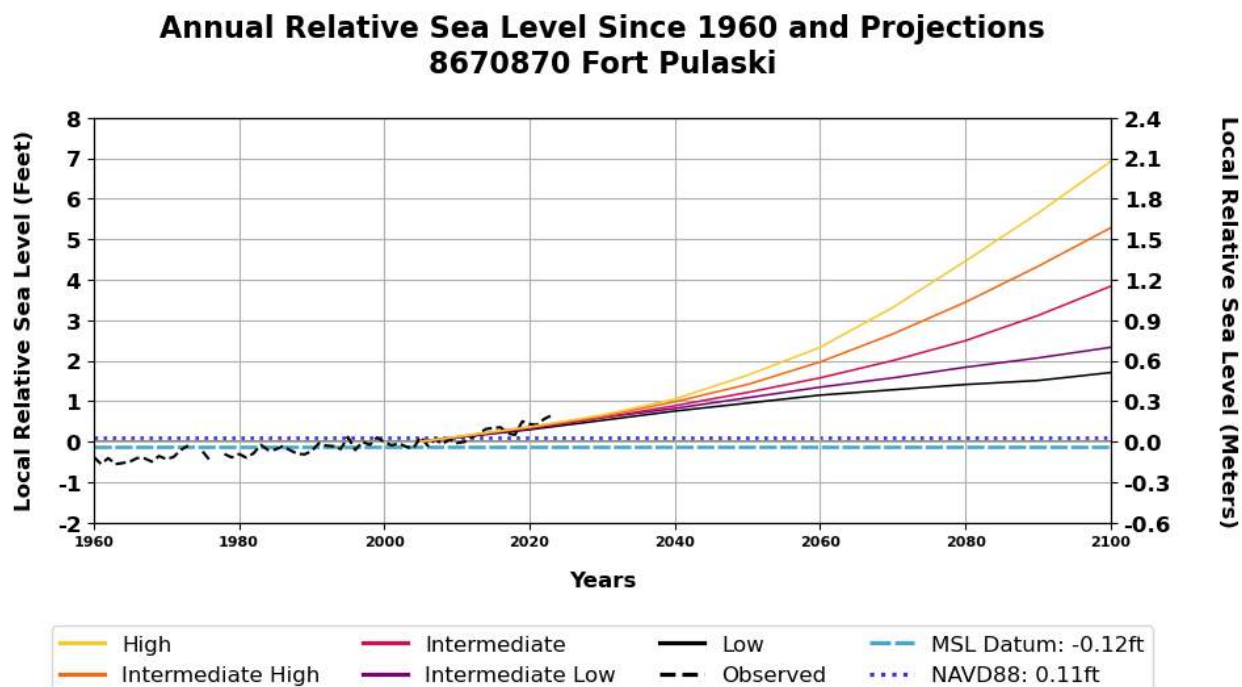
According to downscaled datasets from the Fourth National Climate Assessment, Chatham County's average annual precipitation is projected to increase by nearly 3 inches by 2070-2099 with business-as-usual emissions.

Sea Level Trends

Under current climate change models, changes in global temperatures, hydrologic cycles, and storm frequency and intensity are expected to continue. Climate change will continue to drive nonlinear trends in sea level that deviate from historic trends. Figure 5.6 from NOAA Tides & Currents shows five regionalized sea level rise scenarios plotted relative to a 1996-2014 baseline period with the year 2005 as the "zero" point. The five scenarios are generated to account for emissions uncertainty and process uncertainty. Emissions uncertainty relates to the unknown amount of greenhouse gases that will be emitted in the future, and process uncertainty relates to ice-mass loss, ocean thermal expansion, and local ocean dynamic changes, which will be affected by increased emissions. According to these projections, under the Intermediate High scenario, Chatham County could experience 1 foot of SLR by 2040 and 2 feet of SLR by 2060.

- **Short term:** by 2040, sea level is projected to rise approximately 1 foot
- **Medium term:** by 2060 sea level is projected to rise about 2 feet
- **Long term:** by 2100 sea level is projected to rise almost 5.3 feet

¹ <https://sites.gatech.edu/giscc/futureclimate/>

Figure 5.6 – Relative Sea Level Rise Projections for Fort Pulaski, GA

Source: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8670870#tabscenario

Probability: 3 – Likely

Vulnerability Assessment

Vulnerability – Medium

The City of Savannah, due to its close proximity to the Atlantic Coast and tidally influenced rivers, is vulnerable to the potential impacts of climate change and sea level rise, which include increased flooding frequency, potential damage to critical infrastructure, and increasing public costs associated with flood insurance claims, infrastructure repair and maintenance, environmental impacts and increased costs associated with emergency management efforts.

Specifically, sea level rise can have the following impacts on property and infrastructure in Savannah:

- Roads and bridges inundation
- Utility infrastructure inundation
- Erosion hazard zones impacts
- Damage to built environment including residential development
- Natural resource damages
- Loss or damage of recreational facilities and amenities such as beaches, public access points, and parks
- Saltwater intrusion into water supply
- Loss of property and property tax revenue due to inundation

Property at Risk

As discussed above, the Savannah area could experience 1 foot of sea level rise by 2040 to over 5 feet of sea level rise by the year 2100. Table 5-10 summarizes the estimated number of parcels in Savannah

that would be impacted by 1-, 2-, and 3-feet of sea level rise based on a GIS analysis of inundation extent. Note that this analysis does not account for finished floor elevations; some properties intersecting the inundation extent may be elevated above potential flood levels.

Per this GIS assessment, 719 total parcels will be impacted by 3 feet of sea level rise – about 14 percent of all parcels in the city.

Savannah is expected to see approximately one foot of sea level rise by 2040, which would impact approximately 427 parcels in Savannah. These parcels account for less than 1 percent of all parcels in the city and are valued at \$1.192 billion.

Table 5-10 – Parcels Affected by Sea Level Rise, City of Savannah

Occupancy Type	Parcel Count	Total Building Value	Total Building Content Value	Total Exposed Value
Agricultural	6	\$971,400	\$971,400	\$1,942,800
1ft SLR	5	\$355,700	\$355,700	\$711,400
2ft SLR	1	\$615,700	\$615,700	\$1,231,400
Commercial	32	\$409,893,895	\$409,893,895	\$819,787,790
1ft SLR	24	\$329,887,410	\$329,887,410	\$659,774,820
2ft SLR	3	\$3,770,185	\$3,770,185	\$7,540,370
3ft SLR	5	\$76,236,300	\$76,236,300	\$152,472,600
Government	29	\$316,882,500	\$316,882,500	\$5,267,342,474
1ft SLR	24	\$171,787,400	\$171,787,400	\$343,574,800
2ft SLR	1	\$129,746,600	\$129,746,600	\$259,493,200
3ft SLR	4	\$15,348,500	\$15,348,500	\$30,697,000
Industrial	17	\$23,755,282	\$35,632,923	\$59,388,205
1ft SLR	13	\$21,429,700	\$32,144,550	\$53,574,250
2ft SLR	1	\$76,282	\$114,423	\$190,705
3ft SLR	3	\$2,249,300	\$3,373,950	\$5,623,250
Religious	7	\$1,886,600	\$1,886,600	\$3,773,200
1ft SLR	7	\$1,886,600	\$1,886,600	\$3,773,200
Residential	628	\$153,459,807	\$76,729,904	\$230,189,711
1ft SLR	354	\$87,359,807	\$43,679,904	\$131,039,711
2ft SLR	138	\$35,514,700	\$17,757,350	\$53,272,050
3ft SLR	136	\$30,585,300	\$15,292,650	\$45,877,950
Total	719	\$906,849,484	\$841,997,222	\$1,748,846,706

Note: Parcels counted above only include improved parcels within the City of Savannah.

Critical Facilities at Risk

Fourteen water systems facilities, including wastewater, stormwater, and potable water infrastructure, are exposed to sea level rise and high tide.

Seven facilities are exposed to sea level rise. Kayton Stations #01, # 02, 03 are exposed to 3ft of sea level rise, and Well #29 and Montgomery Xroads House and stations #01 and #02 are exposed to 1ft of sea level rise.

An additional seven facilities are exposed to high tide flooding. This includes DeRenne House and Stations #A1, #A2, #B1, #B2, Lift Station #115, and Well #1.

Additional data on the elevation and mitigation characteristics of the facilities would be needed to determine the potential extent of impacts.

People at Risk

This section also provides an assessment of direct impacts from sea level rise, using best available data from Climate Central. Table 5-11 provides an exposure analysis from Climate Central's Coastal Risk Finder tool based on the elevation of land that structures are located on relative to local high tide. The results do not factor in structure elevation. Per Climate Central, 1 foot of sea level rise would impact 100 homes and 240 individuals.

Table 5-11 – Sea Level Rise and Coastal Flood Exposure in Savannah, Georgia

Elevation relative to local high tide line (Mean Higher High Water)						
	Unit	1ft	2ft	3ft	4ft	5ft
Socially vulnerable people	Count	70	160	310	650	1,400
Highly socially vulnerable people	Count	28	64	120	240	540
People of color	Count	220	260	340	540	1,700
Black people	Count	210	230	280	420	1,000
White people	Count	19	84	240	470	1,900
Hispanic people	Count	-	19	31	58	300
Asian Americans	Count	-	-	-	34	270
Children under 5	Count	-	18	31	61	140
Children under 18	Count	26	59	110	210	450
Adults over 64	Count	13	31	66	140	300
Adults over 84	Count	-	-	-	14	29
Homes	Count	100	150	290	520	850
Land	Acres	15,000	16,000	17,000	18,000	20,000

Source: Climate Central Coastal Risk Finder

5.4.2 Coastal & Canal Bank Erosion

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Coastal & Canal Bank Erosion	Possible	Minor	Negligible	More than 24 hrs	More than 1 week	1.6

Hazard Description

Coastal Erosion

Coastal erosion is a process whereby large storms, flooding, strong wave action, sea level rise, and human activities, such as inappropriate land use, alterations, and shore protection structures, wears away the beaches and bluffs along the coast. Erosion undermines and often destroys homes, businesses, and public infrastructure and can have long-term economic and social consequences. According to NOAA, coastal erosion is responsible for approximately \$500 million per year in coastal property loss in the United States, including damage to structures and loss of land. To mitigate coastal erosion, the federal government spends an average of \$150 million every year on beach nourishment and other shoreline erosion control measures.

Coastal erosion has both natural causes and causes related to human construction activities. Gradual coastal erosion results naturally from the very slow rise of sea-level. Severe coastal erosion can occur over a very short period of time when the state is impacted by hurricanes, tropical storms and other weather systems. In Georgia, sand is moved parallel to most beaches by longshore drift and currents. Sand is continually removed by longshore currents in some areas but it is also continually replaced by sand carried in by the same type of currents. Structures such as piers or sea walls, jetties, and navigational inlets may interrupt the movement of sand, and sand can become “trapped” in one place by these types of structures. The currents will continue to flow, though depleted of sand trapped elsewhere which leads to erosion.

Canal Bank Erosion

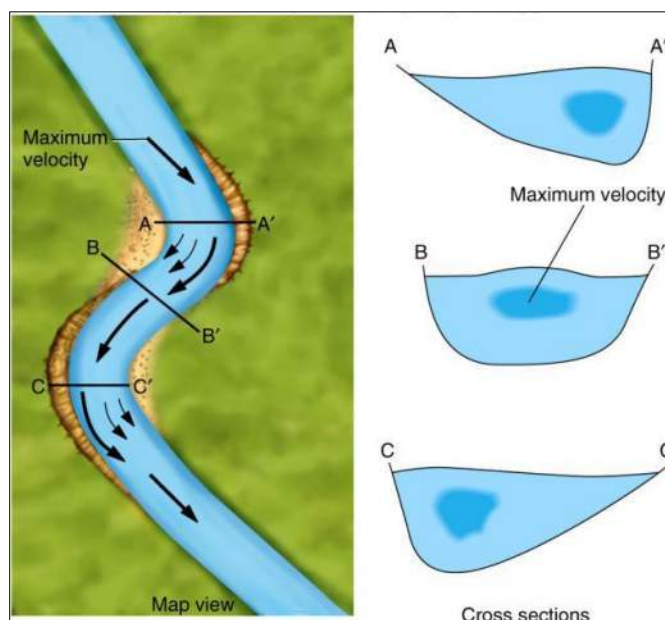
Streams/canals erode by a combination of direct stream processes, like down cutting and lateral erosion, and indirect processes, like mass-wasting accompanied by transportation. When the channel bends, water on the outside of the bend (the cut-bank) flows faster and water on the inside of the bend (the point) flows slower as shown in Figure 5.7. This distribution of velocity results in erosion occurring on the outside of the bend and deposition occurring on the inside of the bend.

Stream bank erosion is a natural process, but acceleration of this natural process leads to a disproportionate sediment supply, stream channel instability, land loss, habitat loss and other adverse effects. Stream bank erosion processes, although complex, are driven by two major components: stream bank characteristics (erodibility) and hydraulic/gravitational forces. Many land use activities can affect both of these components and lead to accelerated bank erosion. The vegetation rooting characteristics can protect banks from fluvial entrainment and collapse and also provide internal bank strength. When riparian vegetation is changed from woody species to annual grasses and/or forbs, the internal strength is weakened, causing acceleration of mass wasting processes. When land use changes occur in a watershed, such as clearing land for agriculture or development, runoff increases. With this increase in runoff the stream channel will adjust to accommodate the additional flow, increasing streambank erosion. Stream bank aggradation or degradation is often a response to stream channel instability. Since bank erosion is often a symptom of a larger, more complex problem, the long-term solutions often involve much more than just bank stabilization.

Warning Time: 1 – More than 24 hours

Duration: 4 – More than 1 week

Figure 5.7 – Stream Meanders



Location

In the Savannah Region, erosion can occur along estuarine shorelines, stream banks, and canal banks. As inland soils tend to have greater organic matter content as compared to the fine-grained particles such as sand found along the coast, these inland areas are less susceptible to erosion.

Shorelines along the Savannah River adjacent to the City are rated as moderate vulnerability. Areas along the Wilmington River have low to moderate CVI ratings. Areas along the Ogeechee River, Little Ogeechee River, and Vernon River have areas of higher erosion rates.

Spatial Extent: 1 – Negligible

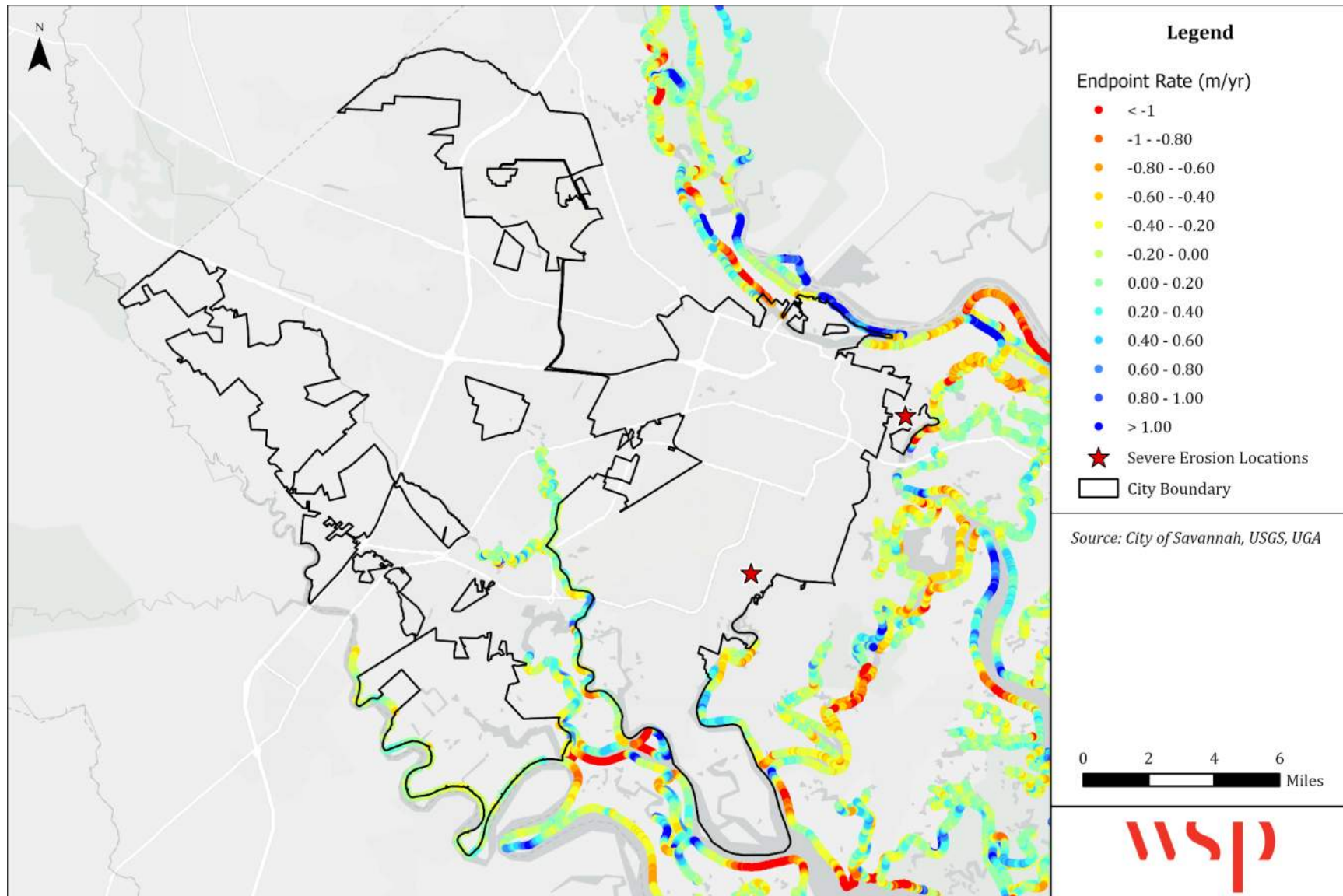
Extent

Erosion rates and potential impacts are highly localized. Average coastline recession rates of 25 feet per year are not uncommon on some barrier islands in the Southeast. Severe storms can remove even wider beaches, along with substantial dunes, in a single event. In undeveloped areas, these high recession rates are not likely to cause significant concern, but in some heavily populated locations, one or two feet of erosion may be considered catastrophic (NOAA, 2014).

The severity of coastal erosion is typically measured through a quantitative assessment of annual shoreline change for a given beach cross-section profile (feet or meters per year) over a long period of time. Erosion rates vary as a function of shoreline type and are influenced primarily by episodic events but can be used in land use and hazard management to defined areas of critical concern.

On canals, erosion may be measured by mass wasting events or decreased capacity due to sedimentation.

Impact: 1 – Minor

Figure 5.8 – Georgia Shoreline Change and Severe Erosion Hotspots, Savannah Area

Past Occurrences

The Skidaway Institute of Oceanography at the University of Georgia maps the state's coastal hazards, including shoreline change and erosional hotspots. Figure 5.8 above depicts coastline erosion and accretion changes from the 1930s through 2000. There is a small area of erosion along the Savannah River just east of downtown; there are also areas of erosion along Hutchinson Island across the River from downtown. Throughout Chatham County there are areas of erosion and accretion. Although erosion is an ongoing phenomenon, it can be intensified during storm events such as coastal storms and hurricane storm surges. The Chatham County Hazard Mitigation Plan notes incidences of coastal erosion contained within event narratives in NCEI, however all of these events occurred along the Atlantic coastline.

Savannah has experienced canal bank erosion in the past. Canal bank erosion is a natural process, but acceleration of this natural process leads to a disproportionate sediment supply, stream channel instability, land loss, habitat loss, and other adverse effects.

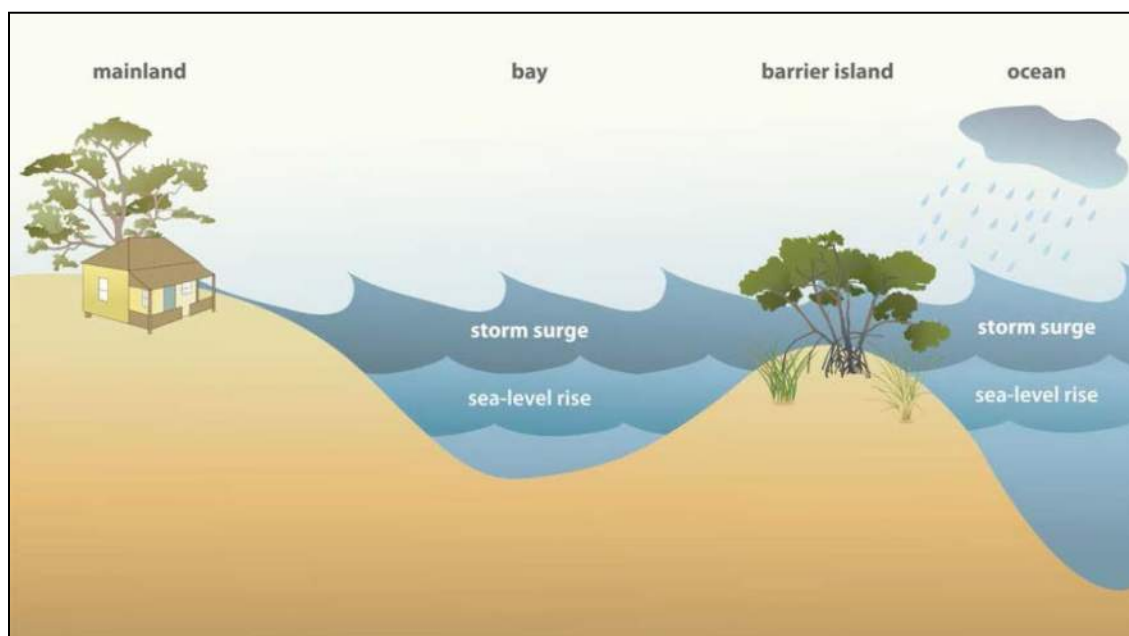
Probability of Future Occurrence

In general, low dune elevations along the southeast Atlantic coast make the region more vulnerable to erosion hazards during hurricanes and other coastal storms. In the region, waves play a large role in elevating shoreline water levels. It is likely coastal erosion will continue along the shoreline in Chatham County, however the planning area for the City of Savannah falls mostly outside of the critical areas of concern for erosion. Canal bank erosion can be expected to occur in the future as a matter of course in all canal bank areas.

Probability: 2 – Possible

Climate Change and Future Conditions

Coastal erosion is expected to increase as a result of rising seas. Sea-level rise will raise all tide levels, from low tide to storm surge. Wave action at higher tide levels may cause erosion of sandy beaches. Higher storm surges, which may be accompanied by stronger storm winds, could wash over the tops of sand dunes, flooding the burrows of dune-nesting animals. The combined effects of wind and waves could damage dunes, leaving the beachfront more vulnerable (UF/IFAS Extension, 2013). While Savannah is not directly affected by these changes, the erosion of beachfront dunes and estuarine shorelines may lead to increased inland vulnerability to erosion and coastal flooding.


Figure 5.9 – Sea Level Rise and Coastal Erosion of Dunes


Credits: Jane Hawkey, IAN Image Library (ian.umces.edu/imagelibrary/)

Climate change is also expected to make heavy rain events and tropical storms and hurricanes more frequent and intense. As a result, the erosion typically caused by these storms can be expected to occur more frequently. According to the Center of Ocean Solutions, there has been a dramatic increase in coastal erosion over the last two decades and this is expected to continue as sea level rises and storm frequency and severity increase. Rather than occurring over the same time scale with sea level rise, erosion of beaches and coastal cliffs is expected to occur in large bursts during storm events as a result of increased wave height and storm intensity. Because of these large events, scientific models predict that shoreline erosion may outpace sea level rise by 50- to 200-fold. Erosion will have significant effects on coastal habitats, which can lead to social and economic impacts on coastal communities. With the reduction of coastal habitats and the ecological services they provide, coastal communities will experience more frequent and destructive flooding, compromised water supplies and smaller or fewer beaches.

Vulnerability Assessment

Vulnerability—Medium

Data from the Georgia Coastal Hazards portal notes that there are small areas of erosion along the banks of the Savannah River and larger areas along the Atlantic Coast throughout Chatham County. There is some light development in the area along the Savannah River directly adjacent to downtown that is experiencing erosion, but it is limited. Coastal erosion is expected to continue, but the City of Savannah does not lie within areas of critical concern and is generally protected by the barrier islands along the Atlantic.

5.4.3 Dam Failure

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam Failure	Unlikely	Limited	Small	More than 24 hrs	Less than 1 week	1.7

Hazard Description

A dam is a barrier constructed across a watercourse that stores, controls, or diverts water. Dams are usually constructed of earth, rock, or concrete. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet. One acre-foot is the volume of water that covers one acre of land to a depth of one foot. Dams can benefit farm land, provide recreation areas, generate electrical power, and help control erosion and flooding issues.

A dam failure is the collapse or breach of a dam that causes downstream flooding. Dam failures may be caused by natural events, human-caused events, or a combination. Due to the lack of advance warning, failures resulting from natural events, such as hurricanes, earthquakes, or landslides, may be particularly severe. Prolonged rainfall and subsequent flooding is the most common cause of dam failure.

Dam failures usually occur when the spillway capacity is inadequate and water overtops the dam or when internal erosion in dam foundation occurs (also known as piping). If internal erosion or overtopping cause a full structural breach, a high-velocity, debris-laden wall of water is released and rushes downstream, damaging or destroying anything in its path. Overtopping is the primary cause of earthen dam failure in the United States.

Dam failures can result from any one or a combination of the following:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross-section of the dam and abutments, or maintain gates, valves, and other operational components;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including the failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway; and
- High winds, which can cause significant wave action and result in substantial erosion.

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major casualties and loss of life could result, as well as water quality and health issues. Potentially catastrophic effects to roads, bridges, and homes are also of major concern. Associated water quality and health concerns could also be issues. Factors that influence the potential severity of a full or partial dam failure are the amount of water impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

The National Inventory of Dams (NID) is a database of dams in the United States which was developed and is maintained by the USACE. Congress authorized the USACE to inventory dams as part of the 1972 National Dam Inspection Act. Several subsequent acts have authorized maintenance of the NID and provided funding. The USACE collaborates with FEMA and state regulatory offices to collect data on

dams. The goal of the NID is to include all dams in the United States which meet at least one of the following criteria:

1. High hazard classification - loss of at least one human life is likely if the dam fails
2. Significant hazard classification - possible loss of human life and likely significant property or environmental destruction
3. Equal or exceed 25 feet in height and exceed 15 acre-feet in storage
4. Equal or exceed 50 acre-feet storage and exceed 6 feet in height

Low hazard dams which do not meet the criteria specified in number 3 or 4 are not included in the NID even if they are regulated according to state criteria. In some states, the number of these dams is several times the number of dams included in the NID.

Warning Time: 1 – More than 24 hours

Duration: 3 – Less than one week

Location

Per the NID, there are three dams located within the boundaries of Savannah and one City-owned dam located upstream in Port Wentworth. Figure 5.10 reflects the location of these dams and Table 5-12 provides details on their ownership, size, and hazard potential. All of these dams are rated as having a low hazard potential.

Table 5-12 – National Inventory of Dams, City of Savannah

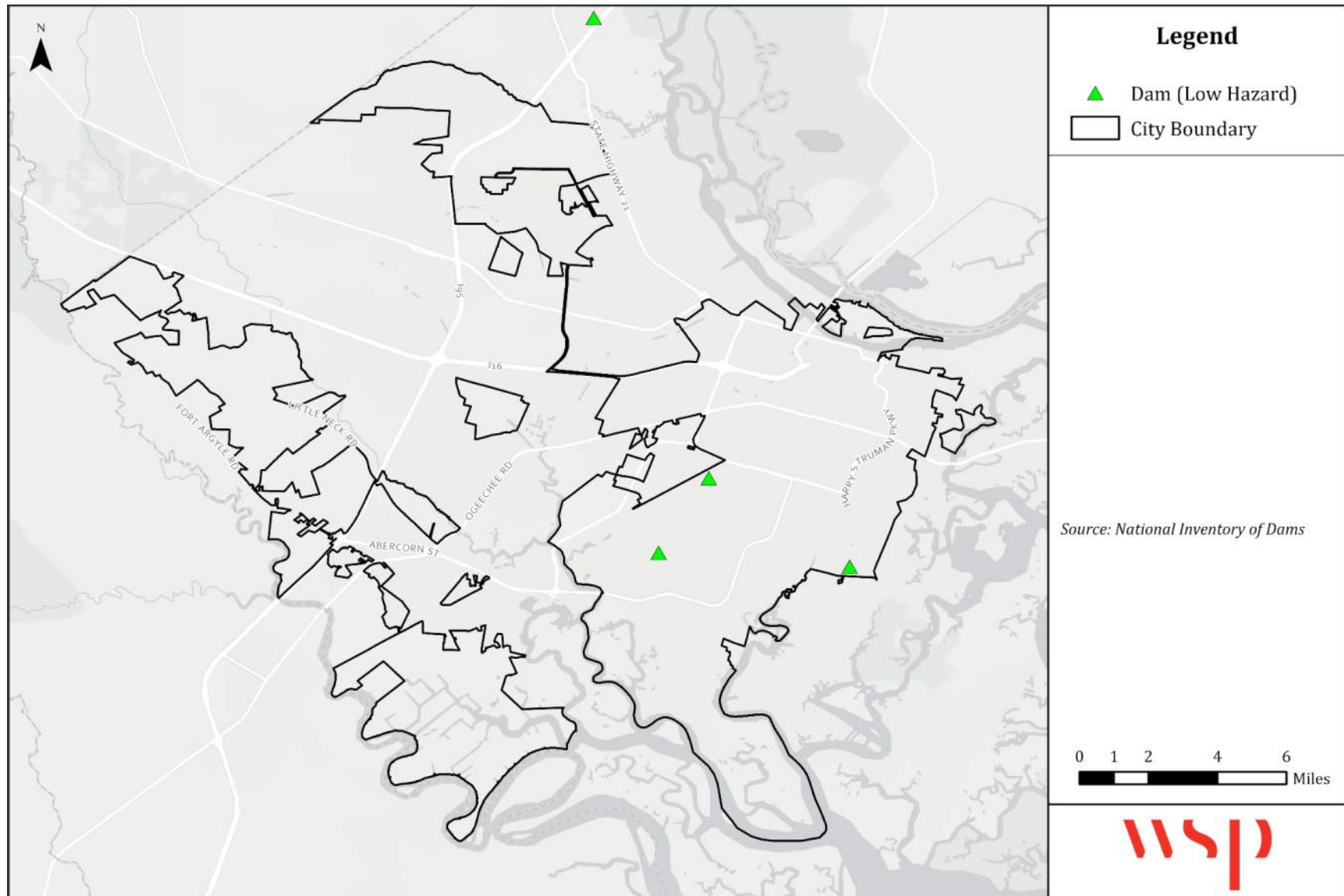
Dam Name	NIDID	Owner	Height (Ft.)	NID Storage (acre-feet)	Hazard Potential
Lake Mayer Dam	GA00927	CCBOC	9	382	Low
Pond 24	GA08220	Fort Stewart	26	45	Low
Pond 29	GA08226	Fort Stewart	19	71	Low
Savannah Raw Water Storage Impoundment Dam	GA07180	City of Savannah	29	450	Low

Source: U.S. Army Corps of Engineers National Inventory of Dams, Georgia Environmental Protection Division

Note: CCBOC = Chatham County Board of Commissioners

Spatial Extent: 2 – Small

Figure 5.10 – Dam Locations and Hazard Rating in City of Savannah



Extent

As discussed above, the potential magnitude of a dam failure can be measured by the NID hazard classification; all of the dams located in the City of Savannah are classified as Low. The Georgia Safe Dam Program (SDP) also classifies dams as follows:

- Category II (Low Hazard) includes dams located where failure will not cause loss of life. Situations constituting probable loss of life are situations that involve frequently occupied structures or facilities, including, but not limited to, residences, commercial and manufacturing facilities, schools, and churches.
- Category I (High Hazard) includes dams located where failure will likely cause loss of human life.

The Lake Mayer Dam and Savannah Raw Water Storage Impoundment Dam are included in the Georgia SDP and are classified as Category II.

Extent: 2 – Limited

Past Occurrences

According to the Association of State Dam Safety Officials' (ASDSO) [Dam Incident Database](#), there are no past reported dam failures within Savannah.

Probability of Future Occurrence

All dams located within the City of Savannah are classified as Low Hazard in both the NID and the Georgia SDP. Though these dams could impact the planning area, a flooding hazard from a future dam failure is unlikely. Still, regular monitoring is still necessary to prevent these events from occurring.

Probability: 1 – Unlikely

Climate Change and Future Conditions

Studies have been conducted to investigate the impact of climate change scenarios on dam safety. The safety of dams in relation to the future climate can be based on an evaluation of changes in design floods and the freeboard available to accommodate an increase in flood levels. The results from the studies indicate that the design floods with the corresponding outflow floods and flood water levels will increase in the future, and this increase will affect the safety of the dams in the future. Studies concluded that as the total hydrological failure probability of a dam will increase in the future, that the extent and depth of flood waters could increase future dam failure.

Per the Fourth National Climate Assessment, average annual rainfall is likely to increase, as is the intensity of individual rainfall events. These changes could overwhelm fragile flood control systems, however climate change is unlikely to change the risk of the city to dam failure.

Future development may increase the overall risk of dam failure by increasing downstream exposure of people and property. Regular inspection and evaluation of dam hazard potential can ensure appropriate safety precautions, such as the preparation of an Emergency Action Plan and the establishment of procedures for warning and evacuation of all at-risk structures should a failure occur.

Vulnerability Assessment

Vulnerability – Low

The 2024 Georgia Infrastructure Report Card prepared by ASCE, gave Georgia dams a grade of D+ for a high number of state-regulated deficient dams, a high number of private dams, and significant cost

associated with dam operation and maintenance which is a challenge for many property owners. The report does note improved staffing levels at the Georgia Safe Dams Program and progress in developing Emergency Action Plans for high hazard dams. Overall, this report indicates a high level of vulnerability in the State to dam failure.

Given the location and size of dams in Savannah and its nearby upstream areas, the City's vulnerability to flooding from dam failure or overtopping is very low. Still, regular monitoring and maintenance is needed. The average age of dams in Savannah is 50 years.

Regarding preparedness, Pond 29 and Pond 24 have Emergency Action Plans which were last revised in 2010. No other dams have EAPs, but none are required for low hazard dams.

In terms of maintenance, Pond 29 and Pond 24 were last inspected in August 2023, and Lake Mayer Dam was last inspected in April 2021.



5.4.4 Riverine & Coastal Flooding

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Riverine & Coastal Flooding	Highly Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.3

Hazard Description

Flooding is defined by the rising and overflowing of a body of water onto normally dry land. As defined by FEMA, a flood is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties. Flooding can result from an overflow of inland or tidal waters or an unusual accumulation or runoff of surface waters from any source.

Flooding causes more damage in the United States than any other severe weather-related event, an average of \$5 billion a year. Approximately 90 percent of presidentially declared disasters result from flood-related natural hazard events. Taken as a whole, more frequent, localized flooding problems that do not meet federal disaster declaration thresholds ultimately cause the majority of damages across the United States.

SOURCES AND TYPES OF FLOODING

The City of Savannah's openness to Atlantic Ocean makes it vulnerable to hurricanes and tropical storms and storm surge that accompanies these events. Many of the large streams near the coast have wide mouths and are bordered by extensive areas of low marsh. In addition, the terrain at the coast closest to the City is generally too low to provide an effective barrier. The offshore ocean depths are shallow for great distances, capable of generating extremely high storm surges with potential devastating impacts in Savannah, particularly if they occur at times of high tide.

The primary sources of flooding in Savannah include tidal flooding from hurricanes and tropical storms, flash flooding from heavy rainfall that overburdens the drainage system within the community, and riverine flooding resulting from heavy and prolonged rainfall over a given watershed which causes the capacity of the main channel to be exceeded. A description of the causes of flooding is provided below.

Coastal (Tidal) Flooding: Coastal land such as sand bars, barrier islands, and deltas provide a buffer zone to help protect human life and real property relative to the sea much as floodplains provide a buffer zone along rivers and other bodies of water. Coastal floods usually occur as a result of abnormally high tides or tidal waves, storm surge and heavy rains in combination with high tides, tropical storms, and hurricanes. While the City of Savannah is not located along an immediate shoreline, it is located in an area that is vulnerable to tidal flooding and storm surge inundation.

Riverine Flooding: The City is located along the banks of the tidally-influence Savannah River in addition to Wassaw and Ossabaw sounds, with numerous tributaries and manmade canals running throughout that are very susceptible to overflowing their banks during and following excessive precipitation and coastal storm events. While flash flooding caused by surface water runoff is more common in Savannah, riverine flood events (such as the "100-year flood" will cause significantly more damage and economic disruption for the area. Savannah's floodplains have been studied and mapped by FEMA as Special Flood Hazard Areas (SFHAs)

Flash or Rapid Flooding: Flash flooding is the result of heavy, localized rainfall, possibly from slow-moving intense thunderstorms that cause small streams and drainage systems to overflow. Flash flood hazards caused by surface water runoff are most common in urbanized cities, where greater population densities increase the amount of impervious surface (e.g. pavement and buildings) which increases the amount of surface water generated. Flooding can occur when the capacity of the stormwater system is

exceeded or if conveyance is obstructed by debris, sediment, and other materials that limit the volume of drainage.

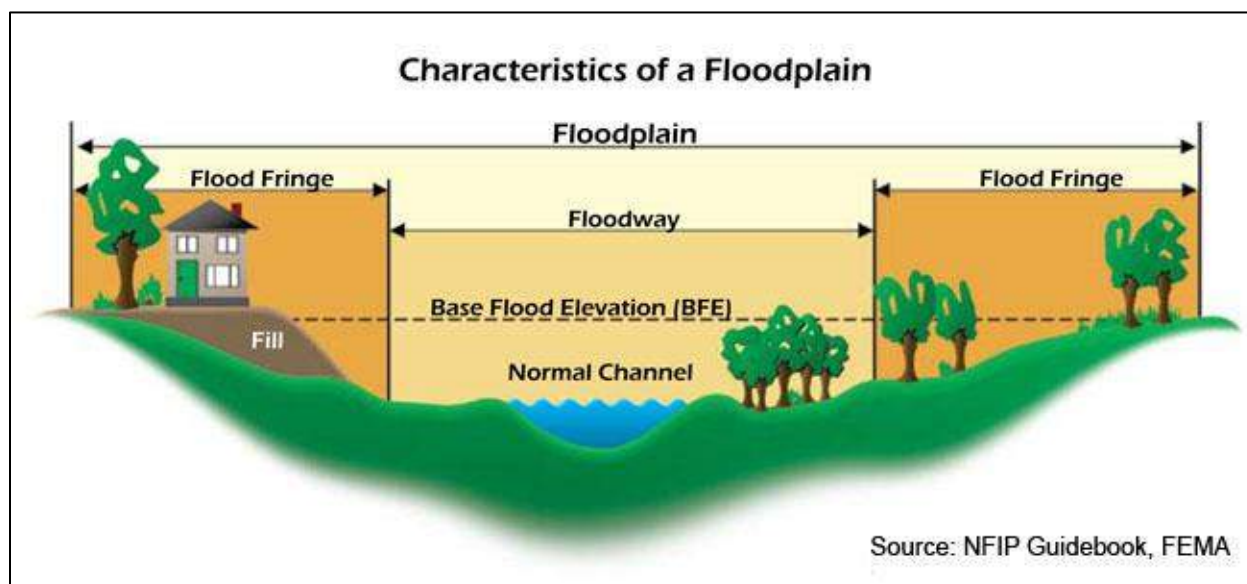
Localized/Stormwater Flooding: Localized stormwater flooding occurs when heavy rainfall and an accumulation of runoff overburden the stormwater drainage system. The cause of localized stormwater flooding in Savannah can be attributed to its generally flat topography, among other factors. More details on localized flooding in Savannah are discussed in Section 5.4.5.

FLOODING AND FLOODPLAINS

A floodplain, as shown in Figure 5.11 flat or nearly flat land adjacent to a stream, river, or body of water that experiences occasional or periodic flooding. In riverine floodplains, it includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. Floodplains are made when floodwaters exceed the capacity of the main channel or escape the channel by eroding its banks. When this occurs, sediments (including rocks and debris) are deposited that gradually build up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream. In coastal floodplains, zones are distinguished by wave heights.

Floodplain boundaries are designated and routinely updated through cooperation between local governments, states and the FEMA. Flood Insurance Study findings are shown on Flood Insurance Rate Maps (FIRMs) and describe various flood hazard zones based on flood height exceedance return periods. Flood hazard zone designations depend on local conditions and map issue dates, but all will show the 100-year or base flood elevation (1-percent annual chance flood), as well as some areas of the 500-year floodplain (0.2-percent annual chance flood).

Figure 5.11 – Characteristics of a Floodplain



In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood, the flood that has a 1% chance in any given year of being equaled or exceeded. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

The 1-percent-annual-chance flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP). Participation in the NFIP requires adoption and enforcement of a local floodplain management ordinance which is intended to prevent unsafe development in the floodplain, thereby reducing future flood damage. Participation in the NFIP allows the federal government to make flood insurance available within the community as financial protection against flood losses. Since floods have an annual probability of occurrence, have a known magnitude, depth and velocity for each event, and in most cases, have a map indicating where they will likely occur, they are in many ways often the most predictable and manageable hazard.

Warning Time: 3 – 6 to 12 hours

Duration: 3 – Less than one week

Location

Regulated floodplains are illustrated on inundation maps called Digital Flood Insurance Rate Maps (DFIRMs). It is the official map for a community on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the community. SFHAs represent the areas subject to inundation by the 1-percent-annual chance flood event. Structures located within the SFHA have a 26-percent chance of flooding during the life of a standard 30-year mortgage.

Flood zones are geographic areas that FEMA has defined according to various levels of flood risk and type of flooding. Flood prone areas were identified within the City of Savannah using the most recent Flood Insurance Study (FIS) and associated DFIRMs developed by FEMA effective on August 16, 2018. Table 5-13 summarizes the flood insurance zones identified by the DFIRMs.

Table 5-13 – Mapped Flood Insurance Zones within Savannah

Zone	Description
A	Areas with 1-percent-annual-chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
AE	Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. The AE Zones also depict the SFHA due to riverine flood sources, and they represent the flood profile determined by hydrologic and hydraulic investigations. Base Flood Elevations (BFEs) are shown.
VE	Also known as the coastal high hazard areas. They are areas subject to high velocity water including waves; they are defined by the 1-percent-annual-chance (base) flood and wave effects 3 feet or greater. The hazard zone is mapped with base flood elevations (BFEs) that reflect the combined influence of stillwater flood elevations, primary frontal dunes, and wave effects 3 feet or greater.
0.2% Annual Chance (Shaded Zone X)	Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones. (Zone X (shaded) is used on new and revised maps in place of Zone B.)
Zone X (Unshaded)	Minimal risk areas outside the 1-percent and 0.2-percent-annual-chance floodplains. No BFEs or base flood depths are shown within these zones. (Zone X (unshaded) is used on new and revised maps in place of Zone C.)

Source: FEMA

It is important to note that while FEMA digital flood data is recognized as the best available data for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Floods can and do occur outside of the SFHA and Shaded X Zone.

The City of Savannah has identified Local Special Flood Hazard Areas to indicate additional areas of known flood risk. Portions of the local SFHA overlap with the FEMA identified SFHA.

Table 5-14 summarizes the total area within each identified flood zone within the City of Savannah and Figure 5.12 illustrates the locations of mapped flood insurance zones and the local SFHA for the City. Figure 5.13 reflects the effective DFIRM panel scheme for Chatham County.

Spatial Extent: 3 – Moderate

Table 5-14 – Total Acreage by Flood Zone

Flood Zone	Acreage	Percent of Total (%)
A	483.6	1%
AE	26,122.7	35%
VE	4,068.1	5%
0.2% Annual Chance Flood Hazard	3,861.6	5%
Unshaded X	39,482.1	53%
Total	74,018.1	--
SFHA Total	30,674.4	41.4%
Local SFHA	7,559.7	--

Source: SAGIS, FEMA 2018 DFIRM

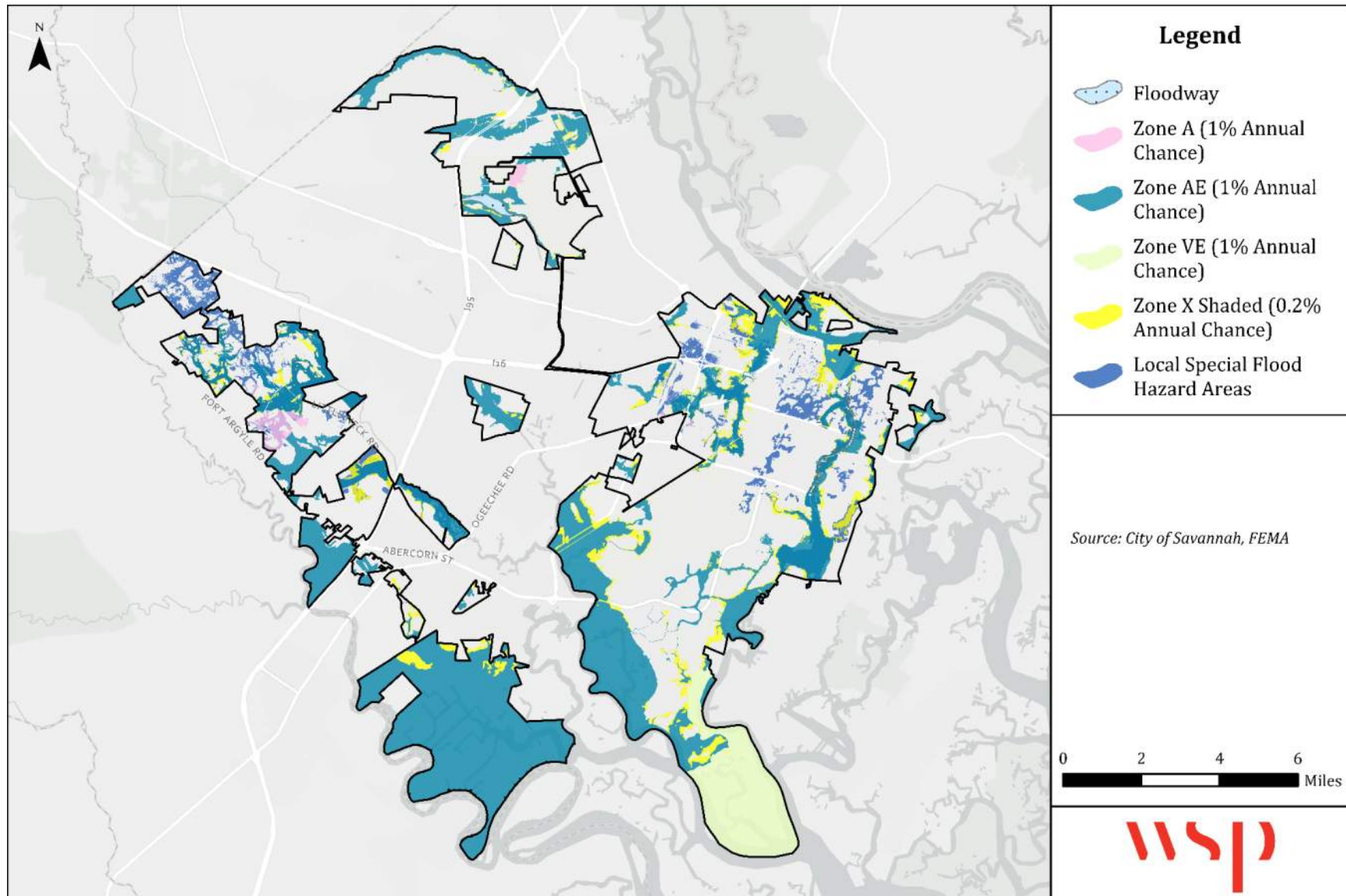
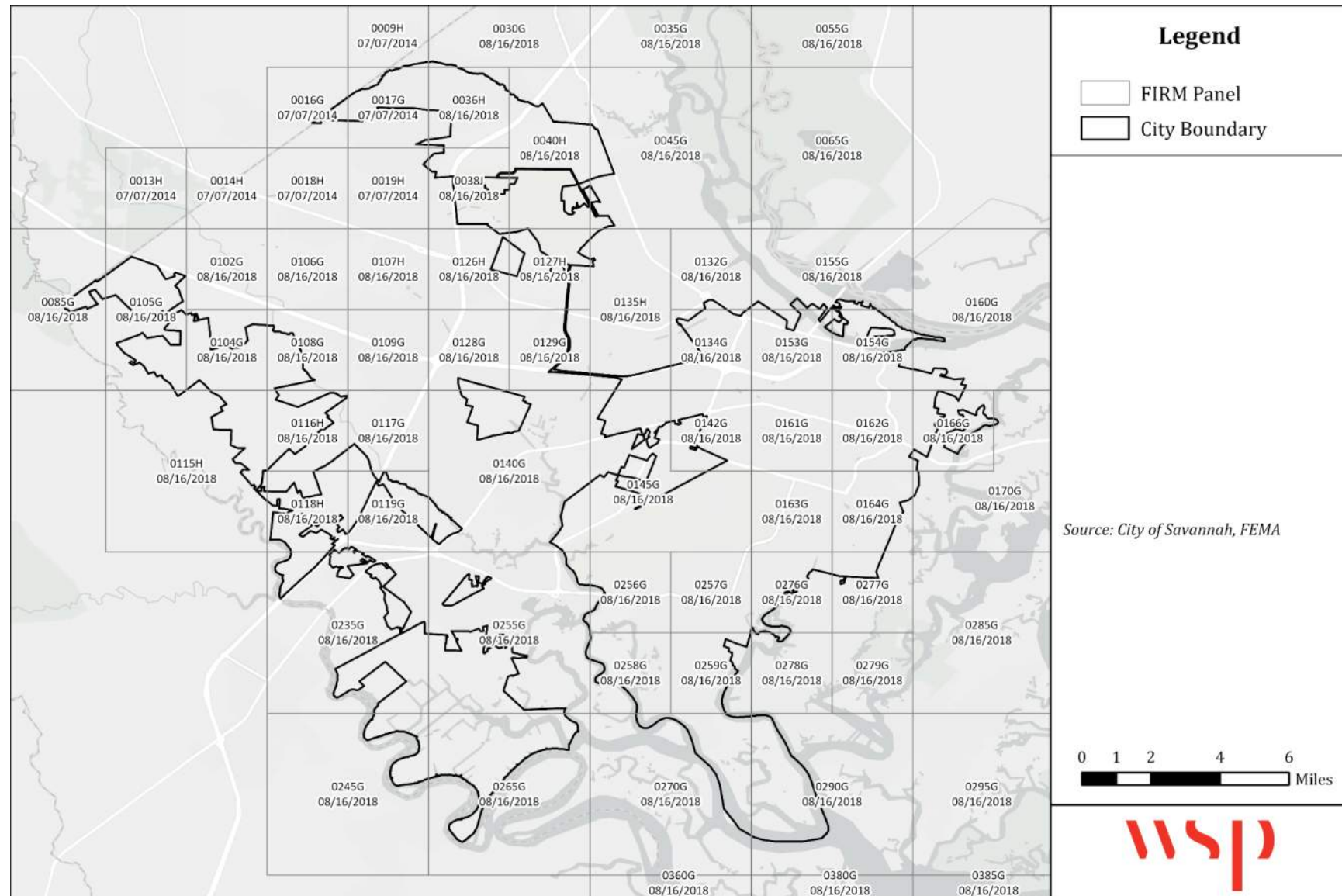
Figure 5.12 – Savannah DFIRM Flood Zones and Local SFHA

Figure 5.13 – Chatham County Effective FIRM Panel Scheme

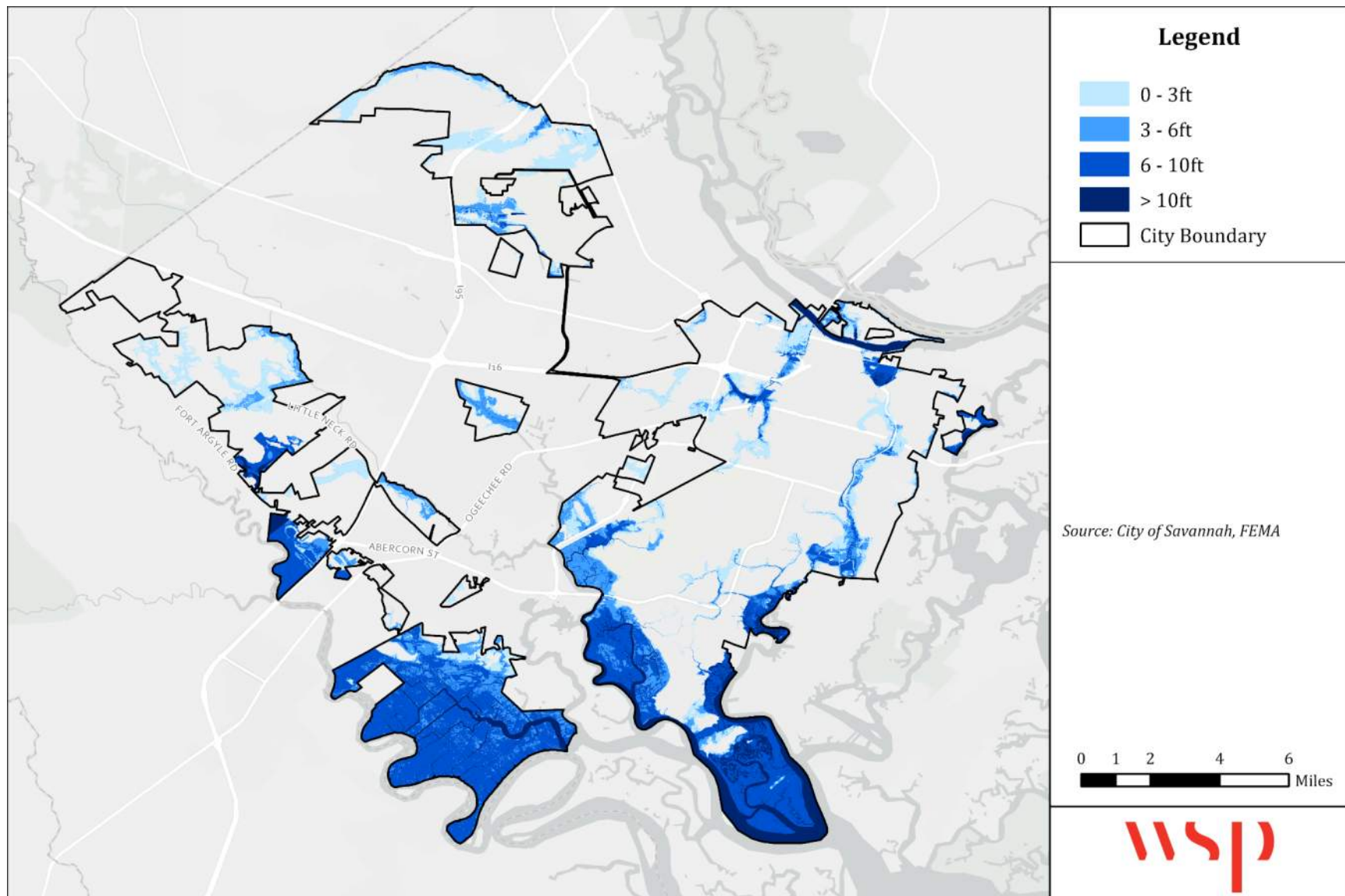
Extent

Flood extent can be defined by the amount of land in the floodplain, detailed above in Table 5-14. As shown in this table, over 41 percent of the city is located in the SFHA. The severity of a flood can also be measured by its depth and velocity. The depth of flooding that impacts a property is correlated with the resulting property damage, where greater depths cause more substantial damage.

Figure 5.14 shows the flood depths throughout Savannah for the 1-percent-annual-chance flood event, as defined by the August 16, 2018 Effective FIRMs for the City.

Flood extent varies throughout the floodplain, but overall flooding impacts can be critical, with the potential for severe damage and destruction of property and the possibility of injuries and deaths.

Impact: 3 – Critical

**Figure 5.14 – SFHA Flood Depths in Savannah**

Past Occurrences

Chatham County has sustained flood events severe enough to warrant federal disaster declarations as shown in Table 5-2 within Section 5.1.2. Flooding can occur in Savannah year-round, but flood events are most frequent in the months of May through October. Average annual precipitation is approximately 48.9 inches, with most precipitation occurring in June through August.

Table 5-15 lists the flood events from causes other than hurricanes reported by NCEI between 1996-2025 for Chatham County. NCEI's Storm Events Database, reports 144 flood-related events in Chatham County since 1996, including 43 coastal flood events, 92 flash flood events, 4 flood events, and 5 heavy rain events. As summarized in Table 5-15, these events have resulted in over \$8.4 million in property damage. Note that only those historical occurrences listed in the NCEI database are shown here, and other unrecorded or unreported events may have occurred within the planning area during this timeframe.

Past occurrences for hurricanes, tropical storms, and storm surge can be found in Section 5.4.6.

Table 5-15 – NCEI Flooding in Chatham County – 1996-2025

Location	Date	Event Type	Injuries/Deaths	Property Damages
Coastal Chatham	9/30/2007	Coastal Flood	0/0	\$0
Coastal Chatham*	6/22/2009	Coastal Flood	0/0	\$0
Coastal Chatham*	6/23/2009	Coastal Flood	0/0	\$25,000
Coastal Chatham	1/30/2010	Coastal Flood	0/0	\$15,000
Coastal Chatham	5/7/2012	Coastal Flood	0/0	\$0
Coastal Chatham	6/5/2012	Coastal Flood	0/0	\$0
Coastal Chatham	6/6/2012	Coastal Flood	0/0	\$0
Coastal Chatham	8/19/2013	Coastal Flood	0/0	\$0
Coastal Chatham	9/28/2015	Coastal Flood	0/0	\$0
Coastal Chatham	9/29/2015	Coastal Flood	0/0	\$0
Coastal Chatham	9/30/2015	Coastal Flood	0/0	\$0
Coastal Chatham*	10/27/2015	Coastal Flood	0/0	\$0
Coastal Chatham*	10/28/2015	Coastal Flood	0/0	\$0
Coastal Chatham	11/25/2015	Coastal Flood	0/0	\$0
Coastal Chatham	11/26/2015	Coastal Flood	0/0	\$0
Coastal Chatham	10/17/2016	Coastal Flood	0/0	\$0
Coastal Chatham*	11/13/2016	Coastal Flood	0/0	\$0
Coastal Chatham*	11/23/2018	Coastal Flood	0/0	\$0
Coastal Chatham*	11/24/2018	Coastal Flood	0/0	\$0
Coastal Chatham	8/29/2019	Coastal Flood	0/0	\$0
Coastal Chatham*	8/30/2019	Coastal Flood	0/0	\$0
Coastal Chatham*	8/31/2019	Coastal Flood	0/0	\$0
Savannah	7/5/1996	Flash Flood	0/2	\$1,000,000
Savannah	8/7/1996	Flash Flood	0/0	\$75,000
East Portion	1/23/1998	Flash Flood	0/0	\$0
East Portion*	6/29/1999	Flash Flood	0/0	\$7,000,000
Savannah	10/11/2002	Flash Flood	0/0	\$0
Savannah	4/7/2003	Flash Flood	0/0	\$0
Savannah*	4/8/2003	Flash Flood	0/0	\$0
Savannah	7/24/2003	Flash Flood	0/0	\$0
Savannah	8/12/2004	Flash Flood	0/0	\$0
Savannah	10/5/2005	Flash Flood	0/0	\$0
Savannah*	7/6/2006	Flash Flood	0/0	\$10,000

Location	Date	Event Type	Injuries/Deaths	Property Damages
Savannah	7/30/2007	Flash Flood	0/0	\$8,000
Wilmington Is, Savannah*	9/1/2007	Flash Flood	0/0	\$0
Central Jct	9/13/2007	Flash Flood	0/0	\$0
Central Jct*	9/21/2007	Flash Flood	0/0	\$0
Countywide*	12/21/2007	Flash Flood	0/0	\$11,000
Central Jct	7/27/2008	Flash Flood	0/0	\$0
Meinhard	10/24/2008	Flash Flood	0/0	\$0
Savannah	7/27/2009	Flash Flood	0/0	\$10,000
Central Jct, Sandfly, Garden City*	8/3/2009	Flash Flood	0/0	\$155,000
Savannah	8/12/2009	Flash Flood	0/0	\$0
Savannah, Central Jct*	6/27/2010	Flash Flood	0/0	\$0
Vernonburg	8/20/2010	Flash Flood	0/0	\$0
Savannah, Liberty City, Central Jct*	6/29/2011	Flash Flood	0/0	\$0
Thunderbolt, Savannah*	7/14/2011	Flash Flood	0/0	\$10,000
Savannah	8/6/2011	Flash Flood	0/0	\$0
Savannah, Vernonburg*	7/12/2013	Flash Flood	0/0	\$11,000
Oleary	7/13/2013	Flash Flood	0/0	\$30,000
Savannah, Fernwood*	7/31/2013	Flash Flood	0/0	\$30,000
Savannah, Central Jct*	8/16/2013	Flash Flood	0/0	\$20,000
Bona Bella	6/23/2014	Flash Flood	0/0	\$15,000
Central Jct	8/10/2014	Flash Flood	0/0	\$0
Liberty City	7/17/2016	Flash Flood	0/0	\$20,000
Williams	10/7/2016	Flash Flood	0/0	\$0
Burnside	9/11/2017	Flash Flood	0/0	\$25,000
Central Jct	7/22/2024	Flash Flood	0/0	\$15,000
Central Jct*	8/6/2024	Flash Flood	0/0	\$0
Vernonburg, Central Jct, Liberty City, Fairway Oaks*	8/2/2025	Flash Flood	0/0	\$0
Liberty City	8/4/2025	Flash Flood	0/0	\$0
Meinhard, Pooler*	8/5/2025	Flash Flood	0/0	\$0
Liberty City, Savannah, Thunderbolt*	8/8/2025	Flash Flood	0/0	\$0
Meinhard, Pooler*	8/22/2025	Flash Flood	0/0	\$0
Savannah	4/23/2018	Flood	0/0	\$2,000
Burroughs	8/23/2025	Flood	0/0	\$0
Pooler, Savannah*	6/23/2014	Heavy Rain	0/0	\$0
Savannah	5/22/2017	Heavy Rain	0/0	\$0
Total	-	-	0/2	\$8,487,000

Source: NCEI Storm Events Database

Note: * indicates multiple events occurred on that date and have been combined for reporting purposes.

The following narratives provide details on select flood events detailed in the NCEI database and from members of the FMPC.

August 5, 2025 – A surface front and mid-level energy encountering a moderately unstable and deep moisture environment led to thunderstorms capable of producing damaging winds and heavy rainfall

across Southeast Georgia. There were several reports of floods and flooded vehicles on Benton Boulevard, Park Avenue, Canal Street, Forest Lakes Drive, North Godley Station Boulevard.

July 22, 2024 – A cluster of thunderstorms developed along the sea breeze in the afternoon and remained nearly stationary across Chatham County. This cluster of thunderstorms produced extremely heavy rainfall across portions of Chatham County, with the heaviest rain occurring in the Savannah area. Approximately 3 to 5 inches of rain was measured at several automated rain gauge sites, with most of the rain falling in a 1-to-2-hour period of time. Numerous roads were flooded and closed in Savannah due to the heavy rain. One flash flood occurred as well, with water entering the first floor of an apartment building.

April 23, 2018 – A late morning mesoscale convection vortex (MCV) developed within a cluster of thunderstorms, helping produce strong to severe wind gusts while moving north along the Southeast Georgia coast. The Savannah Fire Department rescued a motorist who drove through a flooded section of East Henry Street under a railroad bridge.

June 23, 2014 – The combination of a very unstable atmosphere, the presence of a weak surface trough, and the passing of a Mesoscale Convective Vortex (MCV) produced numerous showers and thunderstorms. A line of stationary thunderstorms produced between 4 and 10 inches of rain across Chatham County, which resulted in flash flooding. The Savannah Airport ASOS measured 6.65 inches of rainfall for the day. This is the wettest June day on the record since records began in 1871.

July 31, 2013 – A weak wave of low pressure and a mid-level trough supported widespread convection. Roads were closed due to flooding at East Henry and Waters Ave., 65th and Waters Ave., 52nd and Montgomery, Vine and Anderson, and Martin Luther King Blvd. and Victory Streets.

July 30, 2007 – A weak frontal boundary in combination with sea breeze and numerous low level boundaries in a highly unstable environment resulted in numerous showers and thunderstorms across the region. Numerous road closures were reported in Downtown Savannah. High water was reported entering some apartments. Cars were seen floating down the roadway at 65th and Abercorn Street.

June 29, 1999 – Slow moving showers and thunderstorms developed repeatedly across Chatham County during the day. Twenty-four hour rainfall amounts ranged from about 7 inches to over 13 inches. As a result of the flooding, over 500 homes and businesses were damaged to varying degrees along with almost 600 vehicles. Water was as much as 6 feet deep in some places. Numerous roads were washed out and/or closed during the flooding. Property damage was estimated at \$7 million - \$4.5 million of which was damage to public property and the remainder damage to private property.

July 5, 1996 – 8 to 10 inches of rain fell in 3-4 hours in and around Savannah; this rain event also coincided with high tide. As a result, 50 streets and 100 homes were flooded to various degrees; numerous businesses had water several inches deep. 31,000 residents were without power for several hours. Some streets had water up to headlights on cars while others had homes with water almost knee deep. Two elderly men barely escaped with their lives when their car stalled; by the time they were rescued, water was within 6 inches of filling the inside of the car.

Probability of Future Occurrence

By definition, SFHAs are those areas that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year, and the Shaded X Zone is the area that will be inundated by the flood event having a 0.2-percent chance of being equaled or exceeded in any given year. This delineation is a useful way to identify the most at-risk areas. However, flooding does not occur in set intervals; any given flood may be more or less severe than the defined 1-percent-annual-chance flood. There is also risk of localized stormwater flooding in areas outside the SFHA and at different intervals than the 1-percent-annual-chance flood. As such, floods of varying severity occur regularly in the City of Savannah.



Figure 2.6 in Section 2.2 shows the annual precipitation for the City of Savannah. According to this data, the city averages around 48.9 inches of rain annually, with an increasing trend from 1948 to 2024 of approximately 0.61 inches per decade. NCEI reports 144 flood-related events in the 30-year period from 1996 through 2025, which equates to an annual probability of over 100 percent, and an average of 4.8 flood events per year. Based on this data and trend, precipitation increases should be anticipated in the future, which may increase the likelihood of flooding. Based on increasing rainfall amounts and the number of historical flood occurrences, flooding is highly likely to occur in the City of Savannah.

Probability: 4 – Highly Likely

Climate Change and Future Conditions

With its populous coastal community and low topography, Savannah is particularly vulnerable to the effects of climate change and sea level rise. Per the Fifth National Climate Assessment, frequency and intensity of heavy precipitation events is expected to increase across the country. Additionally, increased levels of rainfall, temperatures, and land cover change can exacerbate flood risks and are expected to occur throughout the southeast. Therefore, with more rainfall falling in more intense incidents, the region may experience more frequent flash flooding. Increased flooding may also result from more intense tropical cyclone; researchers have noted the occurrence of more intense storms bringing greater rainfall totals, a trend that is expected to continue as ocean and air temperatures rise.

Various land use and land surface changes can also result in changes to the floodplain and flood prone areas. For example, an increase in impervious surface can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are often created by human activity. However, changes in precipitation frequency and intensity can also result in changes to flood magnitudes and probabilities. For example, what we currently define as the 1-percent-annual-chance flood may occur more frequently in the future.

Vulnerability Assessment

Vulnerability— High

Flood damage is directly related to the depth of flooding by the application of a depth damage curve. In applying the curve, a specific depth of water translates to a specific percent damage to the structure, which translates to the same percentage of the structure's replacement value. Figure 5.14 depicts the depth of flooding that can be expected within Savannah during the 1%-annual-chance flood event as derived from the 2018 Effective DFIRM and elevation data for the City.

Vulnerability to flooding was evaluated using GIS analysis and FEMA's Hazus Flood Assessment Structure Tool (FAST). To estimate exposure to flood risk, WSP evaluated the intersection of improved parcel counts and values to FEMA flood zones. In the case of parcels affected by multiple zones, the entire parcel value was applied to the highest risk flood zone that intersected the building, or the parcel centroid if no building footprint was available for an improved parcel.

Occupancy types were derived from parcel data and translated into occupancy classes used in Hazus to facilitate an accurate loss estimate. An occupancy class is required in Hazus to apply the correct depth damage factor (See **Table 5-15**Table 5-16) which ensures the most accurate damage assessment.

In order to estimate damage, WSP leveraged a depth raster for all portions of the SFHA with base flood elevations made available in the FEMA database; this depth raster was then loaded in Hazus along with the parcel data. Losses were calculated based on Hazus standard depth damage functions. Table 5-16 provides the depth damage factors that were used to calculate flood losses for the City. In addition to parcel value, content value was used to estimate total losses. Content values estimations are based on FEMA Hazus methodologies of estimating value as a percent of improved structure values by property

type. Table 5-17 shows the breakdown of the different property types in Savannah and their estimated content replacement value percentages.

Table 5-16 – Savannah Flood Loss Damage Factors

Depth (ft)	Percent Damaged (%)						
	Agricultural	Commercial	Education	Government	Industrial	Religious	Residential
0	0	1	0	0	1	0	18
1	6	9	5	5	10	10	22
2	11	14	7	8	12	11	25
3	15	16	9	13	15	11	28
4	19	18	9	14	19	12	30
5	25	20	10	14	22	12	31
6	30	23	11	15	26	13	40
7	35	26	13	17	30	14	43
8	41	30	15	19	35	14	43
9	46	34	17	22	29	15	45
10	51	38	20	26	42	17	46
11	57	42	24	31	48	19	47
12	63	47	28	37	50	24	47
13	70	51	33	44	51	30	49
14	75	55	39	51	53	38	50
15	79	58	45	59	54	45	50
16	82	61	52	65	55	52	50
17	84	64	59	70	55	58	51
18	87	67	64	74	56	64	51
19	89	69	69	79	56	69	52
20	90	71	74	83	57	74	52
21	92	74	79	87	57	78	53
22	93	76	84	91	57	82	53
23	95	78	89	95	58	85	54
24	96	80	94	98	58	88	54

Source: FEMA Hazus FAST

Table 5-17 – Content Replacement Factors

Property Type	Content Replacement Values
Residential	50%
Commercial	100%
Cultural and Parks	100%
Education	100%
Government	100%
Recreation and Entertainment	100%
Religion	100%
Medical	150%
Transportation	150%
Utilities and Communication	150%

Source: Hazus FAST

Property at Risk

Residential, commercial, and public buildings, as well as critical facilities and infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed by flood waters. Table 5-18 summarizes property exposure by occupancy in each flood zone throughout the region.

Table 5-18 summarizes the count and improved value of parcels by flood zone and occupancy. Based on this analysis, 5,263 improved parcels fall within the 1% annual chance floodplain for a total value of \$8,157,443,579. Additionally, there are 44,719 improved parcels outside of the SFHA within the Zone X Shaded and Zone X Unshaded zones with a value of \$28,762,285,174.

Table 5-18 – Property at Risk by Flood Zone

Occupancy Type	Total Number of Buildings	Building Value	Estimated Content Value	Total Value
Zone A				
Agricultural	-	-	-	-
Commercial	4	\$674,600	\$674,600	\$1,349,200
Education	-	-	-	-
Government	-	-	-	-
Industrial	2	\$211,800	\$317,700	\$529,500
Religious	1	\$2,400	\$2,400	\$4,800
Residential	26	\$2,782,300	\$1,391,150	\$4,173,450
Total	33	\$3,671,100	\$2,385,850	\$6,056,950
Zone AE				
Agricultural	8	\$1,006,400	\$1,006,400	\$2,012,800
Commercial	518	\$1,488,870,225	\$1,488,870,225	\$2,977,740,450
Education	9	\$60,164,000	\$60,164,000	\$120,328,000
Government	152	\$1,123,600,600	\$1,123,600,600	\$2,247,201,200
Industrial	170	\$667,931,256	\$1,001,896,884	\$1,669,828,140
Religious	43	\$32,947,700	\$32,947,700	\$65,895,400
Residential	4,268	\$700,144,259	\$350,072,130	\$1,050,216,389
Total	5,168	\$4,074,664,440	\$4,058,557,939	\$8,133,222,379
Zone VE				
Agricultural	2	\$62,700	\$62,700	\$125,400
Commercial	-	-	-	-
Education	-	-	-	-
Government	-	-	-	-
Industrial	1	\$105,600	\$158,400	\$264,000
Religious	-	-	-	-
Residential	59	\$11,849,900	\$5,924,950	\$17,774,850
Total	62	\$12,018,200	\$6,146,050	\$18,164,250
Zone X Shaded				
Agricultural	-	-	-	-
Commercial	173	\$316,804,725	\$316,804,725	\$633,609,450
Education	4	\$28,717,500	\$28,717,500	\$57,435,000
Government	52	\$149,076,400	\$149,076,400	\$298,152,800
Industrial	68	\$65,948,151	\$98,922,227	\$164,870,378
Religious	58	\$23,371,700	\$23,371,700	\$46,743,400

Occupancy Type	Total Number of Buildings	Building Value	Estimated Content Value	Total Value
Residential	3,673	\$530,598,293	\$265,299,147	\$795,897,440
Total	4,028	\$1,114,516,769	\$882,191,698	\$1,996,708,467
Zone X Unshaded				
Agricultural	3	\$50,800	\$50,800	\$101,600
Commercial	3,631	\$4,217,941,762	\$4,217,941,762	\$8,435,883,524
Education	82	\$372,487,100	\$372,487,100	\$744,974,200
Government	379	\$1,360,994,237	\$1,360,994,237	\$2,721,988,474
Industrial	364	\$1,086,320,523	\$1,629,480,785	\$2,715,801,308
Religious	516	\$382,300,100	\$382,300,100	\$764,600,200
Residential	35,716	\$7,588,151,601	\$3,794,075,801	\$11,382,227,402
Total	40,691	\$15,008,246,123	\$11,757,330,584	\$26,765,576,707
City Total	49,982	\$20,213,116,632	\$16,706,612,121	\$36,919,728,753

The property loss estimates for flood are based on the total of improved and contents value. Table 5-19 summarizes flood loss estimate values by occupancy for those parcels within the SFHA. Based on this analysis, the 1% annual chance flood is estimated to cause \$244,365,207 in damage, which equates to a 14% loss ratio. The loss ratio is the loss estimate divided by the total potential exposure (i.e., total of improved and contents value for all parcels located within the 1% annual chance flood zone) and displayed as a percentage of loss. FEMA considers loss ratios greater than 10% to be significant and an indicator a community may have more difficulties recovering from a flood. Overall, the 1%-annual-chance flood event is projected to cause a 3% loss ratio for Savannah, which indicates low difficulty with recovery. Outside of agricultural structures, all other occupancy types have low ratios below 10%.

Table 5-19 – Estimated Building Damage and Content Loss

Occupancy Type	Total Parcels with Loss	Total Value (Building Content)	Estimated Building Loss	Estimated Content Loss	Estimated Total Damage	Loss Ratio
Agricultural	4	\$1,683,200	\$196,714	\$465,109	\$661,822	31%
Commercial	33	\$331,534,420	\$31,225,231	\$68,360,619	\$99,585,850	3%
Education	2	\$2,651,200	\$93,011	\$525,599	\$618,610	1%
Government	26	\$304,829,800	\$3,534,352	\$22,315,728	\$25,850,080	1%
Industrial	90	\$545,924,828	\$4,645,466	\$8,491,489	\$13,136,955	1%
Religious	12	\$18,042,400	\$602,132	\$3,775,569	\$4,377,701	7%
Residential	2,344	\$500,448,851	\$66,855,357	\$33,278,830	\$100,134,187	9%
Total	2,511	\$1,705,114,698	\$107,152,264	\$137,212,943	\$244,365,207	3%

Source: SAGIS 2023 Parcel Data, FEMA 2018 DFIRM

Critical Facilities at Risk

A separate analysis was performed to determine critical facilities in the 1% annual chance floodplain and 0.2%-annual-chance floodplain. Using GIS, the effective DFIRM flood zones were overlaid on the critical facility location data. Critical facilities are summarized by facility type and flood zone in Table 5-20. Table 5-21 lists critical facilities in the 1%-annual-chance and their estimated flood depth, as well as facilities within the 0.2%-annual-chance flood zone. Figure 5.15 depicts the location of critical facilities relative to flood zones.

The majority of the critical facilities within the SFHA are water systems, which are likely made to withstand high water. Four safety and security facilities are in the SFHA including two fire stations and two police stations.

Table 5-20 – Summary of Critical Facilities by Flood Zone

Facility Type	Zone AE	Zone X Shaded	Zone X Unshaded	Local SFHA
Communications	1	-	1	-
Food, Hydration, Shelter	-	-	3	-
Hazardous Materials	-	-	1	-
Safety and Security	4	2	24	2
Water Systems	23	2	20	11
Total	28	4	49	13

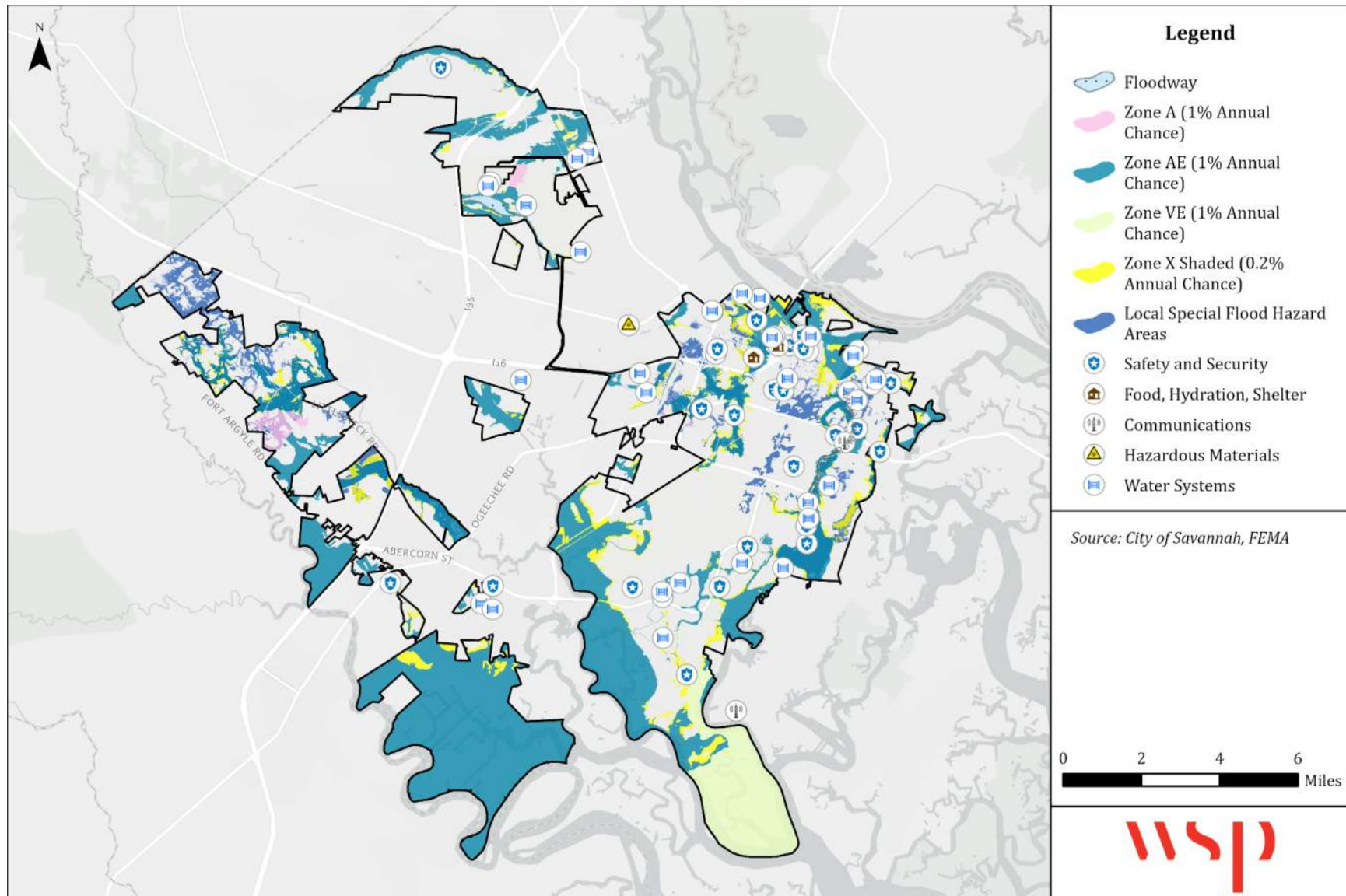
Source: SAGIS 2023 Parcel Data, FEMA 2018 DFIRM

Table 5-21 – Critical Facility by Flood Zone and Estimated Flood Depth

Facility Name	Location	Facility type*	Estimated Flood Depth (ft) (1%-annual-chance)
Zone AE			
Radio Tower	1801 Kerry St	Communications	
DeRenne Station #A1	Southside DeRenne Ave West of Truman Pkwy	Water Systems	0.1
DeRenne Station #A2	Southside DeRenne Ave West of Truman Pkwy	Water Systems	5.2
DeRenne Station #B1	Southside DeRenne Ave West of Truman Pkwy	Water Systems	5.2
DeRenne Station #B2	Southside DeRenne Ave West of Truman Pkwy	Water Systems	5.2
DeRenne House	Southside DeRenne Ave West of Truman Pkwy	Water Systems	5.2
Montgomery Xroads #01	End of Madrid Ave East of Water Ave	Water Systems	5.2
Montgomery Xroads #02	End of Madrid Ave East of Water Ave	Water Systems	11.9
Montgomery Xroads House	End of Madrid Ave East of Water Ave	Water Systems	11.9
Springfield Station #01	Oglethorpe and Canal St foot of Talmadge Bridge	Water Systems	11.9
Springfield Station #02	Oglethorpe and Canal St foot of Talmadge Bridge	Water Systems	0.1
Springfield Station #03	Oglethorpe and Canal St foot of Talmadge Bridge	Water Systems	0.1
Springfield Station House	Oglethorpe and Canal St foot of Talmadge Bridge	Water Systems	0.1
Kayton Station #01	President St NE corner of WQC Plant Complex	Water Systems	0.1
Kayton Station #02	President St NE corner of WQC Plant Complex	Water Systems	3.7

Facility Name	Location	Facility type*	Estimated Flood Depth (ft) (1%-annual-chance)
Kayton Station #03	President St NE corner of WQC Plant Complex	Water Systems	3.7
Fell Street Station #01	E Lathrop near GPA Gate and Colonial Oil	Water Systems	3.7
Fell Street Station #02	E Lathrop near GPA Gate and Colonial Oil	Water Systems	7.2
Lathrop Street Station #01	Soutside of Lathrop Ave next to NW Precinct	Water Systems	7.2
Lathrop Street Station #02	Soutside of Lathrop Ave next to NW Precinct	Water Systems	1.9
Lift Station #16	11015 Largo Dr	Water Systems	1.9
Lift Station #115	Chatham Pkwy behind Southern Oaks	Water Systems	0.1
Lift Station #023	Lousville Rd and 121 W Boundary St	Water Systems	1.3
Well #29	Barskdale Dr and Red Fox Dr	Water Systems	0.1
Police Precinct - Eastside	2250 E Victory Dr	Safety & Security	6.6
Police Professional Standards	1900 East Victory Drive Suite B5	Safety & Security	0.7
Fire Station #06	3000 Liberty Pkwy	Safety & Security	0.1
Fire Station #07	6902 Sallie Mood Dr	Safety & Security	0.1
Zone X Shaded			
President Street Plant WPCP	1400 E President St	Water Systems	N/A
Lift Station #065	Agonic Rd and Eisenhower Dr	Water Systems	N/A
Police Precinct - Northwest	602 E Lathrop Ave	Safety & Security	N/A
Police Traffic Operations	602 E Lathrop Ave	Safety & Security	N/A

*Classified by FEMA Lifeline. Water systems include wastewater, stormwater, and potable water infrastructure

Figure 5.15 – Critical Facilities and Flood Zones

Flood Insurance Analysis

One valuable source of information on flood hazards is current flood insurance data for active policies and past claims. Flood insurance is required as a condition of federal aid or a mortgage or loan that is federally insured for a building located in a FEMA flood zone.

The City of Savannah has been a Regular participant in the NFIP since May 1971 and a participant in the CRS program since October 1992. Participation in the NFIP's Community Rating System at a Class 9 or better rewards all policyholders in the County with a percent reduction in their flood insurance premiums. Savannah is currently a Class 5 community, which provides policyholders with a 25% discount. Table 5-22 through Table 5-25 reflect NFIP policy and claims data for the City categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

The previous Floodplain Management Plan reported that as of March 2021 there were 6,383 policies in force in Savannah and 2,274 total closed paid losses. Since that time, the number of flood insurance policies in the County has decreased by nearly 39 percent while the number of closed paid losses has by only 4 percent.

Table 5-22 – NFIP Policy and Claims Data by Structure Type

Structure Type	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
Single Family	2,907	\$1,719,421	\$849,793,000	2,072	\$24,166,217.39
2-4 Family	154	\$76,690	\$43,034,000	64	\$1,195,463.00
All Other Residential	506	\$87,562	\$84,573,000	80	\$3,943,152.64
Non-Residential	357	\$632,260	\$201,997,000	145	\$3,964,975.39
Total	3,924	\$2,515,933	\$1,179,397,000	2,361	\$33,269,808.42

Source: FEMA Community Information System, January 2026

Table 5-23 – NFIP Policy and Claims Data by Flood Zone

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	1,226	\$966,905	\$325,482,000	968	\$15,464,407.96
A Zones	4	\$2,003	\$973,000	24	\$301,133.28
V01-30 & VE Zones	3	\$7,568	\$768,000	6	\$383,291.85
D Zones	1	\$1,231	\$323,000	74	\$612,589.66
B, C & X Zone					
Standard	2,690	\$1,538,226	\$851,851,000	518	\$8,808,025.43
Preferred	0	\$0	\$0	769	\$7,750,882.65
Total	3,924	\$2,515,933	\$1,179,397,000	2,359	\$33,320,330.83

Source: FEMA Community Information System, January 2026

Table 5-24 – NFIP Policy and Claims Data Pre-FIRM

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	487	\$474,120	\$110,651,000	713	\$11,186,683.30
A Zones	1	\$314	\$80,000	23	\$301,133.28
V01-30 & VE Zones	3	\$7,568	\$768,000	5	\$382,484.82
D Zones	0	\$0	\$0	72	\$491,853.87

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
B, C & X Zone					
Standard	1,344	\$798,430	\$437,091,000	386	\$5,224,130.79
Preferred	0	\$0	\$0	552	\$5,075,206.61
Total	1,835	\$1,280,432	\$548,590,000	1,748	\$22,608,855.45

Source: FEMA Community Information System, January 2026

Table 5-25 – NFIP Policy and Claims Data Post-FIRM

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	739	\$492,785	\$214,831,000	255	\$4,277,724.66
A Zones	3	\$1,689	\$893,000	1	\$0.00
V01-30 & VE Zones	0	\$0	\$0	1	\$807.03
D Zones	1	\$1,231	\$323,000	2	\$120,735.79
B, C & X Zone					
Standard	1,346	\$739,796	\$414,760,000	132	\$3,583,894.64
Preferred	0	\$0	\$0	217	\$2,675,676.04
Total	2,089	\$1,235,501	\$630,807,000	609	\$10,658,838.16

Source: FEMA Community Information System, January 2026

Table 5-26 compares the number of policies in force with the number of buildings (estimated by improved parcel counts) located within each flood zone in order to estimate the percentage of buildings that are insured within each zone. Note that this assessment does not account for parcels with multiple insurable buildings and therefore overestimates policy coverage.

Table 5-26 – Percentage of Buildings Insured

Flood Zone	Number of Policies in Force	Number of Buildings	% Insured
AE Zone	1,226	5,168	23.7%
A Zone	4	33	12.1%
VE Zone	3	62	4.8%
X Zones	2,690	44,719	6.0%
SFHA Total	1,233	5,263	23.4%
Citywide Total	3,924	49,982	7.9%

Source: FEMA Community Information System, January 2026; SAGIS 2023 Parcel Data

Compared to flood insurance policy and improved parcel data compiled in the 2021 Floodplain Management Plan, the total number of flood insurance policies has decreased and policy coverage is lower. Since March 2021, the total number of flood insurance policies in the SFHA decreased by 581 and the total number of policies in X Zones decreased by 1,878.

Table 5-27 compares number of buildings present (estimated by improved parcel counts), number of policies in force, total coverage and a calculation of loss estimate values for the 1%-percent-annual-chance flood.

Table 5-27 – Flood Loss Estimates by Flood Zone

Flood Zone	Number of Buildings	Number of Policies in Force	Total Value ¹	Total Coverage	Loss Estimate
AE Zone	2,500	1,226	\$1,700,691,198	\$325,482,000	\$240,184,793
A Zone	0	4	-	\$973,000	\$0
VE Zone	11	3	\$4,423,500	\$768,000	\$4,180,414
Total	2,511	1,229	\$1,705,114,698	\$327,223,000	\$244,365,207

Source: SAGIS 2023 Parcel Data, FEMA 2018 DFIRM

¹Total value does not include land value.

The above analysis of existing flood insurance coverage shows that existing building coverage does meet the loss estimate for the AE and A flood zones, but not the VE zone. But when considering the entire 1%-annual-chance flood event, total coverage does meet the loss estimate; however, this comparison does not take into account the large number of uninsured properties that would have no coverage in the event of a flood loss.

Historic Properties at Risk

As noted in Section 2.3, there are 14 National Register of Historic Places districts in the City of Savannah and three historic cemeteries. Historic properties are defined, for the purposes of this study, as any historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior.

As seen in Figure 5.16 below, the Bonaventure Cemetery, Carver Village, Cuyler-Brownsville, Eastside, Fairway Oaks-Greenvew, Kensington Park-Groveland, and Savannah National Historic Landmark (Savannah Downtown) Districts are all within the 1%-annual-chance-or-0.2%-annual-chance floodplains and have impacted buildings. Ardmore, Ardsley Park/Chatham Crescent, Carver/Flatman Village, Gordonston, Pine Gardens, Streetcar, and Victorian Historic Districts and Conservation Districts are within the Local SFHA and have impacted buildings. The Daffin Park-Parkside and Laurel Grove-South historic districts intersect with flood hazard areas but do not contain buildings that intersect with those areas. Figure 5.19 through Figure 5.29 illustrate buildings (based on digital building footprint data) associated with the thirteen historic districts and historic cemetery that contain buildings that intersect with mapped flood hazard areas.

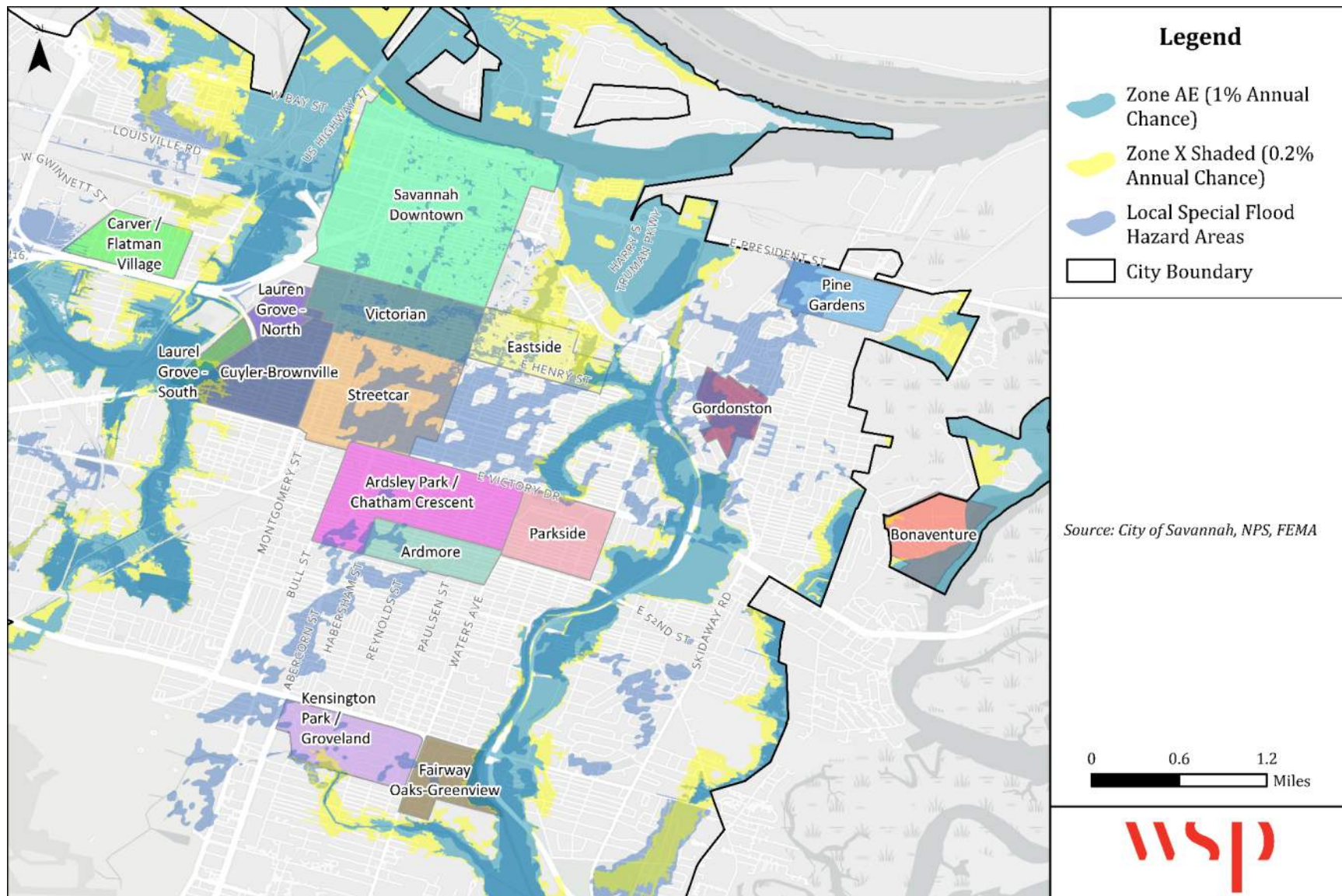
Figure 5.16 – Historic District Exposure to Flood

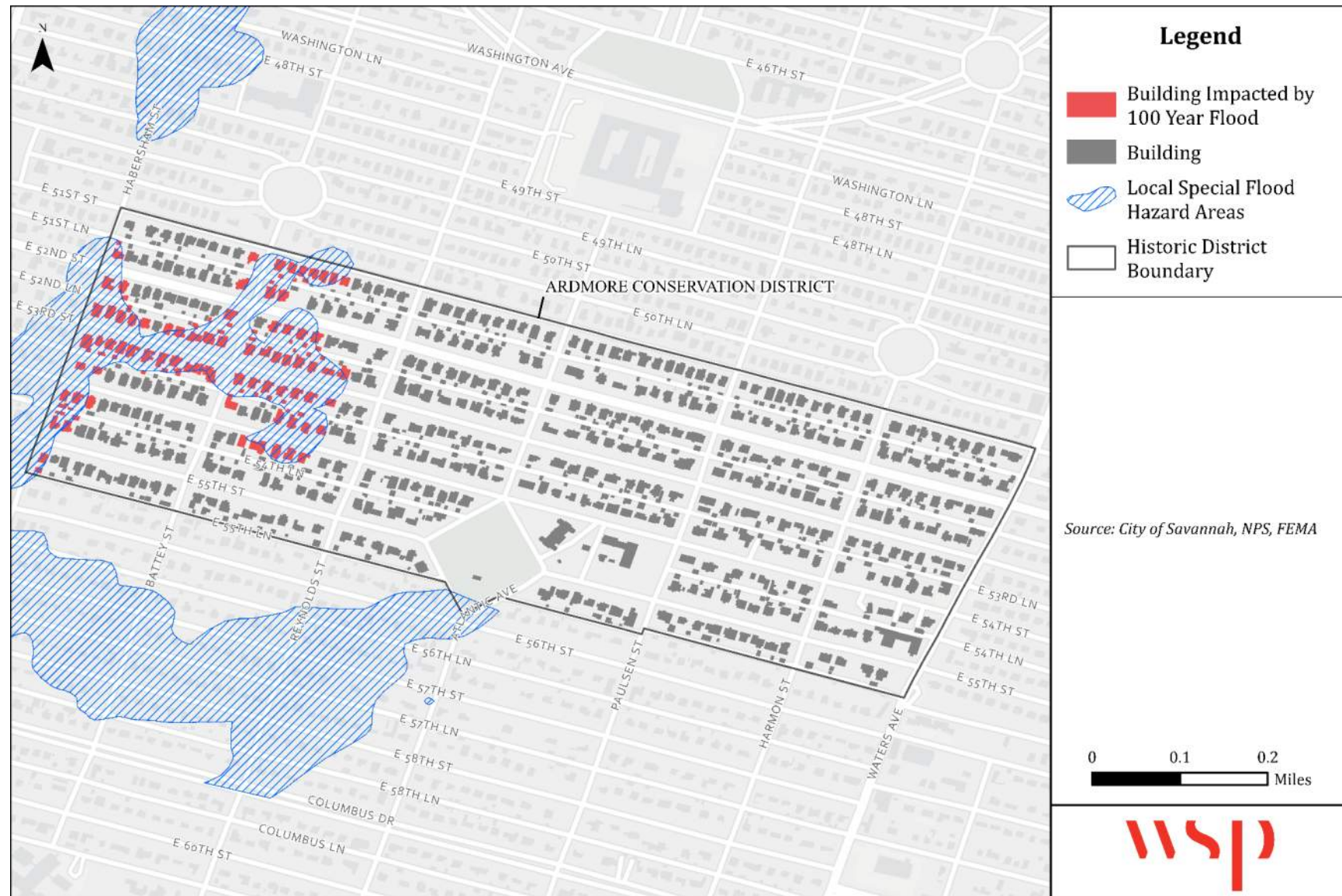
Figure 5.17 – Ardmore Conservation District Properties at Risk

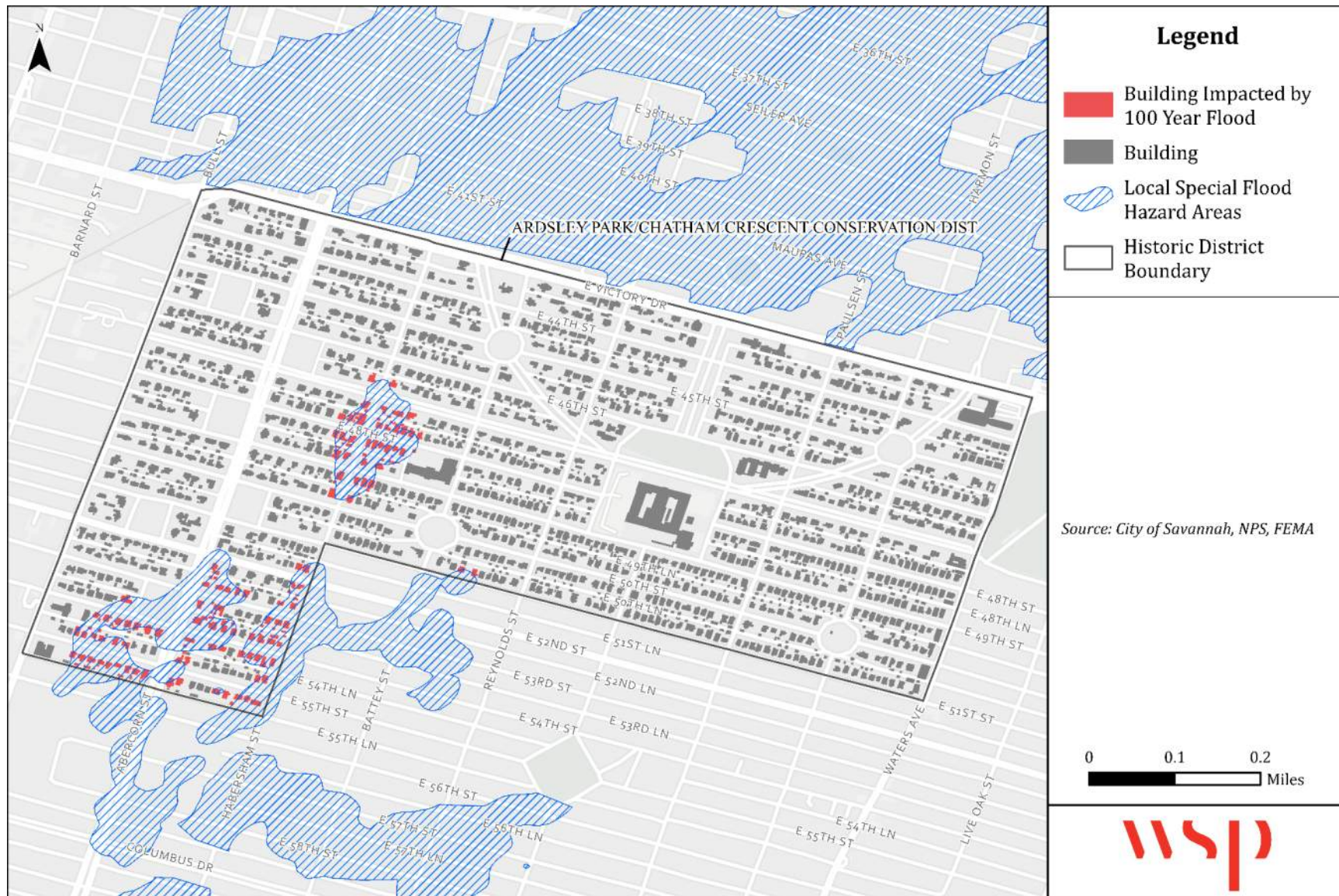
Figure 5.18 – Ardsley Park/Chatham Crescent Conservation District Properties at Risk

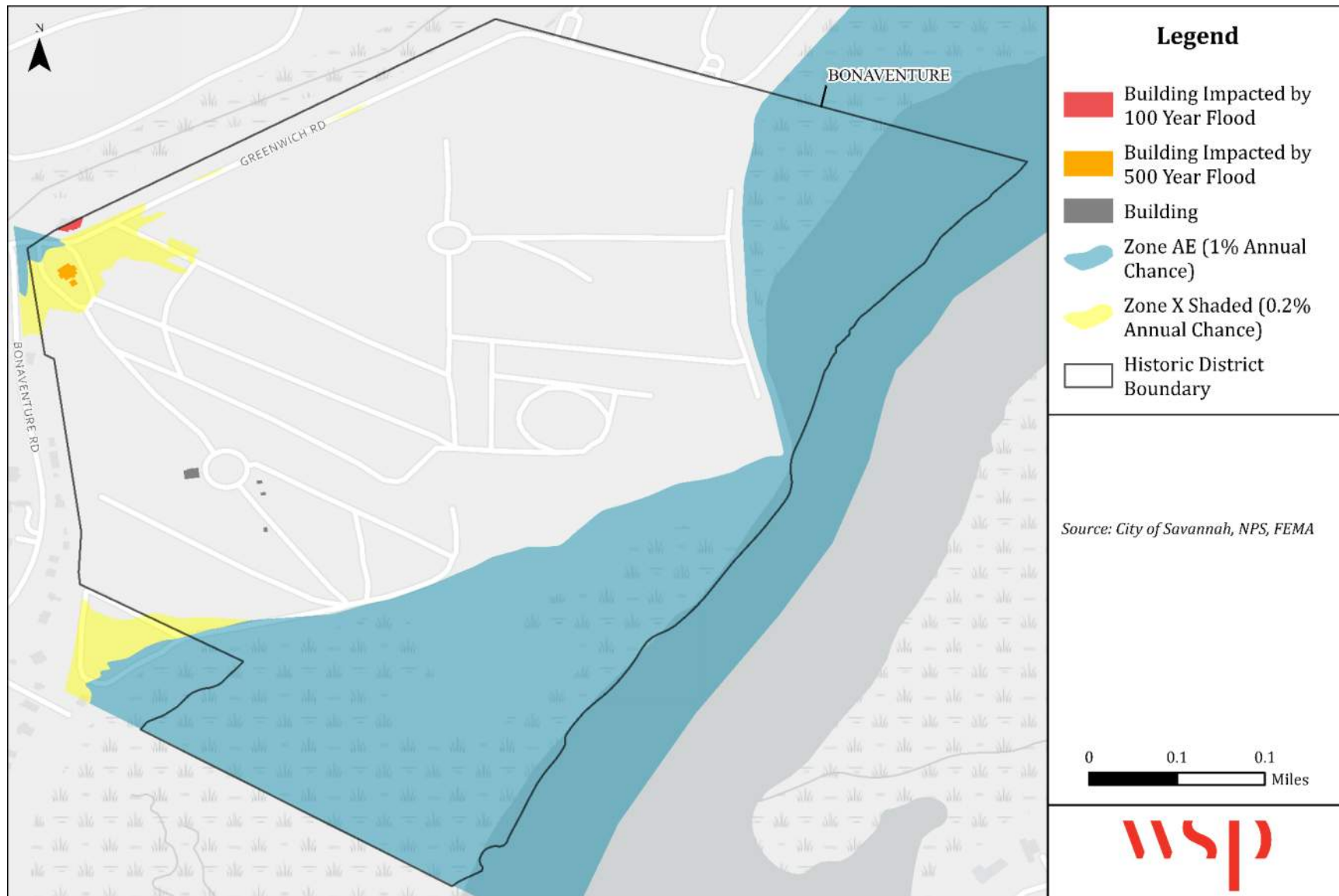
Figure 5.19 – Bonaventure Historic Cemetery Properties at Risk

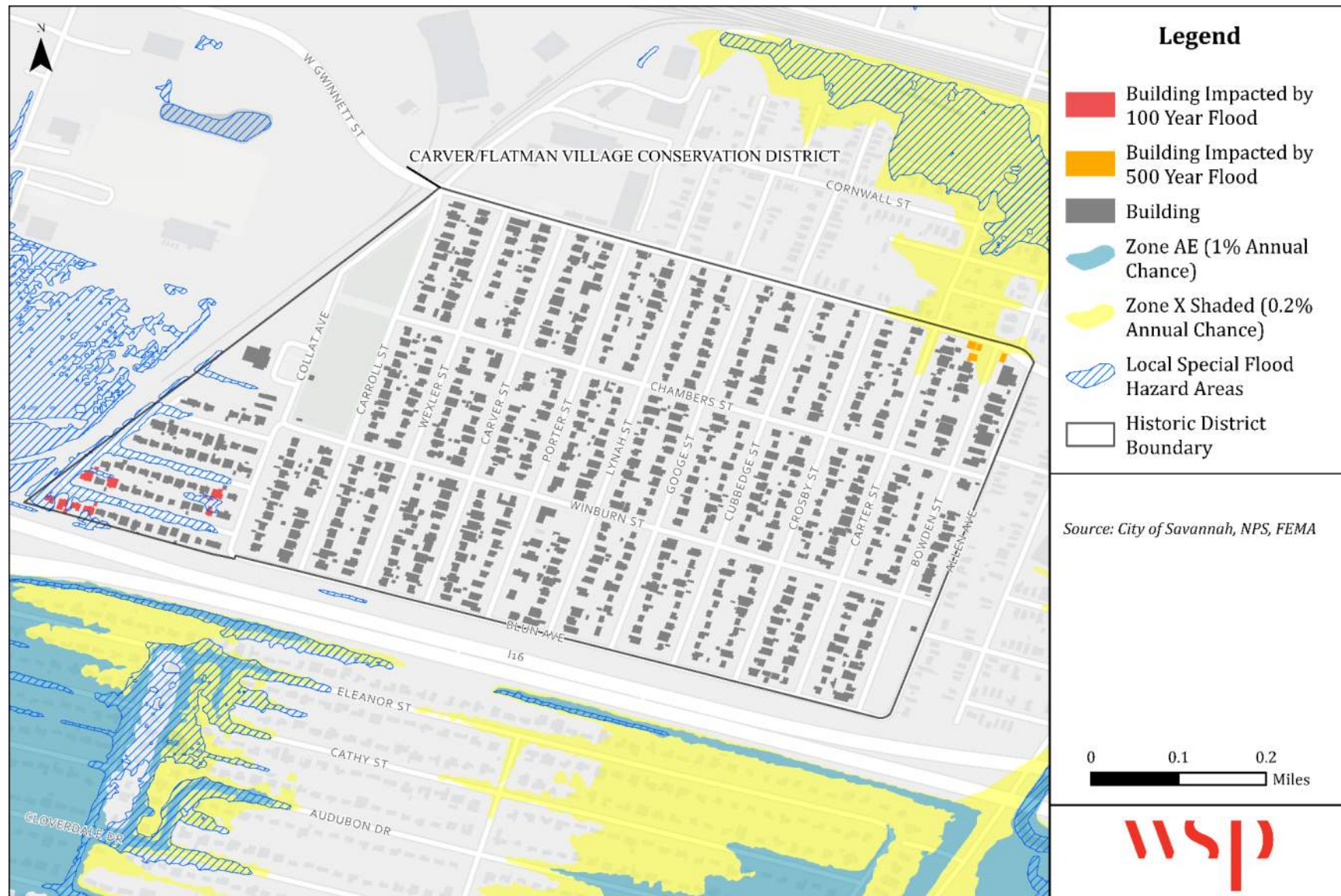
Figure 5.20 – Carver Village Historic District Properties at Risk

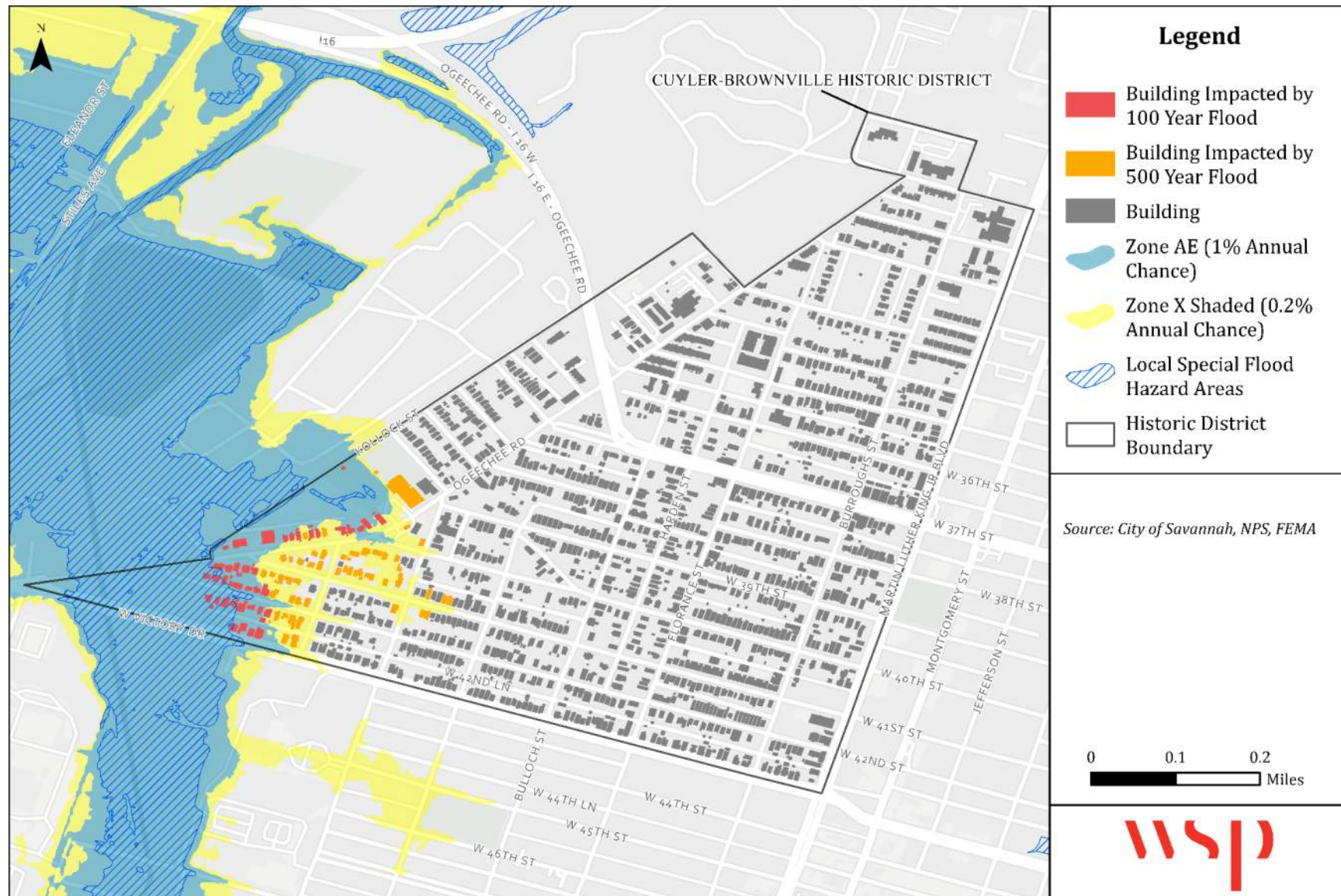
Figure 5.21 – Cuyler-Brownville Historic District Properties at Risk

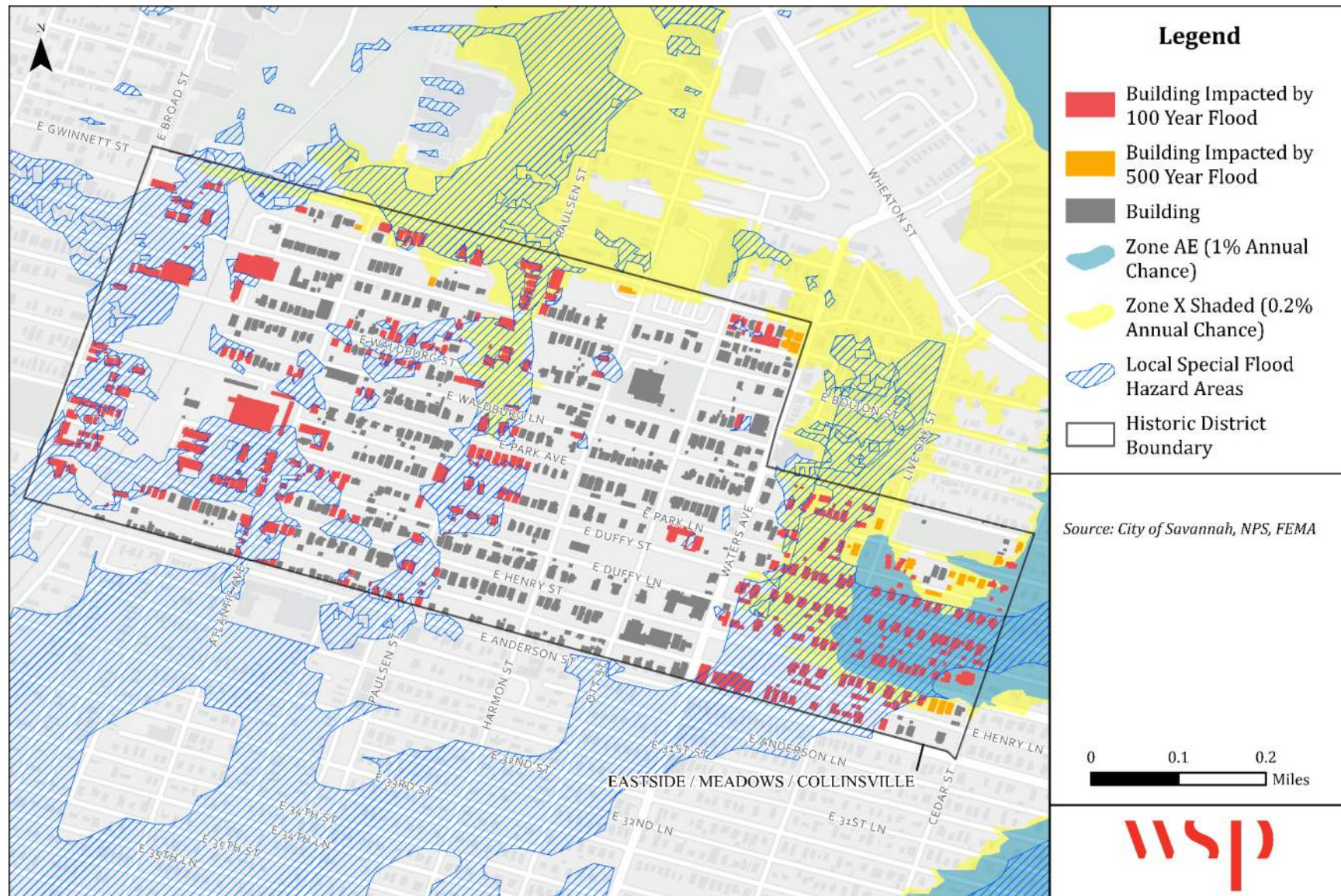
Figure 5.22 – Eastside Historic District Properties at Risk

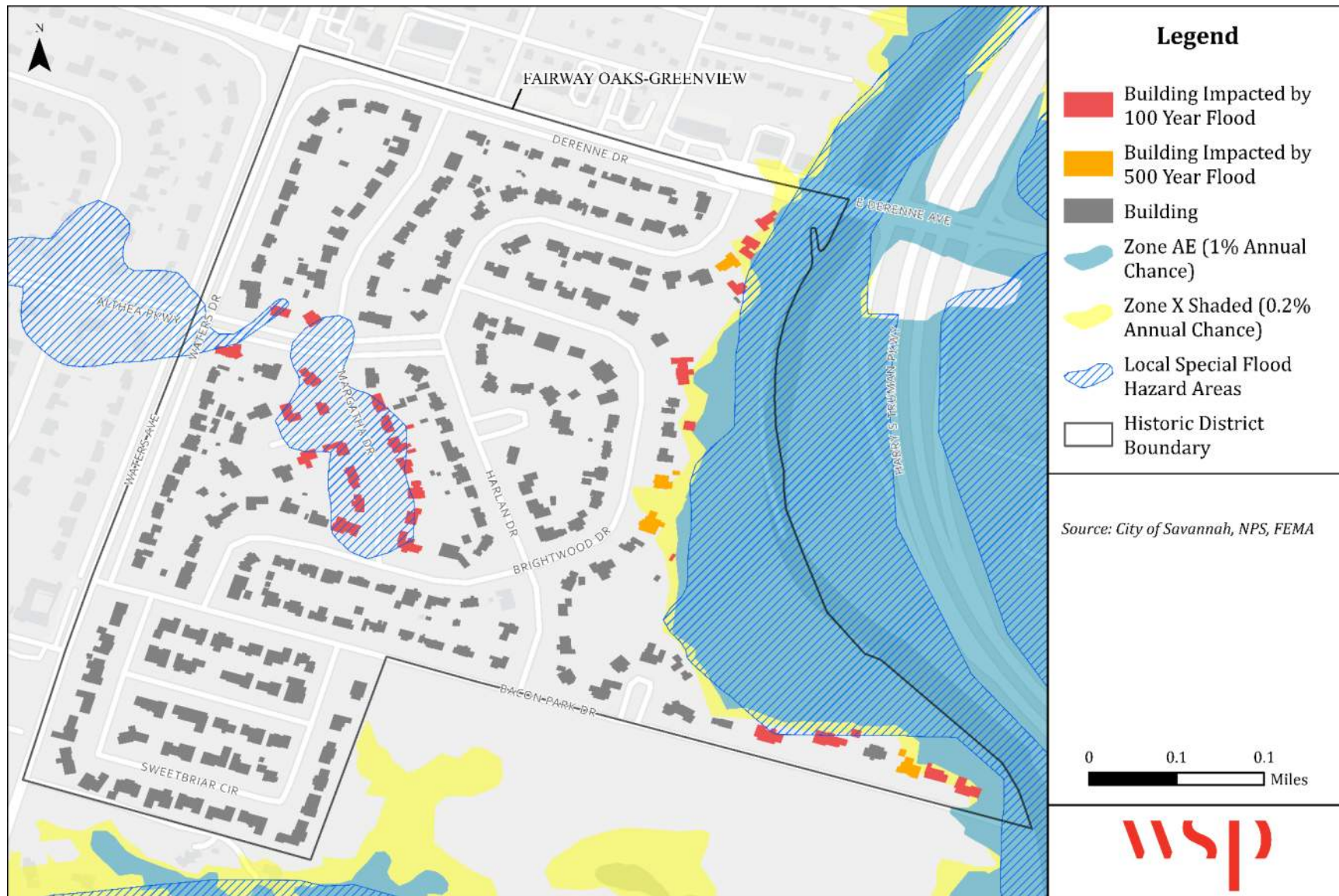
Figure 5.23 – Fairway Oaks-Greenview Historic District Properties at Risk

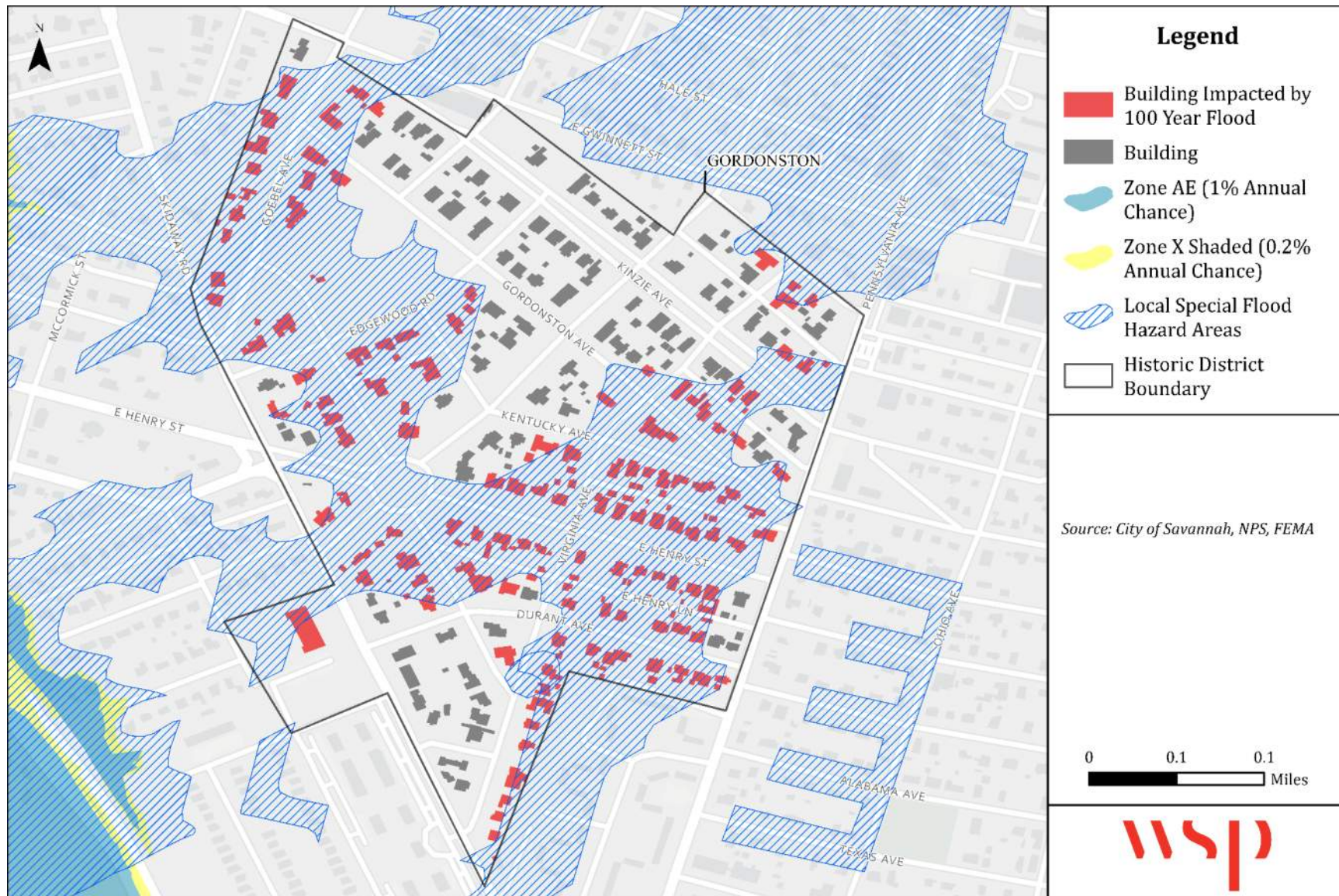
Figure 5.24 – Gordonston Historic District Properties at Risk

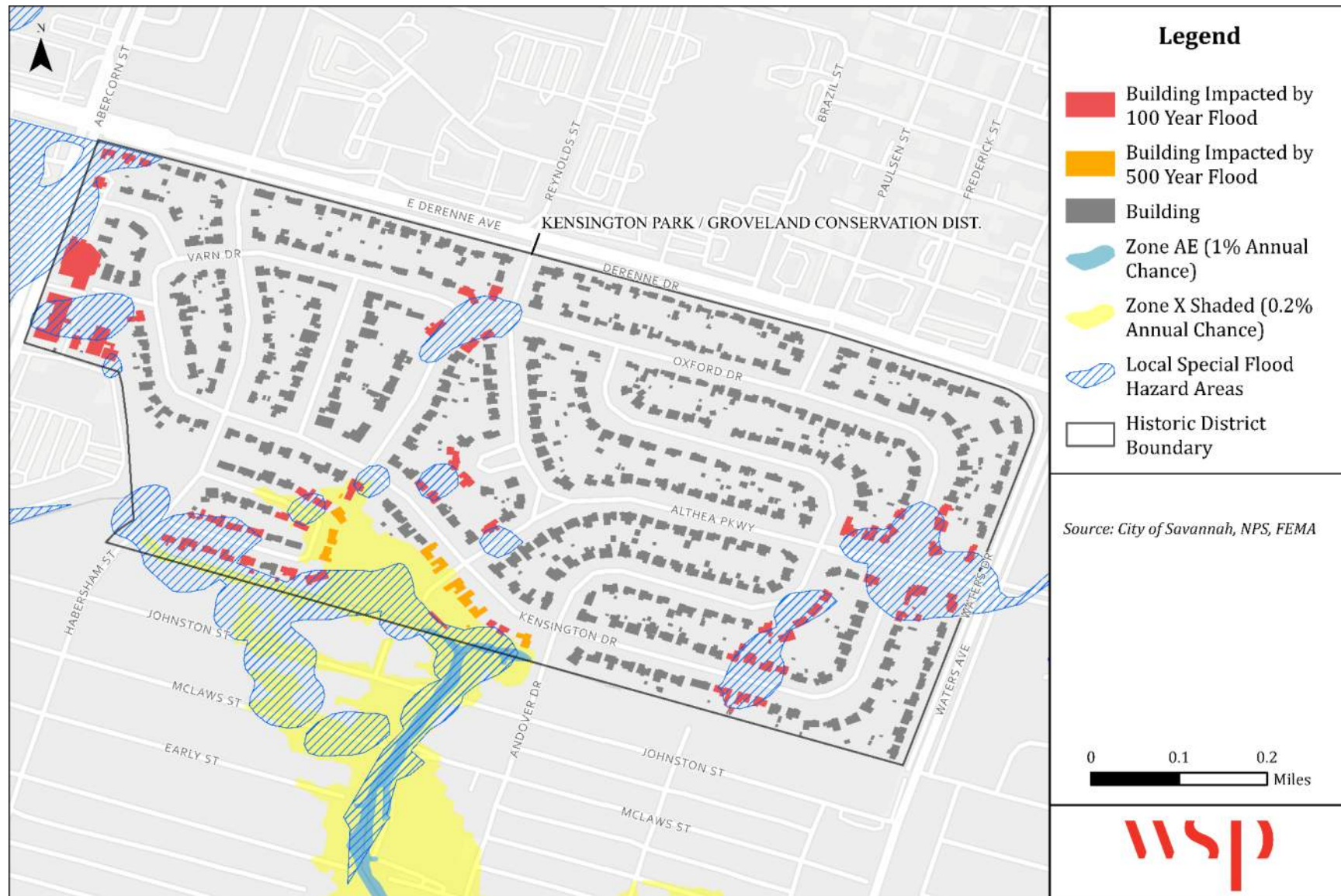
Figure 5.25 – Kensington Park-Groveland Historic District Properties at Risk

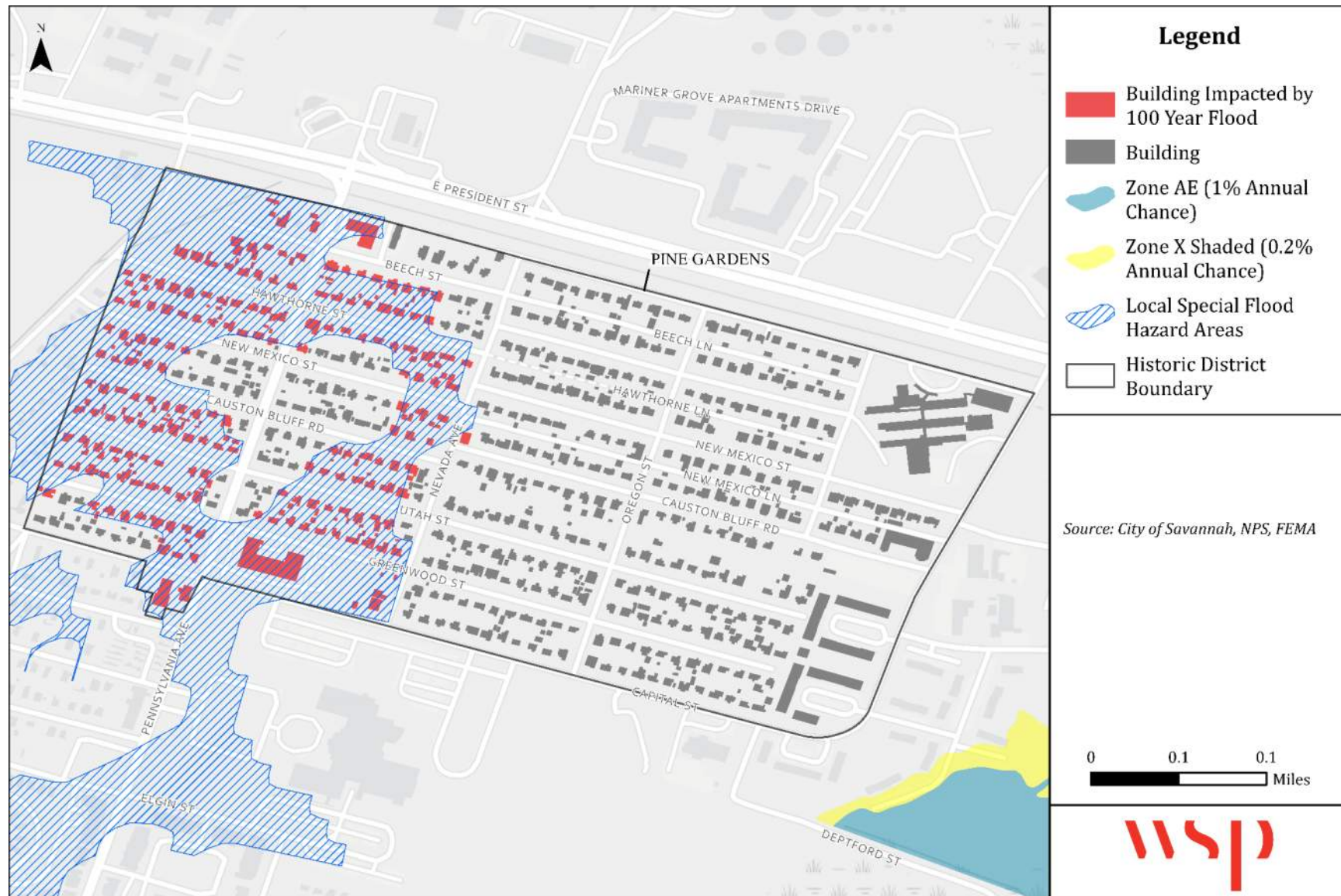
Figure 5.26 – Pine Gardens Historic District Properties at Risk

Figure 5.27 – Savannah Landmark Historic District Exposure Properties at Risk

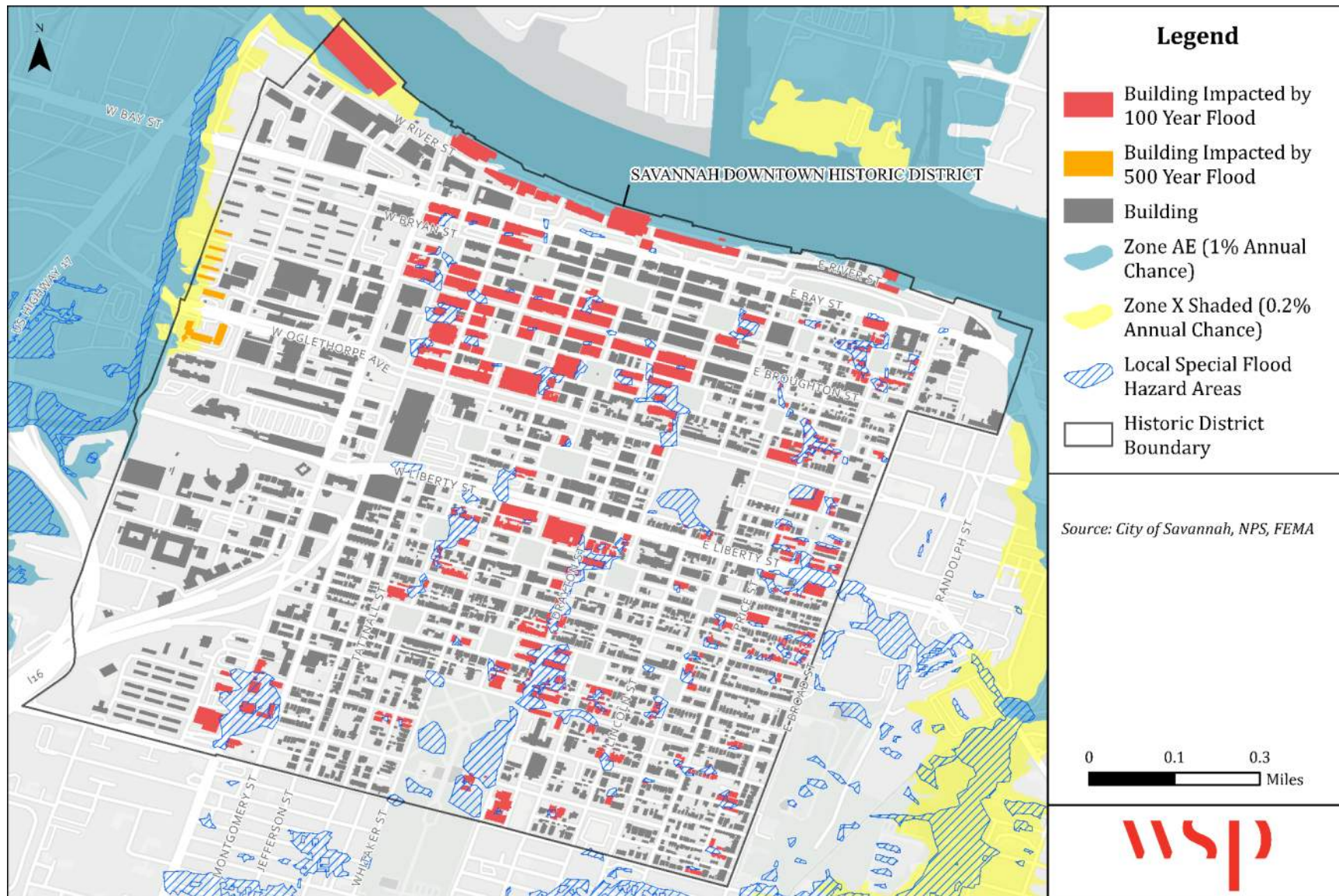
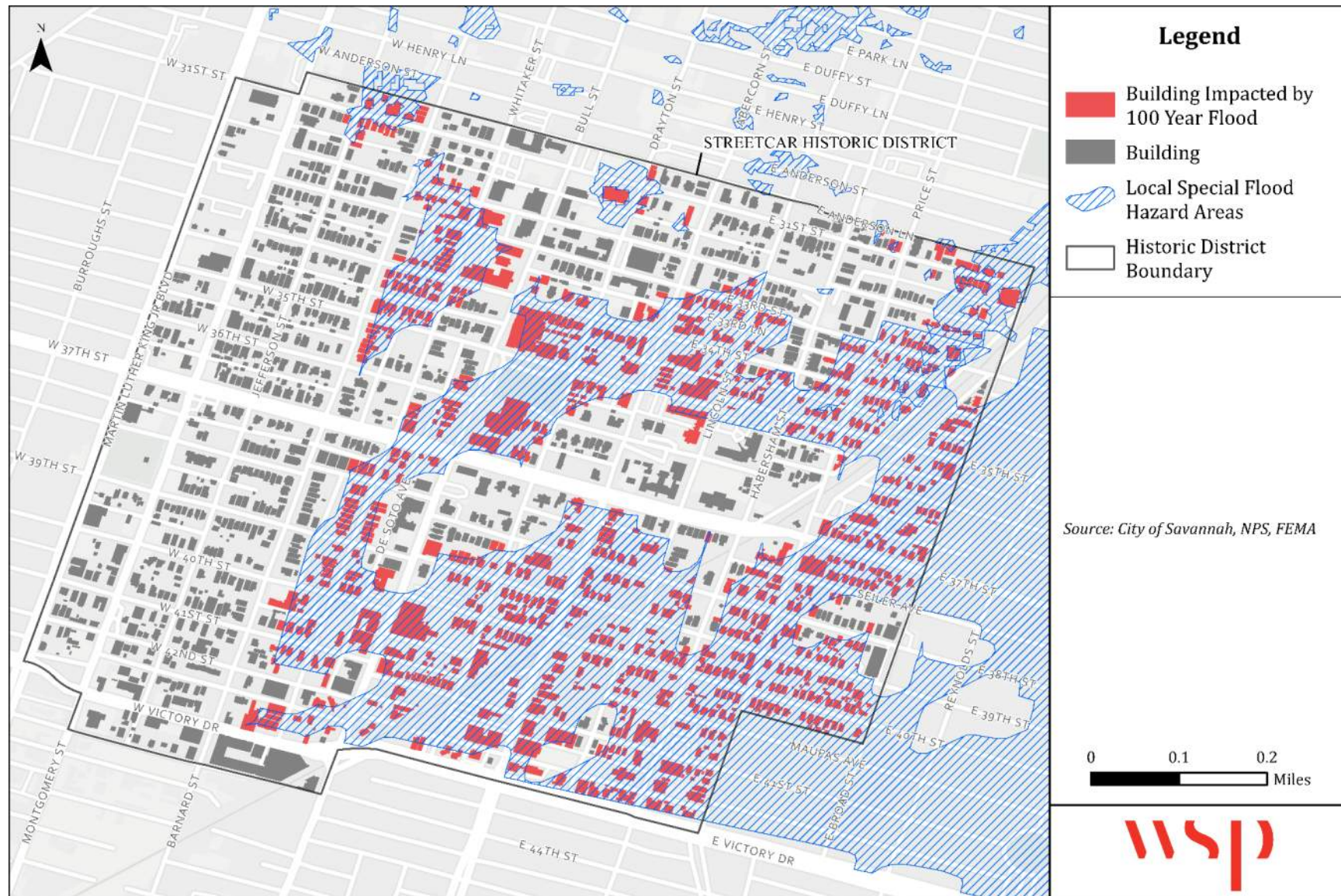


Figure 5.28 – Streetcar Historic District Properties at Risk

Legend

- Building Impacted by 100 Year Flood
- Building
- Local Special Flood Hazard Areas
- Historic District Boundary

Source: City of Savannah, NPS, FEMA

0 0.1 0.2 Miles

wsp

Population at Risk

A separate analysis was performed to determine the population at risk to the SFHA (AE, VE and A Zones). Using GIS, the DFIRM flood zones were overlayed on the improved residential parcel data. Residential parcels that intersected the flood zones were counted and multiplied by the American Community Survey (ACS) 2023 estimate of household factor for Savannah (2.36 persons per household. Average of renter and owner occupied household factor). In the case of residential parcels intersected by multiple flood zones, the parcel was assigned to the highest risk flood zone. As shown in Table 5-28, there is an estimated total population of 10,273 at risk within the 1%-annual-chance flood zones.

Table 5-28 – Savannah Population at Risk to Flood

Flood Zone	Residential Property Count	Population
Zone A	26	61
Zone AE	4,268	10,072
Zone VE	59	139
Zone X Shaded	3,673	8,668
Zone X Unshaded	35,716	84,290
Total	49,982	117,958
SFHA Total	4,353	10,273

Source: SAGIS 2023 Parcel Data, FEMA 2018, DFIRM, U.S. Census Bureau

5.4.5 Stormwater/Localized Flooding

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Flood: Stormwater/Localized Flooding	Highly Likely	Critical	Moderate	Less than 6 hours	Less than 24 hrs	3.3

Hazard Description

Localized stormwater flooding can also occur throughout the City of Savannah. Localized stormwater flooding occurs when heavy rainfall and an accumulation of runoff overburden the stormwater drainage system. The cause of localized flooding in Savannah can be attributed to a number of factors, including its low elevation, relatively flat terrain, close proximity to the coast, 6 to 9 foot tides, abundance of water features, and the large amount of developed and impervious land, which limits ground absorption and increases surface water runoff. Early in its history, the City constructed a series of canals to convey stormwater. Without these canals, development in many parts of the City would not have been possible, and over the years, these canals have been supplement by additional drainage improvements of varying capacities to alleviate potential flooding. The Savannah canal system is shown in Figure 5.30.

Localized flooding may be caused by the following maintenance related issues:

- **Inadequate Capacity** – an undersized/under capacity pipe system can cause water to back up behind a structure which can lead to areas of ponded water and/or overtopping of banks.
- **Clogged Inlets** – debris covering the asphalt apron and the top of grate at catch basin inlets may contribute to an inadequate flow of stormwater into the system which may cause flooding near the structure. Debris within the basin itself may also reduce the efficiency of the system by reducing the carrying capacity.
- **Blocked Drainage Outfalls** – debris blockage or structural damage at drainage outfalls may prevent the system from discharging runoff which may lead to a back-up of stormwater within the system.
- **Improper Grade** – poorly graded asphalt around catch basin inlets may prevent stormwater from entering the catch basin as designed. Areas of settled asphalt may create low spots within the roadway that allow for areas of ponded water.

Localized flooding can result from smaller rain events, and it typically occurs with little warning. Although the flooding may drain quickly, it can still amount to significant damages. While it may not impact as large an area or produce the damaging wave energy of coastal flooding, it is, nonetheless, a chronic problem.

Warning Time: 4 – Less than 6 hours

Duration: 2 – Less than 24 hours

Location

Early in its history, the City constructed a series of canals to convey stormwater. Without these canals, development in many parts of the City would not have been possible, and over the years, these canals have been supplement by additional drainage improvements of varying capacities to alleviate potential flooding. The Savannah canal system is shown in Figure 5.30.

Table 5-29 below shows a list of localized flooding locations. These locations include flooded intersections and are organized by neighborhood. Figure 5.31 provides a map of the recorded intersections.

Spatial Extent: 3 – Moderate

Table 5-29 – Frequently Flooded Intersections

Neighborhood	Location
Abercorn Heights	E 65 th St & Abercorn St.
	E 63 rd St. & Habersham St.
	E 60 th St. & Habersham St.
	E 64 th St. & Abercorn St.
	E 64 th St. & Habersham St.
	E 62 nd St. & Abercorn St.
Ardmore/Gould Estates/Olin Heights	E 57 th St. & Habersham St.
	222 E 56 th St.
Ardsley Park/Chatham Crescent	E 48 th St. & Abercorn St.
	E 50 th St. & Abercorn St.
	E 52 ND St. & Abercorn St.
	E Victory Dr. & Battery St.
	E 45 th St. & Abercorn St.
	E 54 th St. & Abercorn St.
	E 56 th St. & Battery St.
	E 54 th St. & Habersham St.
	E 55 th St. & Habersham St.
	E 53 rd St. & Habersham St.
	E 54 th St. & Abercorn St.
	E 56 th St. & Habersham St.
Avalon Subdivision	7 Posey St.
Baldwin Park	E 41 st St. & Atlantic St.
Beach High School Area	Hopkins St. & W 51 st St.
Beach Institute	E Broad St. & E Harris St.
Benjamin Van Clark Park	Live Oak St. & E Duffy Ln.
	E Gwinnett St. & Wheaton St.
Bingfield	Clifford St. & Barnard St.
Bingville	W 53 rd St. & Barnard St.
	W 45 th St. & Bull St.
Biscayne Park	Bona Bella Ave & Lafitte Dr.
	Bona Bella Ave & Betty Dr.
Bradley Point South	1508 Bradley Blvd.
	Bradley Blvd. & Grayson Ave.
Brandywine	Abercorn St. & Brandywine Rd.
Carver Heights	535 Magazine Ave.
	Pitt St. & Magazine Ave.
	1028 Stokes St.
Chatham Crescent	Victory & Reynolds St.
	Reynolds St. & E 45 th St.
	E Victory Dr. & E Broad St.
	E 48 th St. & Habersham St.
	E 49 th St. & Habersham St.
Chippewa	E Fairmont Ave. & Hanover St.
Coffee Bluff	Greenbriar Dr. & Greenbrier Ln.
Cokesbury	Skidaway Rd. & Cokesbury Ln.
Commercial Drive	352 Commercial Dr
Cooperative Row	Johnston St. & Whitebluff Rd.
Cuyler/Brownville	W 41 st & Hopkins St.
	MLK Blvd. & W 35 th St.

Neighborhood	Location
	W Victory Dr. & Burroughs St.
	Burroughs St. & W 37th St.
	W Victory Dr. & MLK Blvd.
Daffin Park	Waters Ave. & Washington Ave.
	E Victory Dr. & Daffin Park Dr.
Dixon Park	E Waldburg St. & E Broad St.
Eastside	E Henry St. & Harmon St.
	E Henry St. & Paulsen St.
	E Waldburg St. & Paulsen St.
	E Waldburg St. Harmon St.
	Anderson & Atlantic Ave.
	E Anderson St. & Paulsen St.
	Paulsen St. & Park Ave
	E Henry St. & RR. Underpass
	E Park Ave & Harmon St.
	Atlantic Ave. & E Henry Ln.
	Paulsen St. & Park Ave
Edgemere	E 55 th St. & Live Oak
	E 55 th St. & Waters Ave.
	1128 E 54 th St.
Fellwood	Richards St. & Eagle St.
	Rogers St. & Ferrill St.
	Fellwood Dr. & Ferrill St.
Flannery Ward	W. 37 th St. & Jefferson St.
Goebel/Twickenham	Goebel Ave. & Greenville St.
Gordonston	1825 E Gwinnett St.
	1806 E. Henry St.
	Goebel Ave. & Pierpoint Ave.
	Pierpoint Ave. & Henry St.
	Atkinson Ave. & Pierpoint Ave.
Groveland/Kensington Park	Oxford Dr. & Paulsen St.
Holland Park	4 Holland Park Ct. & 5 Holland Park Ct.
Hudson Bay	Rankin St. & Hopewell St.
Hull Park	E 54 th St. & Reynolds St.
Hussars Terrace	W 61 st St. & Boyd St.
Jackson Park	W 52 nd St. & Florence St.
	W 50 th St. & Bulloch St.
	E. 51 st St. & Stevens St.
	W. 52 nd St. & Montgomery St.
Lamar Heights	Lamara Dr. Battey St.
	Habersham St. & Lamar Dr.
	E. 66 th St. & Battey St.
	E 62 nd Habersham St.
	4418 Habersham St.
Louisville Road	Lathrop Ave. & Augusta Ave
Lynhurst Subdivision	8606 Hurst Ave.
Magnolia Park	E De Renne Ln. & Magnolia Dr.
Medical Arts	Paulsen St. & E 63 rd St.
	Paulsen St. & E 65 th St.
Metropolitan	W Victory Dr. & Montgomery St.

Neighborhood	Location
	W 33rd St. & Whitaker St.
	Jefferson St. & W 38th St.
	Maupas & Bull St.
	W Anderson St. & Barnard St.
	W 35 th St. & Montgomery St.
	W 37 th St. & MLK Blvd.
	Jefferson St. & W 32 nd St.
	W 34 th St. & Whitaker St.
	511 W 37 th St.
	W. 34 th St. & Whitaker St.
Midtown	E Anderson St. & Grove St.
	E 39 th St. & E Broad St.
	W 43 rd St. & Montgomery St.
	W. 31 st Street. & Whitaker St.
	E. 33 rd St. & Reynolds St.
	Victory Dr. & Bull St.
	E 37 th St. & Paulsen St.
North Historic District	E Bryan St. & Lincoln St.
	E Julian St. & Lincoln St.
	E Oglethorpe Ave & Habersham St.
Oakdale	Hodgson Memorial Dr. & Hodgson Ct.
	E Jackson Blvd. & White Bluff Rd.
Parkside	E Victory Dr. & Cedar St.
	E Victory Dr. & Live Oak St.
	Cedar St. & E 49 th St.
Pine Gardens	2117 Hawthorne St.
Poplar Grove	22 E 73 rd St. & E 73 rd St.
Richfield	1616 Vassar St.
Rivers End	7 & 18 Delta Cir.
Seabrook Ward	Batley St. & E 53 rd St.
Skidaway Ter.	Bona Bella Ave. & Emory Dr.
South Historic District	W Gaston & Drayton
	E Charlton St. & Whitaker St.
	Abercorn St. & E Gwinnett St.
	Abercorn St. & E Wayne St.
	E. Taylor St. & Abercorn St.
	Price St. & Hartridge St.
	Abercorn St. E Taylor St.
	Price St. & E Gaston St.
Stephens Ward	Habersham St. & E Huntingdon St.
Sylvan Terrace	Thackery Pl. & Slycan Dr.
	4747 Oakview Dr. Berkley Pl.
	Thackery Pl. & Herty Dr.
	4626 Herty Dr.
	4760 Herty Dr. & Berkley Pl.
Thomas Square	Victory & Bull St.
	E. 32 nd St. & Abercorn St.
	Abercorn St. & 71st St.
	E Victory Dr. & Drayton St.
	E. 41 st St. & Drayton St.

Neighborhood	Location
West Savannah	Louisville Rd. & Lathrop Ave.
West Victorian District	W Bolton St. & Montgomery St.
	W Waldburg St. & Barnard St.
White Bluff Neighborhoods	Greenbriar Dr. & Whitebluff Rd.
Windsor Forest	Windsor Rd. & Cranwood Ln.

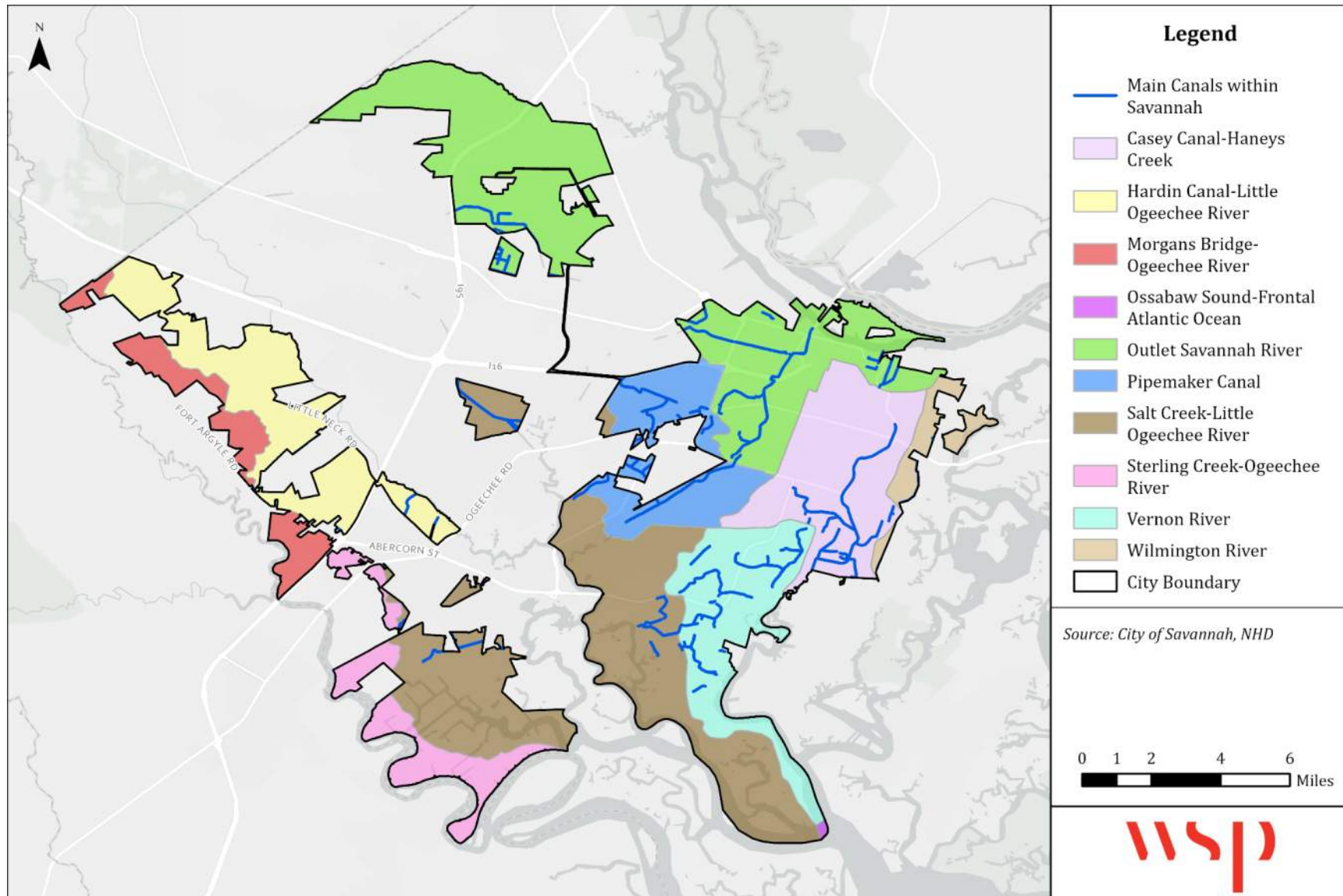
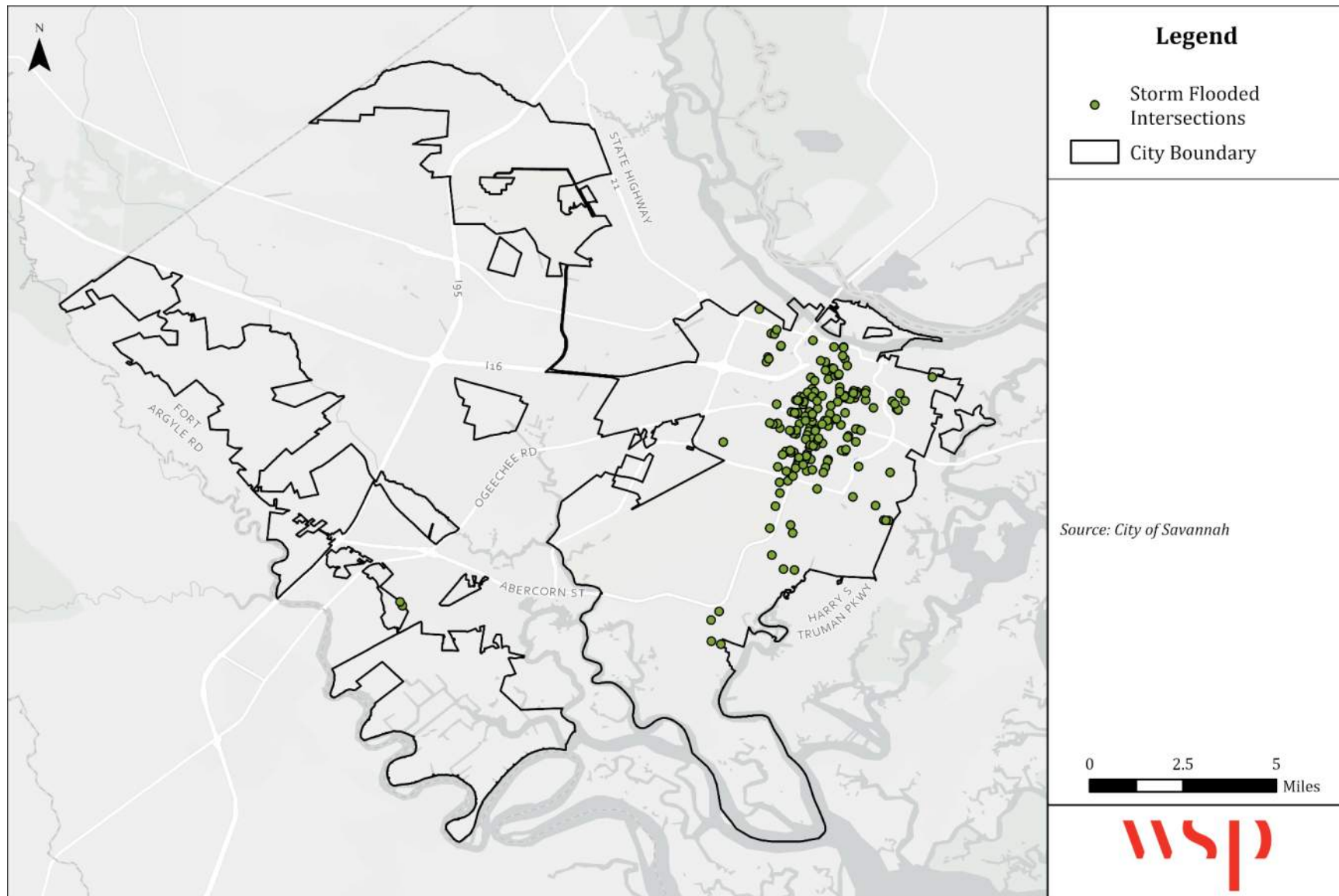
Figure 5.30 – Savannah Canal System

**Figure 5.31 – Locations of Frequently Flooded Intersections**

Extent

The severity of localized stormwater flooding is generally linked to the flood depth, velocity, and how rapidly it occurs. However, unlike with the mapped floodplain, there is limited data on flood depths and recurrence intervals for localized flooding because it is highly variable based on stormwater system maintenance, development and runoff management, recent weather patterns, and each rain event.

Localized flooding is a chronic problem. The repetitive damage caused by such flooding can add up. Sewers may back up, yards can be inundated, and homes, businesses and vehicles can be flooded. Drainage and sewer systems not designed to carry the capacity currently needed to handle increased storm runoff can cause water to back into basements and damage mechanical systems. These impacts, and other localized flooding impacts, can create public health and safety concerns.

Impact: 3 – Critical

Past Occurrences

NCEI contains records for 92 flash flood events that were reported as occurring in Chatham County since 1996. These records are recorded in Table 5-15 in the Flood hazard section. Flash flooding reports include two injuries and \$8,445,000 in property damage. These recorded incidents described localized flooding impacts to streets, vehicles, and structures. Narratives from these events are summarized below.

August 8, 2025 – A front nearby along with moderate instability and deep moisture led to an environment capable of producing heavy rainfall across Southeast Georgia. Emergency management reported 22 flooded intersections across Savannah, GA. The flooding was concentrated along Battery Street, Abercorn Street, 63rd street, 37th street, and Bull Street. Anderson Street and Paulsen Street was also impassible due to flash flooding.

August 2, 2025 – A cold front along with mid-level energy shifting across the region encountered a warm and moist environment, favoring strong to severe thunderstorms across Southeast Georgia. An emergency manager reported a stalled vehicle in floodwater near the intersection of Louisville Road and East Lathrop Avenue, near the intersection of West Boundary Street and West Gwinnett Street, on I-16 West near Exit 162, near the intersection of West Gwinnett Street and May Street, and along the 4400 Block of Paulson Street.

July 17, 2016 – Scattered thunderstorms developed in the early afternoon hours along the developing sea breeze boundary. A few of these storms became severe and produced damaging wind gusts. Also, heavy rain and flash flooding occurred. Chatham County Emergency Management reported several locations along Victory Drive were impassable and closed due to flooding. Also, a few vehicles were flooded.

June 23, 2014 – The combination of the a very unstable atmosphere, the presence of a weak surface trough and the passing of a Mesoscale Convective Vortex (MCV) produced numerous showers and thunderstorms. A line of stationary thunderstorms produced between 4-10 inches of rain across Chatham County, which resulted in flash flooding. KSAV observed the wettest June day on record since observations began in 1871. The Savannah Airport ASOS measured 6.65 inches of rainfall for the day. This surpassed the previous record of 6.60 inches set in June 29, 1999.

June 29, 2011 – Strong surface heating along with precipitable water values around 2 inches and a weak wind field favored the development of slow moving thunderstorms with heavy rain over Southeast Georgia. Local officials reported flooding on the following roads and intersections: Butler Ave, Victory and Live Oak, Victory and MLK Blvd, East Liberty and East Broad, Dayton and 36th St, East Henry Lane and East Broad, Atlantic and Paulsen, and Interstate 516 exit 7.

September 1, 2007 – The presence of an area of surface low pressure southwest of the area, an approaching frontal boundary from the northwest, and abundant weak upper level disturbances in a deep tropically moist environment, resulted in heavy rainfall and flash flooding across the area. Around 1.5 ft of standing water was reported at an underpass. Additionally, a major road in town was closed due to high water, and it was reported to be impassable by vehicles. The Chatham County 911 dispatch center reported approximately 15 streets or intersections blocked due to standing water. Law enforcement was blockading many of these areas as quickly as possible.

July 30, 2007 – A weak frontal boundary in combination with sea breeze and numerous low level boundaries in a highly unstable environment resulted in numerous showers and thunderstorms across the region. Numerous road closures were reported in Downtown Savannah. High water was reported entering some apartments. Cars floating down the roadway at 65th and Abercorn Street.

August 12, 2004 – Radar estimated around 4 inches of rain across parts of the county in around 1 hour. Flooding was reported in the Windsor Forest area and high water approached some homes.

June 29, 1999 – Slow moving showers and thunderstorms developed repeatedly across Chatham County. Twenty-four hour rainfall amounts ranged from about 7 inches to over 13 inches. As a result of the flooding, over 500 homes and businesses were damaged to varying degrees and almost 600 automobiles were damaged. Numerous roads were washed out and/or closed during the flooding. Estimated dollar damage for public property was 4.5 million dollars and at least another 2.5 million dollars for private property.

Probability of Future Occurrence

Given the 92 days with flash flood events recorded in NCEI over the 30-year period, from 1996 to October 2025 there is over a 100-percent chance of occurrence within any given year. Precipitation resulting from heavy rainstorms, including tropical storms and hurricanes, makes it highly likely that unmitigated properties will continue to experience localized flooding.

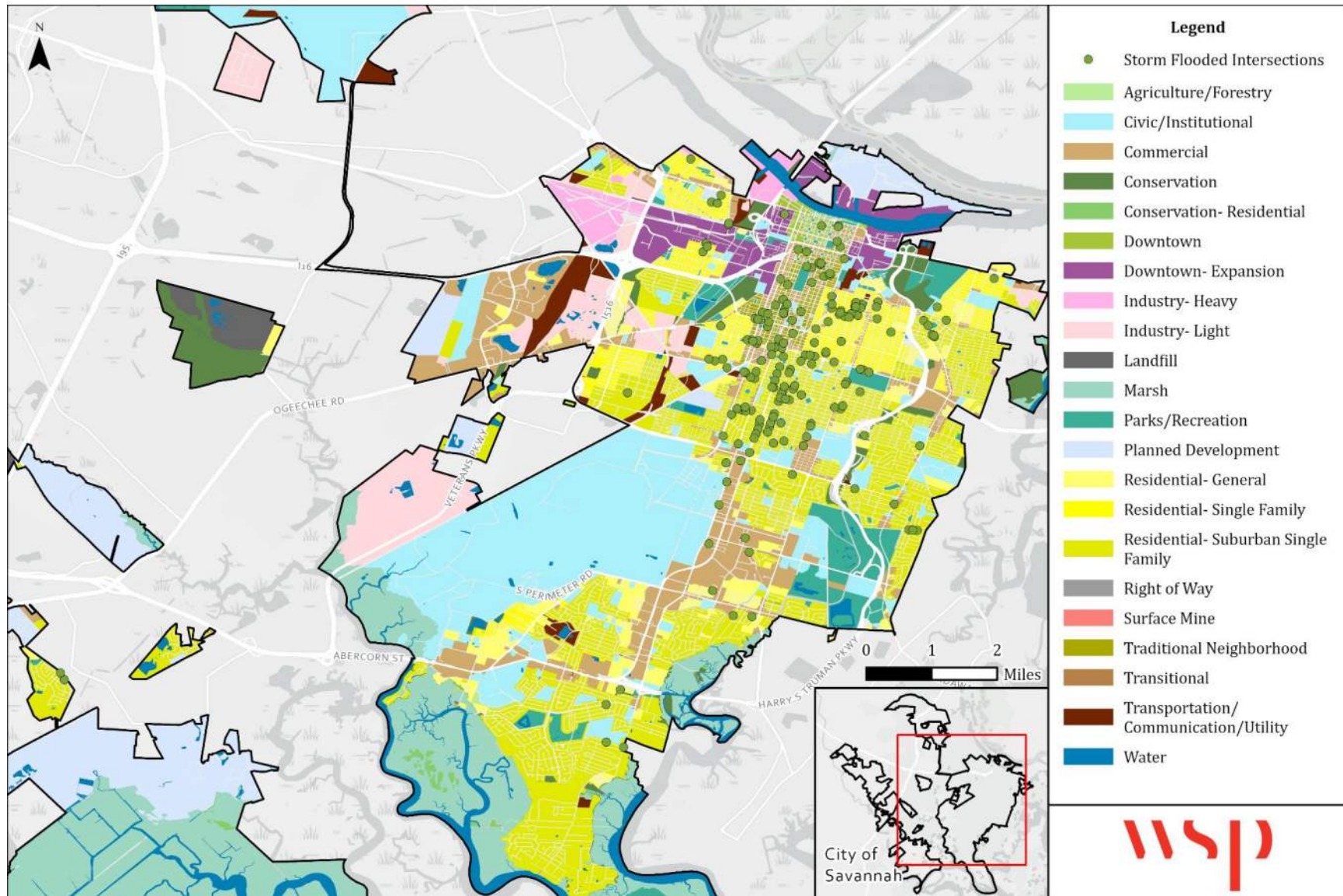
Probability: 4 – Highly Likely

Climate Change and Future Conditions

Climate change and sea level rise do have the potential to affect localized flooding in Savannah. As discussed in Section 5.4.1, according to the Fourth National Climate Assessment, the frequency and intensity of individual rainfall events is expected to increase across the U.S., and total precipitation amounts are expected to increase in the Southeast. Increases in the intensity of individual rainfall events may cause increases in localized flooding, as stormwater drainage systems designed for smaller floods become overwhelmed more frequently.

New development can also affect the occurrence of localized flooding. As development and impervious surface increases, this puts additional strain on existing stormwater infrastructure. Incorporating low-impact development techniques and other on-site stormwater management, and designing those systems for greater stormwater volumes, can help to mitigate the impacts of new development.

Mitigating the root causes of localized flooding or choosing not to develop in areas that often are subject to localized flooding will reduce future risk of losses due to this hazard. Figure 5.32 shows localized stormwater flooding in relation to future land use for the City of Savannah.

Figure 5.32 – Future Land Use and Localized Flooding Locations

An analysis of future land use along with current known flooding locations indicates that many localized flooding locations are in areas slated for residential, commercial development, and downtown development. Localized flooding in these areas could cause small scale interruption to business or impact peoples properties and roads.

Most of the developable land in the City is built out, planned development is sited in small areas in western and northern Savannah, which is currently zoned as planned residential. Flooding hot spots mapped in this plan are concentrated outside of these areas of planned development.

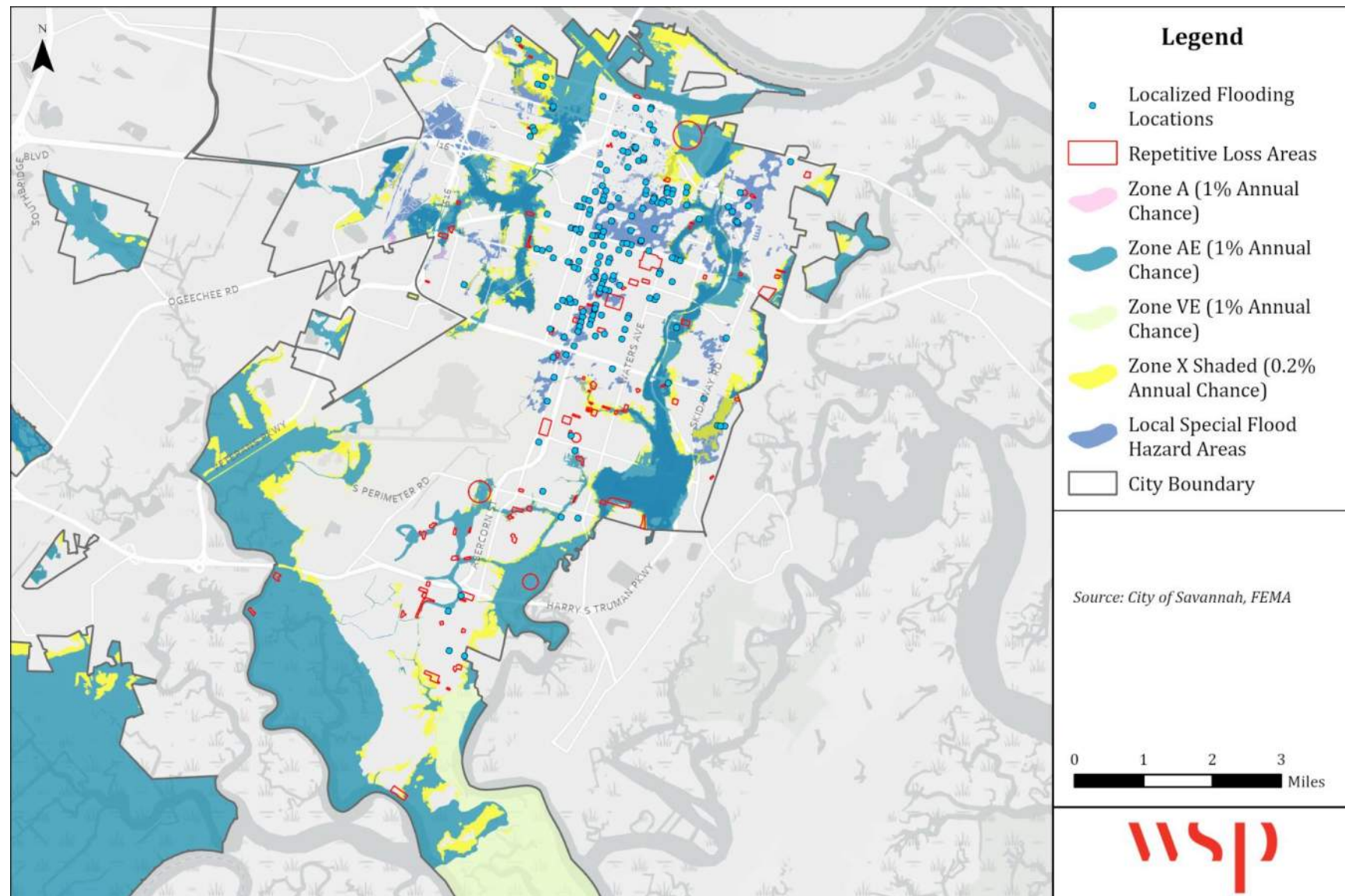
Evaluated on a watershed level, impervious surface and thus stormwater-related flooding is likely to increase in the Ogeechee Coastal and Lower Ogeechee basins, especially around areas of rapid development. Based on the land use and development mapped for these areas, not only will more property be exposed due to new construction, but the associated increase in impervious surface and reduction in flood storage areas will increase the vulnerability of existing property within these watersheds.

Vulnerability Assessment

Vulnerability—High

Localized flooding occurs at various times throughout the year with several areas of primary concern to the City, as noted in Figure 5.31 above. Localized flooding and ponding affect streets and property. Loss estimates for localized flooding cannot be created because the frequency and depth of localized flooding is unknown. However, all properties in and around the known localized flooding areas may be at risk of future flood damage.

Figure 5.33 depicts localized flooding in relation to repetitive loss areas and shows there is some correlation between repetitive losses and known stormwater flooding hotspots.

Figure 5.33 – Localized Flooding Locations and Repetitive Loss Areas

5.4.6 Hurricane & Tropical Storm

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Hurricane & Tropical Storm	Highly Likely	Critical	Large	More than 24 hrs	Less than 1 week	3.1

Hazard Description

A hurricane is a type of tropical cyclone or severe tropical storm that forms in the southern Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and in the eastern Pacific Ocean. A typical cyclone is accompanied by thunderstorms, and in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface. All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes. The Atlantic hurricane season lasts from June to November, with the peak season from mid-August to late October.

While hurricanes pose the greatest threat to life and property, tropical storms and depression also can be devastating. A tropical disturbance can grow to a more intense stage through an increase in sustained wind speeds. Storm development into a hurricane generally occurs over many days, allowing for ample warning and preparation. Broadly defined, the stages of a tropical disturbance are tropical depression, tropical storm, hurricane, and major hurricane. The progression of a tropical disturbance is described below.

- **Tropical Depression:** A tropical cyclone with maximum sustained winds of 38 mph (33 knots) or less.
- **Tropical Storm:** A tropical cyclone with maximum sustained winds of 39 to 73 mph (34 to 63 knots)
- **Hurricane:** A tropical cyclone with maximum sustained winds of 74 mph (64 knots) or higher. In the western North Pacific, hurricanes are called typhoons; similar storms in the Indian Ocean and South Pacific Ocean are called cyclones.
- **Major Hurricane:** A tropical cyclone with maximum sustained winds of 11 mph (96 knots) or higher, corresponding to a Category 3, 4, or 5 on the Saffir-Simpson Hurricane Wind Scale.

The Saffir-Simpson Hurricane Wind Scale classifies hurricanes by intensity into one of five categories as shown in Table 5-30. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures.

Table 5-30 – Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Potential Damage
1	74-95	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.

Category	Wind Speed (mph)	Potential Damage
3	111-129	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4	130-156	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5	≥157	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

The heavy rains associated with tropical weather systems are not only responsible for major flooding in areas where the storm initially strikes but can also affect areas hundreds of miles inland. Torrential rains from hurricanes and tropical storms can produce extensive urban and riverine flooding, especially if the storm systems are large and slow moving. Winds from these storms located offshore can drive ocean water up the mouth of a river or canal, compounding the severity of inland overbank flooding.

In addition to the combined destructive forces of wind, rain, and lightning, hurricanes can cause a surge in the ocean, which can raise the sea level as high as 25 feet or more in the strongest hurricanes. Storm surge is detailed in the section below.

Storm Surge

The greatest potential for loss of life related to a hurricane is from the storm surge. Storm surge is simply water that is pushed toward the shore by the force of the winds swirling around the storm as shown in Figure 5.34. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level to heights impacting roads, homes and other critical infrastructure. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. Because much of the densely populated Atlantic coastline lies less than 10 feet above mean sea level, the danger from storm tides is tremendous.

The maximum potential storm surge for a particular location depends on a number of different factors. Storm surge is a very complex phenomenon because it is sensitive to the slightest changes in storm intensity, forward speed, size (radius of maximum winds-RMW), angle of approach to the coast, central pressure (minimal contribution in comparison to the wind), and the shape and characteristics of coastal features such as bays and estuaries. Other factors which can impact storm surge are the width and slope of the continental shelf. A shallow slope will potentially produce a greater storm surge than a steep shelf.

Warning Time: 1 – More than 24 hours

Duration: 3 – Less than 1 week

**Figure 5.34 – Components of Hurricane Storm Surge**

Source: NOAA/The COMET Program

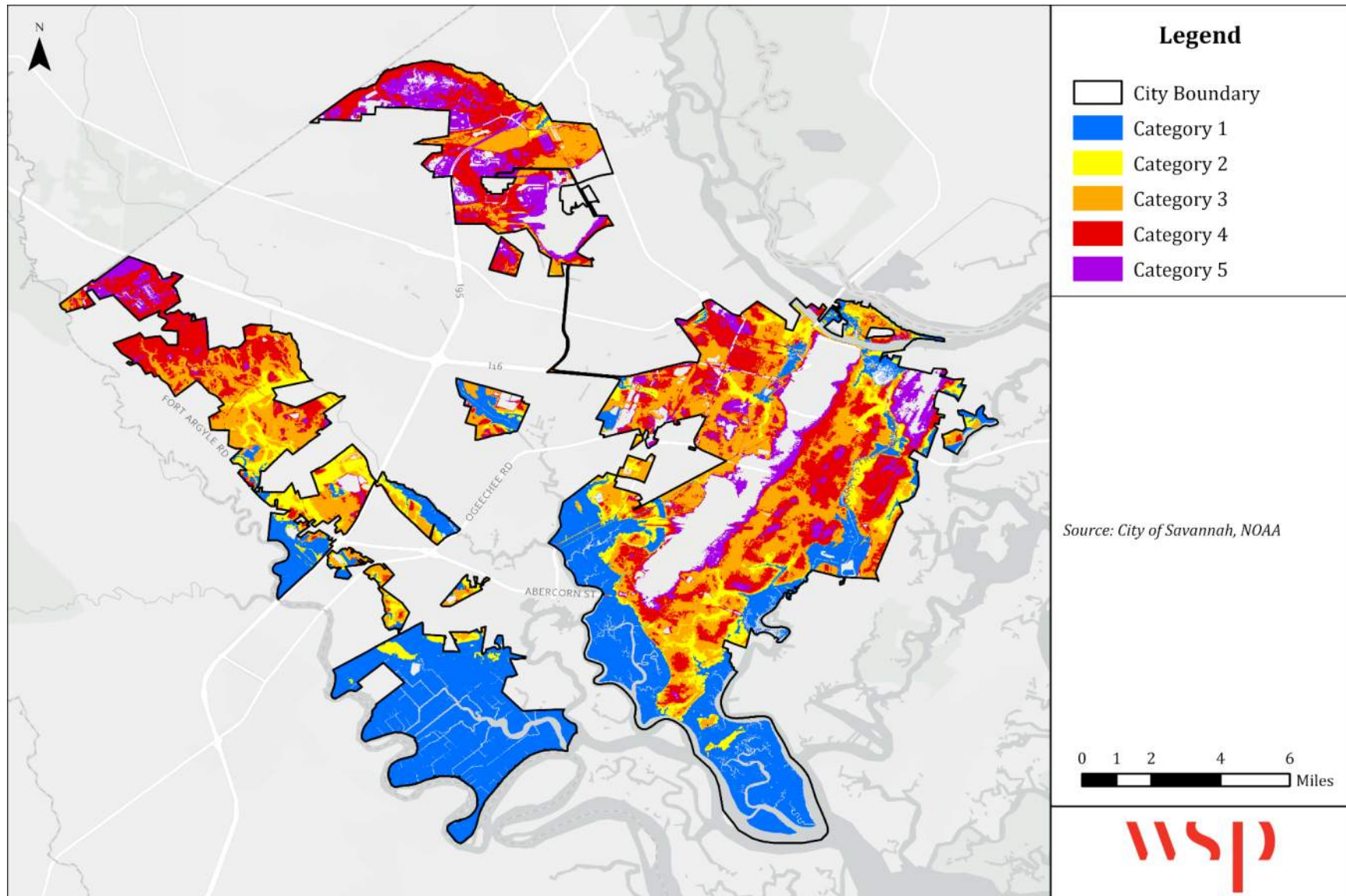
Location

Much of Savannah is at risk to flooding from hurricanes, tropical storms, and storm surge, but to varying degrees, with areas closer to the coast and water bodies that drain into the coast (namely the Savannah and Ogeechee Rivers and their tributaries) facing greater risk than areas further inland.

The Sea, Lake and Overland Surges from Hurricanes (SLOSH) model is a computerized numerical model developed by the National Weather Service (NWS) to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by taking into account the atmospheric pressure, size, forward speed, and track data. These parameters are used to create a model of the wind field which drives the storm surge. The SLOSH model consists of a set of physics equations which are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, levees and other physical features.

Anticipated SLOSH model surge elevations for Category 1-5 hurricanes are shown for the City of Savannah in Figure 5.35. The feature set depicting surge zones in this figure was created using data derived from National Hurricane Center SLOSH model runs on all the NOAA SLOSH basins throughout Georgia. The runs create outputs for all different storm simulations from all points of the compass. Each direction has a MEOW (maximum envelope of water) for each category of storm (1-5), and all directions combined results in a MOMs (maximum of minimums) set of data. The MOMs are used in this surge model.

Location: 4 – Large

**Figure 5.35 – Category 1 through Category 5 Storm Surge Zones for Savannah**

Extent

Hurricanes and tropical storms can cause catastrophic damage to coastlines and several hundred miles inland. Hurricanes can produce winds exceeding 157 miles per hour as well as tornadoes and microbursts. Additionally, hurricanes and tropical storms can create storm surges along the coast and cause flash flooding from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events. Wind speed is the determining factor in the Saffir-Simpson scale, which is used as a measure of hurricane intensity. Storm surge is also significant to a hurricane's magnitude, and storm surge projections are often tied to a storm's category on the Saffir-Simpson scale; however, storm surge values are highly dependent on the slope of the continental shelf, the shape of the coastline in the landfall region, and the storm's path.

The storm surge combined with wave action can cause extensive damage, severely erode beaches and coastal highways. With major storms like Katrina, Camille and Hugo, complete devastation of coastal communities occurred. Many buildings withstand hurricane force winds until their foundations, undermined by erosion, are weakened and fail.

Impact: 3 – Critical

Past Occurrences

Major disaster declarations and emergency declarations for hurricanes and tropical storms in Chatham County can be found in Section 5.1.2 in Table 5-2 through Table 5-4. Table 5-31 and Table 5-32 below show hurricane, tropical storm, and storm surge reported by NCEI for Chatham County since 1996. NCEI reports 90 hurricane, tropical storm, and tropical depression events causing over \$10 million in property damage, one death and three injuries, and five storm surge events causing \$10 million in damage. Note that NCEI only includes what is reported to the database, and often underestimates total property damage or deaths/injuries caused by an event.

Table 5-31 – NCEI Hurricane/Tropical Storm Events for Chatham County, 1996-2025

Date	Event Type	Deaths/ Injuries	Property Damage
7/11/1996*	Hurricane Bertha	0/0	\$0
9/15/1999*	Hurricane Floyd	0/0	\$0
7/10/2005	Hurricane Dennis	0/0	\$0
8/29/2005	Hurricane Katrina	0/0	\$0
10/7 - 10/8/2016*	Hurricane Matthew	0/0	\$0
10/8/2016*	Hurricane Matthew	1/2	\$0
9/14/2002	Tropical Storm	0/0	\$0
7/1/2003	Tropical Storm	0/0	\$0
9/6/2004	Tropical Storm	0/0	\$0
9/26/2004	Tropical Storm	0/0	\$0
9/27/2004*	Tropical Storm	0/0	\$0
6/12/2005	Tropical Storm	0/0	\$0
7/6/2005	Tropical Storm	0/0	\$0
10/5/2005*	Tropical Storm	0/0	\$0
6/12/2006*	Tropical Storm	0/0	\$0
8/30/2006*	Tropical Storm	0/0	\$0
8/21/2008*	Tropical Storm	0/0	\$3,000
8/22/2008*	Tropical Storm	0/0	\$1,500
11/10/2009	Tropical Storm	0/0	\$0

Date	Event Type	Deaths/ Injuries	Property Damage
9/4/2011	Tropical Storm	0/0	\$0
5/27/2012*	Tropical Storm	0/0	\$2,500
6/6/2013*	Tropical Storm	0/0	\$6,500
6/7/2013*	Tropical Storm	0/0	\$1,000
9/2/2016*	Tropical Storm	0/0	\$0
10/7/2016	Tropical Storm	0/0	\$0
10/8/2016*	Tropical Storm	0/0	\$0
9/11/2017*	Tropical Storm*	0/0	\$10,100,000
10/10/2018*	Tropical Storm	0/0	\$0
9/4/2019	Tropical Storm	0/0	\$0
10/29/2020	Tropical Storm	0/0	\$0
6/28/2021	Tropical Storm	0/0	\$0
7/7/2021	Tropical Storm	0/0	\$0
9/29/2022	Tropical Storm	0/0	\$0
8/30/2023	Tropical Storm	0/0	\$0
8/5/2024	Tropical Storm	0/0	\$0
9/26/2024	Tropical Storm	0/1	\$60,000
9/27/2024	Tropical Storm	0/0	\$0
9/4/2019	Tropical Depression	0/0	\$0
7/7/2021	Tropical Depression	0/0	\$0
Total		1/3	\$10,174,500

Source: NCEI Storm Events Database

Note: * indicates multiple NCEI records were reported on that date and have been combined in this table.

Table 5-32 – Storm Surge Events for Chatham County, 1996-2025

Date	Event Type	Deaths/ Injuries	Property Damage
9/2/2016	Storm Surge	0/0	\$0
10/7/2016	Storm Surge	0/0	\$0
9/11/2017*	Storm Surge	0/0	\$10,000,000
11/10/2022	Storm Surge	0/0	\$0
Total		0/0	\$10,000,000

Source: NCEI Storm Events Database

Note: * indicates multiple NCEI records were reported on that date and have been combined in this table.

Figure 5.36 displays hurricane tracks that have passed within 50 nautical miles of the City of Savannah since 1900 according to data from NOAA's National Hurricane Center Historical Hurricane Tracks. These 77 hurricanes, tropical storms, and tropical depressions are summarized by type and frequency in Table 5-33 and listed on the following pages in Table 5-34.

Table 5-33 – Historical Hurricanes by Type and Frequency

Storm Intensity	Number of Occurrences	Rate of Occurrence
Tropical Storm/Depression	67	1 in 2 years
CAT I Hurricane	3	1 in 42 years
CAT II Hurricane	6	1 in 21 years
CAT IV Hurricane	1	1 in 125 years
Total	77	1 in 0.48

Source: NOAA National Hurricane Tracks, 2025

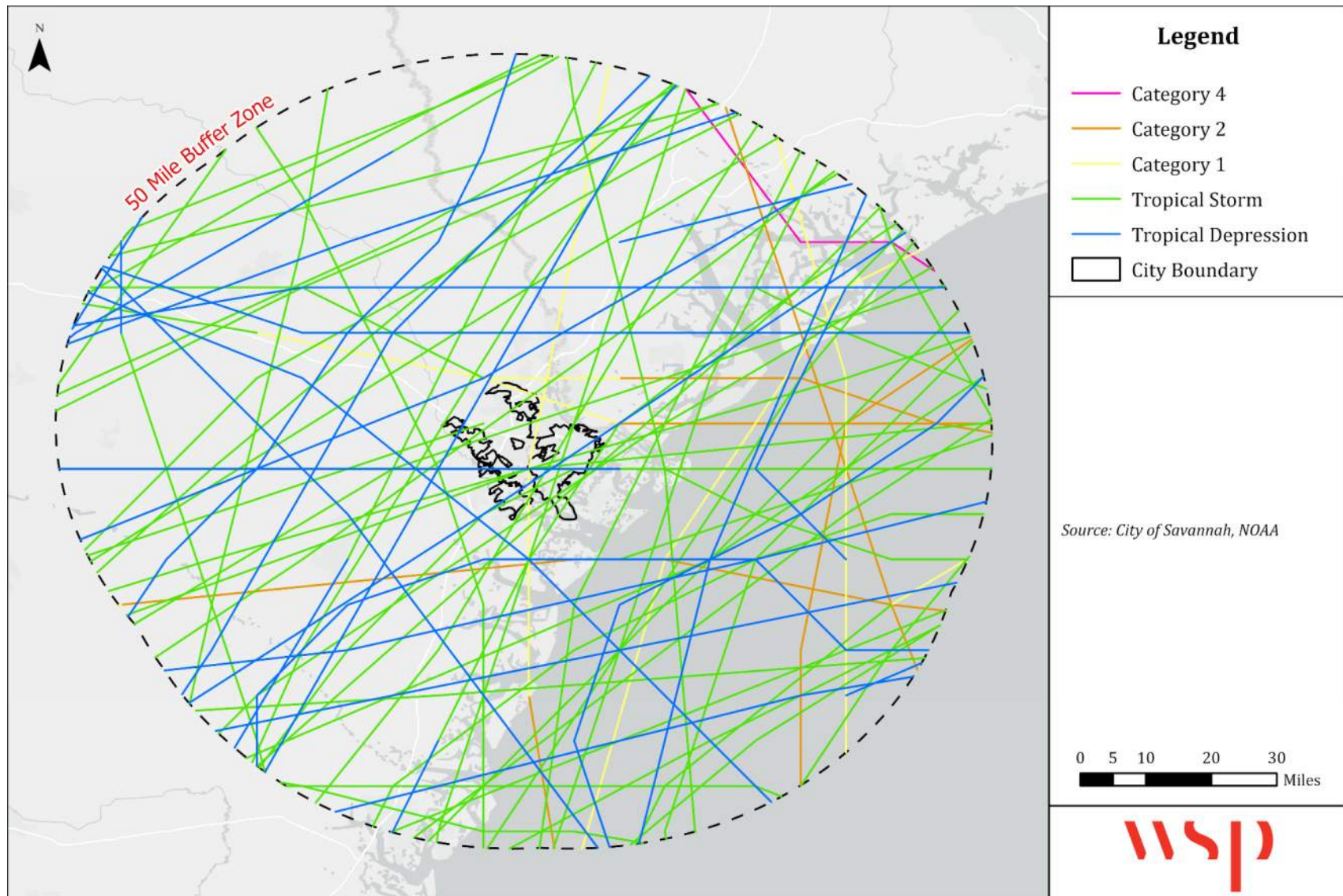
Note: No Category III or Category V storm tracks were recorded within 50 nautical miles of Savannah since 1900

Table 5-34 – Historical Hurricane Tracks Within 50 Miles of Savannah, GA

Storm Name	Category	Date
Unnamed	Tropical Storm	6/16/1902
Unnamed	Tropical Depression	11/5/1904
Unnamed	Category 1	10/21/1906
Unnamed	Tropical Storm	6/30/1907
Unnamed	Tropical Storm	9/30/1907
Unnamed	Tropical Depression	7/3/1909
Unnamed	Tropical Storm	10/20/1910
Unnamed	Tropical Depression	8/6/1911
Unnamed	Category 2	8/29/1911
Unnamed	Tropical Storm	7/16/1912
Unnamed	Tropical Depression	9/7/1912
Unnamed	Tropical Storm	5/17/1916
Unnamed	Tropical Storm	10/5/1916
Unnamed	Tropical Storm	10/1/1919
Unnamed	Tropical Storm	6/28/1923
Unnamed	Tropical Storm	9/17/1924
Unnamed	Tropical Storm	10/1/1924
Unnamed	Tropical Storm	10/4/1927
Unnamed	Category 1	9/19/1928
Unnamed	Tropical Storm	9/16/1932
Unnamed	Category 2	8/12/1940
Unnamed	Tropical Storm	10/9/1941
Unnamed	Tropical Storm	10/20/1944
Unnamed	Tropical Storm	9/18/1945
Unnamed	Tropical Storm	10/9/1946
Unnamed	Tropical Storm	9/25/1947
Unnamed	Category 2	10/16/1947
Love	Tropical Depression	10/23/1950
Able	Category 2	8/31/1952
Unnamed	Tropical Depression	9/2/1953
Florence	Tropical Storm	9/28/1953
Unnamed	Tropical Storm	7/11/1954
Flossy	Tropical Storm	9/26/1956
Unnamed	Tropical Storm	6/10/1957
Gracie	Category 4	9/30/1959
Brenda	Tropical Storm	7/30/1960
Cleo	Tropical Storm	8/30/1964
Dora	Tropical Storm	9/14/1964
Alma	Tropical Storm	6/11/1966
Abby	Tropical Storm	6/8/1968
Alma	Tropical Storm	5/26/1970
Unnamed	Tropical Depression	9/12/1971
Dawn	Tropical Depression	9/14/1972
Unnamed	Tropical Storm	5/25/1976
Unnamed	Tropical Storm	9/15/1976
David	Category 2	9/5/1979

Storm Name	Category	Date
Unnamed	Tropical Depression	7/4/1981
Dennis	Tropical Storm	8/20/1981
Bob	Category 1	7/25/1985
Claudette	Tropical Depression	8/10/1985
Isabel	Tropical Depression	10/12/1985
Kate	Tropical Storm	11/23/1985
Charley	Tropical Depression	8/15/1986
Chris	Tropical Storm	8/29/1988
Gordon	Tropical Depression	11/22/1994
Allison	Tropical Storm	6/7/1995
Josephine	Tropical Storm	10/9/1996
Earl	Tropical Storm	9/4/1998
Gordon	Tropical Depression	9/19/2000
Kyle	Tropical Storm	10/12/2002
Unnamed	Tropical Depression	7/27/2003
Bonnie	Tropical Depression	8/13/2004
Alberto	Tropical Depression	6/15/2006
Barry	Tropical Storm	6/4/2007
Beryl	Tropical Storm	5/31/2012
Andrea	Tropical Storm	6/8/2013
Colin	Tropical Storm	6/8/2016
Hermine	Tropical Storm	9/3/2016
Julia	Tropical Storm	9/15/2016
Matthew	Category 2	10/9/2016
Eta	Tropical Storm	11/13/2020
Danny	Tropical Storm	6/29/2021
Elsa	Tropical Storm	7/9/2021
Mindy	Tropical Depression	9/10/2021
Colin	Tropical Storm	7/2/2022
Idalia	Tropical Storm	8/31/2023
Debby	Tropical Storm	8/7/2024

Source: NOAA National Hurricane Tracks, 2025

**Figure 5.36 – Past Tracks of Hurricanes Passing within 50 miles of Savannah**

Note: Several storms have multiple tracks recorded as storm intensity changed over the duration of the event



The following descriptions of past occurrences of hurricanes, tropical storms, and storm surge come from NCEI.

November 10, 2022 – Hurricane Nicole weakened to a Tropical Depression as it shifted into southwest Georgia and degenerated as it moved to the north. Despite being a Hurricane at landfall, Nicole did not produce widespread significant impacts across southeast Georgia. Rainfall amounts ranged from 1 to 2 inches. Strong winds were limited to the immediate coastline, with frequent Tropical Storm force gusts observed at coastal observation sites at the beaches. The biggest impact from Nicole was coastal flooding and storm surge due to persistent and strong northeast winds along the coast, and the lingering effect of the full moon on Tuesday, November 8th.

September 11, 2017 – On September 11th Irma tracked to the northwest into southern Georgia and widespread impacts occurred across the Southeast. Despite the fact that the center of Irma tracked well to the west of the southeast Georgia and southeast South Carolina region, it still caused significant impacts due to heavy rainfall, strong winds, tornadoes, and storm surge. Feeder bands around Irma continuously moved onshore and produced very heavy rainfall rates with rainfall totals generally ranging from 3 to 9 inches. The daily record rainfall total for September 11th was 4.74 inches at the Savannah-Hilton Head International Airport (KSAV). This widespread heavy rain resulted in several reports of flash flooding with water entering homes and businesses. Wind damage produced numerous power outages across the region with some damage to structures and numerous downed trees. The strongest winds were confined to coastal locations, but frequent gusts into the 40-50 mph range occurred well inland.

The entire southeast Georgia coast was impacted by storm surge generally ranging from 3 to 6 feet. This storm surge produced numerous reports of 4 to 6 feet of inundation above ground level. A peak surge of 5.63 feet occurred at the Fort Pulaski tide gauge at 5:42 am. Significant beach erosion occurred at area beaches with widespread damage to docks and piers all along the coast, as well as numerous reports of inundated roadways. According to data received from the Georgia Emergency Management Agency, total damages from Irma were \$20,000,000 in Chatham County. County Emergency Management reported numerous trees down across the county.

October 7-8, 2016 – Hurricane Matthew first developed into a tropical storm before strengthening into a powerful hurricane. Matthew tracked parallel to the northern half of the Southeast Georgia coast as a category 2 hurricane before weakening to a category 1 hurricane. Across southeast Georgia, the main impacts from Matthew included heavy rain, wind damage in the form of scattered to widespread trees and power lines blown down, and storm surge. Storm total rainfall amounts ranged from 4.5 to 7 inches across western areas of southeast Georgia. A peak storm total rainfall of 17.49 inches was recorded at Hunter Army Airfield. The Tybee Island sensor recorded maximum sustained wind of 75 mph and peak wind gust of 96 mph. The entire southeast Georgia coast was impacted by storm surge; a peak surge of 7.69 ft occurred at the Fort Pulaski tide gauge. Trees were reported down across Chatham County, including multiple instances of trees fallen on homes.

June 6, 2013 – Tropical Storm Andrea lifted northeast out of the Gulf of Mexico and over southeast Georgia and southeast South Carolina. Periods of heavy rain and damaging wind gusts occurred with showers and thunderstorms associated with the tropical system as it passed over the area and eventually to the northeastern United States. Multiple trees were reported down throughout the County. Wind gusts of up to 40 mph were recorded at Fort Pulaski.

August 22, 2008 – Tropical Storm Fay moved eastward into northeast Florida, resulting in Tropical Storm force conditions across southeast Georgia. Law enforcement reported downed power lines and trees across Savannah and Chatham County as well as power and traffic light outages. Flooding was reported as well, including portions of Avercorn Street, 40th Street, Bull Street, and Montgomery Street.

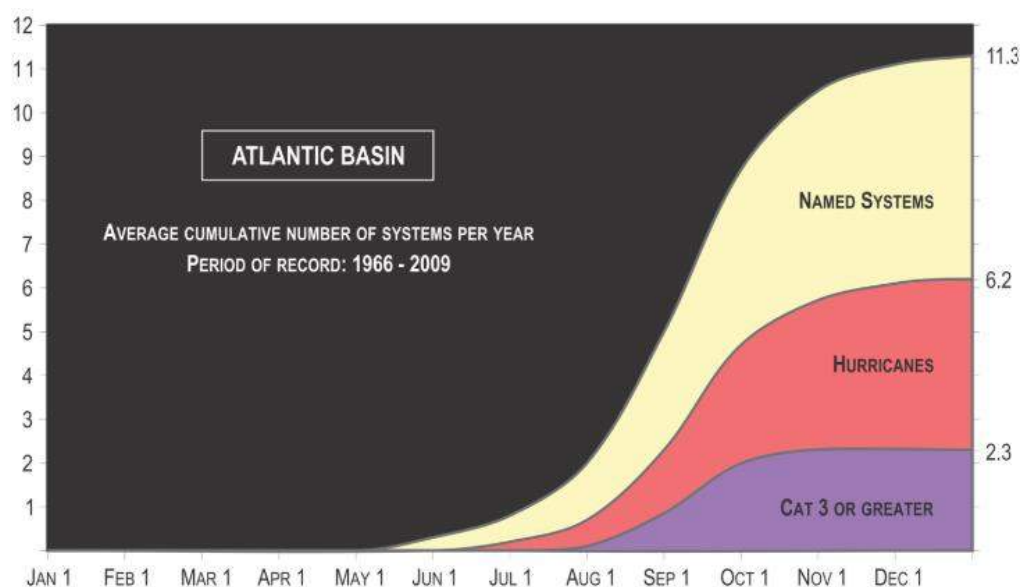
September 15, 1999 - Hurricane Floyd approached from the south but turned more northeast on the afternoon of the 15th and just brushed southeast Georgia. Well over 200,000 citizens in the affected counties evacuated the area. Because Floyd turned to the northeast, damage was minimal and confined

mostly to the coastal counties. Scattered trees and a few power lines were down. Highest winds over land were 40 mph with a gust to 53 mph at the Savannah Airport. Maximum tide at Savannah was 12.39 ASL (8.69 MLLW) with a maximum departure of 3.3 feet.

Probability of Future Occurrence

The Atlantic basin hurricane season runs from June 1st to November 30th. The Atlantic basin includes the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico. Figure 5.37 shows the progress of a typical hurricane season in terms of the total number of tropical systems and hurricanes produced throughout the year in the Atlantic basin. The curves represent the average cumulative production of all named tropical systems, all hurricanes, and those hurricanes which were Category 3 or stronger in those basins. Hurricanes are certain to continue occurring in the Atlantic Basin.

Figure 5.37 – Average Number of Tropical Storms per Year (Atlantic Basin)



Given the 90 hurricane and tropical storm occurrences recorded by the NCEI over a period of 26 years (1996-2025), and the 258 historical hurricane tracks recoded by NOAA and the National Hurricane Center, hurricane related flooding is highly likely in the future. Based on this data, a hurricane or tropical storm affects Savannah three times a year on average – over a hundred percent probability of a hurricane or tropical storm event impacting the City every year.

Probability: 3 – Highly Likely

Climate Change and Hurricane and Tropical Storms

One of the primary factors contributing to the origin and growth of tropical storm and hurricanes systems is water temperature. Sea surface temperature may increase significantly in the main hurricane development region of the North Atlantic during the next century as well as in the Gulf of Mexico. NOAA models predict that while there may be less frequent, low-category storm events (Tropical Storms, Category 1 Hurricanes), there will be more, high-category storm events (Category 4 and 5 Hurricanes) in the future. This means that there may be fewer hurricanes overall in any given year, but when hurricanes do form, it is more likely that they will become large storms that can create massive damage. Per the Fourth National Climate Assessment, studies suggest that there will be an increase in the number of very

intense tropical cyclones. The total number of storms may remain consistent, but very intense storms are expected to become more frequent and the amount of rainfall from these storms is projected to increase.

The heavy rains associated with tropical weather systems are not only responsible for major flooding in areas where the storm initially strikes but can also affect areas hundreds of miles inland. Torrential rains from hurricanes and tropical storms can produce extensive urban and riverine flooding, especially if the storm systems are large and slow moving. Winds from these storms located offshore can drive ocean water up the mouth of a river or canal, compounding the severity of inland overbank flooding.

Hurricanes and other coastal storms may result in increased flooding, injuries, deaths, and extreme property loss. According to the US Government Accountability Office, national storm losses from changing frequency and intensity of storms is projected to increase anywhere from \$4-6 billion soon.

Sea level change will be particularly important in influencing storm surge flooding in the Savannah area, since the area is already subject to flooding from above normal tides, surge and rainfall events from hurricanes and less powerful tropical storms. As a result of sea-level rise, flooding from just high tide events is becoming more common.

Vulnerability Assessment

Vulnerability— High

Methodology

A hurricane surge analysis was conducted by intersecting the parcel layer provided by the City of Savannah with the polygon shapefile for each hurricane surge layer. The hurricane surge layer data was derived from the National Hurricane Center SLOSH model runs on all the NOAA SLOSH basins throughout Georgia. The runs create outputs for all different storm simulations from all points of the compass. Each direction has a MEOW (maximum envelop of water) for each category of storm (1-5), and all directions combined result in a MOMs (maximum of minimums) set of data. The MOMs are used in this surge model. The application uses three input parameters or data: elevation (from LiDAR), SLOSH basin results, and contiguous shoreline or sea polygons.

Property at Risk

Table 5-35 provides a summary of parcels at risk to hurricane surge based on each hurricane category and occupancy type. Parcels are indicated as at risk to hurricane storm surge if they fall within any portion of the SLOSH model storm surge extent, regardless of flood depth. Therefore, some parcels are more vulnerable than others depending on the actual depth of flooding that could occur at each location.

The estimate of assets at risk for each hurricane category is based on the total of improved and contents value. These values are not damage estimates but rather reflect the total building and contents value for all structures that could be exposed to any depth of hurricane storm surge flooding for each category of storm based on NOAA SLOSH models. Per this assessment, over 47 percent of the City's parcels are likely to experience some level of damage from a Category 3 storm surge.

Table 5-35 – Savannah Assets at Risk to Storm Surge (Category 1 – Category 5)

Occupancy	Parcels Affected by Storm Surge	Structure Value	Estimated Content Value	Total Value
Category 1				
Agricultural	6	\$356,400	\$356,400	\$712,800
Commercial	111	\$887,305,275	\$887,305,275	\$1,774,610,550
Education	5	\$39,766,100	\$39,766,100	\$79,532,200
Government	56	\$719,891,800	\$719,891,800	\$1,439,783,600
Industrial	40	\$133,310,748	\$199,966,122	\$333,276,870
Religious	28	\$14,863,100	\$14,863,100	\$29,726,200
Residential	1,885	\$375,555,523	\$187,777,762	\$563,333,285
Total	2,131	\$2,171,048,946	\$2,049,926,559	\$4,220,975,505
Category 2				
Agricultural	10	\$1,069,500	\$1,069,500	\$2,139,000
Commercial	385	\$1,475,722,667	\$1,475,722,667	\$2,951,445,334
Education	11	\$72,771,300	\$72,771,300	\$145,542,600
Government	162	\$923,206,100	\$923,206,100	\$1,846,412,200
Industrial	112	\$336,096,765	\$504,145,147	\$840,241,912
Religious	64	\$47,191,700	\$47,191,700	\$94,383,400
Residential	7,542	\$1,307,348,795	\$653,674,397	\$1,961,023,193
Total	8,286	\$4,163,406,827	\$3,677,780,811	\$7,841,187,639
Category 3				
Agricultural	11	\$1,104,200	\$1,104,200	\$2,208,400
Commercial	1,597	\$3,039,593,978	\$3,039,593,978	\$6,079,187,956
Education	22	\$138,084,900	\$138,084,900	\$276,169,800
Government	301	\$1,503,644,200	\$1,503,644,200	\$3,007,288,400
Industrial	355	\$934,839,998	\$1,402,259,997	\$2,337,099,995
Religious	244	\$163,066,500	\$163,066,500	\$326,133,000
Residential	21,215	\$3,622,307,727	\$1,811,153,864	\$5,433,461,591
Total	23,745	\$9,402,641,503	\$8,058,907,639	\$17,461,549,142
Category 4				
Agricultural	13	\$1,119,900	\$1,119,900	\$2,239,800
Commercial	2,574	\$4,124,530,681	\$4,124,530,681	\$8,249,061,362
Education	26	\$151,665,600	\$151,665,600	\$303,331,200
Government	427	\$1,935,064,300	\$1,935,064,300	\$3,870,128,600
Industrial	499	\$1,617,981,885	\$2,426,972,828	\$4,044,954,713
Religious	366	\$245,272,400	\$245,272,400	\$490,544,800
Residential	30,832	\$5,394,282,919	\$2,697,141,460	\$8,091,424,379
Total	34,737	\$13,469,917,685	\$11,581,767,169	\$25,051,684,854
Category 5				
Agricultural	13	\$1,119,900	\$1,119,900	\$2,239,800
Commercial	2,929	\$4,444,828,762	\$4,444,828,762	\$8,889,657,524
Education	28	\$178,419,400	\$178,419,400	\$356,838,800
Government	483	\$2,104,954,937	\$2,104,954,937	\$4,209,909,874
Industrial	540	\$1,685,278,304	\$2,527,917,456	\$4,213,195,760
Religious	409	\$273,477,200	\$273,477,200	\$546,954,400
Residential	36,233	\$6,473,131,202	\$3,236,565,601	\$9,709,696,803
Total	40,635	\$15,161,209,705	\$12,767,283,256	\$27,928,492,961

Source: SAGIS 2023 Parcel Data, NOAA, GEMA

Table 5-36 provides an overall summary of parcels at risk in the City by hurricane category.

Table 5-36 – Overall Summary of Savannah Assets at Risk to Storm Surge

Hurricane Category	Total Parcel Count	Percent of all Parcels in Savannah	Structure Value	Estimated Content Value	Total Value
1	2,131	4.3%	\$2,171,048,946	\$2,049,926,559	\$4,220,975,505
2	6,155	12.3%	\$1,992,357,881	\$1,627,854,254	\$3,620,212,135
3	15,459	30.9%	\$5,239,234,676	\$4,381,126,827	\$9,620,361,503
4	10,992	22.0%	\$4,067,276,182	\$3,522,859,530	\$7,590,135,712
5	5,898	11.8%	\$10,038,267,576	\$7,199,573,006	\$17,237,840,581

Source: SAGIS 2023 Parcel Data, NOAA, GEMA

Critical Facilities at Risk

Table 5-37 provides a list of critical facilities impacted by storm surge. Table 5-38 provides summary of critical facilities at risk of storm surge by FEMA lifeline. An estimated 76 critical facilities are exposed to some level of storm surge – primarily water systems assets. A map of critical facilities exposed to storm surge is shown in Figure 5.38.

Table 5-37 – Savannah Critical Facilities at Risk by Storm Surge Category

Type	Facility Name	Storm Category of Surge Exposure
Water Systems	DeRenne Station #A1	Category 1
Water Systems	DeRenne Station #A2	Category 1
Water Systems	DeRenne Station #B1	Category 1
Water Systems	DeRenne Station #B2	Category 1
Water Systems	DeRenne House	Category 1
Water Systems	Kayton Station #01	Category 1
Water Systems	Kayton Station #02	Category 1
Water Systems	Kayton Station #03	Category 1
Water Systems	Well #29	Category 1
Water Systems	Well #1	Category 1
Safety and Security	Police Precinct - Eastside	Category 1
Communications	Radio Tower	Category 2
Water Systems	President Street Plant WPCP	Category 2
Water Systems	Lift Station #115	Category 2
Water Systems	Well #23	Category 2
Safety and Security	Police Professional Standards	Category 2
Safety and Security	Fire Station #10	Category 2
Communications	Radio Tower - Southside	Category 3
Water Systems	Springfield Station #01	Category 3
Water Systems	Springfield Station #02	Category 3
Water Systems	Springfield Station #03	Category 3
Water Systems	Springfield Station House	Category 3
Water Systems	Fell Street Station #01	Category 3
Water Systems	Fell Street Station #02	Category 3
Water Systems	Lathrop Street Station #01	Category 3
Water Systems	Lathrop Street Station #02	Category 3
Water Systems	Lift Station #16	Category 3

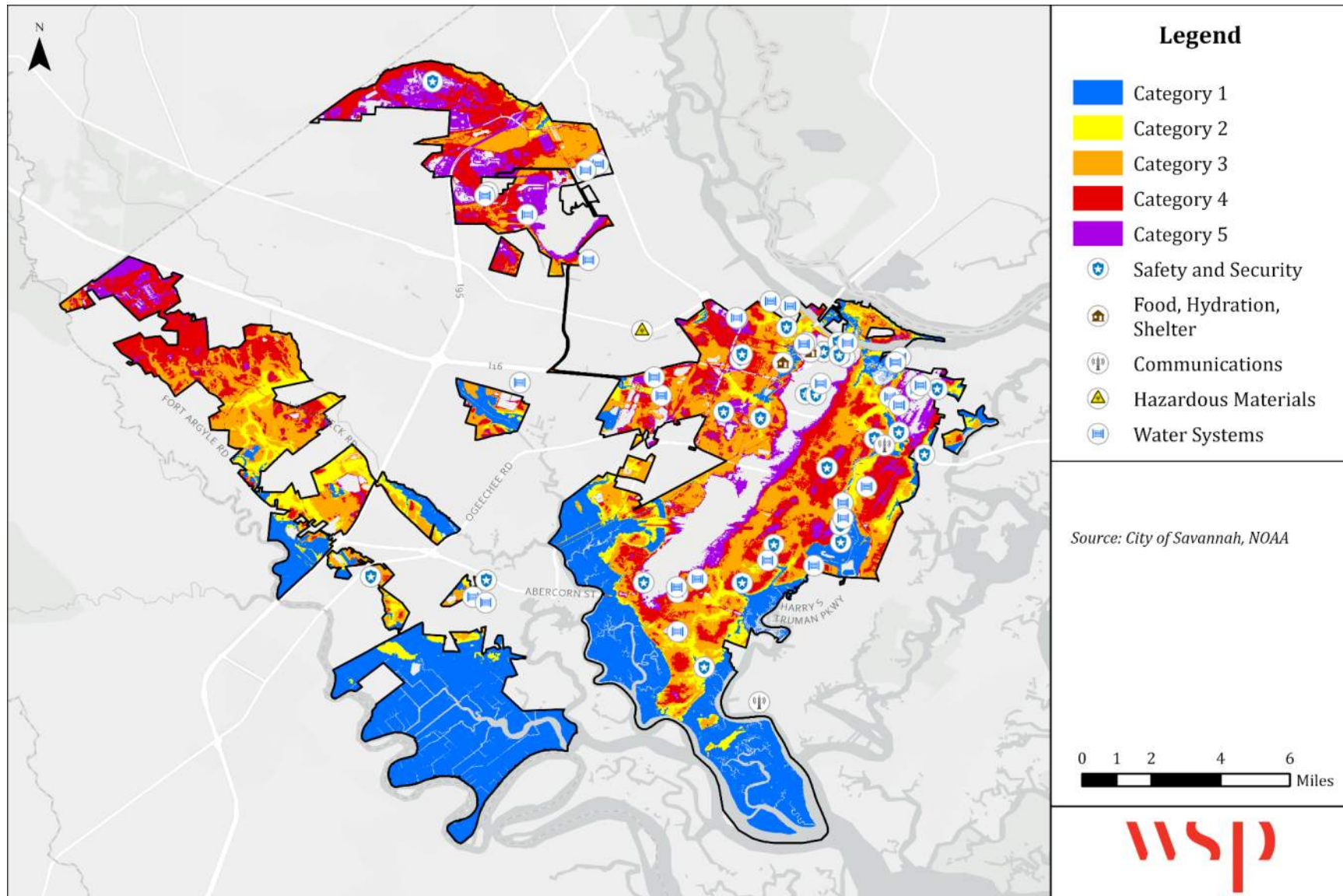
Type	Facility Name	Storm Category of Surge Exposure
Water Systems	Lift Station #065	Category 3
Water Systems	Lift Station #083	Category 3
Water Systems	Lift Station #134	Category 3
Water Systems	Lift Station #21	Category 3
Water Systems	Well #13	Category 3
Water Systems	Well #27	Category 3
Safety and Security	Police Training	Category 3
Safety and Security	Police Precinct - Northwest	Category 3
Safety and Security	Police Precinct - Southside	Category 3
Safety and Security	Police Traffic Operations	Category 3
Safety and Security	Fire Station #06	Category 3
Safety and Security	Fire Station #07	Category 3
Safety and Security	Fire Station #12	Category 3
Safety and Security	Fire Station #15	Category 3
Food, Hydration, Shelter	Enmarket Arena	Category 3
Water Systems	Georgetown Treatment Plant	Category 4
Water Systems	Lift Station #148	Category 4
Water Systems	Lift Station #040	Category 4
Water Systems	Lift Station #064	Category 4
Safety and Security	Fire Station #04	Category 4
Safety and Security	Fire Station #08	Category 4
Safety and Security	Fire Training	Category 4
Safety and Security	Adams City Services Complex Building A	Category 4
Safety and Security	Adams City Services Complex Building B	Category 4
Safety and Security	Fire Service Support Center (SSC)	Category 4
Safety and Security	Fire Station #13	Category 5
Water Systems	Lift Station #149	Category 5
Water Systems	Lift Station #116	Category 5
Water Systems	Lift Station #023	Category 5
Water Systems	Lift Station #063	Category 5
Water Systems	Well #08	Category 5
Water Systems	Well #10	Category 5
Safety and Security	Fire Station #01	Category 5
Safety and Security	Fire Station #02	Category 5
Hazardous Materials	Sanitation HQ	Category 5

Source: City of Savannah; GEMA

Table 5-38 – Summary of Savannah Critical Facilities at Risk to Storm Surge

Facility Type	Category 1	Category 2	Category 3	Category 4	Category 5	Not at Risk
Communications	1	1	1	-	-	
Food, Hydration, Shelter	-	-	1	-	-	2
Hazardous Materials	-	-	-	-	1	-
Safety and Security	1	2	8	6	3	10
Water Systems	9	3	15	4	6	7
Total	11	6	25	10	10	19

Source: City of Savannah; GEMA

Figure 5.38 – Critical Facilities Exposed to Storm Surge

Population at Risk

The very young, the elderly and individuals with disabilities are especially vulnerable to harm from hurricanes and may face difficulty in evacuating. For those who are unable to evacuate for medical reasons, there should be provision to take care of special-needs patients and those in hospitals and nursing homes. Many of these patients are either oxygen-dependent, insulin-dependent, or in need of intensive medical care. There is a need to provide ongoing treatment for these vulnerable citizens, either on the coast or by air evacuation to upland hospitals. The stress from disasters such as a hurricane can result in immediate and long-term physical and emotional health problems among victims.

To evaluate population at risk to storm surge, an analysis was conducted by intersecting the improved parcel layer with the polygon shapefile for each storm surge layer. In evaluating populations at risk, only those people residing in the hurricane storm surge zones are included. Improved residential parcels intersecting the storm surge zones were counted and multiplied by the American Community Survey 2023 estimated household factor for Savannah (2.36 persons per household. Average of renter and owner occupied household factor). Savannah's population at risk to storm surge is shown in Table 5-39.

Table 5-39 – Savannah Population at Risk to Storm Surge

Hurricane Category	Improved Residential Parcels	Population
Hurricane Category 1	1,885	4,449
Hurricane Category 2	5,657	13,351
Hurricane Category 3	13,673	32,268
Hurricane Category 4	9,617	22,696
Hurricane Category 5	5,401	12,746

Source: SAGIS 2023 Parcel Data, GEMA, U.S. Census Bureau

Evacuation Zones

Chatham County has three hurricane evacuation zones (Evacuation Zones A, B, and C) as shown in Figure 5.39; these zones are summarized in the table below. Chatham County developed new evacuation zones following Hurricane Matthew. Once an evacuation order is issued, all major roadway networks within Chatham County will be considered evacuation routes for local travel. Evacuation from the County to inland areas have also been designated. They include GA 204, GA 21, US 80, and I-16.

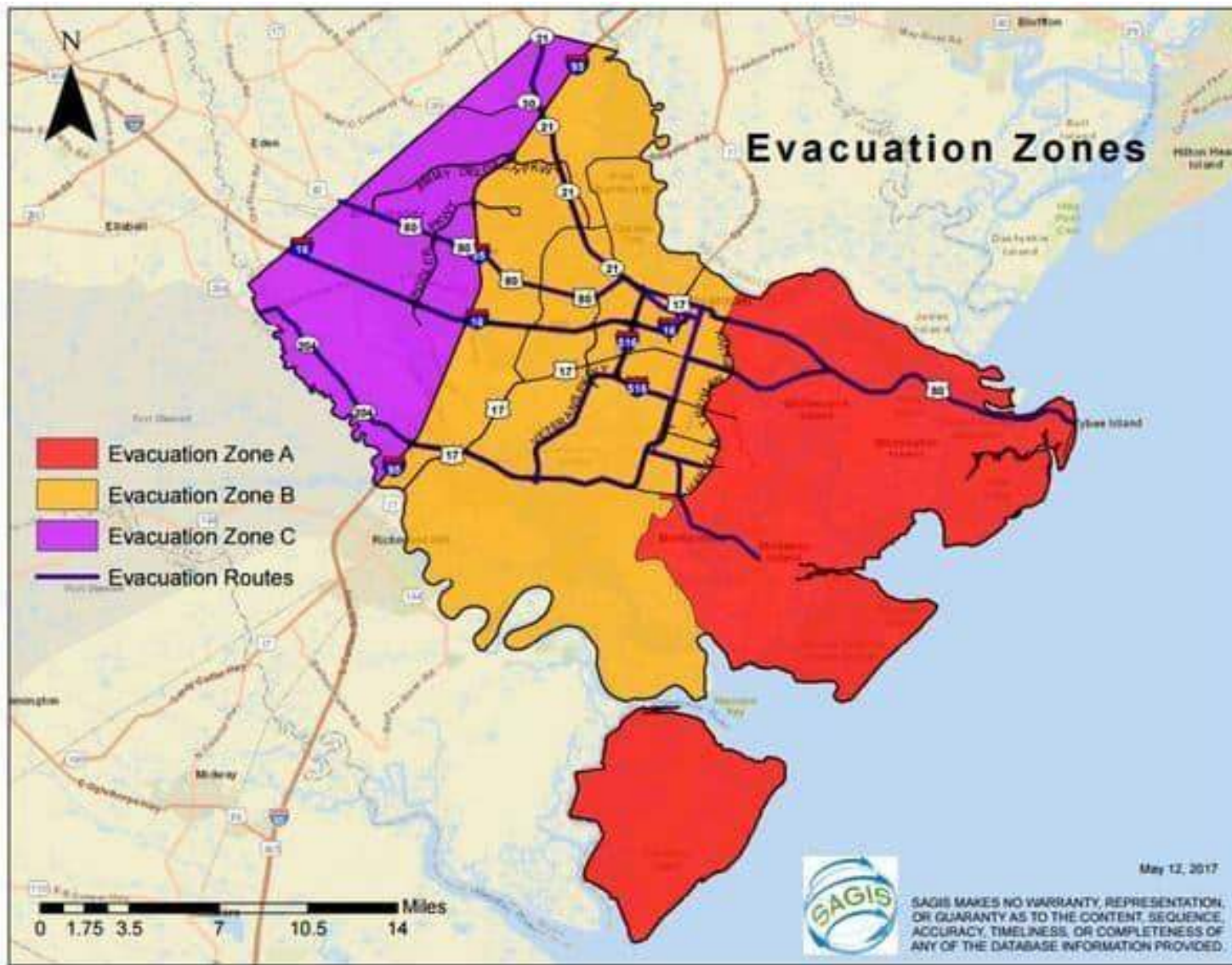
Table 5-40 – Chatham County Evacuation Zones

Evacuation Zone	Area Description
Evacuation Zone A	Areas east of the Truman Parkway and the Vernon River
Evacuation Zone B	Areas west of the Truman Parkway, but east of Interstate 95
Evacuation Zone C	Areas west of Interstate 95

Source: Chatham County Emergency Management



Figure 5.39 – Chatham County Evacuation Zones



Source: Chatham County Emergency Management

5.5 Risk and Vulnerability Conclusions

5.5.1 Flood Hazards Profile Summary

Table 5-41 summarizes the degree of risk of each identified hazard for the City of Savannah according to the results of the Priority Risk Index (PRI).

Table 5-41 – Summary of Flood Hazard PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Climate Change & Sea Level Rise	Likely	Critical	Small	More than 24 hrs	More than 1 week	2.7
Coastal/Canal Bank Erosion	Possible	Minor	Negligible	More than 24 hrs	More than 1 week	1.6
Dam/Levee Failure	Unlikely	Limited	Small	More than 24 hrs	Less than 1 week	1.7
Flood: Riverine & Coastal	Highly Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.3
Flood: Stormwater/Localized	Highly Likely	Critical	Moderate	Less than 6 hours	Less than 1 week	3.3
Hurricane & Tropical Storm	Highly Likely	Critical	Large	More than 24 hrs	Less than 1 week	3.1

Table 5-42 summarizes the results of the hazard profile for the City of Savannah based on hazard identification data and input from the FMPC.

Low Risk – Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal. This is not a priority hazard.

Medium Risk – Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.

High Risk – Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread.

Table 5-42 – Summary of Hazard Risk Classification

High Risk (≥3.0)	Flood : Riverine & Coastal Flood : Stormwater/Localized Hurricane & Tropical Storm
Moderate Risk (2.0-2.9)	Climate Change & Sea Level Rise
Low Risk (<2.0)	Coastal/Canal Bank Erosion Dam/Levee Failure

5.5.2 Assessment of Areas Likely to Flood

The following targeted areas are identified as areas likely to flood in the future.

Identified Area #1: SFHAs and 0.2%-Annual-Chance Floodplains

According to the Effective DFIRM, over 40 percent of the City is located within the SFHA (1%-annual-chance floodplain). The SFHA and the moderate-risk 0.2%-annual-chance floodplain are likely to continue flooding in the future. Changes in floodplain development and future development within the watershed in general as well as climate change-driven changes in rainfall probabilities and intensities may increase the size of the SFHAs in the future.

Identified Area #2: Areas of Localized Stormwater Flooding

Due to the low elevations, flat topography, consistent level of annual precipitation resulting from thunderstorms, tropical storms, and hurricanes, with the potential for increasing intensity and frequency due to climate change, it is highly likely that underperforming drainage infrastructure and unmitigated properties will continue to experience localized flooding. Tidal and sea level rise impacts on stormwater systems, and their capacity must also be considered.

An increase in impervious area due to future development could exacerbate localizing flooding issues, particularly if growth expands into currently undeveloped areas, unless measures are taken to limit the volume of runoff allowed post-development. As noted in Section 5.4.5, increases in future flooding may occur in the drainage basins where localized flooding is already a noted problem. The future land use map indicates that areas of more intense development will continue to be designated as such and conservation areas will remain free of increased development. It should be noted that more intense development is planned to occur in the western portion of unincorporated Chatham County in areas that were previously planned for agricultural use. This could have impacts on the rest of the County and Savannah.

Identified Area #3: Repetitive Loss Areas

Repetitive loss properties have a greater need for flood protection. Repetitive loss can be attributed to development within the 1%-annual-chance floodplain as well as localized stormwater flooding. As mentioned above, both types of flooding could increase in the future if measures are not taken to mitigate the effects of development, and as the impacts of sea level rise are felt throughout the City. Therefore, is it very likely that repetitive loss properties will continue to flood in the future.

According to 2018 NFIP records, there were 146 mitigated properties with total payments of \$8,887,853 and 184 unmitigated properties with total payments of \$10,563,682.34 within the City of Savannah. Table 5-43 summarizes repetitive loss building counts, insurance status, and total payments by FEMA flood zones.

Table 5-43 – Repetitive Loss Summary Table (Unmitigated Properties)

Flood Zone	RL Properties	Loss Count	Percent of Properties Insured?	Total Building Payment	Total Content Payment	Total Paid
A	4	8	75%	\$100,882.69	\$24,575.89	\$125,458.58
A06	3	10	67%	\$107,029.73	\$83,716.98	\$190,746.71
A07	1	3	0%	\$207,107.55	\$359,413.91	\$566,521.46
A10	2	8	50%	\$33,153.19	\$9,959.91	\$43,112.58

Flood Zone	RL Properties	Loss Count	Percent of Properties Insured?	Total Building Payment	Total Content Payment	Total Paid
AE	49	115	55%	\$2,622,215.62	\$336,285.55	\$2,958,501.17
VE	1	2	0%	\$3,319.53	0	\$3,319.53
C	6	14	17%	\$270,576.29	\$91,774.23	\$362,350.52
D	3	7	0%	\$48,656.94	\$25,140.31	\$73,797.25
X	115	279	32%	\$3,826,480.08	\$2,413,394.46	\$6,239,874.54
Total	184	446	38%	\$7,219,421.62	\$3,344,261.24	\$10,563,682.34

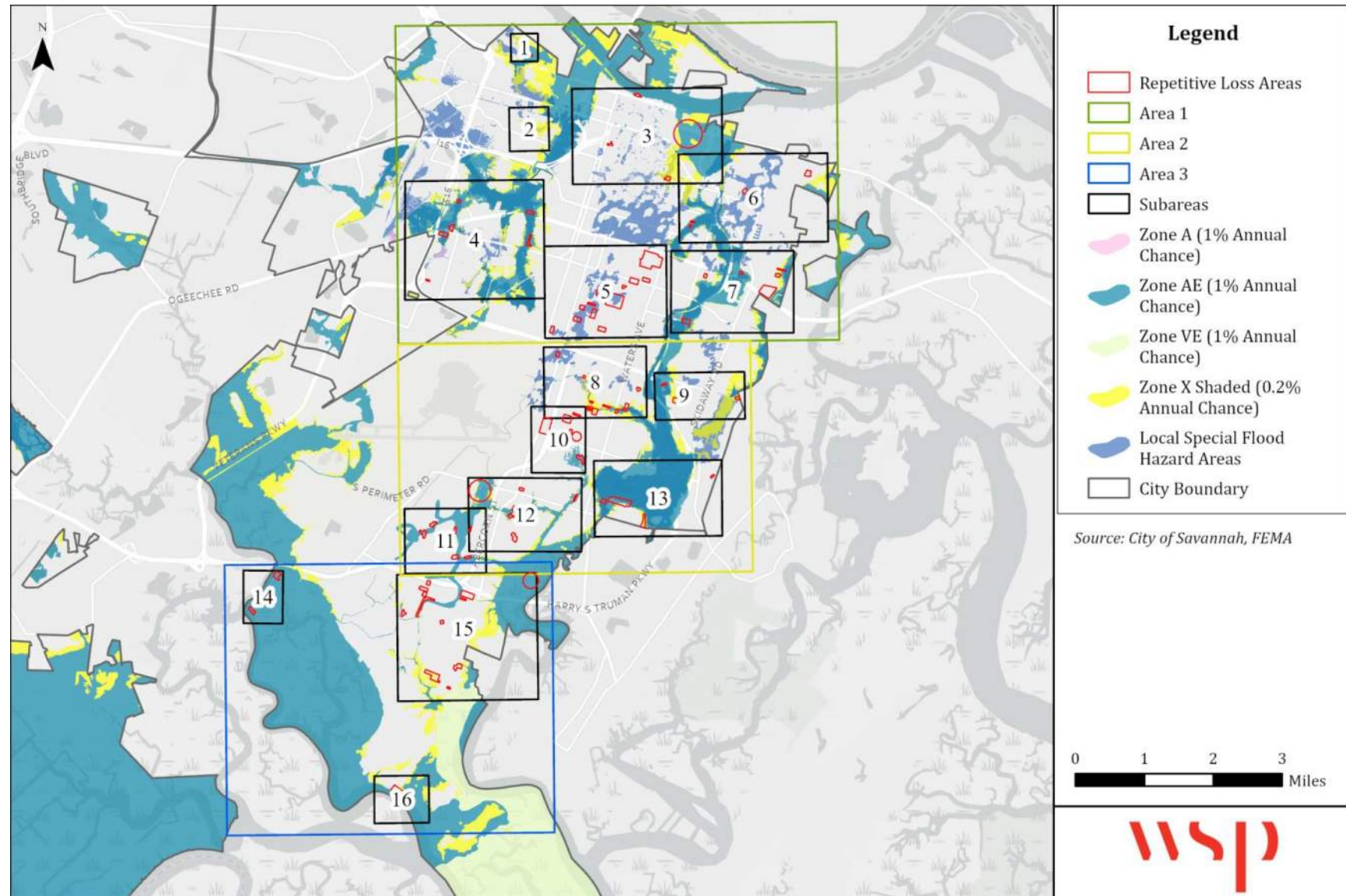
Source: NFIP Repetitive Loss Data 2018

Figure 5.40 on the following page illustrates the repetitive loss areas in relation to the known flood hazard areas within Savannah.

Identified Area #4: Sea Level Rise Risk Areas

Sea level rise will continue to affect low lying lands along the Chatham County coast, in some cases permanently inundating areas along the coast. NOAA estimates that sea level will rise between 2.5 feet and 6.6 feet by 2100 depending on emissions scenarios. According to the National Climate Assessment, the frequency, extent, and depth of coastal flooding due to high water events will increase. The flood impacts of sea level rise extend far beyond the lands at risk of immediate inundation from rising seas. As seas rise, coastal marshes and wetlands will inundate permanently, unable to migrate inland fast enough to keep up with rising seas. The loss of these protective features will allow heightened coastal erosion, decrease flood storage area, and make inland areas like Savannah more vulnerable to tidal flooding, storm surge, and riverine flooding. Thus, as a result of sea level rise, future flood risk in all of the above-identified areas will be further increased.

Sea level change will be particularly important in influencing storm surge flooding in the Savannah area. As shown in Section 5.4.6 above, over half the entire City becomes vulnerable to property damaging flooding from a Category 3 or stronger hurricane.

Figure 5.40 – Repetitive Loss Properties and Flood Zones

5.5.3 Impact of Future Flooding

Changes in floodplain development, development in the watersheds (particularly an increase in impervious area), as well as changes associated with climate change make future flood problems worse in the above identified areas that are likely to flood.

Changes in Floodplain Development

Development in the floodplain affects natural floodplain functions by removing needed flood storage capacity and forcing floodwaters elsewhere, also contributing to expansion of the floodplain and an increase in future flood risk. This process can have similar effects on the likelihood and magnitude of stormwater flooding. Stormwater drainage systems can manage limited capacities. As development occurs and increases stormwater runoff, stormwater system capacities can be exceeded more quickly, resulting in more frequent and/or more severe stormwater flooding.

Additionally, unregulated changes in the floodplain and development within the watershed may increase the base flood elevation in SFHAs. The 1%-annual-chance flood could become more severe as a result of increased development, and the floodplain of the 1%-annual-chance flood could expand. Consequently, existing development in those areas would become exposed to flood risk, meaning more people and property would be at risk.

Savannah has grown significantly in population and property over the past decade and this trend is expected to continue. As discussed in Section 2, the City's population is projected to grow by 23% making it home to 182,059 residents by the year 2045.

According to Savannah's Building Services Department, the City saw a record level of new residential building construction in 2024 with a total construction cost valuation of over \$250 million and over 1,500 permits issued that year. Savannah has experienced historic new residential development. Overall, the City issued a record 4,749 construction permits in 2024, exceeding the 2023 total permit count of 4,252 and is the highest volume seen since 2018.

Residential and multi-family permit data from the City's Development Services Department is summarized in Table 5-44. Savannah has approved 10,455 residential and multi-family units over the past 7 years. The majority of building permits issued since 2019 have been for single family homes. Single family detached homes are also the most common type of housing in Savannah, making up 55.9% of the housing supply as of 2024 ACS data. Single family homes typically produce the most impervious surface per unit, which means local development trends have been greatly increasing impervious surface.

Table 5-44 – Building Permit Data 2019-2025

Year	Single-family Homes (Detached)	Single-family Homes (Attached) (Townhomes)	Two-family Homes (Duplexes)	New Residential Value	Multi-family /Apartments	Multi-family /Apartments Value
2019	310	32	NA	\$67,289,434	784	\$86,662,297
2020	307	NA	2	\$64,010,657	977	\$106,801,206
2021	484	28	6	\$119,756,977	1,238	\$146,326,145
2022	370	42	5	\$98,229,156	1,772	\$274,523,471
2023	593	33	16	\$162,673,514	827	\$124,428,695
2024	817	169	20	\$245,650,802	582	\$71,743,388
2025	466	86	18	\$130,402,329	471	\$49,646,877

Year	Single-family Homes (Detached)	Single-family Homes (Attached) (Townhomes)	Two-family Homes (Duplexes)	New Residential Value	Multi-family /Apartments	Multi-family /Apartments Value
Total	3,347	390	67	\$888,012,869	6,651	\$860,132,079

Source: City of Savannah Development Services

Note: *Permit count refers to the number of permits issued and closed each referenced year. Total permit and unit count does not refer to completed buildings nor occupied units.

To evaluate the potential for new development in the SFHA, unimproved parcels (those that are vacant, have no building footprint, or have no improved value) were compared with the SFHA and the City's future land use – shown in Table 5-45. There are approximately 2,102 parcels with 30,302 acres of unimproved area within SFHA in Savannah; 99 percent of that acreage is in Zone AE. Within Zone AE, over a third of the unimproved acreage is planned to remain as marsh and conservation area. Around 14 percent of the assessed parcels are designated for planned development which would require the development of new structures. Almost 20 percent of the parcels are designated for civic/institutional uses. Within Zone VE, 97 percent of unimproved acreage is planned to remain as marsh. It is important that the City continues to maintain its marsh and conservation land as these undeveloped areas help minimize potential increases in flooding and associated impacts on existing development.

The City has several regulatory tools in place, including the updated comprehensive plan and the City's floodplain regulations, which help City staff minimize the potential for new development in the floodplain.

Table 5-45 – Future Land Use of Unimproved Parcels in SFHA

Future Land Use	Zone A		Zone AE		Zone VE	
	Parcel Count	Total Acreage	Parcel Count	Total Acreage	Parcel Count	Total Acreage
Agriculture/Forestry	-	-	1	1.6	-	-
Civic/Institutional	1	1.1	37	5,632.5	-	-
Commercial*	1	0.1	140	620.4	-	-
Conservation	2	10.4	184	1,302.4	-	-
Conservation- Residential	-	-	3	40.7	-	-
Downtown	-	-	3	4.5	-	-
Downtown- Expansion	-	-	88	314.6	-	-
Industry- Heavy	-	-	10	85.3	-	-
Industry- Light	-	-	65	1,665.3	-	-
Landfill	-	-	3	479.7	-	-
Marsh	-	-	58	9,485.6	8	297.4
Parks/Recreation	-	-	125	1,477.6	-	-
Planned Development	-	-	182	4,235.6	-	-
Residential- General	2	0.7	224	282.3	1	4.7
Residential- Single Family	4	0.7	253	158.2	-	-
Residential- Suburban Single Family	-	-	632	3,069.7	4	5.0
Right of Way	-	-	23	2.0	-	-
Surface Mine	-	-	6	347.5	-	-
Transportation/Communication/Utility	-	-	23	302.0	-	-
Water	-	-	19	474.6	-	-
Total	10	13.1	2,079	29,982.1	13	307.1

*Commercial land use has been condensed into one category



Changes in the Watershed

The City of Savannah is located within the Ogeechee Coastal Sub-basin, with additional areas in the Lower Savannah River Sub-basin and the Lower Ogeechee Sub-basin. Changes in the watersheds, particularly an increase in impervious area, could make these identified areas even more likely to flood in the future.

Additionally, as development in the watershed occurs, the amount of runoff sent to drainage features often increases. The City's current zoning reflects that over 12,071 acres (16% of the City) is zoned for planned development. Future land use designations in these areas include a range of land uses including business, residential, commercial, and industrial. Lower densities may minimize the potential for increases in runoff.

Based on the City's future land use map, 377 unimproved parcels and 12,573 acres designated as parks and recreation, conservation, and marsh are within the SFHA. Open space and low-density parcels within these flood zones should remain as open space or land uses with minimal development like parks or agricultural uses.

According to U.S. Census Building Permits Survey data, single family homes are by far the most common type of new residential construction in the City. Compared to multi-unit structures, which typically have a smaller per-unit footprint and house more dwelling units per acre by building up rather than out, single family homes have a large per unit building footprint. Their space requirements also result in increased infrastructure needs such as roads and sidewalks. These large building footprints and infrastructure requirements create impervious surface which contributes to flood hazards by increasing stormwater runoff and reducing the potential for infiltration. Thus, the dominance of single-family home construction in the City and the projections for continued population growth suggests that future flood increases as a result of development in the watershed are likely.

Figure 5.41 shows unimproved parcels which are dispersed across the watersheds that cover the City. The western portion of the city will likely experience some new development in areas planned for future development.

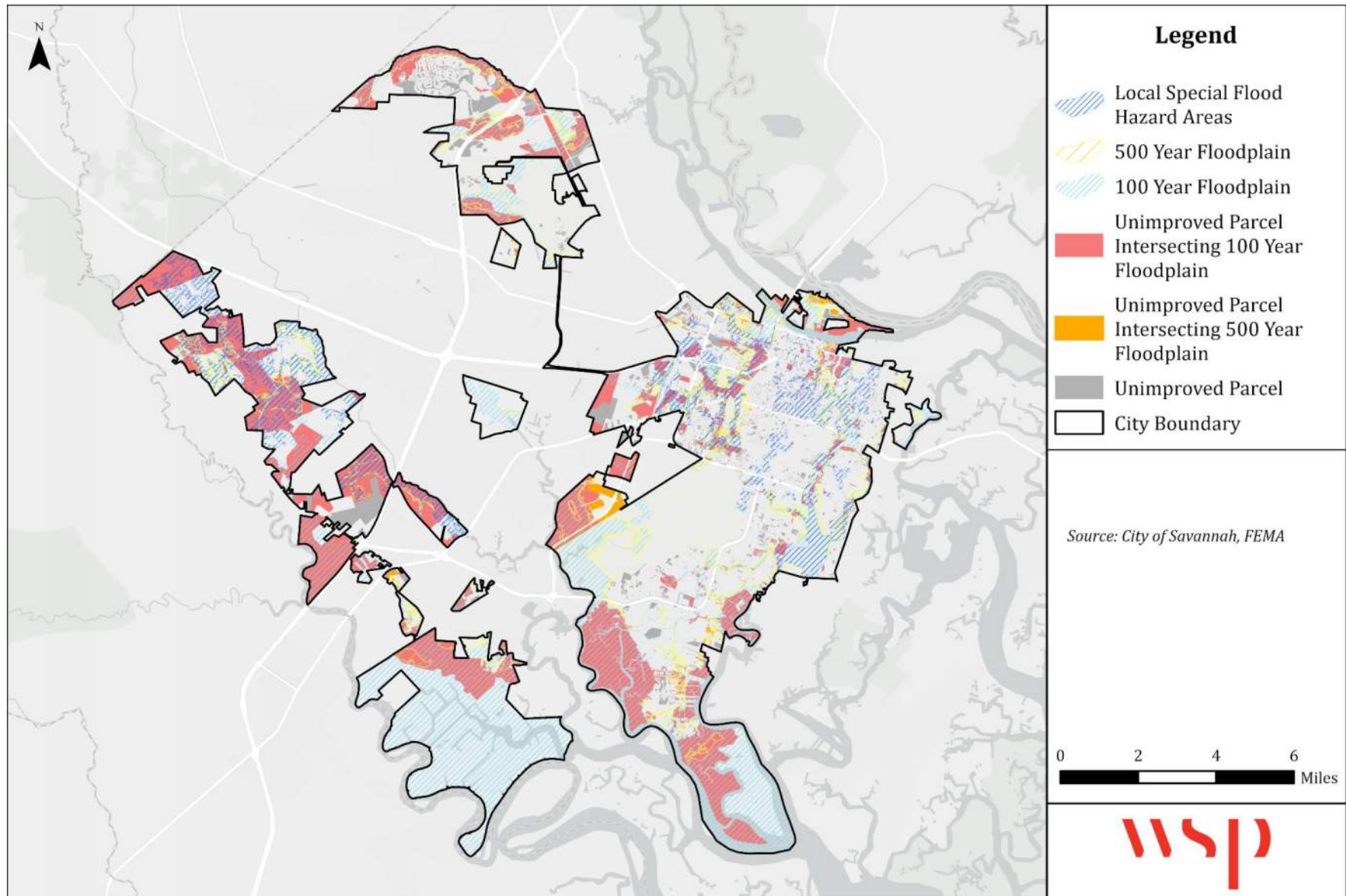
The City's Flood Damage Prevention ordinance allows City staff to regulate development both in and out of the floodplain in an effort to protect the watersheds.

Climate Change

As discussed in Section 5.4.1, climate change is expected to cause an increase in frequency and intensity of heavy precipitation events and climate-driven events such as hurricanes and flooding are likely to increase in intensity, and possibly frequency, in the future. In general, the potential impacts of climate change include potential damage to critical infrastructure, and increasing public costs associated with flood insurance claims, infrastructure repair and maintenance, environmental impacts and increased costs associated with emergency management efforts.

In 2024 there were 27 weather and climate-related disaster events in the U.S. with losses exceeding \$1 billion each. Eight of the top ten costliest disasters to affect Georgia have been hurricane and flood related. Some of the recent storms to have impacted the region include, Hurricane Helene (2024), Hurricane Francine (2024), Hurricane Debby (2024), and Hurricane Idalia (2023). The cost of these storms exceeds \$86.1 billion.

The trend of costly disasters is attributed to many factors. For one, there have been more disaster declarations in recent years as well as increased cost for disaster response and recovery, in part due to population growth and development in hazardous areas which has increased exposure. However, while as storms of similar magnitude increase in frequency the City must plan for mitigation because the costs of response and recovery are growing, and many events are predictable or repetitive.

**Figure 5.41 – Unimproved Parcels and Flood Hazard Areas**

5.5.4 Health & Safety Consequence Analysis

Flooding poses a significant risk to life and safety, including the threat of injury or drowning during a flood event as well as numerous health risks during and after an event.

Life and Safety

Flood waters may prevent access to areas in need of response or to the critical facilities themselves which may prolong response time. The public must understand that they should never drive through flooded streets. The Centers for Disease Control and Prevention report that over half of flood-related drownings occur when a vehicle is driven into flood water, and the next highest percentage of deaths is due to people walking into or near flood waters. The National Weather Service warns that just 6 inches of fast-moving flood water can knock down an adult, 12 inches can carry away a small car, and 2 feet can carry away most vehicles. When someone drives through floodwaters, they put their life and the lives of first responders at risk. First responders are at risk when attempting to rescue people from floodwaters. They are subject to the same health hazards as the public and are more likely to be exposed to these hazards during their response efforts.

Residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed by flood waters. Floods can severely disrupt normal operations, especially when there is a loss of power. This can affect the operations of critical facilities, which affects response times. Loss of power also puts the public at risk. Downed power lines pose a serious hazard and should always be treated as if they are still energized. When a building loses power during a flood, electricity should be turned off and not used until the wiring can be inspected, to avoid risk of electrocution or fire. Ocean water and salt spray can be particularly damaging to electrical equipment due to the corrosive and conductive nature of the salt water residue. Damage to electrical equipment can also result from exposure to flood waters contaminated with chemicals, sewage, oil, and other debris.

Public Health

In addition to the threat to life safety that people face during flood events, certain health hazards are also common. While such problems are often not reported, the following general types of health hazards may arise during and after floods:

- Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt; oil; human and livestock waste; household, medical, and industrial hazardous waste; coal ash waste that can contain carcinogenic compounds; or lawn, farm and industrial chemicals. Pastures and areas where farm animals are kept or their wastes are stored can contribute polluted waters to the receiving streams.
- Flood-borne debris, including lumber, vehicles, or smaller sharp objects such as glass or metal fragments, can cause injury and subsequent infection.
- Floodwaters saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as e.coli and other disease causing agents.
- Stagnant pools can become breeding grounds for mosquitoes and other disease vectors.
- Floodwaters can also displace insects, rodents, snakes, and other animals, potentially bringing them into contact with people. Animals can spread disease and can bite people and pets. They may also cause asthma or allergic reactions in some people.

- Wet areas of a building that have not been properly cleaned breed mold and mildew. Mold and mildew can pose a severe health hazard, especially for small children and the elderly.
- Building utilities can harbor health hazards if not properly cleaned. When a furnace or air conditioner is turned on after a flood, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the County water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.
- Flooding can affect mental health due to trauma or stress. People can experience a long-term psychological impact of having been through a flood and seen their home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Warning and Evacuation

The risk to life and safety necessitates establishing warning and evacuation procedures to ensure that both residents and visitors are aware of flood events and able to move to safety.

The City of Savannah has an emergency communications system, RAVE Alert. Once registered residents will be notified during emergency or official outreach.

The flood warning system for the City of Savannah is managed and provided by the Chatham Emergency Management Agency (CEMA). In addition to Savannah's RAVE Alert, Chatham County has multiple public warning systems established to ensure that residents and visitors are notified of flood events. These systems include the following:

- | | |
|-------------------------------------|-----------------------------------|
| ■ NOAA Weather Radio | ■ CEMA Alert System |
| ■ Media Coordination | ■ Smart 911 |
| ■ Chatham County Government Website | ■ Public TV (WTOG, WSAV, or WJCL) |
| ■ Chatham County EMA Smartphone App | ■ Facebook |
| ■ Emergency Alert System | ■ Twitter |

Information shared on these systems includes emergency actions to be taken, shelter locations and status, evacuation zones, and evacuation routes.

The City of Savannah is not currently designated as a StormReady community; however, Chatham County is designated as StormReady. Should a storm threaten Chatham County, the Emergency Operations Center will activate. During activation, the county will give regularly advisories to the media and to local municipalities. CEMA has also designated hurricane evacuation zones, which are discussed in Section 5.4.6 and Figure 5.39.

Hurricane storm surge models, shown in Section 5.4.6 Hurricane/Tropical Storm indicate areas likely to experience flooding and require evacuation in the event of a hurricane. Based on these models, even a category 1 or category 2 storm would require moderate evacuation. A category 3 storm or stronger is likely to require more substantial evacuation or sheltering of City residents and visitors due to storm surge flooding.

It should be noted that these models do not predict storm surge, and actual storm surge heights may exceed the estimates shown. Additionally, these storm surge models do not incorporate other hurricane impacts that may exacerbate flooding and necessitate evacuation, including hurricane strength winds and rain. Therefore, these models should be interpreted as a minimum impact scenario. Actual evacuation advisories are issued by emergency management in the event of a storm.

Flood Warning Procedures

Once CEMA receives a potential dangerous warning, sirens are activated. The sirens can give as little as fifteen minutes warning time. When you hear the sirens, information can be heard on the television or on the radio at WSVH (91.1) for what to do. Information can be heard on the NOAA weather radio broadcast at frequency 162.40. Local evacuation routes can be found in the phone book. For additional information, contact CEMA at 201-4500. Additional information about potential flood conditions can also be obtained by visiting the City of Savannah's Flood Protection Information website or USGS River Gage Website.



6. Capability Assessment

This section reviews the local capabilities and resources in place that can support the implementation of mitigation activities. It includes the following subsections:

- 6.1 Planning and Regulatory Capability
- 6.2 Administrative and Technical Capability
- 6.3 Fiscal Capability

6.1 Planning and Regulatory Capability

Table 6-1 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Savannah.

Table 6-1 – Savannah Planning and Regulatory Mitigation Capabilities

Regulatory Tool (ordinances, codes, plans)	Y/N	Date	Comments
Comprehensive Plan	Y	2040	Chatham County-Savannah MPC; 2045 update underway, to be adopted in October 2026
Zoning Ordinance	Y	09/1/2019	
Subdivision Ordinance	Y	2005	
Floodplain Ordinance	Y	2025	Added 2ft freeboard in recent update
Stormwater Ordinance	Y	2018	
Erosion, Sedimentation, and Pollution Control Ordinance	Y	2009	
Building Code	Y	2026	Georgia Building Code; 2024 International Building Code
BCEGS Rating	Y	2023	3/4
Stormwater Management Program	Y	Plan 2022	NPDES Permit #GAS000205
Site Plan Review Requirements	Y		Checklist
Capital Improvements Plan	Y	June 2025	Office of Management & Budget
Economic Development Plan			Ch.3 Economic Development of 2040 Comprehensive Plan
Local Emergency Operations Plan	Y	2025	Chatham County Emergency Management
Disaster Recovery Plan	Y	2015	Chatham County Emergency Management
Flood Insurance Study or Other Engineering Study for Streams	Y	08/16/2018	
Repetitive Loss Area Analysis	Y	2020	Update underway
Elevation Certificates	Y		Reviewed by ISO

Regulatory and planning tools related to mitigation in Savannah and largely handled by the City Development Services Department, the City Stormwater Management Department, the City Emergency Preparedness Division, Chatham County Emergency Management Agency, and the Savannah-Chatham County Metropolitan Planning Council (MPC).

6.1.1 Post-Disaster Mitigation Policies and Procedures

Establishing post-disaster mitigation policies and procedures encourages planned integration of mitigation into the recovery process, minimizing potential for losses during subsequent floods.

The City of Savannah has adopted the Chatham County Emergency Management (CEMA) Disaster Recovery Plan (DRP). The objective of this plan is to aid and facilitate the recovery from natural disasters including floods. The framework of the DRP aligns with the National Disaster Recovery Framework (NDRF).

The plan aims to ensure: a timely restoration, strengthening, and revitalization of critical infrastructure and housing; the resumption of a sustainable economy; and the long-term recovery of key health, social, cultural, historic, and environmental components of Chatham County. It includes the following disaster recovery goal specifically focused on mitigation:

Promote mitigation and foster resilient redevelopment and construction: *The County and local jurisdictions will use education, incentives, and regulation to reduce community vulnerability to various hazards by fostering more resilient land use patterns and building practices while deferring to existing deliberative plans such as EOPs and Hazard Mitigation Plans and leveraging existing programs.*

To achieve this goal, the plan establishes policies and procedures for post-disaster mitigation, beginning with and outline of the pre-disaster responsibilities and post-disaster responsibilities for local government, state government, non-profits, and private sector, which are summarized below:

Pre-Disaster Responsibilities:

- Local Government: Lead local preparedness, pre-disaster and mitigation planning efforts.
- State Government: Develop state recovery and mitigation plans, including COOP and COG plans.
- Non-Profit: Educate clients on disaster preparedness and mitigation strategies.
- Private Sector: Educate and train employees to implement mitigation and preparedness measures consistent with business continuity plans.

Post-Disaster Responsibilities:

- Local Government: Organize, develop, implement, and modify recovery, mitigation, and land use plans as necessary. Manage rebuilding so that risk reduction opportunities are optimized and comply with standards for accessible design.
- State Government: Implement state recovery and mitigation plan. Activate the SDRC.

Recovery includes short-term, intermediate-term, and long-term phases.

- Short-term recovery concerns include managing and containing immediate impacts of an event on community systems and beginning to return these systems back to operating standards.
- Intermediate-term recovery involves returning individuals and families, critical infrastructure, and essential government or commercial services back to a functional state, although not necessarily to a pre-disaster state.
- Long-term recovery works to return to “near normal” conditions after a disaster or emergency, including restoring economic activity and rebuilding community facilities and housing. Long-term recovery can take several months or years.

The post-disaster mitigation policies and procedures include the following based on short-term, intermediate-term and long-term objectives:

SHORT-TERM RECOVERY

The following short-term recovery objectives must be addressed as quickly as possible after the activation plan and will likely meet pressing unmet needs of county residents and businesses (excluding immediate

life-safety and property-protection objectives). In some cases, objectives identified below may describe elements of functional continuity with response operations identified in the County Emergency Operations Plan (EOP). Therefore, the objectives listed below may begin during the response phase and transition into short-term recovery.

Objectives described below will be the continued responsibility of this RSF into intermediate- and long-term recovery, if necessary.

- **Identify recovery partnerships.** As discussed under the pre-disaster recovery objective “Be familiar with county and regional stakeholder groups,” non-governmental organizations are key to facilitating individual and community recovery. Based on the needs of the incident and the populations impacted, community recovery partners should be identified to participate in the Community Recovery Planning Process – both as a partner to the activated RSFs as well as potentially participating in the Recovery Finance Section. Key partners may also include corporations or businesses actively involved in the community or other “champions” who may have a vested interest in a project or specific recovery activity.
- **Coordinate with Recovery Support Functions.** While recovery planning will occur through RSF-2 through RSF-7, the Recovery Finance Section plays a key role in recovery planning. This group helps set the financial framework and prioritize funding opportunities both within and among the Functions.
- **Manage undesigned, unsolicited monetary donations.** Unsolicited donations are common after a major disaster. The Recovery Finance Section is responsible for managing these funds.
- **Prepare a community recovery funding strategy.** After identifying objectives and goals for recovery, funding sources should be considered during the process of selecting recovery projects.

Sources of funding may include:

- Insurance
- Public Agencies (local, state, federal)
- Non-Profit Organizations
- Private Foundations
- Other organizations or entities

If a disaster declaration is made for the event, federal recovery programs may provide funding for the restoration of certain facilities and infrastructure. As a part of the development of funding strategies for projects, RSF-1 should establish timelines, project milestones, and expectations to ensure projects meet community needs. Hazard Mitigation should also be incorporated.

INTERMEDIATE AND LONG-TERM RECOVERY

The following intermediate and long-term recovery objectives are characterized by operations that may provide sustained temporary measures to bridge the gap into permanent solutions, return life to normal or an improved state, or otherwise support the objectives of other Recovery Groups. Objectives described under short-term recovery (above) will be the continued responsibility of this Recovery Section into intermediate and long-term recovery, if necessary.

- **Ensure Recovery Planning Process is consistent with Federal and State Reimbursement Guidelines.** As the coordinating entity for recovery planning in Chatham County, the Recovery Finance Section will ensure that Recovery Plans developed by RSF-2 through RSF-7 are consistent with federal and state guidelines and standards for recovery financial reimbursement. Post-event guidance will vary, depending on the impact of the incident in the community and the geographic extent of the event.
- **Tracking Finances Between and Among Recovery Support Functions.** Funding resources, personnel, and in some cases the material necessary for a community to recover will be limited following an event. One key role of the Recovery Finance Section will be to track finances between and among the RSFs. Projects that use Public Assistance funding from the Federal Government must

adhere to program requirements, which means that repair of some facilities may need to wait for funding to become available. The Recovery Finance Section should track costs, funding streams, donations and time allocated to recovery projects. In-kind donations and volunteer time should also be tracked.

- **Manage undesigned, unsolicited monetary donations.** Unsolicited donations are common after a major disaster. The Recovery Finance Section is responsible for managing these funds.
- **Monitor long-term funding.** Over the long-term, the Recovery Finance Section will be responsible for the oversight of monitoring funding for disaster recovery operations (including, if required, monitoring any contracting support leveraged to manage recovery funding). This includes reviewing reimbursement from eligible activities, tracking projects, ensuring match requirements are met, and monitoring the expenditures for recovery through the Recovery Support Functions.

The plan also establishes post-disaster procedures for ensuring mitigation is incorporated into disaster recovery. Within the Recovery Support Function 1: Disaster Recovery and Redevelopment Assistance Coordination and Planning Annex, several resources are provided to facilitate adherence to these procedures, including a FEMA Recovery Project Value Worksheet and a Community Recovery Project Planning Worksheet, both of which assess recovery actions in terms of the degree to which they reduce risk and avoid future losses.

6.2 Administrative and Technical Capability

Table 6-2 identifies City departments and personnel responsible for activities related to mitigation and loss prevention in the City of Savannah.

Table 6-2 – Savannah Administrative/Technical Capabilities

Resource	Y/N	Responsible Department
Planner/Engineer with knowledge of land development/land management practices	Y	Planning & Urban Design
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Development Services
Planner/Engineer/Scientist with an understanding of natural hazards	Y	Development Services
Personnel skilled in GIS	Y	SAGIS
Full time building official	Y	Development Services
Floodplain Manager	Y	Development Services
Emergency Manager	Y	Emergency Preparedness
Grant writer	Y	Department of Cultural Affairs
GIS data – hazard areas	Y	Development Services/SAGIS
GIS data – critical facilities	Y	Development Services/SAGIS
GIS data – building footprints	Y	Development Services/SAGIS
GIS data – land use	Y	Development Services/SAGIS
GIS data – links to assessor's data	Y	Development Services/SAGIS
Warning systems/services	Y	Emergency Preparedness

Floodplain management and permitting for development in flood hazard areas is handled by the Development Services Department.

The Metropolitan Planning Commission (MPC) is a joint planning agency for the City of Savannah and Chatham County. Each governmental body appoints seven members to the board. Two of these members are the City and County Managers. These fourteen members serve without pay and represent government, private enterprise, and citizens' interest groups. Commissioners are appointed for three-year

overlapping terms. MPC staff, headed by an Executive Director, research and evaluate issues and prepare information for the Board's consideration and action.

Emergency management activities, including flood warning and response, are handled by the City's Emergency Preparedness Division and by Chatham County Emergency Management Agency.

SAGIS (Savannah Area Geographic Information System) is focused on providing access to geospatial data in a standardized format to all interested parties. The SAGIS mission is to consolidate geospatial information into one central location, providing a one-stop access to information. SAGIS works with the City of Savannah, Chatham County, the MPC and a variety of other non-profit and private organizations to maintain standards, manage data, educate, and coordinate projects that affect the greater Savannah - Chatham County area.

6.3 Fiscal Capability

Table 6-3 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table 6-3 – Savannah Fiscal Mitigation Capabilities

Resource	Accessible? Y/N	Comments
Community development block grants	Y	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for stormwater, water, sewer & sanitation services	Y	
Impact fees for new development	Y	
Incur debt through general obligation bonds	N	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	

The City has ability to use Special Purpose Local Option Sales Tax (SPLOST) revenue to fund mitigation projects.

The City has established a Stormwater Utility which will be implemented in July 2026. Funding from the stormwater utility will be able to support mitigation projects, but for the first several years funds will go towards operations and maintenance.

In 2006, the City created a Tax Allocation District (TAD) which is now being implemented. This TAD funded infrastructure improvements that directly correlated with resilience, including widening Bilbo Canal and raising Presidents Street.



7. Mitigation Strategy

Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section describes the mitigation strategy process and mitigation action plan for the Savannah Floodplain Management Plan. It describes how the City met Planning Step 6: Set Goals, Planning Step 7: Review Possible Activities, and Planning Step 8: Draft an Action Plan. It contains the following subsections:

- 7.1 Mitigation Strategy Overview
- 7.2 Goals and Objectives
- 7.3 Identification and Analysis of Mitigation Activities
- 7.4 Mitigation Action Plan

7.1 Mitigation Strategy Overview

The FMPC considered the results of the risk and vulnerability assessment and the capability assessment to approach goal setting and the identification, selection, and prioritization of mitigation activities, which are presented in the mitigation strategy. The mitigation strategy is designed to be comprehensive, strategic, and functional, in that it includes a thorough review of all possible mitigation alternatives, aims to achieve multiple local objectives, is consistent with other long-term planning goals, and facilitates implementation of the identified actions. Section 7.2 below identifies the goals and objectives of this plan, Section 7.3 describes the analysis of mitigation alternatives, and Section 7.4 details the new mitigation action plan.

The following considerations influenced the FMPC's approach to preparing this mitigation strategy:

- **Communicate** the hazard information collected and analyzed through this planning process as well as FMPC success stories so that the community better understands what can happen where and what they themselves can do to be better prepared.
- **Use** existing rules, regulations, policies, and procedures already in existence.
- **Monitor** multi-objective management opportunities so that funding opportunities may be shared and packaged and broader constituent support may be garnered.

7.1.1 Continued Compliance with NFIP

Given the flood hazards in the planning area, an emphasis will be placed on continued compliance with the NFIP and participation in the CRS. The City meets or exceeds the following minimum requirements as set by the NFIP:

- Issuing or denying floodplain development/building permits
- Inspecting all development to assure compliance with the local ordinance
- Maintaining records of floodplain development
- Assisting in the preparation and revision of floodplain maps

- Helping residents obtain information on flood hazards, floodplain map data, flood insurance and proper construction measures

The City's Development Services Department is responsible for the review and approval of all development applications to the City. The Department coordinates all required plan reviews by city infrastructure departments (stormwater, water & sewer, park & tree, traffic, and streets), the zoning department, the Metropolitan Planning Commission (MPC), and building specialties (structural, plumbing, electrical, mechanical, etc.). The Department also coordinates the issuance of the Certificate of Occupancy for all new or renovated building construction, completion letters for site work and building shells, and acceptance of new publicly maintained infrastructure (streets, drainage, water, sewer, etc.). Once a development begins construction, there are several on-site inspections performed by trained inspection staff to ensure compliance before the construction can proceed toward completion.

The Development Services Department maintains the records of all map revisions and changes received from FEMA. As a part of the services offered to the public, the Development Services Department provides FEMA floodplain mapping information, flood insurance program information, flood hazard information, and guidance on proper construction methods within the special flood hazard area.

The CRS program is designed to recognize floodplain management activities that are above and beyond the NFIP's minimum requirements. The City of Savannah is currently classified as a Class 5 community, which provides all NFIP policyholders in the city with a 25% premium discount. The City of Savannah undertakes the following activities as part of its CRS participation:

- The Building Department maintains elevation certificates for new and substantially improved buildings and provides copies upon request.
- The Development Services Department provides flood zone information from the community's latest Flood Insurance Rate Map (FIRM).
- The City undertakes a Program for Public Information and associated annual outreach projects. The PPI was updated by the FMPC in conjunction with this floodplain management plan.
- Flood-related information is provided in the public library and on the city's website.
- The Development Services Department provides technical advice and assistance about property protection to interested property owners.
- The City enforces various higher standards as part of the flood damage prevention regulations, including freeboard for new and substantial improvement construction, cumulative substantial improvement, protection of critical facilities, protection of floodplain storage capacity, and enclosure limits. The city also enforces regulations for soil and erosion control.
- The City has developed and regularly updates this Floodplain Management Plan and a Repetitive Loss Area Analysis. The City also recently developed a Floodplain Species Assessment and Plan and a Substantial Damage Management Plan.
- The City has acquired buildings from the community's flood hazard area.
- In coordination with Chatham Emergency Management Agency, the city has a program to provide timely identification of impending flood threats, disseminate warnings to appropriate floodplain residents, and coordinate flood response activities.

7.2 Goals and Objectives

Requirement §201.6(c)(3)(i): [The mitigation strategy section shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Section 5 documents the flood hazards and associated risks that threaten the City of Savannah including the vulnerability to structures, infrastructure, and critical facilities. Section 6 evaluates the capacity of the City to reduce the impact of those hazards. The intent of goal setting is to bring these findings together to

identify how existing capabilities can be employed or improved so that community vulnerability is reduced. Goals are also necessary to guide the review of possible mitigation measures.

Goals are general guidelines that explain what is to be achieved. They are usually broad-based policy type statements, long term and represent global visions. Goals help define the benefits that the plan is trying to achieve.

Objectives are short term aims, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

7.2.1 Coordination with Other Planning Efforts

The goals of this plan need to be consistent with and complement the goals of other planning efforts. The primary planning documents that the goals of this plan must complement and be consistent with are the Chatham County Hazard Mitigation Plan and the Chatham County-Savannah Comprehensive Plan. The Comprehensive Plan is important because it is developed and designed to guide future growth within the community. Therefore, to effectively pursue preventative flood mitigation for future development, there should be some consistency in the goals of these plans. Likewise, the goals of the County's Hazard Mitigation Plan are important to consider because the countywide plan plays an important role in flood hazard reduction.

7.2.2 Goal Setting Exercise

At the third FMPC meeting, held on March 19, 2026, the FMPC reviewed the goals and objectives of the previous plan and conducted an open discussion to determine whether each goal and objective was still applicable or whether any changes should be made. The goals and objectives from the 2021 plan were largely upheld, with some minor revisions, summarized below:

- Goal 1 and associated objectives were unchanged.
- Goal 2 was unchanged but Objective 2.3 was reworded to broaden the focus of mitigation efforts to all buildings in repetitive loss areas rather than only insurable property.
- Goal 3 was updated to focus on diversification of outreach. The City has already established a robust public education and outreach program, but the FMPC felt that there is always room for continued improvements. The FMPC also decided to incorporate outreach on Low Impact Development techniques into Objective 3.4.
- A new objective was added under Goal 4 to address the City's effort to improve stormwater modeling and create a Watershed Master Plan as part of achieving a CRS Class 4.

7.2.3 Resulting Goals and Objectives

The goals and objectives were updated according to the FMPC discussion points summarized above. The resulting goals and objectives are as follows:

Goal 1: Protect the public health, safety, and welfare of Savannah residents from flood hazards

- Objective 1.1: Protect critical and essential facilities from flood damage
- Objective 1.2: Reduce damage to development through flood resilient strategies and measures
- Objective 1.3: Preserve open space areas, especially sensitive natural areas

Goal 2: Holistically address repetitive loss areas

- Objective 2.1: Reduce number of repetitively flooded structures.

- Objective 2.2: Leverage local, state, and federal grant funding to facilitate mitigation actions on repetitive loss properties.
- Objective 2.3: Reduce damage to buildings in repetitively flooded areas.
- Objective 2.4: Develop policies that address repetitive loss areas and compliment mitigation activities.

Goal 3: Enhance and diversify flood related public education and outreach efforts

- Objective 3.1: Expand the City's flood hazard communication and outreach program.
- Objective 3.2: Utilize education and outreach tools to encourage residents to undertake mitigation projects on individual properties.
- Objective 3.3: Develop partnerships with local schools to provide flood education to students.
- Objective 3.4: Educate the public on stormwater management techniques, low-impact development, and the benefits of acknowledging water as a resource.

Goal 4: Monitor projections for changing weather and climate conditions and implement plans, policies, and property protection to reduce potential damage.

- Objective 4.1: Prioritize critical facilities and infrastructure with projected sea level rise impacts for elevation and/or relocation.
- Objective 4.2: Implement growth management policies to guide new development away from current or future high-risk areas.
- Objective 4.3: Monitor shorelines and wetlands to identify and mitigate erosion hotspots.
- Objective 4.4: Create models to help understand stormwater and compound flooding and enable planning for needed improvements through a Watershed Master Plan.

7.3 Identification and Analysis of Mitigation Activities

Requirement §201.6(c)(3)(ii): [The mitigation strategy section shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

To identify and select mitigation projects to support the mitigation goals and achieve the greatest risk reduction, the FMPMC considered the Priority Risk Index ratings determined for each hazard in Section 5. While mitigation alternatives were considered to address the risks associated with all identified hazards, an emphasis was placed on high and moderate priority hazards.

The FMPC analyzed viable mitigation options that supported the identified goals and objectives and addressed the risks and vulnerabilities associated with each hazard. To organize the evaluation of mitigation alternatives, the FMPC was provided with the following list of mitigation categories which are utilized as part of the CRS planning process:

- Prevention
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information and Outreach

The FMPC was also provided with examples of potential mitigation actions for each of the above categories. The FMPC was instructed to consider both future and existing buildings in evaluating

possible mitigation actions. A facilitated discussion then took place to examine and analyze options. Appendix C, Mitigation Strategy, provides a detailed discussion organized by CRS mitigation category of possible mitigation alternatives to assist the City in the review and identification of possible mitigation activities. This comprehensive review of possible mitigation activities details why some were appropriate for implementation and why others were not.

The result of this discussion was a list of mitigation actions to be pursued for implementation in the next five years, including newly identified actions and actions carried forward from the 2021 plan.

7.3.1 Prioritization Process

Once the mitigation actions were identified, the FMPC was provided with several decision-making tools, including FEMA's recommended STAPLEE prioritization criteria. The FMPC was asked to consider each of the following STAPLEE elements:

- **Socially Acceptable:** Is the action acceptable to the community? Does it have a greater impact on a certain segment of the population? Are the benefits fair?
- **Technically Feasible:** Is the action technically feasible? Is it a long-term solution to the problem? Does it capitalize on existing planning mechanisms for implementation?
- **Administrative Resources:** Are there adequate staffing, funding and other capabilities to implement the project? Is there adequate additional capability to ensure ongoing maintenance?
- **Politically Supported:** Will there be adequate political and public support for the project? Does the project have a local champion to support implementation?
- **Legally Allowable:** Does the community have the legal authority to implement the action?
- **Economically Sound:** Can the action be funded locally? Will the action need to be funded by an outside entity, and has that funding been secured? How much will the project cost? Can the benefits be quantified, and do they outweigh the costs?
- **Environmentally Sound:** Does the action comply with environmental regulations? Does the action meet the community's environmental goals? Does the action impact land, water, endangered species, or other natural assets?

Next, the FMPC was asked to consider each action's potential efficacy by answering the following questions:

- Will the action result in lives saved?
- Will the action reduce property damages?
- Will the action reduce the need for response actions?
- Will the benefits exceed the cost?

The FMPC also considered sustainable disaster recovery principles and smart growth principles when considering, refining, and evaluating mitigation project alternatives. Using these criteria, the FMPC was able to prioritize each mitigation project subjectively as a low, medium, or high priority. The process of identification and analysis of mitigation alternatives allowed the FMPC to come to consensus and to prioritize recommended mitigation actions.

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority, as reflected in the prioritization criteria above. However, this was not a quantitative analysis. For each action, the FMPC considered the benefit-cost analysis in terms of:

- Ability of the action to address the problem
- Contribution of the action to save life or property
- Available technical and administrative resources for implementation
- Availability of funding and perceived cost-effectiveness

The consideration of these criteria helped to prioritize and refine mitigation actions but did not constitute a full benefit-cost analysis. The cost-effectiveness of any mitigation alternative will be considered in greater detail through performing benefit-cost project analyses when seeking FEMA mitigation grant funding for eligible actions associated with this plan.

7.4 Mitigation Action Plan

Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include an] action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

The action plan presents the recommendations developed by the FMPC for how the City of Savannah can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future flood events. Emphasis was placed on protecting both existing and future development. The action plan summarizes who is responsible for implementing each of the prioritized actions as well as when the actions will be implemented and what funding sources might be applicable. Table 7-1 details the mitigation actions identified for implementation through this planning process.

It is important to note that the City has many existing, detailed action descriptions, which include benefit-cost estimates, in other planning documents, such as stormwater plans and capital improvement budgets and reports. Some of these actions have been integrated into this plan to emphasize their priority and significance to flood hazard reduction. To avoid duplication, the details of these actions should be referenced in their original source document. The FMPC also realizes that new needs and priorities may arise as a result of a disaster or other circumstances and reserves the right to support new actions, as necessary, as long as they conform to the overall goals of this plan.

It should also be clarified that the actions included in this mitigation strategy are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. The City is not obligated by this document to implement any or all of these projects. This mitigation strategy represents the desires of the community to mitigate the risks and vulnerabilities from identified hazards. The actual selection, prioritization, and implementation of these actions will also be further evaluated in accordance with the CRS mitigation categories and criteria contained in Appendix C.

The mitigation action table below uses the following acronyms to classify each action's mitigation category:

- P = Prevention
- PP = Property Protection
- ES = Emergency Services
- NRP = Natural Resource Protection
- SP = Structural Projects
- PIO = Public Information & Outreach

Table 7-1 – City of Savannah Mitigation Action Plan

Action ID & Description	Goal(s) Addressed	Mitigation Category	Priority	Responsible Office	Potential Funding Source	Timeline	Implementation Comments
1. Complete a comprehensive stormwater master plan (FEMA CRS Activity 450 Watershed Master Plan) to support identification and implementation of drainage improvement projects. Fourteen basins need to be modeled. Ten existing models need to be updated to account for sea level rise and improvements completed to date.	1, 4	P, SP	High	CIP Management	SPLOST	Ongoing Next 5 years	Carry Forward. The City has developed ten local flood studies and continues to contract with local engineers to update these studies and complete other basins. Fourteen basins remaining to be completed or updated to CRS specifications. HMGP grant application has been submitted.
2. Enhance drainage system maintenance program to unclog storm drains and clear drainage channels and implement a public education component on proper yard waste disposal to eliminate brush disposal in canals.	1, 3	P, PIO	High	Water Resources Environmental Office	Water Resources Budget	Ongoing Next 5 years	Carry Forward. Continue promoting Adopt-A-Drain and other public activities. New promotional yard signs have been installed to encourage proper waste disposal.
3. Reserve vacant low-lying/flood-prone/wetland areas for open space through acquisition or regulation.	1, 4	P, NRP	High	Development Services and Real Estate Services	City Budget and FEMA Mitigation Grant Fund	Ongoing Next 5 years	Carry Forward. No purchases completed at this time. The City continues to evaluate potential opportunities to purchase and limit development. The City maintains a list of requested homes for buyout.
4. Evaluate FEMA-purchased properties for the highest use in floodwater/stormwater storage.	1, 2	P, SP	Medium	Real Estate Services; Stormwater Management	City Budget	Ongoing Next 5 years	Carry Forward. Neighborhoods continue to request use of these lots for community gardens and green spaces.
5. Reduce future vulnerability of Vallambrosa area through acquisition or regulation.	2, 4	P, PP	Low	Development Services	City Budget	2-3 Years	Carry Forward. The City does not currently have funding for acquisitions but will continue seeking opportunities to ensure new construction is built at higher elevations.
6. Continue acquisition/demolition of high-risk flood-prone properties.	2	P, PP	Medium	Real Estate Services	FEMA Mitigation Grant Funds and SPLOST	Ongoing Next 5 years	Carry Forward. Continue maintaining the buyout list and encourage property owners to contact the City if they wish to participate when grant funding becomes available.
7. Implement a floodproofing program for homes where acquisition is not an option – especially historic structures.	1	P, PP	Low	Development Services and Real Estate Services	FEMA Mitigation Grant Funds for eligible type projects and SPLOST	Ongoing Next 5 years	Carry Forward. Continue outreach efforts to promote mitigation actions and site visits.
8. Protect existing critical facilities through floodproofing, retrofitting, backup power systems, and structural projects, and use site planning and building regulations to minimize flood vulnerability of any new critical facilities.	1	P, PP, ES	High	Various City Agencies	SPLOST and FEMA Mitigation Grant Funds	Ongoing Next 5 years	Carry Forward. Continue enforcing the flood ordinance to prevent new critical facilities from being located within the 100-year and 500-year floodplains.
9. Post flood mitigation information at libraries, post offices, heavily trafficked municipal buildings and community centers.	3	PIO	Medium	Development Services	City Budget	Ongoing Next 5 years	Carry Forward. Flood mitigation information is posted in local buildings and at floodplain-related events. Smart Sea Level monitors are being transitioned to Green Stream Water Level Monitors.
10. Provide flood mitigation update and outreach to neighborhood groups and other interested parties via an email group address.	3	PIO	High	Steering Committee and Development Services	City Budget	Ongoing Next 5 years	Carry Forward. Continue outreach efforts. CEMA and COS distribute notices, emails, social media posts, and website updates. The flood protection website is regularly updated to maintain current and relevant information.
11. Organize annual/semi-annual single-focus public workshops/meetings to discuss flood mitigation.	3	PIO	Medium	Public Information Office, Development Services, and CEMA	City Budget	Ongoing Next 5 years	Carry Forward. Hosted a CRS User Group meeting with GADNR to discuss Coastal A requirements. Additionally, the City is hosting a workshop with Chatham County on June 17, 2026, to promote wetlands and green infrastructure.
12. Strategically focus SPLOST funds toward identified drainage improvement projects.	1	SP	High	CIP Management	City Budget	Ongoing Next 5 years	Carry Forward. The City adopted a new Drainage Utility Fee, which will be implemented in 2026 to support drainage studies and improvements.
13. Document drainage improvements in SFHAs and request revisions to the applicable FIRM maps to reflect new conditions through the FEMA LOMR process.	1	P	Low	Development Services	FEMA	Ongoing Next 5 years	Carry Forward. No change.
14. Prioritize CIP projects to address flooding in the following areas: Victory Drive, Martin Luther King, Jr.	1, 2	SP	High	Stormwater Management	SPLOST	3-5 years	Carry Forward. Construction on 54th Street (Phase 1) is completed. Construction on 56th and 57th Street are ongoing. The following have been

Action ID & Description	Goal(s) Addressed	Mitigation Category	Priority	Responsible Office	Potential Funding Source	Timeline	Implementation Comments
Blvd. Corridor, Abercorn between Victory and DeRenne, West Savannah Flood Mitigation Project (Springfield Canal, Cloverdale, Carver Village), Bilbo basin, Placentia basin, Fell St pump station and outfall, Habersham/Casey Stormwater Tunnel Project (Habersham Village, Casey South basin), and White Bluff Road/Hunter Army Airfield.							completed: Skidaway & 41st and Detention Pond at 52nd Derenne. Fell Street pump station and outfall are currently in design phase. West Savannah Flood Mitigation Project is currently in design phase. Habersham/Casey Stormwater Tunnel Project is also under design. White Bluff Road/Hunter Army Airfield Project - REPI grant application has been submitted.
15. Implement Stormwater Utility Enterprise Fund to provide a dedicated funding source for stormwater operations, maintenance and CIP.	1	SP	High	Stormwater Management and Savannah City Council	City Budget	3 years	Carry Forward. The Utility Fee has been adopted, and billing is expected to begin in September 2026.
16. Support the Chatham County-Savannah MPC Greenway Plan and coordinate with the MPC on the Plan as needed.	1	P, NRP	Low	Parks and Recreation Department	City and Council Combined Funding of the MPO	3-5 years	Carry Forward. The City is exploring expansion of the sidewalk along Middle Ground Road to Montgomery Cross Road. Construction is underway on portions of the project.
17. Consider participation in FEMA's high water mark initiative or develop and post "potential high water mark" signs.	1, 3	PIO	Medium	Development Services	City Budget	3 years	Carry Forward. Smart Sea Level monitors are being transitioned to Green Stream Water Level Monitors.
18. Coordinate with the Chatham County Resource Protection Land to acquire lands vulnerable to flooding through SPLOST funds.	1, 2	P, NRP	Low	Parks and Recreation Department in cooperation with the Chatham County-Savannah MPO and the Savannah City Council	SPLOST	3-5 years	Carry Forward. No change.
19. Educate the public and promote the use of permeable concrete paving, rain gardens, and other low impact development techniques and green infrastructure projects to reduce flash flooding impacts.	1, 4	P, PP, NRP	High	Water Resources Environmental Office	Water Resources Budget	Ongoing Next 5 years	Carry Forward. Rain barrel promotion activities were conducted at Wag-O-Ween and neighborhood meetings.
20. Springfield Basin Phase 1 improvements. Canal District DR-905	1, 2	P, PP, SP	High	Stormwater Management	SPLOST	2-3 years	Carry Forward. Ongoing work. All Phase II required permits for construction have been acquired for the utility relocation. Phase II final drawings to be submitted to the SPR team for review and approval. From Mid-June: Debris removal is complete. Ponds 1 and 2 have been cleared. Pond 2 construction is 90% complete. Pond 1 environmental sampling is ongoing.

8. Plan Adoption

Requirement §201.6(c)(5): [The plan shall include] documentation that the plan has been formally approved by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).

The purpose of formally adopting this plan is to secure buy-in from the City of Savannah, raise awareness of the plan, and formalize the plan's implementation. The adoption of this plan completes Planning Step 9 of the 10-step planning process: Adopt the Plan, and associated requirements of DMA 2000.

The City Council has adopted the Flood Mitigation Plan by passing a resolution. A copy of the executed resolution will be shown on the following page.

Placeholder for adoption resolution.

9. Plan Implementation and Maintenance

Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This is Planning Step 10 of the 10-step planning process. This section provides an overview of the approach for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The section also discusses integration of the plan into existing planning mechanisms and how to continue public involvement. It contains the following subsections:

- 9.1 Implementation
- 9.2 Maintenance

9.1 Implementation

Once adopted, the plan must be implemented in order to be effective. While this plan contains many worthwhile actions, the City of Savannah will need to decide which action(s) to undertake first. The priority assigned the actions in the planning process and funding availability will affect that decision. Low or no-cost actions most easily demonstrate progress toward successful plan implementation.

Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government. Implementation will be accomplished by adhering to the schedules identified for each action and through constant, pervasive, and energetic efforts to network and highlight the multi-objective, win-win benefits to each program and the Savannah community. This effort is achieved through the routine actions of monitoring agendas, attending meetings, and promoting a safe, sustainable community. Additional mitigation strategies could include consistent and ongoing enforcement of existing policies and vigilant review of programs for coordination and multi-objective opportunities.

Ongoing monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions will also be necessary. This will include creating and maintaining a bank of ideas on how to meet local match or participation requirements. When funding does become available, the City will be positioned to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, state and federal earmarked funds, benefit assessments, and other grant programs, including those that can serve or support multi-objective applications.

Responsibility for Implementation of Goals and Activities

The elected officials and officials appointed to head each department within the City are charged with implementation of various activities in the plan. During the quarterly reviews as described later in this section, an assessment of progress on each of the goals and activities in the plan will be determined and noted. At that time, recommendations will be made to modify timeframes for completion of activities, funding resources, and responsible entities. On a quarterly basis, the priority standing of various

activities may also be changed. Some activities that are found not to be doable may be deleted from the plan entirely and activities addressing problems unforeseen during plan development may be added.

Integration into Existing Planning Mechanisms

An important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other plans and mechanisms, such as the City's Comprehensive Plan and Stormwater Management Plan. The successful implementation of this mitigation strategy will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community.

As previously stated, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. As described in this plan's capability assessment, the City of Savannah already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms.

- MPC Comprehensive Plan (Chatham County-Savannah Comprehensive Plan)
- City Emergency Operations Plans
- City ordinances
- Chatham-County Multi-Jurisdictional Hazard Mitigation Plan
- Flood/stormwater management/master plans
- Other plans, regulations, and practices with a mitigation focus

City staff involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc, as appropriate. Integration into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this hazard mitigation plan.

9.1.1 Role of FMPC in Implementation, Monitoring and Maintenance

With adoption of this plan, the City of Savannah will be responsible for implementation and maintenance. The FMPC identified in Section 4 will reconvene quarterly each year to ensure mitigation strategies are being implemented and that the City continues to maintain compliance with the NFIP. As such, Savannah agrees to continue its relationship with the FMPC and:

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low/no-cost recommended actions;
- Ensure hazard mitigation remains a consideration for community decision makers;
- Maintain a vigilant monitoring of multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;

- Report on plan progress and recommended revisions to the City Council; and
- Inform and solicit input from the public.

The FMPC's primary duty is to see the plan successfully carried out and report to the City Council, GEMA, FEMA, and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the City's website (and others as appropriate).

9.2 Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized. Maintenance will occur on an established schedule as described below.

9.2.1 Maintenance Schedule

The City of Savannah's Floodplain Administrator is responsible for initiating plan reviews. To monitor progress and update the mitigation strategies identified in the action plan, Savannah will revisit this plan quarterly and following a hazard event. The City will submit a five-year written update to FEMA, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan update anticipated to be fully approved and adopted in 2026, the next plan update for the City will occur in 2031.

9.2.2 Maintenance Evaluation Process

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (and/or further annexation).

Updates to this plan will:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to infrastructure inventories; and
- Incorporate new action recommendations or changes in action prioritization.

Changes will be made to the plan during the update process to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation. Updating of the plan will be by written changes and submissions, as is appropriate and necessary, and as approved by the City Council. In keeping with the five-year update process, the FMPC will convene public meetings to solicit public input on the plan and its routine maintenance and the final product will be adopted by the City Council.

To inform the plan update process and to maintain and implement the plan during the interim five-year period, the FMPC will conduct plan reviews quarterly. Specifically, the City will adhere to the process described below for regular reviews of this FMP.

Quarterly Plan Review Process

For the quarterly review process, the City's Floodplain Administrator, on behalf of the City Council, will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the plan. Quarterly reviews will be conducted as follows:

- The City's Floodplain Administrator will reconvene the FMPC to meet and review the progress toward implementation of each action in the plan's mitigation action plan. The Floodplain Administrator will be responsible for leading the meeting to review the plan.
- FMPC meetings will be advertised in accordance with local rules regarding public notice.
- Prior to the review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- After the review meeting, minutes of the meeting and a status report will be prepared by the Floodplain Administrator. The report will be shared with the FMPC and presented to the City Council for review, and a request will be made that the Council take action to recognize and adopt any changes resulting from the review.
- The local news media will be contacted and a copy of the status report will be made available for public comment.
- The Floodplain Administrator will maintain copies of minutes and status reports to present to FEMA as part of the community's annual recertification to the CRS program.

Criteria for Quarterly Reviews

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan. Specifically, quarterly reviews will include discussion of the following information, as appropriate:

- Community growth or change in the past quarter.
- The number of substantially damaged or substantially improved structures by flood zone
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether or not the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Flood Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including

projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

9.2.3 Continued Public Involvement

Continued public involvement is imperative to the overall success of the plan's implementation. The update process provides an opportunity to solicit participation from new and existing stakeholders and to publicize success stories from the plan implementation and seek additional public comment. The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and through public hearings.

Public Involvement Process for Quarterly Reviews

The public will be noticed by placing an advertisement in the newspaper or on the City's website specifying the date and time for the review and inviting public participation. The results of each quarterly review will be made available to local news and the City Council.

Public Involvement for Five-year Update

When the FMPC reconvenes for the update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. In reconvening, the FMPC will be responsible for coordinating the activities necessary to involve the greater public. The FMPC will develop a plan for public involvement and will be responsible for disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held and public comments will be solicited on the plan update draft. The FMPC will also coordinate this public outreach process with the public information program established pursuant to the 2025 CRS Coordinator's Manual.

Appendix A Planning Process Documentation

A.1 Planning Step 1: Organize to Prepare the Plan

Table A.1 – FMPC Meetings

Meeting Type	Meeting Topic	Meeting Date	Meeting Location
FMPC #1 (Kickoff)	1) Introduction to DMA, CRS and the planning process 2) Organize resources: the role of the FMPC, planning for public involvement, and coordinating with other agencies and stakeholders 3) Introduction to hazard identification	September 10, 2025 2:00pm	Adam's Complex - Conference Room 2C & Microsoft Teams
FMPC #2	1) Review/discussion of Flood Risk and Vulnerability Assessment (Assess the Hazard and Assess the Problem)	February 2, 2026 1:30pm	Microsoft Teams
FMPC #3	1) Review and update goals and objectives from 2021 FMP 2) Review and update of local capabilities 3) Review and update of existing mitigation strategies	March 19, 2026 2:00pm	Microsoft Teams
FMPC #4	1) Finalize the mitigation action plan 2) Review draft plan 3) Review draft PPI	August 4, 2026 2:00pm	Microsoft Teams

FMPC Meetings were open to the public. Meeting notices were posted on the City's website.

FMPC Meeting Agendas, Minutes, and Attendance Records

FMPC Meeting 1: September 10, 2025



**CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN
AND PROGRAM FOR PUBLIC INFORMATION**

FLOODPLAIN MANAGEMENT PLANNING COMMITTEE (FMPC) – MEETING #1

September 10, 2025, 2pm
Adam's Complex - Conference Room 2C (Room 202) & Microsoft Teams

ATTENDANCE

There were 12 attendees in person and five attendees online. The following individuals were in attendance:

- Ben Barksdale, Real Estate Agent, Barksdale Group
- Mo Spiessl, City of Savannah Stormwater
- Subhashi Karunaratne, Savannah MPC
- Julie McLean, City Engineer & Director, City of Savannah Development Services
- Jennifer Roach, Deputy City Engineer, City of Savannah Development Services
- Greg Harris, City Surveyor, City of Savannah Development Services
- Avni Naik, Sustainability Project Manager, City of Savannah Office of Sustainability
- Rhonda Ruesch, Community Disaster Program Manager, American Red Cross
- Justin Pratt, Emergency Management & School Safety Lieutenant, Savannah-Chatham County Public School System Board of Education
- Gloria Williams, Resident
- Nusrat Fatema, GIS Analyst, City of Savannah Development Services
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Laura Walker, Environmental Administrator, Stormwater Management
- Saja Aures, City of Savannah Public Information Office
- David Stroud, WSP
- Abby Moore, WSP
- Ranger Ruffins, WSP

AGENDA

- Welcome & Introductions
- Community Rating System (CRS) Overview
- Project Overview
- Why Plan?
- CRS Activity 510 Floodplain Management Planning
 - FMP Requirements & Planning Process
 - Stakeholder Coordination & Public Outreach
 - Hazard Identification & Risk Assessment Data Needs
- CRS Activity 330 Program for Public Information
 - PPI Requirements & Planning Process
 - Topics & Messages
- Next Steps

CRS PROGRAM OVERVIEW

The CRS Program is a voluntary, point-based program that provides a 5% premium discount to flood insurance policyholders for every 500 points that a community earns. Currently, the City of Savannah is a

Savannah, GA FMP & PPI
Floodplain Management Planning Committee - Meeting #1

September 2025
Page 1

Class 5, which provides a 25% discount to all policyholders regardless of being located in or outside of the SFHA. The goals of the CRS program are to:

- 1 Reduce flood damage to insurable property
- 2 Strengthen and support the insurance aspects of the NFIP
- 3 Encourage a comprehensive approach to floodplain management

David reviewed current flood insurance data with the committee which showed a total of 4,049 insurance claims that have been paid since the City joined the National Flood Insurance Program in 1971. Out of those claims, 250 have been substantial damage claims. A substantial damage claim is a determination by local building officials that the cost to repair a structure after damage exceeds 50% of the structures market value before the damage occurred.

PROJECT OVERVIEW

The City of Savannah will be completing both a CRS Activity 510 - Floodplain Management Plan (FMP) and a CRS Activity 330 - Program for Public Information (PPI) in coordination with this steering committee. The City will also be completing a Repetitive Loss Area Analysis (RLAA), Natural Floodplain Functions (NFP), and a Substantial Damage Plan (SDP). It was asked if the City has completed a Natural Floodplain Functions Plan before. Abby noted that the City has an existing plan that will transition to a similar Floodplain Species Assessment.

WHY PLAN?

David discussed that there have been more disaster declarations in recent years as well as increased cost for disaster response and recovery, in part due to population growth and development in hazardous areas which has increased exposure. So far, in 2024 there have been 27 weather/climate disaster events with losses exceeding \$1 billion each. Six of these disasters have been flood-related hazards.

David explained that we must plan for mitigation because the costs of response and recovery are growing, many events are predictable or repetitive, loss reduction works, and there are funds available to help. The average benefit-cost ratio for a federally funded mitigation project is 6:1. Planning for mitigation helps break the disaster cycle of damage occurring followed by rebuilding only for the structure to be damaged again during the next disaster event.

FMP PLANNING PROCESS

Abby reviewed the intent of DMA planning and explained the basis of DMA planning requirements in the Code of Federal Regulations, which establish the four-phase planning process. This process dovetails with the CRS Program's 10-Step planning process. The completed plan will meet the requirements of both programs.

The purpose of a floodplain management plan is to reduce potential losses from future disasters. Abby reviewed the FMP planning process noting that the planning requirements of the DMA outline four ordered phases: 1) organize resources, 2) risk assessment, 3) develop a mitigation plan, and 4) adoption and implementation. These phases outline a ten-step planning process reflected in both DMA and CRS planning requirements. Abby reviewed the 10-Step planning process, which is as follows:

- 1 Organize to Prepare the Plan
- 2 Involve the Public
- 3 Coordinate
- 4 Assess the Hazard
- 5 Assess the Problem
- 6 Set Goals
- 7 Review Possible Activities
- 8 Draft an Action Plan
- 9 Adopt the Plan
- 10 Implement, Evaluate, and Revise the Plan

Phase 1: Organize Resources

Step 1 – Organize to Prepare the Plan

In this step the City convened the Floodplain Management Planning Committee (FMPC) which includes local staff, citizens, and stakeholders. Additionally, the City and FMPC will organize existing resources and inventory what tools, data, and services are available to create the plan.

Step 2 – Plan for Public Involvement

In this step, WSP and the FMPC will prepare and develop ways to engage the public in the planning process. This could include integrating the public on the FMPC, posting information on websites, developing press releases, and implementing surveys and questionnaires.

The WSP planning team has developed a public survey that will help the FMPC better understand the community's experiences and concerns with flooding. The survey can be accessed at the link [HERE](#).

There was a lot of discussion about ways to best reach the public, including several additional suggestions and considerations for ways to publicize the plan and survey. The following methods, listed below, will be pursued.

- WSP will create a hard copy version of the survey to be distributed. This will ensure we can reach residents who may not be online.
- The survey will be translated into other languages. WSP will work with the City on this effort.
- The survey will be distributed in schools to reach staff, parents, and other stakeholders who can provide input.
- WSP will create a hard copy flyer that can be distributed at the community center, HOAs, and other locations/events. David noted that it's helpful to distribute flyers at other City-wide events.
- Board meetings at the MPC can share the flyer/survey and other information.
- Churches are another useful place to share information about the plan. The City may have contact information for some faith leaders. The Red Cross has some contact information they can provide. WSP will follow up with Rhonda.

Step 3 – Coordinate with Other Departments and Agencies

The FMPC should seek the support of other departments and organizations for assistance with plan development. These agencies can help connect with the public, provide critical information and data, and provide important insight that enriches the FMP. Abby noted that to maximize CRS credit we must involve 30 outside stakeholders in the planning process. Please see slide 19 for a list of potential departments and agencies. It was suggested that real estate agents should be considered for additional input and support with public outreach. Abby noted that real estate involvement is a key piece of the PPI.

Phase 2: Risk Assessment

Step 4 – Assess the Hazards

Hazard identification explores what types of events may occur within the City. Hazards are profiled based on their extent, past occurrences, seasonal patterns, magnitude, and other factors.

Abby reviewed the hazards included in the 2021 plan: Climate Change and Sea Level Rise, Coastal and Canal Bank Erosion, Dam and Levee Failure, Flood (100/500-year), Stormwater and Localized Flooding, Hurricane and Tropical Storm (including storm surge). The same hazards will be addressed in this plan update. Hazard profiles will include the location a hazard can occur, previous occurrences, potential impacts, probability of future occurrence, and extent of the evaluated hazards.

Step 5 – Assess the Problem

The vulnerability assessment considers what assets will be affected and to what extent. This step also considers the City's existing local capability to implement mitigation projects.

Abby noted that critical facilities and critical infrastructure will be categorized into FEMA lifeline categories. WSP will review the facilities included in the previous plan and coordinate with the City on any additional updates.

Phase 3: Develop a Mitigation Plan

Step 6 – Set Planning Goals

The FMPC will develop goals to guide the creation and implementation of the plan's mitigation strategy. The goals from the previous plan will be reviewed and updated to ensure they still capture the City's vision for flood mitigation.

Step 7 – Review Possible Activities

The FMPC will review the existing mitigation actions and provide any updates (completed, deleted, carry forward). They will also choose new mitigation activities that reflect the goals and capability of the City. The FMPC should consider action ideas from each of FEMA's six mitigation categories: Prevention, Emergency Services, Natural Resource Protection, and Public Education. Abby noted that the City should consider any actions they would like to pursue for grant funding, especially those included in other existing planning efforts (Hazard mitigation plan, Capital improvement plan)

Step 8 – Draft Action Plan

The FMPC along with City staff will identify and prioritize actions and determine which department is responsible for particular mitigation actions, when the actions will be completed, and how they will be financed.

Phase 4: Adoption and Implementation

Step 9 – Adopt the Plan

At this step, the plan will be adopted by City Council. The public will have the opportunity to review and provide input that will be incorporated into the plan before adoption.

Step 10 – Implement, Evaluate and Revise the Plan

Plan implementation requires several steps including assigning an overall project manager and integrating actions into staff work plans. Overtime, the FMPC should monitor changes in vulnerability, report on progress, publicize successes, and revise the plan as necessary. The DMA and CRS program require updates every 5 years. After the plan is adopted the FMPC can maximize CRS credit by meeting quarterly to review plan progress.

PPI PLANNING PROCESS

The PPI is a way for the community to think outside of the box for public outreach and develop a coordinated approach to annual outreach projects and post-event flood response projects. Through the PPI the community identifies flood-related information needs, selects outreach topics and messages, identifies target areas and audiences, develops outreach projects, and identifies stakeholders that can support outreach. Abby reviewed the seven step PPI planning process.

1 Establish a PPI Committee

The FMPC will serve as the committee for both FMP and PPI processes

2 Assess the Community's Public Information Needs

The FMPC will identify priority areas and audiences to target for outreach. Abby explained that the FMPC will review existing areas and audiences from the current PPI and determine any necessary changes.

The plan will also assess flood insurance coverage and update the plan with any existing changes.

3 Formulate Messages

There are six priority topics that are included in all PPIs – these can be viewed on slide 30. The FMPC will review and select four additional topics/messages to include in the PPI. Abby noted that we can often use one project in multiple ways to maximize credit.

4 Identify Outreach Projects to Convey the Messages

At this step, the committee will review existing outreach projects and determine what's been working and update the existing projects with any necessary changes.

5 Examine Other Public Information Initiatives

The committee will also explore activities other than outreach projects. Abby noted this can include examining how to improve the communities' website, determine what technical assistance is needed, and understand how to public flood protection services.

6 Prepare the PPI Document

Once the PPI document has been completed, the City will need to adopt the plan.

7 Implement, Monitor, and Evaluate the Program

The FMPC is required to meet at least annually to review the document and any updates. The plan will be updated every five years.

PUBLIC OUTREACH STRATEGY

Abby reviewed some of the ways we will engage the public throughout the planning process. There will be two public meetings. Abby reiterated that a public survey has been created and can be publicized on the City's website and social media accounts. WSP will also provide a hard copy document for distribution.

She also suggested posting plan information on the City's website including meeting announcements, meeting materials (agenda, presentations, minutes), and draft documents for review.

WSP will work with the City and members of the FMPC to pursue other outreach methods listed above.

PROJECT SCHEDULE

Abby briefly reviewed the project schedule as shown on slide 33. WSP aims to schedule the first public meeting for the end of the month and will coordinate with the City to select a date and time. The FMPC will plan to meet again in November, followed by a third meeting in January and a final meeting in March or April.

NEXT STEPS

WSP Team Action Items:

- Create and share hard copy public survey
- Create and share FMP flyer
- Follow up with the City to schedule public meeting
- Provide publicity language for survey

FMPC Action Items:

- Share public survey link and QR code
- Share FMP flyer
- Determine additional languages for survey translation
- Provide contact information for churches and faith leaders





**City of Savannah, GA Floodplain Management Plan
Floodplain Management Planning Committee – Meeting #1
Wednesday, September 10, 2025, 1:00pm**

	Initial	Name	Jurisdiction	Department/Agency/Organization	Email
1.	<i>YLR</i>	Rhonda Ruesch	<i>SEGA</i>	Red Cross	rhonda.ruesch@redcross.org
2.	<i>JP</i>	Justin Pratt	<i>SCPPS</i>	Chatham Co. Brd. of Education: (SCCPSS)	Justin.Pratt@sccps.com
3.		Ben Barksdale		Realtor:	savannahproperty@comcast.net
4.		Jeff M. Brady		Insurance:	JeffBrady@allstate.com
5.	<i>GW</i>	Gloria Williams	<i>SEGA</i>	Citizen	Gloriawilliams1@hotmail.com
6.		Angla Bliss		Citizen	acbliss@chathamcounty.org
7.		Michael Caputo		Lending Institution: First Coast Mortgage	mcaputo@firstcoastmortgage.com
8.		Subhashi Karunaratne		MPC Planning (planner)	ksubhashi@thempc.org
9.		Nusrat Fatema	<i>SEGA</i>	City of Savannah GIS	NFatema@SavannahGa.Gov
10.		David A. Donnelly		COS Emergency Management:	ddonnelly@savannahga.gov
11.	<i>TM</i>	Tom McDonald		COS Development Service:	tmcDonald@SavannahGa.Gov
12.	<i>LD</i>	Laura Walker	<i>COS</i>	COS Natural and Beneficial Open Space:	LWalker@SavannahGa.Gov
13.	<i>MS</i>	Mo Spiessl	<i>COS</i>	COS Stormwater:	maureen.spiessl@savannahga.gov
14.	<i>SA</i>	Saja Aures		COS Public Information Office (PIO):	SAures@SavannahGa.Gov



City of Savannah, GA Floodplain Management Plan
Floodplain Management Planning Committee – Meeting #1
Wednesday, September 10, 2025, 1:00pm

	Initial	Name	Jurisdiction	Department/Agency/Organization	Email
15.	JM	Julie McLean	COS	City Engineer	JMcLean@Savannahga.Gov
16.	JR	Jennifer Roach	COS	Deputy City Engineer	Jennifer.Roach@Savannahga.Gov
17.	GH	Greg Harris		Surveyor / CRS back up	GHarris@Savannahga.Gov
18.	AN	Avni Naik	COS	Office of Sustainability	Avni.Naik@Savannahga.Gov
19.		Davis Stroud		Consultant	david.stroud@wsp.com
20.		Abby Moore		Consultant	abigail.moore@wsp.com
21.		Ranger Ruffins		Consultant	ranger.ruffins@wsp.com
22.					
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32.					
33.					



Participants ×

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🔗 **Share invite**

▼ In this meeting (6) Mute all



Ruffins, Ranger





Ben Barksdale (Unverified)





Jennifer Roach (Unverified)





Mo Spiessl (Unverified)





Moore, Abigail





read.ai meeting notes (Unverified)



FMPC Meeting 2: February 2, 2026



CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN AND PROGRAM FOR PUBLIC INFORMATION

FLOODPLAIN MANAGEMENT PLANNING COMMITTEE (FMPC) – MEETING #2

February 2, 2026, 1:30pm
Microsoft Teams

ATTENDANCE

There were 18 attendees, listed below:

- Julie McLean, City Engineer & Director, City of Savannah Development Services
- Jennifer Roach, Deputy City Engineer, City of Savannah Development Services
- Gloria Williams, Resident
- Avni Naik, Sustainability Project Manager, City of Savannah Office of Sustainability
- Ben Barksdale, Real Estate Agent, Barksdale Group
- Dave Donnelly, City of Savannah Emergency Management Officer
- Jeff Brady, Insurance Agent, Brady Insurance
- Greg Harris, City Surveyor, City of Savannah Development Services
- Nusrat Fatema, GIS Analyst, City of Savannah Development Services
- Michael Caputo, Lending Agent, First Coast Mortgage
- Sadie Esch-Laurent, Metropolitan Planning Commission
- Subhashi Karunaratne, Metropolitan Planning Commission
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Laura Walker, City of Savannah Water Resources, Environmental Administrator
- Saja Aures, City of Savannah Public Information Office
- David Stroud, WSP
- Abby Moore, WSP
- Ranger Ruffins, WSP

AGENDA

- Floodplain Management Plan
 - Planning Process Update
 - Hazard Identification & Risk Assessment (HIRA) Review
 - HIRA Overview
 - Hazards Identification and Flood History
 - Asset Inventory
 - Hazard Profiles – Risk and Vulnerability Assessment
 - Survey Update
- Program for Public Information
 - Target Areas & Audiences
 - Topics & Messages
 - Outreach Projects
- Next Steps

David and Ranger facilitated the meeting according to the agenda above.

PLANNING PROCESS OVERVIEW

There is a 10-step planning process for the Floodplain Management Plan. We are currently working on updating the risk assessment, Steps 4 & 5, which comprises the bulk of the plan document. Next steps will involve updating the mitigation goals, reviewing mitigation actions, and updating the action plan.

HIRA OVERVIEW

David reviewed the HIRA process, which involves identifying hazards, profiling hazard events, compiling an inventory of assets, and estimating losses.

The HIRA is organized in Section 4 of the plan document as follows:

- Section 4.1 Hazard Identification
- Section 4.2 Risk Assessment Methodology
- Section 4.3 Asset Inventory
- Section 4.4 Hazard Profiles, Analysis, and Vulnerability
- Section 4.5 Risk and Vulnerability Conclusions

HAZARD IDENTIFICATION

The following hazards are included in the FMP: climate change & sea level rise, coastal/canal bank erosion, dam/levee failure, riverine & coastal flooding, stormwater/localized flooding, and hurricane & tropical storm.

All hazards are included in the 2024 Chatham County FMP; all but stormwater flooding are also addressed in the State HMP.

WSP reviewed hazard history to support updating the hazard identification, including disaster declarations and past hazard events.

- There have been 10 flood-related disaster declarations and 8 emergency declarations for Chatham County, GA.
- Tropical Storm Debby was the most recent event to directly impact the City of Savannah.
- NOAA's National Centers for Environmental Information (NCEI) database includes 225 flood related events which caused over \$28 million in property damage, 1 death, and 5 injuries in Chatham County.
 - David Donnelly asked if the NCEI events captured the heavy rain events that occurred leading up to the Tropical Storm Debby. He noted that several heavy rains occurred in those preceding weeks.

ASSET INVENTORY

Building exposure data came from the parcel digest in SAGIS. Building exposure totals 49,982 improved parcels with an improved value of \$36.9 billion (including structure value and estimated contents).

Critical facilities inventory was updated with data from City of Savannah Emergency Management. There are 77 total critical facilities. WSP categorized facilities into FEMA Lifeline categories. These facilities have an estimated structure value of \$401 million.

HAZARD PROFILES

The Priority Risk Index (PRI) process was used to rank hazards by their relative priority using a set of standardized criteria. Preliminary rankings of priorities are as follows:

- High: Riverine & Coastal Flooding, Stormwater/Localized Flooding, Hurricane & Tropical Storm
- Moderate: Climate Change & Sea Level Rise
- Low: Dam Failure, Coastal/Canal Bank Erosion

Subhashi asked if we evaluated hazards at a watershed level; she indicated that upstream dam failures have caused flooding in or near Savannah. Ranger noted we searched for past impacts from upstream dams but did not find impacts.

Sea Level Rise:

- Using NOAA Tides & Currents data relative sea level rise projections, scenarios capture variation and uncertainty. Intermediate high scenario for Fort Pulaski tide station projects estimated 1' of rise by 2040, 2' by 2060, 5' by 2100.
- Property exposure estimated by sea level rise depth and occupancy type. Total of 719 buildings exposed
- Julie asked for clarification on time horizon for impacts. Exposure is presented by sea level rise depth. Timing of impacts vary by scenario.
- Occupancy types are derived from SAGIS parcel data. Categories align with Hazus occupancy types. Exposure only accounts for improved parcels.

Coastal & Canal Bank Erosion

- Highest rates of erosion are occurring outside of Savannah; moderate erosion rates occurring along Savannah River.
- Laura indicated there are canal bank erosion problem areas including Harmon Creek near Vernonburg. Will provide additional data to WSP.

Dam Failure

- Three low hazard dams within City of Savannah limits. All three inspected within past five years and two had unsatisfactory ratings, indicating need for maintenance. These dams have Emergency Action Plans in place.
- Dave noted that the City owns a raw water storage impoundment in Port Wentworth. Might not impact City limits but City would have some liability for this structure. Jennifer confirmed it is low hazard and outfalls into a wetland, but a catastrophic failure could impact I-95 and some homes.

Hurricane & Tropical Storm

- 258 hurricane tracks have passed within 50 miles of City limits
- 90 hurricane & tropical storm events have caused over \$10 million in property damages, 1 death, and 3 injuries in Chatham County
- NOAA SLOSH data used for storm surge exposure estimates; SLOSH is a very conservative method to show worst case scenario of storm surge by storm category. Estimated \$4.2 billion of property exposure is within category 1 storm surge extent; \$27.9 billion of property exposure is within category 5 storm surge extent.
- Critical facility exposure to storm surge is highest for water systems (lift stations, wells, etc.) and safety & security facilities.
- Laura asked if we have evaluated compound flooding impacts. WSP did not have modelling data to produce loss estimates for compound flooding, but this is discussed qualitatively in text.

Riverine & Coastal Flooding

- Evaluated with FEMA Flood Insurance Rate Map (FIRM)
- 41% of City is within Special Flood Hazard Area (SFHA) which is the 1% annual chance floodplain
- NCEI records include 144 events that have caused over \$8 million in property damage and 2 deaths
- 5,263 buildings located within SFHA, total exposed building value of \$8.2 billion.

- WSP used Hazus to estimate building damage from the 1% annual chance flood event; an estimated 2,511 buildings would sustain damage totalling approximately \$244 million.

Stormwater/Localized Flooding

- Can be attributed to low elevation, impervious surface, inadequate drainage, blocked storm drains or outfalls, etc.
- WSP mapped street flooding problem hotspots maintained by City
- Let WSP know if any capital improvement projects have been implemented to mitigate stormwater flooding hotspots.

PUBLIC SURVEY UPDATES

- 100 responses received
- 84% have been impacted by flooding; mostly drainage issues
- 32% don't know if their home is in a flood zone
- 47% don't have flood insurance and 9% are unsure if they have flood insurance
- 66% have not taken any actions to protect their homes from flooding
- Survey asks respondents affiliation with City of Savannah

PPI UPDATES

The PPI is a coordinated approach to annual outreach projects and post-event flood response projects.

Target areas from the existing PPI are Special Flood Hazard Areas, Repetitive Loss Areas, and Realtors, Lenders, and Insurance Agents. Target areas are locations/groups that will receive outreach through direct mailings. The City is already conducting outreach to these areas for other CRS Activities, so the PPI can piggyback on those efforts.

Target audiences are people or groups who may need specific messages or types of information. Existing target areas are landscapers and contractors, Spanish-speaking population, elderly population, and realtors, lenders, and insurance agents.

The PPI must cover the six CRS priority topics and enables the City to develop four additional topics. CRS priority topics are: Know your hazard, Insure your property, Protect yourself and your family, Protect your property, Build responsibly, and Protect natural floodplain functions.

Existing additional topics are: General Preparedness, Flood Education, Reduce Stormwater Flooding, and Buy Flood Insurance in Low-Risk-Zones.

- This last topic will need to be changed because under Risk Rating 2.0 there are no longer any preferred risk policies for X Zones, so flood insurance outreach is covered by the CRS Priority Topic "Insure Your Property". WSP will work with the City to identify a replacement topic.

The existing PPI includes 15 outreach projects. Some changes will be made based on adjustments to the additional topic.

PROJECT SCHEDULE

The FMPC will meet again in March, followed by a final meeting in April. The draft plans will be complete by late April or early May.

**NEXT STEPS****WSP Team Action Items:**

- Share the draft risk assessment
- Send existing mitigation actions for feedback
- Schedule third FMPC meeting

FMPC Action Items:

- Share public survey link and QR code
- Review the draft risk assessment and send comments to WSP
- Provide status updates on mitigation actions





Participants ... X

Invite someone or dial a number

Share invite

▼ In this meeting (18) Mute all

- Moore, Abigail**
- +1 304-545-7141 (External)**
- Avni Naik (Unverified)**
- Ben Barksdale (Unverified)**
- David Donnelly (Unverified)**
- Gregory Harris (Unverified)**
- Jeff Brady (Unverified)**
- Jennifer Roach (Unverified)**
- Julie McLean (Unverified)**
- Laura Walker (Unverified)**
- Michael Caputo (Unverified)**
- Nusrat Fatema (Unverified)**
- Ruffins, Ranger**

- Stroud, David**
Organizer
- Subhashi Karunarathne (Unverified)**
- Tom McDonald (Unverified)**

FMPC Meeting 3: March 19, 2026



CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN

FLOODPLAIN MANAGEMENT PLANNING COMMITTEE (FMPC) – MEETING #3

March 19, 2026, 2:00pm

Microsoft Teams

ATTENDANCE

There were 16 attendees, listed below:

- Julie McLean, City Engineer & Director, City of Savannah Development Services
- Jennifer Roach, Deputy City Engineer, City of Savannah Development Services
- Dave Donnelly, City of Savannah Emergency Management Officer
- Jeff Brady, Insurance Agent, Brady Insurance
- Greg Harris, City Surveyor, City of Savannah Development Services
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Laura Walker, City of Savannah Water Resources, Environmental Administrator
- Saja Aures, City of Savannah Public Information Office
- Caitlin McCain, City of Savannah Floodplain Coordinator
- Mo Spiessl, GIS Analyst, City of Savannah Stormwater
- Rhonda Ruesch, American Red Cross
- Subhashi Karunaratne, Metropolitan Planning Commission
- Avni Naik, Sustainability Project Manager, City of Savannah Office of Sustainability
- Michael Caputo, Lending Agent, First Coast Mortgage
- David Stroud, WSP
- Abby Moore, WSP

AGENDA

- Floodplain Management Plan
 - Planning Process Update
 - Capability Assessment
 - Goals & Objectives
 - Mitigation Strategy
 - Survey Update
- Next Steps

David facilitated the meeting according to the agenda above.

PLANNING PROCESS OVERVIEW

There is a 10-step planning process for the Floodplain Management Plan. We are currently working on updating the mitigation strategy, which covers Steps 6, 7, and 8. This involves updating the mitigation goals, reviewing mitigation actions, and updating the action plan.

CAPABILITY ASSESSMENT

David reviewed the capability assessment process and key indicators used to understand resources that can support mitigation and identify gaps, conflicts, or opportunities within existing resources. The three main capability indicators are planning & regulatory, administrative & technical, and fiscal.

Planning & Regulatory Capability:

- Updated Comprehensive Plan was completed and went into effect since the adoption of the last FMP; an update is underway for 2045 and will be adopted by October 2026.
- No major changes to zoning since the overhaul in 2019
- New building code went into effect in January 2026
- Floodplain ordinance overhaul occurred in October 2024, went effective January 2025; added two-foot freeboard
- BCEGS rating improved to 3 (commercial)/4 (residential)
- Chatham County EOP updated in 2025; Dave Donnelly will follow up to send WSP the City's EOP
- Subhashi recommended looking at transportation and environmental-related projects in Core MPO, which includes Savannah.
- Julie or Tom will check with the Economic Development department to confirm if there are any additional economic development plans beyond Chapter 3 of the 2040 Comprehensive Plan that might be relevant to mitigation planning.

Administrative & Technical Capability:

- City planning should reference Planning & Urban Design; they are part of site plan review process and zoning enforcement
- Julie will confirm the current department responsible for grant writing

Fiscal Capability:

- SPLOST should be listed as a potential resource for funding mitigation
- Stormwater utility has been approved but not yet implemented; will be implemented in July 2026. FMPC confirmed that funding will support capital improvements but for the first several years the funding will only support O&M. Laura indicated stormwater should be added to list of fees.
- City doesn't provide gas or electric so those items should be removed from the list of fees. City provides water, sewer, and sanitation.
- City created a Tax Allocation District back in 2006, finally getting implemented now. It funded infrastructure improvements that directly correlated with resilience. Two specific projects included Bilbo Canal widening and raising of Presidents Street.
- May need to consult with the CFO to determine if special tax bonds and general obligation bonds are applicable for stormwater and resiliency projects

GOALS & OBJECTIVES

David reviewed the existing goals & objectives from the 2021 plan and the FMPC had an opportunity to discuss any necessary changes.

- Goal 1: No changes were recommended to this goal or associated objectives
- Goal 2: No changes to goal.
 - Discussed that acquisitions and creation of community gardens is ongoing process. Avni indicated there are about 11-12 community gardens, maybe half are on FEMA lots.
 - Julie asked about the wording of Objective 2.3 focusing on "insurable" buildings. That specifically related to FMA funding but the City wants to reduce damage to all buildings so this objective will be revised so it isn't limited.
- Goal 3: David asked whether Objective 3.1 is still needed given all the City already does regarding communication and outreach. Jenn suggested there is always room for improvement, including reaching new people and diversifying outreach methods. Wording will be updated to emphasize diversification of outreach.

- Discussed that Objective 3.2 and 3.3 are still relevant.
- David suggested incorporation of Low Impact Development techniques in objective 3.4
- Goal 4: Julie noted effort in City to improve stormwater modeling and create a Watershed Master Plan as part of achieving a CRS Class 4 which ties to this goal. She suggested a new objective related to creating models to help understand and plan for needed improvements.

MITIGATION STRATEGY

David described the mitigation strategy and what it aims to achieve. He clarified the difference between mitigation and maintenance.

The CRS requires at least one action for each goal. CRS credit can be maximized by identifying projects within at least five of the six FEMA Mitigation Categories.

David presented the mitigation actions from the 2021 plan and asked for feedback on which projects could be removed because they are maintenance rather than mitigation.

- Julie noted needed status updates for other projects on the list; Project 1 will need a complete update as the responsible office has changed and the City has a new Strategic plan that did not include modeling.
- Julie suggested the webpage is the City's best way to reach the public; David clarified that he thought maintaining and enhancing the website is an established activity.
- Abby clarified that all FEMA Mitigation Categories count as mitigation and anything that the City deems important can be included in the action plan, but if the action would be completed regardless of being included in this plan then those actions could be removed to reduce ongoing reporting burden.
- Laura supported efforts to trim down the list of projects but encouraged keeping projects flexible. Julie agreed based on the need to complete annual status reports.
- Julie and Jenn agreed action #23 should remain in the action plan.
- #25 has not been done and should be pursued. Additional internal discussion is needed to determine if this should stay in the plan. Significant drainage improvements have been implemented but the City hasn't followed up with LOMRs.
- Julie asked when the City needs to finalize mitigation action updates including new projects. David explained we will provide the action plan for City review and need status updates and new actions by the third week of April.

PUBLIC SURVEY UPDATES

- 109 responses received
- 85% have been impacted by flooding; mostly drainage issues
- 62% are very concerned about flooding
- 51% don't know if their home is in a flood zone
- 48% don't have flood insurance and 8% are unsure if they have flood insurance
- 66% have not taken any actions to protect their homes from flooding
- Those that have taken actions noted sandbags, elevating their home or equipment, installing sump pumps, and clearing drainage near their home.
- Response count was in the 60s after the Wag-O-Ween event, so the subsequent social media posts have been effective at generating additional responses. Saja will do one more outreach post and share a survey deadline of April 3rd.

PROJECT SCHEDULE

The FMPC will have a final meeting in April. The draft plan will be completed by late April or early May.

**NEXT STEPS****WSP Team Action Items:**

- Share the draft risk assessment
- Send existing mitigation actions for feedback
- Schedule final FMPC meeting & public meeting

FMPC Action Items:

- Share public survey link and QR code
- Review the draft risk assessment and send comments to WSP; WSP to follow up with deadline
- Provide status updates on mitigation actions and any new mitigation action ideas by third week of April.





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	Moore, Abigail	
	Avni Naik	
	Caitlin McCain	
	David Donnelly	
	Gregory Harris	
	Jeff Brady	
	Jennifer Roach	
	Julie McLean	
	Laura Walker	
	Michael Caputo	
	Mo Spiessl	
	read.ai meeting notes	

	Ruesch, Rhonda	
	Saja Aures	
	Stroud, David Organizer	
	Subhashi Karunaratne	
	Tom McDonald	

FMPC Meeting 4: August 4, 2026

CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN
FLOODPLAIN MANAGEMENT PLANNING COMMITTEE (FMPC) – MEETING #4

August 4, 2026, 2:00pm

Microsoft Teams

ATTENDANCE

There were 11 attendees, listed below:

- Julie McLean, City Engineer & Director, City of Savannah Development Services
- Jennifer Roach, Deputy City Engineer, City of Savannah Development Services
- Dave Donnelly, City of Savannah Emergency Management Officer
- Jeff Brady, Insurance Agent, Brady Insurance
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Caitlin McCain, City of Savannah Floodplain Coordinator
- Mo Spiessl, GIS Analyst, City of Savannah Stormwater
- Avni Naik, Sustainability Project Manager, City of Savannah Office of Sustainability
- Nusrat Fatema, GIS Analyst, City of Savannah Development Services
- David Stroud, WSP
- Ranger Ruffins, WSP

AGENDA

- Floodplain Management Plan
 - Planning Process Update
 - Review Draft Plan
 - Organization of the Plan
 - Key Plan Elements
 - Review Survey Findings
 - Finalize Mitigation Strategy
- Program for Public Information
 - Review Draft PPI
 - Finalize Topics & Outreach Projects
- Next Steps

David and Ranger facilitated the meeting according to the agenda above.

FLOODPLAIN MANAGEMENT PLAN
PLANNING PROCESS OVERVIEW

There is a 10-step planning process for the Floodplain Management Plan. WSP and the FMPC are currently finalizing steps 7 and 8. Once the FMPC has reviewed the draft plan, City Council will adopt the plan to complete Step 9 and the FMPC will continue to meet quarterly to complete Step 10 over the next five years.

ORGANIZATION OF THE PLAN

- Section 1 provides background information on the context and justification for the plan.

- Section 2 provides an overview of the current conditions in the city. It includes demographic information, economic statistics, growth and development trends, and other statistics on current conditions.
- Section 3 provides an update since the last plan and describes changes in the plan content and local mitigation priorities, describes how the plan was updated, and reviews the status of existing mitigation actions.
- Section 4 outlines the planning process, reviewing the 10-step planning process and providing some documentation of the process. It includes a summary of the FMPC participants, FMPC meetings, public meetings, and public and stakeholder outreach and involvement efforts. This section also includes a summary of the public survey. Thanks to city staff outreach efforts, the survey received 157 responses, which provided valuable information on flood risks, vulnerabilities, and mitigation ideas.
- Section 5 provides the risk and vulnerability assessment. This section comprises the bulk of the plan and was reviewed at the second FMPC meeting. Ranger showed a table summarizing the Priority Risk Index results which rank the hazards in order of priority based on a standardized scoring system.
- Section 6 provides the capability assessment. This section reviews existing tools, resources, and staff that can support mitigation project implementation.
- Section 7 is the mitigation strategy, which includes an overview of the process to develop the mitigation strategy, the mitigation goals, and a review of actions and how they were selected and prioritized. This section also presents the resulting mitigation action plan table as well as detailed information on each action.
- Section 8 will document plan adoption. The City Council must formally adopt the plan by resolution; a copy of the resolution will be included in this section for documentation.
- Section 9 explains the plan implementation and maintenance procedures that the city and the FMPC must follow to keep the plan current. The FMPC should meet quarterly to maximize CRS credit and to more regularly work together to identify potential funding for implementation or consider any needed changes to the mitigation actions or the plan.
- Appendix A provides planning process documentation including all FMPC and public meeting records, public outreach records, and stakeholder outreach documentation.
- Appendix B provides a review of mitigation alternatives, noting potential actions and which may or may not be recommended for the city.

KEY PLAN ELEMENTS

- There have been four FMPC meetings. One public meeting was held in September, at the beginning of the planning process. A final public meeting will be scheduled for later this month.
- The city has publicized the FMP and engaged the public to integrate their feedback into the plan. Outreach has included a public survey, a mitigation flyer, publicity at a public event, social media posts and more.
- PRI results were presented noting that high priority hazards include riverine and coastal flooding, stormwater/localized flooding, and hurricane and tropical storm. Climate change and sea level rise are moderate hazards, and coastal/canal bank erosion and dam/levee failure are low priority hazards.
- The FMP goals and objectives are shown on slides 19 and 20 of the presentation.
- There were 157 respondents to the FMP survey. Almost 50% of those responses came in during the city's Wag-O-Ween event and for several consecutive days after the event.

- The city has provided updates on all previous mitigation actions. Twenty-one actions have been carried forward, eleven have been completed, and two have been deleted.
- Ranger will send a list of the updated mitigation strategy so city staff and other FMPC members can confirm no other actions need to be included. David and Ranger encouraged the FMPC to add any projects that could be considered for external grant funding over the next five years. Ranger confirmed that a watershed master plan has been included in the mitigation actions list.
- The city aims to have all three documents (FMP, PPI, and RLAA) adopted by September. WSP will coordinate with the city about repetitive loss data. If new data is not available soon, then WSP should proceed to ensure the city meets the September adoption deadline. David noted that there is only a nine property difference between the existing repetitive loss data and the open-source data (not as detailed as FEMA provided data).

PROGRAM FOR PUBLIC INFORMATION

TARGET AREAS AND AUDIENCES

- Target Areas are areas or groups of people who will be sent targeted outreach through direct mailings and other dissemination methods.
- The FMP/PPI Committee confirmed the three following target areas: Special Flood Hazard Areas, Repetitive Loss Areas, and Realtors, Lenders, and Insurance Agents
- Target audiences aim to direct outreach toward people who need different types of flood-related information.
- The FMP/PPI Committee confirmed the following target audiences: Landscapers and Contractors, Spanish Speaking Populations, Elderly Population

TOPICS AND MESSAGES

- Communities are required to include six priority topics in their outreach materials. These can be reviewed on slide six of the presentation.
- The FMP/PPI Committee confirmed the following four additional topics: General Preparedness, Flood Education, Reduce Stormwater Runoff, Hurricane Preparedness

PROJECT LOCATIONS

- The city currently has seven location, but David noted that they only need five locations to maximize credit.
- The FMP/PPI Committee decided to remove two buildings: The Old Court House and Building Safety and Regulatory Services.
- The decided to add the Golden Age Center
- City staff will follow up with WSP to confirm edits to the remaining locations.

OUTREACH PROJECTS

- The FMP/PPI Committee reviewed the outreach projects shown on slides 28 and 29 of the presentation. The following comments and edits were made.
 - OP #4 will be removed as it's not necessary to receive maximum credit
 - The FMPC confirmed that the video noted in OP #10 is still available and has been recently posted on social media.
 - The FMPC that OP #11 is still implemented.

- OP #14 will be removed as the Golden Age Center will be one of the five locations that hosts the flood brochure and other flood information.

NEXT STEPS

WSP Team Action Items:

- Share the draft FMP
- Send existing mitigation actions for review
- Work with city staff to schedule final FMP public meeting
- Share the draft PPI once locations and addresses are confirmed
- Coordinate with city staff on repetitive loss data and determine what will be used in the plan update

FMPC Action Items:

- Review the draft FMP and send comments to WSP; WSP to follow up with deadline
- Send any additional mitigation actions to WSP
- Provide WSP with five locations and addresses for the PPI
- Review the PPI draft once



Participants

...

×

Share invite

Ruffins, Ranger
Organizer



AN

Avni Naik 



CM

Caitlin McCain 



DD

David Donnelly 



JB

Jeff Brady 



JR

Jennifer Roach 



JM

Julie McLean 



MA

Meeting Notetaker by Re... 



MS

Mo Spiessl 





Stroud, David



TM

Tom McDonald 



A.2 Planning Step 2: Involve The Public

Table A.2 – Public Meetings

Meeting Type	Meeting Topic	Meeting Date	Meeting Locations
Public Meeting #1	1) Overview of CRS program and FMP intentions 2) Introduction to DMA, CRS and the planning process	October 29, 2025 5:30pm	Microsoft Teams
Public Meeting #2	1) Review of the draft plan 2) Solicit public comment and feedback	TBD	Microsoft Teams

Public Meeting Outreach and Attendance Records

Public Meeting 1: October 29, 2025



CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN UPDATE

Public Meeting #1
October 29, 2025, 5:30pm
Microsoft Teams

ATTENDANCE

There were eight attendees, including members of the public, city staff, and planning consultants:

- Ethan Watters, President of Lamara Heights Neighborhood Association
- Sarah Mahan, community planner in Florida
- Lindsey Strenger
- Iman, Savannah native
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Julie McLean, City Engineer & Director, City of Savannah Development Services
- David Stroud, WSP
- Abby Moore, WSP

David Stroud and Abby Moore presented slides following the agenda below:

AGENDA

- Welcome & Introductions
- Community Rating System (CRS) Overview
- Project Overview
- Why Plan?
- CRS Activity 510 Floodplain Management Planning
 - FMP Requirements & Planning Process
 - Stakeholder Coordination & Public Outreach
 - Hazard Identification & Risk Assessment Data Needs
- Next Steps

DISCUSSION

Community Rating System Program Overview: David provided an overview of the Community Rating System (CRS) program, its goals, and the benefits it brings to Savannah residents and businesses, including a 25% reduction in flood insurance premiums.

- **CRS Program Structure and Benefits:** David Stroud explained that the CRS is a voluntary, point-based program that rewards communities for implementing floodplain management activities, with Savannah currently at Class 5, resulting in a 25% reduction in flood insurance premiums for policyholders citywide.
- **CRS Goals and Compliance:** The three main goals of the CRS program were outlined: reducing flood damage to insurable buildings, supporting the National Flood Insurance Program, and encouraging a comprehensive approach to floodplain management, with Savannah ensuring compliance with the latest CRS Coordinator's Manual.
- **Insurance Data and Community Impact:** David shared that Savannah has over 4,000 flood insurance policies in force, covering \$1.2 billion in property, and has experienced \$33.2 million in claims since 1978, with 250 substantial damage claims, highlighting the program's significance for the community.
- **Public Involvement and CRS Credit:** David emphasized that public involvement is a significant component of CRS credit for the Floodplain Management Plan, accounting for up to 31% of total

City of Savannah, GA FMP
Public Meeting #1

October 2025
Page 1

points, and that activities such as public meetings and outreach events are essential for maximizing the city's CRS score and further reducing insurance premiums.

Floodplain Management Plan Update Process: Abby detailed the ten-step planning process for updating Savannah's floodplain management plan, including committee formation, public involvement, stakeholder coordination, hazard and vulnerability assessments, mitigation strategy development, and plan adoption.

- **Planning Committee and Stakeholder Engagement:** Abby described the formation of the Floodplain Management Planning Committee (FMPC), which includes representatives from various city departments, public stakeholders, and supporting staff, and outlined ongoing efforts to engage a broad range of stakeholders, including local, state, and federal agencies, nonprofits, businesses, and neighborhood associations.
- **Public Involvement Strategies:** Multiple avenues for public involvement were presented, such as public meetings, a survey, informational flyers, social media, and opportunities to review and comment on draft documents, with a focus on gathering localized flood risk data and community priorities for mitigation.
 - Abby highlighted the importance of the public survey and local knowledge in identifying drainage hotspots and areas of concern not captured in national or state databases, emphasizing the reliance on community input for accurate risk assessment.
- **Hazard and Vulnerability Assessment:** The plan update includes a comprehensive assessment of hazards (e.g., climate change, sea level rise, flooding, stormwater, hurricanes), risk ratings, and a detailed inventory of assets at risk, using both qualitative and quantitative methods, and integrating public and city-provided data, especially regarding drainage hotspots.
 - Ethan Waters, representing the Lamara Heights Neighborhood Association, explained that he has compiled detailed documentation of flooding in his neighborhood. Abby confirmed that this would be valuable to include in the plan update. Tom will coordinate with Ethan to collect this data.
- **Mitigation Strategy and Action Plan:** The mitigation strategy process involves setting updated goals, reviewing possible mitigation activities across FEMA's six categories, and drafting an action plan that specifies responsible parties, funding sources, and implementation timelines, with ongoing plan maintenance and updates every five years as required by the CRS program.

Community Data Collection and Public Input: Ethan raised concerns about business impacts in areas like Habersham Village, and asked how input from businesses will be collected. Tom McDonald confirmed that a Capital Improvement Project (CIP) is planned for the Habersham Village area, with ongoing efforts to secure funding and property rights, and that business input will be gathered through the Public Information Office. Ethan also asked about outreach to other neighborhood leaders. Tom confirmed that the City's Neighborhood Services department has a list and we could coordinate with them to include neighborhood leaders in stakeholder outreach.

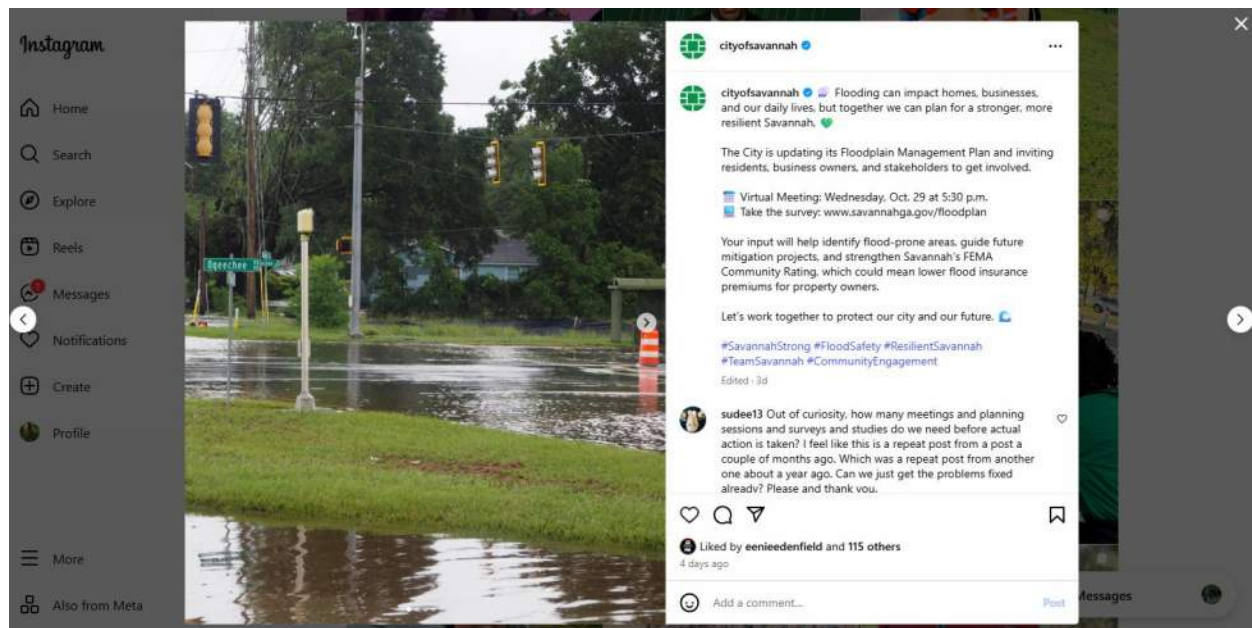
Project Schedule: Abby outlined the project schedule. The project began with a committee kickoff meeting in September. Tonight is the public kickoff meeting. Future committee meetings will be held in November to review the risk assessment and early 2026 to discuss mitigation strategy updates. A final committee meeting and a final public meeting will be held in April 2026.

Next Steps: Abby encouraged participants to access project information, surveys, and draft documents via the city's flood mitigation planning webpage, and to attend future meetings and outreach events.

FOLLOW-UP TASKS

- Ethan will send his data on flooding issues in Lamara Heights to Tom McDonald.
- Tom will work with the Public Information Office to gather information and input from businesses, such as those in Habersham Village, regarding flood issues.
- WSP will coordinate with Tom and Neighborhood Services to add neighborhood leaders to the stakeholder list for targeted outreach.

- 10/29/2025 5:10 PM Meeting started
- Lindsey Stenger and Tom McDonald were invited to the meeting.
- Julie McLean was invited to the meeting.
- Watters, Ethan (GD) was invited to the meeting.
- Mahan, Sarah was invited to the meeting.
- iman was invited to the meeting.





City of Savannah Government ✓

October 22 at 10:01AM · 🌐

🌧️ Flooding can impact homes, businesses, and our daily lives, but together we can plan for a stronger, more resilient Savannah. ❤️

The City is updating its Floodplain Management Plan and inviting residents, business owners, and stakeholders to get involved.

📅 Virtual Meeting: Wednesday, Oct. 29 at 5:30 p.m.

📄 Take the survey: www.savannahga.gov/floodplan

Your input will help identify flood-prone areas, guide future mitigation projects, and strengthen Savannah's FEMA Community Rating, which could mean lower flood insurance premiums for property owners.

Let's work together to protect our city and our future. 🌊

#SavannahStrong #FloodSafety #ResilientSavannah #TeamSavannah #CommunityEngagement





City of Savannah Invites Residents to Provide Input on Floodplain Management Plan

From Joshua Peacock <Joshua.Peacock@Savannahga.Gov>

Date Tue 10/28/2025 11:30 AM

Cc OPC <OPC@Savannahga.Gov>

**FOR IMMEDIATE RELEASE**

Oct. 28, 2025

CONTACT:

Office of Marketing and Communications

opc@savannahga.gov

City of Savannah Invites Residents to Provide Input on Floodplain Management Plan

SAVANNAH – The City of Savannah’s Development Services Department is seeking input from the public to help develop an update to the Floodplain Management Plan, a standalone document that helps reduce or eliminate risk to people and property from flood hazards.

Residents and business owners are invited to help shape a safer, more resilient community by participating through a virtual meeting or by providing input through an online survey. Data provided will help guide staff in the development of the plan and is key to identifying flood-prone areas, assessing risks, and developing strategies to reduce future flood losses.

The Floodplain Management Plan’s update will focus on areas with historical and repetitive flooding, critical infrastructure and vulnerable properties, long-term strategies to reduce future flood impacts, what key flood mitigation projects should be prioritized, and what grant funding should be sought.

Updating the plan with community input helps the City of Savannah maintain and improve its rating in the Federal Emergency Management Agency’s (FEMA) Community Rating System (CRS). A higher CRS rating lowers flood insurance premiums for property owners insured through the National Flood Insurance Program (NFIP).

The plan is part of an annual Flood Hazard Mitigation Plan which helps reduce flood insurance premiums by 25 percent for Savannah homeowners and aids the City's Water Resources Department in ongoing floodplain and storm water management efforts.

What: Floodplain Management Plan Meeting

When: Wednesday, Oct. 29, 5:30 p.m.

Where: [Virtual Link \(Teams\)](#)

Survey: savannahga.gov/floodsurvey

###

More Information

[City of Savannah Floodplain Mitigation Plan \[Approved/Adopted Sept. 9, 2021\]](#)

[Floodplain Mitigation Plan/Repetitive Loss Area Analysis Plan \[2024 Annual Progress Report\]](#)

Media Availability

For media inquiries, please contact the Press Secretary. Development Services Administrator Tom McDonald is available for interviews.

Joshua Peacock

Press Secretary

Office of Public Communications

joshua.peacock@savannahga.gov

O: 912.525.3271

C: 912.659.1837



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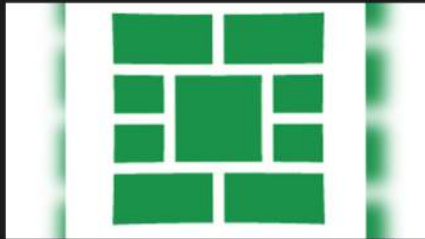
Video Center

Shows

SAVANNAH NEWS

Savannah residents asked to provide input on floodplain management plan

by: Eric Dorsch
 Posted: Oct 28, 2025 / 11:48 AM EDT
 Updated: Oct 28, 2025 / 11:48 AM EDT



(City of Savannah)

 SHARE
 




SAVANNAH, Ga. (WSAV) – The City of Savannah is seeking input from the public to help develop an update to the Floodplain Management Plan.

The plan, created by the Development Services Department, is a standalone document that helps reduce or eliminate risk to people and property from flood hazards.

The city is inviting residents and business owners to help by participating in a virtual meeting or by providing input through an online survey. The information collected will help guide staff to identify flood-prone areas, assess risks and develop strategies to reduce future flood losses.

The plan is part of an annual Flood Hazard Mitigation Plan, which helps reduce flood insurance premiums by 25 percent for Savannah homeowners. It also aids the City's Water Resources Department in floodplain and stormwater management efforts.

Ad closed by Google

The meeting will take place on Wednesday, Oct. 29, at 5:30 p.m. Those who wish to attend may do so by clicking on [this link](#). You can also participate by filling out [this survey](#).

Public Meeting 2: August 18, 2026**CITY OF SAVANNAH, GA FLOODPLAIN MANAGEMENT PLAN****Public Meeting #2**

August 18, 2026, 5:30pm
Microsoft Teams

ATTENDANCE

There were 24 attendees, including members of the public, city staff, and planning consultants:

- Alison Goldey
- Anita Smith-Dixon
- Brian Brainerd
- Cary Hammersmith
- Denton Hill
- Faye Dudley
- Ivan Davelaar
- Juan Uzcategui
- Luke Gardiner
- Mark Bossinger
- Martin Fretty
- Megan Cook
- Melody Fredrick
- Kait Morano
- Representative from P&S Affordable Housing
- Patricia Sinel
- Ryan McBride
- Steve Clarke
- Angela Bliss, Floodplain Administrator & CRS Program Manager, Chatham County Engineering
- Jennifer Roach, Deputy City Engineer, City of Savannah Development Services
- Tom McDonald, Permitting & Floodplain Manager, City of Savannah Development Services
- Caitlin McCain, City of Savannah Floodplain Coordinator
- David Stroud, WSP
- Ranger Ruffins, WSP

AGENDA

- Floodplain Management Plan
 - Planning Process Update
 - Review Draft Plan
 - Organization of the Plan
 - Key Plan Elements
 - Review Survey Findings
 - Finalize Mitigation Strategy
- Next Steps

David and Ranger facilitated the meeting according to the agenda above.

FLOODPLAIN MANAGEMENT PLAN

PLANNING PROCESS OVERVIEW

There is a 10-step planning process for the Floodplain Management Plan. WSP and the FMPC are currently finalizing steps 7 and 8. Once the FMPC and the public have reviewed the draft plan, City Council will adopt the plan to complete Step 9 and the FMPC will continue to meet quarterly to complete Step 10 over the next five years.

ORGANIZATION OF THE PLAN

- Section 1 provides background information on the context and justification for the plan.
- Section 2 provides an overview of the current conditions in the city. It includes demographic information, economic statistics, growth and development trends, and other statistics on current conditions.
- Section 3 provides an update since the last plan and describes changes in the plan content and local mitigation priorities, describes how the plan was updated, and reviews the status of existing mitigation actions.
- Section 4 outlines the planning process, reviewing the 10-step planning process and providing some documentation of the process. It includes a summary of the FMPC participants, FMPC meetings, public meetings, and public and stakeholder outreach and involvement efforts. This section also includes a summary of the public survey. Thanks to city staff outreach efforts, the survey received 157 responses, which provided valuable information on flood risks, vulnerabilities, and mitigation ideas.
- Section 5 provides the risk and vulnerability assessment. This section comprises the bulk of the plan and was reviewed at the second FMPC meeting. Ranger showed a table summarizing the Priority Risk Index results which rank the hazards in order of priority based on a standardized scoring system.
- Section 6 provides the capability assessment. This section reviews existing tools, resources, and staff that can support mitigation project implementation.
- Section 7 is the mitigation strategy, which includes an overview of the process to develop the mitigation strategy, the mitigation goals, and a review of actions and how they were selected and prioritized. This section also presents the resulting mitigation action plan table as well as detailed information on each action.
- Section 8 will document plan adoption. The City Council must formally adopt the plan by resolution; a copy of the resolution will be included in this section for documentation.
- Section 9 explains the plan implementation and maintenance procedures that the city and the FMPC must follow to keep the plan current. The FMPC should meet quarterly to maximize CRS credit and to more regularly work together to identify potential funding for implementation or consider any needed changes to the mitigation actions or the plan.
- Appendix A provides planning process documentation including all FMPC and public meeting records, public outreach records, and stakeholder outreach documentation.
- Appendix B provides a review of mitigation alternatives, noting potential actions and which may or may not be recommended for the city.

KEY PLAN ELEMENTS

- There have been four FMPC meetings. One public meeting was held in September, at the beginning of the planning process. A final public meeting will be scheduled for later this month.

- The city has publicized the FMP and engaged the public to integrate their feedback into the plan. Outreach has included a public survey, a mitigation flyer, publicity at a public event, social media posts and more.
- PRI results were presented noting that high priority hazards include riverine and coastal flooding, stormwater/localized flooding, and hurricane and tropical storm. Climate change and sea level rise are moderate hazards, and coastal/canal bank erosion and dam/levee failure are low priority hazards.
- The FMP goals and objectives are shown on slides 19 and 20 of the presentation.
- There were 157 respondents to the FMP survey. Almost 50% of those responses came in during the city's Wag-O-Ween event and for several consecutive days after the event.
- The city has provided updates on all previous mitigation actions. Twenty actions have been carried forward, eleven have been completed, and three have been deleted.

NEXT STEPS

- The draft plan will be posted on the City's website for review. Please send any comments or questions to David Stroud at david.stroud@wsp.com.
- Once finalized, the plan will be adopted by City Council.
- The FMPC will meet quarterly to review the plan.

Participants ... X

Invite someone or dial a number 🔍

Share invite

✓ In this meeting (26) Mute all

	Ruffins, Ranger Organizer	
AG	Alison Goldey	...
AB	Angela Bliss	
AS	Anita Smith-Dixon	...
BB	Brian Brainerd	
CM	Caitlin McCain	
CH	Cary Hammersmith	
DH	Denton Hill	
FD	Faye Dudley	
ID	Ivan Davelaar	
JR	Jennifer Roach	

< In this meeting (26) Mute all X

JU	Juan Uzcategui	
LG	Luke Gardiner	
MB	Mark Bossinger	
MF	Martin Fretty	
MC	Megan Cook	
MF	Melody Frederick	
KM	Morano, Kait	
PL	P&S Affordable Housing ...	
PL	P&S Affordable Housing ...	
PS	Patricia Sinel	
RM	Ryan McBride	
SC	Steven Clarke	
	Stroud, David	
RM	Ryan McBride	...
SC	Steven Clarke	Leaving...
	Stroud, David	Leaving...
TM	Tom McDonald	



FLOOD HAZARD MITIGATION PLAN | UPDATE



City to host virtual public meeting on Floodplain Management Plan August 18

The City of Savannah has updated its Floodplain Management Plan and is seeking input on the draft plan. This plan evaluates the City's flood hazards and vulnerability, assesses local capabilities to implement flood mitigation projects, and identifies a wide range of mitigation actions that the City can pursue to reduce flood risk and protect the people and property of Savannah. The plan also supports the City's Community Rating System participation, which provides flood insurance policyholders in Savannah with a discount on their insurance premiums.

A final public meeting for this planning process is scheduled for Tuesday, August 18 at 5:30 p.m. via Microsoft Teams. Click the link [HERE](#) to join the meeting. The draft plan will be presented for review and comment. The public is encouraged to provide input on mitigation strategies that the City can implement to protect people and property from flood impacts.

Comments and feedback on the draft plan can be sent to the City's planning consultant, David Stroud with WSP, at david.stroud@wsp.com.



A.2.1 Other Public Outreach Efforts

City Website: Survey outreach and HIRA draft:



Wag-O-Ween Flyer:



Flooding Can Happen Fast!

Fetch some knowledge and treats at our booth!

Learn:

- If you live in a flood-prone area 🏠
- How to prepare your family and furry friends! 🐾
- What to do before, during, and after a flood 🌧️
- Where to find local alerts and resources 📱
- Don't Be Tricked, Buy Flood Insurance

Sit. Stay. Be Flood Aware!

Stop by our booth for:

- 🐾 Dog treats
- 📄 Free swag
- 📄 Flood zone info
- 📄 Flood safety checklists

Chance to Win Prizes!

The City of Savannah is updating its Floodplain Management Plan, and we want to hear from you!

Stop by our booth to complete a quick flood survey and receive a raffle ticket for a chance to win exciting prizes.

Your input helps make Savannah safer and more resilient!

Use the QR code or path to the link:



Savannahga.gov/floodsurvey

Paws-itively free and fun for all!

News coverage of Mayor's press conference:



Survey Reminders on Social Media:





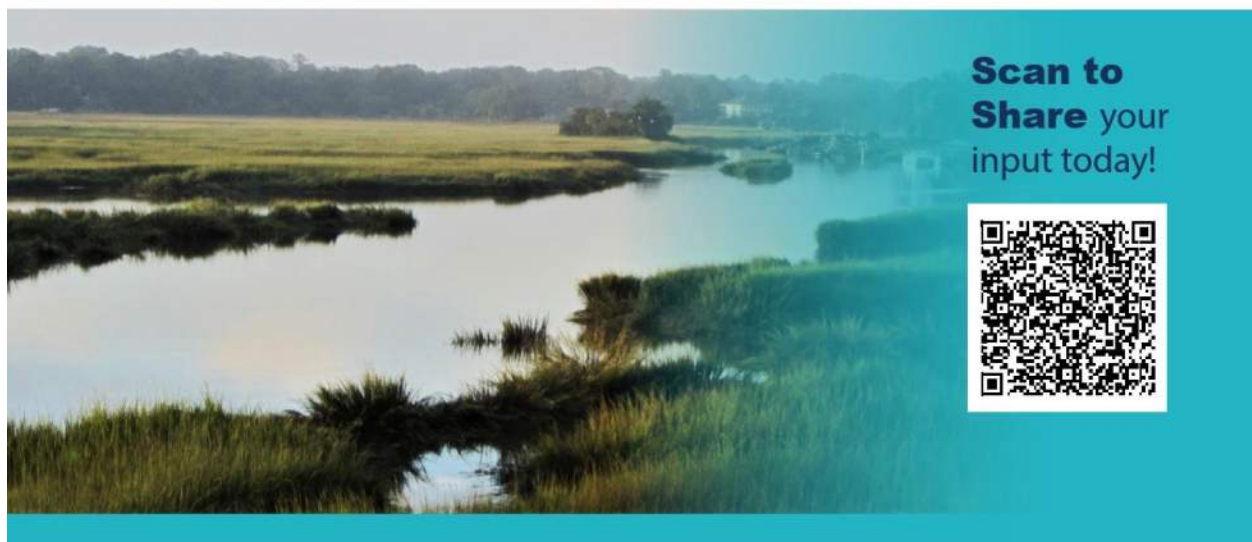
Mitigation Plan Flyer:



The goal of the FMP is to identify and assess our community's flood hazard risks and determine how to best minimize or manage those risks. The plan ensures an approach to flood mitigation that integrates with other community goals, objectives, and plans.

Public involvement throughout the planning process is key to developing a plan that reflects the community's values and priorities, results in a greater success rate of mitigation action implementation, and ultimately creates a safer, more resilient community.

The public is invited to participate in this planning effort by completing a survey. Public input will help the planning committee to identify flood risks, understand local vulnerabilities, and select appropriate and achievable mitigation strategies to protect the City and its residents from flood impacts.



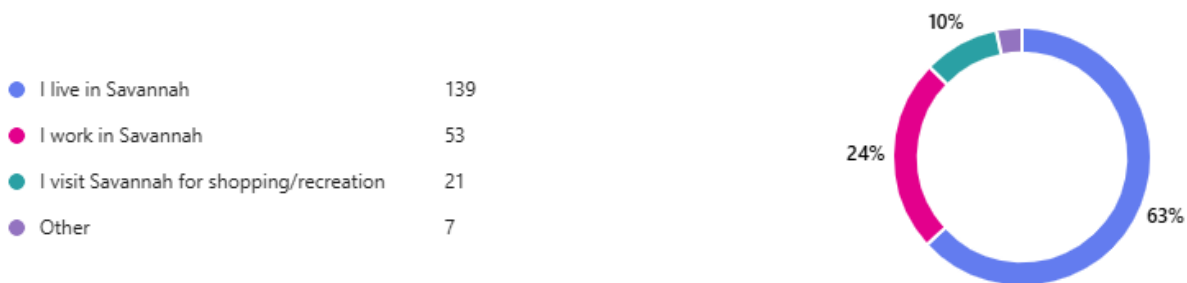
Draft Plan on City website:

Place holder until draft plan is posted.

A.2.2 Public Survey Results

The City received 157 responses to the public survey. These responses are summarized below.

1. What is your affiliation with the City of Savannah?



2. Have you ever experienced or been impacted by high water or flooding in Savannah?



3. If you answered "Yes" to question 2, please explain your experience with flooding and provide the location of the incident:

129 Responses

Atlantic & E Anderson, Victory Drive at Daffin Park.

I live on Habersham, if it even rains just a little bit, the intersection of Habersham and DaRenne floods and I can't get to work. I shouldn't need to have to have a truck just to leave my home.

I have been trapped in my office building until 9pm twice, due to flooding. The road (Commercial Dr, off of Eisenhower) floods so badly that you cannot get in or out, once it starts to rain. My route home to midtown (37th and Habersham) is also regularly impacted by flooding. I have to take a very circuitous route home whenever it rains, as multiple intersections are completely impassable. With the one-way streets and everything in Savannah, it is easy to wind up getting stuck driving through high water, as you have no other option or way out.

I have experienced flooding on and around my residence (E 33rd Street, Henry, Anderson, Victory near Daffin Park etc.). I have also experienced flooding at my office off of Eisenhower and Commercial Drive. Both experiences have limited me from leaving either my residence or place of work or traveling through extremely deep and dangerous flooding.

At the corner of Jefferson st. and W 31st. Flooding reached levels that people could kayak with a majority of the flooding down Jefferson. Flooding stopped about 20'-30' down W 31st. on both sides of Jefferson. It appears to be a low-lying area down Jefferson, with the deepest at the intersections to cross streets like W 31st.

329 Commercial Drive - work location; flooding that causes you to need to leave work early to prevent being stranded for hours until the water goes down.

If I have events that I want/need to go to downtown and it starts raining, then I won't drive down there.

I've been stranded - unable to return to my home. Water floods under my house when it rains endangering the old piers & home stability.

Since buying the house at 15 Gerald Dr, I have experienced six floods, three of them significant in terms of mitigation to respond.

Abercorn, Anderson, Victory

My house sits at street level near a storm drain that is frequently clogged. During heavy rains I watch out my window as vehicles plow through the deep water sending waves toward my front door.

I also got caught in a sudden downpour traveling north in Abercorn just past Derenne a couple of years ago. Turning off the road was no option as the side streets were flooded too. I sustained damage to my car which I had to get repaired.

I live live on Columbus Drive and it floods. Leaving me stranded in a parking lot some where waiting for it to go down.

Sheridan Circle in Paradise Park

It floods regularly on our street, and there are only two storm drains (that are across from each other) for the entire street. Water comes up to the doorsteps in the neighborhood and on the street.

Mid 600 block E 52nd Street. Street flooding occurs 2-3 times per year.

I live on E. 64th St. between Abercorn and Bull St. We are a cul de sac (dead end)--traffic must enter and exit via Abercorn. When Abercorn floods so it is impassible to traffic in the area between 62nd and the JEA, as it often does, no one can get in or out of my block because we cannot exit via Bull St., as our neighbors on the numbered streets to the north and south can. If there were an emergency during a flood, rescue vehicles would be impeded from accessing our block. The flood problem in our corner of the world is dangerous. Please please help.

Apartment complex I lived at flooded during hurricane Matthew

Street flooding

Pooler area benton blvd, and downtown sav floods often

Roadways

Hurricane Matthew pushed water up to our house

When I worked on bull street it was so scary driving home abercorn and Henry both flood so u end up weaving through neighborhoods and then still having to wait for the water to go down

I was living at Park + Broad Apartments for 4 years and dealt with severe flooding on E Broad Street.

Streets. Midtown on the regular. Have to reroute anytime it rains. Off of whitefield.

Water drainage in my neighborhood in Victorian district - not always sufficient for amount of rainfall. Stuck at home because of street flooding in other areas like Victory Ave, etc. Impacts daily activities and errands.

Roads between downtown and Ardsley flood quickly and to a high degree that can stall cars and food yards.

White Bluff

Bull Street near the garage

Flooding in our ditch next to where I live in the apartment complex

The roads have been shut down. I also haven't gone to school due to flooding.

Midtown near Washington Ave

Cannot get through or have to detour

Tybee island road closures due to the flooding! We live on Wilmington Island, so it's close by.

Bull street in front of stump/bull st taco, inches of rain when crossing the street so couldn't get there.

Driving home from Moses Jackson community center during a storm, couldn't easily get back to

downtown area due to multiple streets flooded (sorry don't know the actual street names but was trying to get to the highway)

At my house, the yard floods and if the city drains are not kept up the street will flood.

Unable to drive on some roads during heavy rains

I have lived in a couple places in Savannah that have experienced flooding. My property on the 500 block of E. Park experiences flooding from the gravel driveway next door into my yard. A rental property on the 800 block of E. Park (next to Paulsen) floods to an extreme amount on the street, so much so that it is impassable.

Difficulty driving through the city even with just a typical thunderstorm. It has increased over the last 25 years.

It's been difficult getting home due to flooding in midtown Savannah.

52street near Habersham became un passable during the heavy rain at the end of August. Frequently roads are closed going north to the river. We just stay in until the rain ends

Most of the issues I experience tend to center around the poor drainage along Victory Drive through Savannah and Thunderbolt. This creates hazardous driving conditions heading out to the islands.

Bradley Pointe Area- The Great Flood of 2024

Victory Drive- Flooding during sustained/torrential rains

Bradley Point South - due to record high ogeechee river level from hurricane Debby, main roadway flooded over safe travel limit and shut down for over 3-4 days. Certain parts of neighborhood also inaccessible with water well over driveways. Water retaining ponds were also overflowing.

I almost always encounter flooding on the roads when there is a heavy storm while driving. Areas of particular note are on 37th near bull and areas of Skidaway near Waters

Habersham St not passable, Abercorn St not passable

southside, and downtown historic districts, all during heavy rains, east savannah during hurricane matthew , lost vehicle and personal property

3601 Abercorn Street SW corner of 52nd St @ Abercorn

Mostly just avoiding the known streets that flood during heavy rains, like the Anderson St. underpass.

General street flooding in area bounded by bull/waters and 52/derenne

Bull street, 52nd and Montgomery, 37th and Paulsen, MLK and Victory. The experience? Car got stuck, or had to find another route, or speeding home before it starts flooding in savannah. Are these serious questions? I don't know, I don't own a home in the city I am from, unfortunately.

I live at park and Abercorn. Flooding has got perpetually worse. Flooded out cars any time it rains hard.

I have experience the flooding on Victory Drive and MLK also on Abercorn Street and Columbus Ave.

Also Gwinnett Street and Henry St. under path of the railroad crossing.

Not long after I purchased my home in Savannah the rains were so strong that we had flooding up over the curb and halfway up my property to my home.

Nothing major, just stuck due to road closures (Drayton and Abercorn)

My fully paid off vehicle was totaled in a flash flooding incident in Parkside (48th and Cedar) while visiting our friends. Now I have an additional monthly expense because the used car market and interest rates are crazy.

Driving home from a meeting it started to rain, thunder and lightning. The rain was coming down heavily. Couldn't get past E 50th or E 51st on Habersham.

Derenne near Abercorn

I was caught in a flood in the city of Savannah. Any of the, as stated on your web site, "Areas with historical and repetitive flooding". I am very concerned, especially with all the new and HUGE builds being placed on Riverstreet/President. To answer your #4 question.

Various areas on Victory, Paulsen, Bull, Abercorn, Henry..

Driving through flooded streets, i have frequently had to detour to avoid deep water.

Impact: excessive yard saturation led to over a foot of water collecting in my crawlspace. I had to install an expensive sump pump system to alleviate the issue. Frequency: multiple times per year, worst during tropical systems or back-to-back storms.

Trying to get class during flooding and rainstorms

Traffic stopped with street flooding on Abercorn north of DeRenne . Also on White Bluff Road at the Windsor Forrest area

My home is at the intersection of E Broad Street and E Charlton Lane. Storm water depth at my house has been as much as 2 feet on E Broad AND E Charlton Lane.

our first Savannah house, 5541 Varn Dr, had persistent high water post rain in the backyard which borders on a ditch. In Debby and Helene the water from Varn Dr came down the driveway and, despite chemical gel sandbags, got under the doors.

We've had water blocking the intersection of Waters and 49th near our home.

In 2018 on Anderson street near Vining. It was lightly raining and out of nowhere the entire street flooded. My husband and I had to exit our car and stand on a strangers porch. We had to leave the car and walk home. The car was completely flooded and a total loss. It was towed by SPD to Hooks after the water receded. We had to pay Hooks to release the car to Copart. We lost the car and everything in it

Flood water in my home at Harmon and E Henry. Also backyard flooded during Hurricane Debbie on E 54th and Ash

I live in the 400 block of E.55th Street. It floods often and on several occasions has flooded into our front and back yard, running through the carport. We try to move our cars but that's a challenge because the streets around us flood , too. Coming back home from the Publix on Abercorn during a storm is an ordeal - trying to find streets in Ardmore/Ardley that are drivable. I've seen numerous stuck cars and once had to walk home . I was wet but at least my car wasn't flooded.

Street flooding, 400 block of E 55th St.

Henry Street Under railroad bridge

Gwinnett Street Under railroad bridge

Drayton Street near railroad tracks and Victory Dr.

Abercorn Street between Washington Ave. and DeRenne

I have been on 204 (Abercrombie St) driving while it was flooded. I also live in Bradley Point South that flooded in 2024 when the Ogeechee overflowed, before they started building more homes in the community.

My daughter lives in my Savannah home in the Bradley Point South neighborhood and was locked in the neighborhood because of high waters.

Bradley point south. We had extreme flooding last year and we were trapped in our neighborhood off of Hwy 17

Flooding from Hurricane

Teal Lake Subdivision- Chief of Love Rd.

I was unable to get out of my development due to flooding in the community. The community has only one entrance and exit.

I live in the Bradley Point South subdivision. We were flooded for almost two weeks. I could not go to work, nor could my daughter go to school.

Throughout the city. Storm drains back up and flood the street with heavy rains. Spots include Various spots in Midtown around 37th Street, Abercorn, Bull, and Henry. But many other spots frequently flood.

Trapped in Bradley Point South for days after Helene. Street in front of my house at 1508 Bradley Blvd floods any time we get heavy rain.

Every time it rains downtown it floods too the curb. It's an older city I understand but the city is almost undrivable sometimes

Mostly street flooding which is a nuisance.

neighborhood streets flood with heavy rain - Van Buren Avenue

Victory Drive, Atlantic Ave, every time it rains heavily water flows from Victory Drive to storm drains in Baldwin Park and it gets impassible. My car floods if parked on Atlantic at these times.

600 block E52nd - mid block storm drain is overloaded causing flooding 2-3 times per year

We can not leave or get to our home on 52nd St when there is a heavy rain. Our cars get flooded by vehicles driving through the flood waters because the city refuses to close our street.

Having to wait until water recedes to leave home, drainage not being properly irrigated before causes most of back up... helping rescue people from cars trapped in floods.

I live in Live Oak. 37th street and victory drive are impassable when it rains. The flooding under the henry street bridge is insane. Can't get downtown.

We have terrible flooding in our front yard on the corner of La Roche Ave and Vicksburg Street even though there is a bridge in front of our house and culvert that runs along side the house. We also have a business on the corner of Whitaker and Taylor streets and the end of Taylor street floods terrible for the residents there since many of there entrances are street level and below. Also on our drive to work Anderson and Henry streets are frequently flooded and not drivable at times during storms.

Constant commuting issues during the spring and summer

Flooded roads throughout the city. Used to be only with heavy rains at high tide. Now the flooding is more frequent and with more limited rain events

Flooded 9/11/17 due to hurricane and poor drainage 2128 E Back St Savannah

flooding in and around 207 Bull Street. As well as it affecting the Independent Presbyterian Church Parking Lot off of W. Oglethorpe Lane because of the flooding at Hull and Bull.

Anderson and Reynolds. Waters were over a foot and rising during a summer storm

Downtown, Abercorn street north of DeRenne. Henry street

In downtown I was stuck for a couple hours do to flooding in the roads

Yard and shed flooding during hurricanes in Magnolia Park and Habersham Woods

Street closing. About 25 years ago, I flooded a car on Paulsen and Washington.

All over midtown, Ardsley, Habersham Village, Victory, etc

All over chatham crescent

Street flooding - neighborhood streets I do not know their names, Abercorn, also Victory Drive.

Poor storm drain and wetlands in backyard

Bradley Point South during Hurricane Helene /Debby

Been here almost 50yrs. Have lived on 53rd and on Columbus Drive. Both homes between Abercorn and Habersham. Both flooded multiple times each year. As a kid we would ride our bikes through it. Have too many experiences with flooding in this area to list. My backyard on Columbus regularly floods and has nowhere to drain because the alley is higher than my yard. There is a storm drain near Habersham in the alley but the water does not run off my yard and down to the storm drain.

Flooded streets. Multiple locations in area bounded by Victory, DeRenne, Waters, and Bull

Waters Avenue and Paulsen Street. Waters were so high I was panicked trying to find a safe route home. Usually paulsen is blocked off on Anderson but waters was UNDER WATER (is that where the name came from?) this was when the city opened shelters for the homeless and a storm was coming - it RUINED MY CAR.

Flooding up to front door (sandbags provided by the city help to keep the water out) of house for last 3 major flood storms. Located at intersection of Eastgate & Northgate Dr.

Streets being blocked. Husband's car was destroyed going through water the was deeper than it looked.

Every time it rains my neighborhood floods so bad that you have to wear rain boots to get out to your car otherwise your feet will be completely submerged in water. I've also been driving before in the rain and the flood has gotten so bad that my car has almost stopped working. We had to take it to the auto shop the next day because it flooded the engine.

Burroughs Street, Montgomery and Victory Dr and West Savannah

The intersection of Goebel Ave and New Mexico has poor drainage despite being so close to the drainage canal at the Twickenham greenspace. The drains get clogged by debris and during heavy rains, the water can't drain quickly enough and backs up into the yards and blocking the intersection with knee-deep water. The intersection gets flooded multiple times a year. We've been lucky so far that no homes have been damaged, but the water and people driving through the standing water is pushing water closer to damaging homes.

Savannah Ogeechee Canal Museum 681 fort argyle Rd. Savannah GA 31419 August 9th 2024 Tropical storm Debby.

We have called many times during rains when our parking lot and museum yard were flooding from runoff from impermeable surfaces. We have been flooded by a surface mining operation for years that has deposited mounds of sediment where canal cannot drain

well and there are invasive grasses from this discharge.

Timbertrail development has sent water over where the land was dry. Now we have a new wetland area. From day 1 of development.

I live on 60th street between Battey and Reynolds, every time there is heavy rain the street will flood, and it essentially traps us in the home until the rain has cleared.

Street flooding

Hurricane Irma had storm surge that flooded several homes on the marsh and high water on our side of the street. Our home is in Paradise Park on Dyches DR across from the marsh.

We have a basement in our detached garage that experiences flooding. Location is 1000 E Victory Dr. Savannah GA 31405

I've lived at 606 e. 52nd st. for 10 years. This is on the west end of the block and it floods up to 3 feet deep during heavy downpours which has resulted in damage to vehicles and constant stalled vehicles, sometimes left on my front lawn. I work to keep the storm drains clear, but the infrastructure can't keep up during the increasingly heavy rain events we've been having. In the last few years there have been at least 10 of these severe flooding events.

I live at 1707 E 59th St, Savannah. Our neighborhood streets and yards regularly flood. I suspect the storm drains are compromised, especially on 59th St and the lanes.

My street often floods to 6" - 12" (E 33 rd near Bee)

Paulsen & 63rd

My home on 61st and Bull has the road flood up to a foot almost every rain

A storm drain near me is regularly clogged and floods the road. I bike to get around and some areas (like east Liberty connecting to Wheaton) become impassable with pooling water regularly. We are building a house in Daffin which had to be built on considerable stilts to stay above the BFE.

Several road blockages due to flooding in and around the Daffin Park area between Victory Drive and 54th street. Additionally Ogeechee River flooding near Abercorn St and I-95 intersection adjacent to Canebrake Rd and Ogeechee Farms area.

The ditch between my home and neighbor home floods, my backyard & street floods and water comes up my driveway near my garage door.

I lived in Savannah for the first 30 years of my life. There have been many instances where I've had to detour around flooded streets. More than I could name. As a child there was an incident where traffic pressured my dad into trying to go through a flooded intersection in midtown. Our car shut off. A police officer was behind us when it happened and he turned around and left instead of checking on us. My dad, sister and I walked for an hour through water up to my chest.

In my early 20s my boyfriend drove down a road that looks like it was only a little flooded but it was so bad his car got water in the engine and shut off. It was totaled.

Now I'm in my 30s and I live just outside Savannah but I still work in the Starland district. In the last 4 years at this job, I've had to walk to and from my car in water half way up my legs at least twice a year. We've had days where customers couldn't come in because the road was so flooded. I have video of the road flooded and moving like a stream. We had someone's car bumper wash up to the door during one of these floods. Last year our smokers pole floated a block and a half down Whitaker.

Anytime heavy rainfall occurs, navigating roadways from Victory Drive through midtown Savannah is difficult based on road closures.

I live on Wilmington Island, and flooding occurs at the entrance to our neighborhood during heavy rain and makes it difficult to get into and out of the neighborhood.

Tropical storm and hurricane flooding has occurred but been manageable - I've lived here for 27 years. Irma caused the most flooding on our street of all storms.

Couldn't get home from work due to Anderson St, Victory Dr, and Bull Street all being flooded and I drive a small car.

There was irreparable damage done to my car as a result of the flooding & had to be totaled!

Areas of my neighborhood flood regularly. My commute to work has been flooded a number of times in the last 12-24 months.

Standing water on roads, such as Victory near Daffin Park

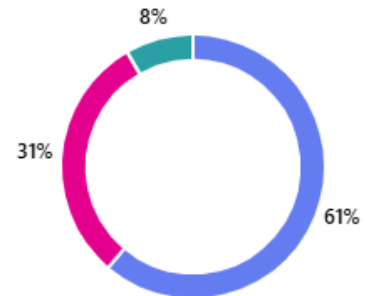
On the roads - Some of our ROADS are known to flood



Had to reroute to avoid flooded streets several times.

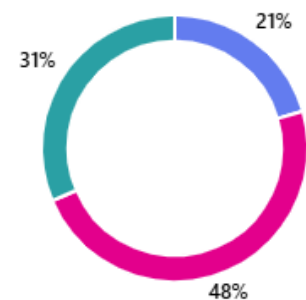
4. How concerned are you about the possibility of your community being impacted by flooding?

Very concerned	96
Somewhat concerned	48
Not concerned	13



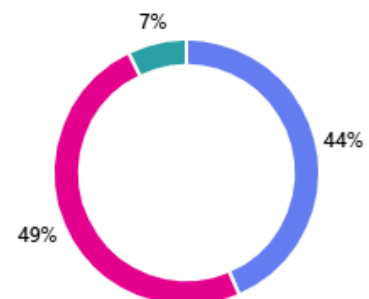
5. Is your home located in a Federal Emergency Management Agency (FEMA) mapped floodplain?

Yes	32
No	75
I don't know	49



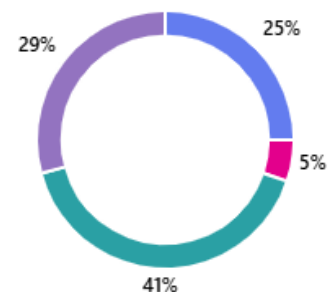
6. Do you have flood insurance for your home and/or personal property?

Yes	67
No	76
I don't know	11



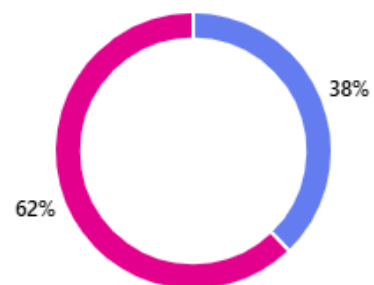
7. If you do NOT have flood insurance, what is the reason?

● It's too expensive	24
● I never really considered it	5
● I don't need it because my home is elevated or otherwise protected	39
● Other	28



8. Have you taken any actions to protect your home from flood damage?

● Yes	59
● No	97



9. If you answered "Yes" to question 8, what actions have you implemented?

60 Responses

Sand bags, and trying to rent an elevated property

Sand bags

Extensive: raised fr entry door, removed back entry door, raised cabinets 5 inches off the floor, installed tile throughout, sandbags along the front of house.

I contact 311 each time I notice the storm drain is clogged.

We have purchased sand bags and flood bags

Sandbags at all exterior doors; built-up concrete buffer in carport to prevent water incursion to ground level utility room

Sand bags

Sandbags & water diverters

I bought flood insurance it is up high also

I have small disposable door barriers "Quik Dam" to make sure water doesn't leak under doors.

Elevated equipment

I installed sump pumps around the yard.

Built up in yard

We are landscaping the back yard to slope away from the house to the road and lane. Currently water stands at the back of the house.

Shutter maintenance

I have installed a drain basin and drainage pipe to divert the water away from the back of my house

Sand bags at 2 lowest doors

Can't count how much we have spent as well as our neighbors.

I added two dry wells to my property and regraded my front yard away from my house.

I had to install a cement wall to prevent water from entering my screened in porch area

I don't have a home. Thanks to my income being too low to even qualify for "Low-income housing".

Elevated construction

Ensuring that the drain portal near my home is cleared when a storm is approaching.

Sandbagged a vulnerable corner of my porch.

Installed a sump pump that diverts water to front yard; routine gutter cleaning; clear nearby curb inlets before storms; store valuables off the floor in watertight bins.

Changed drainage of the yard to move water away from the house.

Sandbags at back gate.

As above, at our previous Savannah address on Varn Dr we used chemical gel sandbags at the two front and one side doors.

We put in a new driveway to , hopefully, drain more water in to the street. We also have a collection of sandbags ready to go.

Added gutters and drainage systems, re-graded driveway

Purchased flood insurance.

Flood insurance

Removed outdoor furniture and other items from ground level when rain/storms are predicted.

We routinely clear the storm water drainage by our home. We try our best to stop cars from driving through the high water.

I have planted bushes around my house to retain the soil and have storm guards on the doors.

na

Worked on drainage as well as I know how by having to clean ditches that city does not maintain.

We rased our house up a bit to protect against flooding

Sandbags

Mostly landscaping and drainage at the house

I hired a man to install drains and a sump pump in part of my yard that flooded last year.

Have added dirt in the yard and done my best to grade so that water runs to the front and back of the property.

Improved drainage in my backyard, native plantings, cleaning out storm drains when clogged

Flood Insurance and keep area(garage) clear

We need to use tarps attached to our front fence to keep water from destroying our yard from people driving through the standing water.

We have still been recovering from the flood.

Raised major home systems like HVAC.

Sump pump and trench system installed in our basement.

I've installed drainage to move water from the back of my property and the lane to the road.

I have packed soil around the foundation and created drain channels to run water away from the house.

2 10" deep, 10" wide dry wells; french drains; regraded front of lot. Plan on adding gutters and in process of replacing wood fencing with hog wire. House exterior is Hardie board

I clean the storm drains on my street

I set up a rain barrel which I can slowly drain out when storms are forecast that will refill it. This is less to prevent full flooding and more to just attenuate pooling conditions at my house.

I contact the city to maintain the ditch and clean the drains.

When I lived in Savannah I lived in the upstairs of a quadruplex so I didn't have to worry about water getting into my apartment though it would cover the street a few times a year. My parents home is low

and my mom has some random stuff barring the back door because of flooding. It's been like that for 20 years. No one is able to use it.

We have flood insurance, and if flooding is expected, we have placed sandbags around the perimeter of our home.

Sandbags in front of doors.

It's not necessarily my property nor my house I am concerned about, it's more-so the streets!

My home is in a low floodplain but my house/yard does not have flooding issues. The streets do flood because drains are not well maintained.

The new floodplain building rules need to be evaluated. I should not be required to build an addition to my home 5' higher than the existing slab level just because the new flood zone ordinance. Each property is different and should be evaluated accordingly. These rules prevent homeowners and businesses from being able to utilize their properties efficiently and add exponential costs to development.

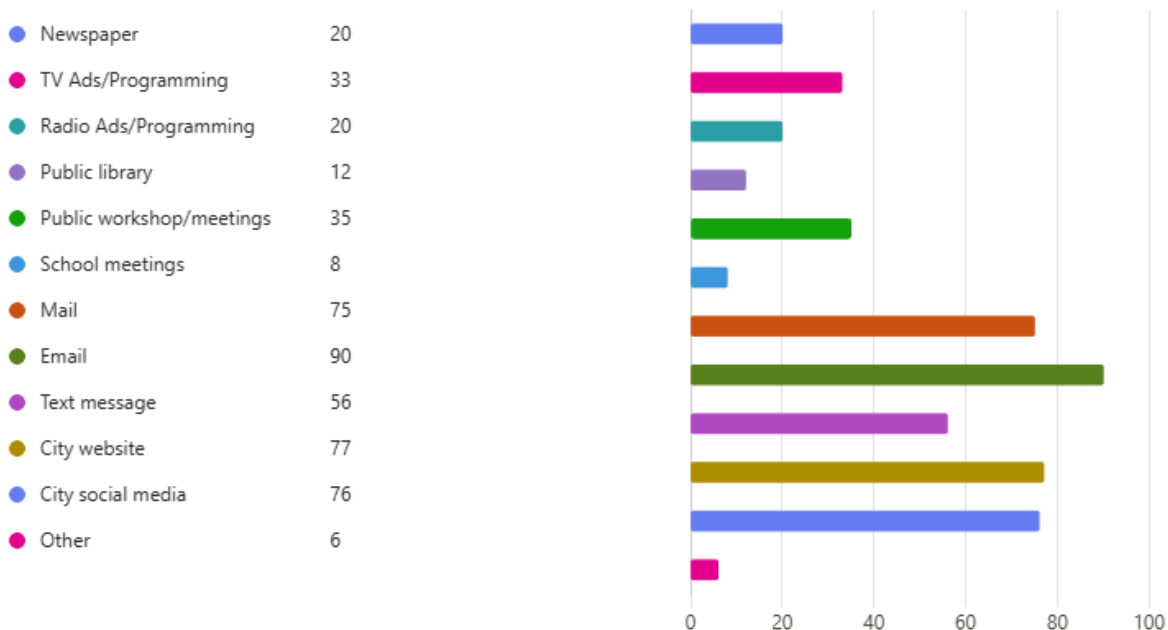
Protecting my homes foundations. Purchased gutters to displace water runoff away from the house.

10. Do you know what government agency/office to contact regarding the risks associated with flooding?

● Yes 65
● No 90



11. What is the best way for you to receive information about how to make your home or neighborhood more resistant to flood damage? Please check all that apply.



12. What are some steps the City could take to reduce the risk of flooding in your neighborhood?

139 Responses

Proper drainage, and cleaning out road drains more often. Not just when there is a storm.

Clean the storm drains regularly during the rainy seasons. FINISH repairs to roadways so intersections are not blocked off for months on end, and can allow people to reroute as necessary to avoid flooded roadways. Midtown is currently a maze of blocked off intersections with no progress being made on construction, and no crews working.

In my neighborhood, it appeared to be a larger infrastructure issue with water drainage being limited at the intersections where build up of maybe debris paired with outdated infrastructure created a clogged condition.

Keep the storm drains free of debris. Trash & grass clippings are piled up in drains. Shrubbery is literally growing out of many. The money wasted on the street sweeping each week should be spent with people on the ground picking up trash in the gutters- terrible that people throw out debris into the streets- but around here, it's common. They can also clean out the drains - cut out the shrubs growing in them.

Develop a map of properties that repeatedly flood, and respond to the reasons these properties flood: low elevation, lack of adequate drainage, storm drainage, landscaping, and addition of retention ponds.

Keep roads clean of debris and teach residents to NOT blow their leaves or yard waste into the streets. More periodic cleaning of roads and sewers.

Adding drain filter to keep debris from entering sewer and cause blockage.

Add signs to flood prone streets to inform tourists the road floods quickly when it rains.

Reengineering the current drain system

Conduct continuous scheduled maintenance on drains. Assess runoff pressure points on large buildings that overwhelm the drains and find alternative solutions to capture rainwater.

It is a drainage problem, I have a city drain in front of my house and it backs up.

Add additional storm drains on the opposite side of the street and make gutters deeper
Increase capacity of storm sewer under E 52nd Street, 600 block
Help with drainage along Abercorn St. between 62nd and DeRenne Ave.
Warning of flood zoning, not building and flood zone areas
Incentivize flood vents
Waste water management
Stop building in flood areas
Clear drain ditches
Clear storm drains
Improving barriers to potential flood water
My neighborhood thankfully doesn't flood
Make sure the storm drains are functioning properly.
Drainage
Drainage
Drainage issues.
FIX STREET DRAINS
I don't know
Continue educating
I'm not sure
Idk
It only floods in Forest hills park when it rains alot
Have no idea
Cleaning up trash and debris especially from around storm drains. I think more trash cans so there would hopefully be less litter could help keep storm drains clean
Maintain city structures and city pump stations
Keep the ditches, culvert, etc clean and flowing
Replace old pipes - which I understand is not a quick easy process - but I believe that is the only thing to improve the drainage system.
Better drain system
Preserve green space to mitigate run off. Trees and unpaved areas slow runoff to prevent streets and homes from flooding. Stop the oversized office building from being built on Forsyth park. General moratorium on all new construction until flooding is addressed. Sea level is rising. During a high tide there is no where for water to drain to.
Diligent maintenance of existing storm sewer infrastructure and holding all development strictly accountable for its local impacts to stormwater/drainage. Including the cost of maintaining any infrastructure serving it.
Do not create effective subsidies to bad developers by letting them create massive, impermeable spaces (especially surface parking lots) without also they also build best-in-class green stormwater management practices (the GAEPD green book is paltry compared to e.g., the NACTO urban stormwater guide).
And especially don't mandate these massive paved areas. Getting rid of ALL city parking minimums should be a high priority -- there is no economic benefit to these policies and they make the city worse in countless ways beyond just the flooding impacts. Unnecessary pavement generates no significant property tax revenue to pay for the city's massive and growing maintenance debt and is the primary exacerbating factor for nearly all erosion/flooding.
Improve the stormwater maintenance program.
No easy answers here. Invest in a decades long infrastructure project to repair storm drains. Move the powerlines underground, maybe in the lanes?
Ensure that gutters and drains are clear and free from debris.
Fix drainage issues, investment in road repair citywide. Maybe more natural solutions, like tree planting. Initiatives for house owners to plant in their yards plants that help retain water and maybe even provide some food source. Initiatives for collecting rain water.

Not exactly sure what was the true cause of Bradley Point flooding - Historically speaking this area doesn't usually flood. The one-off record high river level from a hurricane caused the last flood, but I don't know if our storm drain was blocked or other man-made issues. Since then, small scale flooding in specific sections/blocks has occurred more frequently each time with flash storms. Further investigations are definitely needed to see what the true issues are and see what improvements can be done effectively.

Continuing drainage projects

Keep the drainage ditch behind my property cleaned out. There is brush and grocery buggies and trash in the ditch. The ditch runs by the road leading into Tribble park. I back up to this ditch.

inspect all ground moving operations record earth moved not just retaining ponds etc this is not accurate, don't approve something just because there is govt grants/funds etc don't just make it work for that

Continue stormwater improvements in Ardsley Park

1) Enforce the city code against leaf blowing into city streets; in particular, with commercial landscape companies. Increased & graduating fines & penalties for not bagging lawn waste. 2) Better communication and cooperation between city and county agencies regarding shared roads like President St/Islands Expressway and the Truman Parkway. The city & county often act like divorced parents who finger point and won't take responsibility for issues and the citizens are stuck not knowing how to make you all get along and do what needs to be done 3) citizen education program to teach us about not polluting and keeping drains and streets clear to help alleviate issues

Infrastructure upgrades/maintenance.

What are some suggestions you can give the residents, because, most residents don't know the plumbing issues, causing the floods in each particular area, just the fact it floods. If we're doing your job, then who's doing yours?

Did I just fill out a survey to get marketed "flood insurance"? Wow.

Our neighborhood has been dealing with sewage backups which to my knowledge are still unresolved. My neighbors backyard fills with sewage from a manhole during every extended period of rainfall.

Actually fix the problem in all areas. Not just tourist and rich people neighborhoods.

Cleaning the catch basins on a regular, educate the community on the importance of not throwing trash/leaves that would fall in these catch basins. Having information to give out set up in the neighborhoods like they do when they give out free phones so the communities they understand the importance of what can be done to help reduce the risk of flooding in the neighborhoods.

Comprehensive Floodplain Management Recommendations for Savannah

1. STORMWATER INFRASTRUCTURE UPGRADES

Existing System Improvements

Replace and upgrade outdated storm sewer systems citywide

Install filter grates on all storm drain entry points to prevent leaf and debris blockage

Add pump stations at strategic low-lying locations to actively manage water removal

Implement regular cleaning and maintenance schedules for all storm sewers

Install smart sensors to monitor water levels and system capacity in real-time

Upgrade pipe sizing in areas with demonstrated insufficient capacity

Install check valves to prevent tidal backflow in coastal areas

New Connections & Systems

Allow residential roof-to-gutter-to-french-drain-to-storm-sewer connections with proper permitting

Establish standards for private drainage connections to public systems

Create separated storm and sanitary sewer systems where combined systems still exist

Install emergency overflow channels for extreme weather events

2. BUILDING CODES & CONSTRUCTION STANDARDS

Elevation Requirements

Prohibit new construction of homes on ground-level pads without proper elevation
Establish minimum freeboard requirements (2-3 feet above base flood elevation)
Require elevated first floors for all new residential construction in flood zones
Mandate pier and beam or elevated slab foundations in high-risk areas

Utility Protection

Require all electrical panels, HVAC systems, and water heaters to be elevated above flood levels
Mandate underground utility burial at sufficient depths or elevated utility corridors
Require waterproof utility enclosures in flood-prone areas
Establish standards for generator hookups and emergency power systems

Flood-Resistant Construction

Require flood-resistant materials below base flood elevation
Mandate backflow prevention devices on all sewer and water connections
Require flood vents in enclosed areas below elevated structures
Establish standards for breakaway walls in coastal velocity zones

3. GREEN INFRASTRUCTURE & NATURAL SOLUTIONS

Water Absorption Systems

Install bioswales along roadways and in public spaces
Create rain gardens in parks and public facilities
Require permeable pavement for parking lots and low-traffic areas
Implement green roof incentives for commercial buildings
Install underground cisterns for stormwater capture and reuse

Natural Systems Protection

Preserve and expand existing wetlands
Restore natural drainage corridors and creek buffers
Establish mandatory setbacks from all waterways (minimum 50-100 feet)
Protect and expand urban tree canopy (target 40% coverage)
Prohibit filling or development in natural floodplains

Constructed Water Management

Build retention ponds in strategic locations throughout the city
Create constructed wetlands for water quality and flood control
Develop multi-use parks that double as flood detention areas
Install tidal gates with automated controls for optimal water management

4. LAND USE & ZONING REFORMS

Development Restrictions

Implement density restrictions in FEMA-designated flood zones
Prohibit new critical facilities (hospitals, fire stations, emergency services) in high-risk areas
Establish overlay districts with special floodplain requirements
Require cluster development to preserve natural drainage areas

Development Standards

Mandate on-site stormwater management for all new developments
Require detention basins sized for 100-year storm events
Implement Low Impact Development (LID) standards citywide

Establish impervious surface ratio limits for new construction

Transfer & Acquisition Programs

Create Transfer of Development Rights (TDR) program to relocate density from flood zones
 Establish property buyout programs for repeatedly flooded homes
 Convert acquired flood-prone properties to green space or stormwater management areas
 Create conservation easements in critical flood storage areas

Better drainage

Stop new construction that affects natural retention ponds. I'm specifically citing those new "luxury" Aventon apartments.
 Regular maintenance to clear storm drains of debris.
 Citations with hefty charges to lawn maintenance crews who mow and then blow clippings into storm drains.
 Improve CEMA's emergency warning system. I'm signed up for text alerts but they aren't always delivered.

Clean out the storm drains; make the ponds deeper

create a system of the CITY CAMERAs that are already filming the city and have a team that collects the water before flooding, and send rainwater to ALL These Pop-up community gardens that will be in the areas for a few years.

overdue investment in infrastructure

Require new buildings to be above base flood elevations. Remind residents about their responsibility to report illegal dumping in canals and storm drains.

Maintain appropriate vegetation along Hampstead Canal;

Public education and incentives to reduce runoff;

Increase greenspace, forest buffers, filter ponds, rain gardens etc.

Increase the frequency and transparency of inlet, ditch, and pipe maintenance, with a published service map and post-storm sweeps in known low spots.

Add green infrastructure on suitable blocks and corridors: curb bump-outs with bioswales, tree wells, rain gardens, and pilot permeable parking lanes where feasible.

Offer small grants or rebates for residential rain barrels, rain gardens, and lot re-grading that improves positive drainage.

Expand outreach on NFIP options and Preferred Risk Policies for properties outside SFHAs.

Align stormwater upgrades with housing and corridor revitalization so growth is resilient. The City's own strategies include installing and improving public infrastructure that supports neighborhoods and affordability, which should explicitly include drainage capacity and green-street retrofits.

Better drainage and cleaning

Restrict development in low and flood prone areas so the water. Will have somewhere to go that will not cause flooding Ro areas already developed

E Charlton Lane is at the bottom of a grade that falls from Price Street to E. Broad. Storm water is channeled between my house and my neighbor's across the Lane at the bottom of the grade. There are three storm water drains between our houses, which drain to the storm water pipe under the E Broad Street. The only possible hope is for the City to replace the storm water pipe under E Broad with something, much, much larger. I have plenty of video and photos.

make replacing the 19th Century infrastructure the first item on the capital budget.

During heavy rains stormwater runs down from Live Oak toward Waters. It brings debris and silt and often clogs the storm drain on Waters. There is a small public park on the corner of 49th and Waters. A rain garden or cistern system could be installed in this public space to capture some of the runoff coming down the hill, reducing silt build up in the storm drain. Also the city crew cuts the grass too short which makes it easier for the stormwater to scour the soil.

Make sure those pumps and viaducts work. Also the amount of trash clogging the storm drain openings on the streets is deplorable. We need screen guards to catch the trash so the city can clean them out just like they provide street sweeping.

Make more places pervious so rain water can drain into ground. And update/enhance storm water system so it can handle large rain events.

I'm not an engineer and I don't want to tell experts how to do a job. As much as we all complain about road detours, etc I am grateful to see streets torn up in order to put in those giant concrete pipes. I do think the drains - the ones we can see on our neighborhood roads get really clogged. I can see it happening. perhaps more clearing of those drains? I'm fine with paying taxes for all kinds of public services-schools, recreation, preservation, libraries etc. I wish more money could go to the flood/drainage problem. I would like more funds and resources to go to flood issues - either diverted to it or more raised for it. The damage from flooded homes and streets and neighborhoods is more costly and so damaging to the collective community.

Keep storm drains open, clean streets more often. Encourage use of permeable surfaces

Make this and other infrastructure highest priority for SPLOST.

Demand the community to stop building in Bradley Point South and fix the drainage issues that already exist within the community as it is.

Stop over building the land.

Have better drainage or a road that will get residents out of here in case of flooding. Maybe a ramp that is above ground that people could drive on to go over the water and get out out of the neighborhood.

Establish an additional exit in the back of the neighborhood.. Fill in streets to a higher elevation.

Curb the building in the subdivision and maintain the sewage runoffs.

Improve stormwater infrastructure - clear the drains more frequently and ensure that yard debris doesn't end up in the drain (eg - fine yard care companies for blowing grass/leaves into the street); less hard surfaces and replace them with rain gardens, open space, or other natural things that handle rain and stormwaters; green infrastructure like rain gardens before drains that catch debris/pollutants and slowly disburse rains

Improve drainage!

Have better draining systems

Protect floodplains and wetlands - don't allow development in floodplains.

Stop cutting down trees and building subdivisions, warehouses, and storage buildings. Everything is flooding because the trees are no longer around to suck up the water. STOP CUTTING DOWN THE TREES

keep surrounding ditches clear of debris more regularly

Reduce the amount of impervious surfaces required, like requiring a 20'x12' driveway for each new housing unit built.

If the city would close 52nd starting in the 100 block to the 400 block once a rain event starts it would be immensely helpful.

Not charge citizens who are already being charged over for utilities in the city, who are struggling to maintain, relocate funds from other parts of the city budget.

Stop development in wetlands and floodplain

Clean out the drains, make sure the sink holes are taken care of. There are a lot of them forming near me. It's terrifying.

Provide larger drains if necessary. I don't know how to solve this, I'm not a civil engineer.

Cleaning the drains and ditches more frequently.

The city is just above water level, not below, and we have the ability to pump it, use gravity and the resources we have. Work smarter, not harder with this.

Preserve green space to slow run off. Limit warehouse construction. Too many adus are being built. Most of them to be used for short term rental. Preserve tree cover and green space. Set aside more space for parks.

Open ditch all the way to river. Ditch was dug through marsh to river many years ago but the city's failure to maintain causes extensive flooding. To exacerbate the problem the city has approved a new subdivision which will drain in the marsh where the ditch has completely filled in due to no maintenance. This is going to cause extensive flooding on properties that were already flood prone due to negligence. We have begged for years for relief to no avail.

People can stop blowing their leaves into storm drains

Clean drainage more regularly. Consistent street sweeps. Educate people on NOT clogging drains by blowing leaves in the roads. Updating drains using current tax funds. We know the money is there, you just don't want to use it for an emergency situation. Instead you want to beautify River street. Shows how you care more about the tourists than your own citizens.

Fix the roads flooding/enlarge drainage holes for more water

Help keep the corner street drains clear of debris

Not aware of any problems in current neighborhood other than street flooding on Habersham near Derenne

Fix the drainage issues that occur weekly during the summer.

The drain improvement project needs to be extended

Add more drainage to city streets.

Clean the drains and culver's. The city used to, but haven't seen one on our streets in many years.

Provide better drainage

Hurricane season preparation and info sharing, consistent resident communications from both city and county officials.

Have the street sweeper manually clean out drains

Provide a way for homeowners to tie downspouts to storm drains. There are some large roofs around here and the amount of water that comes off the is tremendous. Survey before and after grading to ensure the water is shedding away from people homes and toward the drains, ditches, etc. Everytime my alley is graded my yard gets worse and the alley, near the center of the block, turns into a mud pit and neighbors have to get out there with shovels to fix it.

City is currently replacing stormwater system. Issue will not be fixed until drainage improvements are completed in Habersham village area

Stop improving infrastructure in Ardsley park and focus on the rest of the city.

Dig ditches next to roads to channel the water away from homes.

We don't really have issues with flooding in our neighborhood. Speeding? Yes, it's awful and I can't get anything done here. I've tried for over a year.

Express to people who live in the neighborhood how they can help themselves in these times. Like how to help water go down the street drains if it's clogged, real time road closures for flooding that are associated with Apple maps so you know not to go on those roads, etc.

Alert ppl when the threat is high for flooding. Keeping drains clear

Make regular, scheduled preventative visits to all the city drains, and not just when reported to 311.

Prioritize drainage conveyance projects (increased pipe sizes, inlets, maintaining existing infrastructure)

Stop allowing all of the wetlands to be filled in trees will help with flooding issues. Not one ditch works in the city.

Better drainage systems for the rain.

Prohibited development in flood zone areas! Maintain existing wetlands as wetlands

Ensure installed French drain system that was installed during development in the 60's is maintained and repaired.

Clear storm drains.

There is currently a large scale stormwater project being implemented just south of my house. I'm not sure if it will improve the drainage at my location, but it doesn't seem like it. The best way to decrease the area that floods in front of my home would be to change the grade of the road so the 200' long depression that holds water would drain east down the street more easily.

Stop allowing massive developments on wetlands. Even now, you're looking at annexing part of Chatham county into a 2500 residence development along Fort Argyle, wiping out several wetland areas. This will impact flooding down river.

Stop allowing developments that only have one entrance that can be cut off by flooding. I'm looking at Bradley Pointe for this one.

Scope all storm drains to ensure they are clear, reroute water where possible so it drains to the Truman Pkwy canal.

Subsidize preventative measures or financing of. Add localized pumps to storm sewers;

Simple. The cheapest solution is to prevent development on AND within 100 feet of wetlands. If needed, buy land in flood plains. It's been known for almost a century that NOT building on wetlands is far, far CHEAPER than attempting to replumb the entire watershed and water cycle. Yes, there are vested developer interests against this. They want to push the cost to residents and to the future. So far the Mayor has had a lot of political courage, as have Nick and others, on various issues, actually great to see. Be strong again. Residents in this community are plugged in and will reward local leaders who do the right thing by re electing them.

Clean storm drains and remove vegetation/debris from canals and ditches

More drainage

Maintenance. Making sure the existing storm infrastructure is in good, working order is the most basic and critical step. Many inlets throughout the city are visibly clogged. Curb inlet slab tops have collapsed. Big new capital projects may be fun and exciting but maintenance is the job that matters.

Hold large sites to the highest standards. Big site developers have to hit additional targets already because of state and national rules, but they can always be held to even higher standards of detention and green infrastructure/LID bmps.

It should simply never be the case that it is easier/cheaper for a big developer to develop 100 homes than it is for 100 small, local developers to develop 1 home each. Don't preference the big guys. And big box stores with their massive parking lots and other developments that are valueless on a per-acre basis should have to *entirely* reduce their runoff if they're upstream of or inside a flood zone. It's a big ask, but they aren't contributing meaningful value to the city worthy of any subsidy.

Since it is not feasible to rebuild the entire city and infrastructure from scratch, keeping the current systems clean from debris is important. Strict enforcement of yard waste disposal standards by fining businesses, homeowners, and/or companies who blow debris into roads/water drains might have an impact.

improve the infrastructure by replacing the old drains

The drains are always clogged. I'm no expert, but there's got to be some major improvements in drainage.

I once saw a video about permeable asphalt. Perhaps it would be beneficial to use in areas that are known to flood like Victory by the park or parts of, I think, Montgomery.

The Hampstead Canal needs serious maintenance and repair. The U.S. Army Corps of Engineers is needed to correct issues at the beginning of the Canal just south of Savannah Tech on Hunter Army Airfields property. Too many Trees are growing on the lower banks or in the Canal impeding the flow of water. Many other issues just from Johnston St. south to Stuart St. alone.

Be more proactive about clearing storm drains - the marsh vegetation causes them to clog, and flooding occurs especially at high tide.

Keep the debris out of storm drains

Ensuring that storm drains are clear, this involves better neighbourhood clean-up initiatives. The city has no issues divvying out parking tickets for parking in the way of the street sweeper, which definitely helps the cause but, the amount of trash and debris I find just contained within the boulevard (public property, city's responsibility) is absolutely astounding. I'm not merely a bystander, I have gone around my neighbourhood, in my own time to clean up and yet this "issue" still persists. Do better.

Savannah is a beautiful old city but its infrastructure is dated and in desperate need of modernization. Instead of using the SPLOST fund for minor temporary fixes, use it to update the infrastructure and design for the future.

Get control of and fix the storm drains. Update City records with up-to-date information of construction projects - controlling run-off and stormwater.

Swales if space, increased storm drain capacity/ways to keep drains clean, natural plants/more soil to eat up the water, hold meetings on developments/solutions to stormwater management

Address the flooding on THE ROADS !!! If the home is not located in an AE flood zone than there need not be such stringent building requirements. Building one home 6 feet high an x flood zone when the other neighboring homes are not is crazy. Additionally it is restricting on the resale of the property for any buyers with physical limitations to steps.

City can keep the ditches CLEAN ,1- get trash out of them. 2- keep grass cut We call the city ALL time to clean the ditch out before a storm comes. We make sure TRASH is picked up when a storm comes.

There should be no Savanna specific flood zones, if not recommended by FEMA. The city is responsible for proper draining of our streets and people that live in those areas should not have to pay for the cities inadequacies, by building an elevated house. If the homeowner wants to build a home, it's not 6 feet off the ground. They should be able to do that. The city has no right.

really nothing we can do but be educated about the risks

A.3 Planning Step 3: Coordinate

This planning step credits the incorporation of other plans and other agencies' efforts into the development of the Floodplain Management Plan. Other agencies and organizations must be contacted to determine if they have studies, plans and information pertinent to the plan, to determine if their programs or initiatives may affect the community's program, and to see if they could support the community's efforts. City representatives were asked to identify stakeholders to invite to participate on the FMPC at the beginning of the planning process. Additionally, to further incorporate stakeholder input into the plan, a variety of stakeholders were identified by the FMPC and sent an email inviting them to provide data or information relevant to the planning process, review the draft plan documents, and provide feedback and comments. An example coordination letter sent by the City is provided on the following page. A list of the stakeholders who were contacted is provided in Table A.4.

Stakeholders were also involved in development of the plan through specific requests for data.

Placeholder for stakeholder coordination outreach

Table A.4 – Stakeholders

Name	Organization and Role
<i>Non-Profit Organizations</i>	
Gretchen Germinger	Wormsloe State Historic Site Manager
Lew Sisson	Savannah Boy Scouts; Scout Executive / CEO
Ben Carswell	Coastal Georgia Audubon Society; President
Sue De Rosa	Ogeechee Audubon Society; President
Jackson Alexander	Savannah Tree Foundation, Executive Director
Courtney Reich	The GA Conservancy – Natural Resource Director, Coastal Director
<i>Educational Institutions</i>	
Clark Alexander	University of Georgia, Skidaway Institute of Oceanography, Director
Hermann Fritz	Georgia Institute of Technology, Water Resources Engineering, Resilient Infrastructure Systems
Dionne Hoskins-Brown	Savannah State University, NOAA Living Marine Resources Cooperative Science Center Director
Helen Morgan	Savannah College of Arts and Design; Executive Director of Physical Resources
Robert Hisey	Georgia Southern University, Armstrong Campus, Assistant Director of Maintenance and Repair
Pamela Austin	Savannah Tech, Director of Facilities
<i>Neighboring Communities</i>	
Randall Mathews	Emergency Preparedness Manager, Chatham County EMA
Matthew Walker	Town of Thunderbolt, Town Administrator
Kiley Fusco	Town of Vernonburg, Clerk
Charles Akridge	City of Bloomingdale, City Administrator
Rhonda Ferrell-Bowles	Garden City, City Manager
Heath Lloyd	City of Pooler, City Manager
Steve Davis	City of Port Wentworth, City Manager
Bret Bell	Tybee Island, City Manager
<i>State Government</i>	
Emily Wingo	Georgia Association of Floodplain Management (GAFM) Chair
Stephen Clark	GEMA, State Hazard Mitigation Officer
Joe Martinenza	GA DNR, Environmental Protection Division, State NFIP Coordinator

Name	Organization and Role
Jennifer Kline	GA DNR, Coastal Resources Division
Dionne Lovett	Coastal Regional Commission of Georgia, Executive Director
<i>Federal Government</i>	
Jonathan Lamb	National Weather Service Meteorologist
Valerie Anderson	FEMA Region 4, Floodplain Management and Insurance, Floodplain Management Supervisor
<i>Business Community</i>	
Patty Rietkovich	The Home Builders Association of Greater Savannah, Executive Officer
James Aiello	Savannah/ Hilton Head International Airport; Director of Engineering
Tina Tyus-Shaw	WSAV 3: Anchor/Reporter
Marsha Fogarty	WTOC News

Appendix B Mitigation Alternatives

As part of the process of developing the mitigation action plan found in Section 7, the FMPC reviewed and considered a comprehensive range of mitigation alternatives before selecting the actions identified for implementation. This section summarizes the full range of mitigation measures evaluated and considered by the FMPC, including a review of the categories of mitigation measures outlined in the 2025 CRS Coordinator's Manual, a discussion of current local implementation and CRS credits earned for those measures, and a list of the specific mitigation projects considered and recommended for implementation.

Mitigation alternatives identified for implementation by the FMPC were evaluated and prioritized using the criteria discussed in Section 7.3 of this plan.

B.1 Categories of Mitigation Measures Considered

The FMPC reviewed mitigation alternatives within the following list of mitigation categories which are utilized as part of the CRS planning process:

- Prevention
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information

Mitigation alternatives discussed and considered by the FMPC are summarized below by category.

B.2 Alternative Mitigation Measures by Category

Note: the CRS credit sections are based on the 2025 CRS Coordinator's Manual.

Prevention Measures

Preventive measures are designed to keep a problem, such as flooding, from occurring or getting worse. The objective of preventive measures is to ensure that future development is not exposed to damage and does not cause an increase in damage to other properties. Building, zoning, planning, and code enforcement offices usually administer preventive measures. Examples of preventative measures are listed below and discussed in further detail in this section:

- Building codes
- Planning and zoning
- Open space preservation
- Floodplain regulations
- Stormwater management

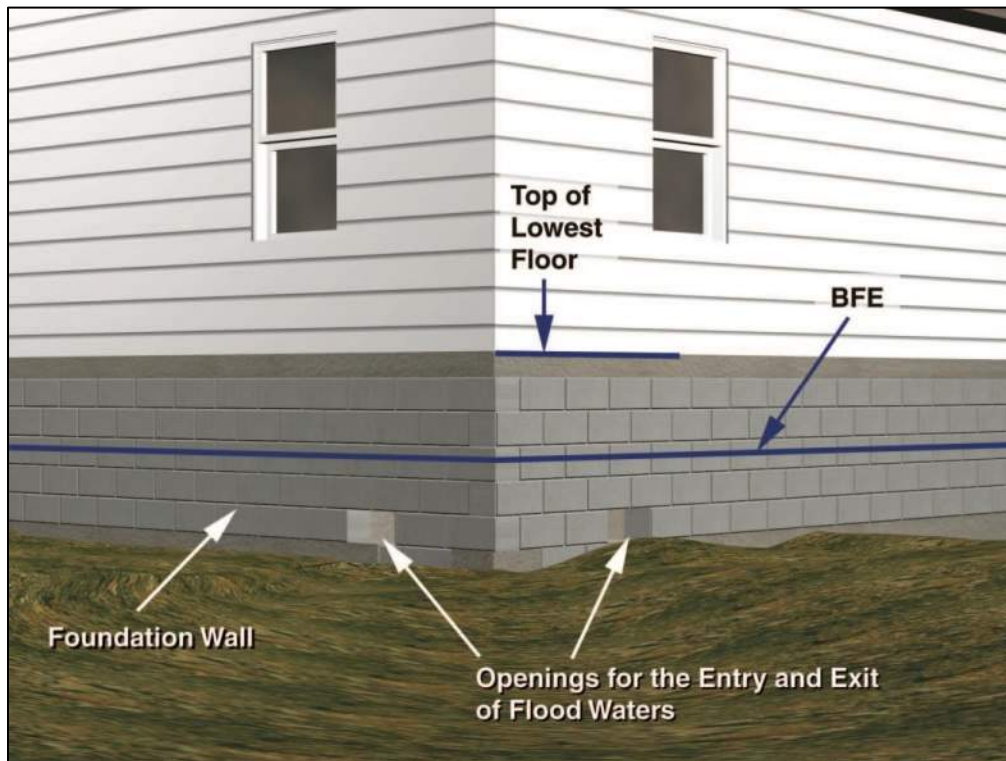
Building Codes

Building codes provide one of the best methods of addressing natural hazards. When properly designed and constructed according to code, the average building can withstand many of the impacts of natural

hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. For example, building codes can ensure that the first floor of new buildings is constructed to be higher than the elevation of the base flood (the flood that is expected to have a 1% chance of occurring in any given year) and that foundations are designed with flood openings to withstand hydrostatic forces. This is shown in Figure B.1.

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during construction to ensure that the builder understands and follows the requirements. Making sure a structure is properly elevated and anchored requires site inspections at each step.

Figure B.1 – Building Codes and Flood Elevations



Source: FEMA Publication: Above the Flood: Elevating Your Floodprone House, 2000

Local Implementation

The City of Savannah has adopted the *2024 International Building Code*.

CRS Credit

The CRS encourages strong building codes. It provides credit in two ways: points are awarded based on the community's Building Code Effectiveness Grading Schedule (BCEGS) classification and points are awarded for adopting the International Code series. Savannah's BCEGS rating was updated in 2023, and the City is now a Class 4 for residential property and a Class 3 for commercial and industrial property. The City of Savannah has adopted the *2024 International Building Code*. Savannah also receives credit for Activity 430 – Higher Regulatory Standards.

Planning and Zoning

Planning and zoning activities direct development away from hazardous areas, particularly floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Planning and zoning activities can also provide benefits by simply allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach.

Local Implementation

Comprehensive Plan

The Chatham County-Savannah Comprehensive Plan 2040 was adopted in 2021. A Comprehensive Plan, in broad terms, is a policy statement to guide the future placement and development of community facilities. It is the basis for a community's zoning, subdivision and design regulations and a community's official maps and amendments to the zoning, subdivision and design ordinances. The future land use section of the land use element of the plan represents the City's vision for its development and redevelopment into the future. The future land use maps and districts will serve as the foundation for subsequent development of more detailed Land Development Regulations and special area plans. These regulations and plans must be consistent with and further the implementation of the future land use element of the Comprehensive Plan and its goals, objectives and policies in accordance with the City's master planning document.

Zoning and Subdivision Regulations

The City of Savannah's Zoning Ordinance was last updated in September 2019. The purpose of the Zoning Ordinance is to provide the minimum regulations necessary to facilitate safe and orderly growth, and to also ensure that growth forms an integral part of a community of functional neighborhoods, retail and commercial centers; increases collective security and community identity to promote civic awareness and responsibility; and enhances the quality of life for the entire City to ensure the greatest possible economic and social benefits for all residents. These regulations are intended to promote consistency with the goals, objectives and policies of the City's Comprehensive Plan.

Capital Improvement Plan

The City of Savannah Capital Improvements Program and Capital Projects Management Office identify numerous capital improvements projects by district around the city; these projects and their status can be viewed via an interactive map on the City's GIS interface by district. Projects are also classified by category, including Drainage Improvement Projects. The quarterly CIP report lists the number of projects, appropriated budget, and expenditures by category. As of June 2026, there were 23 drainage improvement projects included in the CIP.

Open Space Preservation

Keeping the floodplain and other hazardous areas open and free from development is the best approach to preventing damage to new development. Open space can be maintained in agricultural use or can serve as parks, greenway corridors, and golf courses.

Comprehensive and capital improvement plans should identify areas to be preserved by acquisition and other means, such as purchasing an easement. With an easement, the owner is free to develop and use private property, but property taxes are reduced or a payment is made to the owner if the owner agrees to not build on the part set aside in the easement.

Although there are some federal programs that can help acquire or reserve open lands, open space lands and easements do not always have to be purchased. Developers can be encouraged to dedicate park land and required to dedicate easements for drainage and maintenance purposes. These are usually

linear areas along property lines or channels. Maintenance easements also can be donated by streamside property owners in return for a community maintenance program.

Local Implementation

The City of Savannah has developed a Community Gardens program, allowing more than 1,250 city-owned parcels, stretching from Woodville and Hudson Hill to Paradise Park and Wilshire Estates, to be made available to residents and neighborhood associations to start community gardens. The City of Savannah recognizes community gardens as valuable recreational and educational activities that can contribute to community development, environmental awareness, positive social interaction, and community education.

The City of Savannah Park and Tree Commission was created by council in December 1895, with the first meeting to be held in January 1896. The purpose of the City's Landscape and Tree Ordinance is to protect and maintain the urban forest through the management of the impact of development, to preserve the environmental and aesthetic assets of the community through requirements for tree planting and landscaping, and provide protection from removal without a permit for all trees within the City of Savannah. The provisions of the Landscape and Tree Ordinance apply to all property in the city being developed or redeveloped for commercial, industrial, institutional, multi-family and single family subdivisions.

The Savannah Tree Foundation is not-for-profit urban and community forestry organization dedicated to preserving, protecting and planting canopy trees in Savannah and Chatham County, Georgia. The Savannah Tree Foundation promotes, through direct action and education, an awareness of trees as vital environmental resources and an important part of cultural heritage.

CRS Credit

Savannah currently receives credit for Activity 420 – Open Space Preservation. Preserving flood prone areas as open space is one of the highest priorities of the Community Rating System. Credit is based on the area of the floodplain that is designated as public undeveloped properties, parks, wildlife refuges, golf courses, or other uses that can be kept vacant through ownership or regulations.

Floodplain Regulations

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). As a condition of making flood insurance available for their residents, communities that participate in the NFIP agree to regulate new construction in the area subject to inundation by the base flood. The floodplain subject to these requirements is shown as an A or V Zone on the Flood Insurance Rate Map (FIRM).

There are four major regulatory requirements:

- 1) All development in the 100-year floodplain must have a permit from the community. The NFIP regulations define "development" as any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
- 2) Development along a river or other channel cannot obstruct flows so as to cause an increase in flooding on other properties. An analysis must be conducted to demonstrate that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

3) New buildings may be built in the floodplain, but they must be protected from damage from the base flood. In riverine floodplains, the lowest floor of residential buildings must be elevated to be at or above the base flood elevation (BFE). Nonresidential buildings must be either elevated or floodproofed.

4) Under the NFIP, a "substantially improved" building is treated as a new building. The NFIP regulations define "substantial improvement" as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This requirement also applies to buildings that are substantially damaged.

Additional floodplain regulatory requirements may be set by state and local laws.

Local Implementation

The City of Savannah's Flood Damage Prevention Ordinance meets the NFIP minimum standards noted above and establishes additional higher regulatory standards. For example, the City recently adopted a 2 foot freeboard requirement in 2025.

CRS Credit

Savannah currently receives credit for Activity 430 – Higher Regulatory Standards. The City receives credit for enforcing regulations that require freeboard for new and substantial improvement construction, cumulative substantial improvement, lower substantial improvement, other higher regulatory standards, and state mandated regulatory standards. Credit is also provided for a BCEGS classification of 3/4 and for staff education and certification as a floodplain manager. The City of Savannah has several CFMs on staff.

Stormwater Management

Stormwater runoff is increased when natural ground cover is replaced by urban development. Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality.

There are three ways to prevent flooding problems caused by stormwater runoff:

1. Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties, and
2. Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions.
3. Set construction standards so buildings are protected from shallow water.

Local Implementation

The City's Stormwater Management Department is responsible for the operation and maintenance of the stormwater drainage systems of the City of Savannah. This includes the operation of seven stormwater pump stations, over 390 miles of storm sewers, over 160 miles of drainage ditches and canals, and five detention ponds. Another function of the Department is to ensure compliance with a state-issued stormwater permit, which requires stormwater monitoring, private site inspections, and site development permitting. And lastly, the Department develops engineering plans, bids and installs capital drainage improvements projects.

The City of Savannah's NPDES MS-4 Permit No. GAS000205 requires that the City adopt and enforce certain environmental regulations as the permittee. These regulations require adoption of the model

ordinance contained within the Coastal Stormwater Supplement (CSS) to the Georgia Stormwater Management Manual (GSMM). The City of Savannah adopted its current Stormwater Management Ordinance in 2018. The following minimum stormwater design standards are included in the Ordinance:

- a) There shall be no increase in the base flood elevation within the special flood hazard area (SFHA), as delineated by the latest National Flood Insurance Program (NFIP) maps, or in any areas that are known to have flooded repetitively, or areas where a hydrologic model predicts flooding will occur in the 100-year, 24-hour event. Where hydrologic model results are conflicting, the stormwater management director shall decide which model will be used.
- b) Finished floor elevations for structures not included in the special flood hazard area shall be equal to or higher than that shown on the original subdivision plat or neighborhood grading and drainage plan or as determined by a registered civil engineer.
- c) The post-development peak rate of runoff shall not exceed the predevelopment peak rate of runoff for the one-, five-, ten-, and 25-year, 24-hour events.
- d) If drainage calculations indicate that post-development runoff will exceed predevelopment runoff, then on-site detention for the one-, five-, ten-, and 25-year, 24-hour events is required at a discharge rate equal to the pre-developed 24-hour peak rate of discharge for all storm events from the one-, five-, ten-, and including the 25-year event, or the capacity of the existing downstream conveyance system must be upgraded in capacity to accommodate the additional 25-year, 24-hour discharge generated by the new development.
- e) All stormwater management systems shall be designed to comply with the requirements of the latest City of Savannah Local Design Manual and comply with the latest edition of the Coastal Stormwater Supplement to the Georgia Stormwater Management Manual.
- f) Drainage and/or access easements. The width and configuration requirements of drainage and maintenance easements/rights-of-way are listed in section 4.3.8 of the Stormwater Management Local Design Manual. Access and flow-through easements shall be provided to all stormwater management structures and outfalls.

The City of Savannah Stormwater Management Local Design Manual (LDM) serves as a comprehensive guide to implementing stormwater management facilities, controls and systems in the City of Savannah. Additionally, the City of Savannah LDM has been developed to supplement the technical guidance information contained in the Georgia Stormwater Management Manual (GSMM) first Edition (August 2001) and the Coastal Stormwater Supplement (CSS) to the GSMM, latest edition. The City's MS-4 permit requires that the City adopt a local design manual that implements the use of either the Georgia Stormwater Management Manual or an equivalent local design manual, and that, as a part of Chatham County, that the adopted manual should include the Coastal Supplement. Therefore, the Local Design Manual serves as the required manual, and the GSMM and the CSS serve as technical reference guidance for the design, construction, and maintenance of stormwater management systems within the City. Any conflicts or issues that may arise pertaining to information contained in the GSMM and the CSS should be addressed at the onset of the project through correspondence with the appropriate City Staff.

CRS Credit

Savannah currently receives credit for Activity 450 – Stormwater Management. The community enforces regulations for stormwater management, freeboard in non-SFHA zones, soil and erosion control and water quality.

Action Alternatives

The table below summarizes prevention measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
1.	Complete a comprehensive evaluation of the drainage system to support identification and implementation of drainage improvement projects.	Basin level studies will support improved understanding of the flood hazard and enable better floodplain management.	Yes
25.	Document drainage improvements in SFHAs and request revisions to the applicable FIRM maps to reflect new conditions through the FEMA LOMR process.	Ongoing reporting of LOMRs will support better map accuracy, improving information available to City staff and the public for flood hazard reduction.	Yes
32.	Develop a Watershed Master Plan for the City.	A watershed master plan will support improved stormwater standards for new development and will support the City's CRS program	Yes
-	Use growth management policies to limit new development in flood prone areas.	Much of Savannah is built out, making it difficult to support additional regulations that limit development. However, higher standards may be pursued instead.	No

Property Protection Measures

Property protection measures are used to modify buildings or property subject to damage. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building,
- Modify the building (retrofit) so it can withstand the impacts of the hazard, and
- Insure the property to provide financial relief after the damage occurs.

Property protection measures are normally implemented by the property owner, although in many cases technical and financial assistance can be provided by a government agency.

Keeping the Hazard Away

Generally, natural hazards do not damage vacant areas. As noted earlier, the major impact of hazards is to people and improved property. In some cases, properties can be modified so the hazard does not reach the damage-prone improvements. For example, a berm can be built to prevent floodwaters from reaching a house.

There are five common methods to keep a flood from reaching and damaging a building:

- Erect a barrier between the building and the source of the flooding.
- Move the building out of the floodprone area.
- Elevate the building above the flood level.
- Demolish the building.
- Replace the building with a new one that is elevated above the flood level.

Barriers

A flood protection barrier can be built of dirt or soil (a "berm") or concrete or steel (a "floodwall"). Careful design is needed so as not to create flooding or drainage problems on neighboring properties. Depending on how porous the ground is, if floodwaters will stay up for more than an hour or two, the design needs to account for leaks, seepage of water underneath, and rainwater that will fall inside the perimeter. This is usually done with a sump or drain to collect the internal groundwater and surface water and a pump and pipe to pump the internal drainage over the barrier.

Barriers can only be built so high. They can be overtopped by a flood higher than expected. Barriers made of earth are susceptible to erosion from rain and floodwaters if not properly sloped, covered with grass, and properly maintained. A berm can also settle over time, lowering its protection level. A floodwall can crack, weaken, and lose its watertight seal. Therefore, barriers need careful design and maintenance (and insurance on the building, in case of failure).

Relocation

Moving a building to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost increases for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings. However, experienced building movers can handle any job. In areas subject to flash flooding, deep waters, or other high hazard, relocation is often the only safe approach. Relocation is also preferred for large lots that include buildable areas outside the floodplain or where the owner has a new flood-free lot (or portion of the existing lot) available.

Building Elevation

Raising a building above the flood level can be almost as effective as moving it out of the floodplain. Water flows under the building, causing little or no damage to the structure or its contents. Raising a building above the flood level is cheaper than moving it and can be less disruptive to a neighborhood. Elevation has proven to be an acceptable and reasonable means of complying with floodplain regulations that require new, substantially improved, and substantially damaged buildings to be elevated above the base flood elevation.

Demolition

Some buildings, especially heavily damaged or repetitively flooded ones, are not worth the expense to protect them from future damage. It is cheaper to demolish them and either replace them with new, flood protected structures, or relocate the occupants to a safer site. Demolition is also appropriate for buildings that are difficult to move - such as larger, slab foundation or masonry structures - and for dilapidated structures that are not worth protecting. Generally, demolition projects are undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to public open space use, like a park.

Mitigation Reconstruction

Mitigation reconstruction is the construction of an improved, elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed. These activities include either total or partial demolition of the structure and result in the construction of code-compliant and hazard-resistant structures on elevated foundation systems

Local Implementation

The City of Savannah currently receive credits for Activity 520 – Acquisition and Relocation. The City's Real Properties Department has submitted and received HMGP approval for 17 houses to be demolished in high-risk, flood-prone areas. Furthermore, the City's Real Properties Department has a list of repetitive

loss properties on file for acquisition and demolition once additional mitigation funds become available. The City does not receive credit for Activity 530 – Flood Protection.

CRS Credit

The CRS provides the most credit points for acquisition and relocation under Activity 520, because this measure permanently removes insurable buildings from the floodplain. The CRS credits barriers and elevating existing buildings under Activity 530. Elevating a building above the flood level will also reduce the flood insurance premiums on that individual building. Because barriers are less secure than elevation, not as many points are provided.

Retrofitting

An alternative to keeping the hazard away from a building is to modify or retrofit the site or building to minimize or prevent damage. There are a variety of techniques to do this, as described below.

Dry Floodproofing

Dry floodproofing means making all areas below the flood protection level watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings, such as doors, windows and vents, are closed, either permanently, with removable shields, or with sandbags. Dry floodproofing of new and existing nonresidential buildings in the regulatory floodplain is permitted under state, FEMA and local regulations. Dry floodproofing of existing residential buildings in the floodplain is also permitted as long as the building is not substantially damaged or being substantially improved. Owners of buildings located outside the regulatory floodplain can always use dry floodproofing techniques.

Dry floodproofing is only effective for shallow flooding, such as repetitive drainage problems. It does not protect from the deep flooding along lakes and larger rivers caused by hurricanes or other storms.

Wet Floodproofing

The alternative to dry floodproofing is wet floodproofing: water is let in and everything that could be damaged by a flood is removed or elevated above the flood level. Structural components below the flood level are replaced with materials that are not subject to water damage. For example, concrete block walls are used instead of wooden studs and gypsum wallboard. The furnace, water heater and laundry facilities are permanently relocated to a higher floor. Where the flooding is not deep, these appliances can be raised on blocks or platforms.

Local Implementation

Floodproofing can be undertaken by individual property owners in an effort to reduce their own risk. These techniques are particularly applicable to commercial and industrial buildings. The City of Savannah can also consider floodproofing for critical facilities.

CRS Credit

The City of Savannah does not currently receive credit for Activity 530 – Flood Protection. Credit for Activity 530 is based on the combination of flood protection techniques used and the level of flood protection provided. Points are calculated for each protected building. Bonus points are provided for the protection of repetitive loss buildings and critical facilities.

Insurance

Technically, insurance does not mitigate damage caused by a natural hazard. However, it does help the owner repair, rebuild, and hopefully afford to incorporate some of the other property protection measures in the process. Insurance offers the advantage of protecting the property, as long as the policy is in force, without requiring human intervention for the measure to work.

Private Property

Although most homeowner's insurance policies do not cover flood damage, an owner can insure a building for damage by surface flooding through the NFIP. Flood insurance coverage is provided for buildings and their contents damaged by a "general condition of surface flooding" in the area. Most people purchase flood insurance because it is required by the bank when they get a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. Contents coverage can be purchased separately. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building. Most people don't realize that there is a 30-day waiting period to purchase a flood insurance policy and there are limits on coverage.

Public Property

Governments can purchase commercial insurance policies. Larger local governments often self-insure and absorb the cost of damage to one facility, but if many properties are exposed to damage, self-insurance can drain the government's budget. Communities cannot expect federal disaster assistance to make up the difference after a flood.

Local Implementation

Flood insurance information for the City is provided in Section 5.4.4 as well as in the City's Program for Public Information.

CRS Credit

There is no credit for purchasing flood insurance, but the CRS does provide credit for local public information programs that explain flood insurance to property owners. The CRS also reduces the premiums for those people who do buy NFIP coverage. The City of Savannah currently receives credit for Activity 330 – Outreach Projects.

Action Alternatives

The table below summarizes property protection measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
7.	Reduce future vulnerability of Valambrosa area through acquisition or regulation.	By acquiring property and/or regulating this particular flood prone area, property in and around the area can be protected from future flood losses. Part of the area is currently being established as a natural preserve.	Yes
9.	Continue acquisition/demolition of high-risk flood-prone properties.	As long as there are willing participants, this is a highly cost-effective way to reduce future losses, particularly when FEMA grant funding is available.	Y

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
10.	Implement a floodproofing program for homes where acquisition is not an option – especially historic structures.	Floodproofing may be the best alternative for risk reduction for properties that cannot be acquired or elevated.	Y
-	Pursue relocation of at-risk structures including repetitive loss properties.	Much of Savannah is built out, making it difficult to support relocation to lower risk areas within the City. Additionally, slab on grade foundations present a difficulty and increased cost for relocations and/or elevations.	No

Natural Resource Protection

Resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. These activities enable the naturally beneficial functions of fields, floodplains, wetlands, and other natural lands to operate more effectively. Natural and beneficial functions of watersheds, floodplains and wetlands include:

- Reduction in runoff from rainwater and snow melt in pervious areas
- Infiltration that absorbs overland flood flow
- Removal and filtering of excess nutrients, pollutants and sediments
- Storage of floodwaters
- Absorption of flood energy and reduction in flood scour
- Water quality improvement
- Groundwater recharge
- Habitat for flora and fauna
- Recreational and aesthetic opportunities

As development occurs, many of the above benefits can be achieved through regulatory steps for protecting natural areas or natural functions. This section covers the resource protection programs and standards that can help mitigate the impact of natural hazards, while they improve the overall environment. Seven areas are reviewed:

- Wetland protection
- Erosion and sedimentation control
- River restoration
- Best management practices
- Dumping regulations
- Urban forestry
- Farmland protection

Wetland Protection

Wetlands are often found in floodplains and topographically depressed areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flows. They also serve as a natural filter, which helps to improve water quality, and they provide habitat for many species of fish, wildlife and plants.

Local Implementation

In 1970, the State of Georgia established the Coastal Marshlands Protection Act (CMPA) to protect the marsh and estuarine areas, and to regulate the activities within these public trust lands that are held for the citizens of Georgia. Through the Georgia Department of Natural Resources, Coastal Resources Division (GADNR-CRD), the CMPA is enacted to protect the estuarine area. Activities and structures in the coastal marshlands are regulated to ensure that the values and functions of the coastal marshlands are not impaired. GADNR-CRD allows for the sustainable use of the estuarine area through permits and other methods of authorization that will preserve the condition of the marsh while still allowing for its enjoyment.

CRS Credit

There is credit for preserving open space in its natural condition or restored to a state approximating its natural condition. The credit is based on the percentage of the floodplain that can be documented as wetlands protected from development by ownership or local regulations. The City of Savannah currently receives credit for Activity 420 – Open Space Preservation.

Erosion and Sedimentation Control

Farmlands and construction sites typically contain large areas of bare exposed soil. Surface water runoff can erode soil from these sites, sending sediment into downstream waterways. Erosion also occurs along stream banks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil.

Sediment suspended in the water tends to settle out where flowing water slows down. This can clog storm drains, drain tiles, culverts and ditches and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands. When channels are constricted and flooding cannot deposit sediment in the bottomlands, even more sediment is left in the channels. The result is either clogged streams or increased dredging costs.

Not only are the drainage channels less able to perform their job, but the sediment in the water reduces light, oxygen and water quality, and often carries chemicals, heavy metals and other pollutants. Sediment has been identified by the US EPA as the nation's number one nonpoint source pollutant for aquatic life.

There are two principal strategies to address these problems: minimize erosion and control sedimentation. Techniques to minimize erosion include phased construction, minimal land clearing, and stabilizing bare ground as soon as possible with vegetation and other soil stabilizing practices.

If erosion occurs, other measures are used to capture sediment before it leaves the site. Silt fences, sediment traps and vegetated filter strips are commonly used to control sediment transport. Runoff from the site can be slowed down by terraces, contour strip farming, no-till farm practices, hay or straw bales, constructed wetlands, and impoundments (e.g., sediment basins and farm ponds). Slowing surface water runoff on the way to a drainage channel increases infiltration into the soil and reduces the volume of topsoil eroded from the site.

Erosion and sedimentation control regulations mandate that these types of practices be incorporated into construction plans. The most common approach is to require applicants for permits to submit an erosion and sediment control plan for the construction project. This allows the applicant to determine the best practices for the site.

Local Implementation

Savannah's has adopted a Soil Erosion, Sedimentation and Pollution Control Ordinance.

CRS Credit

Credit is available for the Erosion and Sediment Control (ESC) element under Activity 450 for regulating activities throughout the watershed to minimize erosion on construction sites that result could in sedimentation and water pollution.

Stream Restoration

The objective of stream restoration, also called "stream conservation," "bioengineering," or "riparian corridor restoration," is to return streams, stream banks and adjacent land to a more natural condition, including the natural meanders. A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

In all, restoring the right vegetation to a stream has the following advantages:

- Reduces the amount of sediment and pollutants entering the water
- Enhances aquatic habitat by cooling water temperature
- Provides food and shelter for both aquatic and terrestrial wildlife
- Can reduce flood damage by slowing the velocity of water
- Increases the beauty of the land and its property value
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing and bird watching
- Reduces long-term maintenance costs

Local Implementation

Savannah's Soil Erosion, Sedimentation and Pollution Control Ordinance establishes a 50-foot buffer as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any state waters classified as "trout streams" pursuant to article 2 of chapter 5 of title 12 [O.C.G.A. § 12-5-2 et seq.], the "Georgia Water Quality Control Act". No land-disturbing activities shall be conducted within a buffer and a buffer shall remain in its natural, undisturbed, state of vegetation until all land-disturbing activities on the construction site are completed.

CRS Credit

The City of Savannah currently receives credit for Activity 420 – Open Space Preservation. The CRS provides credit for preserving open space in its natural condition or restored to a state approximating its natural condition. There are also credits for channel setbacks, buffers and protecting shorelines.

Best Management Practices

Point source pollutants come from pipes such as the outfall of a municipal wastewater treatment plant. They are regulated by the US EPA. Nonpoint source pollutants come from non-specific locations and harder to regulate. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, other chemicals, animal wastes, oils from street surfaces and industrial areas, and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams.

The term "best management practices" (BMPs) refers to design, construction and maintenance practices and criteria that minimize the impact of stormwater runoff rates and volumes, prevent erosion, protect natural resources and capture nonpoint source pollutants (including sediment). They can prevent

increases in downstream flooding by attenuating runoff and enhancing infiltration of stormwater. They also minimize water quality degradation, preserve beneficial natural features onsite, maintain natural base flows, minimize habitat loss, and provide multiple usages of drainage and storage facilities.

Local Implementation

In accordance with the City's Stormwater Management Ordinance, all stormwater management systems shall be designed to comply with the requirements of the latest City of Savannah Local Design Manual and comply with the latest edition of the Coastal Stormwater Supplement to the Georgia Stormwater Management Manual. The City of Savannah Local Design Manual requires stormwater runoff reduction and stormwater water quality BMPs. Post-construction stormwater management and site planning and design criteria must be applied to all new development and redevelopment activities that are subject to the Stormwater Management Ordinance. The criteria include a natural resources inventory, use of Green Infrastructure/Low Impact Development practices, stormwater runoff reduction, stormwater quality management and protection, aquatic resource protection and energy dissipation, overbank flood protection, and extreme flood protection.

CRS Credit

The City of Savannah currently receives credit for Activity 450 – Stormwater Management. To receive WQ credit, the community's stormwater management regulations must either specify one or more measures or refer to BMPs as published in an official government reference.

Dumping Regulations

BMPs usually address pollutants that are liquids or are suspended in water that are washed into a lake or stream. Dumping regulations address solid matter, such as shopping carts, appliances and landscape waste that can be accidentally or intentionally thrown into channels or wetlands. Such materials may not pollute the water, but they can obstruct even low flows and reduce the channels' and wetlands' abilities to convey or clean stormwater.

Many cities have nuisance ordinances that prohibit dumping garbage or other "objectionable waste" on public or private property. Waterway dumping regulations need to also apply to "non-objectionable" materials, such as grass clippings or tree branches, which can kill ground cover or cause obstructions in channels. Regular inspections to catch violations should be scheduled.

Many people do not realize the consequences of their actions. They may, for example, fill in the ditch in their front yard without realizing that is needed to drain street runoff. They may not understand how regarding their yard, filling a wetland, or discarding leaves or branches in a watercourse can cause a problem to themselves and others. Therefore, a dumping enforcement program should include public information materials that explain the reasons for the rules as well as the penalties.

Local Implementation

The City of Savannah prohibits dumping in ditches as outlined in Code Sec. 4-11004 and 5-2005. Citizens are instructed to not sweep or blow yard leaves, pine needles, grass clippings or soil into the street or storm water system and to keep the banks of drainage ditches clear of brush and debris. Citizens are also requested to report someone dumping debris in the canals to the City. A portion of the community's drainage system is inspected regularly throughout the year and maintenance is performed as needed by the City of Savannah Public Works Department. Records are maintained for both inspections and required maintenance.

CRS Credit

Savannah does not currently receive credit for Activity 540 – Drainage System Maintenance. Credit is provided under the Stream Dumping Regulations (SDR) element if the community has and publicizes regulations prohibiting dumping in streams and ditches.

Farmland Protection

Farmland protection is an important piece of comprehensive planning and zoning throughout the United States. The purpose of farmland protection is to provide mechanisms for prime, unique, or important agricultural land to remain as such, and to be protected from conversion to nonagricultural uses.

Farms on the edge of cities are often appraised based on the price they could be sold for to urban developers. This may drive farmers to sell to developers because their marginal farm operations cannot afford to be taxed as urban land. The Farmland Protection Program in the United States Department of Agriculture's 2002 Farm Bill (Part 519) allows for funds to go to state, tribal, and local governments as well as nonprofit organizations to help purchase easements on agricultural land to protect against the development of the land. Eligible land includes cropland, rangeland, grassland, pastureland, or forest land that is part of an agricultural operation. Certain lands within historical or archaeological resources are also included.

The hazard mitigation benefits of farmland protection are similar to those of open space preservation:

- Farmland is preserved for future generation,
- Farmland in the floodplain keeps damageable structures out of harm's way
- Farmland keeps more stormwater on site and lets less stormwater runoff downstream
- Rural economic stability and development is sustained
- Ecosystems are maintain, restored or enhanced
- The rural character and scenic beauty of the area is maintained

Local Implementation

The City of Savannah is highly urbanized with exceptionally large areas of mixed use development. Except for the western airport area, the city is largely built-out and growing chiefly through annexation. However, urban neighborhoods that have declined in population and former industrial lands represent an opportunity for land preservation. Additionally, Savannah established a Community Garden Policy in 2021 to allow community groups to use vacant City-owned land for community gardens.

CRS Credit

The City of Savannah currently receives credit for Activity 420 – Open Space Preservation. The CRS provides credit for preserving open space in its natural condition or restored to a state approximating its natural condition.

Action Alternatives

The following table summarizes natural resource protection measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
3.	Reserve vacant low-lying/flood-prone/wetland areas for open space through acquisition or regulation	Open space preservation can be pursued through land use and zoning and by acquisition, as appropriate.	Yes
4.	Evaluate FEMA-purchased properties for the highest use in floodwater/stormwater storage.	Neighborhoods continue to request use of these lots for community gardens and green spaces which provides an amenity, protects natural resources, and stores floodwater.	Yes
29.	Support the Chatham County-Savannah MPC Greenway Plan and coordinate with the MPC on the Plan as needed.	Greenways have the potential to protect property as well as maintain natural resources throughout the City.	Yes
31.	Coordinate with the Chatham County Resource Protection Land to acquire lands vulnerable to flooding through SPLOST funds.	This effort is supported by partners and stakeholders and can be implemented as funding allows.	Yes
-	Implement BMPs to increase storage capacity for floodwaters.	The City encourages developers to implement BMPs through its Stormwater Management Local Design Manual.	No

Emergency Services Measures

Emergency services measures protect people during and after a disaster. A good emergency management program addresses all hazards, and it involves all local government departments. At the state level, emergency services programs are coordinated by the Georgia Emergency Management Agency (GEMA). Locally, Savannah's emergency services are coordinated by Chatham County Emergency Management Agency (CEMA).

This section reviews emergency services measures following a chronological order of responding to an emergency. It starts with identifying an impending problem (threat recognition) and continues through post-disaster activities.

Threat Recognition

The first step in responding to a flood is to know when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated.

The National Weather Service (NWS) is the prime agency for detecting meteorological threats. Severe weather warnings are transmitted through NOAA's Weather Radio System. Local emergency managers can then provide more site-specific and timely recognition after the Weather Service issues a watch or a warning. A flood threat recognition system predicts the time and height of a flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels.

On smaller rivers and streams, locally established rainfall and river gauges are needed to establish a flood threat recognition system. The NWS may issue a "flash flood watch." This is issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain nor imminent. These events are so localized and so rapid that

a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available. In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

Local Implementation

The Chatham County Emergency Operations Center (EOC) operates at one of three levels of readiness in order to carry out its mission. CEMA is constantly monitoring the County for threats, unusual events, or situations. A CEMA Duty Officer (DO) is on-call 24 hours a day, 7 days a week, and is advised of any such events by dispatch, the National Weather Service, concerned citizens, or other agencies. The Duty Officer also has the responsibility to monitor and follow-up on any threat, unusual event, or situation that has the potential to impact Chatham County such as media reports, weather advisories, etc. It is important to note that although CEMA is constantly monitoring the progression of events within the County, the EOC is not considered activated. During day-to-day operations where no specific situation is occurring, the EOC is not activated.

CRS Credit

The City of Savannah currently receives credit for Activity 610 – Flood Warning Program. Credit can be received for using National Hurricane Center warnings and river flood stage predictions for the NWS's gages. The actual score is based on how much of the community's floodplain is affected by these systems.

Warning

The next step in emergency response following threat recognition is to notify the public and staff of other agencies and critical facilities. More people can implement protection measures if warnings are early and include specific detail.

The NWS issues notices to the public using two levels of notification:

- Watch: conditions are right for flooding, thunderstorms, tornadoes or winter storms.
- Warning: a flood, tornado, etc., has started or been observed.

A more specific warning may be disseminated by the community in a variety of ways. The following are the more common methods:

- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Outdoor warning sirens
- Sirens on public safety vehicles
- Door-to-door contact
- Mobile public address systems
- Email notifications

Multiple or redundant systems are most effective - if people do not hear one warning, they may still get the message from another part of the system. Each has advantages and disadvantages:

- Radio and television provide a lot of information, but people have to know when to turn them on. They are most appropriate for hazards that develop over more than a day, such as a tropical storm, hurricane, or winter storm.
- NOAA Weather Radio can provide short messages of any impending weather hazard or emergency and advise people to turn on their televisions for more information, but not everyone has a Weather Radio.
- Outdoor warning sirens can reach many people quickly as long as they are outdoors. They do not reach people in tightly-insulated buildings or those around loud noise, such as at a factory, during a thunderstorm, or in air conditioned homes. They do not explain what hazard is coming, but people should know to turn on a radio or television when they hear the siren.
- Automated telephone notification services are also fast, but can be expensive and do not work when phone lines are down. Nor do they work for unlisted numbers, call screening services, or cellular service, unless people sign up for notifications.

Just as important as issuing a warning is telling people what to do in case of an emergency. A warning program should include a public information component.

StormReady

The National Weather Service established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system that monitors weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises

Being designated a StormReady community by the National Weather Service is a good measure of a community's emergency warning program for weather hazards. It is also credited by the CRS.

Local Implementation

In the entire Chatham County area, the Chatham Emergency Management Agency (CEMA) manages the flood warning system. Once CEMA receives a potential dangerous warning, sirens will be activated. The sirens can give as little as fifteen minutes warning time. When you hear the sirens, information can be heard on the television (WTOG, WSAV, or WJCL) or on the radio at WCHY (94.1) on what to do. Information can be heard on the NOAA weather radio broadcast at frequency 162.40. Local evacuation routes can be found in the phone book.

The City of Savannah is not currently designated as a StormReady community; however, Chatham County is designated as StormReady. Should a storm threaten Chatham County, the Emergency Operations Center will activate. During activation, the county will give regularly advisories to the media and to local municipalities.

CRS Credit

The City of Savannah currently receives credit for Activity 610 – Flood Warning Program. Community Rating System credits are based on the number and types of warning media that can reach the community's flood prone population. Depending on the location, communities can receive credit for the

telephone calling system and more credits if there are additional measures, like telephone trees. Being designated as a StormReady community can provide additional credits.

Response

The protection of life and property is the most important task of emergency responders. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency preparedness)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (public works)
- Holding children at school or releasing children from school (school superintendent)
- Opening evacuation shelters (the American Red Cross)
- Monitoring water levels (public works)
- Establishing security and other protection measures (police)

An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans are developed in coordination with the agencies or offices that are given various responsibilities.

A flood stage forecast map shows areas that will be under water at various flood stages. Different flood levels are shown as color coded areas, so the emergency manager can quickly see what will be affected. Emergency management staff can identify the number of properties flooded, which roads will be under water, which critical facilities will be affected, and who to warn. With this information, an advance plan can be prepared that shows problem sites and determines what resources will be needed to respond to the predicted flood level.

Emergency response plans should be updated annually to keep contact names and telephone numbers current and to ensure that supplies and equipment that will be needed are still available. They should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and of changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner possible.

Local Implementation

Activation of the Chatham County EOC will be determined by CEMA's Director and Assistant Director (AD). The expected, actual or perceived severity of the incident is paramount in determining the level of activation. In the event the EOC is activated, the AD will make notifications to CEMA Staff and the GEMA Area V Field Coordinator. The Director will make notifications to County Commissioners as required, the County Manager and appropriate County Department Heads.

CRS Credit

The City of Savannah currently receives credit for Activity 610 – Flood Warning Program.

Evacuation and Shelter

There are six key components to a successful evacuation:

- Adequate warning
- Adequate routes
- Proper timing to ensure the routes are clear

- Traffic control
- Knowledgeable travelers
- Care for special populations (e.g., the handicapped, prisoners, hospital patients, and schoolchildren)

Those who cannot get out of harm's way need shelter. Typically, the American Red Cross will staff a shelter and ensure that there is adequate food, bedding, and wash facilities. Shelter management is a specialized skill. Managers must deal with problems like scared children, families that want to bring in their pets, and the potential for an overcrowded facility.

Local Implementation

Once an evacuation order is issued all major roadway networks within Chatham County will be considered evacuation routes for local travel. Evacuation routes from the County to inland areas have also been designated. They include GA 204, GA 21, US 80, and I-16. Before any anticipated or actual evacuation orders are issued, CEMA will communicate and coordinate with its counterparts in adjacent coastal and inland risk counties, including those in South Carolina. They will be informed of the level and type of evacuation, the time it will begin, anticipated volume of traffic and the status of I-16. Periodic status reports on evacuation progress will also be issued to these jurisdictions. In all cases the Georgia Emergency Management Agency will be kept informed and included in any and all coordinating activities.

Georgia's Public Broadcast Systems are Peach State Public Radio (PSPR) and Georgia Public Television (GPTV). They are under the Georgia Public Telecommunications Commission and will be collaborating with GEMA and other state agencies to broadcast taped and live interviews and provide "real-time" information to the rapidly changing events of a hurricane threat. Some information could be transmitted on television but the PSPR network will be a more likely resource for evacuees because they will be able to have access as they travel. The PSPR station for Savannah is 91.1FM WSVH.

CRS Credit

Because it is primarily concerned with protecting insurable buildings, the CRS does not provide any special credit for evacuation or sheltering of people (minimal credit is given in Activity 510 – Floodplain Management for evacuation policies and procedures). It is assumed that the emergency response plan would include all necessary actions in response to a flood.

Post-Disaster Recovery and Mitigation

After a disaster, communities should undertake activities to protect public health and safety and facilitate recovery. Appropriate measures include:

- Patrolling evacuated areas to prevent looting
- Providing safe drinking water
- Monitoring for diseases
- Vaccinating residents for tetanus and other diseases
- Clearing streets
- Cleaning up debris and garbage

Following a disaster, there should be an effort to help prepare people and property for the next disaster. Such an effort would include:

- Public information activities to advise residents about mitigation measures they can incorporate into their reconstruction work
- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs
- Identifying other mitigation measures that can lessen the impact of the next disaster

- Acquiring substantially or repeatedly damaged properties from willing sellers
- Planning for long-term mitigation activities
- Applying for post-disaster mitigation funds

Regulating Reconstruction

Requiring permits for building repairs and conducting inspections are vital activities to ensure that damaged structures are safe for people to reenter and repair. There is a special requirement to do this in floodplains, regardless of the type of disaster or the cause of damage. The NFIP requires that local officials enforce the substantial damage regulations. These rules require that if the cost to repair a building in the mapped floodplain equals or exceeds 50% of the building's market value, the building must be retrofitted to meet the standards of a new building in the floodplain. In most cases, this means that a substantially damaged building must be elevated above the base flood elevation.

Local Implementation

Savannah has adopted the Chatham County Disaster Recovery Plan (2015), which aids and facilitates the recovery from natural disasters including floods.. The plan was designed to identify potential actions required and the assistance necessary to support local recovery, including post-disaster mitigation.

Post-disaster mitigation is also supported by the City's flood damage prevention regulations, which apply to any substantially damaged structures. For example, the City's Flood Damage Prevention Ordinance requires that all new residential construction or substantial improvement shall have the lowest floor, including the basement, elevated to no lower than two feet above the base flood elevation.

CRS Credit

The CRS provides some credit for post-disaster mitigation procedures if the policies and procedures are incorporated into a flood mitigation or multi-hazard plan through Activity 510 – Floodplain Management Planning.

Action Alternatives

The table below summarizes emergency services measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
11.	Target critical facilities for flood mitigation.	Protecting critical facilities such as police stations, hospitals, and fire stations ensure Emergency Services are able to operate at full capacity following a flood event.	Yes
-	Continue coordination with CEMA, NWS and USGS to enhance flood warning system.	Additional enhancements are not needed. The flood warning system is well established and ensures that residents can get out of Savannah easily and quickly and reduces load on emergency service providers.	Yes

Structural Projects

Four general types of flood control projects are reviewed here: levees, reservoirs, diversions, and dredging. These projects have three advantages not provided by other mitigation measures:

- They can stop most flooding, protecting streets and landscaping in addition to buildings
- Many projects can be built without disrupting citizens' homes and businesses
- They are constructed and maintained by a government agency, a more dependable long-term management arrangement than depending on many individual private property owners

However, as shown below, structural measures also have shortcomings. The appropriateness of using flood control depends on individual project area circumstances.

- Advantages
 - They may provide the greatest amount of protection for land area used
 - Because of land limitations, they may be the only practical solution in some circumstances
 - They can incorporate other benefits into structural project design, such as water supply and recreational uses
 - Regional detention may be more cost-efficient and effective than requiring numerous small detention basins
- Disadvantages
 - They can disturb the land and disrupt the natural water flows, often destroying wildlife habitat
 - They require regular maintenance
 - They are built to a certain flood protection level that can be exceeded by larger floods
 - They can create a false sense of security
 - They promote more intensive land use and development in the floodplain

Levees and Floodwalls

Probably the best known flood control measure is a barrier of earth (levee) or concrete (floodwall) erected between the watercourse and the property to be protected. Levees and floodwalls confine water to the stream channel by raising its banks. They must be well designed to account for large floods, underground seepage, pumping of internal drainage, and erosion and scour. Key considerations when evaluating the use of a levee include:

- Design and permitting costs
- Right of way acquisition
- Removal of fill to compensate for the floodwater storage that will be displaced by the levee
- Internal drainage of surface flows from the area inside the levee
- Cost of construction
- Cost of maintenance
- Mitigation of adverse impacts to wetlands and other habitats
- Loss of river access and views
- Creating a false sense of security, because while levees may reduce flood damage for smaller more frequent rain events, they may also overtop or breach in extreme flood events and subsequently create more flood damage than would have occurred without the levee

Reservoirs and Detention

Reservoirs reduce flooding by temporarily storing flood waters behind dams or in storage or detention basins. Reservoirs lower flood heights by holding back, or detaining, runoff before it can flow downstream. Flood waters are detained until the flood has subsided, and then the water in the reservoir

or detention basin is released or pumped out slowly at a rate that the river can accommodate downstream.

Reservoirs can be dry and remain idle until a large rain event occurs. Or they may be designed so that a lake or pond is created. The lake may provide recreational benefits or water supply (which could also help mitigate a drought).

Flood control reservoirs are most commonly built for one of two purposes. Large reservoirs are constructed to protect property from existing flood problems. Smaller reservoirs, or detention basins, are built to protect property from the stormwater runoff impacts of new development.

Diversion

A diversion is a new channel that sends floodwaters to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During floods, the floodwaters spill over to the diversion channel or tunnel, which carries the excess water to a receiving lake or river.

Dredging

Dredging is often viewed as a form of conveyance improvement. However, it has the following problems:

- Given the large volume of water that comes downstream during a flood, removing a foot or two from the bottom of the channel will have little effect on flood heights.
- Dredging is often cost prohibitive because the dredged material must be disposed of somewhere.
- Unless in-stream or tributary erosion is corrected upstream, the dredged areas usually fill back in within a few years, and the process and the expense have to be repeated.
- If the channel has not been disturbed for many years, dredging will destroy the habitat that has developed.

To protect the natural values of the stream, federal law requires a U.S. Army Corps of Engineers permit before dredging can proceed. This can be a lengthy process that requires a lot of advance planning and many safeguards to protect habitats, which adds to the cost of the project.

Local Implementation

The City of Savannah does not currently receive credit for Activity 530 - Flood Protection. However, the City undertakes a variety of structural flood mitigation projects through the Capital Improvement Program and SPLOST funding. The City's newly established stormwater utility fee will eventually be able to fund stormwater improvement projects as well.

CRS Credit

Structural flood control projects that provide 100-year flood protection and that result in revisions to the Flood Insurance Rate Map are not credited by the CRS in order to avoid duplicating the larger premium reduction provided by removing properties from the mapped floodplain.

The CRS credits smaller flood control projects that meet the following criteria:

- They must provide protection to at least the 25-year flood
- They must meet certain environmental protection criteria
- They must meet federal, state and local regulations, such as the Corps of Engineers' 404 permit and State dam safety rules
- They must meet certain maintenance requirements

These criteria ensure that credited projects are well-planned and permitted. Any of the measures reviewed in this section would be recognized under Activity 530 - Flood Protection. Credit points are based on the type of project, how many buildings are protected, and the level of flood protection provided.

Action Alternatives

The table below summarizes structural project measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
1.	Comprehensive evaluation of drainage system and implementation of selected projects.	Consistently evaluating, maintaining, and updating the drainage system reduces incidences of flooding, particularly stormwater and localized flooding events.	Yes
23.	Strategically focus SPLOST funds toward identified drainage improvement projects.	Improving drainage systems allows for better functioning during storm events.	Yes
27.	Prioritize CIP projects to address flooding and drainage in stormwater/localized flooding hotspots	Many of these projects are included in the City's constantly updated Capital Improvements program.	Yes
-	Floodwalls around high risk areas	Not recommended due to cost and scale of high risk areas	No
-	Dredging	Not recommended due to potential negative environmental impacts	No

Public Information

Outreach Projects

Outreach projects are the first step in the process of orienting property owners to the hazards they face and to the concept of property protection. They are designed to encourage people to seek out more information in order to take steps to protect themselves and their properties.

Awareness of the hazard is not enough; people need to be told what they can do about the hazard. Thus, projects should include information on safety, health and property protection measures. Research has shown that a properly run local information program is more effective than national advertising or publicity campaigns. Therefore, outreach projects should be locally designed and tailored to meet local conditions.

Community newsletters/direct mailings: The most effective types of outreach projects are mailed or distributed to everyone in the community. In the case of floods, they can be sent only to floodplain property owners.

News media: Local newspapers can be strong allies in efforts to inform the public. Local radio stations and cable TV channels can also help. These media offer interview formats and cable TV may be willing to broadcast videos on the hazards.

Other approaches: Examples of other outreach projects include:

- Presentations at meetings of neighborhood, civic or business groups
- Displays in public buildings or shopping malls

- Signs in parks, along trails and on waterfronts that explain the natural features (such as the river) and their relation to the hazards (such as floods)
- Brochures available in municipal buildings and libraries
- Special meetings, workshops and seminars

Local Implementation

A community brochure is mailed to all properties in the community on an annual basis. An outreach brochure is mailed annually to all properties in the SFHA. The community also provides flood information at public buildings and public events.

CRS Credit

The City of Savannah currently receives credit under Activity 330 – Outreach Projects.

Real Estate Disclosure

Many times after a flood or other natural disaster, people say they would have taken steps to protect themselves if they had known they had purchased a property exposed to a hazard. There are some federal and state requirements about such disclosures:

- Federal law: Federally regulated lending institutions must advise applicants for a mortgage or other loan that is to be secured by an insurable building whether the property is in a floodplain as shown on the Flood Insurance Rate Map. If so, flood insurance is required for buildings located within the floodplain if the mortgage or loan is federally insured.
- State law: State laws set standards for real estate sales and licensing of agents and brokers.

Local Implementation

Savannah currently receives credits under Activity 340 – Hazard Disclosure for requiring local real estate agents to disclose flood hazards to prospective buyers.

Libraries and Websites

The two previous activities tell people that they are exposed to a hazard. The next step is to provide information to those who want to know more. The community library and local websites are obvious places for residents to seek information on hazards, hazard protection, and protecting natural resources.

Books and pamphlets on hazard mitigation can be given to libraries, and many of these can be obtained for free from state and federal agencies. Libraries also have their own public information campaigns with displays, lectures and other projects, which can augment the activities of the local government. Today, websites are commonly used as research tools. They provide fast access to a wealth of public and private sites for information. Through links to other websites, there is almost no limit to the amount of up to date information that can be accessed on the Internet.

In addition to online floodplain maps, websites can link to information for homeowners on how to retrofit for floods or a website about floods for children.

Local Implementation

The City of Savannah provides documents relating to floodplain management in the reference section of the Live Oak Public Library. Savannah maintains a City website that provides flood protection information

including flood insurance, property protection, flood warning system, permit requirements, and drainage system maintenance.

CRS Credit

The City of Savannah currently receives credit under Activity 350 – Flood Protection Information. The Community Rating System provides credits for having a variety of flood references in the local public library and for providing similar material on municipal websites.

Technical Assistance

Hazard Information

Residents and business owners that are aware of the potential hazards can take steps to avoid problems or reduce their exposure to flooding. Communities can easily provide map information from FEMA's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Studies. They may also assist residents in submitting requests for map amendments and revisions when they are needed to show that a building is located outside the mapped floodplain.

Some communities supplement what is shown on the FIRM with information on additional hazards, flooding outside mapped areas and zoning. When the map information is provided, community staff can explain insurance, property protection measures and mitigation options that are available to property owners. They should also remind inquirers that being outside the mapped floodplain is no guarantee that a property will never flood.

Property Protection Assistance

While general information provided by outreach projects or the library is beneficial, most property owners do not feel ready to retrofit their buildings without more specific guidance. Local building department staffs are experts in construction. They can provide free advice, not necessarily to design a protection measure, but to steer the owner onto the right track. Building or public works department staffs can provide the following types of assistance:

- Visit properties and offer protection suggestions
- Recommend or identify qualified or licensed contractors
- Inspect homes for anchoring of roofing and the home to the foundation
- Explain when building permits are needed for home improvements.

Local Implementation

FEMA floodplain maps are available on Savannah's website, and the City responds to requests on whether a property is located in a SFHA. Property protection measures are also included on the City's website. Savannah also responds to drainage complaints and provides technical advice and assistance to interested property owners and annually publicizes the service.

CRS Credit

Savannah currently receives credit under Activity 320 – Map Information Service and Activity 360 – Flood Protection Assistance.

Program for Public Information

A program for public information (PPI) is a document that receives CRS credit. It is a review of local conditions, local public information needs, and a recommended plan of activities. A PPI consists of the following parts, which are integrated into this plan:

- The local flood hazard
- The property protection measures appropriate for the flood hazard
- Flood safety measures appropriate for the local situation
- The public information activities currently being implemented within the community, including those being carried out by non-government agencies
- Goals for the community's public information program
- The outreach projects that will be done each year to reach the goals
- The process that will be followed to monitor and evaluate the projects

Local Implementation

Savannah has a PPI in place. The FMPC updated the PPI for Savannah in a joint planning process with this Floodplain Management Plan update.

CRS Credit

The CRS provides credit for a PPI under Activity 330 – Outreach Projects.

Action Alternatives

The table below summarizes public information and outreach measures considered by the FMPC and provides the rationale for whether or not the FMPC recommended pursuing each alternative.

Action #	Mitigation Action	Reason for Pursuing / Not Pursuing	Recommended Y/N
	Post flood mitigation information at libraries, post offices, heavily trafficked municipal buildings and community centers. Develop and post "potential high water mark" signs.	This activity is established but can be continually improved and implemented in conjunction with the PPI.	Yes
18.	Educate the public on the use of permeable concrete paving and establishment of rain gardens to reduce flash flooding impacts.	City is committed to public outreach programs dedicated to informing the public about flood protection that can be completed by property owners	Yes
20.	Provide flood mitigation update and outreach to neighborhood groups and other interested parties via an email group address.	Direct outreach ensures those most likely to be impacted by floods are getting the education needed.	Yes

End