



Weston & SampsonSM

Effingham County Joint Hazard Mitigation Plan

2023-2028



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Local Mitigation Plan Review Tool

Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA’s evaluation of whether the plan has addressed all requirements.

For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.

Plan Information	
Jurisdiction(s)	Effingham County, GA City of Springfield, GA City of Guyton, GA City of Rincon, GA
Title of Plan	Effingham County Georgia 2023 Multi-Jurisdictional Hazard Mitigation Plan
New Plan or Update	Update
Single- or Multi-Jurisdiction	Multi-jurisdiction
Date of Plan	10/26/2023
Local Point of Contact	
Title	Fire Chief/EMA Director- Clint Hodges
Agency	Effingham County Emergency Management Agency
Address	804 S. Laurel Street, Springfield, Georgia 31329
Phone Number	912-754-8888
Email	CHodges@EffinghamCounty.org

Additional Point of Contact	
Title	EMA Coordinator – Shanna Smith
Agency	Effingham County Emergency Management Agency
Address	181 Recycle Way, Guyton, Georgia 31312
Phone Number	912-429-8734
Email	SSmith@EffinghamCounty.org

Review Information	
State Review	
State Reviewer(s) and Title	Click or tap here to enter text.
State Review Date	Click or tap to enter a date.
FEMA Review	
FEMA Reviewer(s) and Title	Click or tap here to enter text.
Date Received in FEMA Region	Click or tap to enter a date.
Plan Not Approved	Click or tap to enter a date.
Plan Approvable Pending Adoption	Click or tap to enter a date.
Plan Approved	Click or tap to enter a date.

Multi-Jurisdictional Summary Sheet

#	Jurisdiction Name	Requirements Met (Y/N)						
		A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. State Requirements
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been “met” or “not met.” FEMA completes the “required revisions” summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is “not met.” Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Watch for these symbols!



The FEMA hazard mitigation planning requirements and updated in the April 2022 Local Mitigation Planning and Policy Guide handbook will be identified throughout the report by circular call-outs in the left-hand margin. These call-outs correspond to the FEMA hazard mitigation plan review checklist requirements.

Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan’s development, as well as who was involved?	Chapter 2.0 Section 2.1, 2.2, 2.3 Figure 2-1 Planning Process Schedule Table 2-2 HMP Committee Table 2-3 HMP Meeting Schedule Appendix A: All Invited	Met
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Section 1.5.2 Multi- jurisdictional considerations Section 2.2, Mitigation Planning Committee and roles in HMP process	Met
A2. Does the plan document 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 non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))		
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Section 2.3 Appendix C Outreach Materials, Public Survey, GIS StoryMap	Met

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Section 2.3 Extensive public engagement process that ensured all voices were heard. Figure 2-2 Engagement Formats Figure 2-3 Survey Responses	Met
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))		
A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Section 1.4 Overview of other plans and how these reports informed the HMP. Section 6.1 Long Range Plans Plans and reports were referenced throughout the HMP.	Met

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
ELEMENT A REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Chapter 3, Sections 3.1 -3.13, See subsections ending in .1 (Description)	Met
B1-b. Does the plan include information on the location of each identified hazard?	Chapter 3, Sections 3.1 -3.13, See subsections ending in .2 (Location)	Met
B1-c. Does the plan describe the extent for each identified hazard?	Chapter 3, Sections 3.1 -3.13, See subsections ending in .2 (Extent)	Met
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Chapter 3, Sections 3.1 -3.13, See subsections ending in .2 (Previous events)	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1-e. Does the plan include the probability of future events for each identified hazard? Does the plan describe the effects of future conditions, including climate change (e.g., long-term weather patterns, average temperature and sea levels), on the type, location and range of anticipated intensities of identified hazards?	Chapter 3, Sections 3.1 -3.13, See subsections ending in .2 (Probability of Future Events) AND Subsections ending in .3 (Climate Change)	Met
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	Chapter 3, Sections 3.1 -3.13, Hazards are specific; some examples varying from whole plan area are shown in Figure 3-4 Flood Hazard Areas and Figure 3-5 Coastal Flooding with Sea Level Rise by 2030 and 2080	Met
B2. Does the plan include a summary of the jurisdiction’s vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))		
B2-a. Does the plan provide an overall summary of each jurisdiction’s vulnerability to the identified hazards?	Chapter 4 Critical Asset Inventory + Chapter 5 Vulnerability Assessment, Section 5.1 -5.17 Subsection ending in .8 (Risk Assessment Table)	Met
B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	Chapter 4 Critical Asset Inventory + Chapter 5 Vulnerability Assessment, Section 5.1 -5.17 Subsections ending in .2 -.7	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	Chapter 5, Section 5.2.7	Met
ELEMENT B REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C1. Does the plan document each participant’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Chapter 6, Sections 6.1- 6.10 capabilities Section 6.2 -6.3 Building Codes and Land Use	Met
C1-b. Does the plan describe each participant’s ability to expand and improve the identified capabilities to achieve mitigation?	Chapter 6, Sections 6.1 -6.10 + Chapter 7, Section 7.6Mitigation Strategies	Met
C2. Does the plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	Section 6.9 NFIP Flood Insurance Program Compliance	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Chapter 7, Section 7.2 Updated 2023 Goals and Objectives (introduced in Executive Summary)	Met
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Section 7.6.1 Prioritized Action Details (Grouped by CRS Categories)	Met
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?	Section 7.6.2 – 7.6.5 Prioritized Actions for each Jurisdiction	Met
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Section 7.4 Table 7-3 Prioritization Scoring Factors	Met
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Section 7.6.2 – 7.6.5 Prioritized Actions with responsible party, funding, timeframe	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
ELEMENT C REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Chapter 8, Plan Maintenance, Section 8.4 Public Participation	Met
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Section 8.1 Monitoring the Plan	Met
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Section 8.2 Evaluating the Plan	Met
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Section 8.3 Updating the Plan	Met

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	Section 8.5 Integrating the Plan	Met
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	Section 8.5 Integrating the Plan	Met
D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	Section 8.5 Integrating the Plan	Met
ELEMENT D REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	Section 1.6.1 Growth and Development Section 4.1 Land Use and Development Trends	Met
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	Section 7.4	Met

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	Section 7.6.2 – 7.6.5 Prioritized Actions for each Jurisdiction, columns for 2017 and 2023 status *Note 2017 HMP Action # column as well	Met
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Section 7.6.2 – 7.6.5 Prioritized Actions for each Jurisdiction, columns for 2017 status	Met
ELEMENT E REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?	Click or tap here to enter text.	Choose an item.
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	Click or tap here to enter text.	Choose an item.

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
ELEMENT F REQUIRED REVISIONS		
Required Revision: Click or tap here to enter text.		

Element G: High Hazard Potential Dams (Optional)

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	Click or tap here to enter text.	Choose an item.
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	Click or tap here to enter text.	Choose an item.
HHPD2. Did the plan address HHPDs in the risk assessment?		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	Click or tap here to enter text.	Choose an item.
HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	Click or tap here to enter text.	Choose an item.
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	Click or tap here to enter text.	Choose an item.
HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	Click or tap here to enter text.	Choose an item.

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	Click or tap here to enter text.	Choose an item.
HHPD Required Revisions		
Required Revision: Click or tap here to enter text.		

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the State to include additional requirements		
Click or tap here to enter text.	Click or tap here to enter text.	Choose an item.

Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

Element A. Planning Process

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element B. Risk Assessment

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element C. Mitigation Strategy

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element D. Plan Maintenance

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element E. Plan Update

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element G. HHPD Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element H. Additional State Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

FOREWORD



Our mission is to create a safer and more resilient future for all community members within Effingham County and in the cities of Springfield, Guyton and Rincon through collaborative and pro-active hazard mitigation planning. We recognize the importance of working together across boundaries within our county and in our region and state to identify and address the risks posed by natural hazards.

We recognize that the southeast is increasingly experiencing the impacts of climate change through more frequent and intense weather as well as nighttime temperatures that don't cool down. Through our hazard mitigation planning efforts, we aim not only to mitigate the risks of these hazards but also to address the underlying causes of climate change and work towards a more sustainable future.

We believe that equity and inclusion must be central to our planning and implementation efforts. By recognizing and addressing the specific needs of vulnerable populations within our communities, we can ensure that everyone has equal access to the resources and support necessary to build resilience in the face of hazards.

Our vision is one of a future where all community members are empowered to proactively prepare for and mitigate the risks of natural hazards and climate change. By working collaboratively and with a shared sense of purpose, we can create a safer, more resilient, and more equitable future for all.

EXECUTIVE SUMMARY

The purpose of the Effingham County Multi-Jurisdictional Hazard Mitigation Plan is to create a safer community for Effingham County residents by reducing or eliminating the long-term risk to human life, property, and environmental degradation from hazards. This will be accomplished by creating a planning document that becomes the foundation for emergency management planning, training, and preparedness, and by identifying those hazard mitigation projects that will reduce the impact of future hazard events.

This document, referred to as the Effingham County Joint Hazard Mitigation Plan, is the official update to the plan approved by the Federal Emergency Management Agency (FEMA) Region IV on October 28, 2018. The contents of this document are intended to provide the framework for hazard mitigation strategies and actions undertaken by local governments within Effingham County. The purpose of completing these proposed hazard mitigation actions is ultimately the reduction of the overall level of exposure and risk to the citizens of Effingham County, Georgia. The Hazard Mitigation Plan Update meets the requirements of the Disaster Mitigation Act of 2000 Public Law 106-390, October 30, 2000, as stipulated in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria, published on February 26, 2002. Additionally, the Plan is intended to meet 2022 updated FEMA Local Mitigation Policy Guide, effective April 19, 2023. Meeting the requirements will allow Effingham County to maintain eligibility and qualify to secure certain hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

A. Introduction

The Effingham County Emergency Management Agency coordinates the development and maintenance of the Effingham County Multi-Jurisdictional Hazard Mitigation Plan, which includes the municipalities of Guyton, Rincon, and Springfield. The plan has been updated in 2023 in accordance with federal regulations.

Effingham County Emergency Management Agency staff convened an inter-disciplinary Hazard Mitigation Planning Committee comprised of representatives of the participating jurisdictions. The Committee attended regular meetings to provide input and insight at different stages of the process. The public was invited to participate in the planning process at various points throughout the project, including via a survey and multiple public meetings.

B. Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee agreed upon which hazards they feel have the largest potential to impact Effingham County residents and should be included in the plan. Following hazard identification, an asset inventory for Effingham County was completed. These assets were incorporated into a FEMA Hazus model to determine the vulnerability of Effingham County to various potential hazard events. The Committee and the consultant then systematically assessed potential impacts to the community from the identified hazards.





Hazard Type	2023 Planning Consideration Level
Inland Flooding	High
Dam Failure	Low
Coastal Hazards	Medium-Low
Hurricanes	High
Wind	Medium-High
Tornadoes	Medium
Severe Weather	High
Severe Winter Weather	Low
Geologic Hazards	Low
Seismic Hazards	Medium
Extreme Heat	High
Drought	Medium-High
Wildfire	High

C. Capability Assessment

The purpose of the capability assessment is to determine the current capacity of the participating jurisdictions to mitigate the potential impacts of the hazards identified in this plan. The capability assessment allows the Committee to ascertain areas for improvement in the hazard mitigation planning and implementation process.

D. Mitigation Strategy

Using the results from the vulnerability and capability assessments, the Committee developed updated goals and actions for each participating jurisdiction. The goals and objectives of the Plan are:

 <p>1</p>	<p>Minimize loss of life and property from impacts of hazards.</p> <ul style="list-style-type: none"> 1.1 Retrofit or otherwise protect critical facilities, community assets, and infrastructure. 1.2 Regulate development in known hazard areas. 1.3 Protect natural and environmentally beneficial resources.
 <p>2</p>	<p>Improve education and outreach efforts to protect community assets and critical facilities from hazards.</p> <ul style="list-style-type: none"> 2.1 Expand outreach methods to reach more audiences. 2.2 Increase hazard mitigation training, knowledge, and resources for County and City staff. 2.3 Encourage preparedness for hazard mitigation at the individual level.
 <p>3</p>	<p>Increase coordination and capabilities to plan and implement projects to minimize loss from hazards.</p> <ul style="list-style-type: none"> 3.1 Promote inclusion of climate change data and resiliency practices in planning and design. 3.2 Utilize technology to improve capabilities. 3.3 Increase interdepartmental coordination.
 <p>4</p>	<p>Improve data collection, dissemination, and redundancy to reduce impacts from hazards.</p> <ul style="list-style-type: none"> 4.1 Increase redundancy of critical systems and services. 4.2 Encourage data and resource sharing across the County and adjacent municipalities.

The mitigation strategies in this plan are tangible steps these jurisdictions can take to ensure that their communities can prepare for, respond to, and recover from hazard events.

E. Plan Monitoring and Maintenance Procedures

This update contains a process for implementing, maintaining, evaluating, and updating the Plan. The Effingham County Emergency Management Agency will be responsible for coordinating updates to the Plan. In the 2023-2028 time period, the Hazard Mitigation Planning Committee will convene quarterly to ensure that the plan stays relevant and useful.

F. Conclusion

This plan demonstrates Effingham County’s commitment to preparedness and resilience. This plan will enhance the public safety of residents and businesses and will improve Effingham County’s response to and recovery from hazard events. Natural hazards cannot be prevented, but Effingham County is well-positioned to mitigate the potentially devastating impacts from these events.

1.0 INTRODUCTION



What information will I find in this chapter?

Chapter One includes an introduction to hazard mitigation planning, the organization of the 2023-2028 update, the authorities and relevant plans and studies reviewed and incorporated, and a profile of the County.

Table 1-1: Chapter 1 Summary of Changes

Chapter 1 Section	Updates to Section
What is hazard mitigation planning?	Minor updates to text
Plan Organization	Modified to add diagram to display the organization of the plan
Authorities	Minor changes to add the Georgia Water Quality Control Act, added diagram
Review and Incorporation of Relevant Plans, Studies and Technical Information	Updated to include the recently completed plans
County Profile	Updated to include current demographic data
Effingham's Economy	Minor updates to reflect growth
Effingham's Natural Environment	Minor updates
Effingham's Infrastructure	Text added to reflect major systems: transportation, stormwater management, water and wastewater services

Effingham County, working with the cities of Guyton, Springfield, and Rincon, prepared an update to the 2017-2022 Joint Hazard Mitigation Plan (HMP) to create an action roadmap to reduce the impacts of natural hazards and climate change within the County and across the region. This project is funded by a Federal Emergency Management Agency (FEMA) Grant.

Watch for these symbols!



The FEMA hazard mitigation planning requirements and updated in the April 2022 Local Mitigation Planning and Policy Guide handbook will be identified throughout the report by circular call-outs in the left-hand margin. These call-outs correspond to the FEMA hazard mitigation plan review checklist requirements.

1.1 What is Hazard Mitigation Planning?

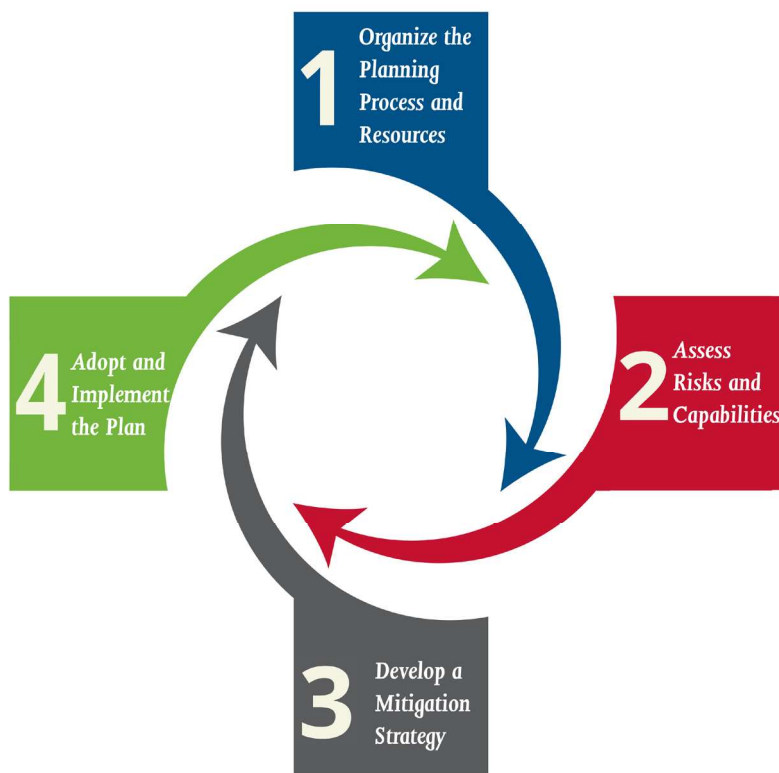


Figure 1-1: The Four Core Steps of Hazard Mitigation Planning, FEMA

Hazard mitigation planning reduces loss of life and property by minimizing the impact of hazards. It is the process by which local communities assess natural disaster risks and vulnerabilities that are common in their area, and subsequently develop long-term mitigation strategies for protecting people and property from similar hazard events that may occur in the future. Hazard mitigation plans are crucial to building community resilience and to breaking the cycle of disaster damage and reconstruction.

Local hazard mitigation plans (HMP) strengthen a community's ability to adapt and respond to future hazards. The HMP aims to develop strategies that mitigate future threats by comparing recurring and anticipated hazards with an inventory of the County's capabilities. Hazard mitigation planning is intended to help communities prepare for all different types of hazards. Natural

disasters such as earthquakes, hurricanes, and flooding, are often the most obvious type of hazard. However, there are many technological, biological, and other human-made threats that can also result in disruptions to daily life, property damage, and physical injury. Technological hazards include a variety of human-made threats, like toxic waste spills, nuclear disasters, building fires, power outages, and cyber-attacks, which can damage critical facilities, compromise confidential information, and lead to loss of life. Biological hazards, including pandemics and bioterrorism, can pose an equally significant threat to human life. Other human-made hazards include terrorism and civil unrest.

Hazard mitigation is the effort to reduce the impacts of these hazards through community planning, policy changes, educational programs, infrastructure projects, and other activities (FEMA, 2021). Hazard mitigation planning uses a stepped process with the participation of a wide range of stakeholders to define local natural hazards, assess natural and non-natural vulnerabilities and risk, review current mitigation measures, and to develop priority action items.

The resulting plan and implementation of action items saves both lives and money. FEMA reports that the National Institute of Building Sciences studies affirm that for each dollar spent on federal hazard mitigation grants, an average of six dollars are saved on disaster response. An organized, well-prepared Hazard Mitigation Plan will ensure that a community is prepared to respond to future hazard events and will continuously implement projects intended to mitigate hazards and their associated impacts.

Significantly, maintaining a compliant plan also ensures that communities remain eligible for federal grant funding through the Federal Emergency Management Agency (FEMA). To be eligible for FEMA Grants, local governments must prepare a HMP that meets the requirements established in the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by the Disaster Mitigation Act of 2000. The HMP also ensures that federally funded projects reflect a community’s priorities and offer solutions to specific threats. Please refer to Chapter 6 for more information on FEMA grants and other potential funding sources.

Why Are We Doing This?

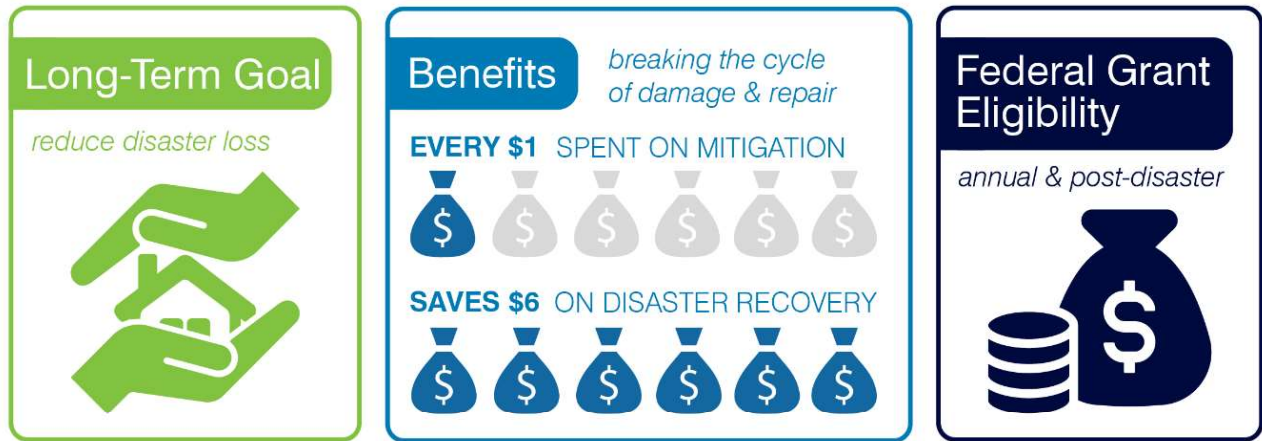


Figure 1-2: A diagram of hazard mitigation planning benefits

Many of the hazards that Effingham County commonly experiences are projected to worsen due to climate change. Climate change refers to changes in regional weather patterns that are linked to the warming of the Earth’s atmosphere as a result of both human activity and natural fluctuations. The Earth’s atmosphere has naturally occurring greenhouse gases (GHGs) like carbon dioxide (CO₂) that capture heat and contribute to the regulation of the Earth’s climate. When fossil fuels (including oil, coal and gas) are burned, GHGs are released into the atmosphere and the Earth’s temperature tends to increase. The global temperature increase affects the jet stream and climate patterns.

Climate change has already started to impact Effingham County and these trends are likely to continue. Climate change is expected to affect the typical precipitation cycle, leading to more frequent and intense rainfall and storms in some areas, as well as more droughts in others. The intensity of coastal storms is

expected to increase, meaning greater wind speeds and rainfall rates during hurricanes. Sea levels are already rising more rapidly in Georgia than along the rest of the east coast because the coastal land is naturally subsiding. Chapter 3 includes additional information on hazard severity and risk.

1.2 Plan Organization

The report presents the results of the planning process, which was informed by data review and analysis, and input received from the Planning Committee during and outside of the Planning Committee meetings, and from public engagement activities. This report is organized as visualized in the diagram below.

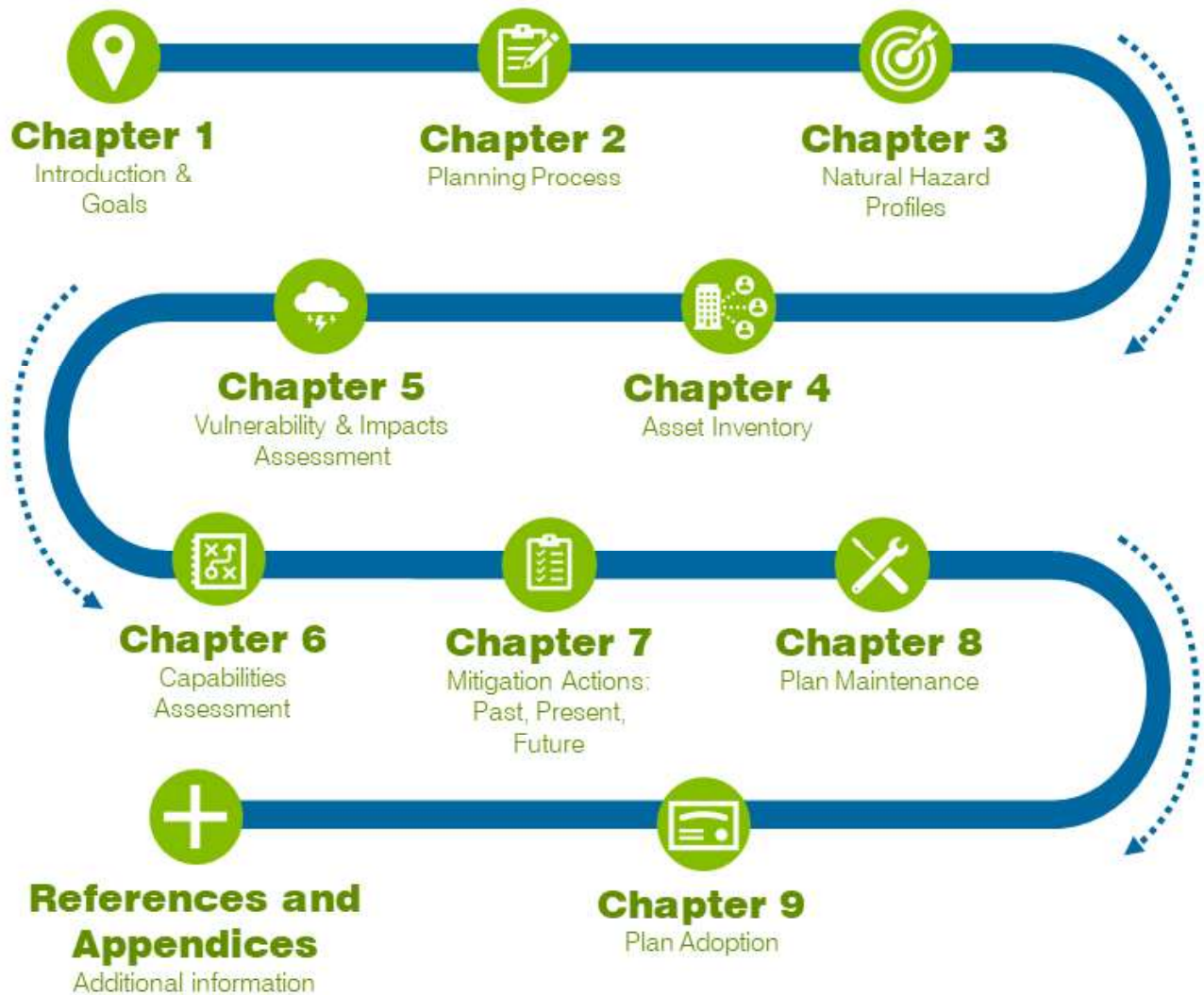


Figure 1-3: A diagram visualizing the organization of the HMP report

1.3 Authorities and Programs

The Disaster Mitigation Act of 2000 (DMA 2000)

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. DMA 2000 is the latest legislation to improve the planning aspect of that process. The act reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The act establishes a pre-disaster mitigation program and designates new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). Section 322 of the Act identifies the new requirements for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive mitigation plan prior to disaster.

State and Federal regulations and requirements for the Multi-Jurisdictional Hazard Mitigation Plan Update have been refined, and some added to enhance the data sources. State and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to, and the capabilities of, the individual communities. Failure to meet the new criteria will make state and local governments ineligible for Stafford Assistance, and thus forfeit some types of emergency assistance. The same applies to timely, state and federally required and approved plan updates. A FEMA-approved Local Mitigation Plan is required to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

The following sections include information about the existing state planning initiatives and mitigation programs.

Georgia Planning Act (OCGA 50-8-1)

The Georgia General Assembly adopted the Georgia Planning Act in 1989 to ensure that Georgia's growth and development were sustainable, improved residents' quality of life, supported economic development, protected the environment, and allowed for local flexibility in planning decisions. It provides a structured framework to guide land use and development practices in the state while considering the unique characteristics and challenges of different communities. The legislature strives to conserve and protect natural and historic resources, protect and promote the quality of life through proper land use planning, and protect community facilities. The cornerstone of the coordinated planning program is the preparation of a long-range comprehensive plan every five years by each local government. These plans are intended to highlight community goals and objectives as well as determine how the government proposes to achieve those goals and objectives. With the passage of the Georgia Planning Act of 1989, Georgia's 159 counties and 529 cities were all designated "Qualified Local Governments." Each of these local governments must maintain their status to remain eligible for a range of state and federal assistance programs. There are ongoing efforts to integrate local hazard mitigation planning with the local comprehensive planning process.

Coastal Marshland Protection (OCGA 12-5-280)

The Coastal Marshland Protection Act provides the Coastal Resources Division of the Georgia Department of Natural Resources with the authority to protect tidal wetlands. The Coastal Marshland Protection Act limits certain activities and structures in marsh areas and requires permits for other

activities and structures. Erecting structures, dredging, or filling marsh areas require a Marsh Permit administered through the Georgia Coastal Management Program.



Figure 1-4: Integrated statutory authorities timeline

Erosion and Sedimentation Control (OCGA 12-7-1)/ Stormwater Management

Nationally, the United States Environmental Protection Agency (EPA) manages the National Pollutant Discharge Elimination System (NPDES) program, a comprehensive regulatory framework established to manage and control the discharge of pollutants into the nation's waters, including rivers, lakes, and oceans. It requires industrial facilities, municipalities, and other entities that release pollutants into these waters to obtain permits that outline specific pollution limits and management practices. Specifically, the State of Georgia uses federally delegated authority to protect water quality through the Georgia Erosion and Sedimentation Act of 1975. The Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities based on the minimum requirements established by the act. The Erosion and Sedimentation Act is administered by the Georgia Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (DNR) and local governments. Permits are required for specific land-disturbing activities, including the construction or modification of manufacturing facilities, construction activities, some activities related to transportation facilities, activities on marsh hammocks, and others.

River Corridor Protection (OCGA 12-2-1)

The statute, informally known as the Mountain and Corridor Protection Act, authorizes the Georgia DNR to develop minimum standards for the protection of river corridors (and mountains, watersheds, and wetlands) for local governments to adopt. EPD administers the act. All rivers in Georgia with an average annual flow of 400 cubic feet per second are covered by the act, except those within the jurisdiction of the Coastal Marshlands Protection Act. Some of the act's major provisions include: requirements for a 100-foot vegetative buffer on both sides of rivers, consistency with the Georgia Erosion and Sedimentation Act, and local governments' identification of river corridors in land-use plans developed under their respective comprehensive planning acts.

Watershed and Flood Prevention Act, PL 83-566, August 4, 1954 (16 U.S.C. 1001-1008)

This federal declaration authorized the establishment of programs to aid in protecting lives and property threatened by watershed-related natural disasters, such as flooding and erosion. Prior to fiscal year 1996, separate programs addressed small watershed planning activities and cooperative river basin surveys and investigations. Following the 1996 appropriations act, activities specified under the Watershed and Flood Prevention Act were combined into the single program known as the Emergency Watershed Protection (EWP) program. The purpose of the EWP program is to assist federal, state, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment as well as to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, water conservation, wetland protection and restoration, water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for wildlife and forest-based industries. Methods of planning and surveying addressed by the program include specific watershed plans, river basin surveys, flood hazard analyses, and floodplain management assistance. The purpose of the plans and surveys is to identify solutions that use land treatment and nonstructural measures to resolve resource problems.

Federal Hazard Mitigation Programs

Because the Georgia Emergency Management Agency and Homeland Security (GEMA/HS) administers federal hazard mitigation programs for Georgia, GEMA/HS's planning process is inherently integrated into these federal programs, specifically the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), the National Flood Insurance Program (NFIP), the Community Rating System (CRS), Flood Mitigation Assistance Program (FMA), the Map Modernization Project, Repetitive Flood

Claims Program (RFC) and Severe Repetitive Loss Program (SRL). The Hazard Mitigation Grant Program (HMGP), authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency assistance Act, provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration to reduce the loss of life and property due to hazard events and to enable the implementation of mitigation measures during the immediate recovery period.

Repetitive Flood Claims (RFC) Grant Program

Authorized through the Bunning-Bereuter- Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). The RFC program provides funds to assist States and communities in reducing flood damage to insured properties that have had one or more claims to the National Flood Insurance (NFIP) Fund. RFC grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. Georgia has utilized project grants in the first two years of this program’s existence to permanently mitigate NFIP insured structures through property acquisition.

A4-a

1.4 Review and Incorporation of Relevant Plans, Studies, and Technical Information

Effingham County and the municipalities’ staff, with assistance from Weston & Sampson, collected and reviewed federal, statewide, and local reports and documents. These documents were reviewed for relevance to hazards and inclusion of actions that relate to this plan. The reviewed plans and documents are listed in Table 1-2.

Table 1-2: Reviewed Plans and Reports

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Hazard Mitigation Plan
Joint Comprehensive Plan (2019)	Effingham County Planning & Zoning	Long-range community planning for Effingham County	Provides recommendations for mitigation actions. Provides opportunity to implement mitigation strategies related to land use
Parks and Recreation Comprehensive Plan (2023)	Effingham County Recreation & Parks	Long-range planning for park and recreation facilities in Effingham County	Provides recommendations for mitigation actions. Provides opportunity to implement mitigation strategies related to open space.

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Hazard Mitigation Plan
Public Awareness, Education, and Preparedness Program (2014)	Effingham County Emergency Management Agency	To develop and distribute public information regarding hazard risk and preparedness	Provides recommendations for mitigation actions. Provides opportunity to implement mitigation strategies related to public information and education.
Community Wildfire Protection Plan (2018)	Effingham County Emergency Management Agency	To prepare for and mitigate community risk of wildfires	Provides recommendations for mitigation actions. Provides opportunity to implement mitigation strategies related to wildfires.
Local Emergency Operations Plan (2023)	Effingham County Emergency Management Agency	Creates a standard operating procedure for disaster/incident response	Provides recommendations for mitigation actions. Provides opportunity to implement mitigation strategies related to emergency services.
Master Transportation Plan (2021)	Effingham County Board of Commissioners	Long-range planning for roads and traffic flow in Effingham County	Provides opportunity to implement mitigation strategies related to roads and rights-of-way.
Budget Book for FY 2023	Effingham County Finance & Accounting	To allocate resources to different departments in Effingham County	Provides an indication of what types of mitigation strategies can or will be funded.
State of Georgia Hazard Mitigation Plan 2019	Georgia Emergency Management and Homeland Security Agency	To reduce loss of life and property to hazards and increase resilience in the state of Georgia	Provides examples and guidance for the Effingham County HMP.

Each chapter of the 2017 Hazard Mitigation Plan was reviewed and updated with current hazard, risk, and vulnerability data; changes in development; updates to existing capabilities; as well as previous accomplishments of mitigation strategy efforts. Formal meetings of the Hazard Mitigation Planning Committee were held every other week over a several month period. All invitees, including those who were unable to attend, were provided with meeting minutes and copies of meeting materials to keep the entire team informed.

The plan update process included committee meetings to review hazard, risk, and vulnerability (HRV) assessment data and formulate mitigation actions based on collected assessments and local community engagement.

1.5 County Profile

Overview

Effingham County is a prosperous, rapidly growing community where rich heritage meets modern ingenuity. Its location just 20 miles northwest of Savannah offers residents with access to Georgia's largest coastal city while providing residents with a tranquil rural atmosphere. It was ranked as Georgia's thirty-ninth most populated county with nearly 65,000 residents (US Census, 2020). Effingham's rich history can be attributed to it being the fourth of Georgia's original eight counties. Its first inhabitants were the Muscogee (Creek) Tribe, who lost their land in 1734 to settlers arriving from Germany. During the colonial period, Georgia was divided into parishes. In 1777, the parishes of St. Matthew and St. Philip merged to form Effingham County, encompassing an area of 483 square miles. The County was named after Thomas Howard, the third earl of Effingham, who championed the cause of the colonies in the years leading to the American Revolution (1775-83). Springfield, Effingham's fourth County seat, was founded in 1799 and incorporated in 1838. Previous County seats were Tuckasee King (1784-87), Elberton (1787-97), and Ebenezer (1797-99). Tuckasee King was a river-landing community in the town of Cloy, and Elberton and Ebenezer are no longer active communities. Guyton and Rincon were later added as incorporated Towns (Cooksey, 2022).

Colonial History

Religious Refuge

The first European settlers were Lutherans from Salzburg, Austria, who had been exiled to Augsburg, Germany, at the beginning of the eighteenth century. Attracted by offers of land and start-up funding from the Georgia Trustees, seventy-eight Salzburger left Augsburg for Georgia under the leadership of their pastors, Johann Martin Boltzius and Israel Christian Gronau, as the "First Salzburger Transport." When they arrived in 1734, General James Oglethorpe offered them a low-lying area about 25 miles from Savannah, on the frontier of English territory. They called their new community Ebenezer. The Salzburger lived there in great hardship, struggling to grow crops, and often contracting disease in the swampy area. With Oglethorpe's permission, the Salzburger relocated two years later to a higher location on a ridge overlooking the Savannah River. The new town retained the same official name, but informally became known as New Ebenezer.

Within a few decades, the Salzburger occupied about twenty-five square miles in the County, establishing farms, gristmills, lumber mills, and silk filature. In 1769, they built a red brick church known as the Old Salzburger Church, or Jerusalem Church. The Salzburger established the first Sunday school in Georgia in 1734 and the first orphanage in 1737, which remains the oldest continuing Lutheran congregation in America to worship in its original building. Other Salzburger settlements in Effingham County were Abercorn, Bethany, and Goshen. Although Salzburger did not found Abercorn, they began moving into the dying Scottish town in the 1740s.

After the death of Boltzius in 1765, however, the group began to lose its cohesion, a process that was accelerated by the American Revolution. During the war, the British occupied Ebenezer, converted

Jerusalem Church into a hospital, set up taverns, and quartered their troops in Salzburger homes, making life for the settlers so unpleasant that many of them fled to the countryside. When they returned after the war, they found their homes and other buildings in ruins. Efforts to revive trade and industry were unsuccessful, and Ebenezer, Abercorn, and Goshen became ghost towns. Many descendants of the Salzburgers still live in Effingham County, however, and a number of them are active in the Georgia Salzburger Society, founded in 1925.

Hardship and Prosperity

The Civil War (1861-65) brought hardship when Union general William T. Sherman's troops came through the County on their March to the Sea in 1864. Some Union soldiers encamped on the Eden Road after passing through Springfield. Others occupied Jerusalem Church, using its picket fence and hymnals for fires and engaging in skirmishes on the grounds. The County received its first economic boost in the late nineteenth century when railroads began laying tracks. The City of Rincon originated in 1891, when the South Bound Railroad laid tracks from Savannah to Columbia, South Carolina, through the area. Residents catered to the needs of railroad workers and began to prosper. They built cotton gins, lumber mills, and turpentine stills. Rincon grew enough to warrant incorporation in 1927. Another boost came in the 1980s with the arrival of large companies and factories, contributing to a growth spurt that made Rincon the largest of Effingham County's towns. While Rincon was growing, the City of Springfield experienced some hard times after the Civil War. First, the city lost some of its historic buildings to several fires between the late 1800s and the 1960s, but it has since renovated and restored many of those that remain. Once situated along the main county thoroughfare for automobile traffic, Springfield was forced to reinvent itself when the Highway 21 bypass was built in the late 1990s, thereby diverting thousands of cars from its business district. At the same time, several important county offices were moved to Rincon, driving many Springfield businesses to close. To address this economic shift, the city has focused on promoting its history, tourism and quality of life. In 2000, these efforts were rewarded by its being named a Georgia "Better Hometown" (Cooksey, 2022).

A Look to the Past Informs the Future







Historical context provides a window of insight into the shaping of the County today. It's critically important to consider the past in relation to hazard mitigation as additional burden on socially vulnerable populations often stems from centuries of discrimination and inequality. The unfortunate irony about Sherman's historic march was unintended consequences for the very people the Union was fighting to protect. Although black history was poorly recorded throughout slavery, recent research indicates that over 100 slaves died and 500 were returned to captivity while attempting to cross Ebenezer Creek behind Sherman's troops (Chiariello, 2021). There have been lasting impacts on the vulnerability of Effingham County residents as well as those in surrounding municipalities. Inequity that dates back centuries continues to create barriers for some segments of the community. These inequities only exacerbate the hazards faced by the larger population. Demographic trends and the impacts of historical inequities offer guidance for how the County should prepare for natural disasters and other hazards.




1.5.1 Community Profiles

The three major Cities of Effingham County are Guyton, Rincon, and Springfield. All three Cities and greater Effingham County are continuing to grow at steady rates. Hazard mitigation relies heavily on Effingham's ability to respond to and recover from natural and other disasters. Community

demographics, including population size, age, and economic characteristics are essential to determining Effingham’s vulnerability. **The Centers for Disease Control analyzes these demographic characteristics to create a *social vulnerability score*, which offers additional insight into the community’s adaptive capacity.** The County has a low social vulnerability index, but there are census tracts with medium to high vulnerability (CDC, 2020). Table 1-3 below provides a breakdown of Effingham’s demographic composition.

Table 1-3: Population Demographics

		Guyton	Rincon	Springfield	Effingham County	Georgia
	Population	2,278	10,662	2,703	66,741	10,788,029
	Under the Age 18	33.4%	29.9%	23.1%	26.5%	23.4%
65+	Over Age 65	7.2%	7.0%	11.9%	12.2%	14.7%
	Bachelor’s degree or higher	13.2%	34.36%	27.38%	24.1%	33.0%
	Median household income	\$68,214	\$66,355	\$59,931	\$72,279	\$65,030
\$	Poverty Rate	13.1%	12.5%	4.5%	9.2%	14.0%
	With a Disability	12.8%	9.5%	7.0%	7.6%	8.9%
	Limited English-Speaking Skills	0.0%	7.73%	3.94%	4.1%	14.3%

		Guyton	Rincon	Springfield	Effingham County	Georgia
	Housing Units (Total)	800	4,282	989	25,244	4,475,274
	Housing Units (Occupied)	89.3%	55.2%	62.4%	76.3%	64.5%
	Renter-Occupancy Rate	27.2%	44.8%	37.6%	25.6%	34.0%

(U.S. Census Bureau 5-Year American Community Survey, 2021)

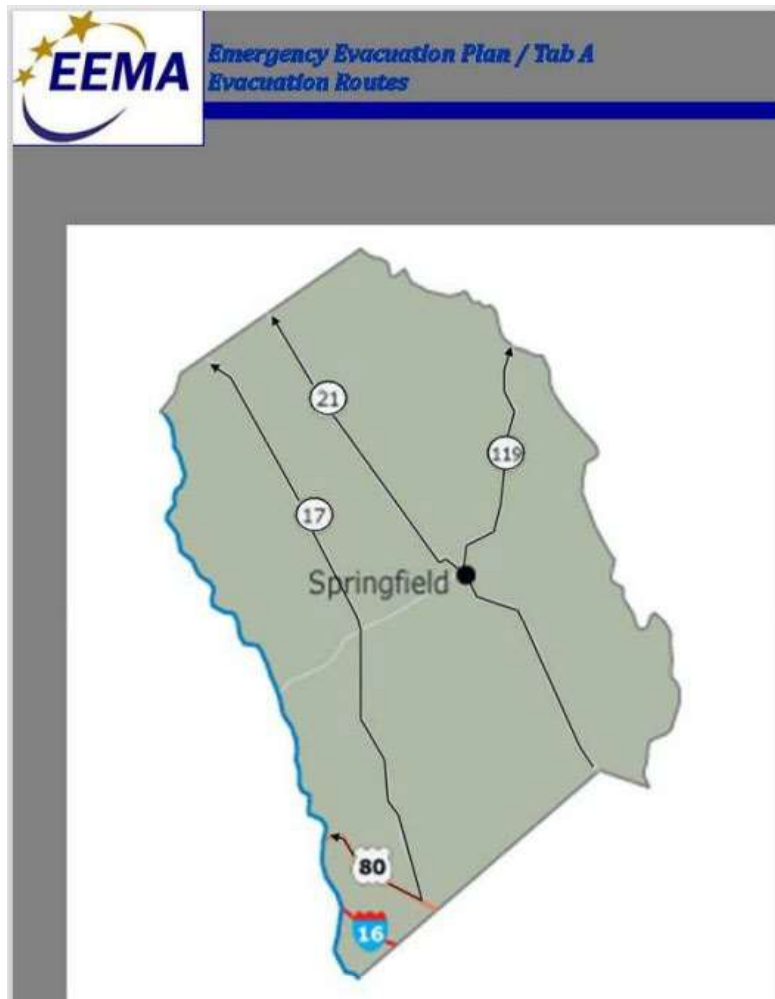


Figure 1-5: Effingham
Emergency Evacuation Routes
(Effingham County Emergency
Management Agency, 2013)

Climate change and the hazards, discussed in more detail in Chapter 3, may pose such a significant threat to human life and property that it is necessary for people to move from an area. People may be forced to leave their homes or voluntarily do so depending on the level of risk. Forced migration, also known as managed retreat, is a last resort, but is especially burdensome on vulnerable communities. Voluntary migration may be desirable for some people but unrealistic for those who don't have the resources to move from an area. Effingham County may require migration from some areas due to climate change, but migration into the county from ocean bordering coastal communities also should be carefully considered. The Savannah-Hinesville-Statesboro area was ranked number 13 in combined statistical areas with the largest net domestic migration increase between 2019-2020 and 2020-2021 (United States Census Bureau, 2022).

Increased development stress and roadway congestion from the rapidly expanding county of Chatham to the south will increase evacuation route pressure. New residential, commercial, and industrial development to the south and west of Route 119 in Effingham could also contribute to evacuation challenges. State routes 17, 21, 119, and U.S. Route 80 are the only evacuation routes for the tens of thousands of Effingham residents as well as those evacuating from direct ocean coastal counties. Figure 1-4 illustrates these evacuation routes and conveys the limited number of routes out of the County in case of emergency.

1.5.2 Multi-Jurisdictional Considerations

A1-b

The Cities of Guyton, Rincon, and Springfield and unincorporated Effingham County were active participants in the planning and input process. Stakeholders from all municipal areas were invited to attend the Planning Committee Meetings, and community members from across the county and cities were asked to assist in feedback on hazard impacts, mitigation measures, and plan review.

Some of the mitigation goals, objectives, and action items identified in this plan update apply to selected jurisdictions, while others apply to the entirety of Effingham County and all municipalities within the county. The Emergency Management Agency (EMA) Director will coordinate with the appropriate city agency personnel to execute multijurisdictional steps. The EMA Director does not have authority to implement items in the jurisdictions; however, the committee has chosen to coordinate communication efforts to implement and document progress towards goals with the EMA agency.

1.6 Effingham's Economy

Effingham County has experienced a steady increase in its total workforce over the past 20 years. It has long served as a bedroom community with most residents commuting outside the county for work. County officials hope to alter this pattern and encourage businesses to move to Effingham.

E1-a

1.6.1 Growth and Development

Effingham is among the fastest growing counties in Georgia. The economy continues to be primarily based around manufacturing with over 17% of the workforce being employed by construction companies (Effingham County Joint Comprehensive Plan, 2020). To accommodate this higher population, a prosperous, diverse economy is essential. The Georgia Department of Economic Development announced that "Sewon America would be investing in a new auto parts manufacturing facility," resulting in 740 manufacturing jobs in Rincon (Georgia Department of Economic Development,

2023). However, concerns have arisen in recent years about a lack of skilled workers in the County, which could hinder its future economic development potential. The 2020 Effingham County Joint Comprehensive Plan emphasizes the importance of offering an array of job opportunities and shifting its economy to focus more heavily on entertainment and hospitality.

Tourism could provide long-term benefits to Effingham's economic development. By bolstering and diversifying its economy, the County will have access to new forms of capital that can be used to defend against various hazards. Effingham's shift toward an entertainment-based economy will be directly impacted by natural hazards and climate change. Success in the hospitality and entertainment industry is heavily dependent upon weather. Heavy rains and flooding could pose a significant risk to this growing industry as tourists would be less likely to visit the area during large storms. However, the need for people to commute long distances during dangerous weather events could be minimized if businesses are clustered within the County. Man-made hazards may also impact the economy. Critical infrastructure and manufacturing sites can be targets of terrorist and cyberterrorist attacks while the Coronavirus Pandemic demonstrates that diseases may pose risks to the hospitality and entertainment industry in the future.

1.7 Effingham's Natural Environment

Effingham County has a primarily rural landscape with large expanses of open space and undeveloped land. A particularly large area of open space (approximately 20 square miles) is located along the County's southeastern border and acts as a buffer between developed areas and the Savannah River. Climate change is expected to have lasting impacts that increase the frequency and severity of extreme weather events. Elevated average temperatures in recent years depict an ongoing warming trend in Effingham County. The first half of 2023 has already been recorded among the warmest on record, but there have been higher temperatures in the region for over a decade. Changing weather patterns have not significantly altered Effingham's precipitation rates. Effingham continues to experience precipitation patterns that would be expected for the region.

1.7.1 Water Resources

Water resources provide residents with access to nature and invaluable outdoor recreation. Effingham County is located approximately 20 miles west of the Atlantic Ocean. The Savannah River creates a border between the County and South Carolina to the east with the Ogeechee River to the west. Freshwater wetlands are found throughout Effingham County. Estuarine conditions do not exist in any waterbody within Effingham County. Estuarine and marine wetlands exist just south of Effingham in Chatham County where the Savannah River meets the mouth of the Atlantic Ocean. Dozens of freshwater bodies are scattered across Effingham County, including Skinners Bay, Sam Hole Bay, Sawdust Bay, and Gryffin Lake, which contain scenic viewsheds and excellent fishing and boating opportunities. Effingham County's 15-Year Comprehensive Recreation and Parks Plan also mentions the R.B. Baker Lake and Walking Trail as an important recreational site for residents. Given the prevalence of waterbodies throughout Effingham, climate change has the potential to significantly alter the landscape and future recreational opportunities. Flooding is a primary concern, as discussed in depth in Chapter 3. To mitigate the burden on residents, the County participates in FEMA's Community Rating System (CRS), which provides a 15% discount on flood insurance for residents in exchange for the community to exceed National Flood Insurance Program requirements.

The Savannah River and Abercorn Creek currently have acceptable water quality measures, per the United States Geological Survey standards (USGS, 2023). However, future water quality could be compromised as a result of climate change. Higher temperatures have been associated with a loss of dissolved oxygen in freshwater bodies, which can cause fish and plant species to die off (EPA, 2023).

1.7.2 Open Space

Effingham County has large expanses of open space, recreation, and agriculture. Open space, agriculture, and undeveloped land account for nearly 80% of the County's land use. These areas provide residents and visitors with an escape from nearby cities and enhance Effingham's natural value. Forests and grasslands are particularly important habitats for a wide array of plant and animal species. However, forests have experienced a noticeable decline in tree cover over the past two decades (Global Forest Watch, 2023). This trend of tree decline will only be exacerbated in coming years as development pressure, invasive species competition, and climate change threaten the survival of existing forests.

1.7.3 Wildlife Habitat

Effingham County is rich with biodiversity given its warm, wet climate. The Georgia Department of Natural Resources lists over 30 species of "Rare Plant, Animal and Natural Plant Community Elements" in the Ogeechee and Savannah Rivers alone. The nutrient rich environment created as freshwater meets seawater makes for a unique habitat that supports many species. However, climate change will directly impact many of Effingham's threatened or endangered species. Major fluctuations in temperatures can be fatal for species, like the West Indian Manatee, that can only survive in a narrow range of temperatures (UCF, 2023). Changes to water quality and composition may also cause species loss. Meanwhile, native species may have to compete with invasive species for space and food. Warmer temperatures, as previously mentioned, can also cause plants to bud early. If plants sprout too early, there is a greater chance that they will freeze to death.

1.8 Effingham's Infrastructure

1.8.1 Transportation Systems

Effingham County does not have a public bus or train system, but the Effingham County Transportation Master Plan offers recommendations on connecting cities within and outside of the County through multi-modal transit options. Plans to expand existing pedestrian and bike paths throughout the County are intended to decrease reliance on vehicle use. Congestion has increased on several major roadways over the past decade, especially in the southern portion of the County. Officials have proposed upgrades to mitigate congestion and safety issues at 31 intersections. A significant contributor to the traffic issues are commuters. Over 21,000 people commute out of Effingham for work, mainly to Savannah (Effingham County Joint Comprehensive Plan, 2020). Freight routes are also expected to receive upgrades as truck routes are overcrowded and the region's population continues to increase. Transportation infrastructure can both act as a hazard and be impacted by other hazards. Changing weather patterns, man-made hazards, and a variety of other threats can damage transportation infrastructure and create dangerous conditions for users.

1.8.2 Stormwater & Drainage System

Municipal stormwater services are a primary responsibility of the Effingham County Department of Public Works. An internal Stormwater Management Division is tasked with undertaking a variety of activities, including planning, engineering, permitting, and maintaining the County's stormwater infrastructure. Effingham's wet climate requires a robust system for stormwater management. The creation of a stormwater utility, similar to an electric utility, where taxpayer money is collected to fund stormwater infrastructure and other related capital improvement projects, would ensure that all property owners were contributing directly, and equitably, to the maintenance of the municipality's stormwater projects. The 2022 budget of \$2,223,999 was primarily allocated to flood protection, bridge repair, and GIS inventory projects. Effingham's Stormwater Master Plan is the guiding document for addressing stormwater needs. As of March 2023, data was collected on the status of over 350 stormwater structures and 250 conveyances to ensure quality assurance. Stormwater flow data was also collected to inform projections of future stormwater flow patterns. The municipality is continuing to conduct conditions assessments and prepare rehabilitation and expansion plans for existing stormwater structures to address flooding and water quality issues. The analysis is expected to be completed by the end of 2023.

1.8.3 Water & Wastewater

Drinking Water

Effingham has a dedicated Department of Water Resources that maintains and regulates all water-related infrastructure, including drinking water, wastewater, and stormwater. Although there are multiple water providers, the County supplies drinking water from groundwater wells that tap into the Upper Floridian Aquifer and treated surface water from the Savannah I & D System. A variety of filtering mechanisms are utilized to ensure water quality standards are upheld. All contaminants are proven to be within an acceptable range and posed no threat to residents, except Haloacetic Acids (HAA5) and Total Trihalomethanes (TTHMs), which did not reach the threshold for a violation but are still high enough to impact vulnerable populations (Annual Water Quality Report, 2021).

Wastewater

The Wastewater Reclamation Facility located in Effingham County is a unique sanitary system that returns filtered wastewater back to consumers instead of it being discharged into waterways. Rincon proposed a \$9,000,000 wastewater treatment plant expansion project in late 2022 that would increase its capacity to two million gallons. The Georgia Department of Natural Resources found no significant threat to the public water supply or any other long-term negative impacts that would result from this project (Georgia Department of Natural Resources, 2022).



What information will I find in this chapter?

Chapter Two explains the hazard mitigation planning process, the timeframe and the participants, as well as the opportunities for stakeholders and the public to be involved. Existing plans, studies and reports that were reviewed are cited and incorporated. (Requirements 44 CFR § 201.6(c)(1), 44 CFR § 201.6 (b)(3))

Table 2-1: Chapter 2 Summary of Changes

Chapter 2 Section	Updates to Section
Document Review	No modifications
Mitigation Planning Committee	Updated to reflect new members
Public Engagement & Outreach Strategy	Updated to reflect engagement efforts for the 2023 plan update
Final Plan Review	Updated to include list of plan reviewers
FEMA Review Tool	Updated Text to reflect 2022 Local Hazard Mitigation Planning Policy Guide, effective April 19, 2023

2.1 Document Review

The Effingham County Joint Hazard Mitigation Plan Update (HMP) is intended for local government officials, the citizens of Effingham County, various organizations, scientists, and any other individuals or institutions who may be interested in planning and preparing for natural disasters. The plan connects local viewpoints and experiences with reliable climate data to provide a well-rounded picture of Effingham County's current status regarding natural disasters and its future trajectory.

A2-a



Figure 2-1: 2023 Effingham County HMP planning process at a glance

2.2 Mitigation Planning Committee

A2-a

Development of the updated 2017 Effingham County Hazard Mitigation Plan was a concerted effort on the part of Effingham County and the Cities of Guyton, Rincon, and Springfield. The County of Effingham convened stakeholders for the Mitigation Planning Committee (“the Committee”). The Committee met every other Wednesday between January and April to review and update sections of the previous plan,

set goals and objectives, provide input on historic hazard events, and develop and prioritize mitigation actions. The committee provided regular input between meetings through email, and they played an important role in identify critical infrastructure and community lifelines, involving key stakeholders that were missing from initial meetings, capturing the County’s capacity to mitigate hazards alongside ongoing operations.

A1-a

The Committee consisted of individuals and organizations from the public and private sectors of Effingham County and other knowledgeable entities that would have a special interest in protecting the health, life, property, and overall well-being of the citizens of Effingham County. The five primary categories of stakeholders who were provided the opportunity to sit on the Planning Committee are as follows:

- Local and regional agencies involved in hazard mitigation activities
- Agencies that have the authority to regulate development
- Neighboring communities
- Representatives of businesses, academia, and other private organizations
- Representatives of nonprofit organizations, including community-based organizations, that work directly with and/or provide support to underserved communities and socially vulnerable populations, among others

The Planning Committee included stakeholders from Effingham’s previous Hazard Mitigation Plan as well as new concerned citizens. Effingham citizens, local and regional agencies focused on hazard mitigation, planning agencies, neighboring community officials, academic institutions, entities regulating development, regional entities, and non-profit organizations were given the opportunity to participate in the planning process. Table 2-2 lists representatives who participated in the planning process by attending Planning Committee meetings, responding to and reviewing plan materials, and assisting in outreach.

A1-b

Table 2-2: Mitigation Planning Committee Members

Last Name	First Name	Title	Affiliation
Achtziger	Kristen	Chief Operating Officer, EOM	EOM
Ball	Amber	Maintenance / Public Works	County of Effingham
Barnes	Mark	Director of Finance	County of Effingham
Bazemore	Cynthia	Effingham County Tax Commission	County of Effingham
Breletic	Chief James	Chief of Police	City of Guyton
Brown	Billy	Chief Ranger, Georgia Forestry Commission	State of Georgia
Brown	Meketa	City Clerk	City of Guyton

Last Name	First Name	Title	Affiliation
Bruton	Alison	Purchasing Director	County of Effingham
Callanan	Tim	County Manager	County of Effingham
Carroll	Kerrie	Effingham County Board of Education	County of Effingham
Concannon	Teresa	Planning Department Manager and Floodplain Administrator (<i>*former</i>)	County of Effingham
Cook	David	EOM Public Works / Field Operations Director	EOM
Cruikshank	Matthew	Deputy Director Information Technology	County of Effingham
Deen	Russ	Mayor	City of Guyton
Dunnigan	Katie	Zoning Manager, Development Services	County of Effingham
Dyson	Clyde	EOM Public Works	EOM
Exley	David	Coroner	County of Effingham
Fernald	Chelsie	Planner II, Development Services	County of Effingham
Frazier	Danny	Effingham County GIS Technician	County of Effingham
Groover	Neal	Tax Assessor: Chief Appraiser	County of Effingham
Grovenstein	Cynthia	Public Health Nurse at State of GA	State of Georgia
Hodges	Clint	Fire Chief and Emergency Management Agency Director	County of Effingham
Hosalla	Pete	Captain, Sheriff's Office	County of Effingham
Hunter Kelly	LaMeisha	Effingham Health: Executive Director Strategic Business Development and Governmental Relations	County of Effingham
Jenkins	Hannah	Fire Captain	County of Effingham
Johnson	Stephanie	County Clerk	County of Effingham
Kessler	Ashley	Building Official, Development Services	County of Effingham

Last Name	First Name	Title	Affiliation
Lastinger	Mark	Public Information Officer	County of Effingham
Lewis	Teri	Director of Planning and Development	City of Rincon
Lonon	Jeff	Director of Recreation	County of Effingham
Mausolf	Sarah	Director of Human Resources	County of Effingham
Melser	Pamela	GIS Manager	County of Effingham
Phillips	Erin	Community Development Director	City of Springfield
Phillips	Kayla	Process Manager, Building & Permitting	County of Effingham
Reed	Chris	IT Director	County of Effingham
Reed	Lou	Fire Chief	City of Rincon
Ryan	Fred	Maintenance / Public Works	County of Effingham
Shelton	Lorna	Director, Effingham County Animal Shelter	County of Effingham
Smith	Shanna	Emergency Management Coordinator	County of Effingham
Spinks	Jay	Director Effingham 911	County of Effingham
Stanley	Angela	Project Manager, Engineering	County of Effingham
Thompson	Lt.	Effingham County Prison	County of Effingham
Todd	Marie	Executive Assistant to County Manager	County of Effingham
Walker	Victor	Effingham County Prison: Warden	County of Effingham
Warner	Chearae	E-911 Deputy Director	County of Effingham
Zeigler	Jackson	Assistant Director, Senior Center	County of Effingham

Stakeholder feedback ensured the plan addressed their most pertinent concerns and formed the basis for the plan’s goals and mitigation options. Equity was a fundamental guiding principle of the plan and was implemented throughout the planning process. Special care was taken to invite individuals and organizations that could speak for underserved and historically underrepresented communities within

the county. Initial reach-out occurred through email, and those missing from the conversation were followed up with via individual emails and phone calls. All participants received email notices of meetings with an agenda attached, and meetings were followed up with materials for review. A list of those invited for the update process can be found in Appendix A.

Table 2-3: Mitigation Planning Committee Meeting Schedule

Meeting Number	Topic	Date	Number of Attendees
1	Kickoff & Data Review	January 17, 2023	32
2	Hazards & Risk	January 25, 2023	16
3	Past Mitigation Actions	February 8, 2023	18
4	Action Development (Pt 1)	February 22, 2023	26
5	Action Development (Pt 2)	March 8, 2023	10
6	Action Prioritization	March 22, 2023	13
7	Review of 2023 Strategies	April 5, 2023	10
8	Draft Plan Review	DATE	X

A3-a

2.3 Public Engagement and Outreach Strategy

Effingham County developed a robust public engagement and outreach strategy aimed at reaching an extensive range of community members. Equitable public engagement was important for this project, and the engagement and outreach team prioritized a variety of techniques to fulfil this goal. Engagement techniques ranged from website and social media postings, interactive map-based webpages, in-person material distribution, and public meetings. Community members were able to provide feedback through survey responses and in-person conversations. The planning committee assisted by distributing materials among family, friends, and colleagues.

Local organizations and non-profits including United Way and Family Connection Collaborative assisted in distributing outreach and engagement materials to the community, with outreach focused on historically underserved persons. Effingham County Senior Citizens Center and Effingham County schools also assisted in distributing flyers, website links, and surveys to their contact lists.

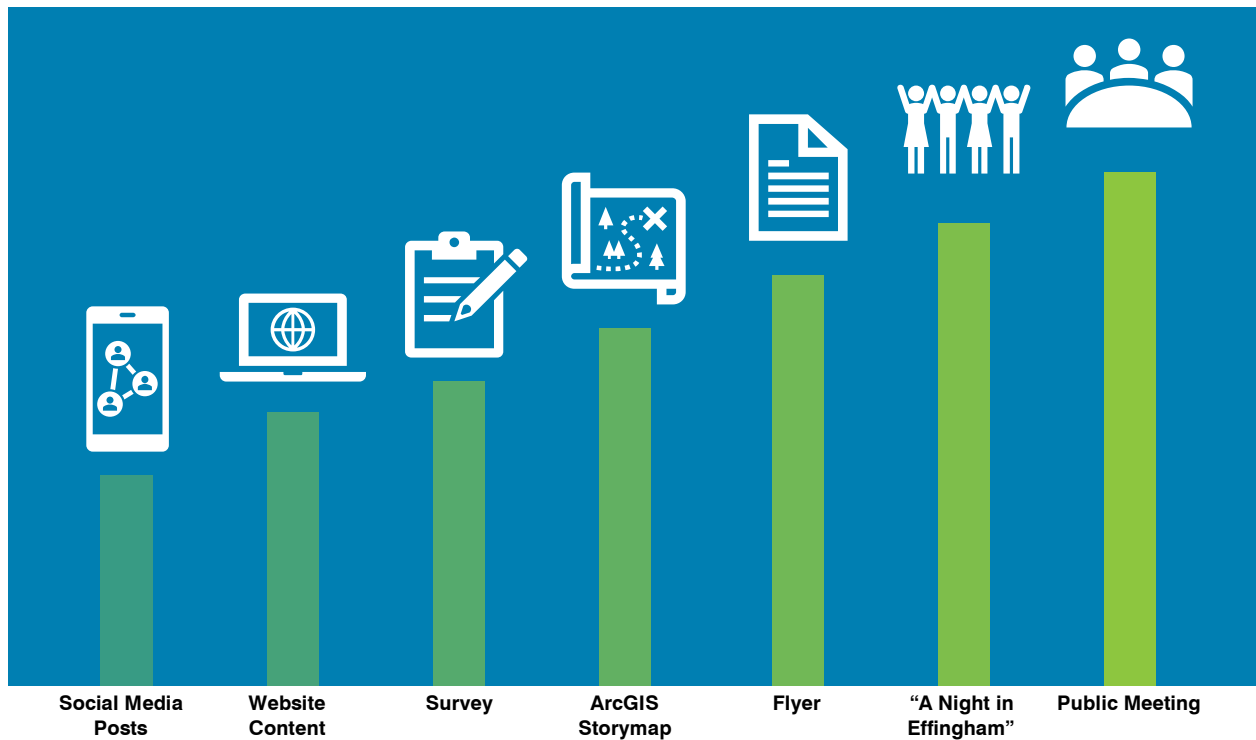


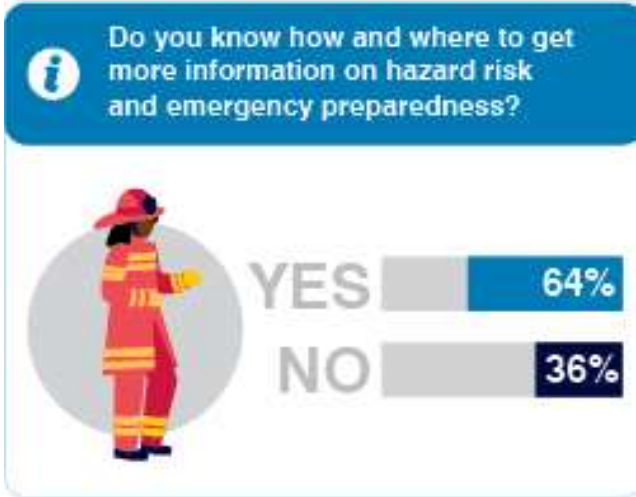
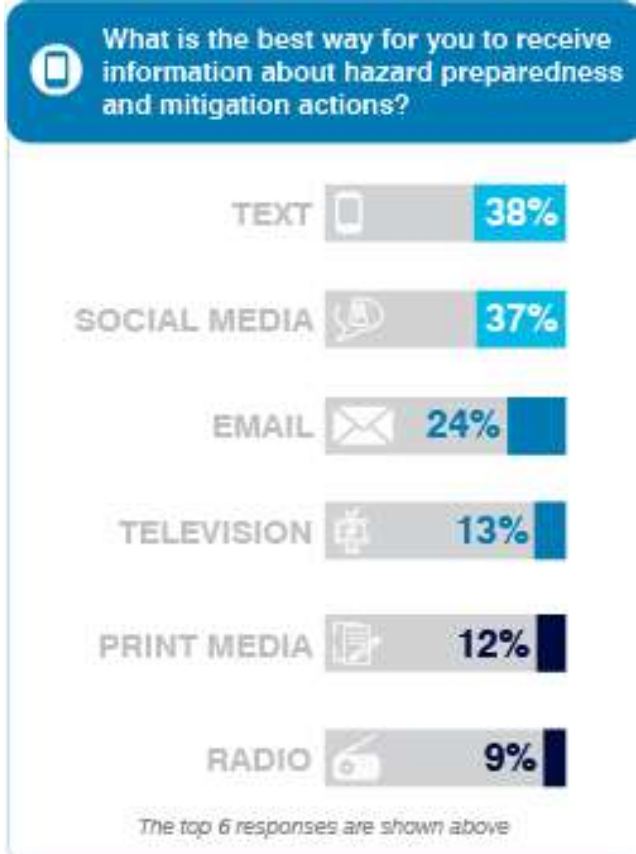
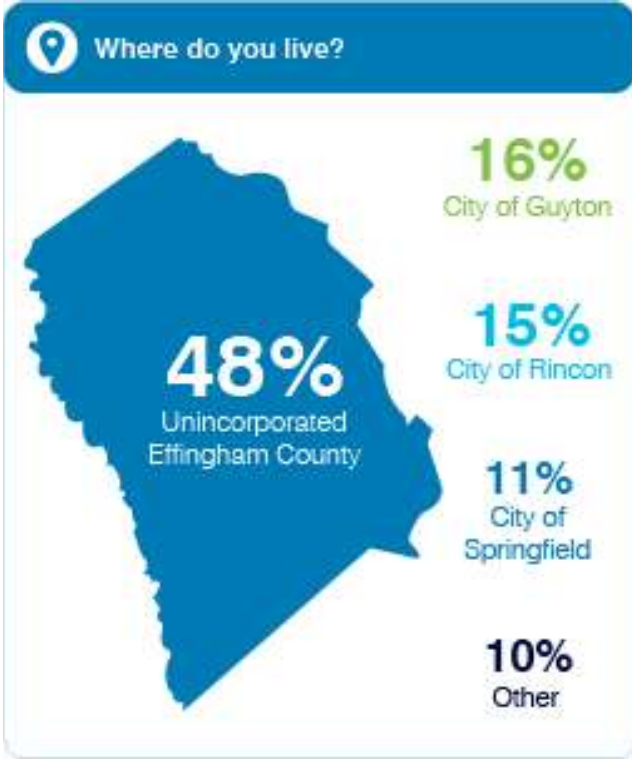
Figure 2-2: A diagram of engagement formats

The engagement and outreach team developed content for social media posts that could be shared periodically throughout the process to inform the local community on advancements in the planning process and give them opportunities to provide feedback. A project webpage was created to keep the community informed on the planning process and any engagement materials that were available. All update information was posted as an Effingham County website “News Flash,” which distributes a notification to all community members who have joined the mailing list.

During the planning process, a survey was posted to gather information from the community about their experience with hazards in Effingham County. The survey was intended to gauge the level of preparedness in Effingham County, in addition to gauging the community’s top concerns regarding hazards. The survey was distributed widely and received 86 total responses.

A copy of the survey can be found in Appendix C.

Respondents were asked introductory questions, revealing that most participants were from Effingham County and felt somewhat prepared for a hazard event.



Respondents were also asked specific questions about hazards and mitigation actions. Hazardous material spills were identified as the top hazard of concern.



Figure 2-3: Visualizations of survey responses

The engagement and outreach team also created an ArcGIS Storymap that provided detailed information on the background of hazard mitigation planning and the process in Effingham County, climate change and hazards experienced in Effingham County, and interactive maps and graphics showing hazard impacts. A link to the Storymap ([Effingham County Hazard Mitigation Plan Update \(arcgis.com\)](https://arcgis.com)) was shared at the HMP Committee Meetings, through direct emails to stakeholders, on the County's main website landing page, through social media and on the County's Emergency Management website. Also see Appendix C.

Citizen Engagement, Night in Effingham, March 2023



The Effingham Chamber of Commerce put on the annual “Night in Effingham” in downtown Springfield on March 24, 2023. This event features food, drinks, and a downtown street party alongside local shops and vendors. Emergency Management Staff assisted by the Weston & Sampson Engagement and Outreach team took the opportunity to set up a table with informational flyers and paper surveys and spent the evening talking with community members about their thoughts on hazards impacting Effingham County. During this event, the team spread the word about the upcoming

public meeting to review and provide feedback on the draft Hazard Mitigation Plan.

On March 29th, a public meeting was held to gather additional public input and share progress about the draft of the Hazard Mitigation Plan. The meeting was held at 6 pm at the Effingham County Administrative Complex on South Laurel Street. The meeting was advertised on social media, the project webpage, and via flyer at the Night in Effingham engagement event.

The draft Hazard Mitigation Plan was posted on the project webpage on date for public review, along with a form to submit comments. The public meeting was held on __DATE__ at 6 pm, at the Effingham County Administrative Complex on South Laurel Street. The meeting was advertised for XX weeks on the website. There were XX people in attendance. Participants had comments. Forms were also provided for the public to provide written comments.

Copies of engagement and outreach materials are included in Appendix D.

2.4 Final Plan Review

The Planning Committee reviewed the final Hazard Mitigation Plan Update, along with INCLUDE ALL GROUPS THAT REVIEWED (cross reference any list or appendix with stakeholders):

2.5 FEMA Review Tool

All aspects of the planning process were created and implemented in accordance with the updated [FEMA Local Mitigation Planning Policy Guide](#) (2022 version, and effective April 19, 2023). The FEMA Local Mitigation Review tool has been filled out to help guide the development of the plan and to ensure that the planning elements are captured. **Please see page xi.**

3.0 HAZARD PROFILES



What information will I find in this chapter?

Chapter Three includes a description of the type, location, and extent of natural hazards effecting the communities and information on previous occurrences and probabilities of hazard events. (Requirement 44 CFR § 201.6(c)(2)(i))

Table 3-1: Chapter 3 Summary of Changes

Chapter 3 Sections	Updates to Section
Inland Flooding	Updated extent, locations of previous occurrences, and future probability. Added information on how inland flooding events will be impacted by climate change in the future.
Dam Failure	Created new subsection
Coastal Hazards	Created new subsection
Hurricanes	Updated extent, locations of previous occurrences, and future probability. Added information on how hurricane events will be impacted by climate change in the future.
Wind	Created new subsection
Tornadoes	Updated extent, locations of previous occurrences, and future probability. Added information on how tornado events will be impacted by climate change in the future.
Severe Weather	Updated extent, locations of previous occurrences, and future probability. Added information on how severe weather events will be impacted by climate change in the future.
Severe Winter Weather	Created new subsection
Geologic Hazards	Created new subsection
Seismic Hazards	Created new subsection

Chapter 3 Sections	Updates to Section
Extreme Heat	Created new subsection
Drought	Created new subsection
Wildfire	Updated extent, locations of previous occurrences, and future probability. Added information on how wildfire events will be impacted by climate change in the future.

According to FEMA, natural hazards are a source of harm or difficulty created by a meteorological, environmental, or geological event. Natural hazards, such as flooding and earthquakes, impact the built environment, including dams and levees (FEMA, 2022). Natural hazards have the potential to damage built infrastructure, natural systems, community assets, and historic and cultural resources. Each natural hazard has a varied risk profile based on the factors listed below:

- Severity of the hazard
- Extent of impact
- Probability of occurrence
- Potential vulnerability of existing infrastructure

A profile was created for each hazard to provide information that can aid in determining the level of risk. To facilitate easy access to information within the plan, each profile follows the same structure with the following components:

B1-a

Description: A description for each hazard was developed with information from the 2019 GHMS, 2017 Effingham County HMP, and input from the Planning Committee.

B1-d

Previous Hazard Events: A list of documented hazard events since the last update based on available information.

B1-c

Extent (Magnitude/Intensity): FEMA defines extent as “the range of anticipated intensities of the identified hazards” (FEMA, 2022). This can be expressed in charts, scales, or other systems of measurement, as relevant to the County.

B1-b

Probability: Probability refers to the likeliness of a hazard occurring over a given period of time based on previous hazard events, often expressed as frequency. For example, a very low frequency may include hazards that occur less than once every 1,000 years.

B1-f

Location: The geographic boundaries of a hazard may include an area larger or smaller than the County or Cities themselves. This includes the jurisdiction(s) that may be impacted.

B1-e

Future Hazard Events and Climate Change: Climate projections indicate a change in long-term weather patterns. This section examines how climate change may impact the probability of natural hazard events occurring and to what degree change may occur.

Extent (Magnitude/Intensity): The extent of a hazard event may differ from previous occurrences. For example, the intensity of precipitation-based events are expected to increase in the future.

Probability: The probability of a hazard may differ from previous occurrences. For example, the likelihood of heat waves are expected to increase in the future.

Location: The location of a hazard event may differ from previous occurrences. For example, the extent of coastal flooding may change as a result of sea level rise.



Inland flooding



Dam Failure



Coastal Hazards



Hurricane Wind



Wind



Tornadoes



Severe Weather



Severe Winter Weather



Geological Hazard



Seismic Hazard



Extreme Heat



Drought



Wildfire

The level of available data and documentation varies for each hazard, resulting in varying degrees of profile robustness. In instances where data were readily available or documented, hazard profiles were updated to include information from:

- Local, State, and National Hazard Mitigation Resources
- Local and National Hazard and Weather Event Databases
- Workshop and Survey Results
- Georgia Chapter of Government Management Information Sciences (GMIS) Risk Assessment
- Geographic Information System (GIS) Assessments
- Hazus 6 Software Analysis

3.1 Inland Flooding



3.1.1 Description

Flooding is an overflowing of water onto land that is normally dry ([NOAA, 2023](#)). Inland flooding occurs when water overflows from rivers, streams, and wetlands, and/or overwhelms manmade stormwater systems such as culverts and catch basins. Inland flooding, categorized as either riverine or stormwater, poses a major threat to the County of Effingham (GEMA, 2019). Inland flooding may occur as a result of

- high-intensity short-duration rainfall
- rainfall over multiple days
- severe weather events (discussed in Section 3.7: Severe Weather)
- failure of dams or levees (discussed in Section 3.2 Dam Failure).

According to NOAA, “Flash floods are the most dangerous kind of floods, because they combine the destructive power of a flood with incredible speed. Flash floods occur when heavy rainfall exceeds the ability of the ground to absorb it. They also occur when water fills normally dry creeks or streams or enough water accumulates for streams to overtop their banks, causing rapid rises of water in a short amount of time. They can happen within minutes of the causative rainfall, limiting the time available to warn and protect the public.” (NOAA, 2023).

3.1.2 Previous Inland Flooding Occurrences

There have been no federally declared disasters related only to floods in Effingham County since the last Hazard Mitigation Plan update was drafted in 2016. Flooding as part of additional disaster declarations related to hurricanes and tropical storms are included in Section 3.4: Hurricane and in Section 3.7: Severe Weather, respectively. A list of flood and flash flood events prior to 2016 can be found in the previous HMP update. Historic flood events documented in the past HMP noted that many yards, basements, and roads were flooded.

Extent

In the Southeast, the number of days with three or more inches of precipitation has been historically high over the past 25 years, with the 1990s, 2000s, and 2010s ranking as the decades with the 1st, 3rd, and 2nd highest number of events, respectively (Figure 3.1). More than 70% of locations that record precipitation show upward trends in precipitation since the 1950s (USGCRP, 2018).

This is also reflected in the rainfall depths associated with stormwater design standards. Figure 3.2 illustrates the increase in intensity of rainfall associated with the 6-hour 10-year event and the 24-hour 100-year event from 1961 and 2015.

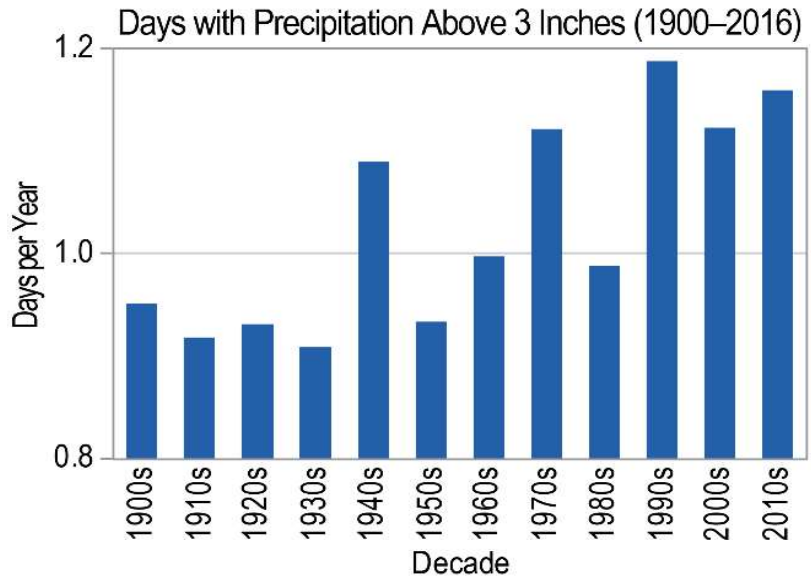


Figure 3-1: Days with Precipitation Above 3 inches

(USGCRP, 2018)



Figure 3-2: Stormwater Design Standards (NOAA TP 40, 1961 and NOAA, 2015)

Probability

There are many areas that flood frequently based on their low-lying location, surrounding development and infrastructure, and proximity to waterbodies (see Location).

Georgia tends to receive maximum rainfall in the mid to late summer because of tropical cyclones and convective thunderstorm activity (GEMA, 2019).

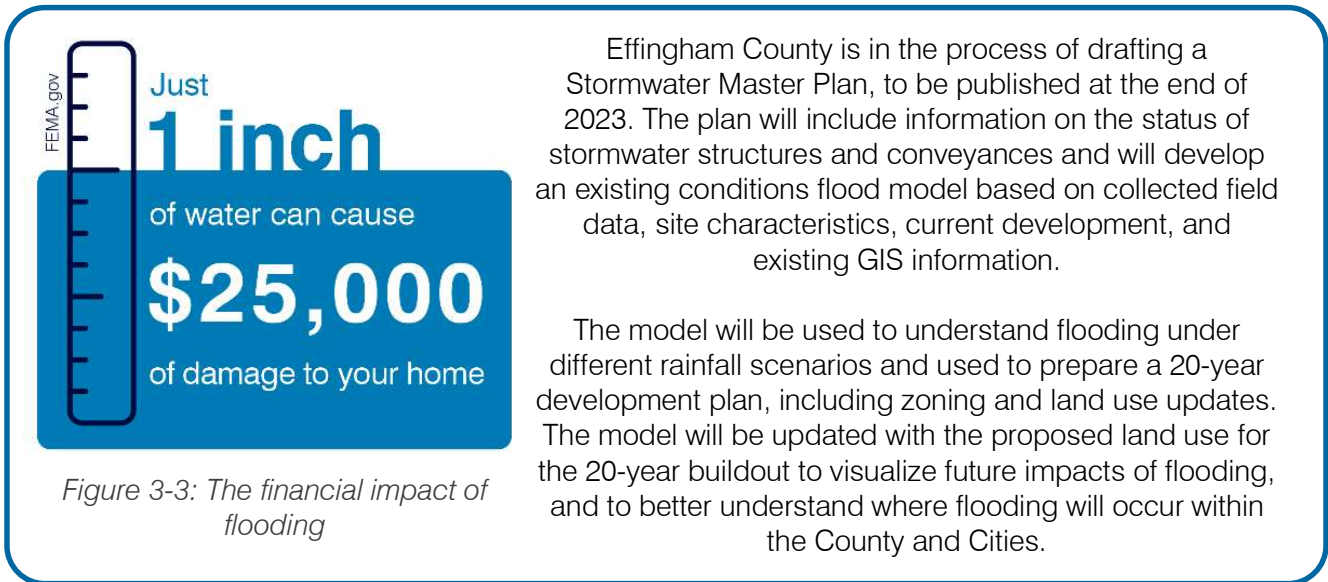


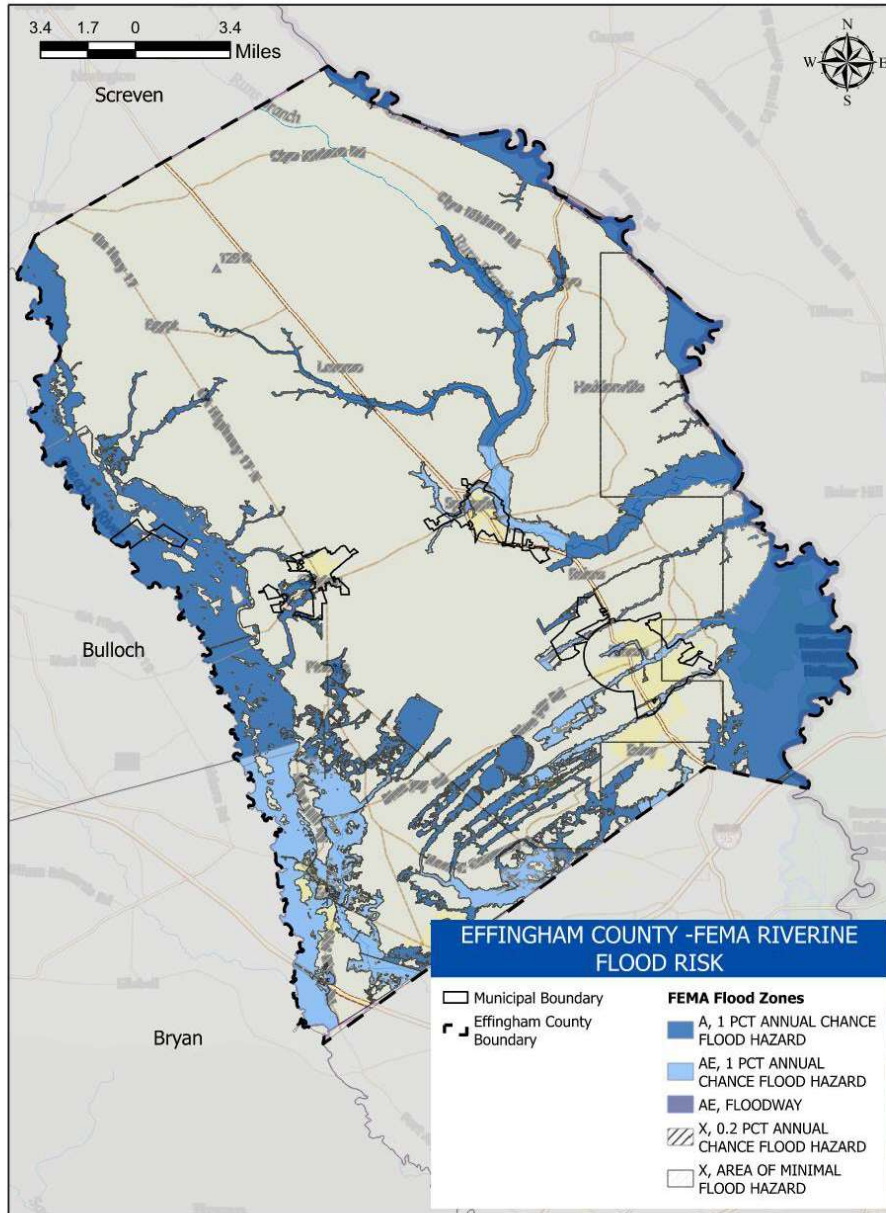
Figure 3-3: The financial impact of flooding

Location

The county is located in a low-lying coastal area, with the Savannah River bordering the county on the northeast, and the Ogeechee River on the southwest. Many parts of Effingham County lay in a known floodplain, which is a low-lying, flat area of land near a body of water that tends to become flooded during high frequency and/or high intensity rain events. As part of this HMP update, participants were asked to note locations where they have experienced repeated flooding during the Committee Meetings and Public Meeting, as well as through the public survey. These locations included:

- Stormwater flooding from rapid industrialization (specifically Old Augusta Road)
- Route 30
- Westwood Heights
- Blue Jay Subdivision
- Oxford Subdivision
- Boyd Plantation
- Rahn Street
- Crossgate Subdivision and intersection with Highway 119
- Gracen Road

The FEMA National Flood Insurance Program's (NFIP) Flood Insurance Rate Maps (FIRMs) designate areas likely to experience flooding. High-risk zones, also called Special Flood Hazard Areas (SFHAs) or 100-year flood zones, start with an A or V, and moderate- to low-risk zones start with B, C, or X (Non-Special Flood Hazard Areas).



Weston & Sampson

Figure 3-4: Effingham County Flood Hazard Areas

3.1.3 Inland Flooding and Climate Change

Inland flooding is likely to increase in the future with the following changes in our climate:

- more frequent and/or intense precipitation, which may overload soil absorption and ability of waterbodies to infiltrate and drain flood water (USGCRP, 2017).
- more frequent and/or intense severe storms (discussed in Section 3.7: Severe Weather)

- higher temperatures resulting in greater evaporation, thus increasing atmospheric moisture and the potential for rainfall
- rising sea levels (GEMA, 2019).

Extent of Inland Flooding due to Climate Change

According to the published data from the Climate Explorer Tool (U.S. Federal Government, 2023), the annual number of days with extreme precipitation is estimated to increase in the future in Effingham County, as shown in Table 3-2.

Table 3-2: Projected changes in annual precipitation in Effingham County

Precipitation Parameter	Baseline	2025s		2050s		2075s	
	(1950-2013)	(2010-2040)		(2035-2065)		(2060-2090)	
		Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)
Number of days with precipitation >1" inches	8.5	8.3	8.7	8.6	9.1	9.0	9.4

Source: (U.S. Federal Government, 2023)

Probability of Inland Flooding Due to Climate Change

Climate projections indicate an increase in extreme precipitation under both low and high emissions scenarios (RCP4.5 and RCP8.5). By the end of the century under a high emissions scenario, projections indicate approximately twice the number of heavy precipitation events (two-day precipitation events with a 5-year return period). Projections also indicate a 21% increase in the amount of precipitation falling on the heaviest precipitation days (days with a 20-year return period) (USGCRP, 2018).

Location of Inland Flooding Due to Climate Change

Although future inland flooding may affect the entire county, low lying areas, areas next to waterbodies, rivers will be more susceptible to flooding. If no actions are taken, then the existing floodplains may expand, putting areas that have not historically flooded at risk.

Existing flood map boundaries account only for historic flood data, and do not include future flood risk. Therefore, many areas are being developed without taking into consideration future flood impacts in the area both due to increasing frequency of intense storms, as well as the loss of flood storage due to the new development.

3.2 Dam Failure



3.2.1 Description

Dams are manmade structures that store and/or control water. A dam failure is an uncontrolled release of water over or through a dam as a result of natural hazards (such as intense rainfall and/or earthquakes) and/or structural failures or deficiencies in the dam, often caused by improper design, construction, and maintenance.

3.2.2 Previous Dam Failure Occurrences

There have been no dam failures reported in Effingham County since 1952, according to the Georgia Hazard Mitigation Strategy (GEMA, 2019).

Extent

Dam failures can range from minor to catastrophic. The chart below displays dam classification from the National Dam Safety Program (NDSP) and the Georgia State Hazard Mitigation Strategy.

Table 3-3: Dam Classification

Classification	Loss of Human Life	Economic, Environmental, or Lifeline Loss
High	Probable, >1	Yes (not necessary for classification)
Significant	None expected	Yes
Low	None expected	Low and generally limited to owner

(GEMA, 2019)

According to the Georgia Department of Natural Resources, there are 17 dams in Effingham County, as listed in Table 3-3. The dams in Effingham County are all classified as Category II dams, which are dams with no occupied structure identified in the dam failure zone. These dams have low or limited economic, environmental, and lifeline losses probable (FEMA, 2004). There are no Category I dams in Effingham

County, which are dams that could result in a probable loss of human life. Category I dams are the only dams that require an Emergency Action Plan.

Probability

Due to there being no reported dam failures in Effingham County, the current dam failure frequency is very low. The integrity of older dams is decreasing due to age and potentially the lack of regular maintenance, and as downstream development continues to grow, the potential damage incurred by dam failures is increasing (GEMA, 2019)

Location

No dam failures have occurred in Effingham County. There are no Category I dams located upstream of Effingham County that could pose a risk to the community.

3.2.3 Dam Failures and Climate Change

“Aging and deteriorating dams and levees ... represent an increasing hazard when exposed to extreme or, in some cases, even moderate rainfall. Several recent heavy rainfall events have led to dam, levee, or critical infrastructure failures, including the Oroville emergency spillway in California in 2017, Missouri River levees in 2017, 50 dams in South Carolina in October 2015 and 25 more dams in the state in 2016, and New Orleans levees in 2005 and 2015. The national exposure to this risk has not yet been fully assessed.” (USGCRP, 2018)

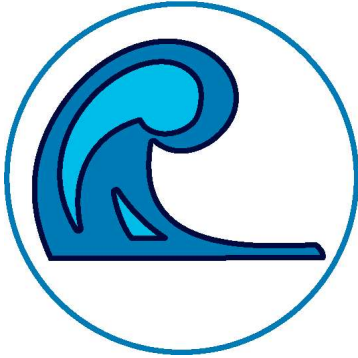
Table 3-4: Dams in Effingham County, GA

Dam Name	Classification	Dam Height	Max Storage	Latitude DD	Longitude DD	Ownership
Ash Cell A Dam	II	14.00	127.00	32.349111	-81.173278	Commercial
Ash Cell B Dam	II	22.00	119.00	32.348889	-81.172889	Commercial
Ash Cell C Dam	II	36.00	108.00	32.348694	-81.172389	Commercial
Big T Pond Dam	II	17.00	119.00	32.368056	-81.341389	Private
Burns Pond Dam	II	11.00	280.00	32.527778	-81.405000	Private
Georgia-Pacific Consumer Products Pond Dam	II	15.00	200.00	32.328889	-81.189722	Commercial

Dam Name	Classification	Dam Height	Max Storage	Latitude DD	Longitude DD	Ownership
Graham Pond Dam	II	14.00	117.00	32.433889	-81.488056	Private
Griffin Lake Dam	II	17.00	1262.00	32.413889	-81.469444	Private
Lakeside Farms Community Pond Dam	II	10.60	194.00	32.157500	-81.326389	Commercial
Morgan Pond Dam	II	14.00	162.00	32.439444	-81.408333	Private
Morgan's Fish Pond Dam	II	18.00	121.00	32.527222	-81.305556	Private
Morgans Pond Dam	II	10.00	205.00	32.192778	-81.341667	Private
Rahn Pond Dam	II	26.00	59.00	32.445094	-81.221667	Private
Rahn Pond Dam	II	26.00	59.00	32.445094	-81.221667	Private
Stokes Pond Dam	II	13.00	134.00	32.496111	-81.510556	Private
Webb Pond Dam	II	29.00	172.00	32.447778	-81.222778	Private
Wilson Pond Dam	II	14.00	292.00	32.527222	-81.393611	Private

(DNR, 2019)

3.3 Coastal Hazards



3.3.1 Description

While Effingham County does not have shoreline on the Atlantic Coast, it may still be affected by coastal hazards such as coastal flooding, storm surge, tsunamis, and sea level rise. Effingham County is linked to tidally-influenced coastal waters through the Savannah River to the northeast and the Ogeechee River to the southwest.

Along the Georgia Coast, the tidal variation or total height difference between low tide and high tide can be as much as 10 feet (5 feet above sea level during high tide, and 4.5 feet below sea level during low tide) during spring tides. The National Hurricane Center (NHC) defines storm surge as “an abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed sea surface and the level that would have occurred in the absence of the cyclone” (GEMA, 2019).

After an earthquake or volcanic activity occurs in the ocean, a tsunami may form. Tsunamis are a series of long, traveling waves, with amplitudes reaching up to 100 ft. As they approach shallower water and land, however, they are often no more than 10 ft in height, and slow to speeds of 20 to 30 mph (NOAA, 2018). The prior HMP update did not include mention of tsunamis, likely due to the rarity of occurrence for the County.

3.3.2 Previous Coastal Hazards Occurrences

As of March 2023, there have been no recorded coastal hazard events in Effingham County according to NOAA’s storm event database and SHELDUS data (NOAA, 2023). Research conducted by NOAA and USGS, for the US and Territories National Tsunami Hazard Assessment indicates that there have been no occurrences of a tsunami in Georgia (NOAA/USGS, 2015a). Coastal Georgia has experienced over 10 inches of sea level rise since 1935 (Georgia Climate Project, 2020).

Extent

Depending on the size and strength of the storm, storm surge can reach inland for miles along a vast span of coastline. Storm surge will often appear somewhat suddenly, and its rapid onset is the major contributor to deaths associated with storm surge. The duration of the surge event depends on the depth of the surge and other environmental factors such as drainage capability. The water from storm

surge may remain for days in certain areas. Although less common in Georgia, nor'easters and strong winter storms can result in elevated water levels (discussed further in Section 3.8: Severe Winter Weather). While not as high at their peak, surges from these events can be more destructive over a sustained period of time (GEMA, 2019).

Probability

The frequency of storm surges greatly depends on the frequency of hurricanes with the ability to produce the surge. The frequency of coastal hazards in Effingham County is currently very low. According to the FEMA National Risk Index, the annualized frequency of coastal flooding in Effingham County is 0.2 events per year, with no events on record.

Location

Limited information is currently available pertaining to the location of coastal flooding in Effingham County. Although Effingham County is a tidally influenced county, it has not yet been mapped for sea level rise or coastal flooding by NOAA. In the current iteration of NOAA's Coastal Flood Exposure Mapper, only direct coastal counties have been mapped in the State of Georgia. However, the next iteration of the Coastal Flood Exposure Mapper will include Effingham County. The County intends to take advantage of this tool to determine locations where the County may currently or in the future be impacted by coastal hazards.

Refer to Section 3.4 for Hurricane Storm Surge Maps for Effingham County.

3.3.3 Coastal Hazards and Climate Change

Sea level rise has already been documented in Georgia; the sea level around Fort Pulaski has risen by 11 inches since 1950. The USACE estimated that sea level rise by 2075 at Fort Pulaski may range from 0.6 ft. to 2.7 ft. (U.S. ARMY CORPS OF ENGINEERS (USACE) SAVANNAH DISTRICT, June 2021).

Extent of Coastal Hazards due to Climate Change

According to the EPA's Climate Change Adaptation Resource Center (ARC-X), "Rising sea levels amplify the threat and magnitude of storm surges in coastal areas. Water infrastructure, often located along the coast or tidally-influenced water bodies, can be vulnerable to greater changes in storm surge intensity." (US EPA, 2023)

Probability of Coastal Hazards due to Climate Change

As sea levels rise, so does the likelihood of coastal flooding from tidally-influenced waterbodies, such as the Savannah River and the Ogeechee River.

Location of Coastal Hazards due to Climate Change

An approximation for coastal flood maps with sea level rise was available through the Surging Seas Website by Climate Central. Figure 3.5 shows lands that are projected to be below annual flood level by 2030 and 2080 under the local sea level projection from NOAA's 2022 SLR report (Sweet, 2022) plus the added height of a local annual flood, NOAA's intermediate SLR scenario, and excludes areas isolated by higher land. (Climate Central, Accessed April, 2023).

As shown in Figure 3.5, coastal flooding is anticipated to impact the Savannah National Wildlife Refuge which extends into the SE corner of Effingham County as early as 2030. By 2080, the flooding is estimated to extend further inland causing damage to areas outside the refuge.

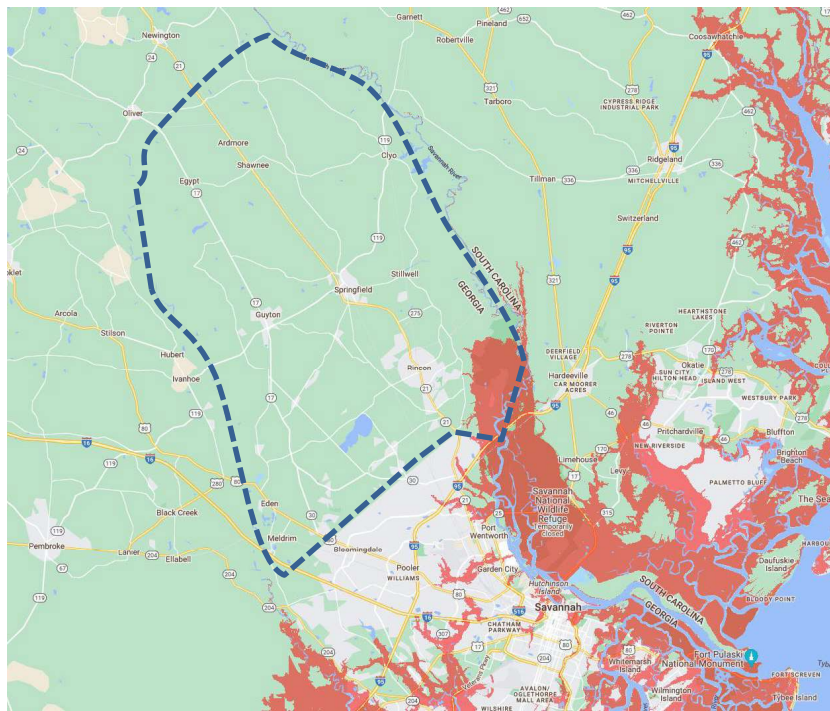
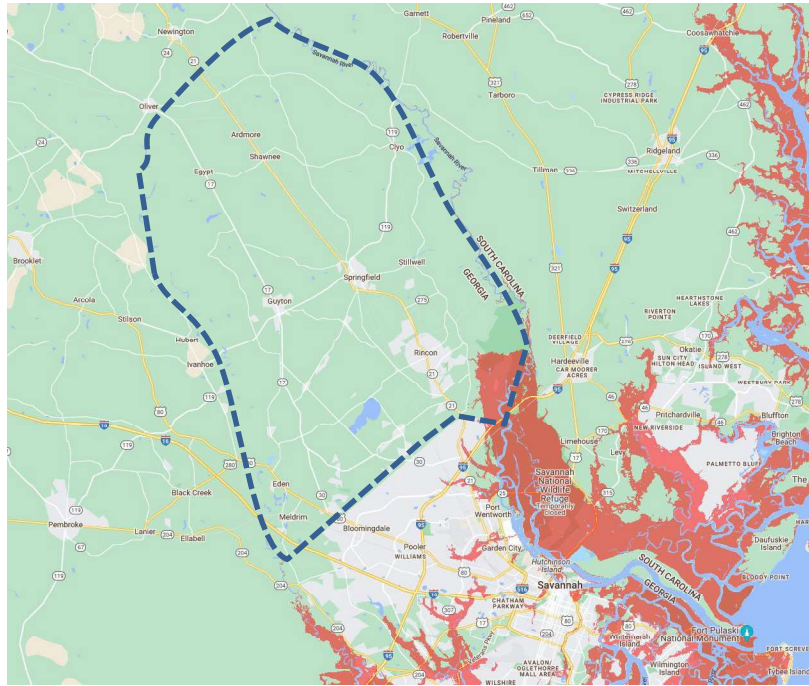


Figure 3-5: Impact of coastal flooding by 2030 (top) and by 2080 (bottom) in Effingham County (blue dashed line marks the estimated county boundary) (Climate Central, Accessed April, 2023)

3.4 Hurricanes



3.4.1 Description

Hurricanes, also called tropical cyclones, are areas of low pressure that develop over warm oceanic areas. They form when the air over the warm ocean becomes warm and rises, creating a zone with extremely low pressure. When the rising air reaches very high altitudes, it begins to spin around the low-pressure central area (NOAA, 2023a).

There are four classifications of tropical cyclones:

- **Tropical Depression:** A tropical cyclone with maximum sustained winds of 39 mph (33 knots) or less.
- **Tropical Storm:** A tropical cyclone with maximum sustained winds of greater than 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 111 mph (96 knots) or higher, corresponding to Category 3, 4 or 5 on the Saffir-Simpson Hurricane Wind Scale.

3.4.2 Previous Hurricane Occurrences

Twenty-six tropical cyclones have been recorded in Effingham County since 1959 (NOAA, 2023) (ASU, 2023). There have been eight disaster and emergency declarations related to hurricanes and tropical storms since the previous plan was drafted in 2016. Hurricanes Matthew, Michael, and Irma prompted emergency declarations and Presidential disaster declarations. (ASU, 2023) (NOAA, 2023). Table 3-5 below lists the hurricane and tropical storm related emergency and disaster declarations in the state of Georgia from 2016 to 2023.

Table 3-5: Federal Emergency and Disaster Declarations – Hurricanes & Tropical Storms

Date	Disaster Name	Declaration	Funding Source	Funding Amount
Oct 4-15, 2016	Hurricane Matthew	Emergency Declaration (EM-3379-GA)	-	-
Oct 4-15, 2016	Hurricane Matthew	Major Disaster Declaration (DR-4285-GA)	Individual Assistance; Public Assistance	\$6,611,177.87 \$95,526,313.18
Sep 7-10, 2017	Hurricane Irma	Emergency Declaration (EM-3387-GA)	-	-
Sep 7-10, 2017	Hurricane Irma	Major Disaster Declaration (DR-4338-GA)	Individual Assistance Public Assistance Hazard Mitigation Assistance	\$13,643,351.67 \$120,617,332.75 \$10,213,886.75
Oct 9-23, 2018	Hurricane Michael	Emergency Declaration (EM-3406-GA)	-	-
Oct 9-23, 2018	Hurricane Michael	Major Disaster Declaration (DR-4400-GA)	Individual Assistance Public Assistance Hazard Mitigation Assistance	\$12,581,999.88 \$142,642,001.91 \$2,739,727.00
Aug 29-Sep 7, 2019	Hurricane Dorian	Emergency Declaration (EM-3422-GA)	-	-
Oct 29, 2020	Tropical Storm Zeta	Major Disaster Declaration (DR-4579-GA)	Public Assistance Hazard Mitigation Assistance	\$13,260,695.37 \$176,722.88

(FEMA, 2023a)

Hurricane Elsa (2021) resulted in a tornado in Effingham County (see Section 3.6 – Tornadoes).

Extent

Hurricane intensities are categorized by sustained wind speeds and associated damages, as presented in Table 3-6.

Table 3-6: Hurricane Categories Based on Wind

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
Tropical Storm	39-73 mph	Minor damage could occur to mobile homes.
1	74-95 mph	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 mph	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.
3 (major)	111-129 mph	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 (major)	130-156 mph	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with the 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 (major)	157 mph or higher	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.

(GEMA, 2019)

Probability

Hurricanes primarily occur during hurricane season, which spans June 1 through November 30, although hurricanes have been known to form outside of the official hurricane season. The official hurricane season accounts for 95% of observed activity; therefore, on average, only 5% of hurricanes form outside of hurricane season (GEMA, 2019). In coastal Georgia counties, there is a recurrence

interval of 9 years for a tropical storm and category 1-2 hurricane, and a recurrence interval of 36 years for a major hurricane (category 3-5) (GEMA, 2019).

The map shown in Figure 3.6 shows estimates of peak wind speed for a hurricane that has a 2% chance of occurring every year (50-year Return Event). Effingham County is in the second-highest peak wind gust category, with projected peak wind gusts upwards of 73 mph. (GEMA, 2019).

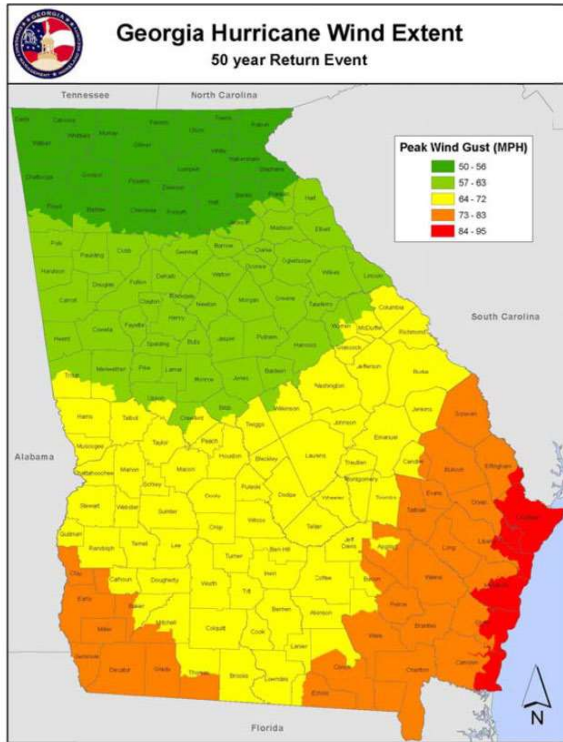


Figure 3-6: Georgia Hurricane Wind Extent: 50 Year Return Event (GEMA, 2019)

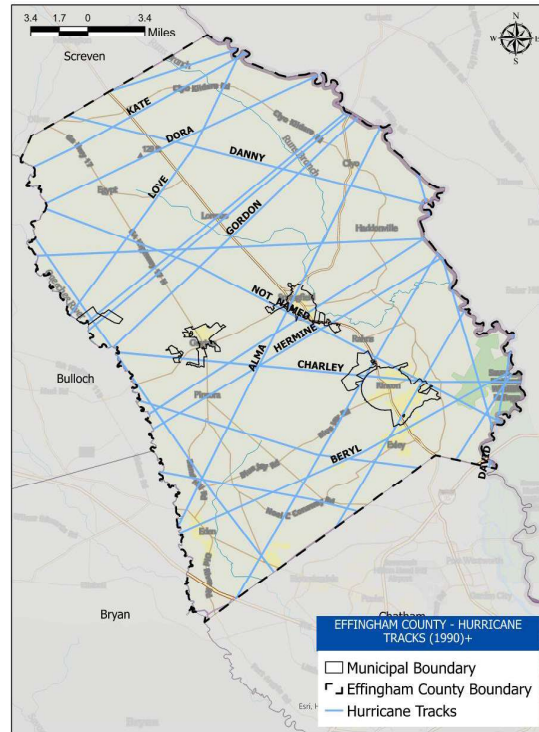


Figure 3-7: Effingham Hurricane Tracks

Location

Effingham County is susceptible to hurricane impacts. Tropical cyclone tracks from 1990 to current day that have passed over Effingham County are shown in Figure 3.7.

In addition to the hurricanes shown, there have been additional hurricanes that not passed through the County, but still impacted the community.

The US Army Corps of Engineers (USACE) created Sea, Lake, and Overland Surge from Hurricanes (SLOSH) maps for Georgia, as shown in Figure 3.8. The SLOSH flood map illustrates the extent of flooding anticipated by Hurricane Category. The Bureau of Labor Statistics (BLS) also provided a

snapshot of employment in Hurricane Zones, as illustrated in Figure 3.9, using zones created by the U. S. Corps of Engineers and State emergency management authorities.

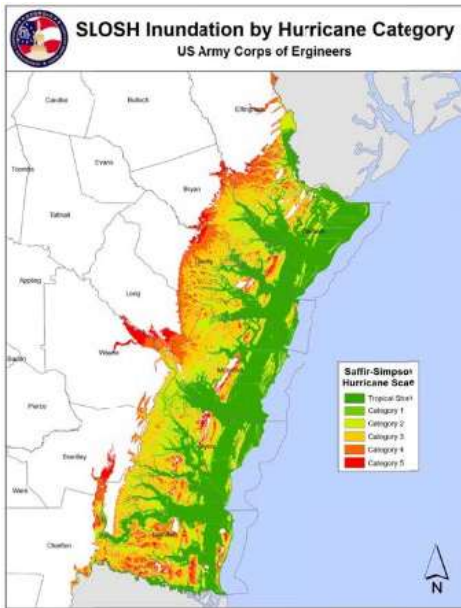


Figure 3-9: SLOSH Inundation by Hurricane Category (GEMA, 2019)

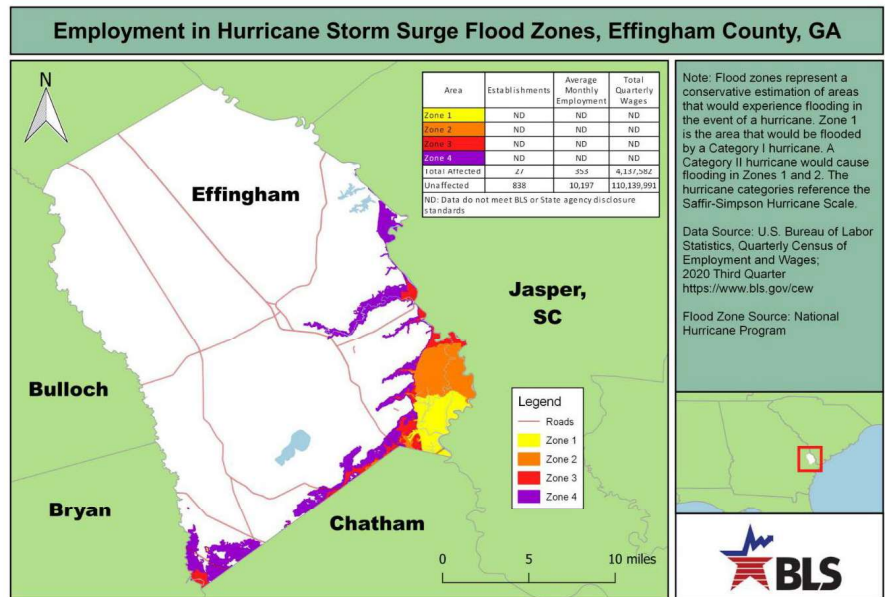


Figure 3-8: Effingham County SLOSH Map (U.S. Bureau of Labor Statistics, 2023)

3.4.3 Hurricanes and Climate Change

According to the EPA’s website, Climate Change Indicators: Tropical Cyclone Activity, “Climate change is expected to affect tropical cyclones by increasing sea surface temperatures, a key factor that influences cyclone formation and behavior.” (US EPA, 2022)

Extent of Hurricanes due to Climate Change

According to the EPA’s website, Climate Change Adaptation Resource Center (ARC-X), ‘Hurricane intensity is also projected to increase as the climate continues to warm, although the magnitude of this change is uncertain. Stronger storms can lead to greater risk of coastal flooding from storm surge, a risk that will be further amplified by sea level rise.’ (US EPA, 2023). There is a predicted increase of approximately 10% in the number of Atlantic hurricanes that reach Category 4 and 5 intensities, but with considerable uncertainty, and some studies even suggest a decline (Derek Arndt, 2022). This uncertainty with the intensity of hurricanes with climate change is discussed in the Fourth National Climate Assessment (NCA4), Volume I, Chapter 9, with the conclusion that “it remains likely that global mean tropical cyclone maximum wind speeds and precipitation rates will increase.” (USGCRP, 2017)

Probability of Hurricanes due to Climate Change

The uncertainty related to the frequency of hurricanes as a result of climate change is discussed in the Fourth National Climate Assessment (NCA4), Volume I, Chapter 9, with the conclusion that “it is more likely than not that the global frequency of occurrence of [Tropical Cyclone]s will either decrease or remain essentially the same.” (USGCRP, 2017)

Location of Hurricanes due to Climate Change

Data shows the latitude with which tropical cyclones reach their peak strength has shifted north in the northern hemisphere (Maya V. Chung, 2021), which may result in fewer landfalls along Georgia's coast.

3.5 Wind



3.5.1 Description

In this hazard profile, wind is referring to data related to high wind, strong wind, and thunderstorm wind events. Hurricane winds are covered in the previous section and Tornadoes are covered in the following section. Downbursts, including dry or wet microbursts or macrobursts, are classified as Thunderstorm Wind events. In some cases, the downburst may travel several miles away from the parent thunderstorm, or the parent thunderstorm may have dissipated.

High Wind: Sustained non-convective winds of 35 knots (40 mph) or greater lasting for one hour or longer, or winds (sustained or gusts) of 50 knots (58 mph) for any duration (or otherwise locally/regionally defined), on a widespread or localized basis.

Strong Wind: Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph) resulting in fatality, injury, or damage.

Thunderstorm Wind: Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage.

3.5.2 Previous Wind Hazard Occurrences

Since 1977, there have been 308 thunderstorm wind events recorded by NOAA in Effingham County, ranging in windspeed from 35 to 65 miles per hour. (NOAA, 2023). Past impacts have ranged from downed trees, power outages, roof damage, sheds blown down, and impassable roads.

There have been three disaster declarations issued by FEMA related to wind since the previous plan was drafted in 2016. The table below shows a summary of the declarations and funding in the state of Georgia.

Table 3-7: Federal Emergency and Disaster Declarations – Wind

Date	Disaster Name	Declaration	Funding Source	Funding Amount
Jan 2-25, 2017	Severe Storms, Tornadoes, and Straight-line Winds	Major Disaster Declaration (DR-4294-GA)	Individual Assistance Public Assistance	\$631,364.39 \$15,509,754.82
Jan 21-22, 2017	Severe Storms, Tornadoes, and Straight-line Winds	Major Disaster Declaration (DR-4297-GA)	Individual Assistance Public Assistance	\$2,962,689.95 \$22,970,819
Jan 12, 2023	Severe Storms, Straight-line Winds and Tornadoes	Major Disaster Declaration (DR-4685-GA)	Individual Assistance Public Assistance	\$4,311,752.28 \$1,327,205.41

(FEMA, 2023a)

Extent

Wind is considered severe when it is within 12 miles of a location, a moderate likelihood or greater (16% probability or greater) of severe wind, with storms capable of violent wind gusts (80 knots or greater) causing major damage (NWS, 2023).

Probability

The frequency of strong winds in Effingham County according to the FEMA National Risk Index, is 1.9 events per year based on 63 events between 1986-2021 (34 years). The frequency per year rate increases to 6.8 per year using past occurrences documented by NOAA (308 in past 45 years). There have been 64 thunderstorm wind events between 2016 and the last time the NOAA storm events database was updated (4/30/2023) in Effingham County. The frequency per year rate is 8.7 based on these events.

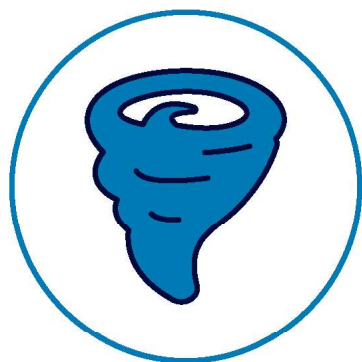
Location

Effingham County is vulnerable to impacts of wind. Facilities that have backup power sources and communities that regularly clear dead branches away from overhead utility lines and/or roadways are less likely to be directly impacted by wind events.

3.5.3 Wind Hazard Events and Climate Change

Until the impacts of climate change are better understood regarding wind behavior, scientists expect the intensity and frequency of wind in Georgia to remain close to historical averages (GEMA, 2019).

3.6 Tornadoes



3.6.1 Description

According to the National Weather Service, “A tornado is a violently rotating column of air extending from the base of a thunderstorm down to the ground. Tornadoes are capable of completely destroying well-made structures, uprooting trees, and hurling objects through the air like deadly missiles. Tornadoes can occur at any time of day or night and at any time of the year.” (NWS, Tornado Safety, n.d.)



Figure 3-10: Tornado damage from Hurricane Elsa (Winkelmann, 2021).

3.6.2 Previous Tornado Occurrences

There have been four recorded tornadoes in Effingham County since the previous plan was drafted in 2016.

Table 3-8: Tornadoes Recorded in Effingham County, GA

Year	Enhanced Fujita Scale	Length (miles)
2017	EF-1	4.31
2020	EF-1	2.66
2021	EF-1	1.95
2023	EF-1	7.09

(NOAA, 2023) and <https://www.weather.gov/chs/Tornadoes-June2023>

There have been four disaster declarations issued by FEMA related to tornadoes, since the previous plan was drafted in 2016. The table below shows a summary of the declarations and funding in the state of Georgia.

Table 3-9: Federal Emergency and Disaster Declarations – Tornadoes

Date	Disaster Name	Declaration	Funding Source	Funding Amount
Jan 2-25, 2017	Severe Storms, Tornadoes, and Straight-line Winds	Major Disaster Declaration (DR-4294-GA)	Individual Assistance Public Assistance	\$631,364.39 \$15,509,754.82
Jan 21-22, 2017	Severe Storms, Tornadoes, and Straight-line Winds	Major Disaster Declaration (DR-4297-GA)	Individual Assistance Public Assistance	\$2,962,689.95 \$22,970,819
Mar 25-26, 2021	Severe Storms and Tornadoes	Major Disaster Declaration (DR-4600-GA)	Public Assistance Hazard Mitigation Assistance	\$20,273,538.49 \$183,834.00
Jan 12, 2023	Severe Storms, Straight-line Winds and Tornadoes	Major Disaster Declaration (DR-4685-GA)	Individual Assistance Public Assistance	\$4,311,752.28 \$1,327,205.41

(FEMA, 2023a)

Extent

Since 2007 the intensity of a tornado is rated the Enhanced Fujita Scale (EF-Scale), which incorporates 28 damage indicators and wind speed to determine a tornado’s rating (NWS, 2023).

Table 3-10: Enhanced Fujita Scale

EF-Scale	Class	Wind speed		Description
		mph	km/h	
EF-0	weak	65-85	105-137	Gale
EF-1	weak	86-110	138-177	Moderate
EF-2	strong	111-135	178-217	Significant
EF-3	strong	136-165	218-266	Severe
EF-4	violent	166-200	267-322	Devastating
EF-5	violent	>200	>322	Incredible

(NWS, 2023)

Probability

Historically, tornado frequency in Effingham County is low. According to NOAA’s storm event database, there have been 14 tornadoes reported between 1950 and when it was last updated (4/30/2023), averaging a rate of 0.2 tornadoes per year. Since the last HMP update there have been 4 reported tornadoes, averaging a rate of 0.6 tornadoes per year. There have been observable changes in tornado activity in the southeast United States, with increases in EF-1 tornadoes over the past four decades (Vittorio A. Gensin, 2018).

Location

As seen in Figure 3.11 below, tornadoes have passed through both Unincorporated Effingham County and well as the Cities of Guyton, Rincon, and Springfield. The likeliness of a tornado occurring is uniform across the entire County.

3.6.3 Tornadoes and Climate Change

The relationship between tornadoes and climate change is ambiguous. Because tornadoes are relatively small when compared to other extreme weather events (such as hurricanes), and also short lived (lasting seconds to hours rather than days or weeks), it is difficult to model the effects of climate change. Instead, scientists have focused on evaluating how climate change may effect weather that can generate tornadoes, such as supercell thunderstorms. (National Geographic Society, 2022). The County should remain cognizant of new information to better prepare for and understand how tornadoes will impact residents.

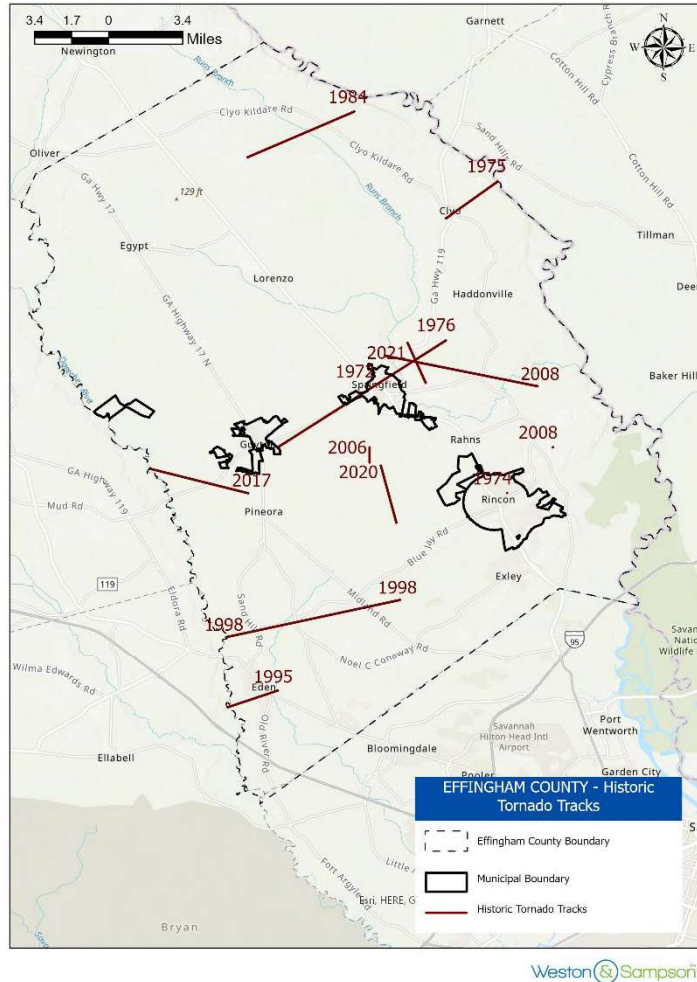


Figure 3-11: Effingham County - Historic Tornado Tracks

Extent of Tornadoes due to Climate Change

While the severity of future tornadoes with climate change is unknown, damage is likely to increase as population and financial growth continue to increase (GEMA, 2019).

Probability of Tornadoes due to Climate Change

The change in tornado distribution has not been definitively attributed to any specific facet of climate change, but projections in a recent study suggest that supercells (thunderstorms responsible for tornadoes and hail) will become more frequent in the twenty-first century in the eastern united states (Walker S. Ashley, 2023).

Locations of Tornadoes due to Climate Change

It is unknown whether the location of tornadoes in Effingham County will be influenced by climate change.

3.7 Severe Weather



3.7.1 Description

The main severe weather hazards covered in this section include thunderstorms, lightning, and hail events. Tornadoes, wind, and hurricanes, are covered in prior sections.

Lightning is a product of the Earth's atmosphere and is an electric charge or current that goes between clouds and the ground, from cloud to cloud, or from the ground to a cloud (National Geographic, 2023). Lightning can cause fire, down trees, and disrupt power supply.

A **thunderstorm** is a rain-bearing cloud that also generates lightning (NWS, 2023). Thunderstorms can last anywhere from about 20 minutes to a few hours. (GEMA, 2019).

Hail is a type of precipitation made up of layers of ice that usually occur in a spherical shape. Its size can range from the size of a pea to the size of a grapefruit. Hail can cause damage to agricultural crops as well as automobiles, aircraft, and other structures (GEMA, 2019).

3.7.2 Previous Severe Weather Occurrences

Since the last HMP update in Effingham County there have been approximately 20 documented accounts of hail ranging from 0.75 inches to 2 inches in diameter according to the NOAA Storm Events Database (through 4/30/2023). Previous accounts of hail damage in Effingham County caused nearly \$1 million in damage to a car dealership from golf ball-sized hailstones, windshield and house windows broken, and tree damage (NOAA, 2023). Previous occurrences of thunderstorms in Effingham County have caused extensive damage include downed trees and power lines, power outages, structural damage to homes, barns, and churches, and bridge damage, along with other damage (NOAA, 2023). Lightning has caused extensive damage in Effingham County, resulting in property damage over \$69.5k according to the NOAA Storm Events Database from the last HMP updated through 4/30/2023. In 2001, lightning struck the Family Health and Birth Center in Rincon, causing a fire that did extensive damage

to the facility. Reports of structure fires from lightning came in from Unincorporated Effingham County, Springfield, and Guyton as well (NOAA, 2023).

Extent

Small thunderstorms, known as microbursts, are less than 2.5 miles in diameter but can cause extensive damage. There are two types of microbursts: wet microbursts and dry microbursts. Wind speed in microbursts can reach up to 100 miles per hour or higher, equivalent to the wind speed of an EF-1 tornado (NWS, n.d.).

The damage associated with hail is proportional to its diameter and speed. Small hailstones (less than one inch) are expected to fall between 9 and 25 miles per hour. Large hail (2-4 inches in diameter) is expected to fall between 44 and 72 miles per hour. Hailstones of this speed and diameter can cause extensive damage to homes, vehicles, and people.

Lightning resulted in a reported injury of a person in Guyton on 8/17/2019 according to the NOAA Storm Events Database.

Probability

Lightning strikes in Georgia are highest in the summer months, with the greatest number of strikes occurring in July (GEMA, 2019). Thunderstorms can occur throughout the year and are not tied to a specific season. Wet microbursts are accompanied by significant precipitation and are common in the southeast during summer months.

Location

Severe weather is the most common hazard to affect the state of Georgia (GEMA, 2019). Events may be confined to only a small area, such as microbursts, but the likelihood of experiencing severe weather is not confined to any area or region of the state.

STORMS ARE BECOMING MORE INTENSE AND DAMAGING

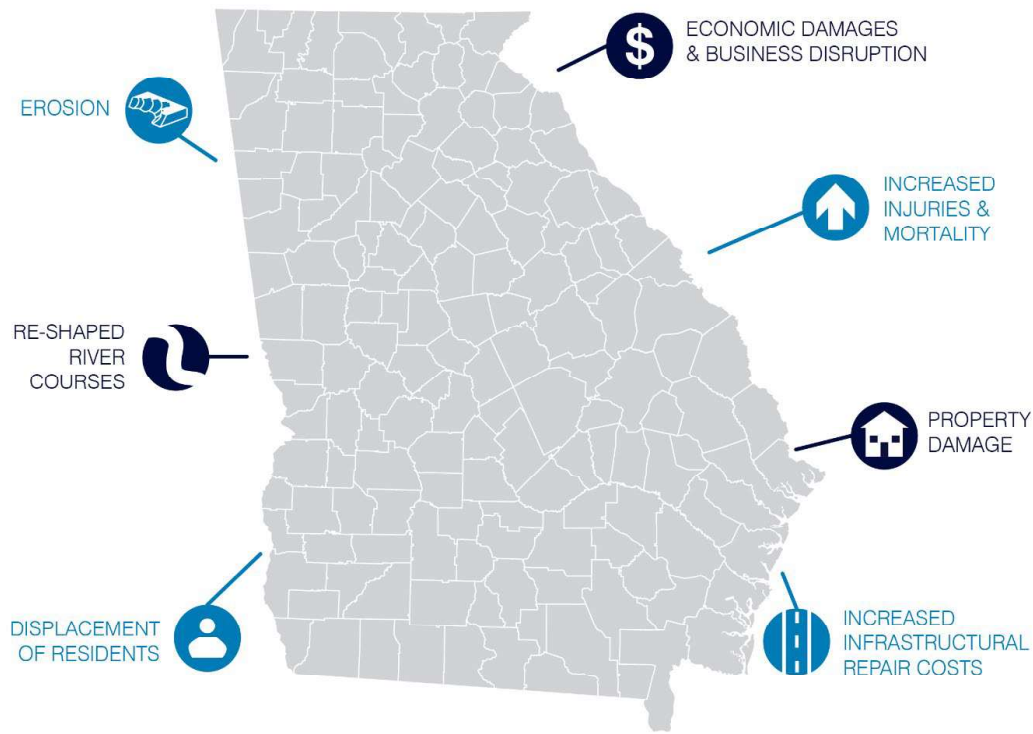


Figure 3-12: Impacts of severe weather

3.7.3 Severe Weather and Climate Change

Due to the lack of knowledge regarding future severe weather in Georgia, there are no available data on the expected number and strength of future storms. The County should remain cognizant of new information to better prepare for and understand how severe weather will impact residents.

Extent of Severe Weather due to Climate Change

While the severity of future severe weather with climate change is unknown, the potential for damages is likely to increase as population and financial growth continue to increase.

Probability of Severe Weather due to Climate Change

Projections in a recent study suggest that supercells (thunderstorms responsible for tornadoes and hail) will become more frequent in the twenty-first century in the eastern United States (Walker S. Ashley, 2023).

Locations of Severe Weather due to Climate Change

It is unknown whether the location of severe weather in Effingham County will be influenced by climate change.

3.8 Severe Winter Weather



3.8.1 Description

Severe weather consists of snow, ice, high winds, extreme cold temperatures, and coastal winter storms. Freezing rain is a super-cooled falling liquid precipitation that freezes on contact with surfaces when the air temperature is below freezing. The result is a layer of ice on roads, powerlines, and buildings. Sleet varies from freezing rain because it freezes prior to hitting the ground. Sleet can either adhere to the ground or bounce off. Accumulations of ice can damage infrastructure and vegetation and can be a hindrance to motorists and pedestrians when it reaches a sufficient depth (GEMA, 2019).

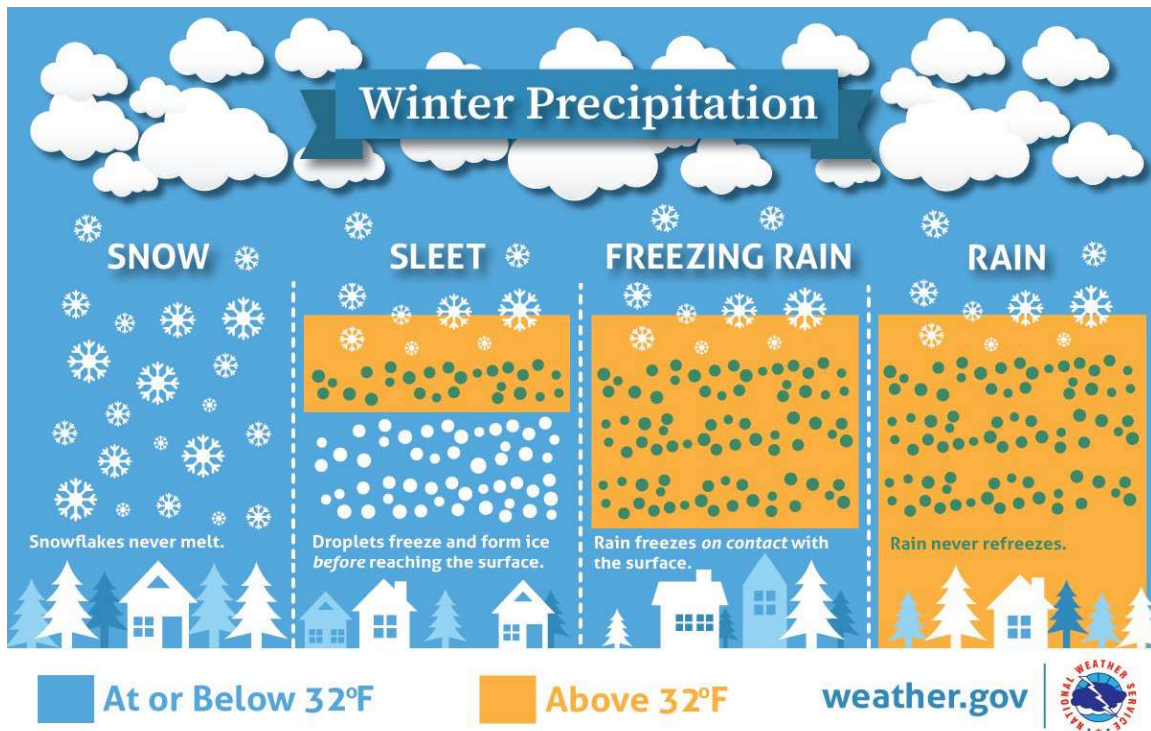


Figure 3-13: Winter Precipitation (NOAA, n.d.-b)

3.8.2 Previous Severe Winter Weather Occurrences

There have been two reported severe winter weather events in Effingham County since the last HMP update, as described in the table below.

Table 3-11: Historical Severe Winter Weather Events in Effingham County, GA

Date	Type of Event	Event Narrative
1/3/2018	Heavy Snow	Storm total snowfall amounts generally ranged between 3 to 4 inches across Effingham County
1/22/2022	Winter Weather	Reports of light freezing rain and sleet

(NOAA, 2023)

Extent

Freezing temperatures and winter storms can result in power outages and dangerous road conditions. Effingham County does not have snow and ice removal equipment due to the relatively low number of winter storms historically, so when winter weather hits the County there are limited resources.

Winter weather can also have a significant impact on agriculture in the area, particularly during late-season storms that impact the county as crops are beginning to grow. Multiple days with freeze warnings occurred in March 2023 with conditions that caused damage and delayed fruit crops in Georgia (Georgia Farm Bureau, 2023).

Probability

Snow is relatively rare, the county receives an average of only one inch per year (NWS, National Weather Service, 2023). Winter storms are seasonal, and most occur in Effingham County between January and March. The month with the highest probability of winter storms is February (GEMA, 2019).

Location

The likelihood of experiencing severe winter weather is not confined to any specific area of Effingham County.

3.8.3 Severe Winter Weather and Climate Change

There are no available data on the projected number and strength of future winter weather events in Georgia. As we see global and local temperatures rise, it is likely that the weather conditions required to generate severe winter weather events will become less frequent.

Extent of Severe Weather due to Climate Change

There are no available data on the projected strength of future winter weather events in Georgia.

Probability of Severe Winter Weather due to Climate Change

The following table shows extreme temperature projections from Climate Explorer Tool (U.S. Federal Government, 2023). Overall, the number of days with temperatures falling below freezing (32 degrees Fahrenheit) are likely to reduce.

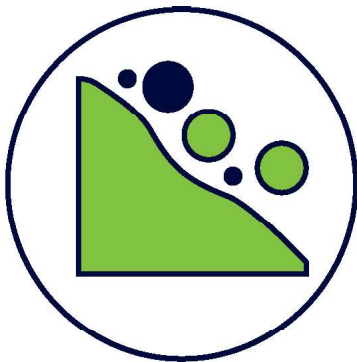
Table 3-12: Extreme Temperature Projections

Parameter	Baseline	2025s		2050s		2075s	
	(1950-2013)	(2010-2040)		(2035-2065)		(2060-2090)	
		Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)
Number of days with maximum temperature <32°F	0.11	0.08	0.06	0.05	0.03	0.03	0.01

Location of Severe Winter Weather due to Climate Change

There are no available data on the projected locations of future winter weather events in Georgia.

3.9 Geologic Hazards



3.9.1 Description

Geologic hazards covered in this section include sinkholes, landslides, debris flow and mudslides. A **sinkhole** is depression or hole in the ground surface; sinkholes can form from natural processes

(groundwater, seismic activity, etc.) or as a result of manmade infrastructure (ruptured or collapsed pipes, etc.). A **landslide** refers to the movement of earth, rock, or debris down a slope of land (National Geographic, 2023). Landslides can be caused by any factor that makes sloped ground unstable, such as volcanoes, earthquakes, or rain (National Geographic, 2023). Steep slopes are the most important factor that makes a landscape susceptible to landslides, in addition to deforestation, the strength of soils and bedrock, and the proximity of faults and/or roadways (NASA, 2023). **Mudslides** are a type of landslide that occur specifically when water rapidly accumulates on sloped land, resulting in water-saturated earth, rock, and debris flowing down (CDC, 2018).

3.9.2 Previous Geologic Hazards Occurrences

Accounts of geologic hazards are difficult to determine as many landslides and debris flow events are minor, do not cause significant damage or go unreported. There have been no recorded geological hazard events in Effingham County. (NOAA, 2023).

Extent

Sinkholes can range in size from areas smaller than one meter to several hundred meters wide and deep (GEMA, 2019). Geologic hazards can range from minor to catastrophic. Wildfire can significantly alter the hydrologic response of a watershed to the extent that even modest rainstorms can produce dangerous mudslides.

Probability

Effingham County has a low to moderate sinkhole potential based on geologic conditions. Much of the county is made up of carbonate rocks buried under less than 300 feet of insoluble sediments, which represents low sinkhole potential. The northwestern portion of the County is made up of unconsolidated calcareous or carbonate rocks at or near the land surface, equating to a moderate sinkhole potential (GEMA, 2019).

According to the GHMS, no frequency estimates exist for sinkholes except that they are more likely to develop in areas with soluble bedrock. For that reason, the northwestern area of Effingham County likely has a higher frequency of sinkholes than Springfield, Rincon, Guyton, and the rest of unincorporated Effingham County.

There have been no recorded landslides in Effingham County. According to the GHMS, Effingham County has a low landslide incidence, meaning that less than 1.5% of the County's area is involved in landsliding (GEMA, 2019).

Location

There are no records of significant geological hazards in Effingham County (GEMA, 2019). Northwestern Effingham County has a slightly higher sinkhole potential than the rest of Effingham County. The location of future geological hazards could be greater in parts of the County near elevation changes, as landslides and mudslides occur on sloped ground. Erosion can occur anywhere so the whole County is likely to experience similar levels of erosion in the future.

3.9.3 Probability of Future Geologic Hazards due to Climate Change

Climate change may increase the likelihood of landslides in the area due to more frequent and intense storms, reduced vegetation cover resulting from increased drought events or wildfires, or increased urbanization.

3.10 Seismic Hazards



3.10.1 Description

Seismic hazards, also known as earthquakes, are an intense shaking or trembling of the Earth's surface caused by an abrupt release of energy following a slow strain of movement of tectonic plates (USGS, 2023). Earthquake activity most often occurs along tectonic plate boundaries, and there are four manifestations of earthquakes.

The physical property that causes the majority of earthquake damage in the United States is shaking. The vibration from seismic waves spread outward from the center of the earthquake causing the ground and structures to shake. Another manifestation of earthquakes is surface faulting, which occurs when the Earth's surface tears due to a differential movement across a fault. The third is tectonic uplift and subsidence. Uplift causes the shallowing of waterways, while subsidence causes permanent or intermittent inundation. The state of Georgia is not at risk to this phenomenon due to the State's proximity to active faults. The fourth property that causes earthquake damage is earthquake-induced ground failures, including liquefaction and landslides. Landslides are covered in more detail in Section 3.9: Geologic Hazards.

3.10.2 Previous Seismic Hazards Occurrences

There have been 65 recorded earthquakes within approximately 100 miles of Effingham County since 1972 (USGS, 2023). The figure and table below provides details of these events.

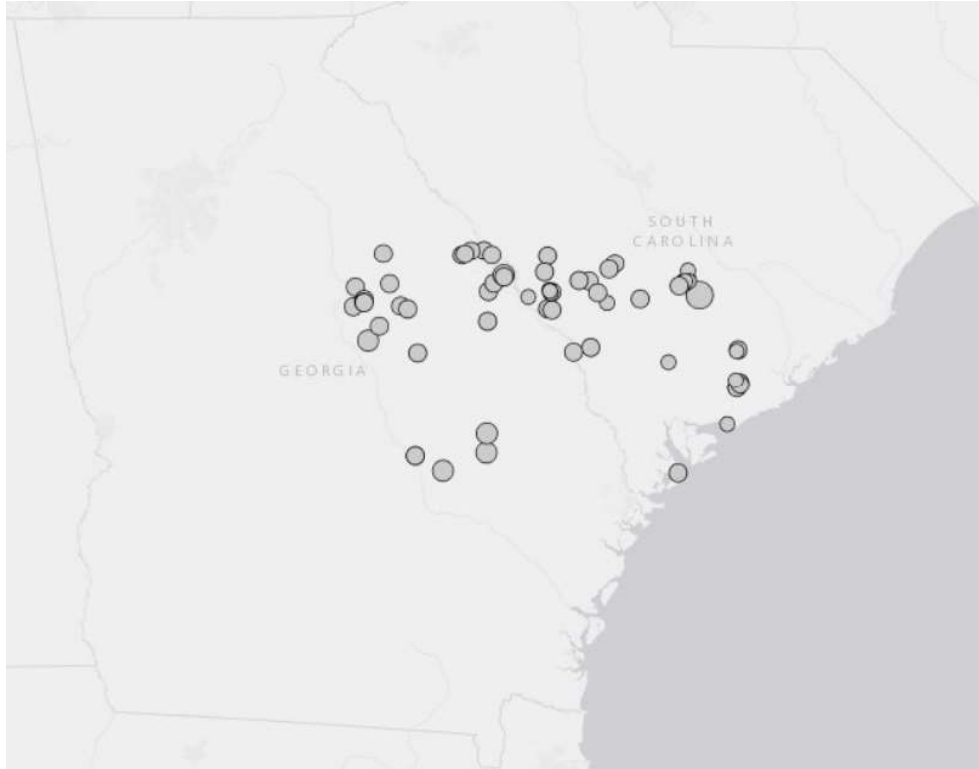


Figure 3-14: Locations of Historical Earthquakes within 100 Miles of Effingham County, Georgia (USGS, 2023)

Table 3-13: Historical Earthquakes Within 100 miles of Effingham County, GA

Date	Latitude	Longitude	Depth	Magnitude	Location
June 20, 2022	33.5580	-82.3015	5.41	2.08	15 km NW of Grovetown, Georgia
June 18, 2022	32.4525	-82.1405	0.75	3.9	7 km E of Stillmore, Georgia
June 17, 2022	33.5518	-82.3233	6.79	2.16	15 km N of Harlem, Georgia
June 25, 2020	32.9595	-81.5052	1.33	2	16 km ENE of Hiltonia, Georgia
March 5, 2020	32.9538	-82.6473	9.99	2.42	4 km SW of Davisboro, Georgia

Date	Latitude	Longitude	Depth	Magnitude	Location
September 22, 2018	33.2827	-81.0173	6.23	2.11	2 km SE of Bamberg, South Carolina
June 22, 2017	33.4167	-82.0153	11.38	2.08	7 km SSW of Augusta, Georgia
June 20, 2017	33.4275	-82.0168	12.93	3.2	6 km SW of Augusta, Georgia
April 21, 2017	33.5525	-82.1045	8.23	2.52	3 km NE of Evans, Georgia
April 6, 2017	33.2605	-83.0400	11.16	2.72	6 km WSW of Sparta, Georgia
April 6, 2017	33.2633	-83.0432	9.54	2.51	6 km WSW of Sparta, Georgia
September 25, 2017	32.5090	-80.3790	6.89	1.88	5 km NW of Edisto Beach, South Carolina

(USGS, 2023)

Extent

The vibrations from seismic waves can cause failure in structures not adequately designed to withstand earthquakes. Surface vibration can be horizontal, vertical, or a combination of the two, which can leave to even greater structure failure.

Below is a table demonstrating the Richter Scale, which is a quantitative measure of an earthquake's size or magnitude (Rafferty, 2023).

Table 3-14: Richter Scale

Magnitude Level	Category	Effects
less than 1.0 to 2.9	micro	Generally not felt by people, but recorded on local instruments
3.0–3.9	minor	Often felt by many people, but no damage

Magnitude Level	Category	Effects
4.0–4.9	light	Felt by all; minor breakage of objects
5.0–5.9	moderate	Some damage to weak structures
6.0–6.9	strong	Moderate damage in populated areas
7.0–7.9	major	Serious damage over large areas; loss of life
8.0 and higher	great	Severe destruction and loss of life over large areas

(Rafferty, 2023)

The Modified Mercalli Scale describes the intensity that humans feel earthquakes. The greater the number, the greater the structural damage. The table below provides additional information (USGS, 2023).

Table 3-15: Modified Mercalli Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by people indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, window broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

Intensity	Shaking	Description/Damage
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

(USGS, 2023)

Frequency

Georgia has not experienced a major earthquake since prior to 1952 according to SHELDUS/NCEI reports (GEMA, 2019), and no earthquake epicenters have been located in Effingham County, but minor earthquakes have still occurred within a 100-mile vicinity of the County. Most of the earthquakes were minor and often not detectable by humans, but of these instances, the ones felt by humans did not cause damage to Effingham County. In the past 50 years there has been an average of 1.3 earthquakes per year within a 100 mile radius of Effingham County.

Location

Although no earthquake epicenters have been located in Effingham County, the County is still at risk of being impacted by a seismic hazard. The entire County of Effingham, including the Cities of Rincon, Guyton, and Springfield have the same risk potential. Effingham County is located in an area with a PGA of 14-20%g with a 2% probability of exceedance in 50 years (USGS, 2014). This is the third highest seismic hazard zone in the State of GA.

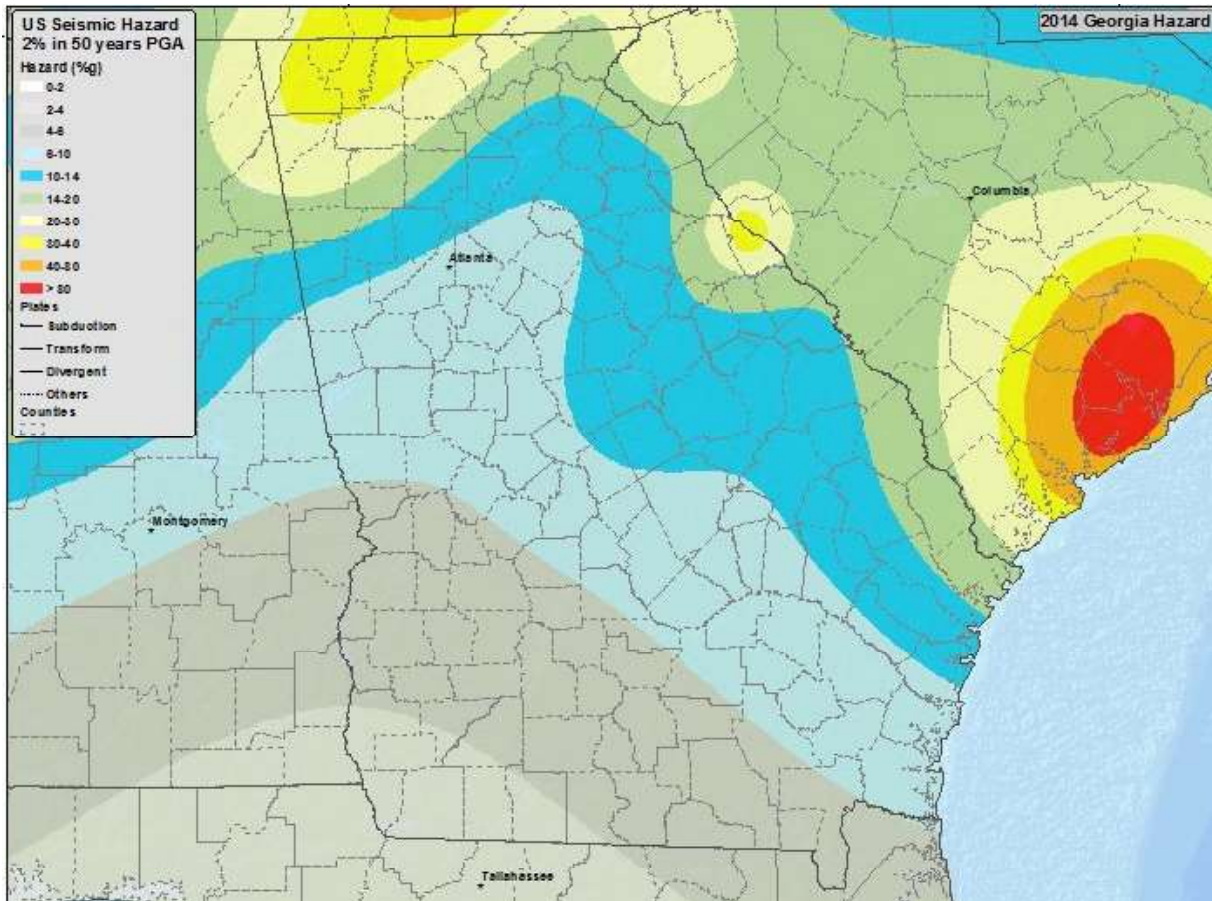


Figure 3-15: U.S. Seismic Hazard 2% in 50 Years PGA: Georgia
(USGS, 2014)

Georgia's greatest risk of earthquakes that could produce significant damage are from the seismic areas listed in Table 3-16. The nearest seismic area to Effingham County is in Charleston County, approximately 75 miles from the northeastern border of Effingham County, although all of the seismic areas listed have the potential to cause damage in Effingham County.

Table 3-16: Seismic Areas in Georgia

Seismic Area	Description
New Madrid Fault Zone	centered on the Mississippi River north of Memphis, TN
Southern Appalachian Seismic Zone	running west of the Appalachian Mountains between Knoxville, TN, and northeastern Alabama

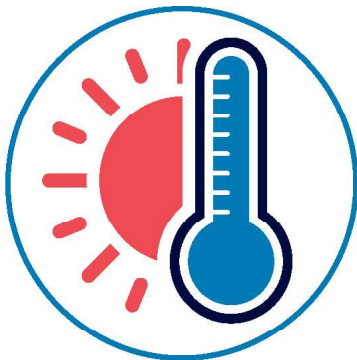
Seismic Area	Description
Charleston, South Carolina	City of Charleston, SC

(GEMA, 2019)

3.10.3 Probability of Future Earthquakes due to Climate Change

Frequency and risk are challenging to determine for earthquakes, but recent estimates speculate an earthquake with a magnitude of 6.0 or greater is likely to occur every 80 years in the New Madrid Seismic Zone centered along the Mississippi River. The USGS reports states that there is a likelihood of 25% to 40% for an earthquake of similar magnitude to occur within the next 50 years (USGS). There are no documented relationships between climate change and earthquakes; however, some scientists have theorized that there is a chance their frequency and intensity could increase in the future due to climate change (GEMA, 2019).

3.11 Extreme Heat



3.11.1 Description

Extreme heat refers to a period of at least two to three days with high humidity and temperatures above 90 degrees (Ready.gov). Impacts of extreme heat are compounded on days where the nighttime temperature remains high (above 75°F), thus not allowing for cooling overnight.

In extreme heat events, a person’s body works extra hard to maintain a normal temperature, which can lead to heat cramps, heat exhaustion, heat stroke, and death. Extreme heat is responsible for the highest number of annual deaths among all weather-related hazards (GEMA, 2019). The National Weather Service will initiate alert procedures for heat advisories, excessive heat watch, and excessive heat warning. If an alert is issued, it is important to:



Figure 3-16: Heat Alert Response
(FEMA, 2018)

3.11.2 Previous Extreme Heat Occurrences

There have been 359 extreme heat events in Georgia from 1952-2017 according to NOAA and SHELDUS data. However, many of these events occurred on the same day or occurred on consecutive days, which makes accurately recording separate extreme heat events difficult (GEMA, 2019).

Extent

In extreme heat and humidity, your sweat evaporates very slowly and your body has to work harder to cool itself (GEMA). The graphic below shows the National Weather Service Heat Index. The Index is a measure of how hot it feels outside and is based on relative humidity and actual air temperature (NWS, 2023).

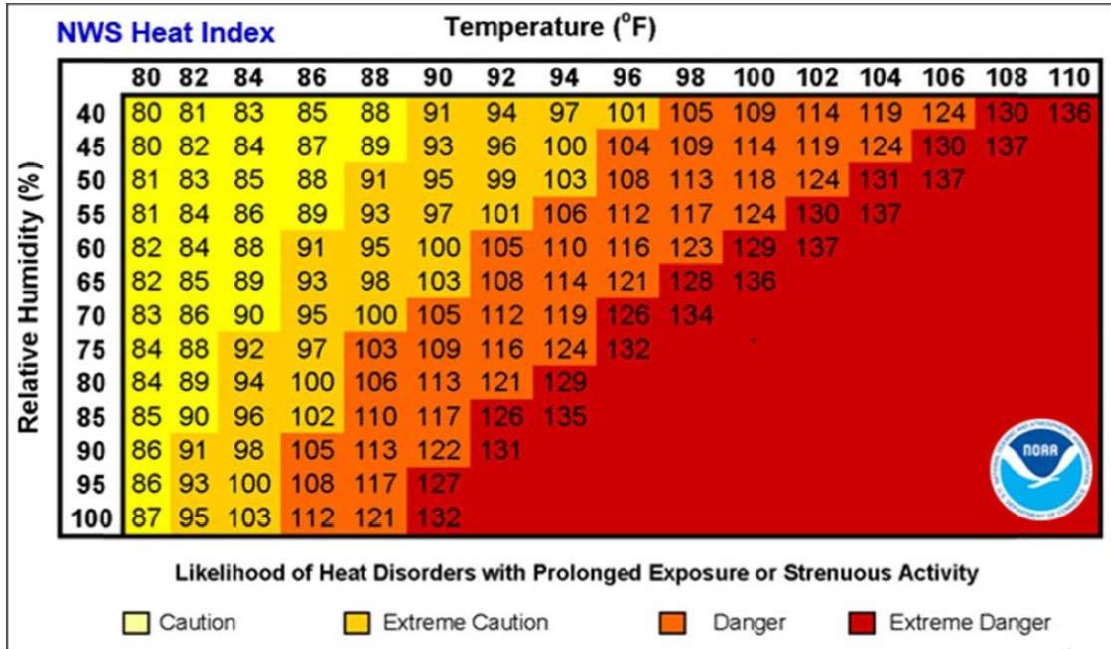


Figure 3-17: National Weather Service Heat Index

(NWS, 2023)

Any person can suffer from heat stress, but according to the EPA, those most vulnerable to extreme heat are the elderly, very young children, those with chronic illnesses, and those who are pregnant, as well as people working outdoors, the socially isolated and economically disadvantaged, and some communities of color. (EPA, 2022).

Probability

The summer months are when Effingham County is most likely to experience the impacts of extreme heat. Since the past HMP update in 2016, the average temperatures between June and August have ranged from 80.5°F to 81.5°F, with maximum temperatures of 92°F (NOAA National Centers for Environmental information, n.d.). Spring and fall, though historically cooler, have been known to have periods of weather where temperatures climb above 90°F. The historical record of nights with minimum temperatures above 75°F is less than 30, as shown in Figure 3.18.

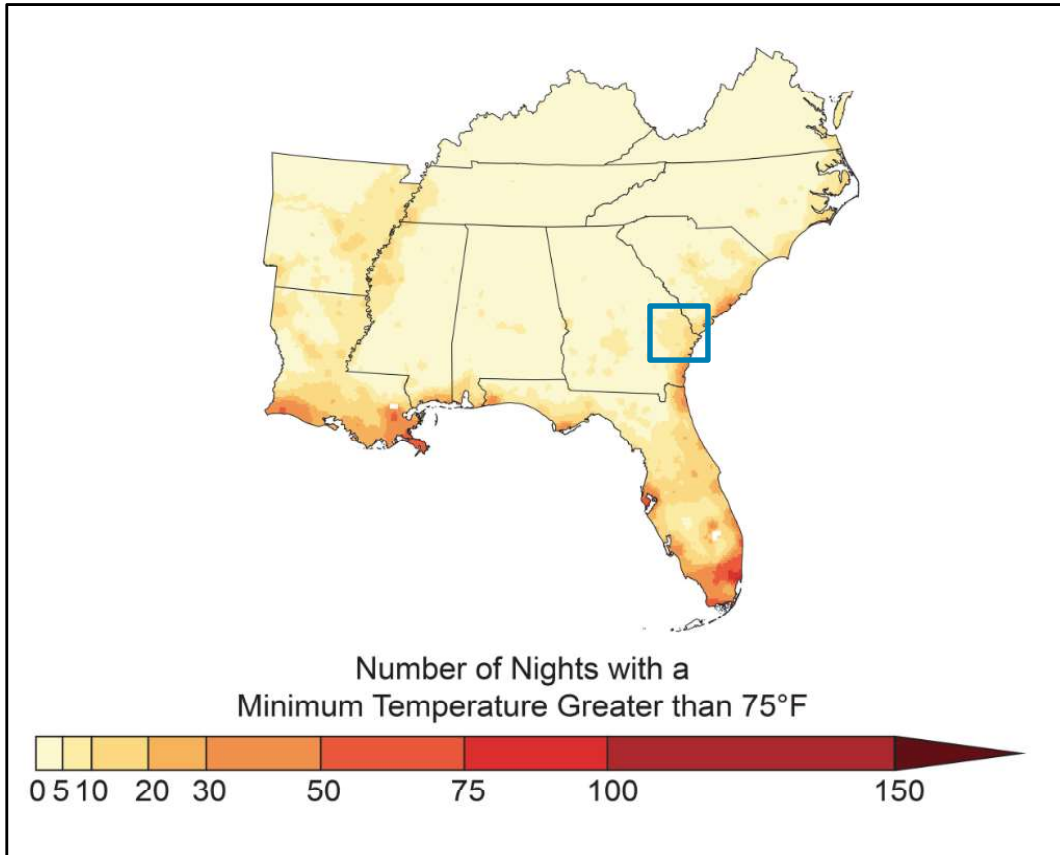


Figure 3-18: Historical Number of Warm Nights (days with minimum temperatures above 75°F) per year in the Southeastern U.S. (USGCRP, 2018)

Location

Effingham County is at risk of extreme heat, however, there are some factors that can reduce or worsen the impact of heat. An urban heat island is something that occurs in urbanized areas where there are buildings, roads, parking lots, and other impervious surfaces and minimal trees and vegetation. This infrastructure absorbs heat and increases the temperature enough that there is a noticeable temperature difference between these urban areas and nearby rural areas. Areas with greater development, like Springfield, Rincon, and Guyton’s downtown areas, as well as large industrial and commercial areas, are more likely to experience the impacts of urban heat islands.

3.11.3 Extreme Heat and Climate Change

According to the IPCC, 4th National Climate Assessment global temperatures are anticipated to continue to rise throughout the 21st century. The projections indicate that winters will become milder, with a reduced frequency of sub-zero days, while summers will become hotter, with an increased number of days experiencing maximum temperatures exceeding 90°F.

Fourth National Climate Assessment (USGCRP, 2018) states that after the middle of the 21st century, the projected increases are expected to be less severe under the lower scenario (RCP4.5). On the other hand, the higher scenario (RCP8.5) predicts much larger changes by the late 21st century, which is closely tied to our current consumption of fossil fuels. **Under this scenario, minimum**

nighttime temperatures above 75°F and maximum daytime temperatures above 95°F are anticipated to become the summer norm, with nights above 80°F and days above 100°F becoming common occurrences. Cooling degree days, a measure of the need for air conditioning, are projected to nearly double, while heating degree days are expected to decrease by over a third. Furthermore, the freeze-free season is expected to lengthen by more than a month, and the frequency of freezing temperatures is anticipated to decrease substantially.

Based on the projections in the map below (Figure 3.19), **Effingham County area is expected to have over 75 nights with a minimum temperature higher than 75°F by mid-century and more than 100 nights by late century under a high emission scenario (RCP8.5) compared to a historical record of less than 30 days as shown in figure 3.17.** The County is also projected to be included in a small list of counties from Georgia that will likely experience on average 0.5 days or more per year with a heat index at or above 125°F in 2053 (Freedman, 2022).

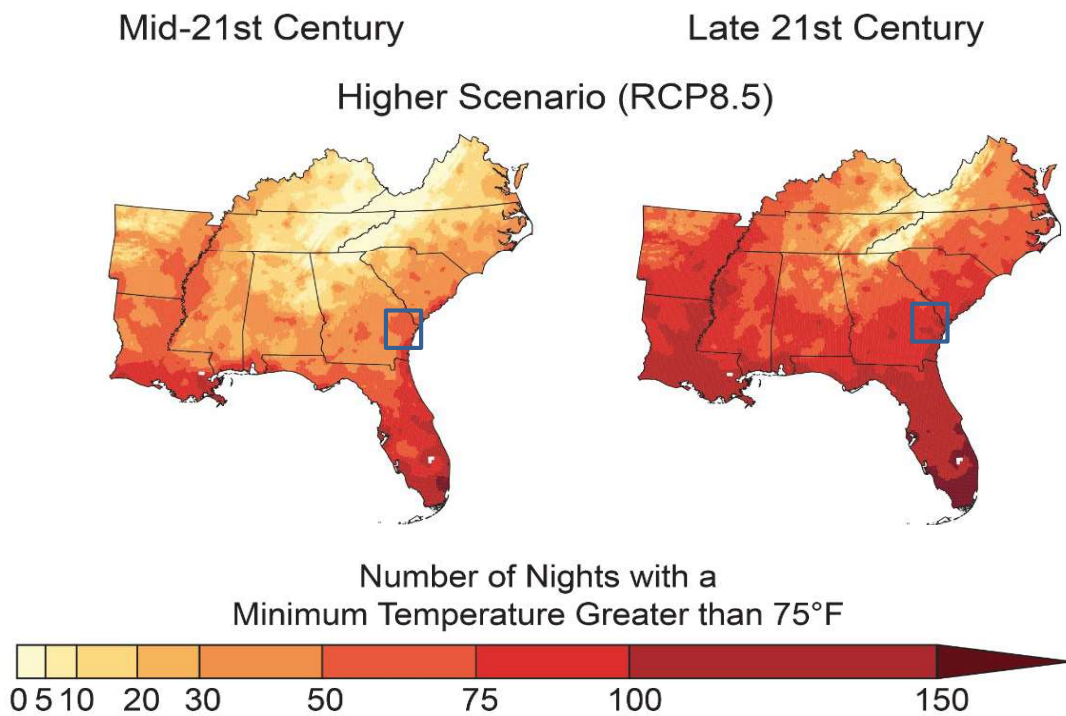


Figure 3-19: Extreme Heat: Projected number of warm nights (days with minimum temperatures above 75°F) per year by mid-century and late century in the Southeastern U.S. under high emission scenario. Blue outlined area represents Effingham County

(USGCRP, 2018).



Figure 3-20: 2053 Projected Heat Index at or above 125°F heat index for 0.5 days or more per year in U.S. Counties (Effingham County is marked by blue outlined area)

(Freedman, 2022)

Extent of Extreme Heat due to Climate Change

Rising temperatures due to climate change have already increased and will likely continue to increase in the future, which will cause more frequent and/or more severe heat waves (GEMA, 2019). The more heat waves that occur, the greater threat of injury and death.

Probability of Extreme Heat due to Climate Change

The following table (Table 3-17) shows extreme heat projections from Climate Explorer Tool (U.S. Federal Government, 2023). A higher number of hot days is likely to indicate a higher number of heat waves and heat stress events. High heat days combined with no precipitation, can be detrimental to public health and safety and crop productions.

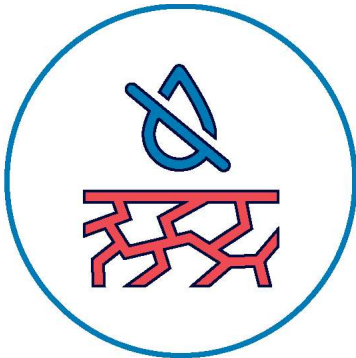
Table 3-17: Extreme Heat Projections

Precipitation Parameter	Baseline	2025s		2050s		2075s	
	(1950-2013)	(2010-2040)		(2035-2065)		(2060-2090)	
		Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)	Low Emission (RCP4.5)	High Emission (RCP8.5)
Average daily maximum temperature	77.4	79.6	79.7	81.0	81.8	81.7	84.2
Number of days with maximum temperature >95°F	17.6	36.5	37.9	52.8	64.4	63.5	95.4
Number of days with maximum temperature >100°F	1.7	6.5	6.8	12.5	18.2	18.0	39.6
Number of days with minimum temperature >80°F	0.04	1.5	1.6	3.6	7.3	6.7	25.8

Location of Extreme Heat due to Climate Change

The intensity of extreme heat events may vary in location based on development practices in the future.

3.12 Drought



3.12.1 Description

Drought hazards are prolonged periods of precipitation deficiencies compared to the average rainfall levels in an area. Droughts can last anywhere between a few weeks to years but usually last at least a season or more. Droughts can occur in every climatic zone and since their effects are dependent on the human activity in the area, their spatial extent can range from a small area of a couple counties to an entire region or country. The table below describes types of droughts in regard to their time duration.

Table 3-18: Types of Droughts Based on Duration

Length of Time	Type of Drought
1-3 months	short term
4-6 months	intermediate
6+ months	long term

(GEMA, 2019)

Droughts can have a significant impact on the availability and quality of drinking water. Less precipitation reduces the amount of water that flows into rivers, lakes, reservoirs, and into the ground. This can lead to a decreased water supply, and in some cases a source can dry up completely. Additionally, if the groundwater level drops below the cone of depression of a drinking water well, the well can no longer bring up water. Additionally, pumping a dry well can cause permanent damage to the well pump.

Drought can also affect the quality of drinking water. When water levels drop, the concentration of contaminants will increase. This will result in higher level of contaminants in the drinking water supply. Saltwater intrusion can also occur in coastal areas like Effingham County, when over pumping of ground or surface water reduces the fresh water to the point that saltwater infiltrates the drinking water source.

In areas where there is already a limited supply of drinking water, drought can exacerbate the issue and lead to water supply shortages. This can impact public health, and can also impact industries that rely on water, such as manufacturing and agriculture.

3.12.2 Previous Drought Occurrences

Extent

The U.S. Drought Monitor (2000-present) uses a five-category system, labeled:

- Abnormally Dry or D0, (a precursor to drought, not actually drought), and
- Moderate (D1),
- Severe (D2),
- Extreme (D3) and,
- Exceptional (D4) Drought.




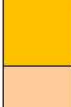
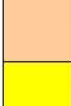
	Color	Condition	Description
Dry Conditions		D4	Exceptional drought: agricultural economy is severely impacted; fire risk is high; fire activity increases; tree mortality is high; army worm outbreaks occur.
		D3	Extreme drought: majority of hay/grazing is lost; agriculture suffers economic losses; outdoor burn bans are implemented; rivers and livestock ponds are dry; wells are drying up; mandatory water conservation is implemented.
		D2	Severe drought: crops are stressed; hay yield is low; producers feed cattle early; planting is delayed; soil is hard; conditions are dustier than usual; small streams dry up; rivers are very low; tree mortality begins.
		D1	Moderate drought: crops are vulnerable; soil moisture is low; gardens and lawns require more water; stream and pond levels are lower; water temperatures increase.
		D0	Abnormally dry: topsoil moisture decreases; planting is delayed; fire risk is elevated
			near normal

Figure 3-21: Legend and Description U.S Drought Monitor Categories

(NIDIS/NOAA, 2023)

The graph below shows historical conditions for Effingham County since the last HMP update.

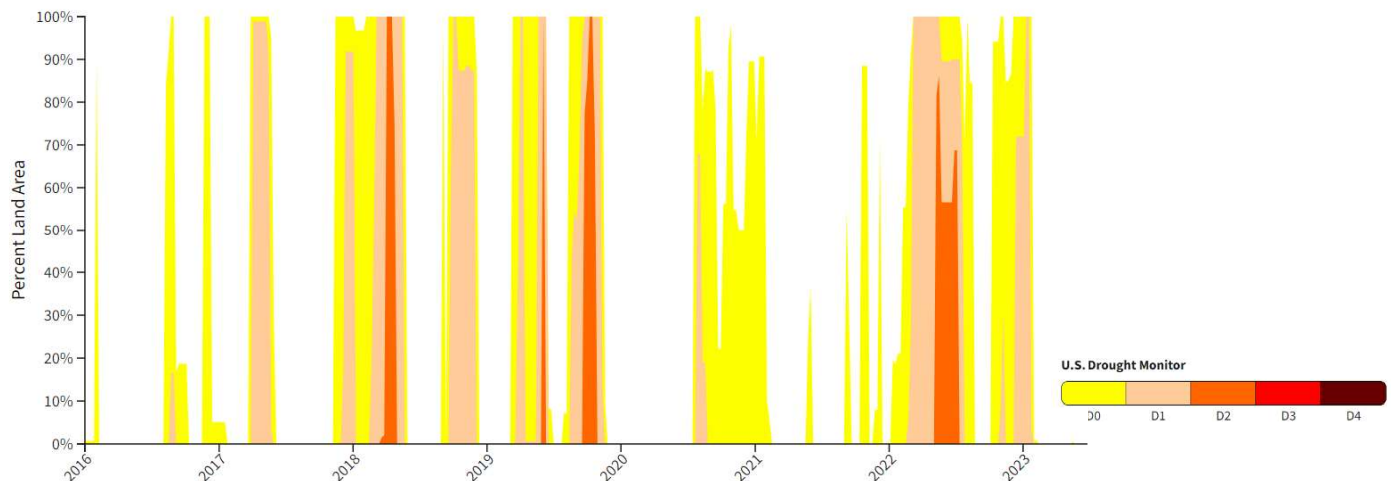


Figure 3-22: Weekly Historical Drought Trends from 2016 to July 25, 2023, in Effingham County, GA (NIDIS/NOAA, 2023)

Probability

There have been four severe droughts (orange on the graph above) since 2017 when the previous hazard mitigation plan came out in Effingham County. According to the previous hazard mitigation plan, there were no new droughts in Effingham County from April 2013-November 2016, but the plan prior to it stated there were 20 drought events in the county between 1986 and 2002 (Effingham County, 2017).

Location

The likelihood of experiencing drought is not confined to any specific area of Effingham County. However, some water sources may experience a higher risk during a drought. The primary water source in Effingham County comes from the I&D System, supplied by Abercorn Creek. Abercorn Creek is a tributary of the Savannah River, so during times of drought the saline levels increase from the coastal influence. Additionally, anywhere south of GA-119 that is connected to public drinking water has greater restrictions on water use due to the limited capacity of the water source. Agricultural fields are also affected during drought periods.

3.12.3 Probability of Future Drought due to Climate Change

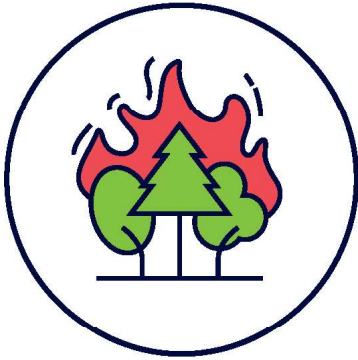
Drought has been a reoccurring issue in the Southeast and affects agriculture, forestry, and water resources. There is a correlation between droughts and climate change, but it is difficult to attribute increases in droughts to climate change because droughts are variable. (Means, 2023) It is difficult to estimate future events due to limited historical data and the nature of drought events (GEMA, 2019).

Higher temperatures increase the rate of soil moisture loss during dry spells, thus leading to more intense drought and increased competition for the state's water resources (NOAA, 2022). The number of dry days, which is one of the indicators of drought, are also projected to increase by end of century under both low and high emission scenarios (U.S. Federal Government, 2023). Intra-annual droughts are predicted to become more common in the future. (USGCRP, 2018).



Figure 3-23: Drought. Sources/usage: Public Domain

3.13 Wildfire



3.13.1 Description

A wildfire is an unplanned, unwanted fire burning in a natural area such as a forest, grassland, or prairie. Wildfires can start from natural causes such as lightning, but most are caused accidentally or intentionally by humans (FEMA, Wildfire, 2023). They can damage natural resources, destroy homes, and threaten human lives and safety (FEMA, 2023c).

Wildfires are often a result of drought conditions; they are fueled by grasses and trees that become more flammable when they dry out, thus increasing the likelihood of fire (NOAA, 2023). Wildfires have the ability to spread rapidly and can range in size. Weather contributes strongly to wildfire behavior, but it is very variable; the strength and behavior of winds can affect wildfire behavior. Wildfires are often the cause of secondary hazards, such as landslides and flooding, which occur after vegetation is consumed by the fire, leaving the soil loose and easily maneuverable (GEMA, 2019).

Effingham County has fire departments within the municipalities of Springfield, Guyton, and Rincon, and also has ten volunteer fire departments throughout the County under Effingham County Fire and Rescue. There is a county protection unit two miles west of Springfield maintained by the Georgia Forestry Commission that aides in responding to wildfires throughout the county (Effingham County, 2017).

3.13.2 Previous Wildfire Occurrences

In 2022, Effingham County Fire Department responded to 37 wildfires that burned 403.1 acres. The average number of wildfires per year for the last five years was 29 wildfires per year with an average yearly burn of 182.65 acres (Lastinger, 2022). Brush fires were recently reported on March 7, 2023, during an elevated fire risk caused by low humidity, breezy winds, and dry fuels (Effingham County Fire Rescue, 2023).

Extent

Wildfires are tracked by the total number of fires (frequency), the total land area burned (extent), the degree of damage that fires cause to the landscape (severity), and seasonal patterns. (EPA, 2023). Wildfires over 500 acres are monitored through the Monitoring Trends in Burn Severity (MTBS) project, which identified one wildfire in 1999 that resulted in 902 burned acres in Effingham County.

Frequency

Effingham County has a medium threat of wildfire, which is determined based on the chance of experiencing weather that could support a wildfire and the resulting loss of property and life in any given year (Think Hazard, 2023). Between 2015-2019 the number of incidents reported to the National Fire Incident Reporting System (NFIRS) was between 1001-2500 in Effingham County. The types of fires reported in Effingham County and the state of Georgia for 2015-2019 are shown below (FEMA, 2019).






General Property Use Type	 Residential Fires	 Non-Residential Fires	 Vehicle Fires	 Outside Fires	 Other Fires
Georgia	26.6%	9.3%	15.2%	45.0%	4.0%
Effingham County	21.5%	16.9%	15.3%	41.3%	5.0%

Figure 3-24: Types and Percentages of Fires Reported in Effingham County and the State of Georgia in 2015-2019 (FEMA, 2019)

Location

The maps below, taken from the 2019 Georgia Hazard Mitigation Strategy, show the impact potential and risk of wildfires throughout Georgia (GEMA, 2019). While wildfire risk in the County is very low to moderate (Figure 3.25), the impact of potential by wildland/urban interface is moderate to high (Figure 3.26).

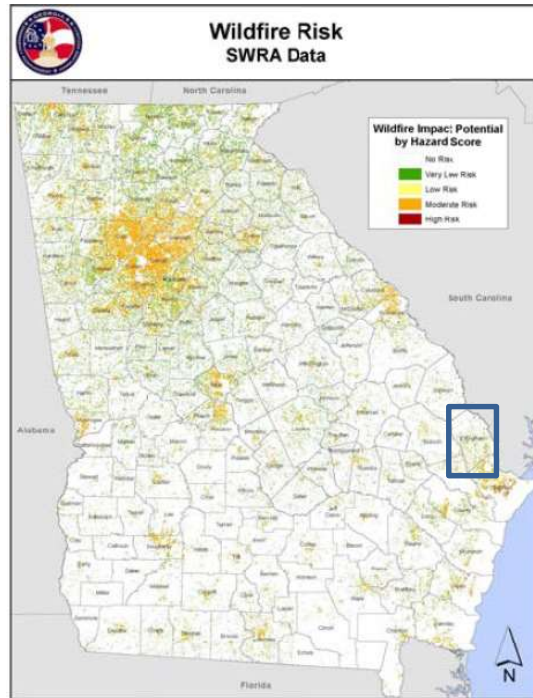


Figure 3-25: Wildfire Risk in Georgia (Effingham County is outlined by blue)
(GEMA, 2019)

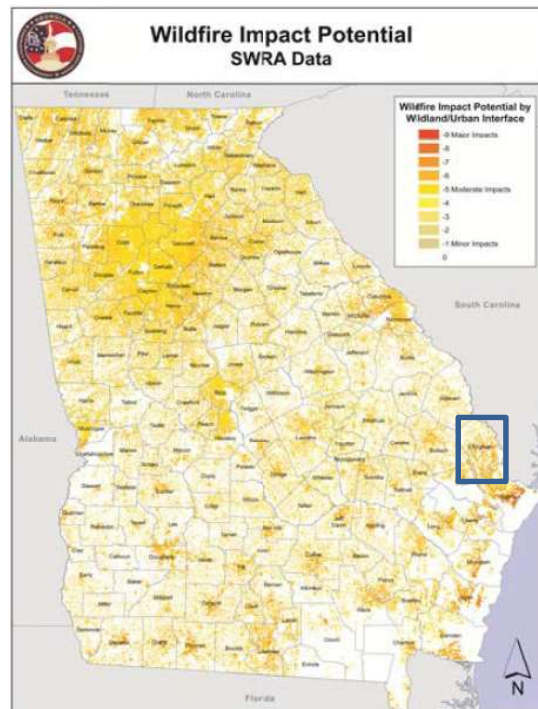


Figure 3-26: Wildfire Impact Potential by Wildland/Urban Interface in Georgia (Effingham County is outlined by blue)
(GEMA, 2019)

Forested and unmaintained areas in Effingham County are at higher risk of wildfire than forests and vegetated areas that undergo regular prescribed burns. However, the risk of wildfires can be drastically reduced through mitigation strategies such as prescribed fire. This mitigation action has been widely adopted across the region. Scientists have found that doubling prescribed fire practices at the landscape level can reduce wildfire ignitions by a factor of four (USGCRP, 2018).

3.13.3 Probability of Future Wildfires due to Climate Change

The occurrence of wildfires is expected to increase in the future due to increasing temperatures and drought conditions. High temperatures will lead to premature leaf drops causing greater accumulation of plant material on the floor of forests. This in conjunction with more frequent droughts are expected to contribute to greater fire activity in the Southeast region (USGCRP, 2018). If urban areas continue to expand near managed forests, there may be reduced opportunities to use prescribed fire, which could have negative impacts on native species, lead to more wildfires, and result in economic and health consequences.

4.0 ASSET INVENTORY



What information will I find in this chapter?

Chapter Four contains an inventory of community assets, considered critical in the provision of essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important safety, emergency response and/or disaster recovery functions. Updating this list is a vital function of identifying vulnerability to hazards.

Table 4-1: Chapter 4 Summary of Changes

Chapter 4 Sections	Updates to Section
Land Use and Development Trends	Updated to reflect current data and information
Community Lifelines	Updated to reflect current data and information

This section provides an inventory of the community assets that are important to Effingham County and the Cities of Springfield, Rincon, and Guyton. This section also looks at land use and development trends to get a clearer picture of the different areas of the County that may house community assets in the future so that hazard mitigation and preparedness are integrated with Effingham County’s Joint Comprehensive Plan. *All assets and areas discussed in this chapter will be further assessed for their vulnerability to hazards in Chapter 5.*

E1-a

4.1 Land Use and Development Trends

Effingham County is comprised of agriculture and recreational land uses with clusters of industrial and residential zones. Residential lots are common in the three major Cities and along the County’s southern border. A variety of housing types are found throughout Effingham, but single-family detached homes are the most common. Over 20% of housing units in Effingham County are mobile homes, which are more vulnerable to hazards than other housing types. Rincon and Springfield officials hope to diversify their housing market and offer novel, yet affordable, housing options.

The County’s vulnerability and subsequent capacity to address hazards is largely based on its future land use patterns, which are outlined in the tables below. Although most of Effingham’s future land use is expected to remain the same as its existing purpose, the City of Rincon has proposed significantly more industrial land to the northwest of the city. A new \$300 million manufacturing facility will be located on a previously undeveloped parcel. This large new facility is expected to bring many new jobs and be a catalyst for future industrial development around the area.

All new development is supposed to reflect existing land uses. However, a proposed project can adhere to land use trends and zoning regulations while increasing the County’s vulnerability. Development should be discouraged in hazardous areas, but without strict regulations for where new construction will be located, there is no guarantee this will occur. Effingham’s Joint Comprehensive Plan does not

specifically reference the importance of considering hazards when determining future development trends. The Comprehensive Plan calls for expanded greenspaces and adoption of conservation subdivisions but does not identify priority areas for development. Flooding and other natural disasters are the primary threats to residents and important economic centers. However, industrial development can create their own hazards. The Comprehensive Plan recommends locating industrial sites away from residential neighborhoods, which will limit the threat to the general public.

Table 4-2: Unincorporated Effingham County Future Land Use Distribution

Land Use Type	Acres	Percentage of Total
Agricultural	199,420	68%
Commercial	1,524	1%
Conservation/Recreation	21,660	7%
Industrial	10,370	4%
Mixed-Use	1,320	0%
Public/Institutional	3,214	1%
Residential	36,166	12%
Transportation/Utilities	3,524	1%
Undeveloped	13,974	5%
Total	291,172	100%

*Land use was mapped as part of the ongoing updates of the Joint Comprehensive Plan (Effingham County, 2019).

Table 4-3: Springfield Future Land Use Distribution

Land Use Type	Acres	Percentage of Total
Agricultural	777	36%
Commercial	98	5%
Conservation/Recreation	27	1%
Industrial	152	7%

Land Use Type	Acres	Percentage of Total
Mixed-Use	0	0%
Public/Institutional	371	17%
Residential	438	20%
Transportation/Utilities	0	0%
Undeveloped	98	14%
Total	1961	100%

*Land use was mapped as part of the ongoing updates of the Joint Comprehensive Plan (Effingham County, 2019).

Table 4-4: Rincon Future Land Use Distribution

Land Use Type	Acres	Percentage of Total
Agricultural	1271	19%
Commercial	575	9%
Conservation/Recreation	318	5%
Industrial	1338	20%
Mixed-Use	462	7%
Public/Institutional	211	3%
Residential	2142	32%
Transportation/Utilities	0	0%
Undeveloped	387	6%
Total	6704	100%

*Land use was mapped as part of the ongoing updates of the Joint Comprehensive Plan (Effingham County, 2019).

Table 4-5: Guyton Future Land Use Distribution

Land Use Type	Acres	Percentage of Total
Agricultural	214	10%
Commercial	31	1%
Conservation/Recreation	13	1%
Industrial	0	0%
Mixed-Use	83	4%
Public/Institutional	743	36%
Residential	892	43%
Transportation/Utilities	0	0%
Undeveloped	99	5%
Total	2075	100%

*Land use was mapped as part of the ongoing updates of the Joint Comprehensive Plan (Effingham County, 2019).

4.1.1 Recent Development

As part of the hazard mitigation planning process, Effingham County staff from Development Services and the Planning Department provided specific locations of recently permitted development in Effingham County as well as Springfield, Rincon, and Guyton between 2017 and 2023. Unincorporated Effingham County has experienced significant development over the past several years, as outlined in Table 4-6, Recently Permitted Development. Some of these developments have been permitted recently and have not yet been built, in which case they may also be included in Table 4-7, Potential Future Development.

Table 4-6: Recently Permitted Development (2017 – Present Day)

Type of Development	Number of Buildings	Municipality	Year Permitted	Cost
Residential	124	Unincorporated Effingham County	2023	\$28,563,000
Residential	387	Unincorporated Effingham County	2022	\$106,211,965

Type of Development	Number of Buildings	Municipality	Year Permitted	Cost
Residential	543	Unincorporated Effingham County	2021	\$132,887,000
Residential	560	Unincorporated Effingham County	2020	\$134,456,000
Residential	488	Unincorporated Effingham County	2019	\$120,7533,100
Residential	437	Unincorporated Effingham County	2018	\$110,559,000
Residential	506	Unincorporated Effingham County	2017	\$128,599,000
Commercial/Industrial	3	Unincorporated Effingham County	2023	\$225,000
Commercial/Industrial	70	Unincorporated Effingham County	2022	\$355,959,520
Commercial/Industrial	27	Unincorporated Effingham County	2021	\$222,061,000
Commercial/Industrial	19	Unincorporated Effingham County	2020	\$8,544,000
Commercial/Industrial	30	Unincorporated Effingham County	2019	\$88,111,935
Commercial/Industrial	30	Unincorporated Effingham County	2018	\$6,386,500
Commercial/Industrial	29	Unincorporated Effingham County	2017	\$17,515,036

4.1.2 Potential Future Development

As part of the planning process for Effingham County's 2021 Transportation Master Plan (Effingham County, 2021), Effingham County staff and stakeholders provided information on known or anticipated future development. While many of these plans are preliminary and will evolve before their eventual completion, they show that new development activity is strong, especially south of SR 119. The south-central part of the county has a number of anticipated residential subdivisions while the southern section of SR 21 is anticipating industrial and commercial development. In total, these anticipated developments total over 2,500 new homes and over 5.5 million square feet in industrial/warehousing developments. These development areas can be seen in Figure 4.1.

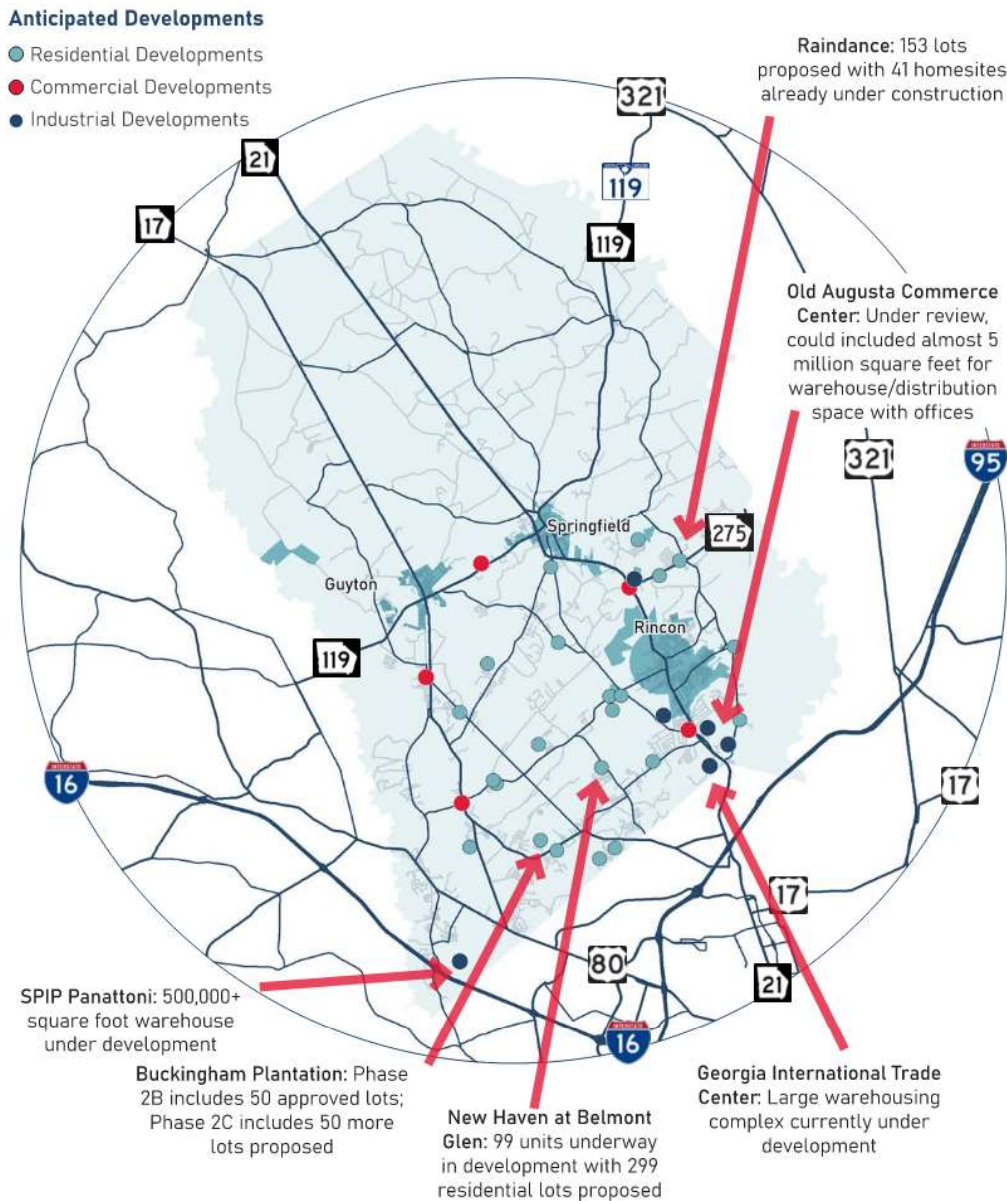


Figure 4-1: Effingham Anticipated Development (Effingham County, 2021)

The Planning Department provided detailed information on the areas noted in the Transportation Master Plan and additional areas that are likely to be developed or redeveloped within the next five years. Expected residential, commercial, and industrial projects are listed in Table 4-7, Potential Future Development.

Table 4-7: Potential Future Development

Type of Development	Development Name	Municipality
Commercial	Lonadine (Webb Tract)	Unincorporated Effingham County
Residential	McCall Place	Unincorporated Effingham County
Residential	Shadowbrook	Unincorporated Effingham County
Residential	Raindance	Unincorporated Effingham County
Residential	Oglethorpe Landing	Unincorporated Effingham County
Commercial/Industrial	Love's Truck Stop	Unincorporated Effingham County
Residential	Barrister Landing	Unincorporated Effingham County
Commercial	Dollar General	Unincorporated Effingham County
Commercial	Parker's Gas Station	Unincorporated Effingham County
Residential	Emerald Plantation ph 2&3	Unincorporated Effingham County
Residential	Timberlake	Unincorporated Effingham County
Residential	Pine Brook	Unincorporated Effingham County
Residential	Blandford Crossing	Unincorporated Effingham County
Residential	Bluejay Commons	Unincorporated Effingham County
Residential	Covered Bridge	Unincorporated Effingham County
Residential	Buckingham Plantation	Unincorporated Effingham County
Residential	The Woodlands	Unincorporated Effingham County
Residential	Park West	Unincorporated Effingham County

Type of Development	Development Name	Municipality
Residential	Creekside	Unincorporated Effingham County
Residential	New Haven at Belmont Glen	Unincorporated Effingham County
Residential	Longleaf Village (fka Goshen Estates)	Unincorporated Effingham County
Industrial	Omnitrax Industrial site	Unincorporated Effingham County
Commercial	Dollar General	Unincorporated Effingham County
Industrial	Old Augusta Commerce Center industrial site	Unincorporated Effingham County
Industrial	Northgate industrial park and McCormick-Exley industrial sites	Unincorporated Effingham County
Industrial	Cowan industrial site	Unincorporated Effingham County
Industrial	GA International Trade Center (GITC) industrial site	Unincorporated Effingham County
Industrial	Grande View industrial site	Unincorporated Effingham County
Industrial	Savannah Portside Industrial Park industrial site	Unincorporated Effingham County

(Concannon, 2023)

4.2 Community Lifelines

“A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security” (FEMA, 2020). Community lifelines can be described within the following seven categories:



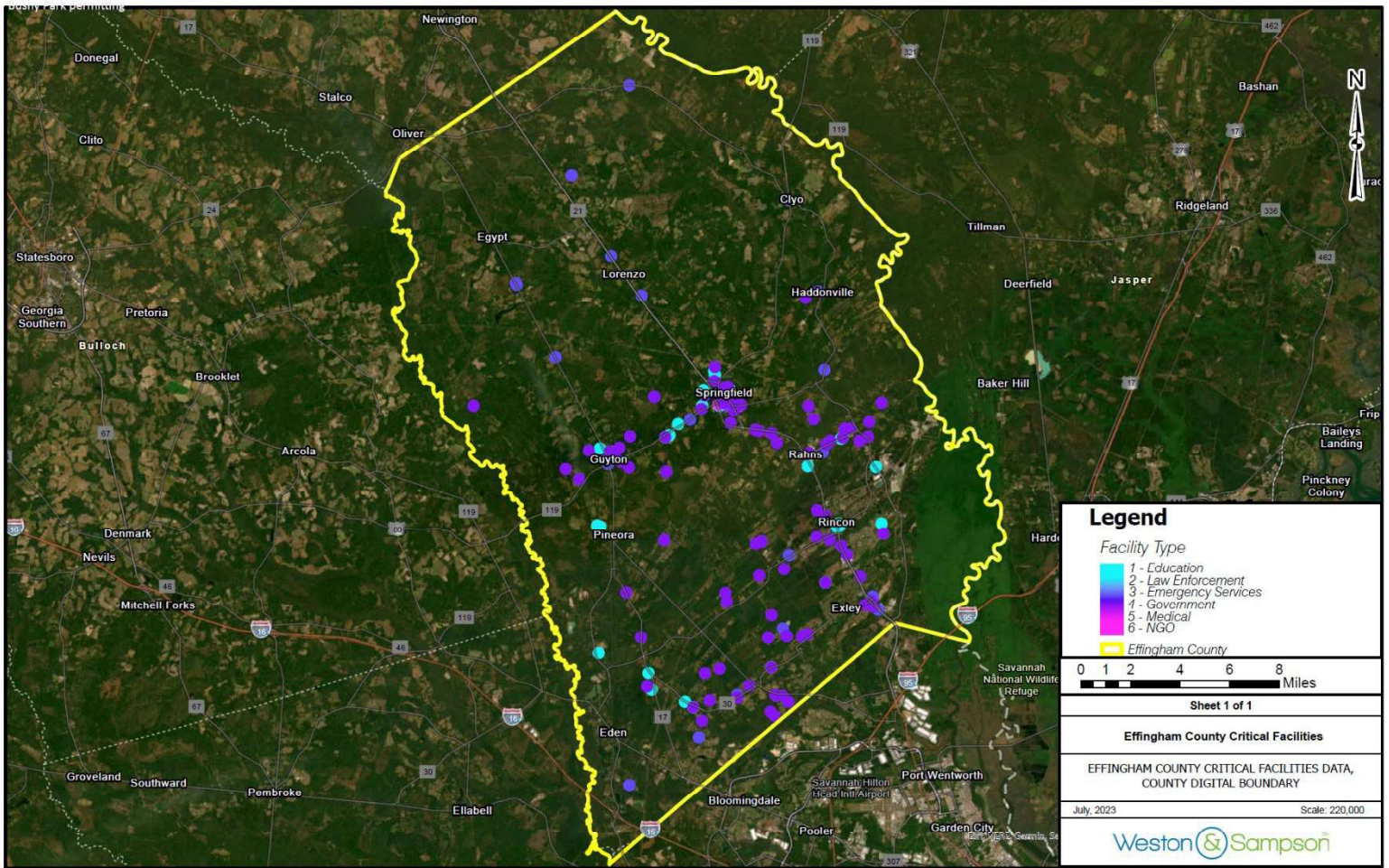




















Figure 4-2: Locations of critical facilities in Effingham County based on facility type.










4.2.1 Effingham County










Table 4-8: Effingham County Community Lifelines

ID	Name	Lifeline Category	Subtype
21920	Effingham County Fire Station 1	 	Fire Service
	Effingham County Fire Station 2-subsite		Fire Service










ID	Name	Lifeline Category	Subtype
6976	Effingham County Fire Station 5		Fire Service
6945	Effingham County Fire Station 7		Fire Service
22180	Effingham County Fire Station 9		Fire Service
28556	Effingham County Board of Education		Government Service
28559	Effingham County BOE Maintenance Facility		Mass Transit
28565	Board of Education Bus Shop		Mass Transit
6966	Central Learning Center		Government Service
28560	Old Effingham County Middle School		Government Service
21938	Springfield Elementary School		Government Service










ID	Name	Lifeline Category	Subtype
	North Radio Tower		Infrastructure
	Effingham County Fire Station 2		Fire Service
21921	Effingham County Fire Station 6		Fire Service
	Effingham County Fire Station 12		Fire Service
	Effingham County Fire Station 14		Fire Service
6979	Effingham County Hospital		Medical Care
6994	Effingham County Health Department		Medical Care
28582	Effingham EMS #1		Medical Care
6965	Effingham County Courthouse		Law Enforcement/Security

ID	Name	Lifeline Category	Subtype
6969	Judicial Complex		Law Enforcement/Security
6978	Effingham Sheriff's Office		Law Enforcement/Security
6956	Effingham County Jail		Law Enforcement/Security
6955	Effingham County Correctional Institution		Law Enforcement/Security
	North Effingham Branch Library		Government Service
28568	Effingham County Animal Shelter		Government Service
28587	Effingham Senior Citizens Center		Government Service
28586	Effingham Rec Dept & Gym		Government Service
	CEM Rec Complex & Gym		Government Service










ID	Name	Lifeline Category	Subtype
28070	Effingham Admin Complex		Government Service
6951	Effingham Industrial Park Tower		Government Service
28561	Effingham County Middle School Lift Station		Government Service
28594	Effingham Sewer Lift Station PS #6		Government Service
	Springfield Central School Well 2		Water
	Berryville Well 9		Water
28566	Effingham County Middle School		Government Service
6946	Effingham County High School		Government Service
22176	Guyton Elementary School		Government Service

ID	Name	Lifeline Category	Subtype
21969	Marlow Elementary School		Government Service
21970	Marlow Learning Center		Government Service
21925	Sand Hill Elementary School		Government Service
21972	South Effingham Elementary School		Government Service
21971	South Effingham Middle School		Government Service
6963	South Effingham High School		Government Service
28562	Honey Ridge Complex		Government Service
28563	Gatekeeper House		Government Service
6967	Multi-Agency Call Center		911 and Dispatch


ID	Name	Lifeline Category	Subtype
21607	Landfill Radio Tower		Infrastructure
	Effingham County Fire Station 3		Fire Service
21963	Effingham County Fire Station 4		Fire Service
28584	Effingham County Fire Station 8		Fire Service
21923	Effingham County Fire Station 10		Fire Service
28583	Effingham County Fire Station 11		Fire Service
	Effingham County Fire Station 13		Fire Service
	Effingham County Fire Station 15		Fire Service
28588	Effingham Sewer Lift Station PS #10		Government Service









ID	Name	Lifeline Category	Subtype
28589	Effingham Sewer Lift Station PS #13		Government Service
28590	Effingham Sewer Lift Station PS #15 -		Government Service
28591	Effingham Sewer Lift Station PS #3		Government Service
28592	Effingham Sewer Lift Station PS #4		Government Service
	Marlow Elementary Lift Station		Government Service
	South Bend Lift Station		Government Service
	Greystone Lift Station		Government Service
	S.E.P. Buckingham Lift Station		Government Service
	Staffordshire Lift Station		Government Service

ID	Name	Lifeline Category	Subtype
	Park West Phase 3 Lift Station		Government Service
	Cedar Ridge Lift Station		Government Service
	Laurel Mill Lift Station		Government Service
	Saddleclub @ Belmont Glen Lift Station		Government Service
	Patriots Point Lift Station		Government Service
	Antigua-Caribbean Village Lift Station		Government Service
	Park West Phase 4 Lift Station		Government Service
	Woodlands Lift Station		Government Service
	Covered Bridge Lift Station		Government Service

ID	Name	Lifeline Category	Subtype
	Park West Phase 5 Lift Station		Government Service
	Creekside Lift Station		Government Service
	New Haven Lift Station		Government Service
	Hunter's Chase Well 4		Water
	Abbey Lane Well 5		Water
	Courthouse Road Well 6		Water
	Southbrook Well 8		Water
	Greenbriar Well 11		Water
	South Effingham Water Reclamation Facility		Government Service

ID	Name	Lifeline Category	Subtype
	Caribbean Village Emergency Back Up		Government Service
	South Effingham Middle/High Emergency Back UP		Government Service
21968	Blanford Elementary School		Government Service
	Crossroads Academy		Government Service
	enCompass Academy		Government Service
28564	Ebenezer Elementary School		Government Service
21937	Ebenezer Middle School		Government Service
22178	Effingham College & Career Academy		Government Service
28567	Rincon Elementary School		Government Service

ID	Name	Lifeline Category	Subtype
	South Radio Tower		Infrastructure
28585	Goshen Public Safety Building		Fire Service
6983	South Effingham Branch Library		Government Service
28593	Effingham Sewer Lift Station PS #5		Government Service
6958	Georgia Pacific Paper Mill		Government Service
	Blandford Elementary Lift Station		Government Service
	Goshen Road Learning Tree Lift Station		Government Service
	Old Augusta Rd Jasper Village Lift Station		Government Service
	Red Oak Lift Station		Government Service

ID	Name	Lifeline Category	Subtype
	Summer Station Lift Station		Government Service
	Blandford Crossing Lift Station		Government Service
	Trade Center-GITC Lift Station		Government Service
	Goshen Emergency Back Up		Government Service
	Ninth Street Lift Station		Government Service
	Well #5		Water
	Seventh Street Lift Station		Government Service
	Silverwood Well #4 and Lift Station #4		Water







4.2.2 City of Springfield

Table 4-9: City of Springfield Community Lifelines

ID	Name	Lifeline Category	Subtype
22182	Springfield Police Department		Law Enforcement/Security
6985	Springfield City Hall		Government Service
6947	Springfield Pond		Government Service
6948	Harris Hinely Wastewater Treatment Plant		Government Service
6949	City of Springfield - Water		Water
	Lake Drive Lift Station		Government Service
	Railroad Lift Station		Government Service
	McCall Lift Station		Government Service


ID	Name	Lifeline Category	Subtype
	Hwy 119 Lift Station		Government Service
	Fourth Street Lift Station		Government Service
	Industrial Park Lift Station		Government Service
	Beebe Lift Station		Government Service
	Development Authority Lift Station 2		Government Service
	Early Street Lift Station		Government Service
	Hwy 21 South Lift Station		Government Service
	Shadowbrook Subdivision Lift Station		Government Service
	Shadowbrook PH5 Lift Station		Government Service

ID	Name	Lifeline Category	Subtype
	Ebenezer Bluff Lift Station		Government Service
	Well 6		Water
	Well 7		Water
	Ash Street Lift Station		Government Service
	Development Authority Lift Station		Government Service
	Brookstone Subdivision Lift Station		Government Service
	Ebenezer Elementary Lift Station		Government Service
	Cobblestone Subdivision Lift Station		Government Service
	Ramsey Landing Subdivision Lift Station 1		Government Service


ID	Name	Lifeline Category	Subtype
	Ramsey Landing Subdivision Lift Station 2		Government Service
	Effingham County Rec Dpt Lift Station		Government Service
	Raindance Lift Station		Government Service
	Well 8/9		Water
	Well 4 Emergency Back-up & Elevated Storage Tank		Government Service
	Well 5 Emergency Back-up		Government Service

4.2.3 City of Guyton

Table 4-10: City of Guyton Community Lifelines

ID	Name	Lifeline Category	Subtype
6987	Guyton Police Department		Law Enforcement/Security

ID	Name	Lifeline Category	Subtype
6984	Guyton City Hall		Government Service
21922	Guyton Public Works		Government Service
6952	Guyton Water Tower		Water
6953	City of Guyton - Water		Water
6954	Guyton Well		Water
	West Central Station Lift Station		Government Service
	Hidden Creek Lift Station		Government Service
	Martha Drive Lift Station		Government Service
	Griffin Road Lift Station		Government Service

ID	Name	Lifeline Category	Subtype
	Linton Lane Lift Station		Government Service
	Mossy Hollow Lift Station		Government Service
	Summer Place Lift Station		Government Service
	City Well 2		Water
	City Well 3 & Elevated Storage Tank		Water
	Guyton WWTP		Government Service
	Well #3		Water

4.2.4 City of Rincon

Table 4-11: City of Rincon Community Lifelines

ID	Name	Lifeline Category	Subtype
6971	Rincon Fire Department Station 1		Fire Service
6972	Ebenezer Fire Station		Fire Service
	Rincon Fire Department Station 4		Fire Service
22181	Rincon Police Department		Law Enforcement/Security
	Rincon City Hall		Government Service
6950	Rincon Water Treatment Plant		Government Service
6964	Lisa Street Well		Water

5.0 VULNERABILITY ASSESSMENT



What information will I find in this chapter?

Chapter Five includes a summary of the vulnerability and impacts on the County from identified hazards, including each jurisdiction’s vulnerability, potential impacts of identified hazards and NFIP-insured structures repetitively damaged by floods. (Requirement 44 CFR § 201.6(c)(2)(ii))

Table 5-1: Chapter 5 Summary of Changes

Chapter 5 Sections	Updates to Section
Overview	Updates to include new methodology for HAZUS 6.0 modeling done by Weston & Sampson and updated HAZUS information provided by GEMA.
Inland (Riverine) Flooding	<p>New risk assessment section to identify risk to each municipality</p> <p>HAZUS 6.0 model results added</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Dam Failure	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Coastal Flooding	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Hurricane	<p>New risk assessment section to identify risk to each municipality</p> <p>HAZUS 6.0 model results added</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Wind	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>

Chapter 5 Sections	Updates to Section
Tornadoes	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Severe Summer Storms	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Severe Winter Weather	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Geologic Hazards	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Extreme Heat	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Drought	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Wildfire	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Environmental Contamination	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>
Hazardous Material Spills/Radiological Incidents	<p>New risk assessment section to identify risk to each municipality</p> <p>New sections to discuss specific impacts on people, structures, systems, natural resources, and activities that have value to the community</p>

Chapter 5 Sections	Updates to Section
Cyber Security	New subsection added
Pandemic Response	New subsection added

5.1 Overview

Communities are vulnerable to both natural and man-made hazards and thus require an assessment of exposure, risks, and vulnerabilities. The purpose of conducting a vulnerability assessment is to evaluate the potential damage that could occur from natural hazards of various types and intensities. This section ties the hazards identified in Chapter 3 to the critical facilities assets identified in Chapter 4 to determine the potential losses that the County may face during a natural hazard event. Effingham County is divided into four (4) municipal boundaries.

- Effingham County
- City of Guyton
- City of Rincon
- City of Springfield

While vulnerability and risk assessment of present-day assets and future developments will be discussed on a County wide scale, the extent of impacts will be summarized at the end of each hazard profile on a municipality-wide scale.

Vulnerability Ranking			
Rank	Hazard	Score	Priority
1	Tornado	34	High
2	Inland Flooding	32	High
3	Hurricane Wind	30	High
4	Severe Weather	28	High
5	Coastal Hazards	27	High
6	Drought	26	Medium
7	Severe Winter Weather	26	Medium

Vulnerability Ranking			
Rank	Hazard	Score	Priority
8	Wildfire	24	Medium
9	Wind	17	Medium
10	Extreme Heat	17	Medium
12	Seismic Hazards	10	Low
13	Geologic Hazards	6	Low

Two risk assessment methodologies were used in the formation of this vulnerability assessment. The first consists of a quantitative analysis that relies upon the best available data and technology, while the second approach consists of a qualitative analysis that relies on local knowledge and rational decision making.

The quantitative analysis involved the use of FEMA's Hazus-MH Version 2.2 SP1, a nationally applicable standardized set of models for estimating potential losses from earthquakes, floods, and hurricanes and a GIS based risk assessment using data from local, regional, and national resources including data from GMIS, Effingham County GIS, FEMA, and NOAA's National Centers for Environmental Information (NCEI). Effingham County study region is approximately 23 square miles and contains 1,148 census blocks. The region is comprised of over twenty-three thousand (23,000) households and has a total population of 64,648 people.

The qualitative approach was taken in those instances when the identified hazard is not mapped or cannot be mapped. In those instances, vulnerability assessments were made using the qualitative assessment of the potential impacts of the hazard on local assets where there is a known, identified hazard area, such as a mapped floodplain.

The vulnerability assessment section is organized based on the hazards identified in Chapter 3 of this report. The risk assessment section in the report defines the qualitative risk of each county to the relative hazard under present day and future conditions. There is not enough data available to interpret the future vulnerability for some of the hazards. In those cases, the risk assessment was done using the best judgement based on historical occurrences and future probabilities. Four jurisdictions in Effingham County were reviewed independently of each other.

The high, medium, and low risks associated with the hazards can be defined as follows:

High risk: The jurisdiction is highly vulnerable to specific climate-related events either present day or under future climate change. Qualitatively this implies that the hazard has the potential to cause major damage to public health, agricultural lands, and critical infrastructure located within the jurisdiction considering that no actions are taken to improve existing infrastructure, resources, or effective disaster

management systems. High-risk areas require the most investments in adaptation measures, early warning systems, and disaster preparedness to reduce potential damage and protect vulnerable populations.

Medium risk: The jurisdiction is moderately vulnerable to specific climate-related events either present day or under future climate change. Qualitatively this implies that the hazard has the potential to cause some damage to public health, agricultural lands, and critical infrastructure located within the jurisdiction considering that no actions are taken to improve existing infrastructure, resources, or effective disaster management systems. Medium-risk areas require some investments in adaptation measures, early warning systems, and disaster preparedness to reduce potential damage and protect vulnerable populations.

Low risk: The jurisdiction has low vulnerability to specific climate-related events either present day or under future climate change. Qualitatively this implies that the hazard will cause minimal or no damage to public health, agricultural lands, and critical infrastructure located within the jurisdiction even if no actions are taken to improve existing infrastructure, resources, or effective disaster management systems. Low-risk areas require minimal or no investments in adaptation measures, early warning systems, and disaster preparedness to reduce potential damage and protect vulnerable populations.

5.2 Inland (Riverine) Flooding

5.2.1 Method

To provide Effingham County decision-makers with the best available information for estimating losses from inland flooding, riverine losses were determined from the 1% flood boundaries provided by the FEMA Flood Map Service Center in **April 2023**. To generate riverine depth grids, the flood boundaries were overlaid with the USGS 10-meter DEM using the Hazus-MH Enhanced Quick Look tool. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. **Figure 1**, below, illustrates the riverine inundation boundary associated with the 500-year flood (1% annual chance). Note: riverine flooding may not consider elevated housing or raised Base Flood Elevation (Georgia, Hazard Risk Analyses Supplement to the Effingham County Joint Hazard Mitigation Plan, 2023).

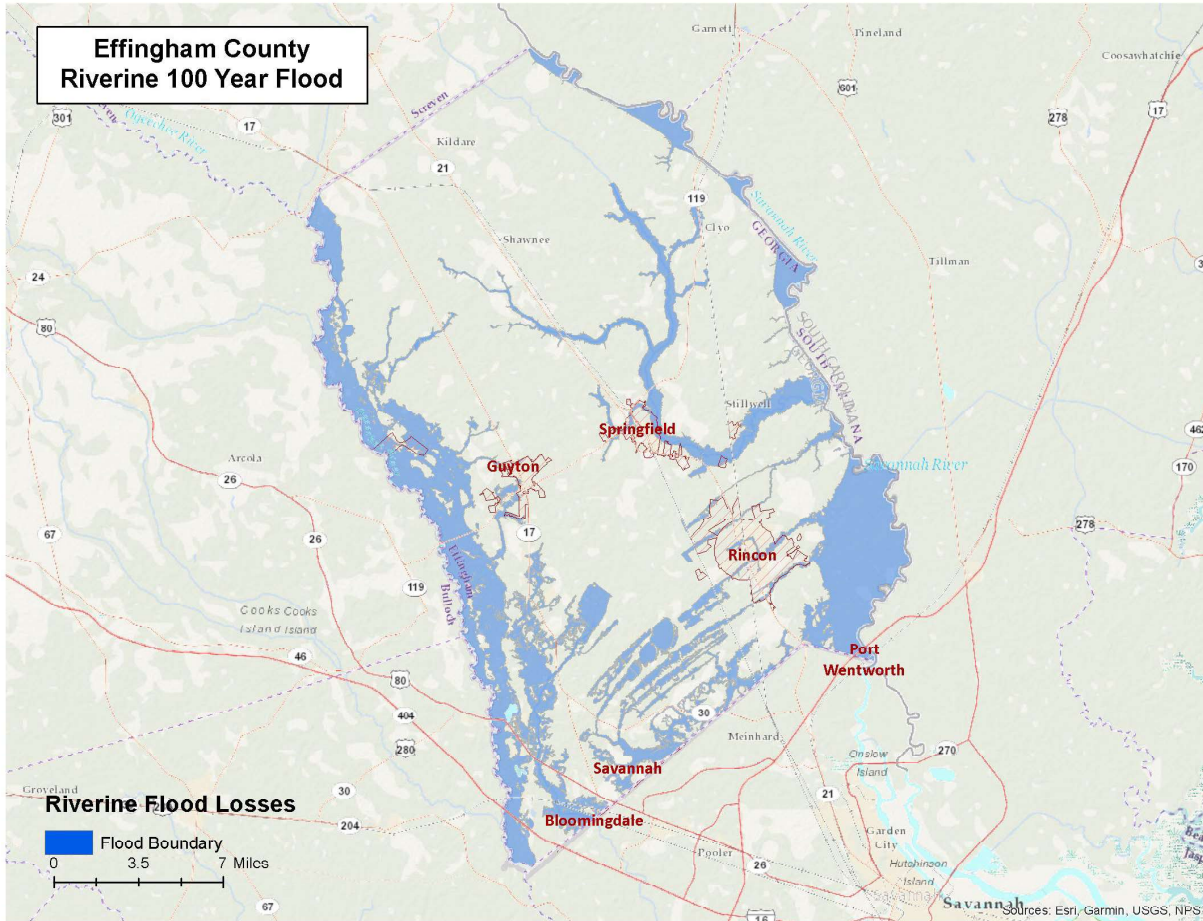


Figure 5-1: Riverine Flood Inundation 500 Year Storm

Effingham County has buildings that are vulnerable to inland flooding during events equivalent to the 500-year riverine flood. Table 5-2 highlights the potential flood-related building damage that might be experienced from the 500-year (1%) flood.

Table 5-2: Potential Building Damage for Riverine Flooding

	500-Year
BUILDING STOCK	
Estimated total number of buildings	28,750
Total building exposure	\$5,912,303,233
POPULATION NEEDS	
# of households displaced	2,984

	500-Year
# of people seeking public shelter	7,714
DEBRIS	
Total debris generated (tons)	1,981
Finishes (tons)	1,132
Structure (tons)	252
Foundation (tons)	598
# of truckloads to clear building debris (@25 tons/truck)	48
VALUE OF DAMAGE (2022 USD)	
Total Building Loss	11,881,294

5.2.2 People

Flooding can have impacts on people, both in terms of immediate physical harm and long-term consequences. Here are some ways flooding can impact people:

1. **Loss of life:** Flooding can result in immediate loss of life due to drowning but can also result in more medium and long-term health impacts from water- and vector-borne diseases, injuries, and physical harm from disaster clean-up.
2. **Property damage:** Flooding can cause structural damage to roofs, floors, and foundations. Additionally, flooding can damage the contents within homes and vehicles if flood waters are able to penetrate the exterior of the home.
3. **Economic impacts:** Flooding can have economic impacts on communities. Flooding can damage crops, disrupt transportation, and impact local industries.
4. **Displacement:** Flooding often results in scenarios where people must abandon their homes in order to stay out of harm's way. Often those who leave their homes return to extensive damage and uninhabitable conditions that require them to find short-term solutions for temporary housing while their homes are repaired, or they must relocate depending on the extent of damage.

5. **Environmental impacts:** Flooding can cause environmental damage, such as water pollution, loss of wildlife habitat, erosion, and changes in river and stream ecology.
6. **Psychological impacts:** Flood events can have a psychological impact on individuals and communities. Trauma, anxiety, and stress can arise from the experience of the disaster, as well as the long-term impacts of displacement and loss.

In the Hazus summary provided, we were able to determine the expected impact on residents during a 500-year flood event. In the 500-year event, Hazus estimated a total of 2,984 households displaced and 7,714 people may require public shelter. The model does not account for elevated housing or parcel centroids (not exactly aligned with in-the-ground structures) (Georgia, 2023) (Georgia, Hazard Risk ANalyses Supplement to the Effingham County Joint Hazard Mitigation Plan, 2023).

The Hazus model places debris into three categories including finishes, structural, and foundations. The summary provided in the table estimates a total of 1,981 tons of debris could be generated (Georgia C. R., Hazard Risk ANalyses Supplement to the Effingham County Joint Hazard Mitigation Plan, 2023).

5.2.3 Structures (including facilities, lifelines and critical infrastructure)

Impacts of flooding on structures can be severe and wide-ranging, including limiting access to roadways, erosion, landslides, contamination. Some of the impacts of flooding on structures include:

1. **Flooding:** One of the most immediate impacts of a dam failure is flooding, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The water that is released during a dam failure can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water released during a dam failure can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, a dam failure can release toxic chemicals or other hazardous materials into the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding from a dam failure can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

There are an estimated 28,750 buildings within Effingham County with an aggregate total replacement value of over \$5 billion dollars. In a 500-year riverine flood event, Hazus estimated that 567 buildings would sustain damage.

5.2.4 Systems (including networks and capabilities)

Flooding can also have impacts on systems, including networks and capabilities. Some of the impacts of flooding on systems include:

1. **Flooding:** One of the most immediate impacts from flooding is extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The mass influx of water accompanied by extreme rainfall events can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water during more extreme flood events can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, flood waters can carry toxic chemicals or other hazardous materials from dwellings and businesses in the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

Roadways are vital community lifelines for traversing a wide range of lands before, during, and after a storm event. For roads to remain safe and navigable, they must be clear of debris and inundation so that the community is able to safely navigate to their destination. During the days leading up to a major storm event, when there is expected to be a heightened level of traffic for evacuations, the need for navigable roads drastically increases. Additionally, during and after an event, it is critical that roads, tunnels, and bridges remain open and clear so that travelers can reach a safe location or make their way back to their homes to assess post-disaster damages. During the 500-year flood event, it is expected that all roadways, tunnels, and bridges remain functional; however, Hazus estimates that there would be minor damage to bridges after these events. In the 500-year event, 11 bridges are expected to be affected with an average of ~2% damage and a total loss of \$1.45M.

5.2.5 Natural Resources

Flooding can have impacts on the environment, including natural habitats, ecosystems, and biodiversity. Some of the impacts of flooding on the environment include:

1. **Habitat destruction:** Severe flooding with scour-level velocities exacerbated by land development and climate change can destroy natural habitats, including wetlands, forests, and river ecosystems. This can have long-term impacts on biodiversity and the ability of ecosystems to recover.
2. **Contamination:** In some cases, flood waters can transport toxic chemicals or other hazardous materials into the surrounding environment, which can contaminate soil and water sources. This can have long-term impacts on plant and animal life in the area.
3. **Disruption of migratory patterns:** Many species, such as the Robust Redhorse, rely on waterways for migration and spawning, and extreme flooding can disrupt these patterns, impacting the survival of these species.
4. **Loss of biodiversity:** The impacts of flooding on the environment can lead to the loss of biodiversity, with species disappearing or becoming endangered due to habitat destruction, contamination, or disruption of migratory patterns.

5.2.6 Activities that have value to the community

Flooding can have impacts on activities that are valuable to communities, including agriculture, industry, tourism, and recreation. Some of the impacts of flooding on these activities include:

1. **Agriculture:** Inopportune/untimely flooding can result in a disruption to low-lying agricultural areas and cause direct damage to crop. This can impact crop yields, leading to lost income for farmers and potentially affecting food security.
2. **Industry:** Flooding can severely inhibit the production of and transportation of goods and services from local businesses. This can impact production schedules and lead to lost income for businesses.
3. **Tourism:** Like the items outlined in industry, flooding can limit the ability for tourists to visit an area or cause damage to attractions that would otherwise bring visitors to the area. The impacts on natural habitats, ecosystems, and recreational activities can also reduce the appeal of the area to tourists.

4. **Recreation:** Waterways are often used for recreational activities such as fishing, boating, and swimming. Flooding can impact these activities by making the water unsafe for recreational use or destroying natural habitats that support these activities.
5. **Cultural activities:** Flooding can cause damage to cultural resources by destroying historic or cultural landmarks, disrupting traditional practices, and impacting the livelihoods of people who rely on these activities.

5.2.7 Estimate of potential loss

Overall, estimated losses associated with inland flooding can range from environmental to socio-economic and have the potential to impact many people throughout the county. Due to the proximity to the coast, areas in the southeastern portion of Effingham County and low-lying areas near the Ogeechee and Savannah Rivers are more susceptible to flooding.

B2-c

Effingham County has two **repetitive loss** properties. Losses were incurred in 1994, 1995, and 2019. Losses totaled approximately \$93,880. The cities of Guyton, Rincon, and Springfield do not have any repetitive loss properties at this time.

5.2.8 Risk assessment

Table 5-3: Inland Flooding Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	High	High	High
Guyton	High	High	High	High
Rincon	High	High	High	High
Springfield	High	High	High	High

5.3 Dam Failure

5.3.1 Method

Effingham county has 29 dams and all of them are categorized as low hazard dams in terms of their downstream hazard potential (Corp, 2019). The hazard levels of dams are described in Chapter 3. A quantitative spatial analysis was conducted by analyzing the parcels, land use data, and population data against the drainage area of the dams to estimate potential losses that could result from a dam failure. It is important to mention that low hazard dams generally have a negligible potential to cause loss of life or extensive damage. In general, the flooding due to a dam failure would be contained within the downstream channel or slightly above bank-full conditions. Road culverts may overtop and sustain minor damage but the potential for loss of life or structure damage is unlikely.

5.3.2 Estimate of potential loss

Based on historic data, the potential of a dam failure is low in the County. However, low-risk dams are not maintained as much as high-risk dams. They are old, undersized for changing rainfall and PMF conditions etc. Therefore, lack of maintenance on the low-risk dams and changing rainfall patterns under climate change may increase the chance of dam failure.

Most of the dams in the County are located outside of the big cities. Only Big T Pond Dam borders Springfield. But the dam has a small drainage area of around 1200 sq ft, therefore, reducing the extent of damage in case of a failure. Based on discussions with County staff, who did not identify any known issues with the 29 low hazard dams, the potential for dam failure is considered to be low

5.3.3 Risk assessment

In case of multiple dam breaches under climate change, the County may face moderate risk. Considering the small drainage areas of the dams, the risk to EJ population and change in land use will remain low.

Table 5-4: Dam Failure Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Medium	Low	Low
Guyton	Low	Low	Low	Low
Rincon	Low	Low	Low	Low

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Springfield	Low	Low	Low	Low

5.4 Coastal Flooding

5.4.1 Method

In order to provide Effingham County decision-makers with the best available information for estimating losses from coastal flooding, like storm surge and sea level rise, our team determined the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in April 2023. These flood boundaries were overlaid with the USGS 10-meter DEM using Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. These estimates may not account for elevated housing or raised Base Flood Elevation by coastal flood hazards (Georgia, Hazard Risk Analyses Supplement to the Effingham County Joint Hazard Mitigation Plan, 2023).

5.4.2 People

Flooding can have impacts on people, both in terms of immediate physical harm and long-term consequences. Here are some ways flooding from sea level rise and storm surge can impact people:

1. **Loss of life:** Flooding can result in immediate loss of life due to drowning but can also result in more medium and long-term health impacts from water- and vector-borne diseases, injuries, and physical harm from disaster clean-up.
2. **Property damage:** Flooding and impacts from wave action can cause structural damage to roofs, floors, and foundations. Additionally, flooding can damage the contents within homes and vehicles if flood waters are able to penetrate the exterior of the home.
3. **Economic impacts:** Flooding can have economic impacts on communities. Flooding can damage crops, disrupt transportation, and impact local industries.
4. **Displacement:** Flooding often results in scenarios where people must abandon their homes in order to stay out of harm's way. Often those who leave their homes return to extensive damage and uninhabitable conditions that require them to find short-term solutions for temporary housing while their homes are repaired, or they must relocate depending on the extent of damage.

5. **Environmental impacts:** Flooding can cause environmental damage, such as water pollution, loss of wildlife habitat, erosion, and changes in river and stream ecology.
6. **Psychological impacts:** Flood events can have a psychological impact on individuals and communities. Trauma, anxiety, and stress can arise from the experience of the disaster, as well as the long-term impacts of displacement and loss.

5.4.3 Structures (including facilities, lifelines and critical infrastructure)

Impacts of sea level rise and storm surge on structures can be severe and wide-ranging, including limiting access to roadways, erosion, landslides, contamination. Some of the impacts of flooding on structures include:

1. **Flooding:** One of the most immediate impacts of a dam failure is flooding, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The water that is released during a dam failure can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water released during a dam failure can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, a dam failure can release toxic chemicals or other hazardous materials into the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding from a dam failure can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

5.4.4 Systems (including networks and capabilities)

Flooding from storm surge and sea level rise can also have impacts on systems, including networks and capabilities. Some of the impacts of sea level rise and storm surge on systems include:

1. **Flooding:** One of the most immediate impacts from flooding is extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The mass influx of water accompanied by extreme rainfall events can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water during more extreme flood events can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, flood waters can carry toxic chemicals or other hazardous materials from dwellings and businesses in the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

5.4.5 Natural Resources

Both storm surge and sea level rise can have impacts on the environment, including natural habitats, ecosystems, and biodiversity. It is important to consider that the time scales for impacts of storm surge and sea level rise are different and damage to natural resources can occur in both pulse events like storm surge or in gradual and steady changes such as with sea level rise. Some of the impacts of sea level rise and storm surge to natural resources include:

1. **Habitat destruction:** Storm surge and sea level rise can drastically change or destroy natural habitats, including wetlands (freshwater and saltwater), forests, and river ecosystems. This can have long-term impacts on biodiversity and the ability of ecosystems to recover.
2. **Contamination:** In some cases, flood waters can transport toxic chemicals or other hazardous materials into the surrounding environment, which can contaminate soil and water sources. This can have long-term impacts on plant and animal life in the area.
3. **Disruption of migratory patterns:** Many species rely on waterways for migration and spawning, and extreme flooding can disrupt these patterns, impacting the survival of these species. Changes in the salinity in waterways can cause migration patterns and spawning locations of local fauna.
4. **Loss of biodiversity:** The impacts of flooding on the environment can lead to the loss of biodiversity, with species disappearing or becoming endangered due to habitat destruction, saltwater intrusion, contamination, or disruption of migratory patterns.

5.4.6 Activities that have value to the community

Flooding can have impacts on activities that are valuable to communities, including agriculture, industry, tourism, and recreation. Some of the impacts of flooding on these activities include:

1. **Agriculture:** Storm surge and sea level rise can result in a disruption or contamination of water supply to agricultural areas and cause direct damage to crop. This can impact crop yields, leading to lost income for farmers and potentially affecting food security.
2. **Industry:** Storm surge and sea level rise can severely inhibit the transportation of goods and services from local businesses. This can impact production schedules and lead to lost income for businesses.
3. **Tourism:** Like the items outlined in industry, storm surge and sea level rise can limit the ability for tourists to visit an area or cause damage to attractions that would otherwise bring visitors to the area. The impacts on natural habitats, ecosystems, and recreational activities can also reduce the appeal of the area to tourists.
4. **Recreation:** Waterways are often used for recreational activities such as fishing, boating, and swimming. Storm surge and sea level rise can impact these activities by making the water unsafe for recreational use or destroying natural habitats that support these activities.
5. **Cultural activities:** Storm surge and sea level rise can cause damage to cultural resources by destroying historic or cultural landmarks, disrupting traditional practices, and impacting the livelihoods of people who rely on these activities.

5.4.7 Estimate of potential loss

In the 500-year flood scenario, Hazus estimates hazard risk is low with no building loss, including expected damage to essential facilities. Also, the number of households displaced is 0 with no individuals in need of short-term shelter. Furthermore, debris from coastal flooding is also estimated to be 0 tons of debris generated. Coastal flooding is not a priority risk in Effingham County.

5.4.8 Risk assessment

Table 5-5: Coastal Flooding Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Medium	Medium	Medium

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Guyton	Low	Medium	Medium	Medium
Rincon	Medium	Medium	High	Medium
Springfield	Low	Low	Medium	Medium

5.5 Hurricane

5.5.1 Method

In order to provide Effingham County decision-makers with the best available information for estimating losses from Hurricanes, our team utilized the Hazus Hurricane Loss Estimation Methodology to assess the potential impacts of a Category 2 Hurricane. We used Hazus-generated probabilistic Category 2 storm, with maximum winds of 98mph, to understand direct physical damages (essential facilities, transportation, utility systems, general building stock), induced physical damages (debris), and direct economic/social losses. Hurricane features that were used in this analysis include: wind pressure, windborne debris, rainwater penetration, tree blowdown, and storm surge. Table 5-6, below, highlights the impacts from a Category 2 storm on assets in Effingham County.

Table 5-6: Hazus Damage Summary of Category 2 Hurricane

Category 2	
BUILDING STOCK	
Estimated total number of buildings damaged	2,611
Total building exposure	\$50,816,240
POPULATION NEEDS	
# of households displaced	16
# of people seeking public shelter	3

DEBRIS

	Category 2
Total debris generated (tons)	199,437
Brick, Wood, & Other (tons)	6,788
Tree Debris (tons)	13,078
Other Tree Debris (tons)	179,571
VALUE OF DAMAGE (USD)	
Total Economic Loss	\$70,406,730

5.5.2 People

Hurricanes can have impacts on people, both in terms of immediate physical harm and long-term consequences. Here are some ways Hurricanes can impact people:

1. **Loss of life:** Hurricanes can result in immediate loss of life due to storm surge and resultant inland flooding, but tornadoes and high winds also provide the potential for loss of life.
2. **Property damage:** Hurricanes and associated high winds can cause widespread structural damage to roofs, walls, and foundations. Additionally, flooding from hurricane-induced storm surge can damage foundations and the contents within homes and vehicles if flood waters can penetrate the exterior of the home.
3. **Economic impacts:** Hurricanes can have economic impacts on communities, including damage to crops, disruption of transportation routes, and impacts on local industries.
4. **Displacement:** Hurricanes often result in scenarios where people must abandon their homes to stay out of harm's way. Often those who leave their homes return to extensive damage and uninhabitable conditions that require them to find short-term solutions for temporary housing while their homes are repaired, or they must relocate depending on the extent of damage.
5. **Environmental impacts:** Hurricanes and associated flooding and high wind speeds can cause environmental damage, such as water pollution, loss of wildlife habitat, erosion, and changes in river and stream ecology.
6. **Psychological impacts:** Hurricanes can have a psychological impact on individuals and communities. Trauma, anxiety, and stress can arise from the experience of the disaster, as well as the long-term impacts of displacement and loss.

In the Hazus summary provided, we were able to determine the expected impact on residents during a Category 2 Hurricane. In the Category 2 event, we found that there were 16 households displaced and 3 people seeking public shelter.

5.5.3 Structures (including facilities, lifelines, and critical infrastructure)

Impacts of Hurricanes on structures can be severe and wide-ranging, including limiting access to roadways, erosion, downed trees and powerlines, and contamination of water systems. Some of the impacts of Hurricanes on structures include:

1. **Flooding:** One of the most immediate impacts of a Hurricane is coastal flooding from storm surge, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The influx of water that moves inland during a storm surge can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Contamination:** In some cases, hurricanes and associated flooding can release toxic chemicals or other hazardous materials into the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
4. **Sewage release:** Inland flooding from storm surge and heavy rains can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

There are an estimated 28,750 buildings within Effingham County with an aggregate total replacement value of over \$5 billion. Of that total number of buildings, approximately 93% are residential, and residential housing makes up about 74% of the total building value for the county. In a probabilistic Category 2 Hurricane, Hazus estimated that 2,611 buildings would sustain damage. The total value of damage to buildings is estimated to be over \$50 million for a Category 2 storm event and a total economic loss of over \$70 million.

5.5.4 Systems (including networks and capabilities)

Hurricanes can also have impacts on systems, including networks and capabilities. Some of the impacts of Hurricanes on systems include:

1. **Flooding:** One of the most immediate impacts of a Hurricane is inland flooding from storm surge, which can cause extensive damage to buildings, roads, and other structures. The force

of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.

2. **Erosion:** The mass influx of water accompanied by storm surge and extreme rainfall during hurricanes can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water during hurricanes and associated flood events can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, flood waters can carry toxic chemicals or other hazardous materials from dwellings and businesses in the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

Roadways are vital community lifelines for traversing a wide range of lands before, during, and after a storm event. For roads to remain safe and navigable, they must be clear of debris and inundation so that the community is able to safely navigate to their destination. During the days leading up to a major storm event, when there is expected to be a heightened level of traffic for evacuations, the need for navigable roads drastically increases. Additionally, during and after an event, it is critical that roads, tunnels, and bridges remain open and clear so that travelers can reach a safe location or make their way back to their homes to assess post-disaster damages. During a Category 2 hurricane, it is expected that all roadways, tunnels, and bridges remain functional; however, Hazus estimates that there would be a large number of debris generated that could impact roads and evacuations routes. In the Category 2 storm event, there is expected to be 199,437 tons of debris.

5.5.5 Natural Resources

Hurricanes can have impacts on the environment, including natural habitats, ecosystems, and biodiversity. Some of the impacts of Hurricanes on the environment include:

1. **Habitat destruction:** Flooding and sustained high winds can destroy natural habitats, including wetlands, forests, and river ecosystems. This can have long-term impacts on biodiversity and the ability of ecosystems to recover.
2. **Contamination:** In some cases, flood waters can transport toxic chemicals or other hazardous materials into the surrounding environment, which can contaminate soil and water sources. This can have long-term impacts on plant and animal life in the area.

3. **Disruption of migratory patterns:** Many species rely on waterways for migration and spawning, and extreme flooding can disrupt these patterns, impacting the survival of these species.
4. **Loss of biodiversity:** The impacts of flooding on the environment can lead to the loss of biodiversity, with species disappearing or becoming endangered due to habitat destruction, contamination, or disruption of migratory patterns.

5.5.6 Activities that have value to the community

Hurricanes can have impacts on activities that are valuable to communities, including agriculture, industry, tourism, and recreation. Some of the impacts of flooding on these activities include:

1. **Agriculture:** Flooding, tornadoes, and high wind speeds can result in a disruption of water supply to agricultural areas and cause direct damage to crops. This can impact crop yields, leading to lost income for farmers and potentially affecting food security.
2. **Industry:** Flooding, debris generation, and damage from winds can severely inhibit the transportation of goods and services from local businesses. This can impact production schedules and lead to lost income for businesses.
3. **Tourism:** Like the items outlined in industry, flooding and sustained damage can limit the ability for tourists to visit an area or cause damage to attractions that would otherwise bring visitors to the area. The impacts on natural habitats, ecosystems, and recreational activities can also reduce the appeal of the area to tourists.
4. **Recreation:** Waterways and trails are often used for recreational activities such as fishing, boating, hiking and swimming. Hurricanes can impact these activities by making the water unsafe for recreational use, downed trees and other debris limiting access to recreation areas or destroying natural habitats that support these activities.
5. **Cultural activities:** Hurricanes can cause damage to cultural resources by destroying historic or cultural landmarks, disrupting traditional practices, and impacting the livelihoods of people who rely on these activities.

5.5.7 Estimate of potential loss

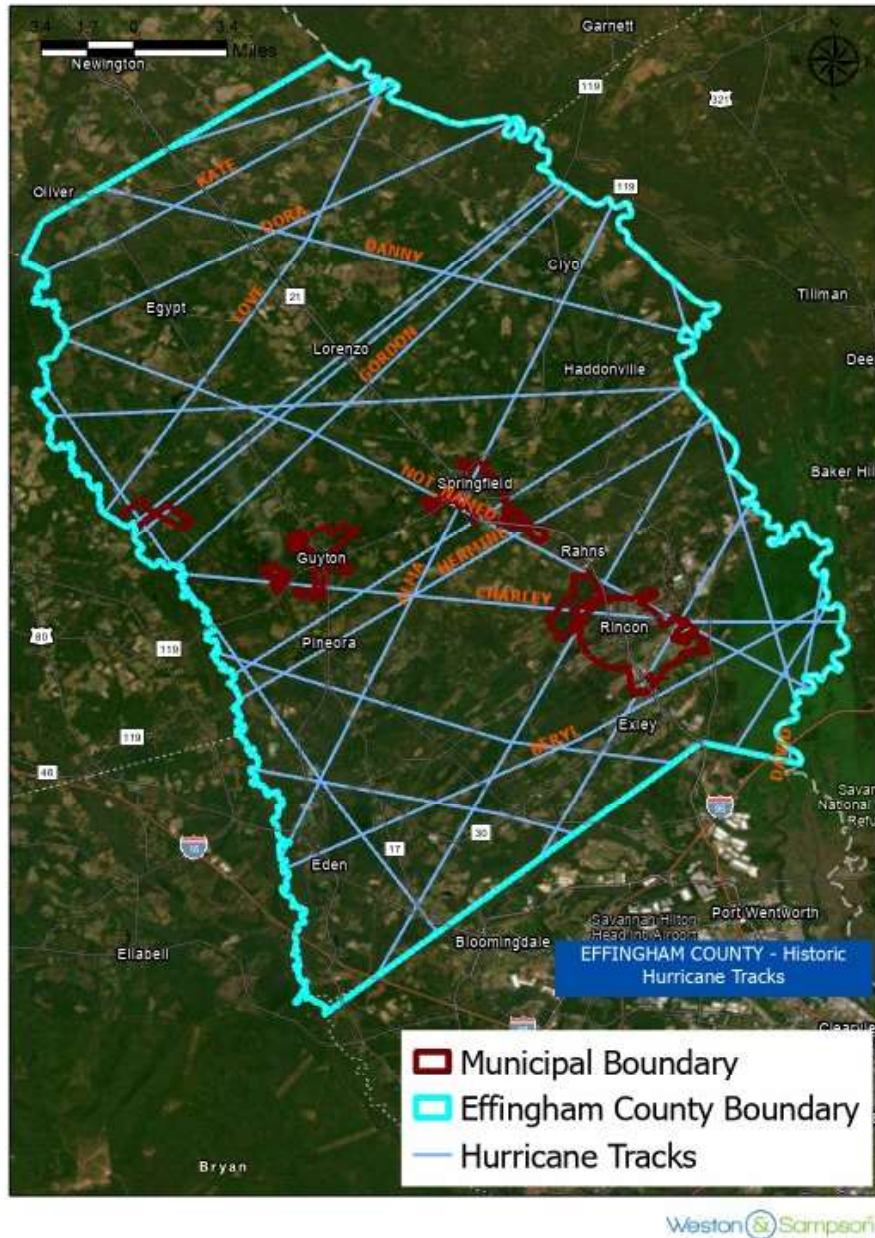


Figure 5-2: Potential loss

Since 1852, over 50 tropical systems have impacted Effingham County (Georgia, Hazard Risk Analyses Supplement to the Effingham County Joint Hazard Mitigation Plan, 2023). Areas within the southeastern portion of Effingham County, like Rincon, are more susceptible to coastal hazards like hurricanes given their proximity to the coast. In the Category 2 storm event, Hazus estimate 2,611 buildings would be damaged, a total property loss of over \$ 50 million.

5.5.8 Risk assessment

Table 5-7: Hurricane Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	High	High	High
Guyton	Medium	High	High	High
Rincon	High	High	High	High
Springfield	Medium	High	High	High

5.6 Wind

5.6.1 Method

According to FEMA’s National Risk Index Report, Effingham County has been subject to 55 “strong wind” events in the past 32 years on record. The annualized frequency of strong wind events is 1.7 per year (FEMA, National Risk Index, 2023). Severe thunderstorm wind gusts (between 75 and 91 mph) can cause moderate damage while violent wind gusts (greater than 92 mph) can cause major damage to property, infrastructure, and agriculture.

5.6.2 People

The population exposure for strong winds in Effingham County is roughly 52,000 people who are susceptible to the impacts of damaging winds. The population equivalence for this hazard is approximately \$397 billion.

Damaging winds can have impacts on people, both in terms of immediate physical harm and damage to property. Some of the most common impacts are:

1. **Loss of life:** Strong winds can result in immediate loss of life due to fallen trees, damage to structures, and airborne debris.
2. **Property damage:** High winds can cause widespread structural damage to roofs, walls, and foundations.

3. **Economic impacts:** Strong winds have economic impacts on communities, including damage to crops, disruption of transportation routes (debris), and damage to property.
4. **Psychological impacts:** Like tropical storms, hurricanes can have a psychological impact on individuals and communities. Trauma, anxiety, and stress can arise from the experience of the disaster, as well as the long-term impacts of displacement and loss.

5.6.3 Structures (including facilities, lifelines and critical infrastructure)

Impacts of strong winds on structures can be severe and wide-ranging, including limiting access to roadways (debris), downed trees and powerlines, and disruption of communications electrical service. Some of the impacts of Hurricanes on structures include:

1. **Buildings:** One of the most immediate impacts of strong winds is extensive damage to buildings, roads, and other structures. The damage from gale force winds alone can cause damage to siding and roofs but fallen trees and debris can also become projectiles that pose further threat to these types of structures.

5.6.4 Systems (including networks and capabilities)

Damaging winds can also have impacts on systems, including networks and capabilities. Some of the impacts of strong winds on systems include:

1. **Navigation:** One of the most immediate impacts of a Hurricanes is inland flooding from storm surge, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Electricity and Communication:** Downed trees and power lines pose a threat to the electrical grid and continued electrical service to local populations. Additionally, the fallen trees and lack of electricity could limit communications during extreme weather events.
3. **Transportation:** In some cases, debris and fallen trees generated from damaging winds can block roadways and impede travel.

5.6.5 Natural Resources

Hurricanes can have impacts on the environment, including natural habitats, ecosystems, and biodiversity. Some of the impacts of Hurricanes on the environment include:

1. **Habitat destruction:** Sustained high winds can alter and damage forest ecosystems through fallen trees and generation of debris. This can have long-term impacts on biodiversity and the ability of ecosystems to recover from compounded weather events.

5.6.6 Activities that have value to the community

Heavy sustained winds can have impacts on activities that are valuable to communities, including agriculture, industry, tourism, and recreation. Some of the impacts of damaging winds on these activities include:

1. **Agriculture:** High wind speeds can result in a disruption of water supply to agricultural areas and cause direct damage to crop. This can impact crop yields, leading to lost income for farmers and potentially affecting food security.
2. **Industry:** Damage from winds can severely inhibit the transportation of goods and services from local businesses through roads being blocked by fallen trees and debris. This can impact production schedules and lead to lost income for businesses.
3. **Tourism:** Like the items outlined in industry, sustained damage from wind can limit the ability for tourists to visit an area or cause damage to attractions that would otherwise bring visitors to the area. The impacts on natural habitats, ecosystems, and recreational activities can also reduce the appeal of the area to tourists.
4. **Recreation:** Waterways and trails are often used for recreational activities such as fishing, boating, hiking, and swimming. Strong winds can impact these activities when downed trees and other debris limit access to recreation areas or destroy natural habitats that support these activities.
5. **Cultural activities:** Strong winds can cause damage to cultural resources by destroying historic or cultural landmarks, disrupting traditional practices, and impacting the livelihoods of people who rely on these activities.

5.6.7 Estimate of potential loss

The expected annual loss values for wind-related damages for Effingham County are categorized into building value, population equivalence, and agricultural value. Strong winds have the potential to incur an annual value of \$16,357 for repairs and replacements. The population equivalence value of damages to the county's population is \$128,051 and the damage to agriculture is estimated at \$146 for a total of \$144,554 in expected annual losses due to damages from strong winds (FEMA, National Risk Index, 2023).

5.6.8 Risk assessment

Damage caused by wind was estimated based on models run of Category 2 hurricanes which equates to a 500-year storm event. In this scenario, wind speeds may reach 97 mph and have the potential to damage 2,611 buildings with a total of over \$50 million in damages. In this event, wind damage is expected at 50 essential facilities and 16 households are expected to be displaced.

Table 5-8: Wind Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Medium	Medium	Low
Guyton	Low	Medium	Medium	Low
Rincon	Low	Medium	Medium	Low
Springfield	Low	Medium	Medium	Low

5.7 Tornadoes

5.7.1 Method

According to FEMA's National Risk Index Report, Effingham County has been subject to 6 tornadoes in the past 34 years on record. Tornadoes are difficult to predict and therefore are one of Effingham County's most dangerous hazards. The annualized frequency of tornadoes is 0.2 events per year.¹ Tornadoes vary in severity based on their rating, which is directly related to 3 second gusts in mph. The Enhanced Fujita (EF) Scale, which rates a tornado on a scale of 0 through 5 is used to assign a tornado an EF rating based on estimated wind speeds and related damage.

EF SCALE	
EF Rating	3 Second Gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

Figure 5-3: Enhanced Fujita Scale (NWS, 2023)

5.7.2 People

Tornadoes can have devastating impacts on people and their communities. Some of the most impacts include:

1. **Loss of life:** Tornadoes can cause loss of life, especially in areas where people are unable to seek shelter or are caught off guard.
2. **Physical injuries:** Tornadoes can cause a range of physical injuries, including cuts, bruises, broken bones, and even amputations.
3. **Property damage:** Tornadoes can destroy homes, businesses, and other structures, leaving people without shelter and their possessions destroyed or lost.
4. **Economic impacts:** Tornadoes can have economic impacts, including lost wages, business interruption, and increased insurance premiums.
5. **Emotional trauma:** Surviving a tornado or experiencing the loss of loved ones or property can cause emotional trauma, including anxiety, depression, and post-traumatic stress disorder (PTSD).

Overall, tornadoes can have far-reaching and long-lasting impacts on people and their communities, and it is essential to take precautions and prepare for severe weather events to minimize these impacts.

5.7.3 Structures

Tornadoes can have an impact on structures and lifelines, including:

1. **Building damage:** Tornadoes can cause severe damage to buildings, including roofs being torn off, walls collapsing, and windows shattering. In some cases, entire buildings may be destroyed.
2. **Infrastructure damage:** Tornadoes can damage infrastructure, such as power lines, communication towers, and water and gas mains. This can lead to power outages, disruptions to communication, and water contamination.
3. **Transportation disruptions:** Tornadoes can disrupt transportation systems, including roads, railways, and airports, by blocking them with debris, making them impassable or unsafe to use.
4. **Transportation disruptions:** Tornadoes can disrupt transportation systems, including roads, railways, and airports, by blocking them with debris, making them impassable or unsafe to use.

5. **Disruption to lifelines:** Tornadoes can disrupt lifelines, such as medical facilities, emergency services, and transportation networks, making it difficult to provide essential services to those affected.
6. **Economic impacts:** Tornadoes can have economic impacts on communities, including lost revenue from businesses that have been damaged or destroyed, increased costs for rebuilding and repairing infrastructure, and decreased property values.

5.7.4 Systems

Tornadoes can have impacts on systems, including communication systems. Here are some potential impacts:

1. **Damage to communication infrastructure:** Tornadoes can cause extensive damage to communication infrastructure, including cell towers, power lines, and telephone poles. This damage can disrupt communication networks, making it difficult for people to communicate with each other.
2. **Loss of power:** Tornadoes often knock out power to large areas. Without electricity, communication systems may not be able to function properly. Backup generators may provide some temporary relief, but if the power outage lasts for an extended period, communication systems may fail.
3. **Disruption of internet services:** Tornadoes can also disrupt internet services, making it difficult for people to access information online or communicate with each other through social media or email. This can be particularly challenging in emergency situations when people need access to information quickly.
4. **Interference with radio signals:** Tornadoes can cause electromagnetic interference with radio signals, making it difficult for emergency responders to communicate with each other using radios. This interference can be caused by debris, electrical discharges, and other factors.
5. **Overload of communication networks:** In the aftermath of a tornado, many people may try to use their phones to communicate with loved ones or emergency services. This can overload communication networks, making it difficult for people to make calls or send messages.

5.7.5 Natural Resources

Tornadoes can have impacts on natural resources, including:

1. **Forests:** Tornadoes can uproot or break trees, damage bark, and strip leaves and branches. This can lead to changes in the forest structure, composition, and biodiversity, affecting the habitat of animals and plants.

2. **Soil:** Tornadoes can erode soil, remove topsoil, and deposit debris. This can alter the nutrient balance, decrease soil fertility, and increase the risk of soil erosion and landslides.
3. **Water:** Tornadoes can cause flooding, leading to soil erosion, sedimentation, and changes in water quality. This can affect aquatic ecosystems, including fish and other wildlife.
4. **Air:** Tornadoes can generate dust and debris, leading to air pollution and respiratory problems.
5. **Wildlife:** Tornadoes can disrupt the habitat and food sources of wildlife, leading to population declines and changes in the food web.
6. **Agriculture:** Tornadoes can damage crops, livestock, and farm buildings, leading to economic losses and food insecurity.

5.7.6 Activities that have value to the community

Tornadoes can have impacts on activities that communities use in southern US states. Here are some potential impacts:

1. **Damage to community facilities:** Tornadoes can cause damage to community facilities, such as parks, community centers, and public pools. This can impact access to recreational activities and events.
2. **Interruption of sporting events:** Tornadoes can also impact sporting events, causing cancellations or postponements. This can be particularly challenging for athletes who have been training for events and for communities who rely on these events for economic and social benefits.
3. **Disruption of outdoor activities:** Tornadoes can make it difficult to participate in outdoor activities, such as hiking, camping, and fishing. Damage to roads, parks, and other outdoor facilities can make it unsafe or impossible to access these areas.
4. **Disruption of outdoor activities:** Tornadoes can make it difficult to participate in outdoor activities, such as hiking, camping, and fishing. Damage to roads, parks, and other outdoor facilities can make it unsafe or impossible to access these areas.
5. **Disruption of cultural events:** Tornadoes can impact cultural events, such as music festivals and holiday celebrations. Damage to venues and infrastructure can make it difficult to host events, and the aftermath of a tornado may require communities to focus on recovery efforts rather than planning and hosting events.
6. **Loss of income for businesses:** Tornadoes can impact the economy, particularly in sectors such as tourism and hospitality. Businesses that rely on outdoor activities or events may

lose income due to cancellations or closures, and damage to infrastructure can impact the ability of businesses to operate.

5.7.7 Estimate of potential loss

The expected loss during an EF3 Tornado in Effingham County is approximately 657 buildings could be damaged, including an estimated loss of nearly \$35 million.

5.7.8 Risk assessment

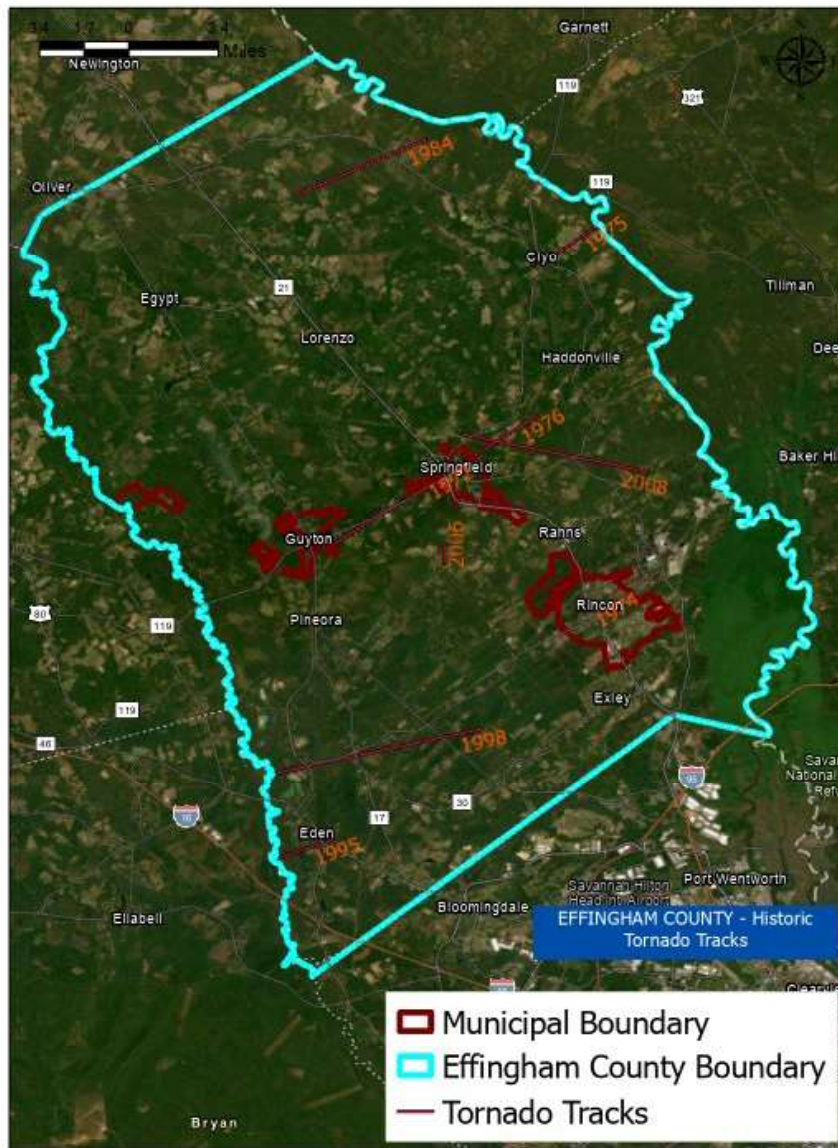


Figure 5-4: Map

Based on historical occurrences and lack of adequate future predictions, the future risks to the jurisdictions are predicted to be the same as the current risks. Change in land use will moderately impact the extent of damage by tornadoes since damage caused by tornadoes is primarily determined by the intensity and path of the tornado itself, rather than land use changes. EJ populations will be impacted highly because they lack the necessary resources and capacity to cope with and recover from the loss caused by tornadoes.

Table 5-9: Tornadoes Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	Medium	High	Medium
Guyton	Medium	Medium	High	Medium
Rincon	Medium	Medium	High	Medium
Springfield	Medium	Medium	High	Medium

5.8 Severe Summer Storms

5.8.1 Method

In order to provide Effingham County decision-makers with the best available information for estimating losses from severe weather, such as thunderstorms, lightning, and hail, our team analyzed datasets from both the Arizona State Spatial Hazard Events and Losses Database for the United States (SHELDUS) and a Community Report generated from FEMA’s National Risk Index.

5.8.2 People

Severe weather can have impacts on people, both in terms of immediate physical harm and long-term consequences. Here are some ways severe weather can impact people:

1. **Loss of life:** Severe weather can result in immediate loss of life due to strong winds, lightning, heavy rainfall and resultant inland flooding.
2. **Property damage:** Severe weather and associated high winds and hail can cause widespread structural damage to roofs, walls, and foundations. Additionally, flooding from extreme rainfall events can damage foundations and the contents within homes and vehicles if flood waters can penetrate the exterior of the home.

3. **Economic impacts:** Severe weather can have economic impacts on communities, including damage to crops, disruption of transportation routes, and impacts on local industries.
4. **Environmental impacts:** Severe weather and associated flooding and high wind speeds can cause environmental damage, such as water pollution, loss of wildlife habitat, erosion, and changes in river and stream ecology.

5.8.3 Structures (including facilities, lifelines and critical infrastructure)

Impacts of severe weather on structures can be damaging and wide-ranging, including limiting access to roadways, erosion, downed trees and powerlines, damage from hail, and contamination of water systems. Some of the impacts of severe weather on structures include:

1. **Flooding:** One of the most immediate impacts of severe weather is inland flooding from heavy rainfall, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.
2. **Erosion:** The influx of water that moves throughout drainage systems and into natural rivers like the Ogeechee and Savannah River can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Contamination:** In some cases, severe weather, heavy rainfall, and associated flooding can release toxic chemicals or other hazardous materials into the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
4. **Sewage release:** Inland flooding from severe weather and heavy rains can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

5.8.4 Systems (including networks and capabilities)

Severe weather can also have impacts on systems, including networks and capabilities. Some of the impacts of Hurricanes on systems include:

1. **Flooding:** One of the most immediate impacts of a severe storm is inland flooding from heavy rainfall, which can cause extensive damage to buildings, roads, and other structures. The force of the water can cause buildings to collapse or be swept away, while roads and bridges can be undermined and washed out.

2. **Erosion:** The mass influx of water accompanied by severe weather and extreme rainfall can cause erosion to the surrounding area, which can weaken the foundation of nearby structures. This can cause buildings to sink or even collapse.
3. **Landslides:** The force of the water during heavy rainfall and associated flood events can trigger landslides, which can cause additional damage to the structures in the surrounding area.
4. **Contamination:** In some cases, flood waters can carry toxic chemicals or other hazardous materials from dwellings and businesses in the surrounding area, which can contaminate soil and water sources. This can have long-term impacts on structures in the area, particularly those that rely on clean water sources.
5. **Sewage release:** Flooding can overwhelm sewage systems, leading to the release of raw sewage into the environment. This can pose a health hazard and contaminate water sources, further exacerbating the impact on water supply.

5.8.5 Natural Resources

Severe weather can have impacts on the environment, including natural habitats, ecosystems, and biodiversity. Some of the impacts of Severe weather on the environment include:

1. **Habitat destruction:** Flooding and sustained high winds can destroy natural habitats, including wetlands, forests, and river ecosystems. This can have long-term impacts on biodiversity and the ability of ecosystems to recover.
2. **Contamination:** In some cases, flood waters can transport toxic chemicals or other hazardous materials into the surrounding environment, which can contaminate soil and water sources. This can have long-term impacts on plant and animal life in the area.
3. **Disruption of migratory patterns:** Many species rely on waterways for migration and spawning, and extreme flooding can disrupt these patterns, impacting the survival of these species.
4. **Loss of biodiversity:** The impacts of flooding on the environment can lead to the loss of biodiversity, with species disappearing or becoming endangered due to habitat destruction, contamination, or disruption of migratory patterns.

5.8.6 Activities that have value to the community

Severe weather can have impacts on activities that are valuable to communities, including agriculture, industry, tourism, and recreation. Some of the impacts of severe weather on these activities include:

1. **Agriculture:** Flooding, hail, and high wind speeds can result in a disruption of water supply to agricultural areas and cause direct damage to crop. This can impact crop yields, leading to lost income for farmers and potentially affecting food security.
2. **Industry:** Flooding, debris generation, and damage from winds can severely inhibit the transportation of goods and services from local businesses. This can impact production schedules and lead to lost income for businesses.
3. **Tourism:** Like the items outlined in industry, flooding and sustained damage can limit the ability for tourists to visit an area or cause damage to attractions that would otherwise bring visitors to the area. The impacts on natural habitats, ecosystems, and recreational activities can also reduce the appeal of the area to tourists.
4. **Recreation:** Waterways and trails are often used for recreational activities such as fishing, boating, hiking and swimming. Severe weather can impact these activities by making the water unsafe for recreational use. Also, downed trees and other debris may limit access to recreation areas or destroy natural habitats that support these activities.
5. **Cultural activities:** Severe weather can cause damage to cultural resources by destroying historic or cultural landmarks, disrupting traditional practices, and impacting the livelihoods of people who rely on these activities.

5.8.7 Estimate of potential loss

There have been 171 instances of severe thunderstorms from 1960-2020 in Effingham County. These events have incurred an adjusted dollar value (2022 dollars) of ~\$119,000 in crop damages and ~\$1.3 million in property damages (CEMHS, 2022). When combining the total annual expected losses for elements associated with severe weather- lightning, strong wind, and hail in the FEMA National Risk Index Community Report for Effingham County, we found there to be a total expected annual loss of ~\$330,000 (FEMA, National Risk Index, 2023). This includes expected losses on building values, population, and agriculture.

5.8.8 Risk assessment

Based on historical occurrences and future projections, the future risks to the jurisdictions are predicted to be worse than the current risks. Changes in land use patterns may expose vulnerable assets to severe weather prone areas and thus will highly impact the extent of damage. EJ populations will also be impacted highly because they lack the necessary resources and capacity to cope with and recover from the losses caused by severe weather.

Table 5-10: Severe Summer Storms Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	High	High	High
Guyton	Medium	High	High	High
Rincon	Medium	High	High	High
Springfield	Medium	High	High	High

5.9 Severe Winter Weather

5.9.1 Method

Severe winter weather is rare in the region but still occasionally occurs. As a result, the assessment of vulnerability to winter weather is primarily conducted qualitatively. Crop damage was estimated based on historical data.

5.9.2 People

Severe winter weather can have impacts on people in southern US states, where extreme winter weather is less common, and people may be less prepared for it. Here are some potential impacts:

1. **Power outages:** Severe winter weather, including ice storms and heavy snow, can cause power outages. This can be particularly dangerous in areas where people rely on electricity for heating their homes and may not have alternative heat sources. It can also impact access to refrigerated and frozen food.
2. **Transportation disruptions:** Winter weather can cause road closures and flight cancellations, making it difficult for people to get to work or school. In areas where snow and ice removal equipment are less common, travel can become especially dangerous.
3. **Health risks:** Cold temperatures can increase the risk of hypothermia and frostbite, particularly for vulnerable populations such as the elderly and those without shelter. In addition, icy sidewalks and roads can increase the risk of slips and falls.

4. **School and business closures:** Severe winter weather can result in school and business closures, causing disruption to daily routines and potentially impacting income for individuals who cannot work from home.
5. **Economic impacts:** Severe winter weather can also impact the economy, particularly in sectors such as agriculture and tourism. For example, winter weather can damage crops and reduce tourism revenue.
6. **Psychological impacts:** Prolonged periods of isolation due to extreme winter weather can cause psychological impacts such as depression and anxiety.

5.9.3 Structures (including facilities, lifelines and critical infrastructure)

Severe winter weather can have impacts on structures and lifelines in southern US states, particularly in areas where extreme winter weather is less common, and infrastructure may be less prepared for it. Here are some potential impacts:

1. **Damage to buildings:** Heavy snow, ice, and strong winds can cause damage to buildings, particularly those that are not designed to withstand winter weather. Roofs, windows, and doors may be particularly vulnerable.
2. **Damage to infrastructure:** Severe winter weather can also cause damage to infrastructure, including bridges, roads, and power lines. This can impact access to essential services such as electricity, water, and gas.
3. **Water supply:** Severe winter weather can cause frozen pipes and water main breaks, leading to water shortages and potential contamination of the water supply.
4. **Disruption to transportation:** Winter weather can cause road closures and flight cancellations, making it difficult for people to get to work or school. This can impact the delivery of essential goods and services.
5. **Impact on communication networks:** Severe winter weather can impact communication networks, making it difficult for people to call for help or access important information.
6. **Loss of power:** Severe winter weather can cause power outages, particularly in areas where the power infrastructure is not designed to withstand winter weather. This can impact access to heating, lighting, and other essential services.

5.9.4 Systems (including networks and capabilities)

Severe winter weather can have impacts on systems including communication in southern US states. Here are some potential impacts:

1. **Cell phone and internet outages:** Severe winter weather can cause power outages and damage to communication infrastructure, including cell phone towers and internet cables. This can lead to disruptions in cell phone and internet service.
2. **Disrupted emergency services:** Winter weather can make it difficult for emergency services to respond to calls, particularly if roads are closed or travel is unsafe. This can impact response times and potentially lead to delays in receiving medical attention or other emergency services.
3. **Impact on transportation systems:** Severe winter weather can cause flight cancellations and disruptions to other transportation systems. This can impact the ability of people to travel to important meetings or access emergency services.
4. **Impact on satellite communication:** Severe winter weather can also impact satellite communication, which is used for a range of applications including weather forecasting and navigation.
5. **Inability to access important information:** Disruptions to communication systems can make it difficult for people to access important information, including weather alerts and emergency notifications.

5.9.5 Natural Resources

Severe winter weather can have impacts on natural resources, including:

1. **Wildlife:** Severe winter weather can cause stress and mortality in wildlife populations, especially if they are not adapted to harsh winter conditions. Animals may suffer from lack of food, water, and shelter, and may also face increased predation.
2. **Water:** Severe winter weather can cause ice jams and flooding, which can damage aquatic habitats and impact water quality. Additionally, snowmelt in the spring can cause erosion and sedimentation.
3. **Vegetation:** Severe winter weather can damage or kill vegetation, especially if there are sudden temperature fluctuations or extended periods of snow cover. This can have impacts on the food chain and ecosystem dynamics.

4. **Soil:** Severe winter weather can cause soil erosion and nutrient loss. Snow cover can also lead to the depletion of soil moisture, which can impact plant growth and productivity.
5. **Infrastructure:** Severe winter weather can damage infrastructure such as roads, bridges, and buildings, which can have economic impacts. Additionally, snow and ice removal efforts can have negative impacts on natural resources if they are not carefully managed.

5.9.6 Activities that have value to the community

Severe winter weather can have impacts on activities that communities use in southern US states, particularly in areas where extreme winter weather is less common, and infrastructure may be less prepared for it. Here are some potential impacts:

1. **Closures of community facilities:** Severe winter weather can cause closures of community facilities, such as parks, community centers, and public pools. This can impact access to recreational activities and events.
2. **Interruption of sporting events:** Severe winter weather can also impact sporting events, causing cancellations or postponements. This can be particularly challenging for athletes who have been training for events and for communities who rely on these events for economic and social benefits.
3. **Disruption of outdoor activities:** Winter weather can make it difficult to participate in outdoor activities, such as hiking, camping, and fishing. Snow and ice can make trails and roads impassable, and freezing temperatures can make it dangerous to spend extended periods of time outdoors.
4. **Disruption of cultural events:** Severe winter weather can impact cultural events, such as music festivals and holiday celebrations. Cold temperatures and snow can make it difficult for people to travel to these events and can impact the ability of performers to travel to the area.
5. **Loss of income for businesses:** Severe winter weather can impact the economy, particularly in sectors such as tourism and hospitality. Businesses that rely on outdoor activities or events may lose income due to cancellations or closures.

5.9.7 Estimate of potential loss

Sudden freeze has become a more frequent event in the last few years in the state of GA (NOAA, Storm Events Database, 2023). Between 2007 and 2021, the insured amount of the crop loss paid for hard freeze damage amounts to more than \$73,000 in the County. Winter weather and wind also caused \$131,087.53 of property damage Statewide (CEMHS, 2022).

5.9.8 Risk assessment

Winter weather will have County-wide impact. However, crop damage due to hard freeze is estimated to bring the higher economic impact. The cities have less agricultural property in the County based on 2019 Land Use data. Therefore, the impact of severe winter weather on cities will be lower than in the rest of the County. EJ populations will be impacted highly because they lack the necessary resources (housing, insulation, heater, winter clothing) and capacity to cope with and recover from the losses caused by severe winter weather.

Table 5-11: Severe Winter Weather Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	High	High	High	High
Guyton	Medium	Medium	High	Medium
Rincon	Medium	Medium	High	Medium
Springfield	Medium	Medium	High	Medium

5.10 Geologic Hazards

5.10.1 Method

Due to the absence of data, it was not possible to make an estimate of potential losses resulting from future geologic hazards. As a result, the assessment of vulnerability to geologic hazards is conducted qualitatively.

5.10.2 Estimate of potential loss

Effingham County, as stated in Chapter 3 of the report, is not susceptible to geologic hazards. Due to unavailability of historical data of the hazard location, it is not feasible to estimate the potential loss in the future.

5.10.3 Risk assessment

Geological hazards will impact the entire County. Although present day risk is minimal, climate change may trigger future landslides or mudslides. Land use changes may also induce some geological hazards. In case of a hazardous event, EJ populations will be impacted more than the regular population because they lack the necessary resources and capacity to cope with and recover from the losses caused by the hazardous event.

Table 5-12: Geologic Hazards Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Medium	Medium	Medium
Guyton	Low	Medium	Medium	Medium
Rincon	Low	Medium	Medium	Medium
Springfield	Low	Medium	Medium	Medium

5.11 Extreme Heat

5.11.1 Method

No data is available to evaluate the potential for fatalities, injuries, and property damage in the planning area due to extreme heat, the vulnerability for this hazard is being assessed on a qualitative basis.

5.11.2 People

Extreme heat can have a significant impact on people's health and wellbeing. Some of the impacts of extreme heat on people include:

1. **Dehydration:** High temperatures can cause people to lose fluids more quickly than usual, leading to dehydration. Dehydration can cause headaches, dizziness, and fatigue.
2. **Heat exhaustion:** Heat exhaustion occurs when the body's internal temperature rises to dangerous levels. Symptoms include heavy sweating, nausea, and weakness.
3. **Heat stroke:** Heat stroke is a life-threatening condition that occurs when the body's internal temperature rises to dangerous levels. Symptoms include confusion, seizures, and loss of consciousness.

4. **Respiratory problems:** High temperatures can exacerbate respiratory problems such as asthma, making it difficult to breathe.
5. **Cardiovascular problems:** High temperatures can put a strain on the cardiovascular system, increasing the risk of heart attack and stroke.
6. **Mental health problems:** Extreme heat can also impact people's mental health, causing anxiety, irritability, and depression.
7. **Social impacts:** Extreme heat can also have social impacts, such as increased crime rates and reduced productivity.

5.11.3 Structures (including facilities, lifelines and critical infrastructure)

Extreme heat can also have significant impacts on structures, facilities, lifelines, and critical infrastructure. Some of the impacts include:

1. **Structural damage:** Extreme heat can cause materials such as concrete, asphalt, and steel to expand and contract, leading to cracking, warping, and other forms of structural damage.
2. **Power outages:** High temperatures can cause electrical equipment to malfunction, leading to power outages that can impact critical infrastructure such as hospitals, water treatment plants, and transportation systems.
3. **Water shortages:** High temperatures can increase the demand for water, putting a strain on water supplies and potentially leading to shortages.
4. **Damaged roads and runways:** Extreme heat can cause roads and runways to soften and buckle, making them unsafe for travel.
5. **Reduced capacity of transportation systems:** High temperatures can impact the capacity of transportation systems, leading to reduced service and increased travel times.
6. **Damaged crops:** Extreme heat can damage crops, impacting food supplies and potentially leading to higher prices and shortages.
7. **Increased risk of wildfires:** High temperatures can increase the risk of wildfires, which can cause significant damage to structures and infrastructure.

5.11.4 Systems (including networks and capabilities)

Extreme heat can also have significant impacts on systems, including networks and capabilities. Some of the impacts include:

1. **Electrical grid failures:** High temperatures can put a strain on electrical grids, leading to power outages and blackouts that can impact businesses and homes.
2. **Telecommunications disruptions:** Extreme heat can cause disruptions to telecommunications networks, impacting the ability of individuals and organizations to communicate.
3. **Transportation disruptions:** High temperatures can impact the capacity of transportation systems, leading to delays and cancellations that can impact the movement of goods and people.
4. **Reduced agricultural productivity:** Extreme heat can impact the productivity of agricultural systems, leading to reduced crop yields and potential food shortages.
5. **Water supply disruptions:** High temperatures can impact the capacity of water supply systems, leading to reduced access to clean water.
6. **Reduced workforce productivity:** Extreme heat can impact the ability of workers to perform their jobs, leading to reduced productivity and economic impacts.
7. **Increased demand for emergency services:** High temperatures can increase the demand for emergency services such as fire and ambulance services, potentially overwhelming their capabilities.

5.11.5 Natural Resources

Extreme heat can have impacts on natural resources, including:

1. **Water:** Extreme heat can cause droughts, which can reduce water availability and quality. Higher temperatures can also increase water demand, leading to water shortages and competition for resources. This can have negative impacts on aquatic habitats and wildlife populations.
2. **Soil:** Extreme heat can cause soil moisture to evaporate, leading to soil drying out and a reduction in nutrient availability. This can impact plant growth and productivity, as well as increase the risk of erosion and wildfires.

3. **Vegetation:** Extreme heat can cause heat stress, damage, and death to plant species, leading to changes in plant communities and ecological processes. This can impact the food chain and biodiversity of the ecosystem.
4. **Wildlife:** Extreme heat can cause stress and mortality in wildlife populations, especially if they are not adapted to high temperatures. Animals may suffer from heat exhaustion, dehydration, and a lack of food and water resources.
5. **Air quality:** Extreme heat can worsen air quality and increase the risk of wildfires. Higher temperatures can also lead to increased ozone levels, which can have negative impacts on human and animal health.

5.11.6 Activities that have value to the community

Extreme heat can have a significant impact on activities that have value to the community. Here are some examples of how extreme heat can affect various community activities:

1. **Outdoor events:** Extreme heat can cause people to become dehydrated, suffer from heat exhaustion, or even heatstroke, which can be dangerous and potentially life-threatening. This can lead to the cancellation or rescheduling of outdoor events such as sports games, concerts, or festivals.
2. **Agriculture:** Extreme heat can cause crops to wither and die, leading to lower yields and higher prices for fruits and vegetables. This can impact the local food supply, as well as the incomes of farmers and agricultural workers.
3. **Transportation:** Extreme heat can cause roads to buckle and rails to warp, which can disrupt transportation services such as buses, trains, and airplanes. This can result in delays, cancellations, and higher transportation costs.
4. **Outdoor labor:** Outdoor labor, such as construction and landscaping, can become dangerous in extreme heat. Workers may suffer from heatstroke, dehydration, and other heat-related illnesses, which can impact their health and productivity.
5. **Tourism:** Extreme heat can impact tourism by making it less enjoyable to visit outdoor attractions such as beaches, parks, and zoos. This can lead to a decline in tourism revenue, which can have a ripple effect on the local economy.

5.11.7 Estimate of potential loss

While extreme heat can result in loss of crop, hospitalization, even death, there is no data available to quantify the potential loss. Agricultural land in Effingham County is most susceptible to extreme heat

due to crop damage under high heat. Vulnerable populations are likely to be impacted more because of their limited mobility, lack of resources, compromised physical health, or limited exposure to information. Effingham County has a total population of 63,448 out of which nearly 40% population are potentially vulnerable population that are at higher risk to heat exposure (Commerce, 2022).

5.11.8 Risk assessment

Extreme heat is likely to impact the entire County. Cities with a higher number of developed lands and lower canopy areas are more prone to heat related stress than the areas that are less developed. Overall, the northern section of the County has more agricultural land than the south, therefore the big cities are at higher risk of extreme heat exposure.

Table 5-13: Extreme Heat Risk Assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	Medium	High	High
Guyton	High	High	High	High
Rincon	High	High	High	High
Springfield	High	High	High	High

5.12 Drought

5.12.1 Method

Due to the absence of data, it was not possible to make an estimate of potential losses resulting from future droughts. As a result, the assessment of vulnerability to drought is conducted qualitatively. Crop damage was estimated based on historical data.

5.12.2 People

Droughts can have impacts on people, including:

1. **Water scarcity:** Droughts can lead to water scarcity, which can affect drinking water supplies, sanitation, and hygiene. Lack of access to safe drinking water can lead to dehydration,

malnutrition, and waterborne illnesses, which can be especially harmful to children and vulnerable populations.

2. **Food security:** Droughts can lead to crop failures and livestock deaths, wildfires, which can impact food security and availability. This can lead to increased food prices, reduced access to nutritious food, and potential hunger and malnutrition.
3. **Health:** Droughts can impact the health of people by increasing the prevalence of waterborne diseases, respiratory illnesses due to dust, and malnutrition due to reduced access to food.
4. **Economic impacts:** Droughts can have economic impacts, including loss of income for farmers, decreased economic activity in affected regions, and increased costs of food and water. This can lead to unemployment, poverty, and reduced standards of living.
5. **Social impacts:** Droughts can also have social impacts, including displacement of populations due to water and food scarcity, conflict over resources, and potential migration to other areas.

5.12.3 Structures (including facilities, lifelines and critical infrastructure)

Droughts can have impacts on structures and lifelines, including:

1. **Buildings:** Droughts can cause the soil to dry out, shrink, and crack, which can lead to settlement and subsidence of buildings. This can result in damage to foundations, walls, and other structural elements.
2. **Roads and bridges:** Droughts can cause the ground to become unstable, leading to cracking and deformation of roads and bridges. This can impact transportation, commerce, and emergency response.
3. **Water infrastructure:** Droughts can impact water infrastructure, including reservoirs, wells, and pipelines. Lower water levels can impact water quality and availability, leading to water rationing and potentially causing damage to infrastructure due to exposure.
4. **Power infrastructure:** Droughts can also impact power infrastructure, including hydroelectric power plants, by reducing water flow and power generation capacity. This can impact energy availability and reliability.
5. **Lifelines:** Droughts can impact critical lifelines, including water, food, and energy supplies. This can lead to water and food shortages, power outages, and reduced access to essential services.

5.12.4 Systems (including networks and capabilities)

Droughts can have impacts on systems, including networks and capabilities, such as:

1. **Water supply systems:** Droughts can impact water supply systems by reducing the availability and quality of water. This can lead to water rationing, water shortages, and potentially compromise the safety and quality of drinking water.
2. **Energy systems:** Droughts can impact energy systems, particularly hydroelectric power plants, by reducing water flow and power generation capacity. This can lead to power outages and increased energy prices.
3. **Transportation systems:** Droughts can impact transportation systems by reducing the capacity of waterways used for shipping and navigation, leading to transportation delays and increased costs.
4. **Agricultural systems:** Droughts can impact agricultural systems by reducing crop yields, decreasing soil quality, and increasing the prevalence of pests and diseases. This can lead to lost income for farmers and potentially impact food security.
5. **Telecommunications systems:** Droughts can impact telecommunications systems by damaging infrastructure, such as fiber optic cables and cell towers, due to soil settlement and subsidence. This can lead to disruptions in communication networks and reduced capability to respond to emergencies.

5.12.5 Natural Resources

Droughts can have impacts on natural resources, including:

1. **Water resources:** Droughts can reduce the availability and quality of water resources, including rivers, lakes, and groundwater. This can lead to water scarcity, lower water levels, and increased competition for water resources among different stakeholders.
2. **Soil quality:** Droughts can impact soil quality by reducing moisture levels, leading to soil erosion, degradation, and reduced fertility. This can impact agriculture, food production, and ecosystem health.
3. **Biodiversity:** Droughts can impact biodiversity by reducing the availability of water and food resources for plants and animals. This can lead to changes in habitat, migration patterns, and species distribution, which can have cascading effects on ecosystem health.

4. **Forests and vegetation:** Droughts can impact forests and vegetation by increasing the risk of wildfires and reducing the growth and survival of trees and other vegetation. This can impact ecosystem health, carbon storage, and air quality.
5. **Air and water quality:** Droughts can impact air and water quality by increasing the prevalence of dust storms and wildfires, reducing water quality due to lower water levels and increased pollution, and potentially impacting human health.

5.12.6 Activities that have value to the community

Droughts can have impacts on activities that have value to the community, including:

1. **Agriculture and food production:** Droughts can impact agriculture and food production by reducing crop yields, increasing production costs, and potentially leading to food shortages. This can impact local economies, food security, and the availability and affordability of fresh produce.
2. **Tourism:** Droughts can impact tourism by reducing the availability and attractiveness of recreational activities such as fishing, boating, and water sports. This can impact local economies and the livelihoods of those working in the tourism industry.
3. **Outdoor activities:** Droughts can impact outdoor activities such as hiking, camping, and picnicking by increasing the risk of wildfires and reducing access to water resources. This can impact community well-being and outdoor recreation opportunities.
4. **Construction and development:** Droughts can impact construction and development activities by increasing the risk of soil settlement and subsidence, and potentially causing damage to infrastructure. This can lead to increased costs and delays in construction projects.
5. **Cultural and spiritual practices:** Droughts can impact cultural and spiritual practices that rely on natural resources such as water, plants, and animals. This can impact the cultural heritage and identity of communities, as well as their social and emotional well-being.

5.12.7 Estimate of potential loss

Based on County's 2019 Land Use data 67% of the County is agricultural land. Under a severe or extreme drought condition, the crop production will be impacted. Based on the analysis done through SHEL DUS (CEMHS, 2022), the insured amount of the crop loss paid between 1989 to 2020 was \$5,139,766.54 just from drought. As stated in Chapter 3, that with changing climate, Georgia is anticipated to experience more frequent and severe drought than present day. This means that crop damage will increase and will have a larger impact on the community and economy of the County.

Drought could be a natural hazard in the future and is likely to pose a threat to crops, health and safety, biodiversity. It is important to prepare for and mitigate the impacts of droughts through effective water management, agricultural practices, and support for vulnerable populations.

5.12.8 Risk assessment

Drought will impact the entire county on the same scale. Most of the harm caused by droughts affects crops, agricultural pursuits, and water-dependent industries. As a result, the impact is generally more significant in rural, unincorporated areas. In urban areas such as Rincon, Guyton, Springfield that are more developed, the severity of the drought is usually less pronounced. The effects may be limited to lawns and community gardens, and the local water supply may be at risk during prolonged, severe droughts.

The primary source of drinking water for Effingham County is groundwater well (Upper Floridan Aquifer) and treated surface water from the City of Savannah (Georgia E. C., n.d.). Under severe drought conditions, both groundwater and surface water supply will be affected.

The following table shows the drought risk by jurisdiction based on the vulnerability assessment from this section and historical data and future climate projections from Chapter 3.

Table 5-14: Drought Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	High	High	High
Guyton	Medium	Medium	High	High
Rincon	Medium	Medium	High	High
Springfield	Medium	Medium	High	High

5.13 Wildfire

5.13.1 Method

Wildfire risk analysis was done from the USDA Wildfire website (Wildfire Risk, n.d.).

5.13.2 People

Wildfires can have a range of impacts on people, both directly and indirectly. Here are some potential impacts:

1. **Health impacts:** Wildfire smoke can contain harmful pollutants that can cause respiratory problems, particularly for people with pre-existing conditions such as asthma or COPD. Exposure to smoke can also lead to eye irritation, headaches, and other health effects.
2. **Physical injuries:** Wildfires can cause physical injuries, particularly for people involved in firefighting or for those who are caught in the path of a fire. Injuries can include burns, smoke inhalation, and other trauma.
3. **Evacuation and displacement:** People living in areas threatened by wildfires may be forced to evacuate their homes and communities. This can lead to displacement, disruption of daily routines, and stress and anxiety.
4. **Property damage and loss:** Wildfires can cause damage to homes and other property and can result in the loss of personal possessions and cherished belongings. This can have emotional and financial impacts on individuals and families.
5. **Economic impacts:** Wildfires can impact local economies, particularly in areas that rely on tourism or natural resources. The loss of homes, property, and infrastructure can lead to job losses and economic hardship.

5.13.3 Structures (including facilities, lifelines and critical infrastructure)

Wildfires can have impacts on structures and lifelines, which are the critical systems that communities rely on for basic needs such as water, power, and transportation. Here are some potential impacts:

1. **Damage to buildings and infrastructure:** Wildfires can cause damage to homes, businesses, and other structures in the path of the fire. This can include damage to roofs, windows, and other exterior features, as well as damage to internal systems such as electrical and plumbing.
2. **Loss of lifelines:** Wildfires can damage or destroy critical lifelines such as power lines, water treatment facilities, and transportation infrastructure. This can lead to disruptions in basic services such as electricity, clean water, and transportation.
3. **Contamination of water supplies:** Wildfires can cause soil erosion and other changes to the landscape that can impact water quality. This can lead to contamination of drinking water supplies, which can impact the health and safety of individuals in affected communities.

4. **Air quality impacts:** Wildfire smoke can impact air quality, which can have implications for the health of individuals and for the operation of critical infrastructure such as airports.
5. **Economic impacts:** Wildfires can have economic impacts, particularly in areas that rely on tourism or natural resources. The loss of homes, property, and infrastructure can lead to job losses and economic hardship.

5.13.4 Systems (including networks and capabilities)

Wildfires can also have impacts on communication systems, which are critical for coordinating emergency response and for keeping communities informed during and after a wildfire event. Here are some potential impacts:

1. **Damage to communication infrastructure:** Wildfires can damage or destroy communication infrastructure such as cell towers, antennas, and other equipment. This can lead to disruptions in communication services such as phone and internet access.
2. **Power outages:** Wildfires can cause power outages, which can impact communication systems that rely on electricity to function.
3. **Disruptions to emergency services:** Wildfires can disrupt emergency communication systems such as 911 and other dispatch services. This can make it difficult for individuals to call for help or for emergency responders to coordinate their response efforts.
4. **Reduced access to information:** Wildfires can disrupt communication channels such as television and radio broadcasts, as well as social media and other online platforms. This can make it difficult for individuals to stay informed about the status of the fire and any evacuation orders or other emergency measures.
5. **Increased demand:** During and after a wildfire, there may be increased demand on communication systems as individuals try to contact loved ones, access emergency services, or get information about the fire. This can lead to congestion on communication networks, which can further exacerbate the impacts of the wildfire.

5.13.5 Natural Resources

Wildfires can have impacts on natural resources, including:

1. **Soil:** Wildfires can alter soil properties and reduce soil fertility. The intense heat of a wildfire can cause the loss of organic matter, nutrients, and water-holding capacity in the soil. This can result in increased erosion and decreased plant growth.

2. **Water:** Wildfires can impact water quality and quantity. When wildfires occur in forested watersheds, they can increase sedimentation, reduce water quality, and affect aquatic habitats. Additionally, large-scale wildfires can lead to the depletion of water resources as the intense heat evaporates water from streams and lakes.
3. **Vegetation:** Wildfires can have both negative and positive effects on vegetation. While some plant species may be killed by the fire, others may be stimulated to grow in response to the nutrients released by the burned vegetation. However, if the fire is too severe, it can destroy entire plant communities, which can take many years to recover.
4. **Wildlife:** Wildfires can have both direct and indirect impacts on wildlife. Many animals may be killed during the fire or forced to relocate to other habitats. Additionally, the loss of vegetation can lead to a reduction in food sources for many wildlife species.
5. **Air quality:** Wildfires can release large amounts of smoke and other pollutants into the air, which can have negative impacts on air quality and public health. Smoke from wildfires can aggravate respiratory problems and cause other health issues.

5.13.6 Activities that have value to the community

Wildfires can have impacts on the activities that communities use, particularly in areas where outdoor activities such as hiking, camping, and hunting are popular. Here are some potential impacts:

1. **Closure of recreational areas:** Wildfires can lead to closures of parks, hiking trails, and other recreational areas in affected communities. This can limit opportunities for outdoor recreation and impact local businesses that rely on tourism.
2. **Health impacts:** Wildfire smoke can impact air quality, which can have implications for the health of individuals in affected communities. This can lead to increased rates of respiratory illnesses, particularly among vulnerable populations such as children and the elderly.
3. **Economic impacts:** Wildfires can have economic impacts, particularly in areas that rely on tourism or natural resources. The loss of recreational areas and the impact on air quality can lead to job losses and economic hardship.
4. **Disruption of community events:** Wildfires can disrupt community events such as outdoor festivals and fairs, as well as sporting events and other activities that rely on outdoor spaces.
5. **Increased stress and anxiety:** Wildfires can lead to increased stress and anxiety among individuals in affected communities, particularly those who may be at risk of losing their homes or businesses.

5.13.7 Estimate of potential loss

Based on the wildfire risk analysis report, populated areas in Effingham County, GA have on average, greater wildfire likelihood than 88% of counties in the state. 71% of homes in Effingham County, GA are exposed to wildfire from direct sources, such as adjacent flammable vegetation compared to a national average of 33% exposure. There are ~24,000 homes in the County out of which ~16,800 homes are directly exposed to wildfire sources. Error! Bookmark not defined.

5.13.8 Risk assessment

Guyton, Rincon, and Springfield, being the most populated areas in the County, are at the highest risk of wildfire related damage. As climate change results in warming of the atmosphere, and increasing number of consecutive dry days, the wildfire risk is anticipated to be higher in the future (Change in Maximum Number of Consecutive Dry Days, n.d.),

Table 5-15: Wildfire Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Medium	High	High	High
Guyton	High	High	High	High
Rincon	High	High	High	High
Springfield	High	High	High	High

5.14 Environmental Contamination

5.14.1 Method

Due to the absence of data on spills, it was not possible to make an estimate of potential losses resulting from future hazardous spills or radiological incidents. As a result, the assessment of vulnerability to environmental contamination is conducted qualitatively.

5.14.2 Estimate of potential loss

Around 50% of people in Effingham County are exposed to rivers, streams, and ponds, which poses a long-term health risk and can negatively impact the local and state economy due to environmental contamination. The Savannah and Ogeechee Rivers, as well as inner streams and ponds, are affected

by pollution and debris, which reduces water flow and creates stagnant areas. Without plans to open the rivers and increase water flow, pollution levels are likely to remain high. Previous safety advisories in nearby counties such as Bulloch County and Bryan County have resulted in financial and political impacts (Effingham County, 2017).

5.14.3 Risk assessment

All jurisdictions will be equally impacted by a hazardous spill. Climate change is expected to cause increased short duration large intensity storms and heavy precipitation. Effingham county has an extensive number of wetlands that may overflow under such extreme precipitation event and will increase the extent of spill compared to present day. Residents with limited mobility will be affected during a spill.

Table 5-16: Environmental Contamination Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Medium	Medium	Low
Guyton	Low	Medium	Medium	Low
Rincon	Low	Medium	Medium	Low
Springfield	Low	Medium	Medium	Low

5.15 Hazardous Materials Spills/Radiological Incidents

5.15.1 Method

Due to the absence of data on spills, it was not possible to make an estimate of potential losses resulting from future hazardous spills or radiological incidents. As a result, the assessment of vulnerability to hazardous spills or radiological incidents is conducted qualitatively.

5.15.2 Estimate of potential loss

Georgia has strict laws about the hazardous waste management (Georgia R. a., n.d.). Any release that exceeds 25 gallons must be reported within 24 hours of discovery to the Emergency Response division of GA Environmental Protection Division (EPD). The rule also states that a release of less than 25 gallons

that are not contained and cleaned up within 24 hours must be reported immediately and any suspected leak must be reported within 24 hours of discovery. The county is expected to follow the regulations strictly.

The estimate of potential loss is primarily dependent on the extent of spill or fallout. State of Georgia also has a detailed guidelines on the hazardous waste management and reporting fees for regular waste disposal (Georgia S. o., n.d.). The extent of damages would also vary based on type of chemical involved, the way it was released (whether intentionally or accidentally), prevailing wind patterns, the efficiency of the response team handling hazardous materials, and the overall rarity of the incident.

The northern half of the County is situated within a 50-mile radius of a nuclear power plant, which is deemed hazardous under present day norms (Effingham County, 2017). If 20% of the population lives in this area as stated in the previous HMP (2017), then this area is home to roughly 12,000 permanent residents in the current days. The potential loss also pertains to agriculture, farming, and water resources. If radioactive fallout were to occur, grazing livestock would have to be relocated immediately. All milk and meat products from such animals would become irreparably contaminated if exposed to radiation.

5.15.3 Risk assessment

All jurisdictions will be equally impacted by a hazardous spill. Climate change is expected to cause increased short duration large intensity storms and heavy precipitation. The County has extensive wetlands that may overflow under extreme precipitation events and will increase the extent of spill compared to present day. Residents with limited mobility will be affected during a spill.

Table 5-17: Hazardous Materials Spills/Radiological Incidents Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low to Medium	Medium to high	Medium to high	Low to medium
Guyton	Low to Medium	Medium to high	Medium to high	Low to medium
Rincon	Low to Medium	Medium to high	Medium to high	Low to medium
Springfield	Low to Medium	Medium to high	Medium to high	Low to medium

5.16 Cyber Security

5.16.1 Method

Due to the absence of data on previous breach related damage, it was not possible to make an estimate of potential losses resulting from future cyber-attacks in the County. As a result, the assessment of vulnerability is conducted qualitatively.

5.16.2 Estimate of potential loss

The estimate of potential loss from a cybersecurity breach can vary widely depending on the nature and severity of the breach, as well as the type of organization and industry involved. However, some estimates suggest that the global cost of cybercrime could reach \$10.5 trillion by 2025, up from \$3 trillion in 2015 (Forum, 2023). In Effingham County, the larger jurisdictions are at higher risk of threat than the smaller ones.

5.16.3 Risk assessment

It is recommended that the County and the individual Cities conduct a detailed cybersecurity vulnerability assessment on all their infrastructure. Funding is available to conduct assessments of cybersecurity threats on various critical facilities in a community.

The risk of cybercrime affects the entire County. Being the largest city, assets in Rincon are likely to have the highest risk. The older population that depends on news outlets for updated information, may be more greatly affected under a breach. Daily wage workers will also be impacted in a breach because of the closed systems affected by the breach.

Table 5-18: Cyber Security Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Moderate	Moderate	Moderate	None
Guyton	Moderate	Moderate	Moderate	None
Rincon	High	High	High	None
Springfield	Moderate	Moderate	Moderate	None

5.17 Pandemic Response

5.17.1 Method

Since the COVID-19 pandemic is the most recent major public health crisis in recent decades, we have chosen to highlight Effingham County's response to this global pandemic in order to provide context for their efforts in pandemic response.

To capture a complete set of information on COVID-19 impacts to Effingham County, a variety of datasets from the Centers for Disease Control and the Georgia Department of Public Health were used to characterize the impacts of COVID-19 on Effingham County. Effingham County's vaccination rate (fully vaccinated) is currently at 40% for all ages and 81% for ages 65 and up. This falls below the average of fully vaccinated individuals in the U.S., which currently sits at 69%. The day with the highest number of positive cases was January 27th, 2022, with 179 cases. The community level of COVID-19 in Effingham County is low based on cases and hospitalizations, according to the March 2023 update from the C.D.C.

5.17.2 People

1. **Health Effects:** The COVID-19 pandemic led to a dramatic loss of life across the globe and certainly influenced Effingham County. Pandemic events undoubtedly pose a threat to the population of Effingham County as becoming ill not only limits a person's ability to provide for their family but can leave the affected with lasting health issues.
2. **Income Loss:** Pandemics can negatively impact the economy through limiting trade, closing borders, and limiting the ability of workers to perform in their jobs. This is especially true in industries like healthcare, food and beverage, and education as we have seen over the past few years.
3. **Lack of Quality Healthcare:** Limited access to quality healthcare has been a highlight of the COVID-19 pandemic. The stress of mass hospitalizations and limited space in healthcare facilities left many without the proper services needed to recover from the virus.
4. **Psychological impacts:** Pandemics can also have psychological impacts on people, including anxiety, stress, and trauma, particularly for those who experience the hazard firsthand or who lose loved ones.

5.17.3 Structures (including facilities, lifelines and critical infrastructure)

1. **Economic impacts:** Pandemic events can have significant economic impacts. Businesses may be forced to shut down or relocate, and property values can decline. Additionally, the cost

of continued operation and potential need for large quantities of personal protective equipment could be costly.

2. **Public health impacts:** Pandemics are undoubtedly a source significant public health impact. Exposure to pathogens can cause acute or chronic health effects, depending on the severity and duration of exposure and the likelihood of infection/transmission is high.

5.17.4 Systems (including networks and capabilities)

1. **Emergency response capabilities:** Global pandemics can, and have, overwhelmed emergency response capabilities. This can result in delays or gaps in response, which can have serious consequences for public safety.
2. **Economic impacts:** As mentioned earlier, global pandemics can have significant economic impacts. These impacts can extend to systems and networks, including supply chains and financial networks.

5.17.5 Activities that have value to the community

1. **Economic impacts:** Pandemics can have significant economic impacts, including disruptions to businesses and loss of revenue. These impacts can be especially severe for small businesses and communities that rely on tourism or other industries.
2. **Recreation and tourism:** Pandemics can disrupt recreation and tourism activities. For example, certain modes of mass transit like buses and airlines may be closed. Additionally, the ability to enjoy indoor activities would be very limited. This can impact the quality of life for residents and may also have economic consequences for local businesses.
3. **Cultural activities:** Pandemic events can impact cultural activities, such as festivals and community events. These disruptions can be both social and economic, affecting the community's sense of identity and well-being.
4. **Education:** Hazardous materials spills and radiological incidents can impact educational activities. For example, schools and universities may need to close due to health concerns, and other less publicly accessible and potentially effective means of schooling may be employed, such as remote learning.

5. **Public perception:** Pandemics can also impact public perception of local government and leadership. This can have long-term consequences for economic activity and quality of life, even after the immediate impacts of the incident have been addressed.

5.17.6 Estimate of potential loss

The number of hospitalized COVID-19 patients has fallen in all locations within Effingham County, though the test positivity rate has remained very high.¹ Since the beginning of the pandemic, 16,458 cases have been reported in Effingham County with a total of 217 reported deaths. Due to the rural nature of the county, smaller population concentrations, and relatively low level of persons 65 and over (~12%, Census, 2020), Effingham County has less potential for the spread of pandemic viruses; however, there is only one major hospital in the county and the need for expanding healthcare services is still a critical concern. A recent article from Effingham Magazine states that Effingham Health Systems plans on growth, re-engineering systems, technology, and protocols to better respond to the needs of the community in the future. This will be vital for the increase in population that is planned once the Hyundai plant is established in Rincon, GA.

5.17.7 Risk assessment

The number of hospitalized COVID-19 patients has fallen in all locations within Effingham County, though the test positivity rate has remained very high (Times, 2023). Since the beginning of the pandemic, 16,458 cases have been reported in Effingham County with a total of 217 reported deaths. Due to the rural nature of the county, smaller population concentrations, and relatively low level of persons 65 and over (~12%) (Bureau, 2020), Effingham County has less potential for the spread of pandemic viruses; however, there is only one major hospital in the county and the need for expanding healthcare services is still a critical concern. A recent article from Effingham Magazine states that Effingham Health Systems plans on growth, re-engineering systems, technology, and protocols to better respond to the needs of the community in the future (Magazine, 2022). This will be vital for the increase in population that is planned once the Hyundai plant is established in Rincon, GA.

Table 5-19: Pandemic Response Risk assessment

Jurisdiction	Current risk	Future risk	Risk to vulnerable populations	Risk to change in land use
Effingham County	Low	Low	High	Low
Guyton	Low	Low	High	Low
Rincon	Low	Low	High	Low
Springfield	Low	Low	High	Low

6.0 CAPABILITY ASSESSMENT

C1-a

C1-b



What information will I find in this chapter?

Chapter Six contains information about each jurisdiction's existing authorities, policies, programs and resources and the ability to expand on and improve these existing policies and programs. (Requirement 44 CFR § 201.6(c)(3))

Table 6-1: Chapter 6 Summary of Changes

Chapter 6 Sections	Updates to Section
Long-Range Plans Related to Hazard Mitigation	Moved from appendix and expanded on from 2017 HMP
Building Code, Permitting, and Inspections	New to 2023 HMP
Land Use Planning and Ordinances	Expanded on from 2017 HMP
Staffing	New to 2023 HMP
Administration	New to 2023 HMP
Technical	New to 2023 HMP
Funding Resources	New to 2023 HMP
Assistance from Nongovernmental Organizations	New to 2023 HMP
National Flood Insurance Program Compliance	Expanded on from 2017 HMP
Existing Capabilities	Expanded on from 2017 HMP

Every community has a unique set of capabilities such as authorities, policies, programs, staff, or funding, that contribute to hazard mitigation and help to reduce vulnerability. The County, as well as the cities of Guyton, Rincon, and Springfield, have a suite of capabilities that help them accomplish hazard mitigation. Capabilities vary among the different municipalities, making coordination across political boundaries especially important. The current capabilities have been reviewed to identify opportunities to incorporate hazard mitigation efforts as well as any gaps in resources that may need to be addressed. This chapter includes a review of the existing capabilities of Effingham County and the cities of Guyton, Rincon, and Springfield.

6.1 Long-Range Plans Related to Hazard Mitigation

Long-range planning documents are vital to emergency preparedness and response. Long-range planning documents have a planning horizon of multiple years. Below is an overview of long-range planning documents in Effingham County that relate to hazard mitigation.

6.1.1 2020-2040 Effingham County Joint Comprehensive Plan (2019)

The Comprehensive Plan includes the cities of Guyton, Rincon, and Springfield and focuses on land development. It contains goals, policies, and strategies that address challenges, leverage strengths, and provide a framework for land development within the County. The Comprehensive Plan is a legally binding document that governs land use and guides future development. It also addresses issues that pertain to development such as environmental regulation and infrastructure management. Chapter 7 of the Joint Comprehensive Plan covers Coastal Vulnerability and Resilience. In this section, natural hazards such as flooding and storm surge are addressed, and vulnerable populations are defined and identified. The Comprehensive Plan also contains a Capital Improvement Projects section. There is opportunity for this section to be expanded during the next Comprehensive Plan Update to incorporate a more detailed discussion on hazard mitigation and resilience efforts. The Comprehensive Plan identifies projects to include in the mitigation strategy and is an appropriate place to implement mitigation actions as it is formally adopted by all four communities and is legislatively binding.

6.1.2 Local Emergency Operations Plan (2023)

The Emergency Operations Plan (EOP) establishes emergency response policies for Effingham County and provides a framework to enable community recovery following a disaster. It includes the cities of Guyton, Rincon, and Springfield. It describes the management and coordination of resources and personnel during emergency situations. The EOP is currently undergoing an update that is expected to be completed in 2023. The Local Emergency Operations Plan addresses hazards and identifies strategies related to emergency services and staff training that contribute to hazard mitigation. It would be appropriate to implement additional strategies related to intergovernmental coordination, training exercises, and emergency warning and response within the EOP.

6.1.3 Master Transportation Plan (2021)

The 2021 Master Transportation Plan identifies projects that would improve the transportation network of Effingham County and accommodate the accelerated growth the region is experiencing. The current version of the plan does not address hazards, but there is potential for hazards such as flooding to be incorporated in the future. It would be appropriate to implement mitigation strategies related to frequently flooded roads into the Master Transportation Plan.

6.1.4 Stormwater Master Plan (2023)

The Stormwater Master Plan was recently completed in June 2023. The Plan addresses stormwater management and design standards that will be implemented in Effingham County. The Stormwater Master Plan includes a public engagement aspect to identify areas within the County that frequently flood. The Stormwater Master Plan includes a rehabilitation plan to address priority structure repairs and replacements, as well as an expansion plan that identifies and models proposed capital improvement projects that address flooding and water quality. This document will be an important avenue through which mitigation activities can be implemented. The Stormwater Master Plan will help to prioritize mitigation projects in the County, and contains a list of recommendations regarding improvement projects. Recommendations include but are not limited to maintenance, increased conveyance, and detention projects. These recommendations should be considered by the Hazard Mitigation Planning Committee for inclusion in each jurisdiction's mitigation action spreadsheet in the future.

6.1.5 Community Wildfire Protection Plan (2018)

The goal of the 2018 Community Wildfire Protection Plan is to set clear priorities for the implementation of wildfire mitigation in Effingham County and to protect the community and its essential infrastructure. The plan includes recommendations for types and methods of fuel reduction and structure ignitability reduction, as well as a plan for wildfire suppression. The mitigation action items in the plan focus on public education, supporting fire rescue entities, collaborative decision-making, citizen participation, and community ordinances and codes. This plan has been effectively utilized to implement mitigation strategies related to wildfire.

6.1.6 Comprehensive Recreation and Parks Plan (2023)

There is opportunity to integrate mitigation strategies such as open space preservation into the Comprehensive Recreation and Parks Plan. This plan ensures that recreation facilities continue to meet the needs of a growing population. The plan in its current state does not address hazards, but it does identify the need for more open space and park space. This plan would be an appropriate location in which to integrate mitigation strategies related to preserving open space, greenspace connectivity, creation of new park space, or creation of stormwater parks.

6.1.7 Public Awareness, Education, and Preparedness Plan (2014)

The plan identifies activities to be conducted by the Effingham County Emergency Management Agency that will educate the public about the natural and manmade hazards they may face in Effingham County. Hazards are addressed briefly in the Public Awareness, Education, and Preparedness Plan. This plan was designed to develop strategies that raise the level of disaster awareness and increase citizen's knowledge about what to do before, during, and after a hazard incident. Activities include outreach events at schools, coordination with local organizations, distribution of informational materials, and an

SMS text alert system. This plan should be updated to meet Community Rating System requirements for a Public Information Plan to contribute to Effingham County's CRS score.

6.1.8 Debris Management Plan (2012)

The Debris Management Plan addresses the disposal of debris collected after major disaster events. It also provides guidance on how to mitigate potential health hazards from hazardous debris materials. This plan addresses hazards in detail and how different hazards can cause various types of debris. It also includes the roles and responsibilities of different departments within each jurisdiction in regard to debris management. This plan can be a place to implement mitigation actions related to post-disaster recovery.

6.2 Building Code, Permitting, and Inspections

Building codes ensure structures are built safer and stronger. They create a standard to which communities must be held and help to make communities more resilient. Communities receive a Building Code Effectiveness Grading Schedule (BCEGS) score based on their adopted building codes and the enforcement of those codes, with special emphasis on mitigation of losses from natural hazards. BCEGS scores for Effingham County and the cities of Guyton, Rincon, and Springfield can be found in the table below.

Communities are also scored based on how prepared they are for fires. This scoring comes from the Insurance Services Office and is based on the local fire departments and water supply. The first number is the rating for those properties within 5 road miles of a recognized fire station and within 1000' of a fire hydrant. The second number is the rating for those properties within 5 road miles of a recognized fire station but beyond 1000 feet of a fire hydrant. ISO ratings for Effingham County, Guyton, Rincon, and Springfield can be found in the table below.

Table 6-2: ISO Ratings

Jurisdiction	Building Code Version/Year	Fire Department ISO Rating
Effingham County	2018 IRC/IBC	3/3Y
City of Springfield	2018 IRC/IBC	3/3Y
City of Guyton	2018 IRC/IBC	3/3Y
City of Rincon	2018 IRC/IBC	3/3X

6.3 Land Use Planning and Ordinances

Effingham County adopted a Future Land Use Plan, and has created Stormwater Management, Floodplain Management, and Subdivision ordinances. Effingham County has developed zoning regulations to ensure the character of new development is consistent with the community vision. Effingham County is a historically rural area. The primary land uses in the County are agriculture/forestry, conservation/recreation, and residential. Collectively, these land uses account for 90 percent of the total land area in the County. Agricultural/Forestry land accounts for the majority of the land use at 65 percent. Industrial and Commercial land uses account for three percent of the total area. Proximity to the Ports of Savannah and Interstates 95 and 16 are expected to prompt further industrial growth. Five percent of the land is classified as undeveloped; much of this property is adjacent to existing residential developments, suggesting that currently undeveloped land will become later phases of a subdivision.

The Cities of Guyton, Rincon, and Springfield have similar ordinances and face similar development pressures.

Effingham County and the Cities of Guyton, Rincon, and Springfield can use these ordinances to implement sustainable development practices, thereby reducing hazard risk and impact. These ordinances can always be reviewed and improved to include new hazard mitigation activities. These ordinances are adequately administered and enforced.

6.4 Staffing

Effingham County and the Cities of Guyton, Rincon, and Springfield are staffed with personnel capable of planning for and implementing hazard mitigation activities. All entities are equipped with a Building Official and a Community Planner. Effingham County Emergency Management covers the cities of Guyton, Rincon, and Springfield. Effingham County GIS coordinates 911 addressing and roads for the cities to the best of their ability, but increased coordination in regard to addressing and roads would be beneficial to all entities. The cities have contracts with outside engineering firms to coordinate any additional needs they have related to GIS. In Effingham County, floodplain administration is housed within the Development Services department, with two planners also acting as their floodplain administrators. Springfield, Rincon, and Guyton all contract with engineering firms to act as their floodplain administrator.

Effingham County has contracted with EOM to manage and maintain their high-value critical infrastructure assets, and therefore has civil engineers available through EOM. EOM is contracted to handle the water, sewer, wastewater, and roads for Guyton and Effingham County. EOM is also contracted to handle water and sewer for Springfield.

All jurisdictions should consider retaining a Certified Floodplain Manager (CFM) on staff. Effingham County is subject to coastal hazards. Retaining a staff member that is well-versed in floodplain management and the National Flood Insurance Program regulations would be beneficial to all jurisdictions and would lead to improved floodplain management programs and a higher level of preparedness. A Certified Floodplain Manager would bring not only knowledge of NFIP requirements and floodplain management in general, but also knowledge of FEMA funding programs, substantial improvement/damage requirements, and damage assessment procedures.

6.5 Administration

All of the entities involved in this plan have active Planning and Zoning Commissions or Boards that review proposed amendments to zoning ordinances, site plans, and plat applications. These Commissions or Boards also make recommendations to Councils regarding the current and future development of the community.

All of the entities involved in this plan have a Mitigation Planning Commission that met to contribute to the update of this plan.

Maintenance programs to reduce risk, such as tree trimming and clearing of drainage systems, is coordinated through EOM. EOM uses proprietary CMMS software to manage the municipal asset inventory and the activities conducted to maintain them. The software stores information about city/county-owned assets (i.e. location, type, size, installation date, etc.), and provides tools to help manage the maintenance activities associated with each asset. The software processes work orders, schedules jobs, assigns resources, and tracks performance and costs. It is also used to manage the inventory of spare parts, tools, and other materials. It identifies preventative maintenance tasks that should be performed based on asset run times. Preventative maintenance is repetitive activities required or recommended by the equipment manufacturer or industry best practices performed to optimize the service life of the asset. Preventative maintenance is critical to protect against deterioration and failure of the asset. The CMMS software catalogues every asset at every location and reviews all available as-built and operations manuals to customize the preventative maintenance schedules for each item. Each asset has its own unique schedule and associated checklist. If an inspection identifies an issue with an asset, a corrective work order is automatically generated by the software to address that issue. In summary, every item (pump, control panel, roadway, MS4 control structure, generator, etc.) has a unique task and schedule (daily, weekly, monthly, quarterly, annually, semi-annual, 5000 hours, 20000 hours, etc.) that is based on manufacturer's guidelines, industry standards and permit requirements.

All roads have also been catalogued by EOM's CMMS software to include miles, type, and subdivision. All roads have an annual inspection schedule.

EOM has identified some issues related to drainage, mainly the lack of easements and connected drainage systems. They have also identified areas of failing infrastructure that require large funding projects to rectify. Effingham County is currently working to secure funding for some of these large-scale infrastructure projects. Additionally, all asset locations have sought funding for generators and bypasses, but funding has been delayed or unavailable. The County is working to prioritize specific areas where upgrades and replacements are necessary.

Coordination of these administrative efforts among the jurisdictions could be improved. Improved coordination leads to more consistent long-range planning for the entire community, reduced duplicity of efforts, and more effective implementation of mitigation activities.

6.6 Technical

Technical resources include skills and tools that can be used for mitigation planning and to implement specific mitigation actions. Effingham County, Guyton, Rincon, and Springfield have various technical capabilities that aide in the implementation of mitigation activities.

6.6.1 Grant Writing

Effingham County recently hired a full-time grants coordinator in order to pursue various grant opportunities. The County and Cities are interested in pursuing as many grant opportunities as possible, such as Community Development Block Grants, National Fish and Wildlife Foundation Grants, Hazard Mitigation grants through FEMA, and others.

6.6.2 Warning System

The Effingham County School Board currently utilizes a mass notification system that can reach all parents. Effingham County is currently onboarding a new mass notification system that will reach all citizens via mobile device. The system is currently being tested with all cellphone carriers in the County. It would allow for mass notification regarding hazards or emergencies in the area.

6.6.3 Hazus Analysis

Hazus is a geographic information system-based natural hazard analysis tool developed and distributed by FEMA. Hazus software provides standardized tools and data for estimating risk from earthquakes, floods, tsunamis, and hurricanes for a given area. This software was used to assess risk to Effingham County, Guyton, Rincon, and Springfield. Hazus analysis is coordinated through the University of Georgia, the Coastal Regional Commission, and the Georgia Emergency Management Agency. See Appendix E. Additionally, Weston & Sampson independently ran the most recent version of Hazus (6.0) to inform the plan update.

6.7 Funding Resources

Funding for the implementation of mitigation strategies comes from a variety of sources for Effingham County, Guyton, Rincon, and Springfield. Additional funding sources need to be explored in order to accomplish more mitigation strategies.

6.7.1 General Fund

General fund refers to revenues accruing to the municipality from taxes, interest earnings, and other sources which can be used for the general operation of local government. General funds can be used to fund mitigation activities such as structural projects, emergency services, property protection, natural resource protection, public information, or preventative actions.

6.7.2 Development Impact Fee

The development impact fee was developed in order to provide areas of new growth with the required infrastructure. Effingham County is experiencing rapid growth that is expected to continue. Development impact fees can be used for park and recreation facilities, arterial roads and intersections, public safety, water, and sewer projects (Effingham County Development Impact Fee Ordinance). Development impact fees are not currently being collected by the County and therefore should not be considered an appropriate source for implementing hazard mitigation actions.

6.7.3 Fees for Water and Sewer

Fees for water and sewer services have been used to fund improvements to water and sewer infrastructure. Mitigation tactics for water and sewer infrastructure should be considered in all future improvement projects. This is an appropriate source of funding for mitigation projects related to water and sewer infrastructure.

6.7.4 American Rescue Plan Act Funding (ARPA)

Effingham County received 11.6 million dollars in ARPA funds according to the budget for the 2023 fiscal year. The ARPA funds have been used for various projects at the wastewater treatment plant as well as for other various water and sewer projects. Investments in water and sewer infrastructure are approved uses of ARPA funds; it is possible to make mitigation, such as retrofitting facilities, a part of these investments in water and sewer infrastructure.

6.7.5 Special Purpose Local Option Sales Tax (SPLOST) Funding

A Special Purpose Local Option Sales Tax is an optional one percent county sales tax used to fund capital projects proposed by the county government and participating qualified municipal governments. SPLOST funding has been used extensively in Effingham County to fund mitigation activities and capital improvement projects. This source will continue to be used to fund mitigation activities and capital improvement projects in the future.

6.7.6 Stormwater Utility Fee

A feasibility study was completed in 2021 to determine what would be necessary to implement a stormwater utility fee in Effingham County. The yearly rate was estimated to be \$55 per year if the stormwater utility fee was to be implemented. Due to widespread disapproval among the community, the County decided not to pursue the stormwater utility fee. This idea should be revisited in the future as the County continues to experience rapid growth and will need a source of income to complete necessary capital improvement projects, conduct routine maintenance, complete an asset inventory, and run a high-functioning stormwater management program. A stormwater utility fee would be an effective way to fund stormwater mitigation projects.

6.7.7 Federal and State Grant Funding

Grant funding can be an excellent approach to implementing mitigation projects. There are many grant funding opportunities available through the Georgia Emergency Management Agency (GEMA), including Emergency Management Performance Grants and Hazard Mitigation Assistance Grants. Emergency Management Performance Grants provide federal funds to assist local emergency management agencies to obtain the resources required to support implementation of the National Preparedness System and the National Preparedness Goal of a secure and resilient nation (GEMA). Hazard Mitigation Assistance Grants include federal opportunities like the Hazard Mitigation Grant Program, the Flood Mitigation Assistance Program, and the Pre-Disaster Mitigation Program, all of which are funded through FEMA. Opportunities like these should be explored to fund future mitigation activities. Other federal opportunities include grants through FEMA's Building Resilient Infrastructure and Communities (BRIC) program. BRIC funding is specifically for hazard mitigation projects. Other state grant funding for hazards and resilience includes the Coastal Incentive Grant, which is a competitive pass-through subgrant program made possible by a grant to GA Department of Natural Resources from the National Oceanic and Atmospheric Administration (NOAA) under the Coastal Zone Management Act. Each year, the GA Coastal Management Program allocates a portion of its federal funding to qualified coastal county and municipal governments.

6.7.8 National Fish and Wildlife Foundation (NFWF) Coastal Resilience Fund

Foundations are an additional source of potential funding, and one example to address hazards is the National Fish and Wildlife Foundation Coastal Resilience Fund. This fund, established in 2018, restores, increases, and strengthens infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife. The program is designed to invest in conservation projects that restore or expand natural features that minimize the impacts the storms and other naturally occurring events. Such features include coastal marshes, wetlands, dune and beach systems, oyster and coral reefs, maritime forests, barrier islands, and coastal rivers and floodplains. Exploring opportunities via NFWF might be an effective route through which hazard mitigation actions could be implemented in Effingham County. Effingham County is considered a coastal county by NFWF due to its proximity to the Savannah Wildlife Refuge.

6.8 Assistance from Nongovernmental Organizations

The following programs and organizations were identified as being active in Effingham County. These programs can be vessels for the implementation of mitigation strategies.

6.8.1 United Way

Through the Community Fund and with the assistance of other local non-profit organizations, United Way provides health and human services for the community as well as emergency relief services. United Way has the capacity to coordinate volunteers and organize resource distribution which can be invaluable following a natural disaster or hazard incident. United Way has a County Service Center in

Effingham County. United Way is also an excellent network for information distribution. In 2021, United Way invested more than \$3.36 million in 86 programs across 54 nonprofit agencies in Bryan, Chatham, Effingham, and Liberty counties creating a vital network of support and services. This network can help implement future mitigation activities.

6.8.2 Praise and Preparedness/Family Promise

Praise and Preparedness is an initiative from the Georgia Emergency Management and Homeland Security Agency. It encourages faith-based organizations and houses of worship to promote readiness and preparedness. The initiative provides resources on how to ensure a facility is safe, how members can practice preparedness in their own homes, and how houses of worship can become involved in disaster relief efforts in the community. It encourages churches to offer their locations as emergency shelters during hazard events. This program can help implement mitigation activities related to public information and outreach, emergency services, and property protection.

6.8.3 Effingham County Family Connection

Effingham Family Connection consists of community partners working together to coordinate and improve services to support families and children for a better future in Effingham County. EFC is a private non-profit 501C-3. EFC helps to bridge service gaps for the most vulnerable families in the community and connects these families to valuable resources and information. EFC encourages the community to craft local solutions based on local decisions. EFC works to ensure that the community is vibrant, robust, and thriving. Since this is a partnership-based effort, and the reach in the community is quite wide, EFC is an effective means of communicating important information regarding hazards and preparedness.

6.8.4 Monthly Educational Programs

The Effingham County Public Awareness, Education, and Preparedness Plan contains the annual calendar of outreach events conducted by Effingham County Emergency Management Agency staff. January outreach efforts are focused on severe winter weather; efforts include winter weather warnings via SMS text alerts and safety tips on the Effingham County EMA website. February is Severe Weather Awareness Month; efforts include severe weather warnings via SMS text alerts and safety tips for severe thunderstorms, flooding, tornadoes, and lightning. Also in February, Effingham County participates in the statewide tornado drill and Severe Weather Week. March is Flood Awareness Week. In April, Effingham County focuses on hazardous materials and makes information regarding hazardous materials available on the County website. June focuses on hurricane safety and preparedness. Outreach is conducted in neighborhoods, schools, civic groups, and businesses. Literature regarding hurricanes is made available at the Effingham County administrative building and public speaking engagements are conducted. Hurricane information is also added to the website. September is National Preparedness Month. In September, preparedness discussions are presented to elementary schools. These monthly educational efforts implement mitigation activities related to public information and outreach and will be an effective way to implement additional outreach activities in the future.

6.8.5 StormReady Certification

Effingham County is a Storm Ready Community as designated by the National Weather Service, NOAA.

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 local weather conditions.
- 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.

C2-a

6.9 National Flood Insurance Program Compliance

Unincorporated Effingham County and the Cities of Guyton, Rincon, and Springfield all participate in the National Flood Insurance Program (NFIP), as well as adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The minimum standards established by these codes provides reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

All entities have adopted the latest effective Flood Insurance Rate Map. The effective date of the current FIRM is March 16, 2015. Each community has both digital and hard copy FIRMs.

All entities implement and enforce their Flood Damage Prevention Ordinance to regulate and permit development within Special Flood Hazard Areas. These Ordinances have been approved by FEMA as meeting, or sometimes exceeding, the minimum requirements set by the National Flood Insurance Program. All entities included in this plan implement a one-foot freeboard requirement. This means that all new and substantially improved construction must be built so that the lowest habitable floor is elevated one foot higher than the FEMA-determined base flood elevation. Adding additional footage to the freeboard requirement is a mitigation strategy that should be considered in the future by all entities. Additionally, all entities prohibit the construction of critical facilities within the Special Flood Hazard Area, and all entities enforce a cumulative five-year period for substantial damage/substantial improvement. Each community will follow FEMA's guidance for damage assessment and substantial damage assessment following a hazard event in the area.

Effingham County participates in the Community Rating System program. The CRS program is a voluntary program that incentivizes communities to exceed the minimum requirements of the NFIP by providing citizens of that community with a discount on their flood insurance premiums. The more a community exceeds minimum standards, the larger the discount that citizens will receive. Effingham County is currently a Class 7 (out of 10). The County hopes to improve their rating to a Class 5 or 6 over the next few years. Guyton, Rincon, and Springfield do not participate in the Community Rating System program.

6.10 Existing Capabilities

Since Effingham County's previous HMP was approved in 2017, the County and Cities were able to complete 11 of the actions that were listed in the plan. These actions are now considered to be existing

capabilities that are protecting the jurisdictions from impacts of hazards. These existing capabilities are listed in Table 6-3 below.

Table 6-3: Completed Mitigation Actions from 2017 Hazard Mitigation Plan

Action	2023 Status (New, Deferred, Ongoing, Completed, Deleted)
Retrofit police stations to become hazard resistant.	Completed
Encourage protection of critical facilities and infrastructure from lightning damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment	Completed
Install and maintain surge protection on critical electronic equipment	Completed
Conduct outreach activities to increase public awareness of hail dangers, including: Mailing safety brochures with monthly water bills	Completed
Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures	Completed
Retrofit police stations to become hazard resistant.	Completed (for county)
As roads are upgraded, widen to minimum standards with at least 50-foot radius cul-de-sacs or turnarounds	Completed
See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access	Completed
Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development	Complete
Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface	Completed
Publicize a user-friendly, and publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps	Completed

7.0 MITIGATION STRATEGY



What information will I find in this chapter?

Chapter Seven identifies and analyzes a comprehensive range of specific mitigation actions and project for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure. The action plan describes how the actions are prioritized, implemented and administered by each jurisdiction. (Requirements 44 CFR § 201.6(c)(3)(ii) and (iv))

Table 7-1: Chapter 7 Summary of Changes

Chapter 7 Sections	Updates to Section
2017 Effingham County Goals and Objectives	No modifications
Updated 2023 Goals and Objectives	New to 2023 HMP
Status of 2017 Mitigation Actions	Updated to reflect current status as of 2023
Mitigation Action and Adaptation Strategy for 2023-2028	Updated to reflect new mitigation actions
Mitigation Action Spreadsheet Description	New to 2023 HMP
Prioritized Action Details	New to 2023 HMP

The planning committee reviewed and updated the goals listed in the 2017 Hazard Mitigation Plan. The goals were restructured for the updated 2023 plan to accurately represent the current hazard mitigation efforts in Effingham County. The plan includes goals and objectives that focus on protecting community assets, including natural resources, local economy, personal well-being, and cultural facilities from the risk of hazards.



Figure 7-1: Updated 2023 Goals

7.1 2017 Effingham County Goals and Objectives

1. Reduce damage caused by severe weather in Effingham County.

- 1.1. Protect Effingham residents from high winds caused by severe storms, thunderstorms, and hurricanes.
- 1.2. Minimize losses to existing and future structures, especially critical facilities, from wind damage.
- 1.3. Minimize losses to existing and future structures, especially critical facilities, from lightning damage.
- 1.4. Protect Effingham residents from hail events during severe weather.

2. Minimize the damage caused by tornadoes in Effingham County.

- 2.1. Protect life, health, and property of residents from force of tornadoes.

2.2. Minimize losses to existing and future structures, especially critical facilities, from tornado damage.

3. Prevent damage caused by wildfire in Effingham County.

- 3.1. Minimize losses to existing and future structures. Especially critical facilities, from threat of wildfire.
- 3.2. Reduce threat of wildfire occurrence during periods of drought.
- 3.3. Improve education and outreach efforts regarding potential impacts from fires, as well as specific mitigation measures that can be undertaken.
- 3.4. Increase fire prevention measures during periods of drought.
- 3.5. Increase water protection measures during periods of drought.

4. Minimize impact of hurricanes in Effingham County.

- 4.1. Minimize losses to existing and future structures, especially critical facilities, due to impact of hurricanes.

5. Reduce flood damage in Effingham County.

- 5.1. Minimize losses to existing and future structures, especially critical facilities, from flooding caused by heavy rainfall of storms and hurricanes.
- 5.2. Minimize losses to existing and future structures, especially critical facilities, in low-lying areas of the county due to flooding.
- 5.3. Minimize losses to existing and future structures, especially critical facilities, from flooding caused by dam failure.

6. Protect health and safety of residents in Effingham County.

- 6.1. Minimize the effects of hazardous materials spills.
- 6.2. Minimize the threat of contamination from radiological hazards.
- 6.3. Protect human life, health, and property of residents from contaminants in the waterways.
- 6.4. Minimize the loss of wildlife due to consumption of contaminated waters.

C3-a

7.2 Updated 2023 Goals and Objectives

During their third meeting, the planning committee reviewed the goals and objectives alongside the associated actions from the 2017 HMP. The committee made the collective decision to broaden the goals to encompass all hazards, rather than focusing on one hazard per goal. The committee found that by creating this new set of goals and objectives, they could more easily categorize actions by type, rather than just associated hazard. The planning committee developed and approved the updated goals and objectives listed below.

1. Minimize loss of life and property from impacts of hazards.

- 1.1. Retrofit or otherwise protect critical facilities, community assets, and infrastructure.
- 1.2. Regulate development in known hazard areas.
- 1.3. Protect natural and environmentally beneficial resources.

2. Improve education and outreach efforts to protect community assets and critical facilities from hazards.

- 2.1. Expand outreach methods to reach more audiences.
- 2.2. Increase hazard mitigation training, knowledge, and resources for County and City staff.

2.3. Encourage preparedness for hazard mitigation at the individual level.

3. Increase coordination and capabilities to plan and implement projects to minimize loss from hazards.

- 3.1. Promote inclusion of climate change data and resiliency practices in planning and design.
- 3.2. Utilize technology to improve capabilities.
- 3.3. Increase interdepartmental coordination.

4. Improve data collection, dissemination, and redundancy to reduce impacts from hazards.

- 4.1. Increase redundancy of critical systems and services.
- 4.2. Encourage data and resource sharing across the County and adjacent municipalities.

7.3 Status of 2017 Mitigation Actions

Hazard mitigation seeks to reduce impacts from natural and non-natural hazards through planning, policy, education, infrastructure, and more. This section of Effingham County's hazard mitigation plan outlines strategies to prevent or minimize the loss of life, property damage, and economic disruption caused by these events.

This updated hazard mitigation plan includes incomplete HMP mitigation actions from the 2017 HMP, actions from existing, relevant plans, and actions developed by the planning committee during this planning process. There are many different types of hazard mitigation projects, and Effingham County chose to simplify it by categorizing their mitigation actions into six categories that encompasses the general action themes from all of these sources. The planning committee utilized the following six categories, created according to FEMA's Local Multi-Hazard Mitigation Planning Guidance:

- 1. Natural Resource Protection: Actions that can both minimize hazard losses as well as preserve and/or restore the functions of natural resource systems.
- 2. Emergency Management: Actions that will protect emergency services and response before, during, and after a hazard event.
- 3. Stormwater Management & Retention: Actions that proactively reduce stormwater flooding. These including both green and grey infrastructure solutions.
- 4. Sustainable Development: Actions that promote growth while utilizing resources more carefully.
- 5. Education & Outreach: Actions that inform and educate residents, community members, elected officials, and property owners about the risks of hazard and ways to mitigate them.
- 6. Cooperation Among Municipalities

7.3.1 Progress on Prior Actions

The planning committee met during multiple meeting to review the mitigation actions in the 2017 HMP, and to discuss what progress has been made towards implementation. The committee determined that 11 of the 89 total actions have been completed. Table 7-2 lists all completed mitigation actions from the 2017 HMP.

Table 7-2: Prior Actions - Completed

Goal	Objective	Action	Status as of 2023
<p>Reduce Damage Caused by Severe Weather in Effingham County</p>	<p>Minimize losses to existing and future structures, especially critical facilities, from wind damage.</p>	<p>Retrofit Police Station to become hazard resistant.</p>	<p>Completed</p>
	<p>Minimize losses to existing and future structures, especially critical facilities, from lightning damage. Minimize losses to existing and future structures, especially critical facilities, from lightning damage.</p>	<p>Encourage protection of critical facilities and infrastructure from lightning damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment.</p>	<p>Completed</p>
		<p>Install and maintain surge protection on critical electronic equipment.</p>	<p>Completed</p>
	<p>Protect Effingham residents from hail events during severe weather.</p>	<p>Conduct outreach activities to increase public awareness of hail dangers, including mailing safety brochures with monthly water bills.</p>	<p>Completed</p>
<p>Minimize the Damage Caused by Tornadoes in Effingham County</p>	<p>Protect life, health, and property of residents from force of tornadoes.</p>	<p>Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures.</p>	<p>Completed</p>
	<p>Minimize losses to existing and future structures, especially critical facilities,</p>	<p>Retrofit police stations to become hazard resistant.</p>	<p>Completed</p>

Goal	Objective	Action	Status as of 2023
	from tornado damage.		
Prevent damage caused by wildfire in Effingham County	Minimize losses to existing and future structures, especially critical facilities, from threat of wildfire.	As roads are upgraded, widen to minimum standards with at least 50-foot radius cul-de-sacs or turnarounds.	Completed
		See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access.	Completed
		Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development.	Completed
		Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface.	Completed
Reduce Flood Damage in Effingham County	Minimize losses to existing and future structures, especially critical facilities, in low-lying areas of the county due to flooding.	Publicize a user-friendly, publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps.	Completed

The planning committee determined that seven actions should not be carried forward into the updated plan, and table 7-3 lists all actions that will not be carried forward and the reasoning for removing them.

Table 7-3: Prior Actions – Removed

Goal	Objective	Action	Reason for Removing
Prevent Damage Caused by Wildfire in Effingham County	Minimize losses to existing and future structures, especially critical facilities, from threat of wildfire.	Install hydrants where county water lines cross roads.	No longer applicable.
	Increase fire protection measures during periods of drought.	Develop a drought emergency plan.	State of Georgia (GA EPD) jurisdiction
Prevent damage caused by wildfire in Effingham County	Minimize losses to existing and future structures, especially critical facilities from threat of wildfire.	Review Subdivision and Development ordinances for public safety concerns.	No longer applicable.
		Become a Firewise Community.	Not applicable due to state of Georgia responsibility (Forestry Commission).
Reduce Flood Damage in Effingham County	Minimize losses to existing and future structures, especially critical facilities, from flooding caused by dam failure.	Develop a dam failure study and emergency action plan.	There are no HHPD or Category I dams in Effingham County.
		Implement an inspection, maintenance, and enforcement program to help ensure continued structural integrity of dams and levees.	This action follows state guidance and is not within the County's jurisdiction.
Protect Health and Safety of residents in Effingham County	Minimize the threat of contamination from radiological hazards.	Seek funding to provide radiation detection devices to emergency responders.	No longer applicable.
	Protect human life, health, and property of residents from contaminants in the waterways.	Seek funding to remove vegetative obstructions from the rivers within Effingham County.	State of Georgia (GA DNR) jurisdiction
	Protect human life, health, and property of residents from contaminants in the waterways.	Seek funding to dredge portions of the river to increase water flow.	State of Georgia (GA DNR) jurisdiction.

7.4 Mitigation Action and Adaptation Strategy for 2023-2028

E2-a

The Planning Committee developed an updated mitigation action and adaptation strategy for the 2023 HMP. The updated strategy for Unincorporated Effingham County includes 48 action carried over from the 2017 plan, and 37 new actions that were developed over the course of the planning project. The strategies were revised and updated through a multi-faceted approach, including the following:

- Input from stakeholders and the community; more detail about this is available in Chapter 2.
- The goals and objectives endorsed by the Mitigation Planning Committee; more detail about this is available in Chapter 7.
- A hazard and climate change risk and vulnerability assessment; more detail about this is available in Chapter 3.
- The existing mitigation measures and the capacity to mitigate and respond to hazard events; more detail is available in Chapter 6.
- The progress of actions from the 2017 HMP; more detail about this is available in Chapter 7.
- Actions included in related Effingham County plans and reports; more detail about this is available in Chapter 6.

It is important to remember that while developing ways to improve a community's ability to respond to and mitigate hazards is vital to maintaining the safety and protection of the community, it is equally as imperative that continuation and improvement of existing initiatives is ongoing. Chapter 6 includes an extensive list of existing mitigation measures and capabilities in the County and/or Cities. Chapter 6 also includes any updates that are occurring or planned to occur to improve the existing capabilities for the community.

The actions in Chapter 7 include both specific projects and broader results to be achieved by implementing a project. The level of specificity differs based on the input received and the currently available data associated with the mitigation action. In some cases, actions are broader because the specific steps to accomplish the result may not yet be determined. These actions will all be tracked and updated during the quarterly plan maintenance and review, discussed in greater detail in Chapter 8.

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A prioritization designation of high, medium, or low priority was assigned to each mitigation measure. The designation was based on a cumulative rating from the ten categories listed below:

Table 7-4: Prioritization Scoring Factors

Category	Values	Rating Scores
Life Safety	Will this action protect lives and prevent injury?	1 – no/not applicable 2 – somewhat 3 – yes
Property Protection	Will this action eliminate or reduce damage to structures and infrastructure?	1 – no/not applicable 2 – somewhat 3 – yes

Category	Values	Rating Scores
Social	Will the action have a positive impact on the community and vulnerable populations?	1 – no/not applicable 2 – somewhat 3 – yes
Technical	Is the mitigation action technically feasible?	1 – no/not applicable 2 – somewhat 3 – yes
Political	Does the public support the mitigation action?	1 – no/not applicable 2 – somewhat 3 – yes
Legal	Does the County/City(s) have the authority to implement this action?	1 – no/not applicable 2 – somewhat 3 – yes
Economic	Is there funding available?	1 – no/not applicable 2 – somewhat 3 – yes
Environmental	Will the action protect and preserve Effingham County's natural resources?	1 – no/not applicable 2 – somewhat 3 – yes
Administrative	Does the County/City(s) have the capabilities to implement and maintain the action?	1 – no/not applicable 2 – somewhat 3 – yes
Local Champion	Is there a strong advocate for the project?	1 – no/not applicable 2 – somewhat 3 – yes

Each mitigation measure received a score of 1-3 based upon how well it conformed to each goal. A rating of 1 meant that it did not conform to the goal, a rating of 2 meant that it somewhat conformed to the goal, and a rating of 3 meant that it fully aligned with the goal. The total score informed the mitigation strategy, and the prioritization designation was chosen based upon the combined score for each action:

Table 7-5: Prioritization Designation

Prioritization Designation		
Low (L) 10-15	Medium (M) 16-25	High (H) 26-30

A summary of priority actions is available in Table 7-6 and additional detail can by jurisdiction can be found in Section 7.6. Each action has been assigned an identification number (ID).

Community Rating System Categories			
ES	Emergency Services	SP	Structural Projects
PA	Preventative Actions	PI	Public Information
PP	Property Protection	NB	Natural and Beneficial Functions of Floodplains

Each action is prioritized by the relevant jurisdiction(s), and the jurisdiction name is abbreviated in the “Priority” column:

- **E:** Unincorporated Effingham County
- **S:** Springfield
- **R:** Rincon
- **G:** Guyton

Table 7-6: Summary of Hazard Mitigation and Climate Adaptation Actions

ID	Action	Jurisdiction	Associated Hazards	Priority
ES-1	Reduce or strictly enforce hazardous fuel storage.	Effingham County, Guyton, Rincon	Hazardous material spill	E: High R: High G: High
ES-2	Set and enforce standards for hydrants in subdivisions and developments.	Effingham County, Springfield, Guyton, Rincon	Wildfires	E: High S: High R: High G: High
ES-3	Review all hazardous material transportation routes annually (relocate routes if necessary).	Effingham County, Springfield, Guyton, Rincon	Hazardous material spill	E: High S: High R: High G: High
ES-4	Ensure that city/county emergency responders have adequate equipment and training for hazmat incidents.	Effingham County, Springfield, Guyton, Rincon	Hazardous material spill	E: High S: High R: High G: High
ES-5	Seek state and federal grants to update fire equipment, including wildland hand tools,	Effingham County, Springfield, Guyton, Rincon	Wildfires	E: High S: High R: High

ID	Action	Jurisdiction	Associated Hazards	Priority
	lightweight wildland PPE gear, and brush trucks as well as other equipment.			G: Medium
ES-6	Participate with regional HazMat team.	Effingham County, Springfield, Guyton, Rincon	Hazardous material spill	E: High S: High R: High G: Medium
NB-1	Consider the use of buffer zones to protect the integrity of the floodplain.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: Medium R: High G: High
NB-2	Apply minimum buffer standards for river corridors.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: Medium R: High G: High
NB-3	Consider low impact development strategies to support the natural functions of floodplains to protect rivers, streams, and ponds.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: Medium R: Medium G: High
NB-4	Adopt DCA criteria for wetland protection	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: Medium S: Medium R: Medium G: Medium
NB-5	Work with the EPA and GA EPD to classify the Ogeechee River as a Scenic River	Effingham County, Guyton	Inland flooding	E: Medium G: Medium
PA-1	Coordinate Hazmat planning with new turpentine facility and other industrial facilities.	Effingham County, Springfield, Guyton, Rincon	Hazardous material spill	E: High S: High R: High G: High
PA-2	Procure funding for backup systems for continued operations during weather events (generators, bypass pumps, redundancy, etc.).	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-3	Seek training and updates on current policies and procedures regarding safety readiness.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High

ID	Action	Jurisdiction	Associated Hazards	Priority
PA-5	Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-6	Provide basic level of training for all staff to be prepared to share responsibilities in emergency situations.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-7	Maintain a code enforcement division.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-8	Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-9	Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to ensure continued compliance with NFIP requirements.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: High G: High
PA-10	Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS) requirements; Cities: Meet requirements to become a CRS community.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: High G: Medium
PA-11	Draft plan for county-wide drainage network and improvement program	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: High G: High
PA-12	Develop drainage and stormwater management program to increase retention, treatment, and quality of stormwater. Utilize natural solutions such as tree planting and stream restoration.	Effingham County	Multi-hazard	E: High

ID	Action	Jurisdiction	Associated Hazards	Priority
PA-13	Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-14	Conduct periodic exercises to evaluate support function responsibilities.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-15	Adopt a tree preservation ordinance and require tree planting where development occurs.	Effingham County	Multi-hazard	E: High
PA-16	Expand and improve greenspace, set aside greenspace when development occurs.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-17	Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: Medium R: High G: High
PA-18	Improve existing parks.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-19	Develop a critical facility maintenance and protection plan.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-20	Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-21	Adopt uniform addressing ordinance for existing buildings and road names.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-22	Encourage a review of the Comprehensive Plan by county and city officials and promote public	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High

ID	Action	Jurisdiction	Associated Hazards	Priority
	awareness of and connectivity to the hazard mitigation plan.			G: Medium
PA-23	Conduct regular meetings with all water and sewer providers at once (EOM, county and cities). Include discussions about storm response at these meetings.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PA-24	Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: Medium
PA-25	Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: Medium
PA-26	Develop agreements for secondary water sources that may be used during drought conditions.	Effingham County	Drought	E: High
PA-27	Pursue smart growth initiatives.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: High G: Medium
PA-28	Steer growth toward existing infrastructure.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: High G: High
PA-29	Become a Firewise Community.	Guyton, Rincon	Wildfires	R: High G: Medium
PA-30	Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.	Effingham County, Springfield, Guyton, Rincon	Drought	E: High S: Medium R: High G: Medium
PA-31	Identify water resources through mapping the significant natural and environmental resources that exist along the river corridor and that may require additional protections from the impacts of development.	Effingham County	Multi-hazard	E: High

ID	Action	Jurisdiction	Associated Hazards	Priority
PA-32	Acquire easements to allow for necessary maintenance.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: Medium G: Medium
PA-33	Follow state recommendations for drought related actions.	Effingham County, Springfield, Guyton, Rincon	Drought	E: High S: High R: Medium G: High
PA-34	Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: Medium G: Medium
PA-35	Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: Medium G: Medium
PA-36	Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: Medium S: Medium R: Medium G: High
PA-37	Maintain Capital Improvement Plan for water and sewer services	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: Medium G: Medium
PA-38	Explore joint parks project with County and Springfield.	Effingham County, Springfield	Multi-hazard	E: High S: Medium
PA-39	Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: Low G: High
PA-40	Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: Medium S: Medium R: Medium G: Medium
PA-41	Encourage preservation of property through the CUYA program.	Effingham County	Multi-hazard	E: High

ID	Action	Jurisdiction	Associated Hazards	Priority
PA-42	Consider strategies to disincentivize development in special flood hazard areas.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: Medium S: Medium R: Medium G: Medium
PA-43	Implement Emergency Public Warning System.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PP-1	Examine existing codes and ordinances for fire safety: Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	Effingham County, Springfield, Guyton, Rincon	Wildfires	E: High S: High R: High G: High
PP-2	Encourage homeowners to install backflow valves to prevent reverse-flow flood damages.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: Medium G: High
PP-3	Provide assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: Medium G: Medium
PP-4	Encourage subdivision requirements to place all utility lines underground.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PI-1	Expand and increase social media videos and outreach	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
PI-2	Provide hazard information and outreach materials to DFCS office/Health Dept, school registration offices, schools for open house events, real estate agents, chamber of commerce, local churches, childcare centers, and utility notification letters to provide to the community.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High

ID	Action	Jurisdiction	Associated Hazards	Priority
PI-3	Inform residents and businesses about individual and family emergency preparedness.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: Medium
PI-4	Organize an All-hazards community expo.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: Medium G: Medium
PI-5	Organize informational presentations at group or club meetings.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: Medium G: High
PI-6	Increase public awareness of Public Address System and procedures to follow if a hazardous material spill event occurs by posting on social media, the EEMA website, and providing bulletins to local churches and schools.	Effingham County	Hazardous material spill	E: High
PI-7	Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: Medium G: High
PI-8	Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: Medium R: High G: Medium
PI-9	Develop and distribute informational packets about wildland urban interface to increase public awareness of wildland fire interface issues.	Effingham County, Rincon	Wildfires	E: High R: High
PI-10	Educate citizens about GIS hazard mapping online services.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: Medium S: High R: High G: Medium
PI-11	Educate the public on the value of water re-use for irrigation and implement strategies to reuse water county-wide.	Effingham County, Springfield, Guyton, Rincon		E: High S: Medium R: High G: Medium

ID	Action	Jurisdiction	Associated Hazards	Priority
PI-12	Education and outreach for citizens regarding mitigation actions on their private property.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: 28 S: 29 R: 20 G: 19
PI-13	Increase public awareness of the different scenic river classifications and impacts of each category.	Springfield	Multi-hazard	S: Medium
SP-1	Expand roadway system and improve local road network.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
SP-2	Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: High S: High R: High G: High
SP-3	Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas; raise electrical components above base flood elevation.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: Medium R: High G: High
SP-4	Complete lift station pump upgrades.	Effingham County, Springfield, Guyton, Rincon	Inland flooding	E: High S: High R: High G: High
SP-5	Improve infrastructure along routes used for transportation of Hazardous Materials i.e., highways and railroad crossings.	Effingham County, Springfield, Guyton, Rincon	Hazardous material spill	E: High S: High R: High G: High
SP-6	Install back-up generators for pumping and lift stations in sanitary sewer systems along with other measures (e.g., alarms, flood telemetry meters, remote controls, and switchgear upgrades).	Effingham County, Guyton	Multi-hazard	E: High G: Medium
SP-7	Update water and sewer infrastructure to accommodate growth.	Effingham County, Springfield, Guyton, Rincon	Multi-hazard	E: 27 S: 23 R: 29 G: 27
SP-8	Seek grants to move existing utility lines and fiber optic lines underground.	Effingham County, Guyton	Multi-hazard	E: High G: High

7.5 Mitigation Action Spreadsheet Description

Mitigation Action spreadsheets were made for all actions for each jurisdiction. The spreadsheets can be found in Section 7.6 and include the following information:

Additional Context This category contains various information related to the mitigation actions in an effort to capture institutional knowledge that was shared during the planning process. The additional context section could include:

- work that has been previously accomplished and sets the stage for this mitigation action
- next steps for completion
- considerations related to implementation
- examples of types of projects that would move the broader action forward
- a more detailed description of the action

Category Mitigation actions were grouped based on the seven categories of the CRS.

Hazard(s) Addressed Actions may mitigate a single or multiple hazards, which will be indicated for each action. All the hazards discussed in Chapter 3 were addressed when developing the priority list, and there is at least one action associated with each hazard. If the action addresses three or more hazards, the card lists the action as a multi-hazard approach.

Jurisdiction This refers to the jurisdiction to which the mitigation action applies, or who will be carrying out that mitigation action.

Implementation Responsibility Many hazard mitigation actions and climate adaptation measures will require a multi-department or multi-municipality strategy where several city and/or county departments share responsibility. The determination is at the discretion of the governing bodies of the communities in this multi-jurisdictional plan. The designation of implementation responsibility was assigned based on general knowledge of the responsibility of each department. Additionally, some mitigation actions may require cooperation with outside entities, such as State of Georgia agencies or private entities. In those cases, the relevant entities are included in addition to the city or county department. When multiple agencies are listed, the lead agencies will appear in **bold**.

Mitigating natural hazards is not strictly a local issue. For example, the drainage systems that serve the county are often complex systems of storm drains, roadway infrastructure, pump stations, dams, and other facilities owned and utilized by a wide variety of agencies. The planning, construction, operation, and maintenance of these structures is integral to the hazard mitigation efforts of the communities. Effingham County and the Cities of Springfield, Rincon, and Guyton will strive to share and obtain vulnerability data in coordination with state and regional agencies with land ownership in the county. In order to implement many of the mitigation actions identified by the county and cities, parties will need to work together towards a mutually beneficial solution. Regional entities will also be key partners in implementing measures from this plan.

Status The status of an action indicates if departments have already started advancing the general objective. For examples, the design phase of a project may have been completed but has yet to be constructed and therefore would have a status of "Ongoing." Many actions from the 2017 HMP were focused on updates to existing planning mechanisms, and those that have been incorporated are

actions that have been or are being incorporated into other planning mechanisms are marked as “Complete”, or “Ongoing”.

Estimated Year of Completion This category indicates when project will be fully completed, or when an interim step will be completed as indicated in this card. In many cases, several steps or sub-actions will need to be completed to realize the full benefit of the mitigation action. The estimated year of completion is based on the complexity of the action, the overall priority, and the general assumption of funding availability. The estimated year of completion is not meant to prevent a community from actively seeking out and taking advantages of funding opportunities as they arise. Timing may also shift as priorities change with new leadership, emerging concerns, and community input. Updates regarding the timing of priorities will be documented during the annual maintenance and tracking process described in Chapter 8.

Estimated Cost Costs listed in the Mitigation Action Cards are estimated and are based on the cost of similar projects and professional estimates. Actual costs may vary based on the specific site, project, and scope of work. Cost estimates should be verified during the financial planning stage of a project.

Potential Funding Sources The County and Cities’ general funds or Capital Budgets are considered a default potential funding source unless the communities pursue additional funding. The identification of potential funding sources is preliminary and may vary depending on numerous factors. These factors include, but are not limited to, changes in grant eligibility criteria, program objectives, and funding availability. The funding sources identified are not a guarantee that a specific project will be eligible for, or receive, funding. Upon adoption of this plan, the local representatives responsible for implementation should begin to explore potential funding sources in more detail. Potential grants were assigned based on eligibility and competitiveness, but the recommendations may not be comprehensive. Please note that grant eligibility and scoring criteria should also be reviewed prior to applying. Grants may also only be a source of funding for a single stage of a project. In many cases, the actions will require a combination of funding sources. Refer to Chapter 6 for additional information on funding sources.

Action Formation The development of the mitigation actions considered input from a variety of sources. Actions were:



carried forward from the previous plan (2017 HMP)



in alignment with Effingham County Comprehensive Plan



in alignment with Effingham County Parks & Recreation Comprehensive Plan



in alignment with Effingham County Community Wildfire Protection Plan



in alignment with Effingham County EMA Public Awareness, Education, & Preparedness Program



in alignment with Effingham County Emergency Operation Plan



in alignment with Effingham County Transportation Master Plan



in alignment with Effingham County Budget Book for FY 2023



identified during a Mitigation Planning Committee meeting



identified through a survey or public meeting

Action Prioritization A prioritization designation of high, medium, or low priority was assigned to each mitigation measure. The designation was based on a cumulative rating from the ten categories listed below and described in detail in Table 7.5:


- Life Safety
- Property Protection
- Social
- Technical
- Political
- Legal
- Economic
- Environmental
- Administrative
- Local Champion

7.6 Prioritized Action Details

7.6.1 Mitigation Goals, Objectives, and Actions for 2023-2028 for Effingham County, Springfield, Guyton, and Rincon

Community Rating System Categories	
ES	Emergency Services
PA	Preventative Actions
PP	Property Protection
	SP Structural Projects
	PI Public Information
	NB Natural and Beneficial Functions of Floodplains

2023-2028 Revised Goals	1 Minimize loss of life and property from impacts of hazards.		
2023-2028 Objectives	1.1: Retrofit or otherwise protect critical facilities, community assets, and infrastructure.	1.2: Regulate development in known hazard areas.	1.3: Protect natural and environmentally beneficial resources.
Actions	<p>ES-1. Reduce or strictly enforce hazardous fuel storage</p> <p>ES-2. Set and enforce standards for hydrants in subdivisions and developments</p> <p>ES-3. Review all hazardous material transportation routes annually (relocate routes if necessary)</p> <p>ES-7. Retrofit police stations to become hazard resistant.</p> <p>ES-8. As roads are upgraded, widen to minimum standards with at least 50-foot radius cul de sacs or turnarounds</p>	<p>ES-5. Seek state and federal grants to update fire equipment, including wildland hand tools, lightweight wildland PPE gear, and brush trucks as well as other equipment</p> <p>ES-10. Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development</p> <p>NB-1. Consider the use of buffer zones to protect the integrity of the floodplain.</p> <p>PA-4. Review Subdivision and Development ordinances for public safety concerns</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p>	<p>NB-2. Apply minimum buffer standards for river corridors</p> <p>NB-3. Consider low impact development strategies to support the natural functions of floodplains to remediate water pollution in rivers, streams, and ponds.</p> <p>NB-4. Adopt DCA criteria for wetland protection</p> <p>NB-5. Work with the EPA and GA EPD to classify the Ogeechee River as a Scenic River</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p>

<div style="text-align: center;">  <h2 style="margin: 0;">1 Minimize loss of life and property from impacts of hazards.</h2> </div>	
2023-2028 Revised Goals	
2023-2028 Objectives	
1-1: Retrofit or otherwise protect critical facilities, community assets, and infrastructure.	1-2: Regulate development in known hazard areas.
1-3: Protect natural and environmentally beneficial resources.	
<p>ES-9. See that adequate lengths of culverts are installed, and adequate vertical and horizontal clearance is available to allow emergency vehicle access</p> <p>PA-2. Procure funding for backup systems for continued operations during weather events (generators, bypass pumps, redundancy, etc.)</p> <p>PA-9. Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to insure continued compliance with NFIP requirements</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-14. Conduct periodic exercises to evaluate support function responsibilities</p> <p>PA-19. Develop a critical facility maintenance and protection plan</p> <p>PA-25. Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.</p> <p>PA-27. Pursue smart growth initiatives</p> <p>PA-28. Steer growth toward existing infrastructure</p>	<p>PA-17. Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.</p> <p>PA-39. Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.</p> <p>PA-49. Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures</p>
	<p>PA-15. Adopt a tree preservation ordinance and require tree planting where development occurs</p> <p>PA-16. Expand and improve greenspace, set aside greenspace when development occurs</p> <p>PA-18. Improve existing parks</p> <p>PA-24. Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space</p> <p>PA-26. Develop agreements for secondary water sources that may be used during drought conditions</p> <p>PA-30. Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.</p> <p>PA-31. Identify water supply resources through mapping the significant natural and environmental resources that exist along the river corridor and that may require additional protections from the impacts of development.</p> <p>PA-34. Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces</p> <p>PA-35. Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).</p>

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Minimize loss of life and property from impacts of hazards.

2023-2028 Objectives

1-1: Retrofit or otherwise protect critical facilities, community assets, and infrastructure.

1-2: Regulate development in known hazard areas.

1-3: Protect natural and environmentally beneficial resources.

PA-32. Acquire easements to allow for necessary maintenance

PA-37. Develop Capital Improvement Plan for water and sewer services

PA-44. Implement an inspection, maintenance, and enforcement program to help ensure continued structural integrity of dams and levees

PA-47. Encourage protection of critical facilities and infrastructure from lighting damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment

PA-48. Install and maintain surge protection on critical electronic equipment

PA-50. Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface

PP-1. Examine existing codes and ordinances for fire safety: Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots

PP-4. Encourage subdivision requirements to place all utility lines underground

SP-1. Expand roadway system and improve local road network

SP-2. Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system

PA-38. Explore joint parks projects with County and Springfield

PA-40. Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.

PA-45. Seek funding to remove vegetative obstructions from the rivers within Effingham County

PA-46. Seek funding to dredge portions of the river to increase water flow.

PI-11. Educate the public on the value of water re-use for irrigation and implement strategies to reuse water county-wide.

<p>2023-2028 Revised Goals</p>	<p>1 Minimize loss of life and property from impacts of hazards.</p>	
<p>2023-2028 Objectives</p>	<p>1.1: Retrofit or otherwise protect critical facilities, community assets, and infrastructure.</p>	<p>1.2: Regulate development in known hazard areas.</p>
	<p>SP-3. Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas: raise electrical components above base flood elevation</p> <p>SP-4. Complete lift station pump upgrades</p> <p>SP-5. Improve infrastructure along routes used for transportation of Hazardous Materials i.e. Highways and railroad crossings.</p> <p>SP-6. Install back-up generators for pumping and lift stations in sanitary sewer systems along with other measures (e.g., alarms, flood telemetry meters, remote controls, and switchgear upgrades).</p> <p>SP-7. Update water and sewer infrastructure to accommodate growth</p> <p>SP-8. Seek grants to move existing utility lines and fiber optic lines underground</p>	<p>1.3: Protect natural and environmentally beneficial resources.</p>

<p>2023-2028 Revised Goals</p>	<p>2 Improve education and outreach efforts to protect community assets and critical facilities from hazards.</p>	
<p>2023-2028 Objectives</p>	<p>2.1: Expand outreach methods to reach more audiences.</p>	<p>2.2: Increase hazard mitigation training, knowledge, and resources for County and City staff.</p>
<p>Actions</p>	<p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-13. Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting</p>	<p>2.3 Encourage preparedness for hazard mitigation at the individual level.</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-41. Encourage preservation of property through the CUVA program</p>

2023-2028 Revised Goals	<div style="text-align: center;">  <h2 style="margin: 0;">2 Improve education and outreach efforts to protect community assets and critical facilities from hazards.</h2> </div>	
2023-2028 Objectives	2.1: Expand outreach methods to reach more audiences.	2.2: Increase hazard mitigation training, knowledge, and resources for County and City staff.
	<p>PA-22. Encourage a review of the Comprehensive Plan by county and city officials and promote public awareness of and connectivity to the hazard mitigation plan.</p>	<p>2.3 Encourage preparedness for hazard mitigation at the individual level.</p>
<p>PI-1. Expand and increase social media videos and outreach</p>	<p>PA-3. Seek training and updates on current policies and procedures regarding safety readiness.</p>	<p>PP-2. Encourage homeowners to install backflow valves to prevent reverse-flow flood damages</p>
<p>PI-2. Provide hazard information and outreach materials to DFCS office/Health Dept, school registration offices, schools for open house events, real estate agents, chamber of commerce, local churches, child care centers, and utility notification letters to provide to the community.</p>	<p>PA-6. Provide basic level of training for all staff to be better prepared to share responsibilities in emergency situations.</p>	<p>PI-3. Inform residents and businesses about individual and family emergency preparedness</p>
<p>PI-4. Organize an All-hazards community expo</p>	<p>PA-7. Create a code enforcement division</p>	<p>PI-12. Education and outreach for citizens regarding mitigation actions on their private property</p>
<p>PI-5. Organize informational presentations at group or club meetings.</p>	<p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p>	
<p>PI-6. Increase public awareness of Public Address System and procedures to follow if a hazardous material spill event occurs by posting on social media, the EEMA website, and providing bulletins to local churches and schools.</p>	<p>PA-52. Seek funding to provide radiation detection devices to emergency responders</p>	
<p>PI-7. Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone</p>	<p>PP-3. Provide technical assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas</p>	
<p>PI-8. Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools</p>		
<p>PI-9. Develop and distribute informational packets about wetland urban interface to increase public awareness of wetland fire interface issues.</p>		
<p>PI-10. Educate citizens about GIS hazard mapping online services</p>		

<p>2023-2028 Revised Goals</p>	<p>2 Improve education and outreach efforts to protect community assets and critical facilities from hazards.</p>	
<p>2023-2028 Objectives</p>	<p>2.1: Expand outreach methods to reach more audiences.</p> <p>PI-13. Increase public awareness of the different scenic river classifications and impacts of each category</p> <p>PI-14. Conduct outreach activities to increase public awareness of hail dangers, including: Mailing safety brochures with monthly water bills</p> <p>PI-15. Publicize a user-friendly, publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps</p>	<p>2.2: Increase hazard mitigation training, knowledge, and resources for County and City staff.</p> <p>2.3 Encourage preparedness for hazard mitigation at the individual level.</p>

<p>2023-2028 Revised Goals</p>	<p>3 Increase coordination and capabilities to plan and implement projects to minimize loss from hazards.</p>	
<p>2023-2028 Objectives</p>	<p>3.1: Promote inclusion of climate change data and resiliency practices in planning and design.</p>	<p>3.2: Utilize technology to improve capabilities.</p>
<p>Actions</p>	<p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-12. Develop drainage and stormwater management program to increase retention, treatment, and quality of stormwater. Utilize natural solutions such as tree planting and stream restoration.</p> <p>PA-17. Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.</p> <p>PA-29. PA-29. Become a Firewise Community.</p>	<p>3.3 Increase interdepartmental coordination.</p> <p>PA-1. Coordinate Hazmat planning with new turpentine facility and other industrial facilities.</p> <p>PA-5. Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-11. Draft plan for county-wide drainage network and improvement program</p>

<p>2023-2028 Revised Goals</p>	<p>3 Increase coordination and capabilities to plan and implement projects to minimize loss from hazards.</p>	
<p>2023-2028 Objectives</p>	<p>3.1: Promote inclusion of climate change data and resiliency practices in planning and design.</p>	<p>3.2: Utilize technology to improve capabilities.</p>
<p>PA-51. Develop a drought emergency plan</p>		<p>3.3 Increase interdepartmental coordination.</p> <p>PA-20. Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners</p> <p>PA-21. Adopt uniform addressing ordinance for existing buildings and road names.</p> <p>PA-23. Conduct regular meetings with all water and sewer providers at once (EOM, county, and cities). Include discussions about storm response at these meetings.</p> <p>PA-43. Develop a dam failure study and emergency action plan</p>

<p>2023-2028 Revised Goals</p>	<p>4 Improve data collection, dissemination, and redundancy to reduce impacts from hazards.</p>	
<p>2023-2028 Objectives</p>	<p>4.1: Increase redundancy of critical systems and services.</p>	<p>4.2: Encourage data and resource sharing across the county and adjacent municipalities.</p>
<p>Actions</p>	<p>ES-11. Install hydrants where county waterlines cross roads</p> <p>PA-7. Create a code enforcement division</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.</p>	<p>PA-8. Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.</p> <p>PA-10. Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS)</p> <p>PA-33. Follow state recommendations for drought related actions</p>

7.6-2 Effingham County

C4-b

C5-b

E2-c

E2-b

C5-b

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
1.1	N/A	ES-1	Emergency Services	Reduce or strictly enforce hazardous fuel storage.	High	Hazardous material spill	Effingham County, Guyton, Rincon	Code Enforcement		New		2025	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
1.1		ES-2	Emergency Services	Set and enforce standards for hydrants in subdivisions and developments.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Fire Chief; Development Services		Complete		2020	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
1.1	6.1.6	ES-3	Emergency Services	Review all hazardous material transportation routes annually (relocate routes if necessary).	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing		2025	Staff Time	General Funds	2017 HMP
2.2	6.1.4	ES-4	Emergency Services	Ensure that city/county emergency responders have adequate equipment and training for hazmat incidents.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing		2023	Staff Time	General Funds	2017 HMP
1.2	3.1.5; 3.1.6	ES-5	Emergency Services	Seek state and federal grants to update fire equipment, including wildland hand tools, lightweight wildland PPE gear, and brush trucks as well as other equipment.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing; Ongoing	Ongoing		2025	\$275,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.2	6.1.1	ES-6	Emergency Services	Participate with regional HazMat team.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing		2025	Staff Time	General Funds	2017 HMP
1.1	1.2.1; 2.2.1	ES-7	Emergency Services	Retrofit police stations to become hazard resistant.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New; New	Complete		2023	\$300,000	Grant funds, Pre-Disaster Mitigation Funds	2017 HMP

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
1.1	3.1.1	ES-8	Emergency Services	As roads are upgraded, widen to minimum standards with at least 50-foot radius cut de sacs or turnarounds.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	larger radius requirement	2023	\$100,000	General Funds; Impact Fees	2017 HMP
1.1	3.1.2	ES-9	Emergency Services	See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	completed for everything going forward	2023	\$50,000	General Funds; Impact Fees	2017 HMP
1.2	3.1.4	ES-10	Emergency Services	Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	There are some existing areas that have limited access	2023	Staff Time	General Funds	2017 HMP
1.2	5.2.1	NB-1	Natural and Beneficial Functions of Floodplains	Consider the use of buffer zones to protect the integrity of the floodplain.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing		2025	Staff Time	General Funds	2017 HMP; Effingham County Parks and Recreation Comprehensive Plan
1.3	N/A	NB-2	Natural and Beneficial Functions of Floodplains	Apply minimum buffer standards for river corridors.	Medium	Inland flooding	Effingham County, Guyton, Rincon	GIS		Ongoing		2025	Staff Time	General Funds	Effingham Comp Plan; 2017 HMP
1.3	6.4.1	NB-3	Natural and Beneficial Functions of Floodplains	Consider low impact development strategies to support the natural functions of floodplains to protect rivers, streams, and ponds.	Medium	Inland Flooding	Effingham County, Springfield, Guyton, Rincon	EOM	New	Ongoing		2026	Staff Time	General Funds	2017 HMP
1.3	5.2.3	NB-4	Natural and Beneficial Functions of Floodplains	Adopt DCA criteria for wetland protection.	Medium	Inland flooding	County, City Administration	Planning and Zoning	New	New		2023	Staff Time	General Funds	Effingham Comp Plan

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year Completion	Estimated Cost	Potential Funding Source	Source
1.3	6.3.5	NB-5	Natural and Beneficial Functions of Floodplains	Work with the EPA and GA EPD to classify the Ogeechee River as a Scenic River.	Medium	Multi-hazard	Guyton, Effingham County	Development Services	Deferred	Deferred		Not applicable	Staff Time	General Funds	2017 HMP
3.3	6.1.8	PA-1	Preventative Actions	Coordinate Hazmat planning with new turpentine facility and other industrial facilities.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA, Fire Department	New	Ongoing		2023	Staff Time	General Funds	2017 HMP
1.1		PA-2	Preventative Actions	Procure funding for backup systems for continued operations during weather events (generators, bypass pumps, redundancy, etc.).	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA; EOM; Finance	Ongoing	Ongoing		2026	\$300,000	General Funds	Effingham County Budget Book for FY 2023; 2017 HMP
2.2	6.2.2	PA-3	Preventative Actions	Seek training and updates on current policies and procedures regarding safety readiness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County; Human Resources	Ongoing	Ongoing		2023	Staff Time	General Funds	2017 HMP
3.3	N/A	PA-5	Preventative Actions	Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA	New	New		2024	Staff Time	General Funds	HMP Planning Committee
2.2	6.1.2	PA-6	Preventative Actions	Provide basic level of training for all staff to be prepared to share responsibilities in emergency situations.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	Ongoing	Ongoing		2025	Staff Time	General Funds	2017 HMP; HMP Planning Committee; Effingham County Community Wildfire Protection Plan
2.2; 4.1	N/A	PA-7	Preventative Actions	Maintain a code enforcement division.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	New	Ongoing		2023	Staff Time	General Funds	Effingham Comp Plan

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year Completion	Estimated Cost	Potential Funding Source	Source
4.2	3.1.9	PA-8	Preventative Actions	Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	GIS Department, Tax Assessors	New	Ongoing		2024	Staff Time	General Funds	2017 HMP
1.1	5.1.3	PA-9	Preventative Actions	Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to insure continued compliance with NFIP requirements.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Planning Department, Guyton: Town Manager, Springfield: Erin Phillips as floodplain administrator	Ongoing	Ongoing		2023	Staff Time	General Funds	2017 HMP
All	N/A	PA-10	Preventative Actions	Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS) requirements; Cities: Meet requirements to become a CRS community.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Development Services (Teresa Concannon). Cities: Floodplain Administrators	New	New		2024	Staff Time	General Funds	HMP Planning Committee
3.3	5.1.1	PA-11	Preventative Actions	Draft plan for county-wide drainage network and improvement program.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Stormwater Master Plan underway (Pond Engineering coordinated through Angela Stanley)	Deferred	Ongoing		2024	\$100,000	Grant Funds	2017 HMP; Effingham Comp Plan; HMP Planning Committee

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
3.1	1.2.4; 5.1.4; 5.1.5; 5.1.10; 5.2.4	PA-12	Preventative Actions	Develop drainage and stormwater management program to increase retention, treatment, and quality of stormwater. Utilize natural solutions such as tree planting and stream restoration.	High	Multi-hazard	Effingham County	All departments. Guyton: admin + outside consultant	Ongoing; New; New; New; New	Ongoing		2024	\$100,000	General Funds, Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP; Effingham County Comp Plan;
2.1	4.1.3	PA-13	Preventative Actions	Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: Emergency management	New	Ongoing		2024	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-14	Preventative Actions	Conduct periodic exercises to evaluate support function responsibilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA		New		2024	Staff Time	General Funds	Effingham County Emergency Operations Plan
1.3	N/A	PA-15	Preventative Actions	Adopt a tree preservation ordinance and require tree planting where development occurs.	High	Multi-hazard	Effingham County	Development Services		New		2026	Staff Time	General Funds	Effingham Comp Plan
1.3	N/A	PA-16	Preventative Actions	Expand and improve greenspace, set aside greenspace when development occurs.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		Ongoing		2026	Staff Time	General Funds	Effingham Comp Plan; Parks and Rec Comprehensive Plan
1.2; 3.1	N/A	PA-17	Preventative Actions	Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.	High	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning		Ongoing		2026	Staff Time	General Funds	Effingham Comp Plan
1.3	N/A	PA-18	Preventative Actions	Improve existing parks.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Parks and Recreation Department		New		2026	Staff Time	General Funds; SPLOST	Effingham County Budget Book for FY 2023; Effingham Parks & Rec

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1.1	N/A	PA-19	Preventative Actions	Develop a critical facility maintenance and protection plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Facilities Maintenance		New		2026	Staff Time	General Funds	Effingham Comp Plan
3.3	N/A	PA-20	Preventative Actions	Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments	New	New		2025	Staff Time	General Funds	Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
3.3	3.1.8	PA-21	Preventative Actions	Adopt uniform addressing ordinance for existing buildings and road names.	High	Multi-hazard	Effingham County, Springfield (unsure about other cities)	County, GIS Manager; Springfield: Erin Phillips	Deferred	Ongoing		2023	Staff Time	General Funds	2017 HMP; HMP Planning Committee
2.1	1.1.3	PA-22	Preventative Actions	Encourage a review of the Comprehensive Plan by county and city officials and promote public awareness of and connectivity to the hazard mitigation plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County, development services; Cities: community development, planning	New	Ongoing		2023	Staff Time	General Funds	2017 HMP
3.3	N/A	PA-23	Preventative Actions	Conduct regular meetings with all water and sewer providers at once (EOM, county and cities). Include discussions about storm response at these meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EOM; Public Works	New	New		2024	Staff Time	General Funds	HMP Planning Committee
1.3	N/A	PA-24	Preventative Actions	Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	Ongoing	Ongoing		2026	Staff Time	General Funds	Effingham Comp Plan
1.1	1.2.3	PA-25	Preventative Actions	Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County, Development Services; Cities: equivalent to Development Services	New	Ongoing		2024	Staff Time	General Funds	2017 HMP

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1.3	3.5.3	PA-26	Preventative Actions	Develop agreements for secondary water sources that may be used during drought conditions.	High	Drought	Effingham County	General government, engineering?, water/wastewater after the resource is acquired	New	Ongoing		2025	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-27	Preventative Actions	Pursue smart growth initiatives.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	New	New		2025	Staff Time	General Funds	Effingham Comp Plan
1.1	N/A	PA-28	Preventative Actions	Steer growth toward existing infrastructure.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New		2025	Staff Time	General Funds	Effingham Comp Plan
1.3	3.5.2	PA-30	Preventative Actions	Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.	High	Drought	Effingham County, Springfield, Guyton, Rincon	State (EPD)	New	Ongoing		2026	Staff Time	General Funds	2017 HMP
1.3	5.2.2	PA-31	Preventative Actions	Identify water resources through mapping the significant natural and environmental resources that exist along the river corridor and that may require additional protections from the impacts of development.	Medium	Multi-hazard	Effingham County	Engineering	New	Ongoing		2023	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-32	Preventative Actions	Acquire easements to allow for necessary maintenance.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Engineering		New		2026	Staff Time	General Funds	HMP Planning Committee
4.2	3.4.2	PA-33	Preventative Actions	Follow state recommendations for drought related actions.	Medium	Drought	Effingham County, Springfield, Guyton, Rincon	Code Enforcement	New	Ongoing		2023	Staff Time	General Funds	2017 HMP

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1.3	N/A	PA-34	Preventative Actions	Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Parks and Recreation Department: County Administration		Ongoing		2027	\$250,000	Grant Funds; General Funds	Effingham Comp Plan; Effingham County Parks and Recreation Comp Plan; Effingham County Budget Book for FY 2023
1.3	N/A	PA-35	Preventative Actions	Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Public Information Officer		New		2025	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
4.1	3.5.5	PA-36	Preventative Actions	Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	Finance	New	New		2026	\$50,000	Grant Funds, Pre-Disaster Mitigation Funds; General Funds	Effingham Comp Plan
1.1	N/A	PA-37	Preventative Actions	Maintain Capital Improvement Plan for water and sewer services.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	EOM		New		2025	Staff Time	General Funds	Effingham Comp Plan
1.3	N/A	PA-38	Preventative Actions	Explore joint parks projects with County and Springfield.	Medium	Multi-hazard	Effingham County; Springfield	City Administration; County Administration; Parks and Recreation Department		Ongoing		2026	\$250,000	General Funds	Effingham County Parks and Recreation Comprehensive Plan
1.2	N/A	PA-39	Preventative Actions	Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New		2026	Staff Time	General Funds	Effingham Comp Plan

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1.1	N/A	PA-40	Preventative Actions	Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.	Medium	Multi-hazard	Efingham County, Springfield, Guyton, Rincon	Development Services		New		2026	Staff Time	General Funds	Efingham Comp Plan
1.3	N/A	PA-41	Preventative Actions	Encourage preservation of property through the CUVA program	Medium	Multi-hazard	Efingham County	Tax Assessor's Office		New		2027	Staff Time	General Funds	Efingham County Parks and Recreation Comprehensive Plan
2.3	5.2.11	PA-42	Preventative Actions	Encourage all new development to elevate above the flood plain	Medium	Multi-hazard	Efingham County, Springfield, Guyton, Rincon	Development Services	New	Ongoing		2027	Staff Time	General Funds	HMP Planning Committee
3.2	1.1.1; 2.1.1; 6.1.7	PA-43	Preventative Actions	Implement Emergency Public Warning System.	High	Multi-hazard	Efingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred; Ongoing; Deferred	Ongoing	Deferred	2023	\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP

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1.1	1.3.1	PA-48	Preventative Actions	Encourage protection of critical facilities and infrastructure from lightning damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	increased grounding at lower sites, equipment all has lightning protection installed and surge protection (county side)	2023	Staff time, varies	Grant funds, Pre- Disaster Mitigation Funds	2017 HMP
1.2	2.1.3	PA-60	Preventative Actions	Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures.	High	Tornado	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	this is required in mobile home ordinances (since 3 years ago)	2023	Staff Time	General Funds	2017 HMP
1.1	3.1.11	PA-51	Preventative Actions	Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface.	Medium	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	setbacks, buffers etc.	2023	Staff Time	General Funds	2017 HMP
1.1	N/A	PP-1	Property Protection	Examine existing codes and ordinances for fire safety: Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, property stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing		2025	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan

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2.3	5.1.6	PP-2	Property Protection	Encourage homeowners to install backflow valves to prevent reverse-flow flood damages.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Ongoing		2027	Staff Time	General Funds	2017 HMP
2.2	5.2.11	PP-3	Property Protection	Provide assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	New	Ongoing		2025	Staff Time	General Funds	2017 HMP
1.1	1.2.5; 4.1.1	PP-4	Property Protection	Encourage subdivision requirements to place all utility lines underground.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	Ongoing; Ongoing	Ongoing		2026	Staff Time	General Funds	2017 HMP
2.1	N/A	PI-1	Public Information and Education	Expand and increase social media videos and outreach.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County, EMA + public information coordinator		New		2023	Staff Time	General Funds	HMP Planning Committee
2.1	3.3.6	PI-2	Public Information and Education	Provide hazard information and outreach materials to DFCS office/Health Dept, school registration offices, events, real estate agents, chamber of commerce, local churches, child care centers, and utility notification letters to provide to the community.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New		2023	Staff Time	General Funds	HMP Planning Committee; Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
2.3	2.1.2; 2.1.4	PI-3	Public Information and Education	Inform residents and businesses about individual and family emergency preparedness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County, Emergency Management	Deferred; New	Ongoing		2023	Staff Time	General Funds	2017 HMP; Effingham County EMA Public Awareness, Education, and Preparedness Program

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2.1	1.1.2, 2.1.5, 4.1.2	PI-4	Public Information and Education	Organize an All-hazards community expo.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	EMA, Development Services, Emergency Services, Public Information	New; New; New	New		2024	Staff Time, \$6,000	General Funds, FEMA Grant Funds	HMP Planning Committee
2.1	N/A	PI-5	Public Information and Education	Organize informational presentations at group or club meetings.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New		2023	Staff Time	General Funds	HMP Planning Committee
2.1	6.1.3; 6.1.7	PI-6	Public Information and Education	Increase public awareness of Public Address Notification System and procedures to follow if a hazardous condition occurs by posting on social media, and the EEMA website.	High	Multi- Hazard	Effingham County	County, Emergency Management	Ongoing; Deferred	Ongoing		2023	Staff Time, \$5,000	General Funds	2017 HMP
2.1	5.2.7	PI-7	Public Information and Education	Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning and Zoning	New	New		2024	Staff Time	General Funds	Effingham Comp Plan
2.1	3.5.4	PI-8	Public Information and Education	Increase public awareness of water conservation issues by publishing articles and on social media.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	Deferred	Ongoing		2024	Staff Time	General Funds	2017 HMP
2.1	3.3.1, 3.3.2, 3.3.5	PI-9	Public Information and Education	Develop and distribute information about wildland urban interface to increase public awareness of wildland fire interface issues via social media.	High	Wildfires	Effingham County, Rincon	County, Fire Department; Rincon: Fire Department; GA Forestry Commission	Ongoing; Ongoing; New	Ongoing		2023	Staff Time	General Funds	2017 HMP
2.1	5.2.6	PI-10	Public Information and Education	Educate citizens about GIS hazard mapping online services.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County GIS Director	Ongoing	Ongoing		2024	Staff Time	General Funds	2017 HMP

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1.3	3.5.1	PI-11	Public Information and Education	Educate the public on the value of water, re-use for irrigation and implement strategies to reuse water county-wide.	Medium		Effingham County, Springfield, Rincon	Public Information Officer	New	Ongoing		2024	Staff Time	General Funds	2017 HMP
2.3	N/A	PI-12	Public Information and Education	Education and outreach for citizens regarding mitigation actions on their private property.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	All: EMA, County: Development Services, Cities: equivalent to Development Services	New	New		2025	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
2.1	1.4.1	PI-14	Public Information and Education	Conduct outreach activities to increase public awareness of hail dangers via social media.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Complete	They do social media posts instead of mailings now; EMA Facebook pages puts this information out	2023	Staff Time	General Funds	2017 HMP
2.1	5.2.8	PI-15	Public Information and Education	Publicize a user-friendly, publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County GIS Director	New	Complete	DNR hosts a map that can be publicized on County website; digital and hard copies available in office.	2023	Staff Time	General Funds	2017 HMP
1.1	N/A	SP-1	Structural Projects	Expand roadway system and improve local road network.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	City Administration; County Administration	New	New		2026	\$100 million	TSPLOST; SPLOST; Grant Funds	Master Transportation Plan

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1.1	5.2.5	SP-2	Structural Projects	Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County Administration	Deferred	Ongoing		2026	\$10 million	SPLOST, One Georgia Authority	2017 HMP; Effingham County Budget Book for FY 2023
1.1	5.1.8; 5.2.10	SP-3	Structural Projects	Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas; raise electrical components above base flood elevation.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM	Deferred; New	Ongoing		2025	\$500,000	General Funds, Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
1.1	N/A	SP-4	Structural Projects	Complete lift station pump upgrades.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM		New		2025	\$500,000	General Funds, Grant Funds, Pre-Disaster Mitigation Funds	Effingham Comp Plan; Effingham County Budget Book for FY 2023
1.1	6.1.1	SP-5	Structural Projects	Improve infrastructure along routes used for transportation of Hazardous Materials i.e. Highways and railroad crossings.	High	Hazardous material spill	Effingham County, Guyton, Rincon	County Administration	Ongoing	Ongoing		2027	\$1 million	TSPLOST; SPLOST; Grant Funds	2017 HMP
1.1	5.1.7, 5.1.9	SP-6	Structural Projects	Install back-up generators for pumping and lift stations in sanitary sewer systems along with other measures (e.g. alarms, flood telemetry meters, remote controls, and switchgear upgrades).	High	Multi-hazard	Effingham County, Guyton	EMA	Ongoing; New	Ongoing		2027	\$1 million	Grant Funds, Pre-Disaster Mitigation Funds; General Funds	2017 HMP; Effingham County Budget Book for FY 2023
1.1	N/A	SP-7	Structural Projects	Update water and sewer infrastructure to accommodate growth.	High		Effingham County, Springfield, Guyton, Rincon	County Administration		Ongoing		2027	\$10 Million	ARPA, Grant Funds, General Funds	Effingham Comp Plan; Effingham County Budget Book for FY 2023

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1.1	1.2.2	SP-8	Structural Projects	Seek grants to move existing utility lines and fiber optic lines underground.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County, Grant Writer (Finance Department)	Deferred	Ongoing		2027	\$500,000	General Funds, FEMA funds, grants	2017 HMP

7.6-3 Springfield

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1.1	N/A	ES-1	Emergency Services	Reduce or strictly enforce hazardous fuel storage.	High	Hazardous material spill	Effingham County, Guyton, Rincon	Code Enforcement	NA	New	Monitored by Code Enforcement	Ongoing	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
1.1		ES-2	Emergency Services	Set and enforce standards for hydrants in subdivisions and developments.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	NA	Complete	Required by Ordinance, reviewed for all submissions	Ongoing	Staff Time	Staff Time	Effingham County Community Wildfire Protection Plan
1.1	6.1.6	ES-3	Emergency Services	Review all hazardous material transportation routes annually (relocate routes if necessary).	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	will assist as needed	Repeated Yearly	Staff Time	General Funds	2017 HMP
2.2	6.1.4	ES-4	Emergency Services	Ensure that city/county emergency responders have adequate equipment and training for hazmat incidents.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	will assist as needed	Ongoing	Staff Time	General Funds	2017 HMP
1.2	3.1.5; 3.1.6	ES-5	Emergency Services	Seek state and federal grants to update fire equipment, including wildland hand tools, lightweight wildland PPE gear, and brush trucks as well as other equipment.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing; Ongoing	Ongoing	will assist as needed	Ongoing	\$275,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.2	6.1.1	ES-6	Emergency Services	Participate with regional HazMat team.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	will participate as requested	Ongoing	Staff Time	General Funds	2017 HMP
1.1	1.2.1; 2.2.1	ES-7	Emergency Services	Retrofit police stations to become hazard resistant.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New; New	Complete	complete	2023	\$300,000	Grant funds, Pre-Disaster Mitigation Funds	2017 HMP

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1.1	3.1.1	ES-8	Emergency Services	As roads are upgraded, widen to minimum standards with at least 50-foot radius cul de sacs or turnarounds.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	Will create larger radios where ROW allows as needed	2023	\$100,000	General Funds; Impact Fees	2017 HMP
1.1	3.1.2	ES-9	Emergency Services	See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	completed for everything going forward	2023	\$50,000	General Funds; Impact Fees	2017 HMP
1.2	3.1.4	ES-10	Emergency Services	Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	There are some existing areas that have limited access	2023	Staff Time	General Funds	2017 HMP
1.2	5.2.1	NB-1	Natural and Beneficial Functions of Floodplains	Consider the use of buffer zones to protect the integrity of the floodplain.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Enforcing all floodplain buffers	Ongoing	Staff Time	General Funds	2017 HMP, Effingham County Parks and Recreation Comprehensive Plan
1.3	6.4.1	NB-3	Natural and Beneficial Functions of Floodplains	Consider low impact development strategies to support the natural functions of floodplains to protect rivers, streams, and ponds.	Medium		Effingham County, Springfield, Guyton, Rincon	EOM	New	Ongoing	New ordinances promote density and require green space.	Ongoing	Staff Time	General Funds	2017 HMP
1.3	5.2.3	NB-4	Natural and Beneficial Functions of Floodplains	Adopt DCA criteria for wetland protection.	Medium	Inland flooding	County, City Administration	Planning and Zoning	New	New	Will adopt new codes as needed	Ongoing	Staff Time	General Funds	Effingham Comp Plan
3.3	6.1.8	PA-01	Preventative Actions	Coordinate Hazmat planning with new turpentine facility and other industrial facilities.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA, Fire Department	New	Ongoing	will assist as needed	Ongoing	Staff Time	General Funds	2017 HMP
1.1		PA-02	Preventative Actions	Procure funding for backup systems for continued operations during weather	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Public Works/ Water & Sewer	NA	Ongoing	backups on hand, extra requested for events	Ongoing	\$50,000	General Funds	Effingham County Budget Book for FY 2023; 2017 HMP

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				events (generators, bypass pumps, redundancy, etc.).											
2.2	6.2.2	PA-03	Preventative Actions	Seek training and updates on current policies and procedures regarding safety readiness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Human Resources	Ongoing	Ongoing	addressed during staff meetings	Ongoing	Staff Time	General Funds	2017 HMP
3.3	N/A	PA-05	Preventative Actions	Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA	NA	New	will assist and attend as needed	NA	NA	NA	HMP Planning Committee
2.2	6.1.2	PA-06	Preventative Actions	Provide basic level of training for all staff to be prepared to share responsibilities in emergency situations.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	Ongoing	Ongoing	Will incorporate yearly review and discuss before weather events	Ongoing	Staff Time	General Funds	2017 HMP, HMP Planning Committee; Effingham County Community Wildfire Protection Plan
2.2; 4.1	N/A	PA-07	Preventative Actions	Maintain a code enforcement division.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	New	Ongoing	Complete	NA	Staff Time	General Funds	Effingham Comp Plan
4.2	3.1.9	PA-08	Preventative Actions	Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	GIS Department, Tax Assessors	New	Ongoing	We have a system compatible with County system	Ongoing	Staff Time	General Funds	2017 HMP

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
1.1	5.1.3	PA-09	Preventative Actions	Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to insure continued compliance with NFIP requirements.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Planning Department. Guyton: Town Manager. Springfield: Erin Phillips as floodplain administrator	Ongoing	Ongoing	will continue	Ongoing	Staff Time	General Funds	2017 HMP
All	N/A	PA-10	Preventative Actions	Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS) requirements; Cities: Meet requirements to become a CRS community.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Development Services (Teresa Concannon). Cities: Floodplain Administrators	NA	New	will begin researching requirements	2025	Staff Time	General Funds	HMP Planning Committee
3.3	5.1.1	PA-11	Preventative Actions	Draft plan for county-wide drainage network and improvement program.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Stormwater Master Plan underway (Pond Engineering coordinated through Angela Stanley)	Deferred	Ongoing	will assist as needed	Ongoing	\$2,000	SPLOST, General Funds	2017 HMP; Effingham Comp Plan; HMP Planning Committee
2.1	4.1.3	PA-13	Preventative Actions	Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: Emergency management	New	Ongoing	will assist EMA as needed	Ongoing	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-14	Preventative Actions	Conduct periodic exercises to evaluate support function responsibilities.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	EMA	NA	New	will assist EMA as needed	Ongoing	Staff Time	General Fund	Effingham County Emergency Operations Plan
1.3	N/A	PA-16	Preventative Actions	Expand and improve greenspace, set aside greenspace when development occurs.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning	NA	Ongoing	Springfield Dev Regs Require Greenspace, currently renovating multiple city owned spaces	2025	\$1,000,000	SPLOST/ Grants/General Fund	Springfield

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1.2; 3.1	N/A	PA-17	Preventative Actions	Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning	NA	Ongoing	Enforced by Springfield Dev Regs. Changes made as needed	Ongoing	Staff Time	General Fund	Effingham Comp Plan
1.3	N/A	PA-18	Preventative Actions	Improve existing parks.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Parks and Recreation Department	NA	New	Ulmer Park Reno underway. New Parks in planning	2024	\$1,000,000	Splost	Springfield
1.1	N/A	PA-19	Preventative Actions	Develop a critical facility maintenance and protection plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Facilities Maintenance	NA	New	will assist as needed	Ongoing	Staff Time	General Fund	Effingham Comp Plan
3.3	N/A	PA-20	Preventative Actions	Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments	NA	New	will assist as needed	Ongoing	Staff Time	General Fund	Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
3.3	3.1.8	PA-21	Preventative Actions	Adopt uniform addressing ordinance for existing buildings and road names.	High	Multi-hazard	Effingham County, Springfield (unsure about other cities)	County: GIS Manager; Springfield: Erin Phillips	Deferred	Ongoing	Planning ordinance to codify current method	2024	Staff Time	General Funds	2017 HMP; HMP Planning Committee
2.1	1.1.3	PA-22	Preventative Actions	Encourage a review of the Comprehensive Plan by county and city officials and promote public awareness of and connectivity to the hazard mitigation plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: development services; Cities: community development, planning	New	Ongoing	will assist as needed	Ongoing	Staff Time	General Fund	2017 HMP
3.3	N/A	PA-23	Preventative Actions	Conduct regular meetings with all water and sewer providers at once (EOM, county and cities). Include discussions about storm response at these meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EOM; Public Works	NA	New	will assist as needed	Ongoing	Staff Time	General Fund	HMP Planning Committee

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1.3	N/A	PA-24	Preventative Actions	Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Zoning Office	NA	Complete	R-4 Ordinance in Place.	Complete	Staff Time	General Fund	Springfield
1.1	1.2.3	PA-25	Preventative Actions	Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Development Services; Cities: equivalent to Development Services	New	Ongoing	will research feasibility. Foreseeable issues.	Ongoing	Staff Time	General Funds	Springfield
1.1	N/A	PA-27	Preventative Actions	Pursue smart growth initiatives.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	NA	New	will research way to incorporate	Ongoing	Staff Time	General Funds	Effingham Comp Plan
1.1	N/A	PA-28	Preventative Actions	Steer growth toward existing infrastructure.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	NA	New	Ordinances do this currently.	Ongoing	Staff Time	General Funds	Effingham Comp Plan
1.3	3.5.2	PA-30	Preventative Actions	Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.	High	Drought	Effingham County, Springfield, Guyton, Rincon	State (EPD)	New	Ongoing	Could add info to Website	Ongoing	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-32	Preventative Actions	Acquire easements to allow for necessary maintenance.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon		NA	New	will research feasibility and need	Ongoing	Unknown	Unknown	HMP Planning Committee
4.2	3.4.2	PA-33	Preventative Actions	Follow state recommendations for drought-related actions.	Medium	Drought	Effingham County, Springfield, Guyton, Rincon	Code Enforcement	New	Ongoing	Underway	Ongoing	Staff Time	General Funds	2017 HMP

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1.3	N/A	PA-34	Preventative Actions	Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Community Development	NA	Ongoing	Underway	Ongoing	Unknown	Unknown	Effingham Comp Plan; Effingham County Parks and Recreation Comp Plan; Effingham County Budget Book for FY 2023
1.3	N/A	PA-35	Preventative Actions	Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Public Information Officer	NA	New	will assist as needed	Ongoing	Staff Time	General Fund	Effingham County Community Wildfire Protection Plan
4.1	3.5.5	PA-36	Preventative Actions	Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	New	Underway	Ongoing	\$50,000	Grant Funds, Pre-Disaster Mitigation Funds; General Funds	Effingham Comp Plan
1.1	N/A	PA-37	Preventative Actions	Maintain Capital Improvement Plan for water and sewer services.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	EOM	NA	New	Underway	Ongoing	Varied	Varies	Effingham Comp Plan
1.3	N/A	PA-38	Preventative Actions	Explore joint parks projects with County and Springfield.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Administration/Finance	NA	Ongoing	will assist as needed	Ongoing	Unknown	Unknown	Effingham County Parks and Recreation Comprehensive Plan
1.2	N/A	PA-39	Preventative Actions	Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning and Development	NA	New	Promotes and allows alternative methods	Ongoing	Staff Time	General Fund	Effingham Comp Plan

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1.1	N/A	PA-40	Preventative Actions	Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning and Development	NA	New	Will research process	2024	Staff Time	General Fund	Effingham Comp Plan
2.3	5.2.11	PA-42	Preventative Actions	Consider strategies to disincentivize development in special flood hazard areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Will research Methods to promote this	Ongoing	Staff Time	General Funds	HMP Planning Committee
3.2	1.1.1; 2.1.1; 6.1.7	PA-43	Preventative Actions	Implement Emergency Public Warning System.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred; Ongoing; Deferred	Ongoing	Deferred	NA	\$250,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
1.1	1.3.1	PA-48	Preventative Actions	Encourage protection of critical facilities and infrastructure from lightning damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	increased grounding at tower sites, equipment all has lightning protection installed and surge protection (county side)	2023	Staff time, varies	Grant funds, Pre-Disaster Mitigation Funds	2017 HMP

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1.1	1.3.2	PA-49	Preventative Actions	Install and maintain surge protection on critical electronic equipment.	High	Severe Weather	Springfield, Guyton, Rincon	Emergency Management Director; City Administrations	Deferred	Complete	increased grounding at tower sites, equipment all has lightning protection installed and surge protection (county side)	2023	\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
1.2	2.1.3	PA-50	Preventative Actions	Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures.	High	Tornado	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	this is required in mobile home ordinances (since 3 years ago)	2023	Staff Time	General Funds	2017 HMP
1.1	3.1.11	PA-51	Preventative Actions	Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface.	Medium	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	Completed in Springfield Buffer Ordinance passed in 2022	2022	Staff Time	General Funds	2017 HMP
1.1	N/A	PP-1	Property Protection	Examine existing codes and ordinances for fire safety. Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	Will research and implement feasible standards to address	Ongoing	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
2.3	5.1.6	PP-2	Property Protection	Encourage homeowners to install backflow valves to prevent reverse-flow flood damages.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP

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2.2	5.2.11	PP-3	Property Protection	Provide assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP
1.1	1.2.5; 4.1.1	PP-4	Property Protection	Encourage subdivision requirements to place all utility lines underground.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Ongoing; Ongoing	Ongoing	Required by Ordinance. Reviewed for all submissions	Already Complete	Staff Time	General Funds	2017 HMP
2.1	N/A	PI-01	Public Information and Education	Expand and increase social media videos and outreach.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: EMA + public information coordinator		New	Can add info for education and promotion	Ongoing	Staff Time	General Funds	HMP Planning Committee
2.1	3.3.6	PI-02	Public Information and Education	Provide hazard information and outreach materials to DFCS office/Health Dept. school registration offices, schools for open house events, real estate agents, chamber of commerce, local churches, child care centers, and utility notification letters to provide to the community.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New	Can add info to website for education and promotion	2023	\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	HMP Planning Committee; Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
2.3	2.1.2; 2.1.4	PI-03	Public Information and Education	Inform residents and businesses about individual and family emergency preparedness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Emergency Management	Deferred; New	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP: Effingham County EMA Public Awareness, Education, and Preparedness Program
2.1	1.1.2; 2.1.5; 4.1.2	PI-04	Public Information and Education	Organize an All-hazards community expo.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA, Development Services, Emergency Services, Public Information	New; New; New	New	will assist as needed	Yearly	Staff Time, \$6,000	General Funds, FEMA Grant Funds	HMP Planning Committee

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2.1	N/A	PI-05	Public Information and Education	Organize informational presentations at group or club meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA		New	will assist as needed	Yearly	Staff Time	General Funds	HMP Planning Committee
2.1	5.2.7	PI-07	Public Information and Education	Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning and Zoning	New	New	Can add info to website for education and promotion	2023	\$5,000	General Funds	Effingham Comp Plan
2.1	3.5.4	PI-08	Public Information and Education	Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	Deferred	Ongoing	Can add info to website for education and promotion	2023	\$5,000	General Funds	2017 HMP
2.1	5.2.6	PI-10	Public Information and Education	Educate citizens about GIS hazard mapping online services.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County GIS Director	Ongoing	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP
1.3	3.5.1	PI-11	Public Information and Education	Educate the public on the value of water re-use for irrigation and implement strategies to reuse water county-wide.	Medium		Effingham County, Springfield, Rincon	Public Information Officer	New	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP

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2.3	N/A	PI-12	Public Information and Education	Education and outreach for citizens regarding mitigation actions on their private property.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	All: EMA, County: Development Services, Cities: equivalent to Development Services		New	Can add info to website for education and promotion	2023	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
2.1	6.3.6	PI-13	Public Information and Education	Increase public awareness of the different scenic river classifications and impacts of each category.	Medium	Multi-hazard	Springfield	Springfield: community development	Deferred	Ongoing	Can add info to website for education and promotion	2023	Staff Time	General Funds	2017 HMP
2.1	1.4.1	PI-14	Public Information and Education	Conduct outreach activities to increase public awareness of hail dangers, including: Mailing safety brochures with monthly water bills.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Complete	They do social media posts instead of mailings now; EMA Facebook page puts this information out	2023	Staff Time, \$5,000	General Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.1	5.2.8	PI-15	Public Information and Education	Publicize a user-friendly, publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County GIS Director	New	Complete	DNR hosts a map that can be publicized on County website; digital and hard copies available in office.	2023	Staff Time	General Funds	2017 HMP
1.1	N/A	SP-1	Structural Projects	Expand roadway system and improve local road network.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Public Works and Administration	NA	New	Inter-parcel connectivity required with new Comm Dev and new Roads are planned	Ongoing	Staff Time / Unknown ROW Costs	General Funds	Master Transportation Plan
1.1	5.2.5	SP-2	Structural Projects	Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County Administration	Deferred	Ongoing	Underway	Ongoing	\$10 million	SPLOST, One Georgia Authority	2017 HMP; Effingham County Budget Book for FY 2023

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1.1	5.1.8; 5.2.10	SP-3	Structural Projects	Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas; raise electrical components above base flood elevation.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM	Deferred; New	Ongoing	Underway	Ongoing	\$175,000	General Funds, Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
1.1	N/A	SP-4	Structural Projects	Complete lift station pump upgrades.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM		New	Underway	Ongoing	Unknown	General Funds/ Grant Funds	Effingham Comp Plan; Effingham County Budget Book for FY 2023
1.1	N/A	SP-7	Structural Projects	Update water and sewer infrastructure to accommodate growth.	High		Effingham County, Springfield, Guyton, Rincon	Water and Sewer	NA	Ongoing	Underway	Ongoing	\$40,000,000	Varied	Effingham Comp Plan; Effingham County Budget Book for FY 2023
1.1	1.2.2	SP-8	Structural Projects	Seek grants to move existing utility lines and fiber optic lines underground.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County: Grant Writer (Finance Department)	Deferred	Ongoing	Underway on Laurel Street	Ongoing	\$250,000	General Funds, FEMA funds, grants	2017 HMP

7.6.4 Guyton

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C5-b

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1.1	N/A	ES-1	Emergency Services	Reduce or strictly enforce hazardous fuel storage.	High	Hazardous material spill	Effingham County, Guyton, Rincon	Code Enforcement		New	Effingham Emergency Management Agency				Effingham County Community Wildfire Protection Plan
1.1		ES-2	Emergency Services	Set and enforce standards for hydrants in subdivisions and developments.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Complete						Effingham County Community Wildfire Protection Plan
1.1	6.1.6	ES-3	Emergency Services	Review all hazardous material transportation routes annually (relocate routes if necessary).	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	Effingham Fire		Staff Time	General Funds	2017 HMP
2.2	6.1.4	ES-4	Emergency Services	Ensure that city/county emergency responders have adequate equipment and training for hazmat incidents.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	Effingham Fire		Staff Time	General Funds	2017 HMP
1.2	3.1.5; 3.1.6	ES-5	Emergency Services	Seek state and federal grants to update fire equipment, including wildland hand tools, lightweight wildland PPE gear, and brush trucks as well as other equipment.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing; Ongoing	Ongoing	Effingham Fire		\$275,000	Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
2.2	6.1.1	ES-6	Emergency Services	Participate with regional HazMat team.	High	Hazardous material spill	Effingham County, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	Effingham Fire		Staff Time	General Funds	2017 HMP
1.1	1.2.1; 2.2.1	ES-7	Emergency Services	Retrofit police stations to become hazard resistant.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New, New	Complete		2023	\$300,000	Grant funds, Pre- Disaster Mitigation Funds	2017 HMP

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1.1	3.1.1	ES-8	Emergency Services	As roads are upgraded, widen to minimum standards with at least 50-foot radius cul de sacs or turnarounds.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	larger radius requirement	2023	\$100,000	General Funds; Impact Fees	2017 HMP
1.1	3.1.2	ES-9	Emergency Services	See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	completed for everything going forward	2023	\$50,000	General Funds; Impact Fees	2017 HMP
1.2	3.1.4	ES-10	Emergency Services	Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	There are some existing areas that have limited access	2023	Staff Time	General Funds	2017 HMP
1.2	5.2.1	NB-1	Natural and Beneficial Functions of Floodplains	Consider the use of buffer zones to protect the integrity of the floodplain.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing			Staff Time	General Funds	2017 HMP; Effingham County Parks and Recreation Comprehensive Plan
1.3	N/A	NB-2	Natural and Beneficial Functions of Floodplains	Apply minimum buffer standards for river corridors.	Medium	Inland flooding	Effingham County, Guyton, Rincon	GIS		Ongoing					Effingham Comp Plan; 2017 HMP
1.3	6.4.1	NB-3	Natural and Beneficial Functions of Floodplains	Consider low impact development strategies to support the natural functions of floodplains to protect rivers, streams, and ponds.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM	New	Ongoing			Staff Time	General Funds	2017 HMP
1.3	5.2.3	NB-4	Natural and Beneficial Functions of Floodplains	Adopt DCA criteria for wetland protection.	Medium	Inland flooding	County, City Administration	Planning and Zoning	New	New			Staff Time	General Funds	Effingham Comp Plan

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1.3	6.3.5	NB-5	Natural and Beneficial Functions of Floodplains	Work with the EPA and GA EPD to classify the Ogeechee River as a Scenic River.	Medium		Guyton, Effingham County	Development Services	Deferred	Deferred			Staff Time	General Funds	2017 HMP
3.3	6.1.8	PA-1	Preventative Actions	Coordinate Hazmat planning with new turpentine facility and other industrial facilities.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA, Fire Department	New	Ongoing	Effingham Emergency Management Agency and Effingham Fire		Staff Time	General Funds	2017 HMP
1.1		PA-2	Preventative Actions	Procure funding for backup systems for continued operations during weather events (generators, bypass pumps, redundancy, etc.).	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Effingham County, Springfield, Guyton, Rincon	EMA; EOM; Finance	Ongoing	Guyton received a grant and has generators on order with an ETA of fall 2023	2023			Effingham County Budget Book for FY 2023; 2017 HMP
2.2	6.2.2	PA-3	Preventative Actions	Seek training and updates on current policies and procedures regarding safety readiness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Human Resources	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
3.3	N/A	PA-5	Preventative Actions	Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA		New	Effingham Emergency Management Agency				HMP Planning Committee
2.2	6.1.2	PA-6	Preventative Actions	Provide basic level of training for all staff to be prepared to share responsibilities in emergency situations.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP; HMP Planning Committee; Effingham County Community Wildfire Protection Plan
2.2; 4.1	N/A	PA-7	Preventative Actions	Maintain a code enforcement division.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	New	Ongoing	Guyton is creating a Code Enforcement Position	2024			Effingham Comp Plan

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4.2	3.1.9	PA-8	Preventative Actions	Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	GIS Department, Tax Assessors	New	Ongoing	Guyton is replacing and adding street signage		Staff Time	General Funds	2017 HMP
1.1	5.1.3	PA-9	Preventative Actions	Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to insure continued compliance with NFIP requirements.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Planning Department, Guyton: Town Manager, Springfield: Erin Phillips as floodplain administrator	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
All	N/A	PA-10	Preventative Actions	Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS) requirements; Cities: Meet requirements to become a CRS community.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Development Services (Teresa Concannon), Cities: Floodplain Administrators	New						HMP Planning Committee
3.3	5.1.1	PA-11	Preventative Actions	Draft plan for county-wide drainage network and improvement program.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Stormwater Master Plan underway (Pond Engineering coordinated through Angela Stanley)	Deferred	Ongoing	Guyton is also seeking grants for a stormwater master plan and drainage improvements		\$2,000	SPLOST, General Funds	2017 HMP: Effingham Comp Plan; HMP Planning Committee
2.1	4.1.3	PA-13	Preventative Actions	Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: Emergency management	New	Ongoing	Attend Meeting every year with appropriate staff		Staff Time	General Funds	2017 HMP

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1.1	N/A	PA-14	Preventative Actions	Conduct periodic exercises to evaluate support function responsibilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA		New	Guyton PD will participate in events invited to				Effingham County Emergency Operations Plan	
1.3	N/A	PA-16	Preventative Actions	Expand and improve greenspace, set aside greenspace when development occurs.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning	Ongoing	Ongoing	Guyton is creating a recreation master plan, purchased 14 acres for a park, and seeks to expand our walking trail			TSP/LOST, SP/LOST, Grants	Effingham Comp Plan; Parks and Rec Comprehensive Plan	
1.2; 3.1	N/A	PA-17	Preventative Actions	Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning	Ongoing	Ongoing						Effingham Comp Plan
1.3	N/A	PA-18	Preventative Actions	Improve existing parks.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Parks and Recreation Department		New	Guyton purchased 14 acres next to our existing ball fields to expand and improve that park				Effingham County Budget Book for FY 2023; Effingham Parks & Rec	
1.1	N/A	PA-19	Preventative Actions	Develop a critical facility maintenance and protection plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Facilities Maintenance		New						Effingham Comp Plan
3.3	N/A	PA-20	Preventative Actions	Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments		New						Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
3.3	3.1.8	PA-21	Preventative Actions	Adopt uniform addressing ordinance for existing buildings and road names.	High	Multi-hazard	Effingham County, Springfield (unsure about other cities)	County: GIS Manager; Springfield: Erin Phillips	Deferred	Ongoing			Staff Time	General Funds	2017 HMP; HMP Planning Committee	

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2.1	1.1.3	PA-22	Preventative Actions	Encourage a review of the Comprehensive Plan by county and city officials and promote public awareness of and connectivity to the hazard mitigation plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: development services; Cities: community development, planning	New	Ongoing			Staff Time	General Funds	2017 HMP
3.3	N/A	PA-23	Preventative Actions	Conduct regular meetings with all water and sewer providers at once (EOM, county and cities). Include discussions about storm response at these meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EOM, Public Works	New	New	Meetings have been held recently to address water and sewer demands. These will continue to be ongoing.				HMP Planning Committee
1.3	N/A	PA-24	Preventative Actions	Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services	Ongoing	Ongoing					Effingham Comp Plan
1.1	1.2.3	PA-25	Preventative Actions	Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Development Services; Cities: equivalent to Development Services	New	Ongoing			Staff Time	General Funds	2017 HMP
1.1	N/A	PA-27	Preventative Actions	Pursue smart growth initiatives.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New	Guyton has created a Downtown Development Authority				Effingham Comp Plan
1.1	N/A	PA-28	Preventative Actions	Steer growth toward existing infrastructure.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New	Guyton has created a Downtown Development Authority				Effingham Comp Plan
3.1	3.1.10	PA-29	Preventative Actions	Become a Firewise Community.	High	Wildfires	Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Remove			\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP

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1.3	3.5.2	PA-30	Preventative Actions	Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.	High	Drought	Effingham County, Springfield, Guyton, Rincon	State (EPD)	New	Ongoing			Staff Time	General Funds	2017 HMP
1.1	N/A	PA-32	Preventative Actions	Acquire easements to allow for necessary maintenance.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Engineering		New	Work is ongoing and will be part of the master planning activities for larger acquisitions				HMP Planning Committee
4.2	3.4.2	PA-33	Preventative Actions	Follow state recommendations for drought related actions.	Medium	Drought	Effingham County, Springfield, Guyton, Rincon	Code Enforcement	New	Ongoing			Staff Time	General Funds	2017 HMP
1.3	N/A	PA-34	Preventative Actions	Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Parks and Recreation Department; County Administration		Ongoing	Guyton purchased 14 acres next to our existing ball fields to expand and improve that park				Effingham Comp Plan; Effingham County Parks and Recreation Comp Plan; Effingham County Budget Book for FY 2023
1.3	N/A	PA-35	Preventative Actions	Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Public Information Officer		New	Guyton currently holds several events each year				Effingham County Community Wildfire Protection Plan
4.1	3.5.5	PA-36	Preventative Actions	Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	New			\$50,000	Grant Funds, Pre-Disaster Mitigation Funds; General Funds	Effingham Comp Plan

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1.1	N/A	PA-37	Preventative Actions	Maintain Capital Improvement Plan for water and sewer services.	Medium	Multi-Hazard	Effingham County, Springfield, Guyton, Rincon	EOM		New	CIP projects have been created and implementation / procurement is underway. Planning will continue as development areas are established and infrastructure nears useful lifespan				Effingham Comp Plan
1.3	N/A	PA-38	Preventative Actions	Explore joint parks projects with County and Springfield.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Administration/Finance		Ongoing	Guyton seeks to extend our walking trail through the city and to the Pineora Park in a joint project with the County				Effingham County Parks and Recreation Comprehensive Plan
1.2	N/A	PA-39	Preventative Actions	Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning and Development		New					Effingham Comp Plan
1.1	N/A	PA-40	Preventative Actions	Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning and Development		New					Effingham Comp Plan
2.3	5.2.11	PA-42	Preventative Actions	Consider strategies to disincentivize development in special flood hazard areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing			Staff Time	General Funds	HMP Planning Committee

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3.2	1.1.1; 2.1.1; 6.1.7	PA-43	Preventative Actions	Implement Emergency Public Warning System.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred; Ongoing; Deferred	Ongoing	Deferred		\$250,000	Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
		PA-48	Preventative Actions	Encourage protection of critical facilities and infrastructure from lighting damage with the following measures: Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	increased grounding at tower sites, equipment all protection installed and surge protection (county side)	2023	Staff time, varies	Grant funds, Pre- Disaster Mitigation Funds	2017 HMP
1.1	1.3.2	PA-49	Preventative Actions	Install and maintain surge protection on critical electronic equipment.	High	Severe Weather	Springfield, Guyton, Rincon	Emergency Management Director; City Administrations	Deferred	Complete	increased grounding at tower sites, equipment all has lightning protection installed and surge protection (county side)	2023	\$50,000	Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
		PA-50	Preventative Actions	Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures.	High	Tornado	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	this is required in mobile home ordinances (since 3 years ago)	2023	Staff Time	General Funds	2017 HMP
1.1	3.1.11	PA-51	Preventative Actions	Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface.	Medium	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	setbacks, buffers etc.	2023	Staff Time	General Funds	2017 HMP

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1.1	N/A	PP-1	Property Protection	Examine existing codes and ordinances for fire safety. Amend codes and ordinances to provide better driveway access; increased visibility of house numbers; properly store firewood; minimum defensible space brush clearance; required Class A roofing materials and skirting around raised structures; planned maintenance of community lots.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing	Effingham Fire				Effingham County Community Wildfire Protection Plan
2.3	5.1.6	PP-2	Property Protection	Encourage homeowners to install backflow valves to prevent reverse-flow flood damages.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Ongoing			Staff Time	General Funds	2017 HMP
2.2	5.2.11	PP-3	Property Protection	Provide assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing			Staff Time	General Funds	2017 HMP
1.1	1.2.5; 4.1.1	PP-4	Property Protection	Encourage subdivision requirements to place all utility lines underground.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Ongoing; Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
2.1	N/A	PI-1	Public Information and Education	Expand and increase social media videos and outreach.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County: EMA + public information coordinator		New	Guyton shares all Effingham Fire and EEMA posts as well as creates our own to educate our public				HMP Planning Committee

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2.1	3.3.6	PI-2	Public Information and Education	Provide hazard information and outreach materials to DFCS office/Health Dept, school registration offices, schools for open house events, real estate agents, chamber of commerce, local churches, child care centers, and utility notification letters to provide to the community.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New	EEMA		\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	HMP Planning Committee; Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program
2.3	2.1.2; 2.1.4	PI-3	Public Information and Education	Inform residents and businesses about individual and family emergency preparedness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Emergency Management	Deferred; New	Ongoing	EEMA		Staff Time	General Funds	2017 HMP; Effingham County EMA Public Awareness, Education, and Preparedness Program
2.1	1.1.2; 2.1.5; 4.1.2	PI-4	Public Information and Education	Organize an All-hazards community expo.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA, Development Services, Emergency Information	New; New; New	New	Will work with County to create and attend expo		Staff Time, \$6,000	General Funds, FEMA Grant Funds	HMP Planning Committee
2.1	N/A	PI-5	Public Information and Education	Organize informational presentations at group or club meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New	EMA				HMP Planning Committee
2.1	5.2.7	PI-7	Public Information and Education	Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning and Zoning	New	New			\$5,000	General Funds	Effingham Comp Plan
2.1	3.5.4	PI-8	Public Information and Education	Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	Deferred	Ongoing	EMA		\$5,000	General Funds	2017 HMP

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2.1	5.2.6	PI-10	Public Information and Education	Educate citizens about GIS hazard mapping online services.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County GIS Director	Ongoing	Ongoing	County GIS		Staff Time	General Funds	2017 HMP
2.3	N/A	PI-12	Public Information and Education	Education and outreach for citizens regarding mitigation actions on their private property.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	All: EMA, County Development Services, Cities: equivalent to Development Services	New	New					Effingham County Community Wildfire Protection Plan
2.1	1.4.1	PI-14	Public Information and Education	Conduct outreach activities to increase public awareness of hail dangers, including: Mailing safety brochures with monthly water bills.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Complete	They do social media posts instead of mailings now; EMA Facebook pages puts this information out	2023	Staff Time, \$5,000	General Funds, Pre- Disaster Mitigation Funds	2017 HMP
2.1	5.2.8	PI-15	Public Information and Education	Publicize a user-friendly, publicly accessible repository for inquirers to obtain Flood Insurance Rate Maps.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County GIS Director	New	Complete	DNR hosts a map that can be publicized on County website; digital and hard copies available in office.	2023	Staff Time	General Funds	2017 HMP
1.1	N/A	SP-1	Structural Projects	Expand roadway system and improve local road network.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	City Administration; County Administration	New	New	Guyton completed multiple repaving projects in the last 3 years and is working on new projects for the upcoming TSP/OST referendum				Master Transportation Plan

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1.1	5.2.5	SP-2	Structural Projects	Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County Administration	Deferred	Ongoing			\$10 million	SPLOST, One Georgia Authority	2017 HMP; Effingham County Budget Book for FY 2023
1.1	5.1.8; 5.2.10	SP-3	Structural Projects	Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas; raise electrical components above base flood elevation.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM	Deferred; New	Ongoing			\$175,000	General Funds, Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
1.1	N/A	SP-4	Structural Projects	Complete lift station pump upgrades.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM		New	Guyton upgrades are limited to pump replacements and SCADA to be completed this year	2023			Effingham Comp Plan; Effingham County Budget Book for FY 2023
1.1	6.1.1	SP-5	Structural Projects	Improve infrastructure along routes used for transportation of Hazardous Materials i.e., Highways and railroad crossings.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County Administration	Ongoing	Ongoing					2017 HMP
1.1	5.1.7; 5.1.9	SP-6	Structural Projects	Install back-up generators for pumping and lift stations in sanitary sewer systems along with other measures (e.g., alarms, flood telemetry meters, remote controls, and switchgear upgrades).	High	Multi-hazard	Effingham County, Guyton	EMA	Ongoing; New	Ongoing	Guyton generators on order, SCADA on wells is complete and SCADA on lift stations is on order	2023	\$100,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP; Effingham County Budget Book for FY 2023
1.1	N/A	SP-7	Structural Projects	Update water and sewer infrastructure to accommodate growth.	High		Effingham County, Springfield, Guyton, Rincon	Water and Sewer		Ongoing	Guyton is adding additional spray fields to increase capacity and investigation potential new spray field sites	2025	\$3,000,000	Grant Funds, SPLOST Funds, GEFA loans,	Effingham Comp Plan; Effingham County Budget Book for FY 2023

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1.1	1.2.2	SP-8	Structural Projects	Seek grants to move existing utility lines and fiber optic lines underground.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Grant Writer (Finance Department)	Deferred	Ongoing			\$250,000	General Funds, FEMA funds, grants	2017 HMP

7.6-5 Rincon

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1.1	6.1.6	ES-3	Emergency Services	Review all hazardous material transportation routes annually (relocate routes if necessary).	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
2.2	6.1.4	ES-4	Emergency Services	Ensure that city/county emergency responders have adequate equipment and training for hazmat incidents.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
1.2	3.1.5; 3.1.6	ES-5	Emergency Services	Seek state and federal grants to update fire equipment, including wildland hand tools, lightweight wildland PPE gear, and brush trucks as well as other equipment.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing; Ongoing	Ongoing			\$275,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.2	6.1.1	ES-6	Emergency Services	Participate with regional HazMat team.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
1.1	1.2.1; 2.2.1	ES-7	Emergency Services	Retrofit police stations to become hazard resistant.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New; New	Complete		2023	\$300,000	Grant funds, Pre-Disaster Mitigation Funds	2017 HMP
1.1	3.1.1	ES-8	Emergency Services	As roads are upgraded, widen to minimum standards with at least 50-foot radius cul de sacs or turnarounds.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	larger radius requirement	2023	\$100,000	General Funds; Impact Fees	2017 HMP
1.1	3.1.2	ES-9	Emergency Services	See that adequate lengths of culverts are installed and adequate vertical and horizontal clearance is available to allow emergency vehicle access.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	completed for everything going forward	2023	\$50,000	General Funds; Impact Fees	2017 HMP

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1.2	3.1.4	ES-10	Emergency Services	Require and maintain safe access for fire apparatus to wildland-urban interface neighborhoods and properties on new development.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	There are some existing areas that have limited access	2023	Staff Time	General Funds	2017 HMP
4.1	3.1.3	ES-11	Emergency Services	Install hydrants where county waterlines cross roads.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Remove	Not applicable.		Grant funds, Pre-Disaster Mitigation Funds	Grant funds, Pre-Disaster Mitigation Funds	2017 HMP
1.2	5.2.1	NB-1	Natural and Beneficial Functions of Floodplains	Consider the use of buffer zones to protect the integrity of the floodplain.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	2017 HMP: Effingham County Parks and Recreation Comprehensive Plan
1.3	N/A	NB-2	Natural and Beneficial Functions of Floodplains	Apply minimum buffer standards for river corridors.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	GIS		Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan, 2017 HMP
1.3	6.4.1	NB-3	Natural and Beneficial Functions of Floodplains	Consider low impact development strategies to support the natural functions of floodplains to protect rivers, streams, and ponds.	Medium		Effingham County, Springfield, Guyton, Rincon	EOM	New	Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	2017 HMP
1.3	5.2.3	NB-4	Natural and Beneficial Functions of Floodplains	Adopt DCA criteria for wetland protection.	Medium	Inland flooding	County, City Administration	Planning and Zoning	New	New	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan
3.3	6.1.8	PA-1	Preventative Actions	Coordinate Hazmat planning with new turpentine facility and other industrial facilities.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA, Fire Department	New	Ongoing			Staff Time	General Funds	2017 HMP

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1.1		PA-2	Preventative Actions	Procure funding for backup systems for continued operations during weather events (generators, bypass pumps, redundancy, etc.).	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon			Ongoing					Effingham County Budget Book for FY 2023; 2017 HMP
2.2	6.2.2	PA-3	Preventative Actions	Seek training and updates on current policies and procedures regarding safety readiness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Human Resources	Ongoing	Ongoing	Working on updating the safety readiness program	2024	Staff Time	General Funds	2017 HMP
1.2	3.1.7	PA-4	Preventative Actions	Review Subdivision and Development ordinances for public safety concerns.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County, City Administration	Ongoing	Remove	Will consider as part of code update	2024	Staff Time	General Funds	2017 HMP
3.3	N/A	PA-5	Preventative Actions	Conduct quarterly HMP Planning Committee Meetings and encourage attendance to keep the plan current.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EMA		New					HMP Planning Committee
2.2	6.1.2	PA-6	Preventative Actions	Provide basic level of training for all staff to be prepared to share responsibilities in emergency situations.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP; HMP Planning Committee; Effingham County Community Wildfire Protection Plan
2.2; 4.1	N/A	PA-7	Preventative Actions	Maintain a code enforcement division.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments (led by department heads)	New	Ongoing	Building Inspector is also the code enforcement officer	2023			Effingham Comp Plan

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4.2	3.1.9	PA-8	Preventative Actions	Proper naming and numbering of streets and addresses is critical to public safety and also promotes better service delivery. The county and cities should work together to develop a well-coordinated system for coordination of street names, subdivision names, and mapping efforts between the cities and the county.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	GIS Department, Tax Assessors	New	Ongoing	Continuing to work on improvements in this area	2024	Staff Time	General Funds	2017 HMP
1.1	5.1.3	PA-9	Preventative Actions	Continue to participate in the National Flood Insurance Program to protect existing and new developments, to ensure new buildings and infrastructure are not in harm's way, and to insure continued compliance with NFIP requirements.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Planning Department, Guyton: Town Manager, Springfield: Erin Phillips as floodplain administrator, Rincon: City Manager	Ongoing	Ongoing	Continuously review new developments to ensure compliance with NFIP	Ongoing	Staff Time	General Funds	2017 HMP
All	N/A	PA-10	Preventative Actions	Explore activities to improve the Community Rating System classification to ultimately reduce flood insurance costs for residents. Effingham County: continue working towards new Community Rating System (CRS) requirements; Cities: Meet requirements to become a CRS community.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	County: Development Services (Teresa Concannon), Cities: Floodplain Administrators	New	New	Working on the CRS requirements	2025	Staff Time	General Funds	HMP Planning Committee
3.3	5.1.1	PA-11	Preventative Actions	Draft plan for county-wide drainage network and improvement program.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Stormwater Master Plan underway (Pond Engineering coordinated through Angela Stanley)	Deferred	Ongoing			\$2,000	SFLOST, General Funds	2017 HMP, Effingham Comp Plan, HMP Planning Committee
2.1	4.1.3	PA-13	Preventative Actions	Create a speakers' bureau for disaster-related topics that focus on mitigation and preparedness measures – do a pre-hurricane meeting.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: Emergency management	New	Ongoing			Staff Time	General Funds	2017 HMP

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1.1	N/A	PA-14	Preventative Actions	Conduct periodic exercises to evaluate support function responsibilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA		New					Effingham County Emergency Operations Plan
1.3	N/A	PA-16	Preventative Actions	Expand and improve greenspace, set aside greenspace when development occurs.	High	Multi-hazard				Ongoing	The City continues to purchase green space or ask for green space to be set aside as part of Development Agreements or as a part of new developments	Ongoing			Effingham Comp Plan, Parks and Rec Comprehensive Plan
1.2; 3.1	N/A	PA-17	Preventative Actions	Review development standards and ordinances to ensure that low impact and sustainable development approaches are encouraged to reduce flooding potential and maintain community character.	High		Effingham County, Springfield, Guyton, Rincon	Development Services/Community Development/Planning and Zoning		Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan
1.3	N/A	PA-18	Preventative Actions	Improve existing parks.	High	Multi-hazard		Parks and Recreation Department		New	Starting to discuss forming a Parks & Rec Committee to develop a Parks Master Plan	2025	Staff Time and Volunteer Hours	General Funds	Effingham County Budget Book for FY 2023; Effingham Parks & Rec
1.1	N/A	PA-19	Preventative Actions	Develop a critical facility maintenance and protection plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Facilities Maintenance		New					Effingham Comp Plan
3.3	N/A	PA-20	Preventative Actions	Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: all departments		New					Effingham Comp Plan, Effingham County EMA Public Awareness, Education, and Preparedness Program

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3.3	3.1.8	PA-21	Preventative Actions	Adopt uniform addressing ordinance for existing buildings and road names.	High	Multi-hazard	Effingham County, Springfield (unsure about other cities)	County: GIS Manager; Springfield: Erin Phillips	Deferred	Ongoing	Planning and Fire Staff are working together on this	2025	Staff Time	General Funds	2017 HMP; HMP Planning Committee
2.1	1.1.3	PA-22	Preventative Actions	Encourage a review of the Comprehensive Plan by county and city officials and promote public awareness of and connectivity to the hazard mitigation plan.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: development services; Cities: community development, planning	New	Ongoing	In the process of starting to work on the 5 year update	Jul-24	Staff Time	General Funds	2017 HMP
3.3	N/A	PA-23	Preventative Actions	Conduct regular meetings with all water and sewer providers at once (EOM, county and cities). Include discussions about storm response at these meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County and Cities: EOM, Public Works		New					HMP Planning Committee
1.3	N/A	PA-24	Preventative Actions	Explore adopting a conservation subdivision ordinance to promote or require the preservation of open space.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon			Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan
1.1	1.2.3	PA-25	Preventative Actions	Assess the opportunity and effectiveness of updating development standards to require the placement of permanent marking of easements for underground utilities.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Development Services; Cities: equivalent to Development Services	New	Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	2017 HMP
1.1	N/A	PA-27	Preventative Actions	Pursue smart growth initiatives.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan
1.1	N/A	PA-28	Preventative Actions	Steer growth toward existing infrastructure.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Development Services		New	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan

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3.1	3.1.10	PA-29	Preventative Actions	Become a Firewise Community.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Remove			\$50,000	Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
1.3	3.5.2	PA-30	Preventative Actions	Maintain communities' awareness of water withdrawal needs and permitting to protect the aquifer.	High	Drought	Effingham County, Springfield, Guyton, Rincon	State (EPD)	New	Ongoing	Will continue to maintain awareness of this		Staff Time	General Funds	2017 HMP
1.1	N/A	PA-32	Preventative Actions	Acquire easements to allow for necessary maintenance.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon			New	The City continues to acquire easements as needed		Staff Time, Legal Assistance	General Funds	HMP Planning Committee
4.2	3.4.2	PA-33	Preventative Actions	Follow state recommendations for drought related actions.	Medium	Drought	Effingham County, Springfield, Guyton, Rincon	Code Enforcement	New	Ongoing	Ongoing		Staff Time	General Funds	2017 HMP
1.3	N/A	PA-34	Preventative Actions	Look for opportunity to acquire undeveloped land to create greenspaces and increase connectivity of green spaces.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon			Ongoing	Ongoing		Staff Time	General Funds	Effingham Comp Plan; Effingham County Parks and Recreation Comp Plan; Effingham County Budget Book for FY 2023
1.3	N/A	PA-35	Preventative Actions	Promote Community Clean-Up Days (cut, prune, mow vegetation in shared community spaces).	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	Public Information Officer		New	The City will work with the appropriate partners to develop a Community Clean-Up Days program	2024	Staff Time		Effingham County Community Wildfire Protection Plan

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4.1	3.5.5	PA-36	Preventative Actions	Pursue Community Development Block Grants (CDBG) and other grants to extend water, sewer and reuse services, and wastewater treatment.	Medium		Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	New	The City pursues grants		\$50,000	Grant Funds, Pre-Disaster Mitigation Funds; General Funds	Effingham Comp Plan
1.1	N/A	PA-37	Preventative Actions	Maintain Capital Improvement Plan for water and sewer services.	Medium		Effingham County, Springfield, Guyton, Rincon	EOM		New					Effingham Comp Plan
1.3	N/A	PA-38	Preventative Actions	Explore joint parks projects with County and Springfield.	Medium	Multi-hazard				Ongoing					Effingham County Parks and Recreation Comprehensive Plan
1.2	N/A	PA-39	Preventative Actions	Encourage the use of green infrastructure stormwater practices such as bioswales, porous pavements, rain gardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	Medium	Multi-hazard				New	Will consider as part of code update	2024	Staff Time	General Funds	Effingham Comp Plan
1.1	N/A	PA-40	Preventative Actions	Consider the local adoption of the Coastal Stormwater Supplement to the Georgia Stormwater Manual to promote green infrastructure practices for flood reduction and resiliency.	Medium	Multi-hazard				New	The City will consider the adoption of this supplement	2024	Staff Time		Effingham Comp Plan
2.3	5.2.11	PA-42	Preventative Actions	Consider strategies to disincentivize development in special flood hazard areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Ongoing		Staff Time	General Funds	HMP Planning Committee
3.2	1.1.1; 2.1.1; 6.1.7	PA-43	Preventative Actions	Implement Emergency Public Warning System.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred; Ongoing; Deferred	Ongoing	Deferred		\$250,000	Grant Funds, Pre-Disaster	2017 HMP

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														Mitigation Funds	
3.1	5.3.1	PA-44	Preventative Actions	Develop a dam failure study and emergency action plan.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Remove	Action isn't applicable; County does not have any Class 1 dams.		Staff Time, \$15,000	General Funds, Pre- Disaster Mitigation Funds	2017 HMP
1.1	5.3.2	PA-45	Preventative Actions	Implement an inspection, maintenance, and enforcement program to help ensure continued structural integrity of dams and levees.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Remove	This doesn't fall under the County's jurisdiction; the County follows state guidelines.		Staff Time	General Funds	2017 HMP
1.3	6.3.1	PA-46	Preventative Actions	Seek funding to remove vegetative obstructions from the rivers within Effingham County.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director, County, City Administrations, Army Corps of Engineers	Deferred	Remove	Not applicable because it's DNR's jurisdiction, not the County's.				2017 HMP
1.3	6.3.4	PA-47	Preventative Actions	Seek funding to dredge portions of the river to increase water flow.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director, County, City Administrations	New	Remove	Not applicable because it is not in the County's scope.				2017 HMP

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1.1	1.3.1	PA-48	Preventative Actions	Encourage protection of critical facilities and infrastructure from lightning damage with the following protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities. Installing and maintaining surge protection on critical electronic equipment.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	increased grounding at tower sites, equipment all has lightning protection installed and surge protection (county side)	2023	Staff time, varies	Grant funds, Pre- Disaster Mitigation Funds	2017 HMP
1.1	1.3.2	PA-49	Preventative Actions	Install and maintain surge protection on critical electronic equipment.	High	Severe Weather	Springfield, Guyton, Rincon	Emergency Management Director; City Administrations	Deferred	Complete	increased grounding at tower sites, equipment all has lightning protection installed and surge protection (county side)	2023	\$50,000	Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
1.2	2.1.3	PA-50	Preventative Actions	Encourage the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, and other vulnerable public structures.	High	Tornado	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Complete	this is required in mobile home ordinances (since 3 years ago)	2023	Staff Time	General Funds	2017 HMP
1.1	3.1.11	PA-51	Preventative Actions	Review building and zoning requirements and add, if necessary, regulations for a vegetative buffer to separate the urban interface.	Medium	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	New	Complete	setbacks, buffers etc	2023	Staff Time	General Funds	2017 HMP

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3.1	3.4.1	PA-52	Preventative Actions	Develop a drought emergency plan.	Medium	Wildfires	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Deferred	Remove			General Funds, Pre-Disaster Mitigation Funds	General Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.2	6.2.1	PA-53	Preventative Actions	Seek funding to provide radiation detection devices to emergency responders.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	Deferred	Remove			General Funds	General Funds	2017 HMP
1.1	N/A	PP-1	Property Protection	Examine existing codes and ordinances for fire safety; Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, property stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	High	Wildfires	Effingham County, Springfield, Guyton, Rincon	County and Cities: Fire Department		Ongoing					Effingham County Community Wildfire Protection Plan
2.3	5.1.6	PP-2	Property Protection	Encourage homeowners to install backflow valves to prevent reverse-flow flood damages.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Ongoing			Staff Time	General Funds	2017 HMP
2.2	5.2.11	PP-3	Property Protection	Provide assistance to citizens and businesses on potential mitigation actions to protect property in flood prone areas.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Planning Department	New	Ongoing	Will develop an education program	2024	Staff Time	General Funds	2017 HMP
1.1	1.2.5; 4.1.1	PP-4	Property Protection	Encourage subdivision requirements to place all utility lines underground.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County, City Administration	Ongoing; Ongoing	Ongoing	Will consider as part of code update	2024	Staff Time	General Funds	2017 HMP

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2.1	N/A	PI-1	Public Information and Education	Expand and increase social media videos and outreach.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: EMA + public information coordinator	New	New	Will develop a regular social media and outreach plan	2024	Staff Time		HMP Planning Committee	
2.1	3.3.6	PI-2	Public Information and Education	Provide hazard information and outreach materials to DFCS office/Health Dept, school registration offices, schools for open house events, real estate agents, chamber of commerce, local churches, child care centers, and utility notification letters to provide to the community.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA	New	New			\$50,000	Grant Funds, Pre-Disaster Mitigation Funds	HMP Planning Committee; Effingham Comp Plan; Effingham County EMA Public Awareness, Education, and Preparedness Program	
2.3	2.1.2; 2.1.4	PI-3	Public Information and Education	Inform residents and businesses about individual and family emergency preparedness.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County: Emergency Management	Deferred; New	Ongoing				Staff Time	General Funds	2017 HMP; Effingham County EMA Public Awareness, Education, and Preparedness Program
2.1	1.1.2; 2.1.5; 4.1.2	PI-4	Public Information and Education	Organize an All-hazards community expo.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA, Development Services, Emergency Services, Public Information	New; New; New	New			Staff Time, \$6,000	General Funds, FEMA Grant Funds	HMP Planning Committee	
2.1	N/A	PI-5	Public Information and Education	Organize informational presentations at group or club meetings.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	EMA		New						HMP Planning Committee
2.1	5.2.7	PI-7	Public Information and Education	Increase public awareness of wetland and flood zone sensitivity, and increase public awareness of hazards of buying or developing in a flood zone.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Planning and Zoning	New	New	Will develop an educational program	2024	\$5,000	General Funds	Effingham Comp Plan	

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2.1	3.5.4	PI-8	Public Information and Education	Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	Deferred	Ongoing			\$5,000	General Funds	2017 HMP
2.1	3.3.1, 3.3.2, 3.3.5	PI-9	Public Information and Education	Develop and distribute informational packets about wildland urban interface to increase public awareness of wildland fire interface issues.	High	Wildfires	Effingham County, Rincon	County: Fire Department; Rincon: Fire Department; GA Forestry Commission	Ongoing; Ongoing; New	Ongoing			\$20,000	Grant Funds, Pre-Disaster Mitigation Funds	2017 HMP
2.1	5.2.6	PI-10	Public Information and Education	Educate citizens about GIS hazard mapping online services.	High	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	County GIS Director	Ongoing	Ongoing			Staff Time	General Funds	2017 HMP
1.3	3.5.1	PI-11	Public Information and Education	Educate the public on the value of water re-use for irrigation and implement strategies to reuse water county-wide.	Medium		Effingham County, Springfield, Guyton, Rincon	Public Information Officer	New	Ongoing			Staff Time	General Funds	2017 HMP
2.3	N/A	PI-12	Public Information and Education	Education and outreach for citizens regarding mitigation actions on their private property.	Medium	Multi-hazard	Effingham County, Springfield, Guyton, Rincon	All: EMA. County: Development Services. Cities: equivalent to Development Services	New	New	Will develop an education and outreach program	2024	Staff Time	General Funds	Effingham County Community Wildfire Protection Plan
2.1	1.4.1	PI-14	Public Information and Education	Conduct outreach activities to increase public awareness of hail dangers, including: Mailing safety brochures with monthly water bills.	High	Severe Weather	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director	New	Complete	They do social media posts instead of mailings now; EMA Facebook pages puts this information out	2023	Staff Time, \$5,000	General Funds, Pre-Disaster Mitigation Funds	2017 HMP

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
2.1	5.2.8	PI-15	Public Information and Education	Publicize a user-friendly, publicly-accessible repository for inquirers to obtain Flood Insurance Rate Maps.	Medium	Inland flooding	Effingham County, Springfield, Guyton, Rincon	Emergency Management Director; County GIS Director	New	Complete	DNR hosts a map that can be publicized on County website; digital and hard copies available in office.	2023	Staff Time	General Funds	2017 HMP
1.1	N/A	SP-1	Structural Projects	Expand roadway system and improve local road network.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon			New					Master Transportation Plan
1.1	5.2.5	SP-2	Structural Projects	Implement road and drainage improvement program. Improvement may include installation, re-routing, or increasing the capacity of a storm drainage system.	High	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County Administration	Deferred	Ongoing			\$10 million	SPLOST, One Georgia Authority	2017 HMP; Effingham County Budget Book for FY 2023
1.1	5.1.8; 5.2.10	SP-3	Structural Projects	Floodproof existing wastewater treatment plants, pump stations, and lift stations located in flood hazard areas; raise electrical components above base flood elevation.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM	Deferred; New	Ongoing			\$175,000	General Funds, Grant Funds, Pre- Disaster Mitigation Funds	2017 HMP
1.1	N/A	SP-4	Structural Projects	Complete lift station pump upgrades.	High	Inland flooding	Effingham County, Springfield, Guyton, Rincon	EOM		New					Effingham Comp Plan, Effingham County Budget Book for FY 2023

Goal/ Objective	2017 HMP Action #	Action #	CRS Category	Action	Priority (Average)	Hazard Addressed	Municipality Responsible	Implementation Responsibility/ Department	2017 Status	2023 Status	Status Notes	Estimated Year of Completion	Estimated Cost	Potential Funding Source	Source
1.1	6.1.1	SP-5	Structural Projects	Improve infrastructure along routes used for transportation of Hazardous Materials i.e. Highways and railroad crossings.	High	Hazardous material spill	Effingham County, Springfield, Guyton, Rincon		Ongoing	Ongoing					2017 HMP
1.1	N/A	SP-7	Structural Projects	Update water and sewer infrastructure to accommodate growth.	High		Effingham County, Springfield, Guyton, Rincon			Ongoing					Effingham Comp Plan; Effingham County Budget Book for FY 2023
1.1	1.2.2	SP-8	Structural Projects	Seek grants to move existing utility lines and fiber optic lines underground.	Medium	Multi- hazard	Effingham County, Springfield, Guyton, Rincon	County: Grant Writer (Finance Department)	Deferred	Ongoing			\$250,000	General Funds, FEMA funds, grants	2017 HMP

8.0 PLAN MAINTENANCE



What information will I find in this chapter?

Chapter Eight discusses how each community will continue public participation in the plan maintenance process and includes a description of the method and schedule for keeping the plan current. (Requirements 44 CFR § 201.6(c)(4)(iii) and (i)).

Table 8-1: Chapter 8 Summary of Changes

Chapter 8 Sections	Updates to Section
Monitoring the Plan	Updated with new quarterly meeting schedule
Evaluating the Plan	Updated with new quarterly committee meeting schedule
Updating the Plan	Updated to reflect new quarterly committee meeting schedule
Public Participation	Expanded on from 2017 HMP
Integrating the Plan	Updated to include planning mechanisms

Hazard Mitigation Plans are intended to serve as living documents. In order to be impactful, they must be regularly updated to reflect the current state of hazards, vulnerabilities, goals, strategies, and public sentiment. The three main components of plan maintenance are: *monitoring*, *evaluating*, and *updating* the plan.

Included in this chapter is a multi-pronged strategy to keep the Hazard Mitigation Plan as effective as possible at all times. Monitoring, evaluating, and updating the plan will be intertwined with public engagement, integration with other planning mechanisms, and plan implementation. These processes will all run on a quarterly schedule with the expectation of coordination and collaboration between the different processes and the collaboration of all of Effingham County, including unincorporated Effingham County and the Cities of Rincon, Guyton, and Springfield.

D2-a

8.1 Monitoring the Plan

Effingham County’s Emergency Management Agency (EEMA) will take ownership of monitoring the plan. This office will take the lead on both tracking the progress of the plan and sharing this progress

with the public. This office will make monitoring information publicly available, notify the public when new information has been posted or updated, and provide the public with opportunities to give input on this information. See Section 8.4: Public Participation for further details.

To track progress, EEMA will coordinate quarterly check-ins. In the first and third quarters of each subsequent year after the plan's approval, EEMA will send out notices to the Planning Committee and other partners responsible for plan implementation. The notice will include a shared document where all committee members can collaborate to track progress, document hazard impacts, and identify future projects. The collaborative updates by the responsible parties will provide written documentation of progress, document new hazards and problem areas, and will help to capture institutional knowledge. The information collected throughout the year will be used to develop an annual progress report. In the second two quarters of each year, EEMA will schedule group meetings with the Planning Committee and other responsible parties for coordination and planning purposes. The second and fourth meetings every year will coincide with most departments annual budgetary efforts. Guyton and Effingham County's budgets follow the fiscal year (June 1), while Rincon and Springfield follow the calendar year (January 1). Through the regular check-ins, priorities will also be updated or amended to meet the priorities of the current leadership and public input.

D2-b

8.2 Evaluating the Plan

The EEMA will regularly evaluate the plan along with the Planning Committee, made up of the same representatives that were involved in the 2023 HMP update. Members include representatives from the County, the Cities, community groups, local environmental groups, non-profits, local experts, and others who will provide a wide range of perspectives and experiences. New members may include other partners responsible for plan implementation. The County will make information on plan effectiveness publicly available and seek evaluation input from the public through engagement activities (see Section 8.5 for details).

The Planning Committee will meet regularly to discuss the effectiveness of goals, mitigation actions, and specific priority projects undergoing implementation. The group will look at relevant data, metrics, and anecdotal evidence to determine how well the plan is performing and what adjustments need to be made. Adjustments could include re-prioritization of projects, integrating with other planning processes more effectively, adding new data to climate projections, etc.

The Planning Committee will meet quarterly to evaluate the effectiveness of the plan. Two of those meetings will occur alongside plan monitoring (during the second two quarters). The County will continue to evaluate the plan internally on a regular basis. The Planning Committee may also be called to meet after a major event or storm to evaluate the effectiveness of the plan.

D2-c

8.3 Updating the Plan

The EEMA will update the Hazard Mitigation Plan in accordance with the federally-required five-year cycle and take the necessary steps during the five years to keep the plan up to date throughout this period.

It is recommended that the EEMA initiate a comprehensive update to the Hazard Mitigation Plan at least 18 months prior to this plan's expiration. This generally includes;

- Re-engaging and expanding the planning team
- Confirming FEMA's and GEMA's most recent requirements and guidance
- Gathering updated information and relevant documents
- Initiating an outreach and engagement process
- Undertaking the planning steps to prepare required Hazard Mitigation Plan sections
- Completing and reviewing the draft Plan and submitting for approval

At a minimum, the Hazard Mitigation Plan should be revisited after any major disaster event or if new conditions significantly change risk.

The County will use the evaluation and monitoring information described above to update the plan. Project prioritization, mitigation action, and overall goals may be updated throughout the five years to remain in line with the latest information. The Planning Committee and EEMA will attend evaluation and monitoring quarterly meetings to record changes and incorporate them into the updated plan.

D1-a

8.4 Public Participation

Public engagement is a critical part of the plan maintenance process. Public input, education, and support are crucial to ensuring that the plan is effective, equitable, and impactful. A coordinated public engagement effort will be led by the EEMA. Below are four categories of engagement activities that will solicit different types of results.

Public Education activities are solely focused on transparency and providing the public with all information regarding the monitoring, evaluation, and implementation of the Plan.

Public Input activities are focused on soliciting feedback, ideas, concerns, and other input. These activities will aim to have as wide a reach as possible and gather feedback from all groups, particularly those who are most affected by hazards and those whose voices are not always heard in public settings.

Active Engagement refers to the creation of new entities which will work independently to study the effectiveness, performance, and equity of the HMP as it goes through maintenance, implementation, and integration with other planning mechanisms. These entities will work on behalf of the public and in collaboration with the Cities.

Reactionary Engagement refers to activities that directly follow a large storm or event. These activities will be particularly concerned with the safety of residents, performance of projects, and impacts on vulnerable groups.

Below are activities in each of these categories that the County will undertake.

Public Education: Website updates, flyers, StoryMaps, presentations, social media posts, up to date GIS maps and data

Public Input: Workshops, surveys, public meetings, presence at public events, public comments, interactive maps, Survey123 App Data Collection (can be ongoing), interviewing community groups or local experts

Active Engagement: Taskforce/steering committee, community group involvement, student groups

Reactionary Engagement: Surveys, public meetings, door-knocking

The County is committed to developing equitable and impactful public engagement and plan maintenance programs. This means that greater attention will be paid to those who are most vulnerable to hazards and who do not have as many pathways for making their needs and opinions heard. The following steps will be taken to ensure that the HMP and its maintenance will be equitable.

Population: Identify vulnerable and underserved groups (i.e. people with varying abilities, people experiencing homelessness, immunocompromised people)

Projects/issues: Identify issues or projects that are most valuable to them (through soliciting input or interviewing community groups/local experts)

Actions: Incorporate findings into the implementation, monitoring, evaluation, updating of the plan, and integration with other planning processes. The monitoring and evaluation teams will be responsible for incorporating this information.

Public engagement activities will align with the quarterly evaluation, monitoring, and plan update meetings as well as with large storms or events.

D3-a

8.5 Integrating the Plan

D3-b

In order to be impactful, the HMP must be effectively integrated into other planning mechanisms. This will increase co-benefits of hazard mitigation projects, streamline planning and implementation activities, and help secure funding for HMP projects.

D3-c

Integration will be a topic of discussion at every quarterly update meeting. HMP principles, information, mitigation actions, goals, and other outcomes will be integrated into a set of planning mechanisms, listed below. At each meeting, there will be an update on the progress of integration into these planning mechanisms and a discussion of other planning mechanisms that should be included in integration for each jurisdiction. Many planning mechanisms are county-wide, and thus coordination will occur across all jurisdictions and the County. Each jurisdiction also has individualized planning mechanisms, which will be discussed during the quarterly update meeting so as to streamline the integration process within each community.

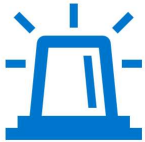
Integrating the ideas, information, and strategy of a mitigation plan into other planning mechanisms can be achieved through plan integration. Plan integration involves a two-way exchange of information and incorporation of ideas and concepts between hazard mitigation plans and other planning mechanisms. Some ways the County of Effingham and Cities of Guyton, Rincon, and Springfield can integrate the ideas, information, and strategy of a mitigation plan into other planning mechanisms are:



Building and Zoning Regulations: The local hazard mitigation plan can integrate with building and zoning regulations to ensure that new construction and development are designed to withstand potential hazards.



Community Plans: Community planning mechanisms can be integrated into hazard mitigation plans to ensure that community needs and concerns are considered when developing hazard mitigation strategies.



Emergency Management Planning: The local hazard mitigation plan can integrate with the emergency management planning to ensure that hazard mitigation strategies are coordinated with emergency response efforts.



Partnerships: Developing strong partnerships between planners and emergency managers can help to fully integrate land use and hazard planning efforts

9.0 PLAN ADOPTION

F2-a



What information will I find in this chapter?

Chapter Nine documents that the governing body of each jurisdiction has formally adopted the plan to be eligible for certain FEMA assistance. (Requirement 44 CFR 201.6(c)(5))

EXAMPLE ADOPTION LANGUAGE

A RESOLUTION OF EFFINGHAM COUNTY ADOPTING THE 2023 REGIONAL HAZARD MITIGATION PLAN UPDATE

WHEREAS the Board of Commissioners recognizes the threat that natural hazards pose to people and property within Effingham County; and

WHEREAS Effingham County has prepared a multi-hazard mitigation plan, hereby known as the Effingham County 2023 Regional Hazard Mitigation Plan Update, in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the Effingham County 2023 Regional Hazard Mitigation Plan Update identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Effingham County from the impacts of future hazards and disasters; and

WHEREAS adoption by the Board of Commissioners demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Effingham County 2023 Regional Hazard Mitigation Plan Update; now therefore be it

Resolved: That in accordance with the charter and ordinances of Effingham County, the Board of Commissioners adopts the Effingham County 2023 Regional Hazard Mitigation Plan Update. While content related to Effingham County may require revisions to meet the plan approval requirements, changes occurring after adoption will not require Effingham County to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

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