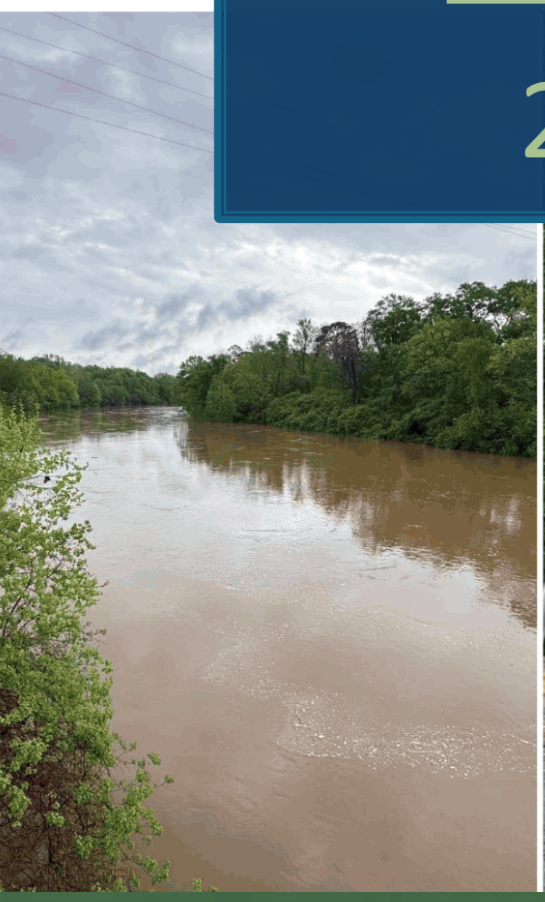
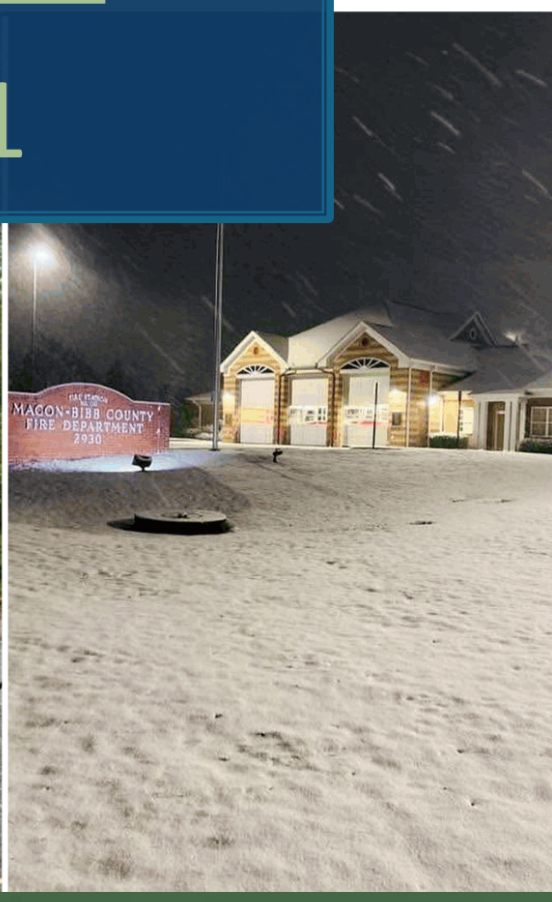
MACON-BIBB COUNTY
GEORGIA

HAZARD MITIGATION PLAN

2026 – 2031





PREVENTION | PROTECTION | MITIGATION | RESPONSE | RECOVERY

Macon-Bibb County, Georgia

Hazard Mitigation Plan Update

2026 – 2031

Prepared for the Macon-Bibb County Board of Commissioners

700 Poplar Street

Macon, Georgia 31201

478.751.7260

www.maconbibb.us

Macon-Bibb County's
Hazard Mitigation Plan Update 2026

This document was funded in part by the Hazard Mitigation Planning Grant awarded to the Macon-Bibb County Emergency Management Agency by the Georgia Emergency Management and Homeland Security Agency (GEMA/HS) to fulfill the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Macon-Bibb County's Hazard Mitigation Plan 2026 was updated by the Macon-Bibb County Hazard Mitigation Plan Update Committee and was prepared by AG Witt LLC. For additional information, please contact the Macon-Bibb County Emergency Management Agency.

Director Spencer Hawkins
Deputy Director Robert McCord
Macon-Bibb County Emergency Management Agency
700 Poplar Street
Macon, GA 31201
ema@maconbibb.us
478.870.2500

Resolution – Macon-Bibb County

Preface

Mitigation Vision for the Future

Emergency Managers succeed or fail based on how well they follow the following fundamental principles of emergency management, mitigation, preparedness, response, and recovery. Purposefully, our emergency management forefathers put the word mitigation first as a "means" to prevent or minimize the effects of disasters.

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of residents, businesses, public officials, and other community stakeholders.

Mitigation forms, or should form, the very foundation of every emergency management agency. To reduce, minimize, or eliminate hazards in their communities, emergency management agencies adopt and implement mitigation practices. The Federal DMA 2000 sets the benchmark and outlines the criteria for communities with the vision to implement hazard mitigation practices in their communities.

Macon-Bibb realizes the benefits achieved by the development and implementation of mitigation plans and strategies in their community. Macon-Bibb County's elected officials, public safety organizations, planners, and many others have proven that by working together towards the development and implementation of this plan, they can reduce the loss of life and property in their communities.

The jurisdictions covered by this plan include the following:

Macon-Bibb County

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CHAPTER 1 INTRODUCTION

1.1 Summary of Updates for Chapter 1

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Macon-Bibb County Hazard Mitigation Plan 2020.

Table 1-1. 2026 Chapter 1 Updates

Section	Section Title	Updates
1.1	Summary of Updates	• Completed new summary of updates for 2026
1.2	Overview	• Identification of mitigation goals
1.3	Purpose of the Plan	• Clarified the purpose of the Hazard Mitigation Plan and its relationship to FEMA Hazard Mitigation Assistance program eligibility • Content revised
1.4	Authority	• Updated references to FEMA regulations and state mitigation planning guidance governing the plan • Content revised
1.5	Consistency with Federal & State Mitigation Policies	• No changes needed
1.6	Statement of the Problem	• New section added • Included explanation of disaster vulnerability and the importance of mitigation planning for Macon-Bibb County
1.7	Plan Organization	• Updated explanation of the structure of the HMP and organization of the chapters • Content revised
1.8	Planning Process	• Updated timeline and documentation of meetings and coordination conducted during the 2025–2026 update process • Content revised
1.9	Plan Participation	• Updated list of participating jurisdictions and agencies involved in the 2025-2026 update process • Content revised
1.10	Public & Stakeholder Involvement	• Incorporated description of how the public was invited to participate in the update process and the outreach efforts employed to achieve the public's participation • Included details about involving stakeholders in the process • Content revised

Section	Section Title	Updates
1.11	Hazard, Risk, & Vulnerability Summary	• New section added • Added explanation of revised hazard analysis and vulnerability findings
1.12	Mitigation Goals Setting	• New section added • Updated mitigation goals to reflect current hazards and community priorities
1.13	Multi-Jurisdictional Participation & Special Considerations	• Clarified Macon-Bibb County's status as a singular-jurisdiction community • Content revised
1.14	Incorporation of Existing Plans, Studies, & Resources	• Updated with new plan, study, and resource incorporations • Content revised
1.15	Adoption, Implementation, Monitoring, & Evaluation	• New section added • Incorporated description of how the plan will be maintained and monitored during the next five-year cycle • Included adoption language and procedures

1.2 Overview

Hazards are a natural and inevitable part of our environment, but there is much we can do to minimize their impacts on our communities. Every community faces different hazards, has different resources available to combat problems, and has different interests that influence the solutions to those problems. There is no single solution for managing or mitigating the effects of hazards. Advance planning is one of the best ways to mitigate the impacts of hazards while taking into account the unique character of a community.

As defined by FEMA, "hazard mitigation" means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event. Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented.

The Macon-Bibb County Hazard Mitigation Plan Update is the first phase of a multi-hazard mitigation strategy for the entire community. This plan encourages cooperation among various organizations and crosses political sub-divisions. As written, this plan fulfills the requirements of the Federal DMA 2000. DMA 2000 provides federal assistance to state and local emergency management agencies and other disaster response organizations to reduce damage from disasters. The Act is administered by GEMA/HS and FEMA.

It is important that state and local government, public-private partnerships, and community residents can see the results of these mitigation efforts; therefore, the goals and strategies need

to be achievable. Macon-Bibb County's Hazard Mitigation Plan Update Committee reviewed and adopted the following goals during plan development:

- GOAL 1: Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors.
- GOAL 2: Harden communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective.
- GOAL 3: Reduce and, where possible, eliminate repetitive damage, loss of life and property from disasters.
- GOAL 4: Bring greater awareness throughout the community about potential hazards and the need for community preparedness.

This plan complies with all requirements and scope of work as described in Macon-Bibb County's Hazard Mitigation Grant application.

1.3 Purpose of the Plan

The purpose of the 2026 Macon-Bibb County Hazard Mitigation Plan Update is to identify, assess, and develop a strategy to mitigate hazard risk to people and property within Macon-Bibb County. This plan documents progress on existing hazard mitigation planning efforts, updates the plan to reflect current conditions in the planning area including relevant hazards and vulnerabilities, increases public education and awareness about the plan and planning process, maintains grant eligibility for participating jurisdictions, maintains compliance with state and federal requirements for local hazard mitigation plans, and identifies and outlines strategies the county will use to decrease vulnerability and increase resiliency.

A well-prepared hazard mitigation plan ensures that all possible activities are reviewed and are documented for implementation so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with other goals and activities, preventing conflicts and potentially reducing the costs of implementing each individual activity. This plan provides a framework for the county to work together on hazard mitigation planning and projects. It establishes the vision and guiding principles for reducing hazard risk and proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

Macon-Bibb County identified the following goals and objectives in fulfilling the purpose of this plan:

- Protect life, promote safety and preserve property by reducing the potential for future damages and economic losses that result from natural and technological hazards;
- Make communities in Macon-Bibb County safer places to live, work, and play;
- Qualify for grant funding in both the pre-disaster and post-disaster environments;
- Speed the recovery and redevelopment process following future disaster events;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with state and federal legislative requirements for local multi-jurisdictional hazard mitigation plans.

1.4 Authority

To reduce the nation's natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) as an amendment to the Robert T. Stafford Act of 1974. The purpose of DMA 2000 was to invoke new and revitalized approaches to hazard mitigation planning. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate mitigation planning activities. It also makes the development, maintenance, and updating of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance (FMA) Program, and various iterations of Pre-Disaster Mitigation programs, all of which are administered by the Federal Emergency Management Agency (FEMA) and authorized by Section 203 of the Stafford Act through the Pre-Disaster Mitigation program (PDM). Communities with an adopted and federally approved hazard mitigation plan thereby become qualified to receive available mitigation funds before and after the next disaster strikes.

The Georgia Emergency Management Act of 1981 authorizes local emergency management agencies to conduct emergency management activities for the county. The Macon-Bibb County Emergency Management Agency was authorized to develop and implement a plan for mitigation actions by Local Government Resolution for Emergency Management executed by the Macon-Bibb County Commission.

This plan update was prepared in coordination with FEMA Region IV and the Georgia Emergency Management and Homeland Security Agency (GEMA/HS) to ensure that it meets all applicable federal and state planning requirements. A Local Mitigation Plan Review Tool, found in Appendix C, provides a summary of FEMA’s current minimum standards of acceptability and notes the location within this plan where each planning requirement is met.

This plan was developed in a joint and cooperative manner by members of a Plan Update Committee, which included representatives of county departments, federal and state agencies, residents, and other stakeholders. This plan will ensure that Macon-Bibb County remains eligible for federal disaster assistance including the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance Program (FMA) program, and other Pre-Disaster Mitigation grant programs that may become available.

This plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under Section 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and 201.7 dated October 2007.

Macon-Bibb County has adopted this plan in accordance with standard local procedures to meet federal plan adoption requirements. Copies of adoption resolutions are provided in Appendix K Plan Adoption Resolutions.

Failure to meet the new criteria will render state and local governments ineligible for Stafford Assistance and thus forfeit some types of emergency assistance and other funding streams.

1.5 Consistency with Federal & State Mitigation Policies

The plan is intended to enhance and complement state and federal recommendations for the mitigation of natural and technological hazards in the following ways:

- Substantially reduce the risk of life, injuries, and hardship from the destruction of natural and technological disasters on an ongoing basis;
- Create greater public awareness about the need for individual preparedness and about the need to build safer, more disaster resistant communities;
- Develop strategies for long-term community sustainability during community disasters; and
- Develop governmental and business continuity plans that will continue essential private sector and governmental activities during disasters.

FEMA publishes several guidance documents for local governments on mitigating natural disasters. The updated Macon-Bibb County Hazard Mitigation Plan recognizes, adopts, incorporates, and endorses the following principles:

- Develop a strategic mitigation plan for Macon-Bibb County;
- Enforce current building codes;
- Develop incentives to promote mitigation;
- Incorporate mitigation of natural hazards into land use plans;
- Promote awareness of mitigation opportunities and programs throughout our community on a continual basis; and
- Identify potential funding sources for mitigation projects.

The private sector is often an overlooked segment of the community during disasters. It is vital that this sector of a community is included in mitigation efforts that are consistent with state and federal recommendations, such as the following:

- Develop mitigation incentives with insurance agencies and lending institutions;
- Encourage the creation of a business continuity plan for the continuance of commerce during and following a disaster; and
- Partner with local businesses to educate customers about potential hazards in the community and possible mitigation ideas.

Individual residents must be made aware of the hazards they may encounter. Additionally, they must be educated on how to protect themselves from the hazards they face. They must be shown that mitigation is an important part of reducing loss of life and property in their community. Their support is critical to the success of any mitigation effort. The updated Macon-Bibb County Hazard Mitigation Plan supports the following FEMA recommendations regarding individual residents:

- Become educated on the hazards that may impact your community;
- Become part of the process by supporting and encouraging mitigation programs that reduce vulnerability to disasters; and
- An individual's responsibility is to safeguard his/her family, as well as themselves, prior to a disaster event.

1.6 Statement of the Problem

Each year in the United States, natural and human-caused hazards take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters because additional expenses incurred by insurance companies and non-governmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable and through hazard mitigation, much of the cost of repairing damage caused by these events can be reduced or even eliminated.

Macon-Bibb County previously developed a Hazard Mitigation Plan in 2020 and has remained committed to hazard mitigation and the associated planning process, which enables regular review of the changing exposure, vulnerability, and risk in the planning area.

The focus of this plan update is on those hazards deemed "high" or "moderate" priority for the planning area, as determined through the risk and vulnerability assessments. Low priority hazards will continue to be evaluated but may not be prioritized for mitigation in the action plan.

Macon-Bibb County followed the planning process prescribed by the Federal Emergency Management Agency (FEMA), and this plan was developed under the guidance of a Plan Update Committee. The Committee led a risk assessment that identified and profiled hazards that pose a risk to the planning area, assessed the planning area's vulnerability to these hazards, and examined the capabilities in place to mitigate them. The hazards profiled in this plan include:

- Natural Hazards:
  - Conflagration
  - Drought
  - Earthquake
  - Extreme Temperatures
  - Infectious Disease
  - Flooding
  - Space Weather
  - Thunderstorm
  - Tornado
  - Tropical Cyclone
  - Wildfire
  - Winter Storm
- Technological Hazards:
  - Communications Failure
  - Dam & Levee Failure
  - Hazardous Materials Incident
  - Hostile Events
  - Infrastructure Failure
  - Transportation Incident

1.7 Plan Organization

The scope of the Macon-Bibb County Hazard Mitigation Plan Update encompasses all areas of Macon-Bibb County. The plan identifies all natural and technological hazards that could threaten life and property in Macon-Bibb County. The scope of this plan includes both short and long-term mitigation strategies with implementation and possible sources of project funding.

The Hazard Mitigation Plan Update is organized to incorporate the requirements of Interim Final Rule 44 CFR 201.4.

Chapter 1 includes an overview of the Hazard Mitigation Plan Update, the overall goals of the plan, and details of the planning process as required by Interim Final Rule 44 CFR 201.4(c)(1).

Chapter 2 of the plan details the Macon-Bibb County profile, including the demographics and history of the county.

Chapter 3 identifies the risk assessment process, past natural hazard events with associated losses, and current natural hazard risks. Potential losses are also analyzed as required by Interim Final Rule 44 CFR 201.4(c)(2). Additionally, Chapter 3 identifies and analyzes potential technological hazards faced by Macon-Bibb County.

Chapter 4 identifies Macon-Bibb County's hazard mitigation goals and objectives, mitigation strategies and actions, and sources of potential funding for mitigation projects as required by Interim Final Rule 44 CFR 201.4(c)(3).

Chapter 5 identifies the maintenance and implementation strategies for the plan. The process for evaluation of the Hazard Mitigation Plan implementation progress is also detailed as required by Interim Final Rule 44 CFR 201.4(c)(4) and (5).

Chapter 6 identifies a framework for plan implementation and maintenance during the next five years.

The Appendices (Appendix A through Appendix M) include additional information and data that informed the HMP Update, including but not limited to references, planning process documentation, mitigation alternatives, GEMA/HS 3A worksheets, Georgia Mitigation Information System (GMIS) mapping and critical facility data, full Hazus report, Southern Wildfire Risk Assessment Report, approvals, and adoption letters.

1.7.1 Revisions Due to Changes in Priorities

Each section of Macon-Bibb County's 2020 Hazard Mitigation Plan has been revised in some manner to reflect changes in priorities. Therefore, a summary of those changes will be listed in the first section of each chapter. Significant additions/modifications to this plan are included in the list below:

- Several new sections were added to the Introduction, including 1.7, 1.11, 1.12, and 1.15.
- Mass Casualty Incident was determined to be a cascading event of many of the identified hazards and not a standalone hazard and was therefore removed.

- Evacuation Incident is related to coastal evacuations in Georgia from Tropical Cyclone events and has been incorporated into the Tropical Cyclone hazard.
- Water Contamination has been incorporated into Hazardous Materials Incident and Hostile Event.
- Agricultural Incident is incorporated into Drought, Extreme Temperature, and Infectious Disease.
- Roundabouts were included in Transportation Incident.
- Conflagration and Infectious Disease were moved from Technological Hazards to Natural Hazards.
- Space Weather was added as a new hazard.
- Chapter 5 Capability Assessment was added as a new chapter.

The plan describes those hazards that are considered to have the highest probability of occurrence in relation to their historical background, vulnerability, potential loss, and frequency of occurrence. The plan update also identifies and prioritizes hazard mitigation opportunities in each vulnerable area based on input from Plan Update Committee Members, data from the original plan, numerous government agencies, local businesses, and Macon-Bibb County residents, both in meetings and direct discussions. For other jurisdictional and stakeholder representation, see Planning Process Documentation in Appendix D.

The public was able to view the draft plan on the county website and was asked for their comments and suggestions. They were also encouraged to attend future plan updates for continuity of mitigation projects going forward.

Each destructive force was analyzed for spatial occurrences and frequency, and changes were made to an action plan wherever members deemed relevant, instead of the prior format of addressing each of the seven hazards individually, and the redundancies that resulted from that approach. Many of the changes were the removal of completed action steps.

1.8 Planning Process

Requirement §201.6(c)(1)

The contractor, AG Witt, LLC, had the primary responsibility for collecting updated information and presenting pertinent data to the Plan Update Committee. An online, MS Teams folder was created for Macon-Bibb County's Plan Update. The approved 2020 Hazard Mitigation Plan was uploaded to the MS Teams folder, and the link to the folder was emailed to all members of the Plan Update Committee. Each chapter of the 2020 plan was reviewed. Community profile data, hazard vulnerability and risk assessment data, and mitigation strategies were updated, as was critical infrastructure information. Based on DMA planning requirements and FEMA's associated guidance, a four-phase process was followed:

1. Planning Process
2. Risk Assessment
3. Mitigation Strategy
4. Plan Maintenance

Special attention and consideration were given to the review and edit of mitigation strategies listed in the 2020 Plan. The Plan Update Committee examined each strategy and determined whether the strategy had been completed, needed to be modified, was in progress, or no longer applied. The Committee was highly encouraged to create new mitigation strategies to meet the current needs of Macon-Bibb County. Mitigation strategies from other nearby Georgia counties and the state plan were reviewed to help with the creation of new strategies. When the Committee agreed a new mitigation action would be beneficial, it was tailored to Macon-Bibb County's needs and was included in the 2026 plan. The contractor ensured the Committee had access to draft plan documents for review and comment and encouraged the Committee to thoroughly critique each iteration. A complete list of each mitigation planning meeting during this plan update process is available in Appendix D: Planning Process Documentation.

Into this process, the planning consultant integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 10-step process used for this plan meets the requirements of six major programs: FEMA's HMGP; FMA; PDM; Community Rating System; Severe Repetitive Loss Program; and new flood control projects authorized by the U.S. Army Corps of Engineers.

The table below shows how the 10-step CRS planning process aligns with the four phases of hazard mitigation planning pursuant to the Disaster Mitigation Act of 2000.

Table 1-2. Mitigation Planning and CRS 10-Step Process Reference Table

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

1.8.1 Phase 1—Planning Process

Planning Step 1: Organize to Prepare the Plan

With the county's commitment to participate in the DMA planning process, community officials worked to establish the framework and organization for development of the plan. An initial meeting was held with key community representatives to discuss the organizational aspects of the plan development process. The Macon-Bibb County Emergency Management Agency Director led the county's effort to reorganize and coordinate for the plan update.

Consultants from AG Witt, LLC assisted the county through the planning process and preparation of the plan document.

Planning Step 2: Involve the Public

Public involvement and associated outreach efforts in the development of the plan was sought using various methods.

Planning Step 3: Coordinate

The Committee formed for development of the 2020 plan was reconvened for this plan update. Stakeholder coordination was incorporated into the formation of the Committee and was sought through additional outreach methods.

Coordination with Other Community Planning Efforts and Hazard Mitigation Activities

In addition to stakeholder involvement, coordination with other community planning efforts was also seen as paramount to the success of this plan. Mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. Macon-Bibb County uses a variety of planning mechanisms, such as Comprehensive Plans, subdivision regulations, building codes, and ordinances to guide growth and development. Integrating existing planning efforts, mitigation policies, and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

These and other documents were reviewed and considered, as appropriate, during the collection of data to support the planning process and plan development, including the hazard identification, vulnerability assessment, and capability assessment. Data from these sources was incorporated into the risk assessment and hazard vulnerability in Chapter 3 of the plan as appropriate. The data was also used in determining the capability of each jurisdiction to implement certain mitigation strategies. The Capability Assessment can be found in Chapter 5. All sources, data, and information used is included in Appendix B: References & General Resources.

1.8.2 Phase II—Risk Assessment

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

The contractor facilitated brainstorming and discussion sessions with the Committee that described the purpose and process of updating planning goals and objectives, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Chapter 4 Mitigation Strategy.

Planning Step 8: Draft an Action Plan

A complete first draft of the plan was prepared based on input from the Committee regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7. This

draft was shared for Committee, stakeholder, and public review and comment via the plan website. 65 public comments were received. Committee and stakeholder comments, which were focused primarily on the hazard identification and risk assessment and the mitigation action plans, were integrated into the final draft for the Georgia Emergency Management and Homeland Security Agency (GEMA/HS) and FEMA Region IV to review and approve, contingent upon final adoption by the county and its participating jurisdictions.

1.8.3 Phase IV—Plan Maintenance

Planning Step 9: Adopt the Plan

To secure buy-in and officially implement the plan, the plan was reviewed and adopted by all participating jurisdictions. Resolutions are provided in Appendix K.

Planning Step 10: Implement, Evaluate, and Revise the Plan

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Up to this point in the planning process, the Committee's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Chapter 6: Plan Implementation & Maintenance provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. Chapter 6 also discusses incorporating the plan into existing planning mechanisms and how to continue public involvement.

1.9 Plan Participation

Requirement §201.6(b)(2)

For the purposes of this plan, Macon-Bibb County is a single jurisdiction community. The Committee's representatives included representatives of county departments; local, regional, and state agencies; residents; and other stakeholders. The following 71 participants contributed to the update of Macon-Bibb County's 2026 Hazard Mitigation Plan: *(in alphabetical order)*

Table 1-3. Plan Update Committee Members

Name	Title/Position	Organization
Paul Adams	Supervisor	MWA
Adrianna Beavers	Assistant County Attorney II	MBC
Haley Beckham	Chief of Police	Mercer University Police
Robert Belew	Assistant Director	MBC Facilities Management
Tim Blevins	Integration Coordinator	Salvation Army
Greg Boike	Director of Planning and Public Affairs	Middle Georgia RC
Cameron Brown	Facilities and Maintenance Manager	River Edge Behavioral Health

Name	Title/Position	Organization
Dawn Butler	Nurse Manager	MBC HD
Matt Chalfa	Director of Strategic Planning	ONPPI
Cassandra Cox	Area Manager	Georgia Power
Charlie Coyner	EC Volunteer	MBC EMA
Briana Denmark Smith	EHS III	MBC HD
Daryl Lee Dixon	Stormwater Supervisor	MWA
Thomas Doyle	Captain Operations	Atrium EMS
Shane Edwards	Fire Chief	MBC Fire
Alaysia Ezzard	Reporter	The Macon Melody
Patricia Finney	Cop Citizen on Patrol	SH BSCO Cop Citizen on Patrol
Roderick Finney	Volunteer	MBC EMA ARES
Anthony Fox	Lieutenant	Code Enforcement
Conner Frost	Operations Manager	Middle GA Regional Apt
Matthew Geigler	S&S Manager	Bibb County School District
David Gowan	Director of Safety and Security	Bibb County School District
Marcus Green	Supervisor	Atlanta Gas Light
Laura Hardwick	Procurement Director	Macon-Bibb County
Emily Harwell	Airport Ops Office Assistant	Middle GA Regional Apt
Kerry Hatcher	Staff Sergeant	Georgia Department of Defense
Spencer Hawkins	Director	MBC EMA
Steve Hawthorne	Resident	Resident
John Hayes	County Engineer	MBC Engineering
Mohammad Shahidul Islam	GIS Programmer Analyst III	MBIT Communications
Tonika Keith	County Director	Bibb DFCS
Dana Kramer	Emergency Preparedness Coordinator	MGA
Christopher Land	Communications Manager	MBIT Communications
Jennifer Lautzenheiser	Director of Libraries	Middle GA Reg Library
Darrell Lester	Chief Safety Officer	Macon Transit Authority
William Lively	ARES Communications Volunteer	MBC EMA, ARES
Robert McCord	Deputy Director	MBC EMA
Josiah Metcalfe	Assistant Ops Manager	Middle GA Regional Apt
Greg Morris	Shop Manager	MBC Fleet Services
Shannon Murray	Public Safety System Specialist	MBC IT GIS
Stephanie Nelson	Drug Coordinator	MBC Health Department

Name	Title/Position	Organization
Tricia Norwood	Maintenance Dispatch Coord	River Edge Behavioral Health
Kimberly Novak	Community Engagement Manager	Girl Scouts Historic GA
J.R. Olive	VP of Operations	Chamber of Commerce
Jake Parent-Lew	Foreman	Atlanta Gas Light
Kelly Potts	Sr Director of Operations	Community Ambulance
Stephen Ramsey	Emergency Management	Atrium Health Navicent
Esther Reynolds	Owner/Operator	The Upper Room Vision
Jason Rodgers	Captain	MBC Fire
Liana Rogers	EMS & EM Coordinator	Piedmont Macon
Robert Ryals	Director	MBC Facilities Management
Jimmie Smith	Administrator	MBC Health Department
Alex Smith	Environmental and Land Use Planner	Middle GA Regional Commission
Ronald Smith	Deputy Chief	MBC Fire
Robert Spires	Major	BCSO
Valerie Stewart	Procurement Officer	Bibb DFCS
Louis Storms	FBO Manager	High Note Aviation
Monte Tolleson	Stormwater Assistant Manager	MWA
Melvin Turner	Lieutenant	Code Enforcement
Andrew Tye	Captain	MBC Fire
Jason Vorhees	Reporter	The Macon Melody
Robert Walker	Director	MBC Recreation
Casey Walker Jr.	Operations Officer	MBC EMA
Virgil Watkins Jr.	CDPM	American Red Cross
Tracey Weathers	Administrator	BCSO Animal Services
Briana Weaver	EHS II	MBCHD
Jeremy West	Linear Planner	MWA
Robert Wilbanks	Chief of Police	CGTC Police
Tim Wilder	Director	MBC Public Works
Rhonda Williams	Assistant Director	Depaul USA Daybreak
Gary Wilson	Project Manager	MBCIA

The Plan Update Committee relied on the consultant to guide them through the update process. During meetings, the participants had productive discussions, expanded their professional networks, asked thoughtful questions, made important decisions, and provided critical input during key stages in the update process. Efforts were made to involve all county departments, as well as community organizations and local businesses, that may have a role in the implementation of mitigation actions and/or policies. These efforts included sending invitations via email to attend the Kick-off Meeting, sending reminder emails before each upcoming

meeting, emailing pertinent information throughout the process, and requesting the review and critique of each chapter in the updated plan.

All neighboring counties—Crawford, Jones, Houston, Monroe, Peach, and Twiggs Counties—were asked to peer review the 2026 Hazard Mitigation Plan draft. A link to the plan was sent to each County EMA office.

1.10 Public & Stakeholder Involvement

Requirement §201.6(b)(1); State Requirement Element F2

Public awareness is a key component of any community's overall mitigation strategy. As residents become more involved in decisions that affect their safety, they may develop a greater respect for the natural hazards present in their community, and thus, may take the steps necessary to reduce potential impacts of those hazards.

Public involvement in the development of the plan was sought using various methods including open public meetings, a public participation survey, and by making copies of draft plan documents available for public review online.

In addition to Macon-Bibb County departments and agencies, the following local organizations and businesses participated in the update of Macon-Bibb County's Hazard Mitigation Plan:

- American Red Cross
- Animal Services (MBC)
- Atlanta Gas Light
- Atrium EMS
- Atrium Health Navicent
- Bibb County School District
- Central Georgia Technical College Police (CGTC Police)
- Community Ambulance
- DePaul USA Daybreak
- Georgia Department of Defense (GA DoD)
- Georgia Power
- Girl Scouts of Historic Georgia
- High Note Aviation
- Mercer University Police
- Middle Georgia Regional Airport
- Middle Georgia Regional Commission
- Middle Georgia Regional Library
- Middle Georgia State University (MGA)
- ONPPI
- Piedmont Macon
- River Edge Behavioral Health
- The Macon Melody
- The Salvation Army
- The Upper Room Vision

1.10.1 Outreach Efforts

The Plan Update Committee took it upon themselves to ensure the processes undertaken for the development, implementation, and maintenance of the 2026 Hazard Mitigation Plan adequately considered public needs and viewpoints. Public involvement activities for this plan update included press releases, media interviews, social media outreach, a public survey, and the collection of public and stakeholder comments on the draft plan. See Appendix D for specific details on public outreach efforts employed during the preparation of this plan.

A list of public outreach initiatives can be found below:

- Email reminders were sent to all Plan Update Committee members, as well as other stakeholders, prior to every meeting. Recipients were encouraged to share the meeting invitation with anyone they thought would be an asset to the plan update process or anyone who may want to learn more about what a Hazard Mitigation Plan is.
- All Macon-Bibb County Hazard Mitigation Planning Committee meetings were advertised on the Macon-Bibb County Emergency Management Facebook and Instagram page and the public was invited to attend each meeting. These meetings were also shared on the main Macon-Bibb County Facebook page.
- Multiple press releases were published on Macon-Bibb County's Communications/Latest News webpage about Macon-Bibb County EMA seeking public input for the HMP update. Committee and public meetings were advertised in these press communications. Media interviews were also conducted with Macon-Bibb EMA, and several news articles/videos were published, including through 41 NBC/WMGT, 13 WMAZ, and Middle Georgia CEO.
- Macon-Bibb County held a public meeting on April 6, 2026. One member of the public and two members of the media attended the meeting. The meeting focused on the hazards identified in the plan, local concerns, and opportunities for personal and jurisdictional mitigation. The one public attendee noted his background in public safety and community assistance and was interested in getting involved with Macon-Bibb County EMA to support mitigation efforts as well as other day-to-day emergency management activities. While no additional mitigation actions were derived from the meeting, the County EMA obtained a new volunteer.

A public outreach survey was made available on January 22, 2026 and remained open for response until February 4, 2026. The public survey requested public input that provided insight into geographic location, living conditions, personal emergency preparedness, hazard concerns, and the identification of personal and public mitigation activities to lessen the risk and impact of future hazard events. In total, 66 survey responses were received. Detailed results are provided in Appendix D.

The following is a list of high-level summary results and analysis derived from survey responses:

- 66 people participated in the public survey
- 62 live in the county; 30 have lived in the county for 21 or more years
- 52 own their home
- Over half of the respondents identified the following as their top hazard concerns:
    - Communications failure (phone/internet systems outages)
    - Severe weather events (thunderstorm wind, lightning, hail)
    - Tornadoes
    - Severe winter weather events (snow/ice storms)
    - Infrastructure failures (power outages water system disruptions, bridge/road closures)

- 11 believe that preparedness activities cost too much, but most have conducted some personal mitigation activities, including:
    - 50 have installed and maintain smoke detectors in their homes
    - 34 have cleared debris and vegetation from around their homes
    - 33 have secured outdoor furniture, sheds, or other items to protect them from winds
    - 27 have installed and maintained carbon monoxide detectors in their homes
    - 21 have purchased portable generators or installed backup generators
- 2 respondents provided feedback on mitigation actions the county could consider in the planning process.

Public survey results were presented to the Plan Update Committee during Meeting #3, which included discussion on updating mitigation strategies to address concerns, vulnerabilities, and suggested county-managed actions that were provided by the community.

1.10.2 Involving Stakeholders

In addition to representatives of each participating jurisdiction, the Committee included a variety of stakeholders. See the bulleted list above in Chapter 1.10 Public & Stakeholder Involvement for a list of organizations that contributed as stakeholders on the Committee. Input from additional stakeholders, including neighboring communities, was solicited through direct email invitations to the open public meetings and distribution of the public survey. However, if any additional stakeholders representing other agencies and organizations participated through the public survey, that information is unknown due to the anonymous nature of the survey. Documentation of outreach to stakeholders is provided in Appendix D.

1.11 Hazard, Risk, & Vulnerability Summary

The hazards addressed in this plan were chosen by the Committee based on the previous plan, the current Georgia State Mitigation Strategy, and consideration of hazard frequency and potential severity of damage. Wherever possible, probability of future occurrences was based on historical occurrence data.

The conclusions drawn from each individual hazard profile and vulnerability assessment were used to prioritize all potential hazards to Macon-Bibb County using the Priority Risk Index (PRI). This method provides a standardized numeric value to each hazard for comparability. A higher PRI value indicates a hazard poses a higher risk to the community. The PRI is a weighted sum of values assigned across five categories: probability, impact, spatial extent, warning time, and duration. Each hazard is assigned a value between 1 and 4 for each category based on a defined set of criteria. Details on these values can be found in Chapter 3.3.6 Priority Risk Index. Chapter 3.22 Hazard Risk Summary summarizes the PRI results for the hazards addressed in this plan.

1.12 Mitigation Goals Setting

The Macon-Bibb County Hazard Mitigation Plan Update Committee used the results of the Hazard and Risk Assessment to identify and prioritize appropriate mitigation goals and actions. The Committee identified mitigation strategies they felt would benefit the community and deleted those which had been implemented in the interim.

Development of these strategies began in a formal Committee meeting, along with data and input from GEMA/HS. Past occurrences of disasters and historical trend data aided Committee members in assigning priorities.

After ensuring that all interested persons had been given ample opportunity to contribute to strategy development, mitigation action steps were next reviewed for priority status by Committee members.

1.13 Multi-Jurisdictional Participation & Special Considerations

FEMA does not require cities and towns to adopt a local Hazard Mitigation Plan. However, the Federal DMA 2000 requires that all municipalities, wishing to be eligible to receive Hazard Mitigation Grants through FEMA, must adopt a local multi-hazard mitigation plan and must update that plan every five years. However, Macon-Bibb County is a combined jurisdiction county. Therefore, the only jurisdiction participating or relevant in this plan is the county itself. Macon-Bibb County's most recent Hazard Mitigation Plan was approved by FEMA in 2020. The 2020 Mitigation Plan is the fourth five-year update. This FEMA-approved 2026 Hazard Mitigation Plan makes Macon-Bibb County eligible for FEMA's Hazard Mitigation Grant Program, Flood Assistance Mitigation Grants, and Pre-Disaster Mitigation Grants.

As set forth by Georgia House Bill 489, the Emergency Management Agency is the implementing agency for projects pertaining to hazard mitigation. Macon-Bibb County is dedicated to work in the best interests of the county. Unless noted otherwise, mitigation strategies apply equally to the whole county.

In developing the Macon-Bibb County Mitigation Action Plan, the county invited representatives of special interest groups to incorporate mitigation actions that will reduce the effects of hazards on vulnerable segments of the county's population. Foreseeable factors include early warning specifically directed to those groups to facilitate preparations for evacuation, identification of transportation system elements adapted to their needs, and preparation of shelters/reception areas for special needs. Stakeholders were also invited to participate in this process and have developed their own mitigation actions, such as protection and backup power generation for non-county-owned critical facilities.

1.14 Incorporation of Existing Plans, Studies, & Resources

Requirement §201.6(b)(3)
State Requirement Element F3

Existing Plans

- 2022 Macon-Bibb Comprehensive Plan Update 2050
- 2020 Macon-Bibb County Pre-Disaster Hazard Mitigation Plan
- 2024 State of Georgia Hazard Mitigation Plan
- Macon-Bibb County Local Emergency Operations Plan
- Macon-Bibb County Floodplain Management Plan

Studies

- 2026 Hazard Risk Analyses (Hazus Report)
- 2022 United States Department of Agriculture Ag Census
- 2020 United States Census and 2023/2024 Census Estimates
- 2017 Macon-Bibb County Flood Insurance Study
- 2025 Southern Group of State Foresters Wildfire Risk Assessment

Resources

- National Climactic Data Center
- National Weather Service
- Macon-Bibb County Tax Assessor's Data
- Macon-Bibb County Website
- Georgia Mitigation Information System Database
- Colorado State University (Hurricane mapping)
- United States Geological Survey
- FEMA Flood Insurance Rate Maps
- National Flood Insurance Program
- United States Coast Guard National Response Center Data
- Georgia Department of Transportation
- Georgia Safe Dams Program
- Southern Group of State Foresters Wildfire Risk Assessment

1.14.1 Application of Existing Plans & Studies

Table 1-4. Existing Plan Incorporation into HMP

Existing Planning Mechanism	Reviewed Yes/No?	Incorporation into 2026 HMP
2020 Macon-Bibb County Hazard Mitigation Plan	Yes	Baseline for the 2026 Plan; updated mitigation strategies; updated hazards; updated Macon-Bibb County information

Existing Planning Mechanism	Reviewed Yes/No?	Incorporation into 2026 HMP
2024 State of Georgia Hazard Mitigation Plan	Yes	Hazard descriptions; potential hazards; mapping mechanisms; potential mitigation strategies that could be adopted on a local level
Macon-Bibb County Local Emergency Operations Plan (LEOP)	Yes	Identification of current resources; identification of current capabilities
2022 USDA Census of Agriculture	Yes	Agricultural data regarding potential losses for drought and wildfire
2020 United State Census and 2023/24 Census Estimates	Yes	To update Macon-Bibb County's profile information
2017 Macon-Bibb County Flood Insurance Study	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
2022-2050 Macon-Bibb County Comprehensive Plan	Yes	To identify future development trends; identify mitigation strategies to curb trends in a direction that considers the hazards of the area
2025 Southern Wildfire Risk Assessment Summary Report	Yes	Summary of wildfire risk and hazard in the county
2026 Macon-Bibb County Hazus Report	Yes	Hazard Analysis

1.15 Adoption, Implementation, Monitoring, & Evaluation

Upon FEMA approval, this plan will be adopted by Macon-Bibb County by passing a resolution. The purpose of formally adopting this plan is to secure buy-in from all participating jurisdictions, raise awareness of the plan, and formalize the plan's implementation.

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Macon-Bibb County is responsible for plan implementation within their jurisdiction. Elected officials, officials appointed to head county departments, and community staff are charged with leading implementation of various activities in the plan. The county will need to decide which action(s) to undertake first based on the priority assigned to the actions in the planning process and the availability of funding and administrative support. Low or no-cost actions are often the easiest way to demonstrate progress toward successful plan implementation.

Macon-Bibb County EMA will be responsible for establishing an annual schedule to monitor, evaluate, and update this plan with the continued support of the Plan Update Committee. The Committee's primary duty moving forward is to see the plan successfully carried out and report

to each local governing body, Macon-Bibb County EMA, GEMA/HS, and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about mitigation, passing concerns on to appropriate entities, and posting relevant information on local websites (and others as appropriate).

More details on the procedures for plan adoption, implementation, monitoring, and evaluation are provided in Chapter 6.

CHAPTER 2 COMMUNITY PROFILE

2.1 Summary of Updates for Chapter 2

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the 2020 Macon-Bibb County Hazard Mitigation Plan.

Table 2-1. 2026 Chapter 2 Updates

Section	Section Title	Updates
2.1	Summary of Updates	• Completed new summary of updates for 2026
2.2	Past Hazards	• This information involved a review of the hazards listed in the previous plan • Updated information for the past 20 years
2.3	History	• No changes needed
2.4	Geography & Climate	• Updated description of the county's physical geography and regional climate conditions affecting hazard exposure • Content revised
2.5	Cultural, Historic, & Natural Resources	• New section added • Added updated discussion of natural resources in Macon-Bibb County including forestry, agriculture, and groundwater resources
2.6	Population & Demographics	• Updated demographic data using more recent Census and American Community Survey estimates • Content revised
2.7	Economy	• Updated economic conditions, employment sectors, and regional economic influences including education and public services • Content revised
2.8	Government	• No changes needed
2.9	Transportation	• Updated transportation infrastructure maps
2.10	Utilities	• No changes needed
2.11	Land Use & Development Trends	• New section added • Updated land use patterns and development trends including growth around Macon and major transportation corridors
2.12	Essential Facilities	• Referred to a comprehensive list of essential facilities in Macon-Bibb County, which can be found in Appendix H.

2.2 Past Hazards

Macon-Bibb County, Georgia, has faced many natural hazards in its long history. The National Centers for Environmental Information (NCEI) databases of the National Oceanic and Atmospheric Association (NOAA) provide aggregated reports of natural hazard events since 1950. Due to weather pattern changes over time, this plan focuses on the most recent 20 years of hazard data.

Severe thunderstorms have been the most prevalent of these hazards. In the last 20 years, Macon-Bibb County has been subjected to 143 documented thunderstorm events. These events include torrential rainfall, hail, thunderstorm-force winds, and lightning.

Tornadoes, which can sometimes spawn from severe thunderstorms, have also occurred, although with much less frequency. In Macon-Bibb County, there have been 12 documented tornadoes in the last 20 years.

Because of heavy rainfall, either within Macon-Bibb County or upstream, flooding has also occurred. There is documentation of 10 flooding and flash flooding events for Macon-Bibb County in the last 20 years.

Winter storms and heavy snowfall have affected Macon-Bibb County on several occasions over the last 20 years. The NCEI recorded 9 winter storms or heavy snow events for Macon-Bibb County.

Macon-Bibb County has been impacted by other less severe or less frequent hazards in the past. These hazards include, but are not limited to, the following: tropical cyclones, drought, excessive heat, earthquakes, and wildfires.

Macon-Bibb County has had 15 Presidential Disaster Declarations (FEMA-declared major disasters) – three of which occurred since the adoption of the 2020 Hazard Mitigation Plan (two declarations were related to the COVID-19 pandemic and one declaration was a result of impacts from Tropical Storm (Hurricane) Helene). Hurricanes and tropical storms have been the most frequent hazard that has led to a Presidential Disaster Declaration in Macon-Bibb County.

2.3 History

Bibb County, in central Georgia, was formed December 9, 1822, one year after the Creek Indians ceded the last of their land in the area. The state's fifty-fifth county was formed out of portions of Houston, Jones, Monroe, and Twiggs counties and was named for William Wyatt Bibb, a Georgia politician and the first elected governor of Alabama.

Geologically, Bibb County is located on the fall line, where the southern Piedmont meets the Coastal Plain. Before the arrival of European settlers, the area had been a center of a series of

Native American civilizations. By the time British traders established a trading post along the river in about 1690, Georgia was inhabited mostly by the Creek Indians.

As the other Native American peoples had done, the Creeks gradually lost control of their lands through a series of negotiations and treaties. Although they would not officially cede their Georgia lands until the Second Treaty of Washington in 1826, by 1821 the state of Georgia effectively had control of the areas surrounding the Ocmulgee River.

The city of Macon was formed in 1823 and serves as the county seat. Numerous smaller towns—such as Vineville and Huguenin Heights—once existed independently in Bibb County, but all were eventually annexed to Macon. Payne City, which was founded as a mill town in 1899, was dissolved as an incorporated city and consolidated into the Macon-Bibb County government in March 2015.

By 1850 the county population had grown to 12,699, including 5,637 slaves. Its location along the fall line was crucial to its growth; steamboats (the first arrived in 1829) could not navigate the Ocmulgee River beyond Macon. The relatively healthful climate, as well as its location in the near geographic center of the state, contributed to rapid economic and industrial growth. Rail linkage to Forsyth was completed in 1838.

Bibb County was attacked only once during the Civil War (1861-65), but it was affected, nevertheless. Its status as a transportation hub allowed it to become a center of manufacturing and the site of several hospitals and prisons. Macon briefly became the capital of Georgia (from November 1864 through March 1865), when Milledgeville temporarily relinquished that title.

The railroads, so important to the livelihood of the central region of the state, were devastated during the Civil War, and the economy of the entire region took decades to recover.

The rails were eventually rebuilt, and central Georgia began to revive economically. Manufacturing soon rivaled agriculture as a primary employer. During World War I (1917-18), Camp Wheeler was established as an army camp in the southeastern part of the county. It operated from July 1917 to December 1918 and was reestablished during World War II (1941-45).

The arrival of the boll weevil in the state in 1915 further threatened the cotton crop, as did the post–World War I drop in cotton prices. The boll weevil would play a role in the establishment of Delta Air Lines. C. E. Woolman, of Huff Daland Dusters, Incorporated, decided that central Georgia would be an ideal place to test crop dusting. An airline hangar at Camp Wheeler was Daland's first central office. Delta was formed from Daland in 1928 and had its headquarters in Monroe, Louisiana, until 1941, when it moved to Atlanta.

Although it is located in adjacent Houston County, Robins Air Force Base, established in 1941, has had an impact on Bibb County as well. Robins quickly became the largest employer in central Georgia, and it contributed to the rapid increase in the industrial and retail sectors in the area.

A population boom would last from the end of World War II until approximately 1960. Macon-Bibb County's population has grown much more slowly since, and there was a slight drop in the 1980s. According to the 2024 American Community Survey 5-year estimates, the

population is 157,056, a slight 0.18% decrease from the 2020 U.S. census population of 157,346. Macon-Bibb County has four institutions of higher learning: Wesleyan College (founded in 1836 and the world's first chartered college to grant degrees to women), Mercer University, Middle Georgia State University, and Central Georgia Technical College.

2.4 Geography & Climate

Macon-Bibb County lies in the heart of central Georgia along the fall line, where the rolling hills of the Piedmont transition into the flatter Coastal Plain. The area is characterized by gently sloping terrain, mixed pine and hardwood forests, and a network of waterways led by the Ocmulgee River, which flows southward through the county and contributes to its floodplain and wetland systems. Elevations gradually decrease from north to south, and the region's red clay soils are typical of the Piedmont. This geographic setting supports a blend of urban development around Macon and more rural landscapes in outlying areas, while also influencing local drainage patterns and natural hazard risks such as flooding.

Macon-Bibb County, like much of Georgia, enjoys a temperate climate with four well-defined seasons: warm to hot summers; brisk fall temperatures; relatively brief, cool winters; and a warm spring season. As a result, there exists a long growing season in Georgia, perfect for ornamental and economic-boosting agricultural plants.

Table 2-2. Average Monthly Temperatures in Georgia (Fahrenheit)

Month	Georgia Temperature	Average Macon-Bibb County Temperature
January	45	47
February	48	51
March	56	58
April	64	66
May	72	74
June	79	80
July	82	82
August	81	81
September	75	76
October	66	66
November	55	57
December	47	49

2.5 Cultural, Historic, & Natural Resources

Known as the hometown of influential artists such as Otis Redding, Macon-Bibb County celebrates music through festivals, performances, and institutions like the Allman Brothers Band Museum at The Big House. Local theaters, galleries, and cultural events contribute to a

strong sense of identity and community cohesion. These cultural assets enhance quality of life and tourism, while also requiring protection and continuity planning to ensure they remain accessible following hazard events.

Macon-Bibb County contains an extensive inventory of historic resources, including well-preserved architecture, districts, and landmarks that reflect its role in Georgia's development. Notable sites, such as the Hay House and the Cannonball House, highlight the county's 19th-century history and Civil War significance. Numerous properties are listed on the National Register of Historic Places, contributing to heritage tourism and community character. These historic assets are particularly vulnerable to hazards such as severe storms, flooding, and aging infrastructure, making their preservation an important consideration in mitigation planning.

The county is also home to the Ocmulgee Mounds National Historical Park, which preserves both significant cultural landscapes and natural habitats along the Ocmulgee River, including wetlands and wildlife corridors. Additional parks, greenways, and forested areas throughout the county provide stormwater management benefits and open space. These natural systems play a critical role in reducing hazard impacts but may themselves be affected by flooding, erosion, and development pressures.

2.6 Population & Demographics

Census data for Macon-Bibb County since 2000 is presented in the table below.

Table 2-3. Macon-Bibb County Census Data

	2024 ACS Estimates	2020 Census	2010 Census	2000 Census
Population	157,056	157,346	91,351	97,255
White	35.3%	36.7%	43.2%	50.1%
African American	54.9%	54.6%	52.1%	47.3%
Hispanic/Latino	4.7%	4.3%	2.8%	1.3%
Asian	2.3%	2.1%	1.6%	1.1%
American Indian	0.2%	0.2%	0.2%	0.2%
Two or More Races	4.6%	4.0%	1.4%	0.8%
Median Age	36.8	37.9	35.6	34.7
Median Household Income	$51,234	$41,317	$38,183	$34,532
Persons in Poverty	24.7%	25.0%	26.7%	19.1%
Homeowners	51.4%	50.0%	55.6%	58.8%

2.6.1 Socioeconomic Vulnerability Considerations (PRT §201.6(c)(2))

Socioeconomic conditions in Macon-Bibb County contribute to heightened vulnerability to natural hazards. Although median household income increased from approximately $41,317 in 2020 to an estimated $51,234 in 2024, income levels remain relatively low, limiting the ability of some households to invest in mitigation measures, maintain adequate insurance coverage, or absorb disaster-related losses.

Similarly, while the percentage of persons living below the poverty level declined slightly from 25.0 percent in 2020 to an estimated 24.7 percent in 2024, a substantial portion of the population continues to face economic constraints that can increase exposure, reduce preparedness, and prolong recovery following hazard events.

These socioeconomic factors indicate that low-income and economically vulnerable populations may be disproportionately impacted by hazards, and therefore warrant targeted consideration in the identification and prioritization of mitigation actions. Addressing these vulnerabilities through mitigation planning can help reduce long-term risk, enhance community resilience, and improve recovery outcomes following disaster events.

2.7 Economy

Macon-Bibb County's economy is predominantly service-based, with major employment sectors including healthcare, education, insurance, government services, and transportation and logistics, supported by light manufacturing and limited agricultural activity. These sectors provide economic stability; however, wages in several dominant industries remain below state and national averages, contributing to lower overall household income levels.

According to U.S. Census Bureau data, median household income in Macon-Bibb County has increased over time, rising from approximately $38,183 in 2010, to $41,317 in 2020, and to an estimated $51,234 based on the 2024 American Community Survey. Despite this improvement, income levels continue to lag behind state and national medians, indicating ongoing economic vulnerability for a significant portion of the population.

This economic context directly influences the county's vulnerability to natural hazards. Lower household incomes and elevated poverty rates reduce the capacity of some residents to invest in mitigation measures, maintain adequate insurance coverage, or absorb disaster-related losses. As a result, economically vulnerable populations may experience greater exposure, reduced preparedness, and prolonged recovery following hazard events.

These conditions are reflected in the Risk Assessment and were used to inform the prioritization of mitigation actions. Mitigation strategies emphasize targeted flood risk reduction, housing resilience improvements, protection of critical services, and expanded outreach to low-income and at-risk populations to reduce disproportionate impacts and enhance long-term community resilience.

Table 2-4. Ten Largest Employers in Macon-Bibb County

Company	Product/Service
Atrium Health Navicent	Healthcare
GEICO	Insurance
Mercer University	Higher Education
Georgia Farm Bureau Mutual Insurance Company	Insurance
YKK USA, Inc.	Manufacturing
The Kroger Company	Grocery
Walmart	Department Store
Health Services of Central Georgia	Healthcare
Truist	Financial Services
Amazon	Logistics/Distribution

Note: The above list is in alphabetical order, not in order of company size. This list reflects an update from prior Hazard Mitigation Plan versions. Employer information was reviewed using the Georgia Department of Labor, Macon-Bibb County Economic & Community Development resources, and publicly available corporate information. Because the Georgia Department of Labor does not routinely publish ranked employer lists by workforce size, employers are identified as major private-sector employers without ranking.

2.8 Government

Macon, Payne City, and Bibb County consolidated to form the Macon-Bibb County government. This government provides for an elected body of commissioners—one from each of nine geographic districts—who are elected in staggered, four-year terms, and a mayor, who is elected countywide. Although commissioners are elected as a representative from their respective districts, they represent the interests of the entire county and all its residents. The mayor serves as the Chief Executive Officer of Macon-Bibb County.

The main duties of the Board of Commissioners is to pass local laws, known as ordinances, that regulate a variety of things that promote the health, safety, and welfare of the residents covered by them; to pass a balanced budget each year that funds its own operations as well as to allocate funds to the four Constitutional Officers, other elected officials, the courts, and a variety of programs put in place by the state but funded locally; to ensure that necessary services are funded and provided; to set the millage rate for the county government; and to perform many other secondary duties.

The Board of Commissioners sets the county millage rate each year to fund a portion of the county budget. They also receive the millage rate that is set by the Board of Education and an assessment by the state, which is submitted to the Georgia Department of Revenue each year.

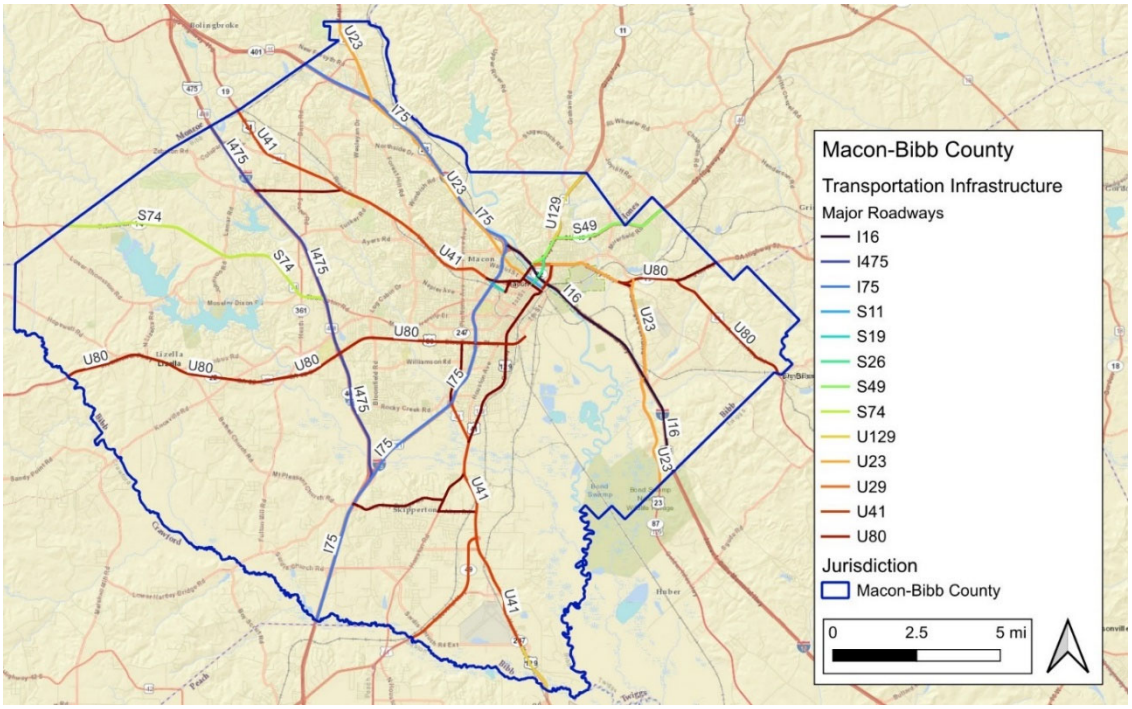
The Board receives, deliberates, and passes local ordinances each year and amends many others to reflect the changing times. Both require that a public hearing be held, and these are normally held during the regular Commission meetings. They also pass several resolutions and proclamations throughout the year. Generally, with some exceptions, the Board can pass any local law and ordinance they feel is needed for the county so long as it does not violate the laws of the state or federal government or the constitutional rights of any individual. These are researched thoroughly by legal staff before ever being brought to a hearing.

The Board of Commissioners provide many services that residents expect through the revenues that are raised annually. These include fire protection; E-911 dispatch services; Planning and Zoning; Inspections; Code Enforcement; Animal Welfare; Parks and Recreation; Public Works; and agencies that service all these, such as Facilities Management, Fleet Services, and the Emergency Management Agency. The budget also funds state mandated services, such as Law Enforcement and Detention; Superior, Probate, Magistrate and Juvenile courts; Tax Assessment and Tax Collection services; Elections management; District Attorney (shared with other counties), and some smaller funding for local agencies under the State of Georgia.

2.9 Transportation

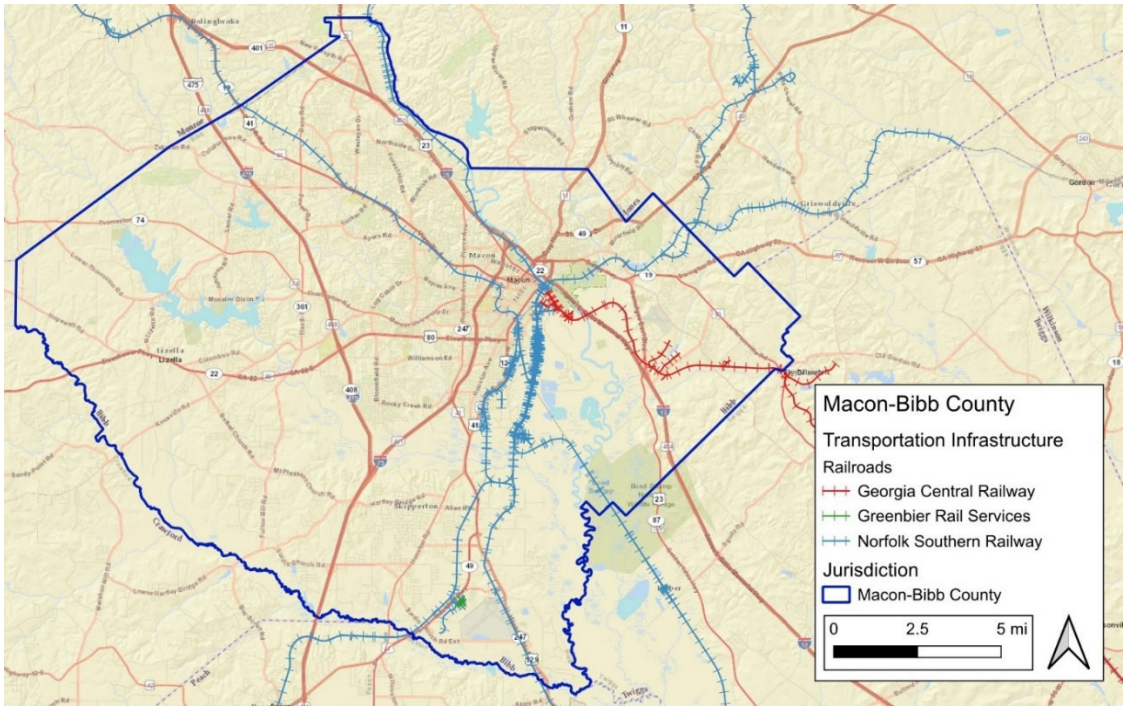
Macon-Bibb County's transportation system consists primarily of state highways and county-maintained roads. Interstates 16, 75, and 475; US Highways 23, 41, 80, and 129; as well as State highways 11, 19, 22, 49, 74, 87, 247, and 540 (also known as the Fall Line Freeway) are major transportation routes that carry the majority of passenger and commercial traffic in and out of Macon-Bibb County. Congestion in these transportation corridors create traffic problems, primarily because of population growth and a continuously increasing industrial footprint.

Figure 2-1. Macon-Bibb County Major Roadways



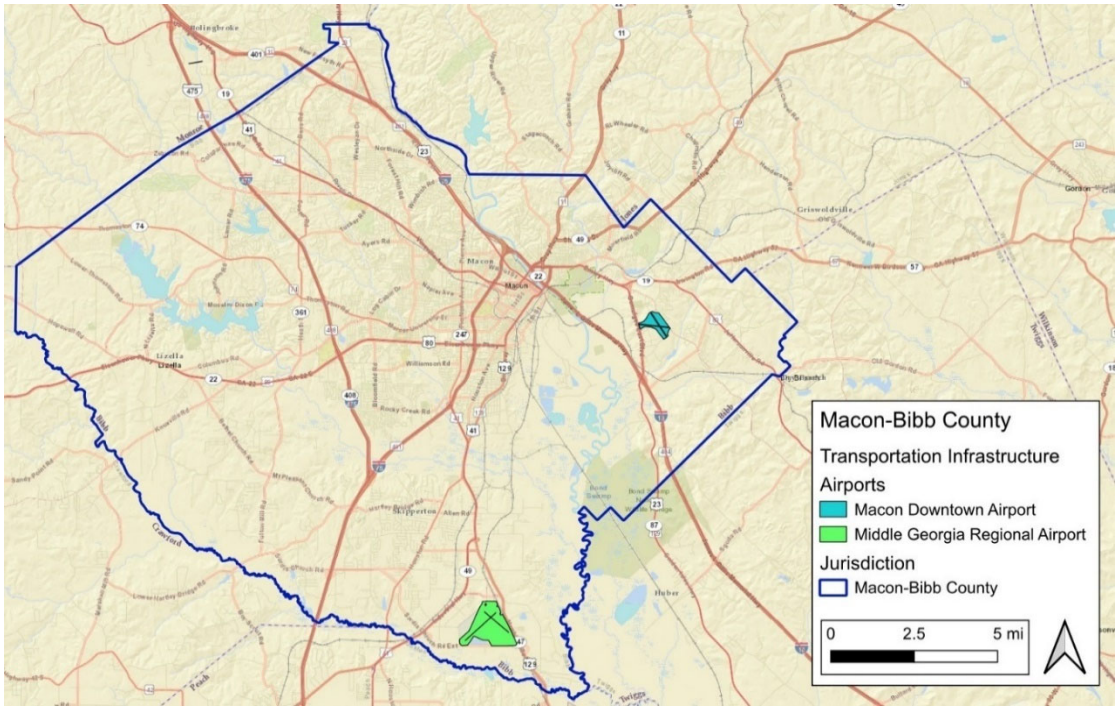
Freight rail services owned and operated by Norfolk Southern and Georgia Central Railroads traverse Macon-Bibb County. Macon serves as the main hub in Central Georgia for Norfolk Southern's rail system at Brosnan Yard.

Figure 2-2. Macon-Bibb County Freight Rail



Macon-Bibb County is serviced by the Middle Georgia Regional Airport and Macon Downtown Airport. Middle Georgia Regional Airport operates 2 runways—one 5,500 feet long and one 6,500 feet long, the latter of which is currently under construction to increase its total length to 7,101 feet.

Figure 2-3. Macon-Bibb County Airports



2.10 Utilities

Macon-Bibb County's utility needs are met by a variety of public and private entities.

Electrical power to Macon-Bibb County is provided by Georgia Power, Tri-County EMC, Central Georgia EMC, and Southern Rivers Energy.

2.11 Land Use & Development Trends

Macon-Bibb County continues to experience modest population stabilization and targeted economic development, reinforcing its role as a regional center for healthcare, education, logistics, and government services in central Georgia. While overall population growth has been slower than in some neighboring counties, recent revitalization efforts in Macon's urban core, combined with industrial expansion along major corridors such as Interstate 75 and Interstate 16, have contributed to renewed investment and development activity. Growth is supported by the presence of key institutions such as Mercer University, a strong healthcare sector, and ongoing downtown redevelopment initiatives.

Understanding existing land use is essential to developing successful implementation strategies for future land use in Macon-Bibb County. Nine land use classifications were used in the 2050

Macon-Bibb County Comprehensive Plan Update to identify how land is currently divided in Macon-Bibb County:

Figure 2-4. Existing Land Use, Macon-Bibb County

Classification	Dist. %	Acres
Residential	34.04%	50,194.61
Commercial & Multi-Family	7.75%	11,433.42
Historical Land	0.03%	47.56
Industrial	3.86%	5,686.79
Utility/Other	0.82%	1,214.84
Agricultural	19.89%	29,320.29
Forest	1.90%	2,804.26
Conservation	15.59%	22,987.21
Tax Exempt	16.11%	23,749.51
Total	**100.00%**	**147,438.50**

Source: 2050 Macon-Bibb County Comprehensive Plan Update

Macon-Bibb County is experiencing targeted and strategic growth shaped by its long-range vision outlined in the 2050 Comprehensive Plan, which emphasizes revitalization, efficient land use, and sustainable development patterns. Rather than rapid outward expansion, the county is focusing on reinvestment in existing urban areas—particularly within Macon—through infill development, redevelopment of underutilized properties, and neighborhood stabilization efforts. The plan highlights a shift toward more compact, mixed-use development patterns that integrate residential, commercial, and recreational uses, while encouraging higher-density housing options and a broader range of housing types to meet evolving community needs. Growth is also being directed along major transportation corridors to maximize existing infrastructure and support economic development, including industrial and workforce-related investments. At the same time, the county aims to manage development pressures on its outskirts by preserving greenspace and promoting conservation-oriented subdivisions.

2.12 Essential Facilities

A comprehensive list of Macon-Bibb County's essential facilities is included in Appendix G.

CHAPTER 3 HAZARD IDENTIFICATION & RISK ASSESSMENT

3.1 Summary of Updates for Chapter 3

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the 2020 Macon-Bibb County Hazard Mitigation Plan.

Table 3-1. 2026 Chapter 3 Updates

Section	Section Title	Updates
3.1	Summary of Updates	• Completed new summary of updates for 2026
3.2	Hazard Identification	• Expanded the explanation of the Risk Assessment • Noted changes in hazards, including additions, deletions, and reclassification
3.3	Risk Assessment Methodology & Assumptions	• Updated methodology used to evaluate hazard probability, magnitude, and vulnerability
3.4	Natural Hazard: Conflagration	• Changed from technological hazard to natural hazard • Content revised
3.5	Natural Hazard: Drought	• Updated drought monitoring information, including drought indices and recent drought conditions • Content revised
3.6	Natural Hazard: Earthquake	• Updated historical occurrences with new data • Content revised
3.7	Natural Hazard: Extreme Temperature	• Updated historical occurrences with new data • Content revised
3.8	Natural Hazard: Infectious Disease	• Changed from technological hazard to natural hazard • Expanded discussion of pandemic risks, incorporating lessons learned from COVID-19 • Content revised
3.9	Natural Hazard: Flooding	• Updated FEMA flood data, floodplain mapping references, and recent flood events affecting the county • Incorporated 2026 Hazus Report • Content revised
3.10	Natural Hazard: Space Weather	• New Section – Not in 2020 Mitigation Plan
3.11	Natural Hazard: Thunderstorm	• Updated information on hail, lightning, and damaging winds including updated frequency and impacts • Expanded discussion of extreme heat risks and impacts on vulnerable populations • Content revised

Section	Section Title	Updates
3.12	Natural Hazard: Tornado	• Updated tornado occurrence data using recent NOAA and Storm Prediction Center records • Updated and consolidated hazard profile data • Incorporated 2026 Hazus Report • Content revised
3.13	Natural Hazard: Tropical Cyclone	• Updated historical storm data and probability analysis for tropical systems affecting central Georgia • Incorporated 2026 Hazus Report • Content revised
3.14	Natural Hazard: Wildfire	• Updated wildfire occurrence data • Content revised
3.15	Natural Hazard: Winter Storm	• Updated winter weather history and potential impacts on transportation and infrastructure • Content revised
3.16	Technological Hazard: Communications Failure	• Updated historical occurrences with new data • Expanded discussion of cyber threats affecting government operations and infrastructure • Content revised
3.17	Technological Hazard: Dam & Levee Failure	• Updated discussion of dam locations, potential hazards, and state dam safety oversight • Updated historical occurrences with new data • Content revised
3.18	Technological Hazard: Hazardous Materials Incident	• Updated transportation and industrial risk factors related to hazardous materials • Updated historical occurrences with new data • Content revised
3.19	Technological Hazard: Hostile Event	• Updated discussion of intentional threats to public facilities and infrastructure • Updated historical occurrences with new data • Content revised
3.20	Technological Hazard: Infrastructure Failure	• Updated historical occurrences with new data • Content revised
3.21	Technological Hazard: Transportation Incident	• Updated historical occurrences with new data • Add new transportation maps • Content revised
3.22	Hazard Risk Summary	• Added new Priority Risk Index and assigned scores based on the degree of risk associated with each hazard

3.2 Hazard Identification

Requirement §201.6(c)(2)(i and ii)
Requirement §201.6(d)(3)

The Macon-Bibb County Hazard Mitigation Planning Committee conducted a comprehensive Hazard Identification and Risk Assessment (HIRA) for Macon-Bibb County. This assessment developed the hazard basis for this plan. The assessment includes the following components for each hazard:

1. *Hazard Identification*: The Macon-Bibb County Hazard Mitigation Plan Update Committee identified 12 natural hazards and six technological hazards for this Hazard Mitigation Plan. This is an increase of three natural hazards and a decrease of two technological hazards from the previous iteration of the plan. Infectious Disease and Conflagration were changed to natural hazards, and Space Weather was added as a new natural hazard. Each hazard was identified using statistical data and records from a variety of sources. The list of hazards is based upon frequency, severity of impact, probability, potential losses, and vulnerability.
2. *Hazard Description*: Each hazard was described in detail. Many hazard descriptions came from the Georgia Hazard Mitigation Plan since many of the hazards that could impact the state could also potentially impact Macon-Bibb County.
3. *Profile of Hazards*: Each hazard was profiled as to how it could potentially impact Macon-Bibb County.
4. *Assets Exposed to the Hazard*: The plan considers critical facilities and infrastructure as part of the vulnerability assessment. This assessment determines the vulnerability of the county and attempts to identify the populations most vulnerable to each hazard, although many have potential countywide impacts.
5. *Estimated Potential Losses*: Using critical facility and past history data, an estimation of potential losses due to a particular hazard event were determined.
6. *Land Use and Development Trends*: Land use trends were considered when determining the potential future impacts of each hazard. This is of particular importance regarding flooding and dam failure events.

At the second meeting of the Macon-Bibb Hazard Mitigation Plan Update Committee, the attendees participated in a risk assessment of hazards for Macon-Bibb County. This risk assessment was based upon two primary factors:

1. How likely is a hazard to occur;
2. How prepared the Committee meeting participants felt the community was for each hazard.

This risk assessment relied on the Committee meeting attendees to identify the hazards and then rank them by those two factors. As a result, the risk assessment could be skewed by the meeting participants, recency bias, and/or how the hazard would directly impact the organizations

represented at this meeting. After additional discussion with the Macon-Bibb Hazard Mitigation Plan Update Committee at future meetings, the hazards in this chapter were agreed upon.

Several of the hazards identified by the Committee members were consolidated into expanded hazard descriptions.

- Mass Casualty Incident was determined to be a cascading event of many of the hazards identified and not a standalone hazard.
- Evacuation Incident is related to Coastal evacuations in Georgia from Tropical Cyclone events and has been incorporated into the Tropical Cyclone hazard.
- Water Contamination has been incorporated into Hazardous Materials Incident and Hostile Event.
- Agricultural Incident is incorporated into Drought, Extreme Temperature, and Infectious Disease.
- Roundabouts were included in Transportation Incident.
- Conflagration and Infectious Disease were moved from Technological Hazards to Natural Hazards.
- Space Weather was added as a new hazard.

The agreed upon hazards that have been detailed in this plan include:

- Natural Hazards:
  - Conflagration
  - Drought
  - Earthquake
  - Extreme Temperatures
  - Infectious Disease
  - Flooding
  - Space Weather
  - Thunderstorm
  - Tornado
  - Tropical Cyclone
  - Wildfire
  - Winter Storm
- Technological Hazards:
  - Communications Failure
  - Dam & Levee Failure
  - Hazardous Materials Incident
  - Hostile Events
  - Infrastructure Failure
  - Transportation Incident

3.3 Risk Assessment Methodology & Assumptions

The Disaster Mitigation Act of 2000 requires that the Plan Update Committee evaluate the risks associated with each of the hazards identified in the planning process. Each hazard was

evaluated to determine its probability of future occurrence and potential impact. A vulnerability assessment was conducted for each hazard using either quantitative or qualitative methods, depending on the available data, to determine its potential to cause significant human and/or monetary losses. A priority risk analysis was also completed for each hazard.

Each hazard is profiled in the following format:

3.3.1 Hazard Description

This section describes the general characteristics of the specified hazard.

3.3.2 Hazard Location

This section contains information about the location and geographic area(s) within the planning area that are affected by the hazard.

Methodology: Some hazards do not have defined hazard boundaries and pose equal risk throughout the county. For hazards with identified boundaries, boundary data and/or maps are provided.

3.3.3 Hazard Extent

This section includes the extent (strength and magnitude) of the specific hazard.

Methodology: To assess the extent of each hazard identified in the plan, available historical data, scientific resources, and local knowledge were reviewed to estimate the potential severity and geographic scope of future hazard events. Extent was measured using well-established, standardized indicators where possible. When quantitative methods were unavailable, qualitative descriptions based on past events and experiences were used. The full range of each hazard's potential strength and magnitude was identified.

3.3.4 Historical Occurrences

This section contains a history of previous hazard events for the profiled hazard. Probability of Future Occurrence within this section describes the likelihood, or probability, of the identified hazard actually occurring within the planning area. If discrete quantitative data is available, a finite probability will be listed. See the table below for additional information related to the probability of future events.

Methodology: Most of the historical data used in the risk assessment originates from the National Oceanic and Atmospheric Administration/National Centers for Environmental Information (NOAA/NCEI). In most instances, the hazard affects a large geographic area, and thus the hazard data is reported at the county level. This is the best available data for these hazards. The calculations for *Historical Occurrences* and the *Probability of Future Occurrence* are based on county-level data.

Table 3-2. Probability Categories

Category	Range (Per Year)
Unlikely	Less than 1%
Possible	1%–10%
Likely	10%–70%
Highly Likely	70%–100%

3.3.5 Vulnerability Assessment

This section describes the potential impacts of the hazard for each participating jurisdiction and provides an overall summary of each jurisdiction's vulnerability to the hazard through structures, systems, populations, and community assets that are susceptible to damage and loss from the hazard.

If applicable to the profiled hazard, Hazus models may be included in this section of the plan. Hazus is a GIS (mapping) tool that allows analysts to create a fictional scenario for the planning area using specific details to show what could happen if that scenario were to occur. This type of mapping is helpful to fill in gaps where there is a lack of historical data. It also allows jurisdictions to visualize which facilities and populations would potentially be affected by the profiled hazard(s). Within this section are the following subsections:

- *People:* This section identifies populations within the county that may be at increased risk to the hazard.
- *Property:* When appropriate, this section details the critical facilities and infrastructure relative to the hazard and any property losses that may occur or have occurred as a result of the hazard.
- *Environment:* This section describes the effect the profiled hazard may have on the county's environment and ecosystems.
- *Land Use & Development Trends:* This section provides a general description of land use and development trends within the participating jurisdictions and any recent changes to development since the last plan update.
- *Consequence Analysis:* This section categorizes the various impacts that could be experienced for each hazard.

3.3.6 Priority Risk Index

The conclusions drawn from the hazard profiling and vulnerability assessment process can be used to prioritize all potential hazards to the Macon-Bibb County planning area. The Priority Risk Index (PRI) was applied for this purpose because it provides a standardized numerical value so that hazards can be compared against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk was assigned a value (1 to 4) and a weighting factor as summarized in the table below.

Table 3-3. Priority Risk Index

RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK CRITERIA	INDEX	WEIGHT
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	**UNLIKELY**	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 10 & 100% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	100% ANNUAL PROBABILITY	4	
IMPACT In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	**MINOR**	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 DAY	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES > 30 DAYS.	4	
SPATIAL EXTENT How large of an area could be impacted by a hazard event? Are impacts localized or regional?	**NEGLIGIBLE**	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	4	
WARNING TIME Is there usually some lead time associated with the hazard event? Have warning measures been implemented?	**MORE THAN 24 HRS**	SELF DEFINED	1	10%
	12 TO 24 HRS	SELF DEFINED	2	
	6 TO 12 HRS	SELF DEFINED	3	
	LESS THAN 6 HRS	SELF DEFINED	4	
DURATION How long does the hazard event usually last?	**LESS THAN 6 HRS**	SELF DEFINED	1	10%
	LESS THAN 24 HRS	SELF DEFINED	2	
	LESS THAN 1 WEEK	SELF DEFINED	3	
	MORE THAN 1 WEEK	SELF DEFINED	4	

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

PRI = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

The purpose of the PRI is to categorize and prioritize all potential hazards for the Macon-Bibb County planning area as high, moderate, or low risk. The summary hazard classifications generated through the use of the PRI allow for the prioritization of those high and moderate hazard risks for mitigation planning purposes. Mitigation actions are not developed for hazards identified as low risk through this process.

PRI ratings by category for the planning area as a whole are provided throughout each hazard profile. Ratings specific to each jurisdiction are provided at the end of each hazard profile. The results of the risk assessment and overall PRI scoring are provided in Section 3.22 Hazard Risk Summary.

3.4 Natural Hazard: Conflagration

3.4.1 Hazard Description

Conflagration is a large, destructive fire that directly and indirectly threatens human and animal life, health, property, and/or the environment. These devastating fires have occurred across the United States in rural areas, small towns, and big cities. In developed areas, these fires have increased in destructive power in direct relation to increased urbanization, development, and population density.

Uncontrolled fires in urban areas can be impacted by many factors, including local climatology, density, age of buildings in the area, and availability of firefighting resources. In many urban areas, buildings are not only close together but may actually be conjoined and interconnected structures. This building practice, particularly in the absence of firewalls between units, presents a significant vulnerability to rapid fire spread. A conflagration can consume enormous swaths of a community in a manner that is not predictable. The boundaries of the wildland-urban interface in the county are discussed in the "Wildfire" section, which may provide some guidance as to higher risk areas and areas in which a conflagration may start. Conflagration risk in Macon-Bibb County has not been studied, but densely developed areas in or near the Wildland-Urban Interface may be at increased risk.

Most recently, the Lahaina Fire on the island of Maui, Hawaii and the Marshall Fire in Colorado demonstrated the devastating impact of a conflagration in the built environment. Both fires spread from arid grasslands into a community and in both cases over 1,000 structures were lost in just twelve hours, as well as the significant loss of nearly 100 human lives in Lahaina.

The five factors that have always accompanied urban and suburban conflagrations are:

- Drought
- Wind
- Ignition mechanism, often human-based
- Dense construction using materials with little to no resistance to the hazard
- Dense combustible elements surrounding and between structures

3.4.2 Hazard Location

Downtown Macon is uniquely vulnerable to conflagration due to the age of many buildings. There are buildings that date back to the late 18th and early 19th century. These buildings were erected well before NFPA and other building regulations were implemented and are at a greater risk to fire and rapid fire spread. Additionally, many of the jurisdictions surrounding Macon-Bibb County are more rural and may not be as well equipped to assist firefighting operations in the urban areas of Macon-Bibb County as other metropolitan and urban fire departments would be.

Conflagration involving warehouse facilities and/or industrial areas are also a concern in Macon-Bibb County. They pose significant risks, with the National Fire Protection Association

(NFPA) reporting an average of 1,544 warehouse fires annually between 2020 and 2024.[1] These fires are associated with higher property losses. Electrical issues, operating equipment, and arson are leading contributors to these fires, causing injuries and substantial damage.

Due to the unpredictable nature of conflagration, all public and private properties are vulnerable to the hazard.

All areas of Macon-Bibb County are exposed to conflagration hazards; however, certain communities and land uses present elevated risk:

- Downtown Macon: Concentration of 19th-century wood-frame and mixed-construction buildings with limited separation.
- Industrial corridors: Warehouses, petrochemical storage, and intermodal facilities.
- Suburban multifamily housing: Apartment complexes, townhomes, and high-density developments with shared walls.
- Tourist areas and commercial corridors: High-occupancy structures, hotels, and entertainment venues.

3.4.3 Hazard Extent

Localized fires are common and generally contained by local fire services within minutes to hours. Conflagration potential exists in areas with high-density wood construction (downtown Macon, older neighborhoods), critical infrastructure clusters (warehousing facilities, chemical storage, utilities), and large industrial or institutional facilities (hospitals, universities, plants).

Severity ranges from localized damage to countywide cascading impacts if a major fire disrupts industrial facilities or transportation corridors.

Wind and drought conditions can amplify spread and intensity. This plan provides a discussion on wildfire risk extent in Macon-Bibb County in the wildfire hazard section. Conflagration risk and extent have not been studied in the planning area.

3.4.4 Historical Occurrences

Structure fires occur relatively frequently in Macon-Bibb County, but no conflagrations have been recorded. Wildfires, which are profiled as their own hazard, occur less frequently, and there are no records of wildfire conflagrations.

Probability of Future Occurrence

Any densely developed area in contact with the wildland-urban interface and a threat of wildland fire can be a candidate for a conflagration under the right conditions. A conflagration is always a possibility in such areas. More study is needed to accurately quantify all of the factors that need to be weighed in order to develop a probability model.

[1] https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/warehouse-structure-fires. Retrieved April 20, 2026.

Additionally, areas of high-density populations with large warehousing, large, balloon construction structures, and older commercial properties with party walls are vulnerable to conflagrations. Many areas of Macon-Bibb County have these structural features in their jurisdictions.

While fire prevention, suppression, and modern codes have reduced frequency of large conflagrations, dense development patterns and critical industries continue to pose risk.

3.4.5 Vulnerability Assessment

Losses due to conflagration are difficult to estimate due to the unpredictable nature of the hazard; therefore, vulnerability to conflagration is assessed qualitatively.

People

Of most significant concern in conflagrations is the devastating impact on human life such a fire can have. Many residents can become trapped in a conflagration with no egress due to the fast-moving nature of such a disaster as well as the sheer number of other people trying to escape the flames. Fleeing residents can be overrun by fire while in their vehicles, on foot, or trying to shelter in their homes. Extensive loss of human life is one of the hallmarks of conflagration.

Property

Conflagrations are by definition widespread and commonly devour all of the built environment that lies in their path. Property damage by conflagration usually comes in the form of total devastation/total loss.

Environment

Conflagration has environmental implications that go beyond those of a typical wildfire; given the vast destruction caused by a conflagration, additional hazardous materials and pollutive agents are much more likely. Pollution of water sources caused by extensive runoff of debris and chemicals and air pollution from smoke and soot are some of the potential environmental effects experienced during wildfire events that are likely to be exacerbated in a conflagration event.

Land Use & Development Trends

Increased development near downtown Macon increases the potential impact of a conflagration event.

Consequence Analysis

The table below summarizes the potential negative consequences of conflagration.

Table 3-4. Consequence Analysis, Conflagration

Category	Consequences
Public	In addition to the potential for fatalities, diminished downwind air quality poses health risks. Exposure to smoke can cause serious health problems within a community, including asthma attacks and pneumonia, and can worsen chronic heart and lung diseases. Weather conditions can alter the risk as high winds can carry smoke and toxic vapors for miles. Rain can also cause particulate matter in smoke to adhere to raindrops and fall onto people and property. Vulnerable populations include those who are in the immediate vicinity of the fire and those downwind.
Responders	Public and firefighter safety is the first priority in all fire management activities. Conflagrations threaten the health and safety of the emergency services personnel, especially those who are not properly trained and/or have the proper personal protective equipment.
Continuity of Operations	Conflagration can result in a loss of utility services, which may impact operations.
Property, Facilities, and Infrastructure	Conflagrations can damage community infrastructure, including roadways, communication networks and facilities, power lines, and water distribution systems. Restoring basic services is critical and a top priority. Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground distribution lines, and soil erosion or debris deposits into waterways after the fire. Utilities and communications repairs are also necessary for equipment damaged by a fire.
Environment	Conflagrations can cause damage to the natural environment, killing vegetation and animals. Toxic water runoff from firefighting operations can enter storm drains, natural waterways, wetlands, and nearby soil.
Economic Condition of the Jurisdiction	Conflagration can have significant short-term and long-term effects on the local economy. Entire neighborhoods and business districts can be destroyed, and local property values can decline.
Public Confidence in the Jurisdiction's Governance	Conflagration events may cause issues with public confidence because they have very visible impacts on the community. Public confidence in the jurisdiction's governance may be influenced by actions taken to provide warning to residents; response actions; and speed and effectiveness of recovery.

3.4.6 Priority Risk Index

The following table summarizes conflagration hazard risk for Macon-Bibb County. Warning time and duration do not vary by area. Spatial extent ratings were estimated based on the proportion of area with higher housing density and greater industrial development. Impact ratings were based on population density and wildfire risk. Probability ratings were determined based on available data on conflagration and large fire history across the county.

Table 3-5. Conflagration Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	1	3	3	4	2	2.4	M

3.5 Natural Hazard: Drought

3.5.1 Hazard Description

Drought is a normal, recurrent feature of climate consisting of a deficiency of precipitation over an extended period (usually a season or more). This deficiency results in a water shortage for some social or environmental sectors. Drought should be judged relative to some long-term average condition of balance between precipitation and evapotranspiration in a particular area that is considered "normal." Drought should not be viewed as only a natural hazard because the demand people place on water supply affects perceptions of drought conditions. From limited water supplies in urban areas to insufficient water for farmland, the impacts of drought are vast.

Droughts occur in virtually every climatic zone and on every continent. Because the impacts of drought conditions are largely dependent on the human activity in the area, the spatial extent of droughts can span a few counties to an entire country.

Temporal characteristics of droughts are drastically different from other hazards due to the possibility of extremely lengthy durations as well as a sluggish rate of onset. Drought conditions may endure for years or even decades. This factor implicates drought as having a high potential to cause devastation on a given area. The duration characteristic of droughts is so important that droughts are classified in terms of length of impact. Droughts lasting one to three months are considered short term, while droughts lasting four to six months are considered intermediate, and droughts lasting longer than six months are long term. With the slow rate of onset, most populations have some inkling that drought conditions are increasingly present. However, barring drastic response measures, most only have to adapt to the changing environment.

Seasonality has no general impact on droughts in terms of calendar seasons. However, "wet" and "dry" seasons obviously determine the severity of drought conditions. In other words, areas are less susceptible to drought conditions if the area is experiencing a wet season. The frequency of droughts is undetermined, because the hazard spans such a long period of time. However, climatologists track periods of high and low moisture content similarly to the tracking of cooling and warming periods.

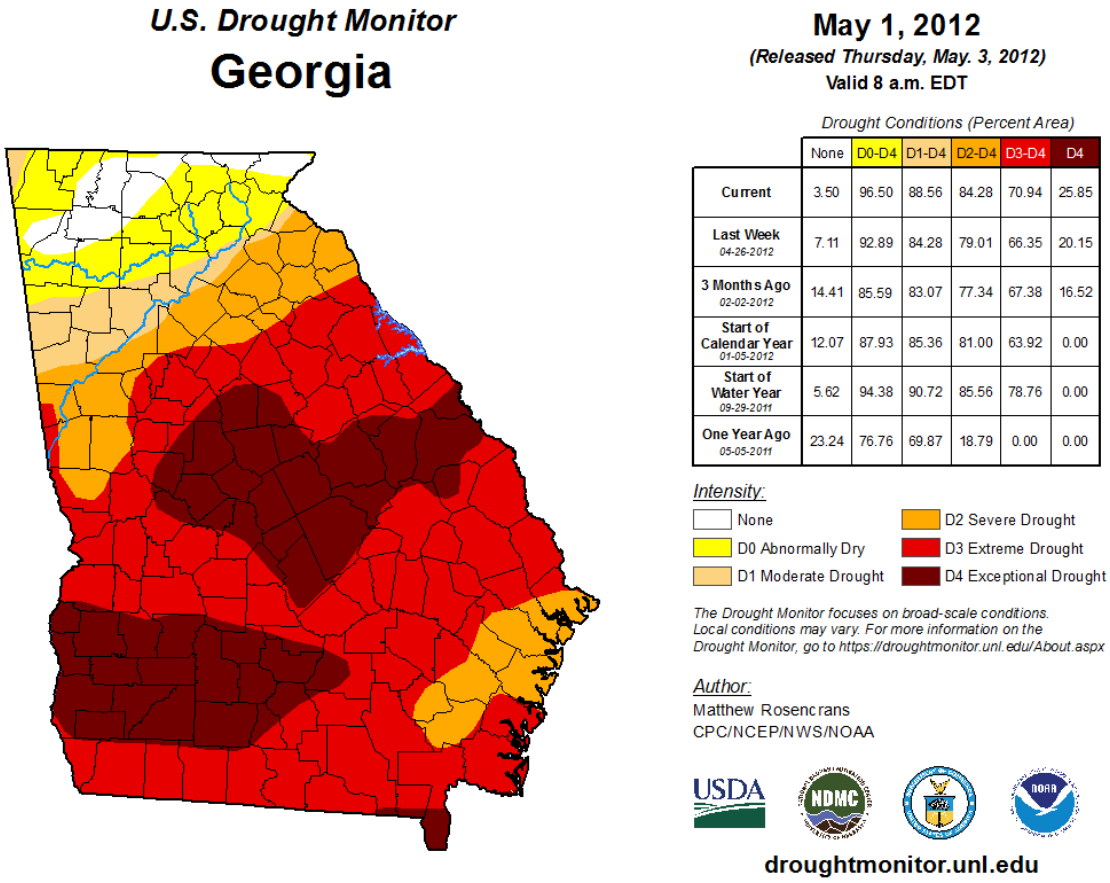
3.5.2 Hazard Location

The Macon-Bibb County Plan Update Committee reviewed data for the last 50 years regarding drought conditions. Historically, agricultural losses have accounted for the vast amount of losses related to drought conditions.

Due to poor record keeping and the unpredictable nature of drought conditions, reliability of historical data for the last 50 years is low. Macon-Bibb County has been impacted by 18 drought events in the last 25 years, according to data from the U.S. Drought Monitor. This amounts to a 72% chance of a drought for a given year over the last 25 years. The economic impact of these droughts, including crop damage, is not available. All drought hazard data included for Macon-Bibb County encompasses the entire county.

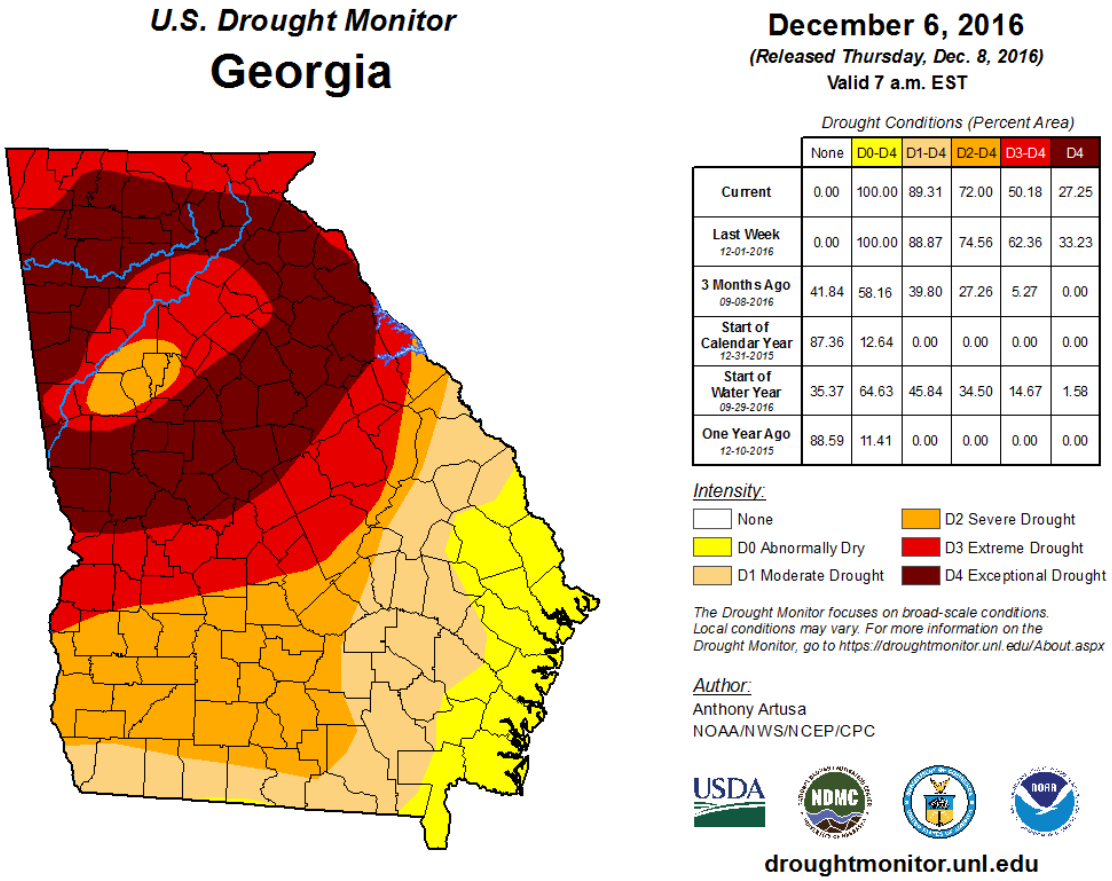
There have been two recent examples of "exceptional" drought events affecting Macon-Bibb County. These events occurred in 2012 and 2016. Both events reached the D4 (Exceptional Drought) designation, according to data from the U.S. Drought Monitor. Below are maps of these two events.

Figure 3-1. Georgia Drought Map, May 2012



Source: USDA Drought Monitor – University of Nebraska-Lincoln

Figure 3-2. Georgia Drought Map, December 2016



Source: USDA Drought Monitor – University of Nebraska-Lincoln

Events of this extent can cause water shortages for residential and corporate needs, as well as affecting the ability for firefighting operations to be properly effective. Drought conditions of this extent can have devastating effects on the local agricultural industries, which have occurred in previous D4 level droughts.

While drought conditions do not typically pose a direct threat to structures, secondary hazards from drought, such as increased wildfire threat, do pose a significant threat to all public and private property in Macon-Bibb County, including all critical facilities. Water resources could also become scarce during a drought, a condition that would potentially affect all Macon-Bibb County residences and critical facilities.

3.5.3 Hazard Extent

Drought extent can be defined in terms of intensity, using the U.S. Drought Monitor scale. The Drought Monitor Scale measures drought episodes with input from the Palmer Drought Severity Index, the Standardized Precipitation Index, the Keetch-Byram Drought Index, soil moisture indicators, and other inputs as well as information on how drought is affecting people. The

figure below details the classifications used by the U.S. Drought Monitor. A category of D2 (severe) or higher on the U.S. Drought Monitor Scale can typically result in crop or pasture losses, water shortages, and the need to institute water restrictions.

Table 3-6. U.S. Drought Monitor Classifications

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: ▪ short-term dryness slowing planting, growth of crops or pastures Coming out of drought: ▪ some lingering water deficits ▪ pastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	▪ Some damage to crops, pastures ▪ Streams, reservoirs, or wells low, some water shortages developing or imminent ▪ Voluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	▪ Crop or pasture losses likely ▪ Water shortages common ▪ Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	▪ Major crop/pasture losses ▪ Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	▪ Exceptional and widespread crop/pasture losses ▪ Shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Source: U.S. Drought Monitor

The most severe droughts to impact Macon-Bibb County in the past 20 years were D4 (Exceptional Drought) between May 1 – June 11, 2012, and November 11 – December 19, 2016.

3.5.4 Historical Occurrences

U.S. Drought Monitor records drought intensity weekly throughout the country. The table below presents the number of weeks that Macon-Bibb County spent in drought by intensity over the period from January 1, 2005 through December 31, 2025, for which the Drought Monitor has records for 1,095 weeks.

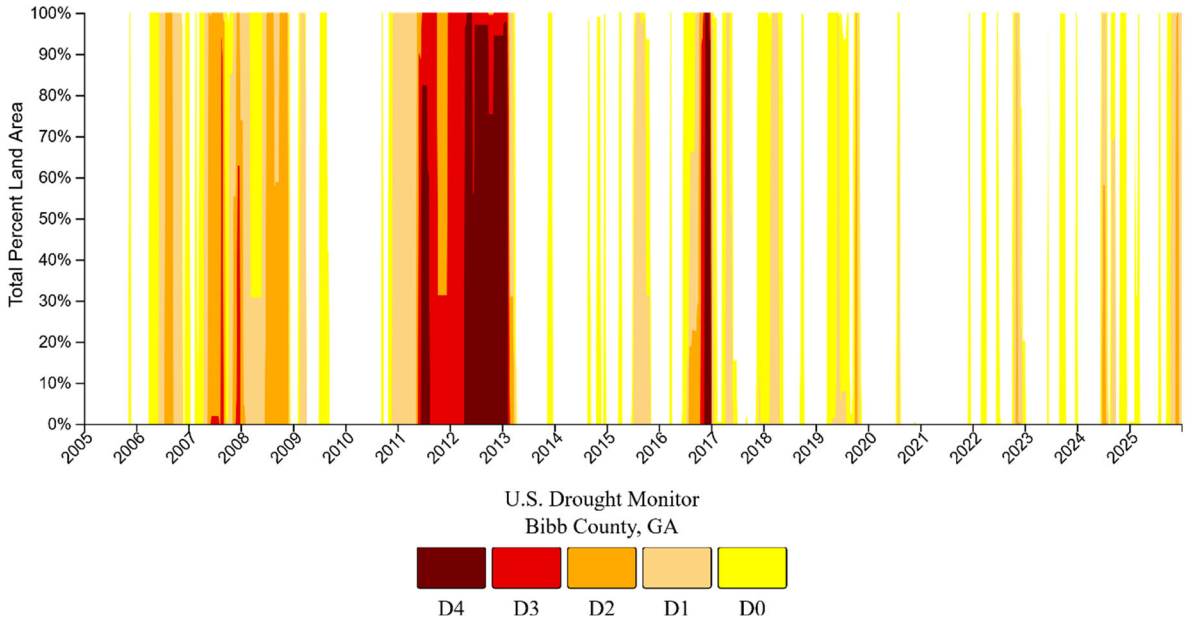
Table 3-7. Weeks in Drought, 2005-2025

	Total Weeks						% of time in Severe Drought or Worse
County	Total	D0	D1	D2	D3	D4	
Macon-Bibb	444	444	266	153	80	10	13.97%

Source: U.S. Drought Monitor History

The figure below shows the historical periods where the county was considered in some level of drought condition. The color key indicates the intensity of the drought. Between 2005 and 2025, Macon-Bibb County was in some level of drought 40.55% of the time.[2]

Figure 3-3. U.S. Drought Monitor Historical Trends, Macon-Bibb County



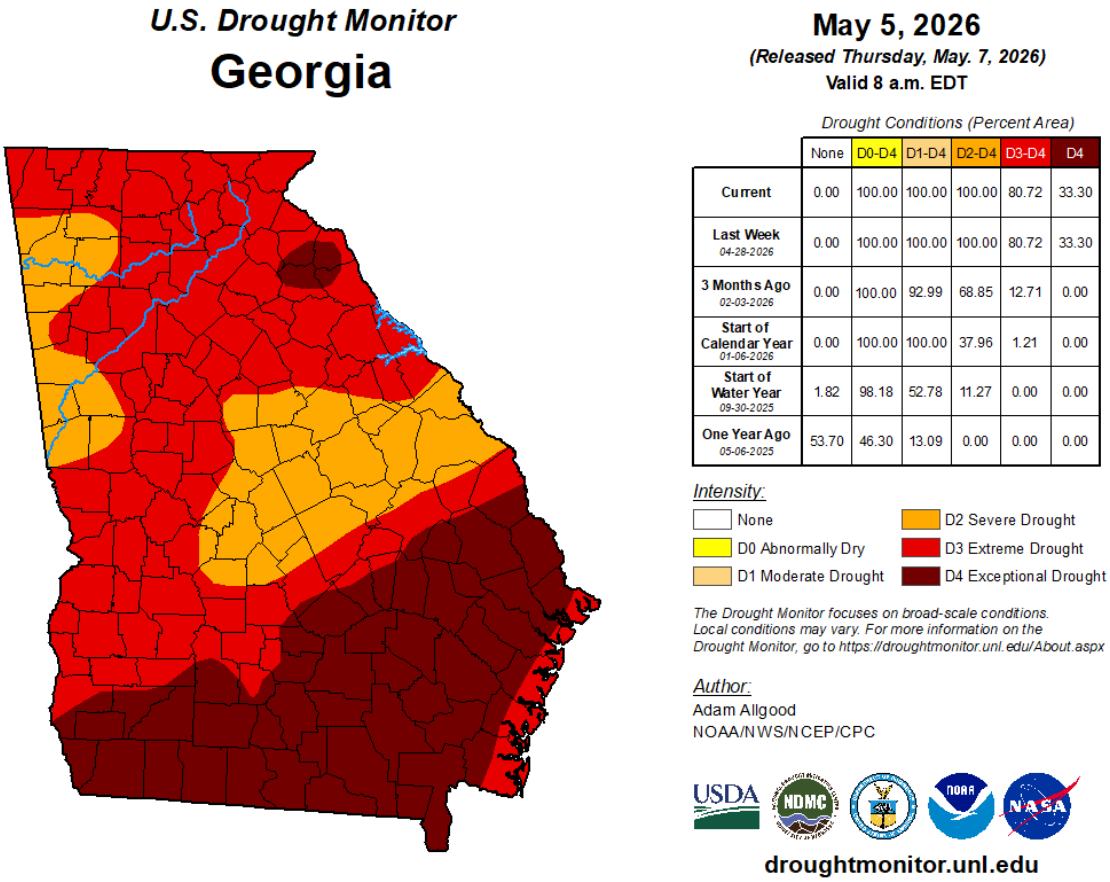
Source: U.S. Drought Monitor

As of May 5, 2026, the majority of Macon-Bibb County was in a state of severe drought with the western corner of the county experiencing extreme drought. For the same period, the entire state of Georgia was in a drought of D2 (severe drought) or higher, which is the first time this has occurred in the Drought Monitor's history (since 2000).[3] The most recent drought conditions across the state of Georgia, including Macon-Bibb County, can be seen in the figure below.

[2] https://www.drought.gov/states/georgia/county/Bibb. Retrieved March 12, 2026.

[3] https://www.youtube.com/watch?v=uHKcgFyQcKM. Retrieved May 13, 2026.

Figure 3-4. Current Drought Conditions, Georgia



Source: U.S. Drought Monitor

Macon-Bibb County receives an average of 46.9" of precipitation annually as measured in Macon, Georgia. The table below shows annual precipitation and the departure from normal from 2005 through 2025.[4] Per this assessment, Macon-Bibb County experienced the greatest magnitude of drought between 2011 and 2012, totaling 28.3 inches of precipitation deficit. Precipitation was also significantly below normal in 2016.

Table 3-8. Departure from Normal Precipitation Levels

Year	Annual Precipitation (inches)	Departure from Normal (46.9")
2005	47.4	0.5

[4] https://www.extremeweatherwatch.com/cities/macon/year-2025. Retrieved March 12, 2026.

Year	Annual Precipitation (inches)	Departure from Normal (46.9")
2006	34.6	-12.3
2007	39.7	-7.2
2008	48.1	1.2
2009	61.5	14.6
2010	44.0	-2.9
2011	33.1	-13.8
2012	32.4	-14.5
2013	72.7	25.8
2014	48.5	1.6
2015	50.2	3.3
2016	33.7	-13.2
2017	48.7	1.8
2018	49.1	2.2
2019	44.6	-2.3
2020	59.9	13
2021	52.2	5.3
2022	47.3	0.4
2023	44.4	-2.5
2024	48.7	1.8
2025	43.9	-3.0

Source: Extreme Weather Watch

The National Drought Mitigation Center (NDMC), located at the University of Nebraska in Lincoln, provides a clearinghouse for information on the effects of drought, based on reports from media, observers, impact records, and other sources. According to the NDMC's Drought Impact Reporter, during the 20-year period from January 2005 through December 2025, 987 drought impacts were noted for the State of Georgia, of which 25 were reported to affect Macon-Bibb County. The table below summarizes the number of impacts reported by category. Note that the Drought Impact Reporter assigns multiple categories to each impact.[5]

Table 3-9. Drought Impacts Reported for Macon-Bibb County, January 2005 – December 2025

Category	Impacts
Agriculture	8
Business & Industry	0
Energy	0
Fire	6
Plants & Wildlife	5
Relief, Response, &	12

[5] https://experience.arcgis.com/experience/8eb94624372e4aaca02951530bf5eeb2. Retrieved March 12, 2026.

Category	Impacts
Society & Public Health	2
Tourism & Recreation	0
Water Supply & Quality	3

NCEI reports on hazard data include 13 drought records for Macon-Bibb County between 2005 and 2025, which are included in the U.S. Drought Monitor summary above.

Probability of Future Occurrence

Over the 20-year period, for which Drought Monitor reports on 1,095 weeks, from 2005 through 2025, Macon-Bibb County had 444 weeks of drought conditions ranging from abnormally dry to severe drought. Of this time, 153 weeks were categorized as a severe (D2) drought, which translates to a 14 percent chance of severe drought in any given week. Considering annual rainfall between 2005 and 2025, there were nine years with rain deficit, with all having deficits greater than two inches. When annualizing drought risk based on annual rainfall, the county can assume a 45% chance of significant rain deficit related drought in any year.

3.5.5 Vulnerability Assessment

Periods of drought can have significant environmental, agricultural, health, economic, and social consequences. The effects vary depending upon vulnerability and regional characteristics. Droughts can also reduce water quality through a decreased ability for natural rivers and streams to dilute pollutants and increase contamination. The most common effects are diminished crop yield, increased erosion, dust storms, ecosystem damage, reduced electricity production due to reduced flow through hydroelectric dams, shortage of water for industrial production, and increased risk of wildland fires.

From 2005 to 2025, there is no Macon-Bibb County death, injury, property damage, or crop damage history data to estimate potential losses that could result from future droughts; therefore, vulnerability to drought is assessed qualitatively.

People

Drought can affect people's physical and mental health. For those economically dependent on a reliable water supply, drought may cause anxiety or depression about economic losses, reduced incomes, and other employment impacts. Conflicts may arise over water shortages. People may be forced to pay more for water, food, and utilities affected by increased water costs. Drought may cause health problems due to poor water quality from lower water levels. If accompanied by extreme heat, drought can also result in higher incidents of heat stroke and even loss of life.

Property

Drought is unlikely to cause damages to the built environment. However, in areas with shrinking and expansive soils, drought may lead to structural damages. Drought may cause severe property loss for the agricultural industry in terms of crop and livestock losses. The USDA's Risk Management Agency (RMA) maintains a database of all paid crop insurance claims. As of December 16, 2025, Macon-Bibb County has had $0.01 to $1,000,000 in crop

indemnities for the year 2024, which is among the lowest in the state.[6] According to NCEI data, there has been no property or crop damage in Macon-Bibb County in the past 20 years. However, the Environmental Working Group (EWG), which provides data on crop insurance and agricultural losses, reported $253,261 in crop insurance indemnities due to drought in Macon-Bibb County from 1995-2024.[7] Per the USDA's Census of Agriculture County Summary Highlights (2022), Macon-Bibb County has 95 farms totaling 7,017 acres with an average product market value per farm of $213,477.[8]

Agriculture accounts for 19.9 percent of the county's total land area. It is a small portion of the property damage risk but has the highest vulnerability to drought. There have been no significant development changes that affect vulnerability; all land and structures are at risk to drought exposure in the county, making the exposure risk high.

Environment

Drought can affect local wildlife by shrinking food supplies and damaging habitats. Sometimes this damage is only temporary, and other times it is irreversible. Wildlife may face increased disease rates due to limited access to food and water. Increased stress on endangered species could cause extinction. Drought may also increase likelihood of wind and water erosion of soils.

Another concern during a drought is that contaminants, such as pesticides and fertilizers, may be washed into waterways during heavy rain and flooding. Given the economic importance of water access in Macon-Bibb County, any increase in contaminants in rivers could adversely affect the planning area.

Drought conditions can also provide a substantial increase in wildfire risk. When plants and trees die from a lack of precipitation, or even increased insect infestations, and diseases—which are associated with drought—they increase wildfire fuel loads. Long periods of drought can result in more intense wildfires, which bring additional consequences.

Land Use & Development Trends

As growth continues, drought can become a larger threat for Macon-Bibb County due to the increased reliance on water infrastructure. Macon-Bibb County has worked diligently to mitigate this threat by building the Javors Lucas Lake Reservoir to continue to be able to provide adequate drinking water to residents during drought conditions.

Consequence Analysis

The table below summarizes the potential negative consequences of drought.

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[6] https://www.rma.usda.gov/sites/default/files/2025-12/2024-Crop-Indemnity-Map-12-16-2025.pdf. Retrieved March 13, 2026.

[7] https://farm.ewg.org/cropinsurance.php?fips=13021&summpage=IN_REGPAGE. Retrieved March 13, 2026.

[8] https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1,_Chapter_2_County_Level/Georgia/st13_2_001_001.pdf. Retrieved March 13, 2026.

Table 3-10. Consequence Analysis, Drought

Category	Consequences
Public	Can cause anxiety or depression about economic losses, conflicts over water shortages, reduced incomes, fewer recreational activities, higher incidents of heat stroke, and fatality.
Responders	Impacts to responders are unlikely. Exceptional drought conditions may impact the amount of water available for firefighting operations.
Continuity of Operations (including Continued Delivery of Services)	Drought would have minimal impacts on continuity of operations due to the relatively long warning time that would allow for plans to be made to maintain continuity of operations.
Property, Facilities, and Infrastructure	Drought has the potential to affect water supply for residential, commercial, institutional, industrial, and government-owned areas. Drought can reduce water supply in wells and reservoirs. Utilities may be forced to increase rates.
Environment	Environmental impacts include strain on local plant and wildlife; damage to wet ecosystems, and increased probability of erosion and wildfire.
Economic Condition of the Jurisdiction	Farmers may face crop losses or increased livestock costs. Businesses that depend on farming may experience secondary impacts. Extreme drought has the potential to impact local businesses in landscaping, recreation and tourism, and public utilities.
Public Confidence in the Jurisdiction's Governance	When drought conditions persist with no relief, local or State governments must often institute water restrictions, which may impact public confidence.

3.5.6 Priority Risk Index

Table 3-11. Drought Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	1	4	1	4	2.5	H

3.6 Natural Hazard: Earthquake

3.6.1 Hazard Description

Earthquakes are generally defined as the sudden motion or trembling of the Earth's surface caused by an abrupt release of slowly accumulated strain. This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplifting and subsidence, or ground failures, and tsunamis. In the United States, earthquake activity east of the Rocky Mountains is relatively low compared to the Western states because it is away from active plate boundaries and the plate interior strain rates are known to be very low.

The physical property of earthquakes that causes the majority of damage within the United States is ground shaking. The vibrations from the seismic waves that propagate outward from the epicenter may cause failure in structures not adequately designed to withstand earthquakes. Because the seismic waves have different frequencies of vibration, the waves disseminate differently through sub-surface materials. For example, high frequency compression and shear waves arrive first, whereas lower frequency Rayleigh and love waves arrive later. Not only are the speeds varied between seismic waves, but also the types of movement. The surface vibration may be horizontal, vertical, or a combination of the two, which causes a wider array or structures to collapse.

Another manifestation of earthquakes is surface faulting. This phenomenon is defined as the offset or tearing of the earth's surface by a differential movement across a fault. Structures built across active faults tend to sustain damage regularly. There are no active faults within or near Georgia. Distinct inactive faults are known within the state north or the Columbus to Macon to Augusta fall line and running generally northeast-southwest.

The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. Tectonic uplift can cause shallowing of the harbors and waterways while tectonic subsidence can cause permanent or intermittent inundation. Due to the association of tectonic uplift and subsidence with active faults, Georgia is not at risk to these phenomena.

The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. During an earthquake, the areas that are rich in sand and silt have groundwater within 30 feet of the surface temporarily behave as viscous fluids during strong ground shaking. Structures built on these materials can settle, topple, or collapse as the ground "liquefies" beneath it. Landslides can also form when earthquake shaking or seismic activity dislodges rock and debris on steep slopes, triggering rock falls, avalanches, and slides.

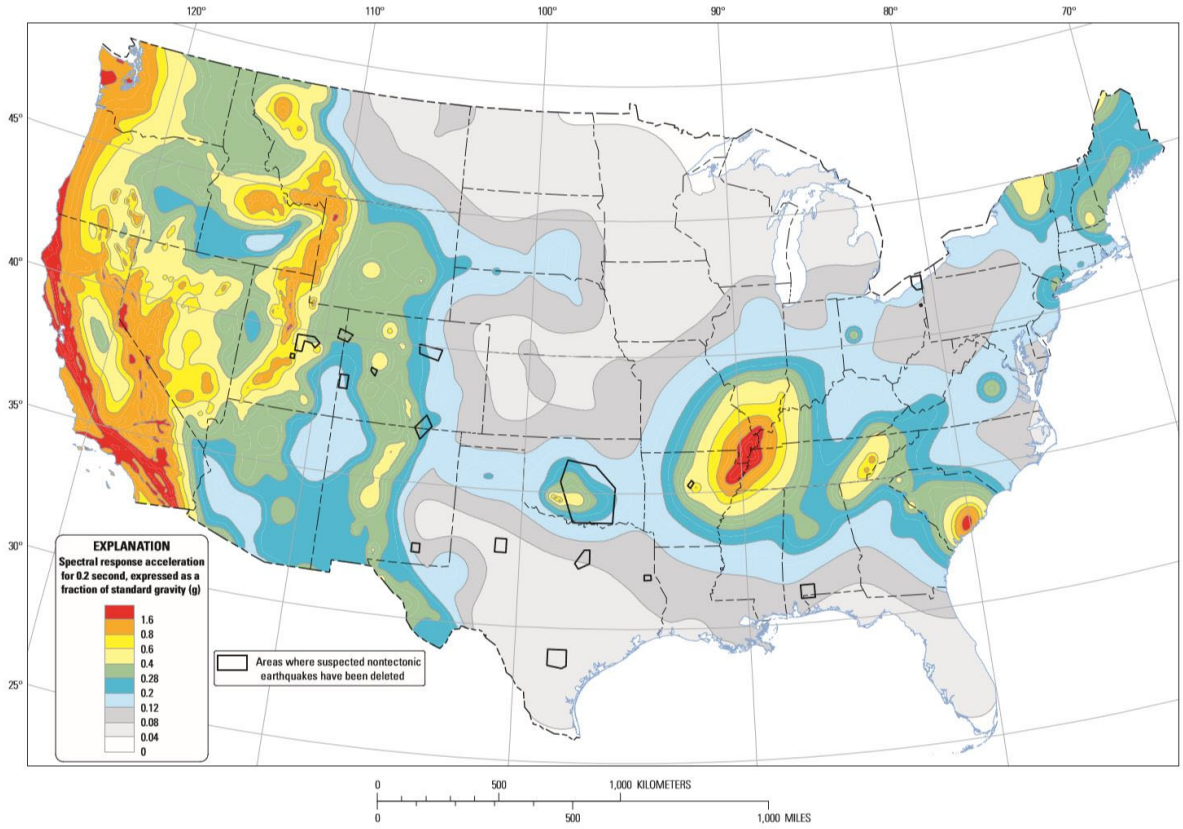
Also, unstable or nearly unstable slopes consisting of clay soils may lose shear strength when disturbed by ground shaking and fail, resulting in a landslide. Georgia is at very low risk of seismic induced liquefaction or landslides.

The last of the earthquake-induced phenomena are tsunamis, which are large, gravity-driven waves triggered by the sudden displacement of a large volume of water. The waves produced travel in all directions from the origin at speeds of up to 600 miles per hour. In deep water, tsunamis normally have small wave heights.

However, as the waves reach shallower water near land, the wave speed diminishes, and the amplitude drastically increases. Upon impact with a shoreline, the waves can inundate land rapidly, engulfing everything in its path. Successive wave crests follow, typically arriving minutes to hours later, frequently with later arrivals being more dominant. Frequently, the first tsunami waves are downward, causing dramatic exposure of the beach. Because of this, people are often killed trying to collect newly exposed seashells when the positive waves then arrive.

Although large tsunamis are rare in the eastern coast of the U.S., the possibility of such events occurring anywhere along the Atlantic and Gulf coast exists.

Figure 3-5. Spectral Response Acceleration, 2024 Georgia Hazard Mitigation Strategy and Enhanced Plan



Two-percent probability of exceedance in 50 years map of 0.2 second spectral response acceleration

3.6.2 Hazard Location

The United State Geological Survey's Quaternary faults database was consulted to define the location of potential earthquakes within range of Macon-Bibb County. Quaternary faults are active faults recognized at the surface which have evidence of movement in the past 2.58 million years. There are no widely recognized, active surface-rupturing Quaternary faults mapped in Georgia.

All of Georgia is subject to earthquakes, with the western and southern region most vulnerable to a damaging earthquake. The state is affected by both the Charleston Fault in South Carolina and New Madrid Fault in Tennessee. Both faults have generated earthquakes measuring greater than 8.0 on the Richter Scale during the last 200 years. In the northern half of Georgia, earthquakes occur along two distinct bands. The most prominent is the Eastern Tennessee Seismic Zone, which is second only to the New Madrid Seismic Zone in terms of seismic activity. The second band is less active but extends along the "Fall Line" from Macon to the South Carolina border, just north of Augusta.[9]

Macon-Bibb County is one of the 37 Georgia counties with the highest earthquake risk, according to GEMA/HS and Georgia Tech School of Earth and Atmospheric Sciences. In reviewing data of the last 50 years, three earthquakes have originated from within Macon-Bibb County, and several others have originated nearby. The largest of these earthquakes was a 3.5 magnitude.

3.6.3 Hazard Extent

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude. A detailed description of the Richter Scale is given in the table below. Although the Richter scale is usually used by the news media when reporting the intensity of earthquakes and is the scale most familiar to the public, the scale currently used by the scientific community in the United States is called the Modified Mercalli Intensity (MMI) scale. The MMI scale is an arbitrary ranking based on observed effects. Table 3-13 shows descriptions for levels of earthquake intensity on the MMI scale compared to the Richter scale. Seismic shaking is typically the greatest cause of losses to structures during earthquakes.

Table 3-12. Richter Scale

Magnitude	Effects
Less than 3.5	Generally, not felt, but recorded.
3.5 – 5.4	Often felt, but rarely causes damage.
5.4 – 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 – 6.9	Can be destructive in areas up to 100 kilometers across where people live.

[9] https://gema.georgia.gov/earthquakes. Retrieved March 18, 2026.

Magnitude	Effects
7.0 – 7.9	Major earthquake. Can cause serious damage over larger areas.
8.0 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Table 3-13. Comparison of Richter Scale and Modified Mercalli Intensity (MMI) Scale

MMI	Richter Scale	Felt Intensity
I	0 – 1.9	Not felt. Marginal and long period effects of large earthquakes.
II	2.0 – 2.9	Felt by persons at rest, on upper floors, or favorably placed.
III	3.0 – 3.9	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV	4.0 – 4.3	Hanging objects swing. Vibration like passing of heavy trucks. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink the upper range of IV, wooden walls and frame creak.
V	4.4 – 4.8	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Pendulum clocks stop, start.
VI	4.9 – 5.4	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Books, etc., fall off shelves. Pictures fall off walls. Furniture moved. Weak plaster and masonry D cracked. Small bells ring. Trees, bushes shaken.
VII	5.5 – 6.1	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Waves on ponds. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII	6.2 – 6.5	Steering of motor cars is affected. Damage to masonry C; partial collapse. Some damage to masonry B. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX	6.6 – 6.9	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.
X	7.0 – 7.3	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI	7.4 – 8.1	Rails bent greatly. Underground pipelines completely out of service.
XII	> 8.1	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown in the air.

Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces. Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces. Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces. Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

3.6.4 Historical Occurrences

Macon-Bibb County experiences relatively few earthquakes, with most earthquakes in the county and surrounding area occurring at a magnitude of 3.5 or lower. Due to the low magnitude of these earthquakes, there is very little recordable damage, and they are rarely noticeable by residents within this rural and sparsely populated region. Only one earthquake has occurred with its epicenter in the county in the last 20 years, which was recorded near West Point, GA in 2022. However, two other earthquakes were recorded originating within Macon-Bibb County in 1982 and 1983. A higher magnitude earthquake in Macon-Bibb County that causes significant damage is unlikely, but possible.

The USGS keeps a record of earthquakes throughout the world in their Earthquake Catalog.[10] The following table includes the list of historical earthquakes within 100 miles of Macon-Bibb County between 1975 and 2025 that had a magnitude of 2.5 or higher. However, given the long distances across which earthquake impacts can be felt, these events do not encompass all earthquakes that have affected Macon-Bibb County.

Table 3-14. Historical Earthquakes within 100 Miles of Macon-Bibb County, 1975-2025

Date	Epicenter Location	Magnitude	Depth (km)	MM Scale
12/27/1976	0 km NNE of Higgston, GA	3.7	5.0	III
10/31/1982	9 km S of Hamilton, GA	2.9	0.0	II
10/31/1982	12 km S of Hamilton, GA	3.1	0.0	III
12/05/1982	11 km WNW of Jeffersonville, GA	2.7	N/A	II
12/07/1982	11 km WNW of Jeffersonville, GA	2.7	N/A	II
12/07/1982	11 km WNW of Jeffersonville, GA	2.5	N/A	II
12/08/1982	11 km WNW of Jeffersonville, GA	2.9	3.3	II
12/11/1982	11 km WNW of Jeffersonville, GA	2.5	N/A	II
12/11/1982	9 km E of Macon, GA	3.0	0.0	III
12/11/1982	11 km WNW of Jeffersonville, GA	2.6	N/A	II
12/13/1982	11 km WNW of Jeffersonville, GA	2.7	N/A	II
12/13/1982	11 km WNW of Jeffersonville, GA	2.5	N/A	II
12/13/1982	11 km WNW of Jeffersonville, GA	2.6	N/A	II
12/20/1982	11 km WNW of Jeffersonville, GA	2.6	N/A	II
12/21/1982	11 km ESE of Macon, GA	2.7	0.0	II
12/21/1982	11 km WNW of Jeffersonville, GA	2.7	N/A	II
12/23/1982	11 km WNW of Jeffersonville, GA	2.6	N/A	II
01/17/1983	14 km SE of Macon, GA	2.8	0.0	II
01/26/1983	7 km E of Macon, GA	3.5	0.0	III

[10] https://earthquake.usgs.gov/earthquakes/search/. Retrieved March 17, 2026.

Date	Epicenter Location	Magnitude	Depth (km)	MM Scale
04/23/1993	14 km E of Mount Zion, GA	2.7	0.0	II
08/18/1993	2 km NNW of Lakeview Estates, GA	2.5	0.0	II
03/04/1996	9 km SW of Soperton, GA	2.5	1.3	II
05/17/1997	9 km SW of Soperton, GA	2.5	5.4	II
01/18/2000	11 km SSE of Gray, GA	3.5	19.2	III
03/18/2003	11 km S of Rayle, GA	3.5	5.0	V
07/13/2003	6 km N of Cobbtown, GA	3.6	5.0	IV
04/04/2009	15 km N of Milledgeville, GA	3.1	0.0	IV
12/07/2009	4 km WNW of Deepstep, GA	3.2	6.9	III
03/25/2010	9 km ESE of Lincolnton, GA	2.5	15.8	II
05/03/2011	6 km WNW of Mitchell, GA	2.6	28.3	III
07/04/2012	11 km NNE of Deepstep, GA	2.7	10.4	III
04/07/2013	7 km NNE of Lincolnton, GA	2.5	6.1	III
04/26/2013	9 km E of Lincolnton, GA	2.8	12.0	IV
05/18/2015	0 km NNW of Crawfordville, GA	2.5	1.2	IV
11/16/2015	13 km SSE of Eatonville, GA	2.6	7.8	IV
04/06/2017	6 km WSW of Sparta, GA	2.5	9.5	IV
04/06/2017	6 km WSW of Sparta, GA	2.7	11.2	IV
04/21/2017	3 km NE of Evans, GA	2.5	8.2	IV
06/20/2017	6 km SW of Augusta, GA	3.2	12.9	V
06/18/2022	7 km E of Stillmore, GA	3.9	0.8	V
09/12/2022	13 km NE of Jackson, GA	2.5	0.8	IV

Source: USGS Earthquake Catalog, 2026

Historically, the 1886 Charleston, SC earthquake, estimated to be between 6.6 and 7.3 on the modern Richter Scale, likely caused impacts to Macon-Bibb County. Although no historical records exist exhibiting any damages, Macon-Bibb County was estimated to be in a level VI area of the Modified Mercalli Intensity scale for this event and historical records from the USGS indicate that the earthquake was felt by people in Macon. This would indicate strong shaking felt by everyone inside and outside at the time of the event and characterized by broken windows, movement of heavy furniture, and slight to moderate damage for poorly built buildings. Even with this low number of occurrences, it was determined that if earthquakes occur within or close to the jurisdiction of Macon-Bibb County, significant damage could occur. Therefore, the Macon-Bibb County Plan Update Committee has determined the threat of earthquakes to be higher than the statistics would indicate.

Probability of Future Occurrence

Based on the record of past occurrences, there were 41 earthquakes over the period from 1975 to 2025; three had a magnitude of V or higher on the Modified Mercalli Scale within 100 miles of Macon-Bibb County. Using past occurrence as an indicator of future probability, there is a 5.88% annual probability of an earthquake being felt in Macon-Bibb County. Only the 1886 earthquake could have caused building damage, defined for this purpose as an MMI of 6 or greater. Therefore, there is a 0.07 percent annual chance of an earthquake causing some building damage in Macon-Bibb County.

Based on this data, it can be reasonably assumed that an earthquake event affecting Macon-Bibb County is possible.

3.6.5 Vulnerability Assessment

The Macon-Bibb County Plan Update Committee determined that all critical facilities and all public and private property within Macon-Bibb County are susceptible to the impacts of an earthquake due to the lower building codes with regards to earthquakes when compared to other parts of the country.

People

Earthquake events in Macon-Bibb County are unlikely to produce more than minor ground shaking; therefore, injury or death is unlikely. Objects falling from shelves generally pose the greatest threat to safety. However, given proximity to the Eastern Tennessee Seismic Zone, there is potential for more serious impacts.

Property

In a severe earthquake event, buildings can be damaged by the shaking itself or by the ground beneath them settling to a different level than it was before the earthquake (subsidence). Buildings can even sink into the ground if soil liquefaction occurs. If a structure (a building, road, etc.) is built across a fault, the ground displacement during an earthquake could seriously damage that structure.

Earthquakes can also cause damages to infrastructure, resulting in secondary hazards. Fires can be started by broken gas lines and power lines. Fires can be a serious problem, especially if the water lines that feed the fire hydrants have been damaged as well. Impacts of earthquakes also include debris clean-up and service disruption.

Macon-Bibb County has not yet been impacted by an earthquake with more than a moderate intensity, so major damage to the built environment is unlikely. However, there is potential for impacts to certain masonry buildings, as well as environmental damages with secondary impacts on structures.

There were no major development changes or incident occurrences since the previous plan that would have significantly altered vulnerability to earthquake in the planning area. However, all critical facilities should be considered at risk to minor damage should an earthquake event occur.

Environment

An earthquake is unlikely to cause substantial impacts to the natural environment in Macon-Bibb County. Impacts to the infrastructure and hazardous materials facilities in the county (e.g., ruptured gas line) could damage the surrounding environment. However, this type of damage is unlikely based on historical occurrences. Moreover, earthquakes are natural events, and any environmental damage should be considered natural processes.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to earthquakes.

Consequence Analysis

The table below summarizes the potential negative consequences of significant earthquakes.

Table 3-15. Consequence Analysis, Earthquake

Category	Consequences
Public	Impact expected to be moderate for people who are unprotected or unable to take shelter; light impacts are expected for those who are protected.
Responders	Adverse impacts are expected to be moderate for unprotected personnel and light for protected personnel.
Continuity of Operations (including Continued Delivery of Services)	Damage to facilities/personnel in the area of the incident may require relocation of operations and lines of succession execution. Disruption of lines of communication and destruction of facilities are unlikely but could extensively postpone delivery of services.
Property, Facilities, and Infrastructure	Damage to facilities and infrastructure in the area of the incident may be minimal (low) for facilities, people, infrastructure, and HazMat.
Environment	May cause minimal (low) damage, creating denial or delays in the use of some areas. If hazardous materials are impacted and released, environmental remediation may be needed.
Economic Condition of the Jurisdiction	Local economy and finances may be adversely affected, but likely for a short period of time.
Public Confidence in the Jurisdiction's Governance	Ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective.

3.6.6 Priority Risk Index

The following table summarizes earthquake hazard risk for Macon-Bibb County. Despite minor differences in peak acceleration probabilities, earthquake risk is uniform across the planning area.

Table 3-16. Earthquake Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	2	1	3	4	1	2.0	L

3.7 Natural Hazard: Extreme Temperature

3.7.1 Hazard Description

Extreme temperatures—both hot and cold—can pose a significant threat to an underprepared population. This is particularly true in areas where a population has a large elderly population, a large population of small children, and a population with lower socioeconomic status.

Extreme Heat: The term extreme heat can be subjective to a degree. FEMA, in their "Mitigation Ideas" publication defines extreme heat as "the condition where temperatures consistently stay ten degrees or more above a region's average high temperature for an extended period." The key to this definition is extreme heat is relative to the average temperature, regardless of the time of year. For example, the National Center for Environmental Information (NCEI) records heat events in Georgia with 60- and 70-degree temperatures in December and January simply because they are significantly higher than the average temperature for that time of year. According to www.ready.gov/heat, FEMA also offers another definition of extreme heat: "In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees." This definition can also lead to some subjectivity in the term "extreme." For example, people who live in the southern parts of the country are more adapted to temperatures in the 90s and 100s than people who live in the more northern tiers. This is not to say those temperatures are not still dangerous. Notably, in recent years, more heat related deaths have occurred in the southern tier states than the northern tiers. The National Weather Service, however, focuses on "Excessive Heat," defining it as heat indices of 105 degrees or more using a combination of temperature and humidity as a "real feel."

Extreme Cold: Just as extreme heat can be subjective, so can extreme cold. Just as the National Weather Service utilizes heat index to attempt to quantify extreme heat, wind chill is often utilized to quantify extreme cold. Prolonged and/or unprotected exposure to extreme cold can be detrimental to people and animals. Additionally, it can be detrimental to exposed infrastructure.

Extreme cold is a term that must be defined relative to what is considered normal in a given locale. Extreme cold events are a concern, especially during the winter months, and can vary in intensity based on geographical location and local climate. Very cold temperatures become a particular hazard when accompanied by winds of 10 mph or greater. As with extreme heat, extreme cold is of greatest concern when the condition persists for an extended period of time.

Advancements in meteorology and forecasting usually allow for mostly accurate forecasting a few days in advance of an impending storm, which can bring cold temperatures. Most storms have a duration of a few hours; however, impacts can last a few days after the initial incident until cleanup is completed.

3.7.2 Hazard Location

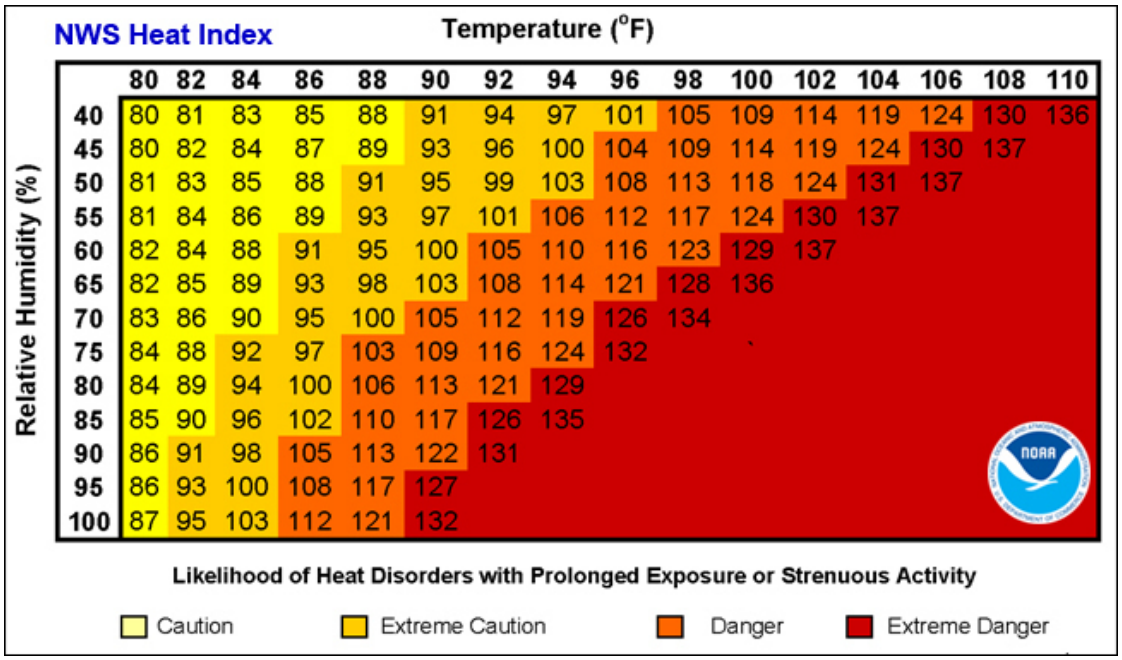
The entire planning area is susceptible to extreme high and low temperatures and specific incidents of extreme heat and extreme cold. However, due to its lower latitude and position

within Middle Georgia, Macon-Bibb County is able to avoid much of the extreme cold temperatures that sometimes plague the mountainous regions of northeast Georgia. However, Macon-Bibb's location and lack of widespread exposure to such events increases the impact those events could have if they were to occur. In 2000, Macon-Bibb County reached a low of 17 degrees on December 20th and saw 11 consecutive days (December 17-27) where temperatures dropped below freezing at some point during the day.

3.7.3 Hazard Extent

Extreme Heat: Ambient air temperature is one component of heat conditions, with relative humidity being the other. The relationship of these factors creates what is known as the apparent temperature. The Heat Index Chart in the following figure uses both of these factors to produce a guide for the apparent temperature or relative intensity of heat conditions.

Figure 3-6. Heat Index Chart



Source: NWS, 2026

Note: Exposure to direct sun can increase Heat Index values by as much as 15°F. The shaded zone above 105°F corresponds to a heat index that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

The National Weather Service has a system in place to initiate alert procedures (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. The National Weather Service Forecast Office in Raleigh sets the following criteria for heat advisory and excessive heat warning:

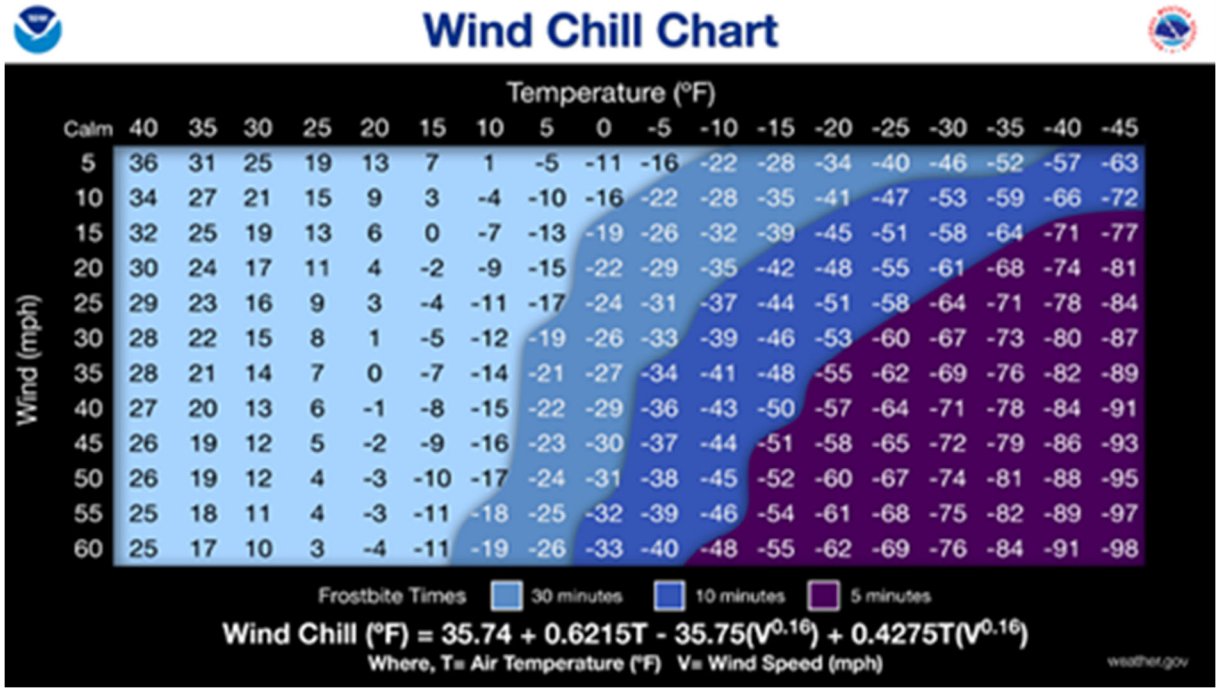
- **Heat Advisory:** Heat Index of 105°F to 109°F for 3 hours or more. Can also be issued for lower values 100°F to 104°F for heat lasting several consecutive days.

- **Excessive Heat Watch:** Potential for heat index values of 110°F or hotter within 24 to 48 hours. Also issued during prolonged heat waves when the heat index is near 110°F.
- **Excessive Heat Warning:** Heat Index of 110°F or greater for any duration.

While most severe weather events are limited in terms of their impact, duration, and spatial extent, the hazard remains one of the most common in the state and for Macon-Bibb County.

Extreme Cold: The NWS Wind Chill Temperature Index, shown in the figure below, provides a formula for calculating the dangers of winter winds and freezing temperatures, which typically influence an extreme cold event.

Figure 3-7. Wind Chill Chart



Source: NOAA National Weather Service, 2026

The entirety of Georgia is susceptible to freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Macon-Bibb County is accustomed to smaller scale severe winter weather conditions and often receives winter weather during the winter months. Given the atmospheric nature of the hazard, the entire county has uniform exposure to extreme cold events.

3.7.4 Historical Occurrences

Extreme Heat: According to the National Oceanic and Atmospheric Administration (NOAA), 2019 was Georgia's hottest year of record; that record stretches back 124 years to 1895. 2016 and 2017 are tied as the second hottest years.

NCEI records three incidents of heat or excessive heat for Macon-Bibb County between 2005 and 2025, detailed in the table below. There was no recorded property or crop damage.

Table 3-17. Extreme Heat Events, Macon-Bibb County

Location	Date	Injuries/Deaths	Property Damage	Description
Macon-Bibb County	08/01/2007	0/0	N/A	Extreme high temperatures and record highs for the entire month of August. Hottest day was 105°F on 8/10. 12 days of the month exceeded 100°F.
Macon-Bibb County	06/29/2012	0/0	N/A	Record 108°F in Macon on June 30th.
Macon-Bibb County	07/01/2012	0/0	N/A	Record-breaking heatwave continued into July.

Source: NOAA/NCEI Storm Events Database, 2005-2025

According to NOWData from NOAA, the record high temperature in Macon-Bibb County, Georgia is 108°F, which has occurred three times—in July 1980, June 2012, and July 2012. July is historically the hottest month of the year in Macon-Bibb County, with an average daily temperature of 81.4°F in the Macon area. Between 2005 and 2025, there have been 1,912 days with natural temperatures over 90°F. Most notably, Macon-Bibb County had 131 days with natural temperatures over 90°F in 2019 alone, including 29 days in September. The following table provides annual data.

Table 3-18. Number of Days Above 90°F, 2005-2025

Year	Total Days	Year	Total Days
2005	92	2016	116
2006	99	2017	75
2007	81	2018	113
2008	86	2019	131
2009	65	2020	101
2010	104	2021	81
2011	116	2022	92
2012	85	2023	86
2013	55	2024	89
2014	84	2025	72
2015	89	--	--
Total			**1,912**

Source: NOAA/NCEI NOWData, 2005-2025

Extreme Cold: According to the National Oceanic and Atmospheric Administration (NOAA), the 2009-2010 winter season was Georgia's coldest winter since 2001. The winters of 1962-1963 and 1966-1967 were also historically cold winters. The coldest temperature on record in Georgia was -17°F in 1940.

NCEI records only one incident of extreme cold or freeze for Macon-Bibb County between 2005 and 2025, detailed in the table below. There was no recorded property or crop damage.

Table 3-19. Extreme Cold Events, Macon-Bibb County

Location	Date	Injuries/Deaths	Property Damage	Description
Macon-Bibb County	04/07/2007	0/0	N/A	High pressure area brought record cold with temperatures averaging 20 degrees below normal.

Source: NOAA/NCEI Storm Events Database, 2005-2025

According to NOWData from NOAA, the record low temperature in Macon-Bibb County, Georgia is -6°F in January 1985. January is historically the coldest month of the year in Macon-Bibb County, with an average daily temperature of 47.3°F in the Macon area. Between 2005 and 2025, there have been 896 days with natural temperatures below 32°F. Most notably, Macon-Bibb County had 70 days with natural temperatures below 32°F in 2010. The following table provides annual data.

Table 3-20. Number of Days Below 32°F, 2005-2025

Year	Total Days	Year	Total Days
2005	45	2016	36
2006	39	2017	26
2007	44	2018	41
2008	50	2019	33
2009	45	2020	31
2010	70	2021	36
2011	47	2022	43
2012	30	2023	29
2013	53	2024	42
2014	65	2025	48
2015	43	--	--
Total			**896**

Source: NOAA/NCEI NOWData, 2005-2025

Probability of Future Occurrence

Based on 21 years of available data, Macon-Bibb County averages 91.1 days per year with temperatures above 90°F. Heat index temperature data history was not available for this study, but local anecdotal accounts indicate that heat indices generate “feels like” temperatures above 100°F for a few days each year. Additionally, Macon-Bibb County averages 42.7 days per year with temperatures below 32°F. As such, the probability of the county experiencing at least one day per year of extreme heat and one day per year of extreme cold is 100% or highly likely.

3.7.5 Vulnerability Assessment

No data is available to assess the potential for deaths, injuries, or property damages in the planning area that could result from extreme temperatures; therefore, vulnerability is assessed on a qualitative basis for this hazard.

People

Extreme heat can cause heat stroke and even loss of human life. The elderly and the very young are most at risk to the effects of heat. People who are isolated are also more vulnerable to extreme heat. Due to the large elderly (16.4% of total population above the age of 65), young (6.4% of total population below the age of 5), and lower socioeconomic population (poverty rate of 25.1%), Macon-Bibb County's population is particularly susceptible to heat-related illnesses.[11]

Power outages during very cold winter conditions can also create dangerous situations. Elderly people account for the largest percentage of hypothermia victims. In addition, if the power is out for an extended period, residents tend to seek alternative means to heat their homes. Danger arises from carbon monoxide released from improperly ventilated heating sources, such as space or kerosene heaters, furnaces, and blocked chimneys. House fires also occur more frequently in the winter due to lack of proper safety precautions when using an alternative heating source. About 20% of cold-temperature exposure related deaths occur inside the home.

Property

Extreme heat is unlikely to cause significant damage to the built environment. However, road surfaces can be damaged as asphalt softens, and concrete sections may buckle under expansion caused by heat. Train rails may also distort or buckle under the stress of heat induced expansion. Power transmission lines may sag from expansion and if contact is made with vegetation the line may short out causing power outages. Additional power demand for cooling also increases power line temperature adding to heat impacts. Extreme heat can also cause significant agricultural losses. The Environmental Working Group (EWG), which provides data on crop insurance and agricultural losses, reported $97,545 in crop insurance indemnities due to heat in Macon-Bibb County from 1995-2024.[12]

Changes in development that have added impervious surface areas can exacerbate heat conditions through the urban heat island effect, whereby the concentration of structures, infrastructure, and human activity, traps and stores heat resulting in localized "heat islands." Impervious surface area has increased slightly in Macon-Bibb County since the last plan update.

No property damage was reported in association with any extreme cold events recorded by the NCEI between 2005 and 2025 for Macon-Bibb County. Therefore, no annualized loss estimate

[11] https://data.census.gov/table/ACSDP5Y2024.DP05?q=Macon-Bibb+County,+Georgia. Retrieved March 20, 2026.

[12] https://farm.ewg.org/cropinsurance.php?fips=13021&summpage=IN_REGPAGE. Retrieved March 20, 2026.

could be calculated for this hazard. However, the EWG reported $4,660 in crop insurance indemnities due to freeze in Macon-Bibb County from 1995-2024.

Environment

Wild animals are vulnerable to heat disorders similar to humans, including mortality. Vegetation growth will be stunted, or plants may be killed if temperatures rise above their tolerance extremes. Similarly, cold weather can cause water to freeze, impacting plants and wildlife. If freezing temperatures occur after planting season has begun (usually the beginning of April), early crops could be lost, which is detrimental to the agricultural industry.

Land Use & Development Trends

Aside from an overall increase in exposure due to development throughout the planning area, there have been no significant changes in development in the planning area that could affect vulnerability to extreme temperatures in Macon-Bibb County.

Consequence Analysis

The table below summarizes the potential negative consequences of extreme temperatures.

Table 3-21. Consequence Analysis, Extreme Temperature

Category	Consequences
Public	Extreme heat or cold may cause illness and/or death.
Responders	Consequences may be greater for responders if their work requires exertion and/or wearing heavy protective gear. Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel.
Continuity of Operations (including Continued Delivery of Services)	Continuity of operations is not expected to be impacted by extreme temperatures because warning time for these events is long, though temperature-related infrastructure failure, such as power outages or climate control systems failures could impact business operations during those periods.
Property, Facilities, and Infrastructure	Minor impacts may occur, including possible damages to road surfaces, power supplies, and climate control systems.
Environment	Environmental impacts include strain on local plant and wildlife, including potential for illness or death.
Economic Condition of the Jurisdiction	Farmers may face crop losses or increased livestock costs. Businesses may suffer economic impacts if operations are halted due to heat or cold impacts.
Public Confidence in the Jurisdiction's Governance	Ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective.

3.7.6 Priority Risk Index

The following table summarizes extreme temperature risk for Macon-Bibb County.

Table 3-22. Extreme Temperature Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	4	1	4	1	3	2.7	H

3.8 Natural Hazard: Infectious Disease

3.8.1 Hazard Description

Microorganisms, such as bacteria, viruses, parasites, fungi, or prions, surround us within the environment. They can even be found within our own bodies. Most microorganisms are completely harmless, and many are actually beneficial. However, some of these organisms are pathogenic, meaning they cause or can cause disease. Infectious diseases are caused by these pathogenic organisms and are communicable—meaning they can be spread from person to person either directly or indirectly. Direct transmission of the disease occurs through actual physical contact with an infected person or their bodily fluids. Indirect transmission of a disease occurs when an infected person contaminates a surface by sneezing, coughing, etc., and a non-infected person comes into contact with that infected surface. Another means of indirect transmission includes vectors, such as mosquitos, flies, mites, ticks, fleas, rodents, or dogs, which may carry the pathogenic microorganism and transmit it to people via a bite. Infectious diseases can also impact animal populations, particularly livestock and other farm animals. Even though these diseases may not directly affect humans, the economic impact of these diseases can be just as harmful, if not more so, to the community.

Infectious diseases can occur as primary events or they may occur as a cascading result of another disaster, such as a tornado, flood, or winter weather. Infectious diseases can vary greatly in severity and magnitude. According to the World Health Organization, infectious diseases account for three of the ten leading causes of death worldwide—HIV/AIDS, lower respiratory infections, and diarrheal disease. These three events, combined with tuberculosis and malaria, account for 20% of deaths globally.

In Western countries, the impact of infectious diseases has diminished greatly over the last 75 years due to improved sanitation, personal hygiene, vaccinations, and the use of antibiotics. In the United States, only two infectious diseases—seasonal influenza and pneumonia—rank in the top ten leading causes of death. Annually, there are 1,500 deaths in the United States from seasonal influenza and another 52,000 from pneumonia. Children and older adults are the greatest at risk for both.

Emergent infectious diseases are those that are appearing in a population for the first time. Re-emergent infectious diseases are those that may have previously existed in a population, but levels had dropped to the point where it was no longer considered a public health problem until levels once again began increasing.

During the last 25 years, emergent and re-emergent infectious diseases have been on the rise. The table below outlines some of the contributing factors to this rise:

Table 3-23. Contributing Factors to Increasing Occurrence of Emergent Diseases

Agent-Related Factors
• Evolution of pathogenic infectious agents • Development of resistance to drugs • Resistance of disease carriers to pesticides

Host-Related Factors
• Human demographic changes (humans inhabiting new areas) • Human behavior (sexual practices and drug use) • Human susceptibility to infection
Environment-Related Factors
• Economic development and land use patterns • International travel and commerce • Deterioration of surveillance systems

Due to a lack of ready-made vaccines for these diseases and a lack of immunity in the population, emergent and re-emergent infectious diseases are much more likely to escalate to pandemic levels rapidly.

Table 3-24. Emergent and Re-Emergent Infectious Diseases

CDC-Identified Emergent and Re-Emergent Infectious Diseases	
Drug-resistant Infections	Mad Cow/Variant Creutzfeldt-Jakob Diseases
Campylobacteriosis	Chagas Disease
Cholera	Cryptococcosis
Cryptosporidiosis (Crypto)	Cyclosporiasis
Cysticercosis	Dengue Fever
Diphtheria	Ebola Hemorrhagic Fever
Group B Streptococcal Infection	Hantavirus Pulmonary Syndrome
Hepatitis C	Hendra Virus Infection
Histoplasmosis	HIV/AIDS
Influenza	Lassa Fever
Legionnaires' Disease and Pontiac Fever	Leptospirosis
Listeriosis	Lyme Disease
Malaria	Marburg Hemorrhagic Fever
Measles	Meningitis

CDC-Identified Emergent and Re-Emergent Infectious Diseases	
Monkeypox	MRSA
Nipah Virus Infection	Norovirus Infection
Pertussis	Plague
Polio	Rabies
Rift Valley Fever	Rotavirus Infection
Salmonellosis	SARS
Shigellosis	Smallpox
Sleeping Sickness (Trypanosomiasis)	Tuberculosis
Tularemia	Valley Fever (Coccidioidomycosis)
VISA/VRSA	Staphylococcus Aureus
West Nile Virus Infection	Yellow Fever

3.8.2 Hazard Location

All of Macon-Bibb County is susceptible to infectious diseases. Segments of the population at highest risk for contracting an illness from a pathogen are the very young, the elderly, or individuals who currently experience respiratory or immune deficiencies. These segments of the population are present throughout the region. In addition, because of the communicable nature of these diseases, tourism centers or areas of high population density are considered more at risk. As a result, the population in and around tourist destinations may have an increased potential for exposure and spread of infectious diseases.

3.8.3 Hazard Extent

The extent of infectious disease hazards in Macon-Bibb County is evaluated using public health surveillance data and epidemiological measures that quantify both the magnitude and spread of disease. Key indicators include incidence rates (number of new cases per 100,000 population), prevalence rates (total existing cases), hospitalization rates, and mortality rates. These metrics are tracked over time to identify trends, seasonal patterns, and abnormal increases that may indicate an outbreak.

Additional measures used to define extent include the geographic distribution of cases, rate of transmission (e.g., reproductive rate during outbreaks), and the severity of illness, which may be assessed through hospitalization and case fatality ratios. For large-scale events such as

pandemics, extent is further quantified by the percentage of the population affected, the duration of the outbreak, and the level of strain on healthcare capacity.

Data sources, such as state and local health departments and national systems maintained by the Centers for Disease Control and Prevention, are used to monitor and compare these indicators. Together, these measures provide a standardized approach to evaluating the magnitude, severity, and overall extent of infectious disease hazards within the county.

3.8.4 Historical Occurrences

The following historical events summarize significant pandemics, epidemics, and disease outbreaks that have occurred in the United States, including impacts in Macon-Bibb County.

Pandemics/Epidemics

1873 Cholera Epidemic in the United States

The 1873 cholera epidemic was part of the broader fourth cholera pandemic, which spread through parts of North America from 1863 to 1875, carried largely by contaminated water and the movement of people along river and rail routes. In 1873, cholera first appeared in port cities like New Orleans and then spread inland along transportation networks, leading to outbreaks in several Southern and Midwestern cities, such as Memphis, Nashville, Huntsville, and Birmingham, where hundreds of residents died and people fled affected areas due to fear and lack of sanitation infrastructure. There is no documented evidence that the 1873 cholera epidemic directly affected Macon-Bibb County.

Pandemic Influenza

A flu pandemic has little or nothing in common with the annual flu season. A pandemic flu would be a new strain and a much more serious and contagious flu virus. Humans would have no natural resistance to a new strain of influenza. There is a vaccine for seasonal flu, but there is no vaccine available at this time for a pandemic flu.

If a new, highly contagious strain of influenza begins to infect humans, it would likely cause widespread illness and death within a matter of months and could last up to two years. The Centers for Disease Control and Prevention (CDC) predict that as much as 25% to 30% of the U.S. population could be sick, hospitalized, and potentially die as a result of severe illness.

The following outbreaks of various flu strains have been the most significant in history:

- **Spanish Flu 1918–1920:** The first cases of Spanish Flu in Georgia were reported in Fulton County at Camp Gordon near Atlanta in September 1918. Within a few weeks, the disease was raging across the state in nearly every county. The number of deaths in the state is estimated to be in excess of 30,000, but the number of deaths in Macon-Bibb County is unknown. It is estimated that 675,000 Americans died during the pandemic, and that 20 to 40 million died worldwide.
- **Asian Flu 1957–1958:** First identified in China, this virus caused roughly 70,000 deaths in the United States during the 1957–58 seasons. Because this strain has not circulated in humans since 1968, no one under 30 years old has immunity to this strain.

- **Hong Kong Flu 1968–1969:** The Hong Kong Flu was first detected in Hong Kong in early 1968 and spread to the United States later that year. The Hong Kong Flu killed about 34,000 people in the United States and one million people worldwide.
- **Swine Flu 2009–2010:** Novel influenza A (H1N1) was a new flu virus of swine origin that was first detected in April 2009. The virus infected people and spread from person to person, sparking a growing outbreak of illness in the United States and worldwide. Estimates place the number of suspected cases throughout the world between 700 million and 1.4 billion. At least 12,469 deaths occurred in the United States, with 81 deaths in Georgia. It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread—mainly through the coughs and sneezes of people who are sick with the virus. By November 2009, about three billion doses of the swine flu vaccine were produced and administered in over 16 countries. The vaccine's overall effectiveness was estimated at 56%.

1948 Poliomyelitis Epidemic

The 1948 polio epidemic marked a resurgence of poliomyelitis in the United States after several years of lower case counts; nationwide outbreaks occurred each summer, with tens of thousands of infections reported in the late 1940s and early 1950s before a vaccine became available. Polio is a highly contagious viral disease that can cause paralysis or death, especially in children, and outbreaks during this period led families and communities to avoid crowded places like pools and theaters as they tried to reduce spread. Prior to vaccination efforts starting in the mid-1950s, epidemics were widespread across the country, spurring increased public health attention and fundraising through organizations like the March of Dimes.

No specific historical records could be found that document a polio outbreak in Macon-Bibb County during the 1948 epidemic. Local history sources generally note that polio, like other major diseases, affected populations broadly in the United States, but county-level incidence for that year is not detailed in accessible historical summaries.

COVID-19 Pandemic

COVID-19 is a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes respiratory illness in humans and can be spread from person to person through respiratory droplets. These droplets are released when someone infected with the disease sneezes, coughs, or talks. Infectious droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. COVID-19 was declared a public health emergency nationwide on January 21, 2020. The pandemic began in Wuhan, China in December 2019 and quickly spread around China and the world, lasting well into 2022 and even 2023 in some parts of the world. As of January 2026, more than 778 million cases and over 7 million deaths have been confirmed worldwide. North America has had the highest number of cases with over 103 million. These statistics make the COVID-19 pandemic one of the deadliest pandemics in history.

As of March 2026, Macon-Bibb County has had approximately 36,161 confirmed positive cases of COVID-19 and 749 COVID-related deaths, although data is limited after March 2024.[13] The county saw the largest spike in cases in January 2022. There have been nearly 2.5 million cases throughout the state of Georgia with approximately 36,488 deaths. However, since the end of the declared public health emergency in the U.S. and the increased prevalence of at-home testing kits, current COVID-19 data is incomplete and unreliable. Georgia no longer actively monitors cases in the state.

There is no current cure or specific antiviral treatment for COVID-19. However, the first vaccine for COVID-19 was released on December 21, 2020. Since then, more than 11.8 billion doses of the vaccine have been administered in over 197 countries.

Norovirus

Norovirus is a very contagious virus that causes vomiting, diarrhea, nausea, and stomach pain. Norovirus is often called the "stomach flu." However, the norovirus is not related to or caused by the influenza virus. The norovirus spreads very easily through direct contact with someone with the norovirus, by eating food or drinking liquids that are contaminated with the virus, or by touching surfaces that have been contaminated and then touching the mouth. Washing hands thoroughly and cleaning and disinfecting surfaces regularly can help prevent the spread of the norovirus.

Most recently, Georgia has experienced a confirmed outbreak of norovirus during the 2025/2026 winter season, although it's unclear exactly where these outbreaks occurred.

Vector-Borne Diseases

In addition to pandemic-level communicable diseases, Macon-Bibb County experiences ongoing exposure to vector-borne illnesses such as West Nile virus and tickborne diseases, which are influenced by environmental conditions, land use patterns, and seasonal climate trends.

West Nile Virus

West Nile virus (WNV) is transmitted to people, birds, and other animals by the bite of an infected mosquito. This virus can cause serious illness in people of any age but especially in people over the age of 50 or those with other underlying medical conditions. The best form of protection is by avoiding mosquito bites.

WNV does not occur in northern states when it is too cool for mosquitoes to survive. In southern states with warmer climates and mosquitoes present year-round, the risk of infection may still be present in the winter months.

Surveillance of WNV in Georgia began in 2001 when it was first detected. 590 human cases of WNV have been confirmed in the state since 1999. In Macon-Bibb County, there have been 12

[13] https://ga-covid19.ondemand.sas.com/. Retrieved March 20, 2026.

reported cases of WNV in humans since 1999. The most recent reported case in the county occurred in 2019.[14]

Tickborne Diseases

Ticks are arachnids that feed on the blood of animals and/or humans. They are most known for their potential to transmit disease to humans and other animals. American dog ticks, lone star ticks, brown dog ticks, and blacklegged ticks are the most common ticks encountered in Georgia. In Georgia, tickborne illnesses are most often transmitted between early spring and late fall since ticks are most active during warm months. However, tickborne diseases have been reported year-round in Georgia. Tickborne diseases in Georgia include Spotted Fever Rickettsiosis, Lyme Disease, Ehrlichiosis, and Anaplasmosis. The blacklegged tick is the only human-attaching tick capable of transmitting Lyme disease in Georgia.

Probability of Future Occurrence

The probability and magnitude of an infectious disease occurrence is difficult to evaluate due to the wide variation in disease characteristics, such as rate of spread, morbidity and mortality, detection and response time, and the availability of vaccines and other forms of prevention. A review of the historical record indicates that disease-related disasters do occur in humans with some regularity and varying degrees of severity; however, there is growing concern about emerging infectious diseases. Infectious diseases pose a significant risk to Macon-Bibb County; however, the probability of a major infectious disease outbreak with the potential of reaching the scale of an epidemic is not nearly as common. Based on recent history, an infectious disease outbreak occurs in any given part of the United States about every five to 10 years, while a pandemic occurs every 50 to 100 years.

3.8.5 Vulnerability Assessment

Losses due to emergent infectious diseases are difficult to estimate due to the unpredictable nature of the hazard. The type of emergent infectious disease, location of the outbreak, and the impact of the outbreak would all affect the potential losses.

Economic losses in Macon-Bibb County from an emergent infectious disease outbreak could have wide-ranging effects in Middle Georgia since Macon-Bibb County serves as the economic center for the entire region. The Middle Georgia Regional Airport increases the likelihood of a pandemic or epidemic impacting the Macon-Bibb County area as airports are known places of pathogen spread.

People

Populations are vulnerable to infectious diseases due to factors such as high-density living environments (e.g., nursing homes, correctional facilities, shelters), workplace proximity, and frequent public interaction. Vulnerable groups include the elderly, children, individuals with chronic conditions, immunocompromised populations, healthcare workers, and those with

[14] https://www.cdc.gov/west-nile-virus/data-maps/historic-data.html. Retrieved March 20, 2026.

limited access to healthcare. Families experiencing job loss or medical bills from disease impacts may face housing insecurity, foreclosures, or evictions, increasing community vulnerability.

Property

Healthcare facilities, emergency shelters, and congregate housing face increased strain, requiring rapid adaptation (e.g., isolation spaces, infection control upgrades).

Environment

Increased demand on sanitation systems (medical waste, household waste from quarantined households) can strain local environmental services. Inadequate disposal could lead to secondary public health hazards. Some infectious diseases involve zoonotic transmission (from animals to humans). Outbreaks may require wildlife management, animal culling, or stricter agricultural and food safety controls, impacting local ecosystems and agriculture.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends directly related to emergent infectious diseases.

Consequence Analysis

The table below summarizes the potential detrimental consequences of infectious diseases.

Table 3-25. Consequence Analysis, Infectious Disease

Category	Consequences
Public	Widespread disease can result in increased illness, hospitalization, and mortality. Psychological stress and disruptions to education, childcare, and social support systems compound impacts. Vulnerable populations with language, cultural, or economic barriers may struggle to access timely information or medical resources.
Responders	Emergency responders and healthcare workers are at an increased risk of exposure to communicable disease.
Continuity of Operations (including Continued Delivery of Services)	Workforce absenteeism during outbreaks can hinder continuity of essential services, including healthcare, emergency response, education, utilities, and critical supply chains.
Property, Facilities, and Infrastructure	Hospitals, clinics, and long-term care centers may face overwhelming demand, leading to capacity shortages, equipment strain, and the need for rapid facility adaptation. Supply chains for medical equipment, pharmaceuticals, and protective gear can be disrupted, delaying response capacity. Airports, ports, and public transit may experience decreased usage due to restrictions or fear of transmission, while freight systems may see bottlenecks if workforce capacity is reduced.
Environment	Communicable diseases may reduce safe access to shared community spaces such as parks, schools, and recreational facilities, limiting social cohesion and economic activity.

Category	Consequences
Economic Condition of the Jurisdiction	Prolonged outbreaks disrupt business operations, supply chains, and retail environments. Commercial properties may experience closures or reduced capacity due to workforce shortages or public health restrictions.
Public Confidence in the Jurisdiction's Governance	A communicable disease outbreak may affect public confidence if the environmental or health impacts are enduring, or if people are forced to act in ways that oppose their belief systems, ability to move freely, or feel inconvenienced.

3.8.6 Priority Risk Index

The following table summarizes infectious disease risk for Macon-Bibb County. Given the nature of infectious disease and the general interconnectivity of people across Macon-Bibb County, risk and vulnerability are considered equal throughout the whole area.

Table 3-26. Infectious Disease Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	1	3	4	1	4	2.5	H

3.9 Natural Hazard: Flooding

3.9.1 Hazard Description

Flooding is a temporary overflow of water on normally dry lands adjacent to the source of water, such as a river, stream, or lake. The causes of flooding include mass sources of precipitation, such as tropical cyclones, frontal systems, and isolated thunderstorms combined with other environmental variables, such as changes to the physical environment, topography, ground saturation, soil types, basin size, drainage patterns, and vegetative cover. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, death of livestock, agricultural crop loss, loss of egress and access to critical facilities due to roads being washed-out or over-topped, and unsanitary conditions by deposition of materials during recession of the floodwaters.

Floods are loosely classified as either coastal or riverine. Coastal flooding occurs when normally dry, low-lying land is flooded by sea water. Coastal flooding is usually associated with tropical cyclones in Georgia. Riverine flooding occurs from inland water bodies, such as streams and rivers. Riverine flooding is often classified based on rate of onset. The first is slow to build, peak, and recede, often allowing enough time for evacuations. The other type of riverine flood is referred to as a "flash" flood, which rapidly peaks and recedes, thus giving insufficient time for evacuations. Flash floods are typically considered the most dangerous of these types.

On a broad scale, flooding can occur around any body of water or low-lying surface given enough precipitation or snowmelt. The spatial extent of the flooding event depends on the amount of water overflow but can usually be mapped because of existing floodplains (areas already prone to flooding).

Flooding in Georgia is highly dependent on precipitation amounts and is highly variable. Certain seasons are more prone to flooding to a greater likelihood of excessive precipitation. Typically, the wet seasons are during the winter, early spring, and midsummer. Late spring and fall are usually drier seasons.

3.9.2 Hazard Location

In Georgia, flooding is greatly dependent upon precipitation amounts and is highly variable within the state. Georgia's climate is primarily affected by latitude, proximity to the Atlantic Ocean and Gulf of Mexico, and topography. Certain seasons are more prone to flooding based on the likelihood of excessive precipitation. Typically, the wet seasons are winter, early spring, and midsummer, and the drier seasons are fall and late spring. However, this varies across the state with the northern portion receiving maximum precipitation amounts during the winter as a result of frontal systems, whereas central and coastal Georgia receive maximums in the mid-to-late summer as a result of tropical cyclones and convective thunderstorm activity.

Regulated floodplains are illustrated on inundation maps called Flood Insurance Rate Maps (FIRMs). It is the official map for a community on which FEMA has delineated both the Special Flood Hazard Areas (SFHAs) and the risk premium zones applicable to the community. SFHAs represent the areas subject to inundation by the 100-year flood event. Structures located within the SFHA have a 26-percent chance of flooding during the life of a standard 30-year mortgage. Flood prone areas were identified within Macon-Bibb County using the FIRMs dated June 7, 2017.

The following figure illustrates the most current SFHAs for Macon-Bibb County. Figure 3-9 shows the 100-year floodplain, and Figure 3-10 shows the 500-year floodplain.

Figure 3-8. Countywide SFHA Map, Macon-Bibb County

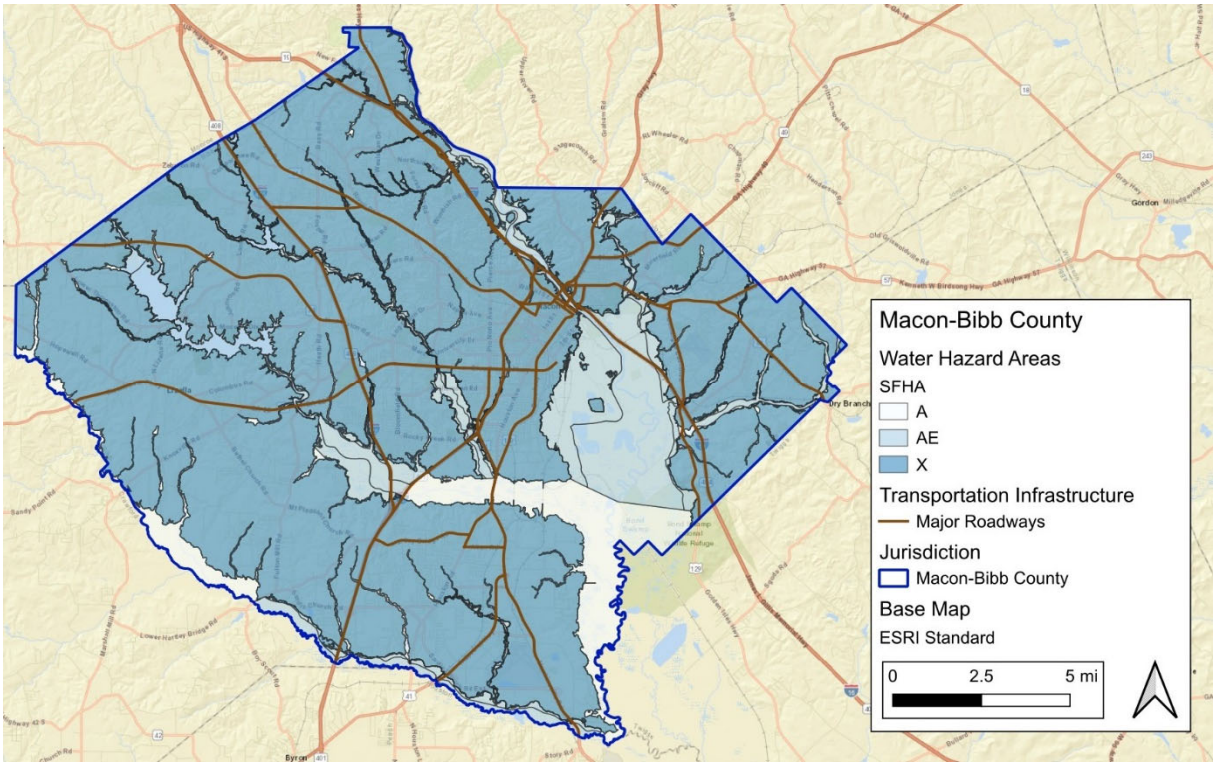


Figure 3-9. 100-Year Flood Zone, Macon-Bibb County

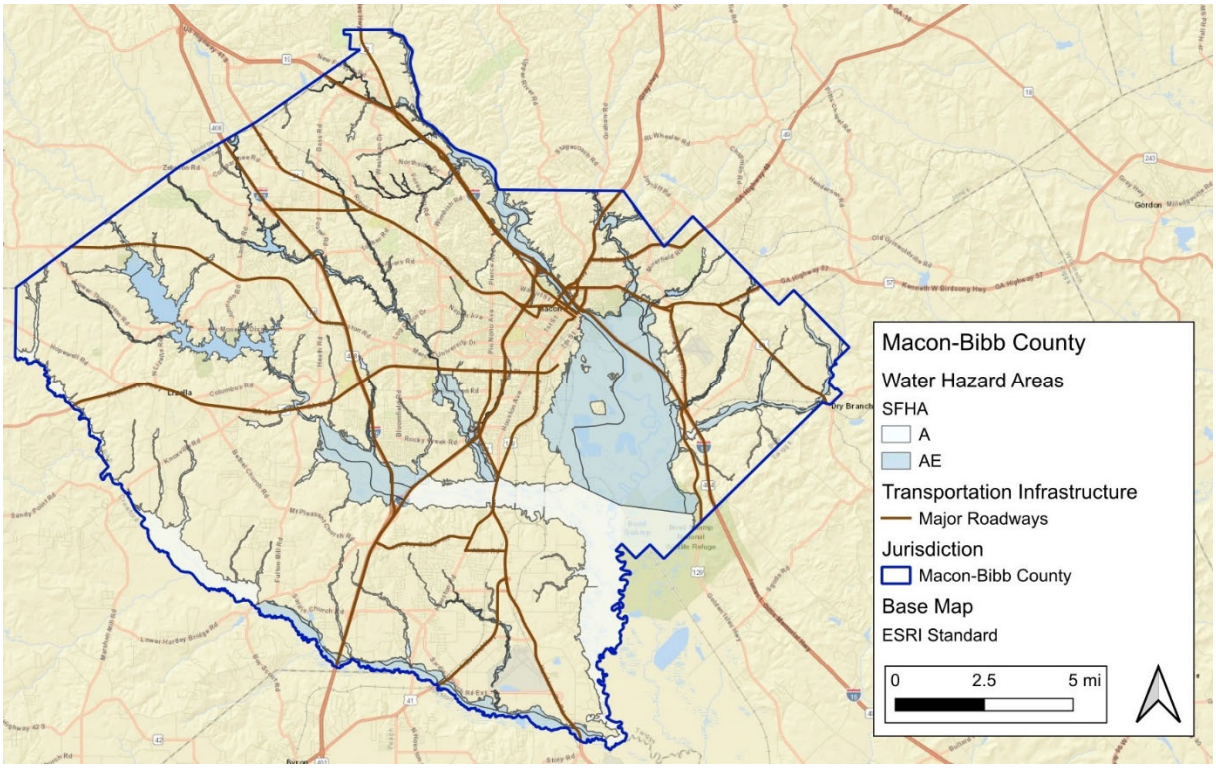
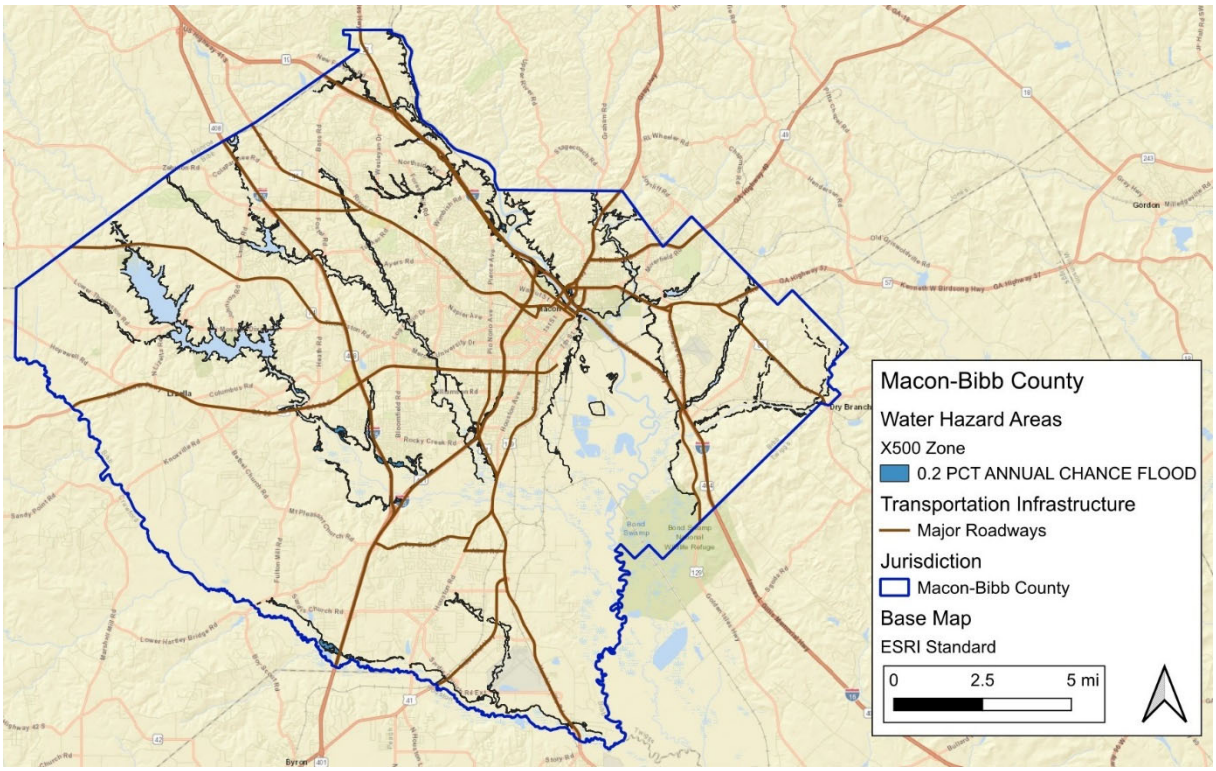


Figure 3-10. 500-Year Flood Zone, Macon-Bibb County



The flood insurance rate zones are depicted in the maps below, which were developed by FEMA for Macon-Bibb County, effective June 7, 2017. Macon-Bibb County has 53 FIRM panels, so only four are included below to show a snapshot of the floodplain in the county.

Figure 3-11. FEMA D-FIRM, Lake Tobesofkee

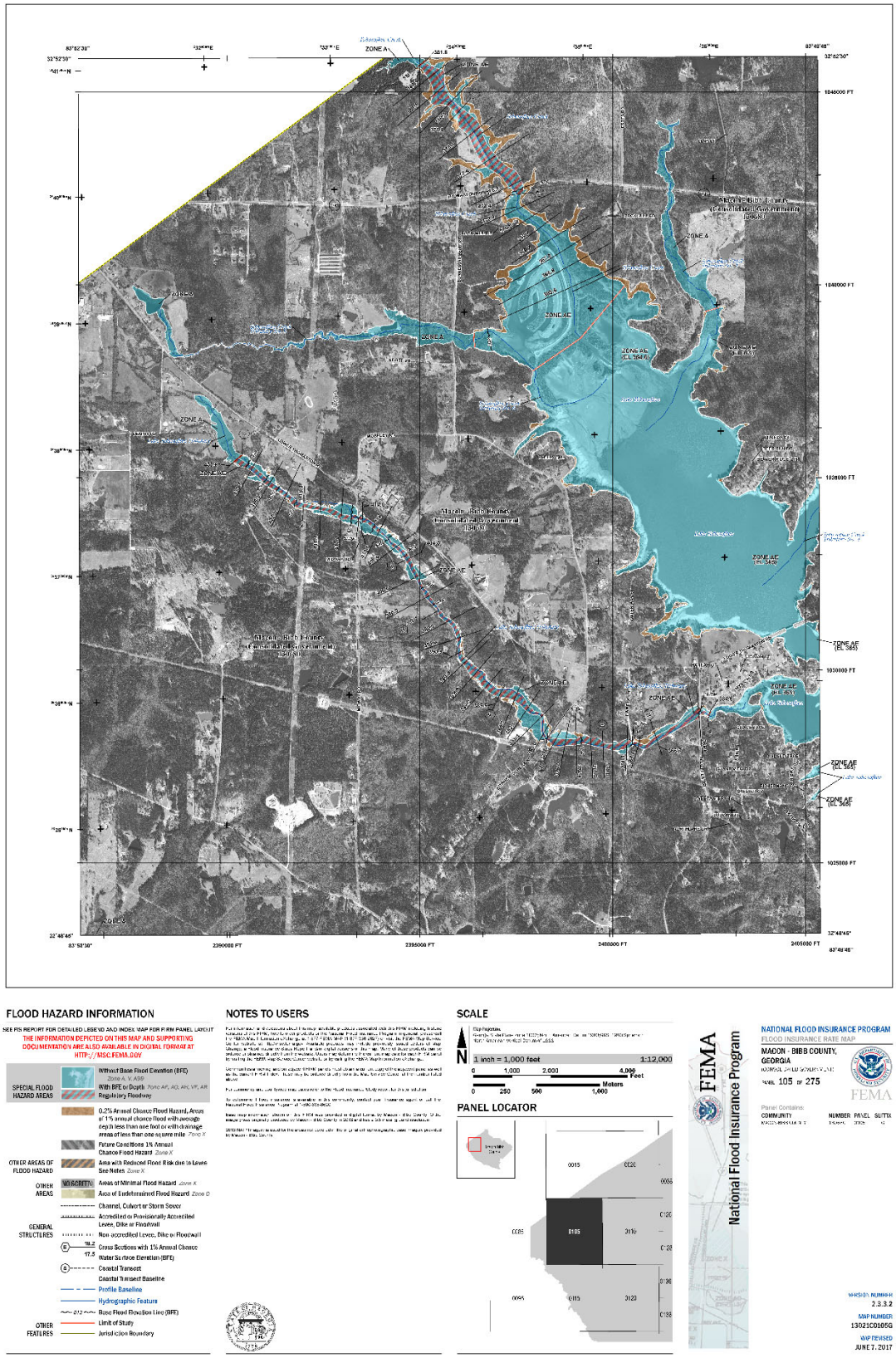


Figure 3-12. FEMA D-FIRM, Macon (Clarkview Area)

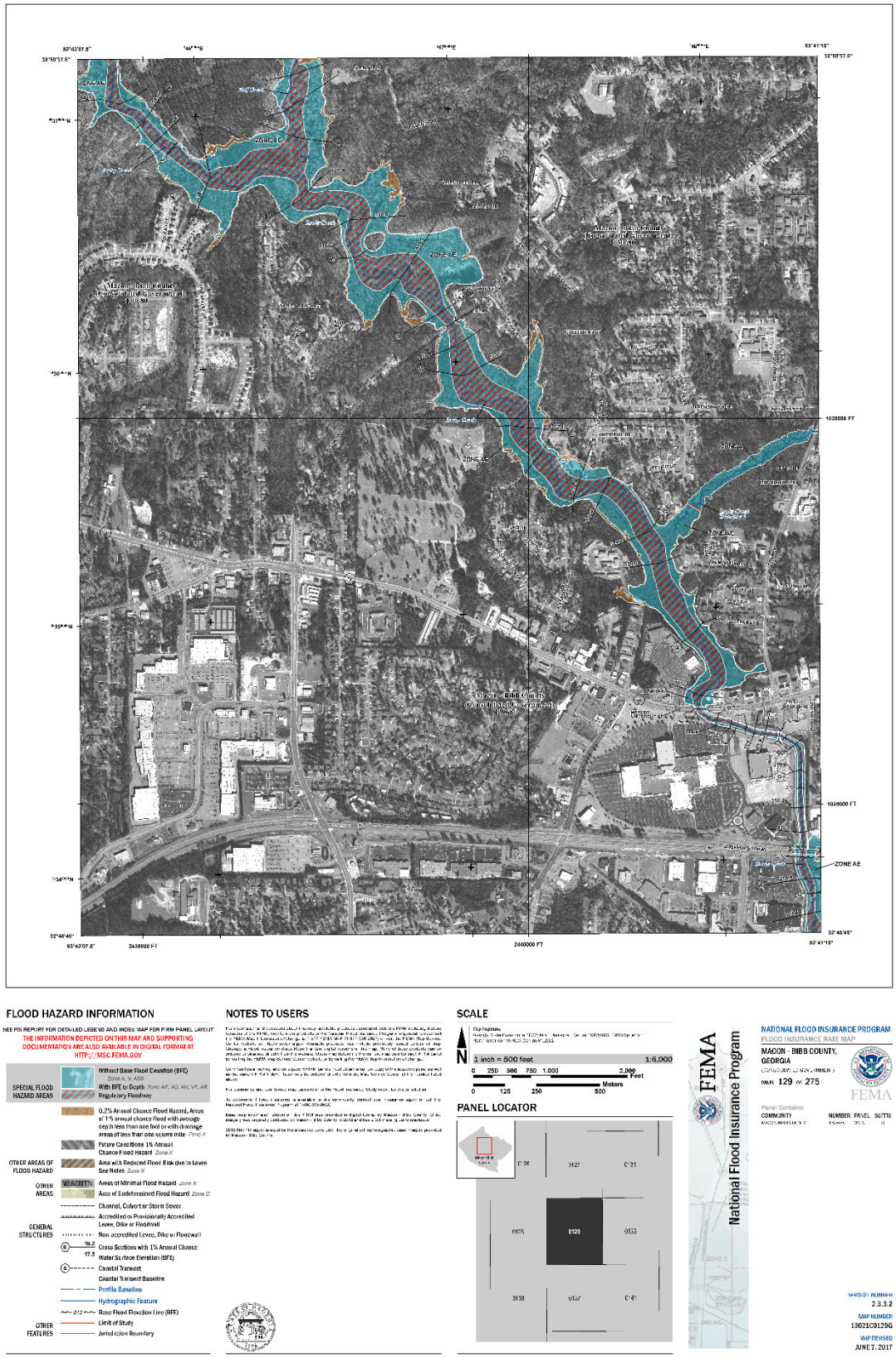


Figure 3-13. FEMA D-FIRM, Downtown Macon

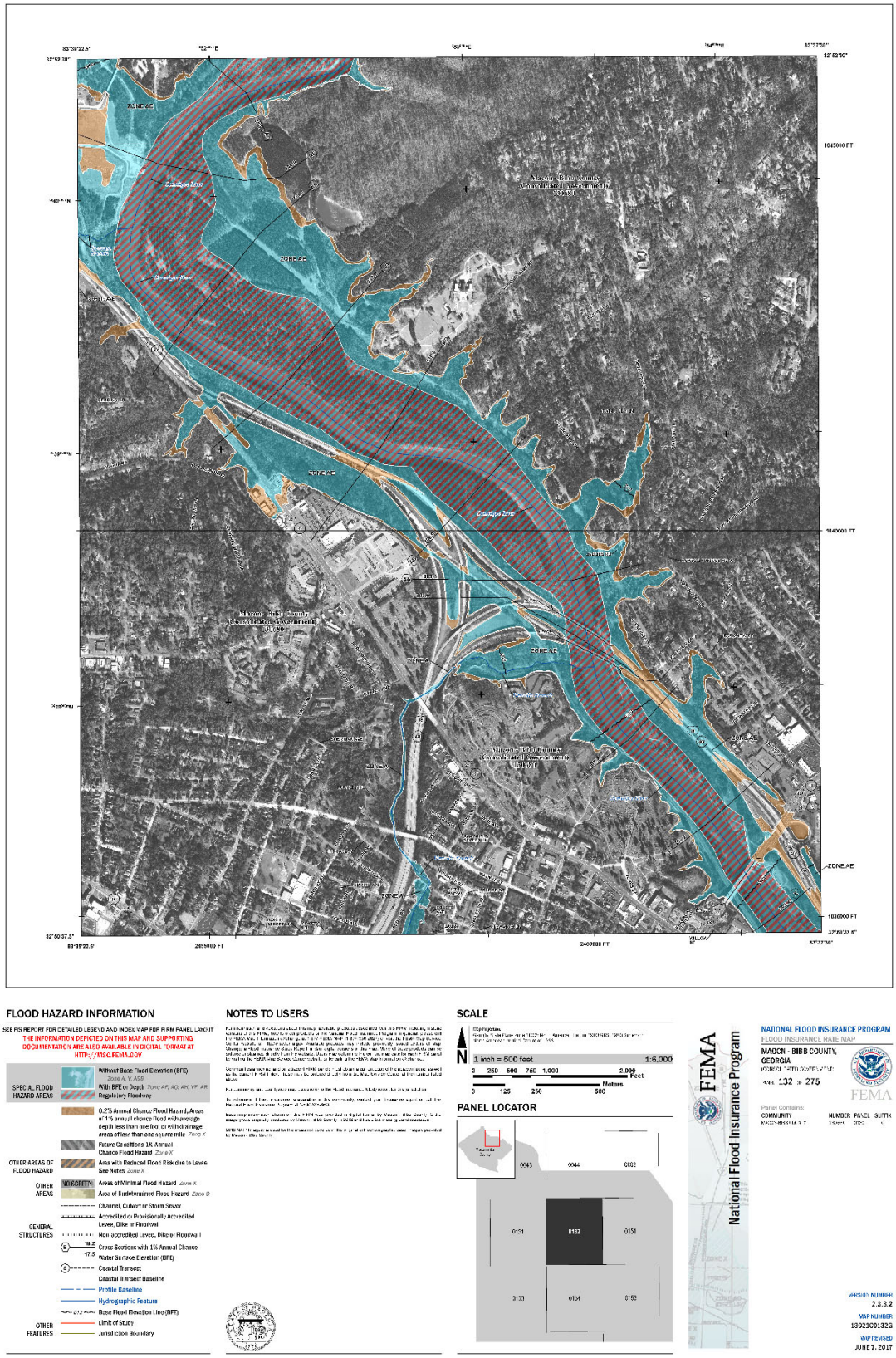
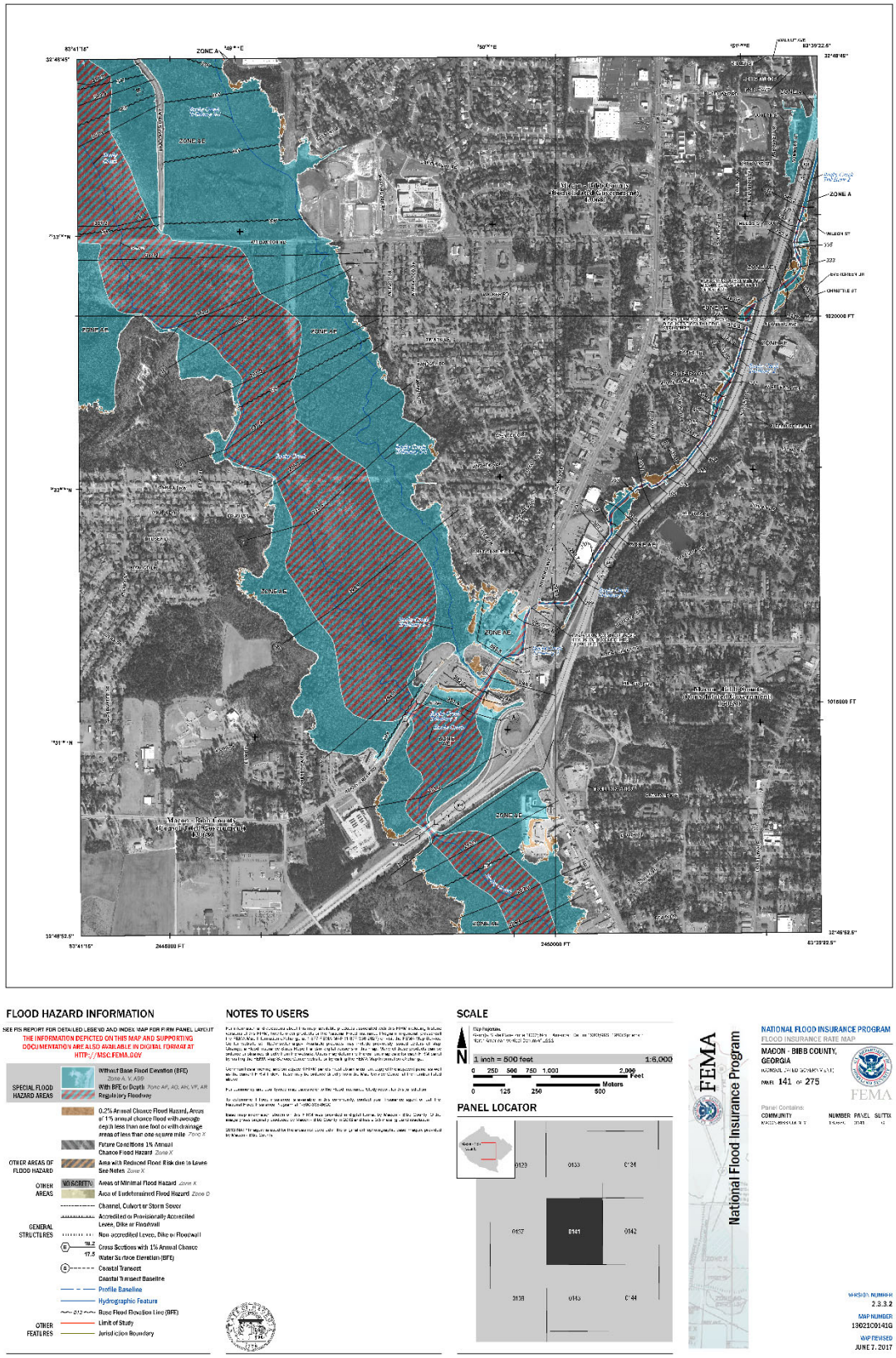


Figure 3-14. FEMA D-FIRM, Macon (Jefferson Hills Area)



Flooding in Macon–Bibb County is most prevalent in the southeastern portion of the county, where impacts are largely driven by overflow from the Ocmulgee River during periods of heavy rainfall across central Georgia. The areas most prone to flooding are those located within the Special Flood Hazard Area (SFHA)—the 100-year floodplain—particularly along the Ocmulgee River, Rocky Creek, and Echeconne Creek and related tributaries and distributaries.

Flood risk and extent are commonly evaluated using data from the Ocmulgee River gauge near the intersection of Interstate 16 and U.S. Highway 129 in Macon. At approximately 18 feet, minor flooding begins in downstream agricultural areas and portions of the Ocmulgee Riverwalk. As river levels rise to 26 feet, residential areas such as those along Glenridge Drive begin to experience backyard flooding, and rail infrastructure is impacted. Major flooding occurs around 30 feet, when waters approach bridges and nearby commercial areas, while at 34 feet, levee overtopping on the east side of Macon results in widespread inundation of roads, homes, businesses, and portions of Interstates 16 and 75. Most of the flood damage in Macon-Bibb County's history appears to be related to roads and culverts washing out as a result of flood waters, such as during the 2003 flood event. Historic events, including the 1994 flood associated with Tropical Storm Alberto, demonstrate the county's vulnerability, with recorded river levels reaching 35.4 feet and causing extensive flooding across these high-risk areas.

3.9.3 Hazard Extent

The NFIP utilizes the 100-year flood as a basis for floodplain management. The Flood Insurance Study (FIS) defines the probability of flooding as flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 100-year period (recurrence intervals). Considered another way, properties in a 100-year flood zone have a 1% probability of flooding during any given year. Mortgage lenders require that owners of properties with federally-backed mortgages located within Special Flood Hazard Areas (SFHAs) purchase and maintain flood insurance policies on their properties. Consequently, newer and recently purchased properties in the community are typically insured against flooding. SFHAs represent the areas subject to inundation by the 100-year flood event. Regulated floodplains are illustrated on inundation maps called Flood Insurance Rate Maps (FIRMs). The table below summarizes the flood insurance zones identified by the Digital FIRM (DFIRM).

Table 3-27. Mapped Flood Insurance Zones within Macon-Bibb County

Zone	Description
VE	Also known as the coastal high hazard areas. They are areas subject to high velocity water including waves; they are defined by the 1% annual chance (base) flood limits (also known as the 100-year flood) and wave effects 3 feet or greater. The hazard zone is mapped with base flood elevations (BFEs) that reflect the combined influence of stillwater flood elevations, primary frontal dunes, and wave effects 3 feet or greater.
AE	AE Zones, also within the 100-year flood limits, are defined with BFEs that reflect the combined influence of stillwater flood elevations and wave effects less than 3 feet. The AE Zone generally extends from the landward VE zone limit to the limits of the 100-year flood from coastal sources, or until it reaches the confluence with riverine flood sources. The AE Zones also depict the SFHA due to riverine flood sources, but instead

Zone	Description
	of being subdivided into separate zones of differing BFEs with possible wave effects added, they represent the flood profile determined by hydrologic and hydraulic investigations and have no wave effects. The Coastal AE Zone is differentiated from the AE Zone by the Limit of Moderate Wave Action (LiMWA) and includes areas susceptible to wave action between 1.5 to 3 feet.
AH	Areas subject to inundation by 1%-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone.
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
A99	Areas subject to inundation by the 1%-annual-chance flood event, but which will ultimately be protected upon completion of an under-construction federal flood protection system. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No Base Flood Elevations (BFEs) or depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
0.2% Annual Chance (shaded Zone X)	Moderate risk areas within the 0.2%-annual-chance floodplain, areas of 1%-annual-chance flooding where average depths are less than 1 foot, areas of 1-%-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1%-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones. (Zone X (shaded) is used on new and revised maps in place of Zone B.)
Zone X (unshaded)	Minimal risk areas outside the 1%- and 0.2%-annual-chance floodplains. No BFEs or base flood depths are shown within these zones. Zone X (unshaded) is used on new and revised maps in place of Zone C.

The next table shows the number of parcels and acres located within each different flood zone in Macon-Bibb County.

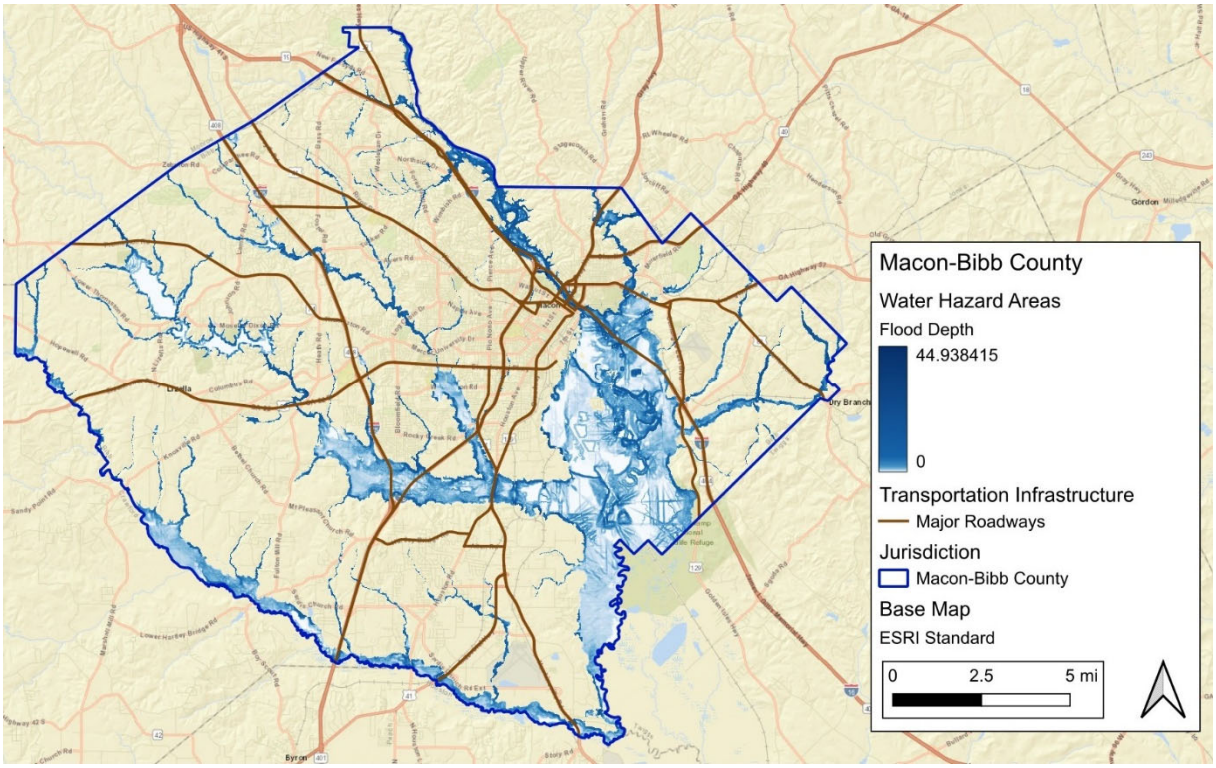
Table 3-28. Parcels/Acres in Flood Zones, Macon-Bibb County

Flood Zone	Parcels	Acres
AE	2,351	40,461.92
A	1,305	31,528.45
X500	2,525	33,193.90
SFHA Total	**3,579**	**63,270.85**

Flood extent can be defined by the amount of land in the floodplain and the potential magnitude of flooding as measured by flood height and velocity.

The following figure shows the depth of flooding predicted from a 1% annual chance flood.

Figure 3-15. Countywide Flood Depth, Macon-Bibb County



3.9.4 Historical Occurrences

The following table details the historical occurrences of flooding and heavy rain that caused flooding identified from 2005 through 2025 by the NOAA/NCEI Storm Events database. Where multiple instances of flooding were reported across different locations on the same date, these events are combined so as to indicate the number of days of flooding. It should be noted that only those historical occurrences listed in the NCEI database are shown here and that other unrecorded or unreported events may have occurred within the planning area during this timeframe. It is important to note that many of the events attributed to the county are countywide or include incorporated areas.

Table 3-29. NCEI Records of Flooding, 2005-2025

Event Type	Location	Date	Deaths/Injuries	Reported Property Damage	Reported Crop Damage
Flood	Bibb (Zone)	03/27/2005	0/0	$0	$0
Flood	Bibb (Zone)	07/11/2005	0/0	$0	$0
Flash Flood	Macon	07/30/2005	0/0	$500,000	$0
Flood	Macon	08/24/2006	0/0	$0	$0
Flood	Lizella	04/02/2009	0/0	$30,000	$0
Flash Flood, Flood	Arkwright	09/17/2009	0/0	$20,000	$0

Event Type	Location	Date	Deaths/Injuries	Reported Property Damage	Reported Crop Damage
Heavy Rain	Wilson Airport Macon	12/23/2014	0/0	$0	$0
Flash Flood	Lanier Heights	08/04/2017	0/0	$0	$0
Flash Flood	Rutland, Lanier Heights	04/29/2020	0/0	$0	$0
Flash Flood	Lanier Heights	03/27/2023	0/0	$0	$0

Source: NOAA/NCEI Storm Events Database, 2005-2025

The following event narratives are provided in the NOAA/NCEI Storm Events Database and illustrate the impacts of flood events on the county. Only significant events in terms of scope and damage are included.

March 27, 2005, Macon-Bibb County, Flood—A second round of rain brought flooding and flash flooding to many of the same areas that experienced flooding during the early morning hours. While the flash flood events were primarily confined to the same areas that experienced flooding and flash flooding earlier in the morning, general flooding spread further north and east toward La Grange, Peachtree City, and Macon. Areas north to near Peachtree City and Macon experienced average rain for the day of two to four inches.

Several inches of rain fell across Macon-Bibb County causing general, albeit mostly minor flooding. However, the heavy rain overwhelmed sewer lines causing extensive sewage spills into the Ocmulgee River. Two sewage spills were reported at more 10,000 gallons each, both considered major spills. One spill reached 61,700 gallons and the other 35,400 gallons. Both spills contaminated the Ocmulgee River.

July 30, 2005, Macon, Flash Flood—The Macon Telegraph reported that slow moving and persistent thunderstorms dumped up to three inches of rain on saturated ground across Macon and much of Bibb county during the mid to late afternoon. The heavy rain resulted in considerable flooding. At least 10 units of an apartment complex were flooded when water rushed down a hill caused by a dam break on a nearby pond. The water rose above the first level of the apartment and many residents had to be rescued from their apartments through the windows. Another home nearby was flooded with up to 18 inches of water in the basement after an area of water 40 feet wide rushed toward his home from the dam breakage. The flash flooding in the area also caused a number of sinkholes to develop. A police patrol car stalled in four foot deep water at one of the sinkhole incidents.

August 24, 2006, Macon, Flood—The Bibb County Emergency Management Director reported that a number of streets throughout the City of Macon had become flooded as the result of persistent thunderstorms over the area. Flooded streets included Roth Avenue, Macon Mall Road, Clinton Road at Second Street, and Eisenhower Road at Bloomfield Drive. Rainfall rates for the 2-hour period between 2:30 pm EDT and 4:30 pm EDT were in the 2-3 inch/hour range. From three to four inches of rain fell across much of the city during this period.

April 2, 2009, Lizella, Flood—A series of upper troughs were moving through a large, deep upper trough centered in the mid part of the U.S. One such upper trough and associated cold front were sweeping through the southeast U.S. on April 1st, with another stronger system on the 2nd. Widespread heavy rain was observed in central Georgia with the first system. Several creeks and streams exceeded bankful and several roads and low-lying areas in central Georgia counties, especially around Macon, were flooded. The Bibb County Emergency Management Director reported that around 100 homes in the Macon area experienced basement flooding as a result of several days of heavy rainfall. Parts of the county had a three-day rainfall total of five to six inches. This rain fell on saturated soils from prior weeks of above normal rainfall. In addition, up to 20 roads had to be closed as a result of flooding or ponding of water. Minor flooding was also observed in fields and woodlands adjacent to creeks, streams, and rivers across the county. Flood damages were generally the result of basement flooding, with only minor road repair or debris removal required.

September 17, 2009, Arkwright, Flash Flood—The Bibb County Emergency Management Director reported flash flooding along Savage Creek at Matthews Drive in northwest Macon. Water was flowing over the bridge at this location. Several roads in the area became flooded and a number of vehicles were stranded in high water. Some rescues were required. The flash flood caused erosion and minor structural damage to roads and bridges.

August 4, 2017, Lanier Heights, Flash Flood—Scattered strong thunderstorms associated with a weak upper-level wave developed along a stationary front across central Georgia during the evening. Heavy rain associated with these storms trained from an area north of Columbus to Macon. This caused isolated flash flooding. And although instability was only moderate, sufficient deep shear was present for an isolated tornado to develop. Broadcast Media reported street flooding along Vineville Avenue in Payne City and on Gray Highway NE of Macon. Radar estimated 2 to 2.5 inches of rain in the area.

April 30, 2020, Rutland & Lanier Heights, Flash Flood—A cold front moved through north and central Georgia through the afternoon of April 29th and into the early morning hours of April 30th. Isolated severe storms produced wind damage in the eastern metro Atlanta area. An enhanced band of rain set up over portions of central and eastern Georgia in the late evening and overnight hours, resulting in isolated flash flooding in the Macon area. The public reported several residences with flooded yards in the Nowell Estates neighborhood. Water was at least one feet deep in the roadway. Radar estimates indicate that 3 to 6 inches occurred in the area, with isolated higher amounts to 8 inches, causing the flash flooding. A state official reported water over the roadway near the intersection of Gray Highway and Clinton Road. Radar estimates indicate that 3 to 6 inches occurred in the area, with isolated higher amounts to 8 inches, causing the flash flooding.

Probability of Future Occurrence

By definition of the 100-year flood event, SFHAs are defined as those areas that will be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. Properties located in these areas have a 26% chance of flooding over the life of a 30-year mortgage.

The 500-year flood area is defined as those areas that will be inundated by the flood event having a 0.2% chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.

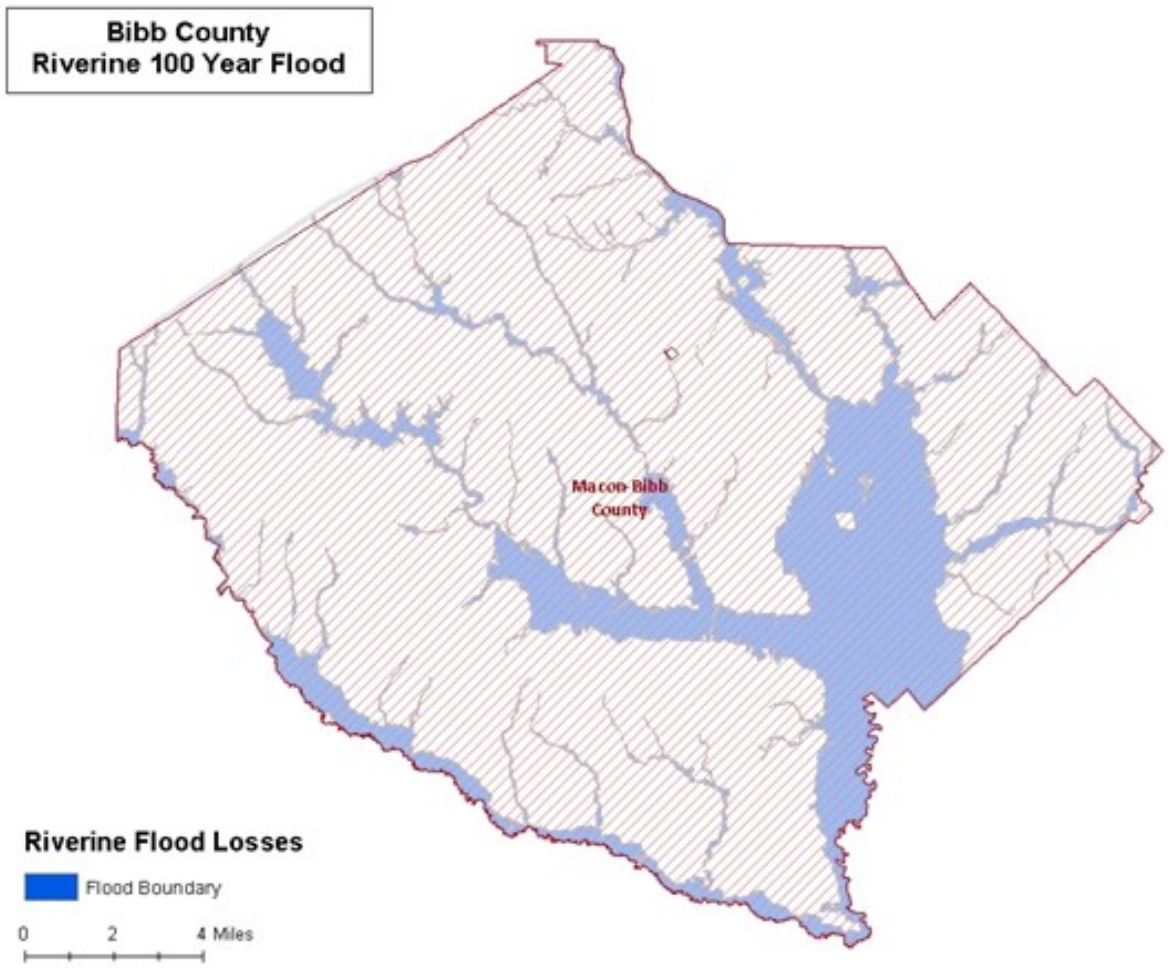
There is always risk of localized and stormwater flooding throughout Macon-Bibb County, especially due to heavy rain. In the 21-year period between 2005-2025, there were 10 flood-related events recorded by NCEI, which equates to 0.47 annualized events. Therefore, the probability of flash flooding is considered likely for Macon-Bibb County.

Note: Macon-Bibb County can expect a flash flood event with a 47.6% probability each year. This number was derived by dividing the number of recorded events by the year range used. Calculating future probability is not the only predictor of future occurrences. The qualitative chance of a flood impacting the planning area is likely.

3.9.5 Vulnerability Assessment

GMIS performed a flood loss analysis in Hazus by leveraging 2026 parcel data provided by Macon-Bibb County. The flood assessment is based on the 1% annual chance event that includes a riverine assessment. Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in March 2026. The flood boundaries were overlaid with the USGS 10-meter DEM using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus to calculate the riverine flood loss estimates. The following figure illustrates the riverine inundation boundaries associated with the 1% annual chance. Note that the riverine flooding may not consider elevated housing or raised Base Flood Elevation.

Figure 3-16. Riverine 1% Flood Inundation



Source: Hazus Hurricane Risk Analysis, 2026

People

Certain health hazards are common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm, and industrial chemicals. Pastures and areas where farm animals are kept or where their wastes are stored can contribute polluted waters to the receiving streams.

Debris also poses a risk both during and after a flood. During a flood, debris carried by floodwaters can cause physical injury from impact. During the recovery process, people may often need to clear debris out of their properties but may encounter dangers such as sharp materials or rusty nails that pose a risk of tetanus. People must be aware of these dangers prior to a flood so that they understand the risks and take necessary precautions before, during, and after a flood.

Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as E. coli and other disease-causing agents.

The second type of health problem arises after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been properly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

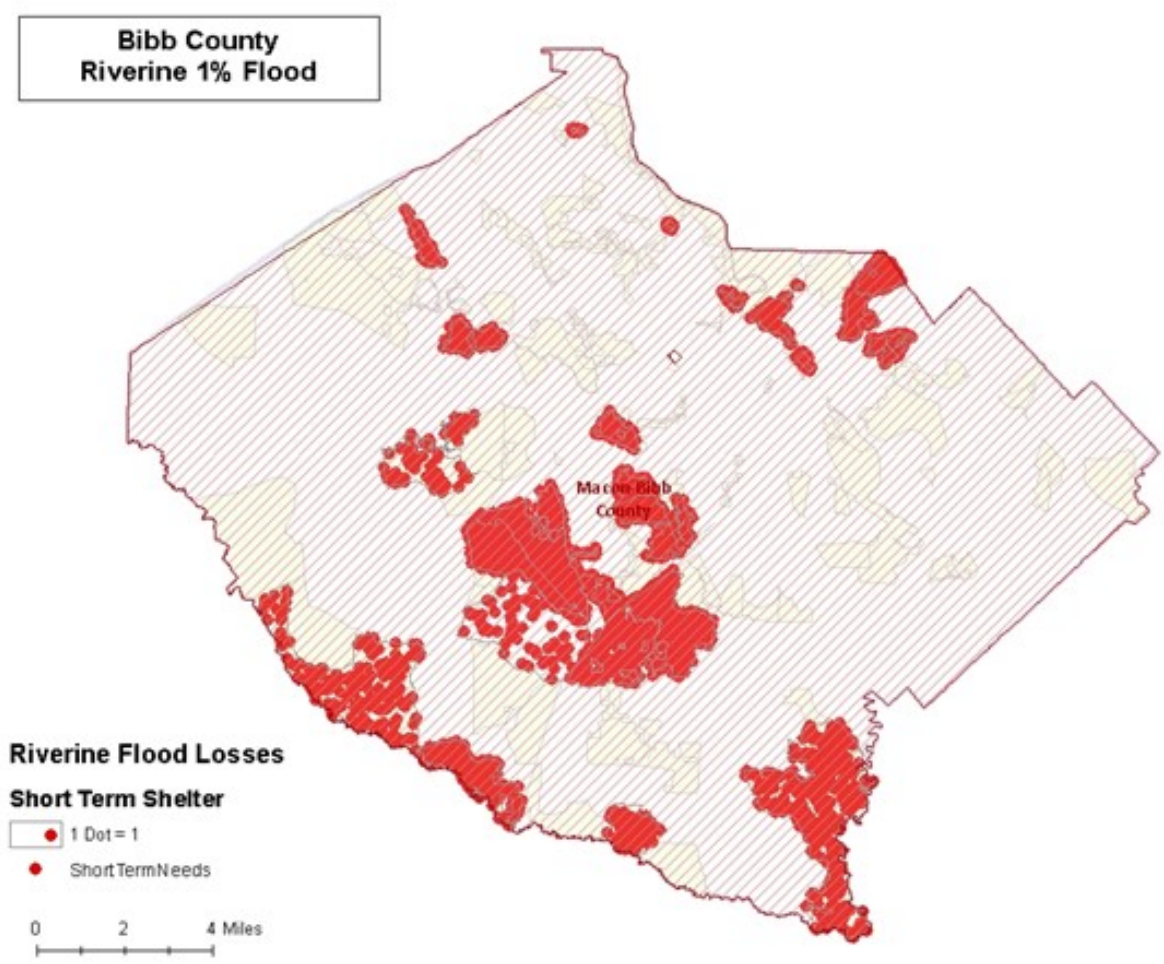
Another health hazard occurs when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the municipal water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one‘s home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Floods can also result in fatalities. Individuals face high risk when driving through flooded streets. However, NCEI does not contain any records of deaths in Macon-Bibb County caused by flood or heavy rain events.

Hazus estimates the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 2,109 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 6,328 individuals, of which 4,567 may require short term publicly provided shelter. The results are mapped in the figure below. These numbers may be overestimated for two reasons: elevated housing not considered and parcel centroids (not aligned exactly with actual structures).

Figure 3-17. Estimated Flood Shelter Requirements in 1% Riverine Flood



Source: Hazus Hurricane Risk Analysis, 2026

Property

Residential, commercial, and public buildings, as well as critical infrastructure, such as transportation, water, energy, and communication systems, may be damaged or destroyed by flood waters. The Environmental Working Group (EWG), which provides data on crop insurance and agricultural losses, reported $244,985 in crop insurance indemnities due to excess moisture/precipitation/rain in Macon-Bibb County from 1995-2024.[15]

Buildings in Macon-Bibb County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. The table below provides a summary of the potential flood-related building damage

[15] https://farm.ewg.org/cropinsurance.php?fips=13021&summpage=IN_REGPAGE. Retrieved March 24, 2026.

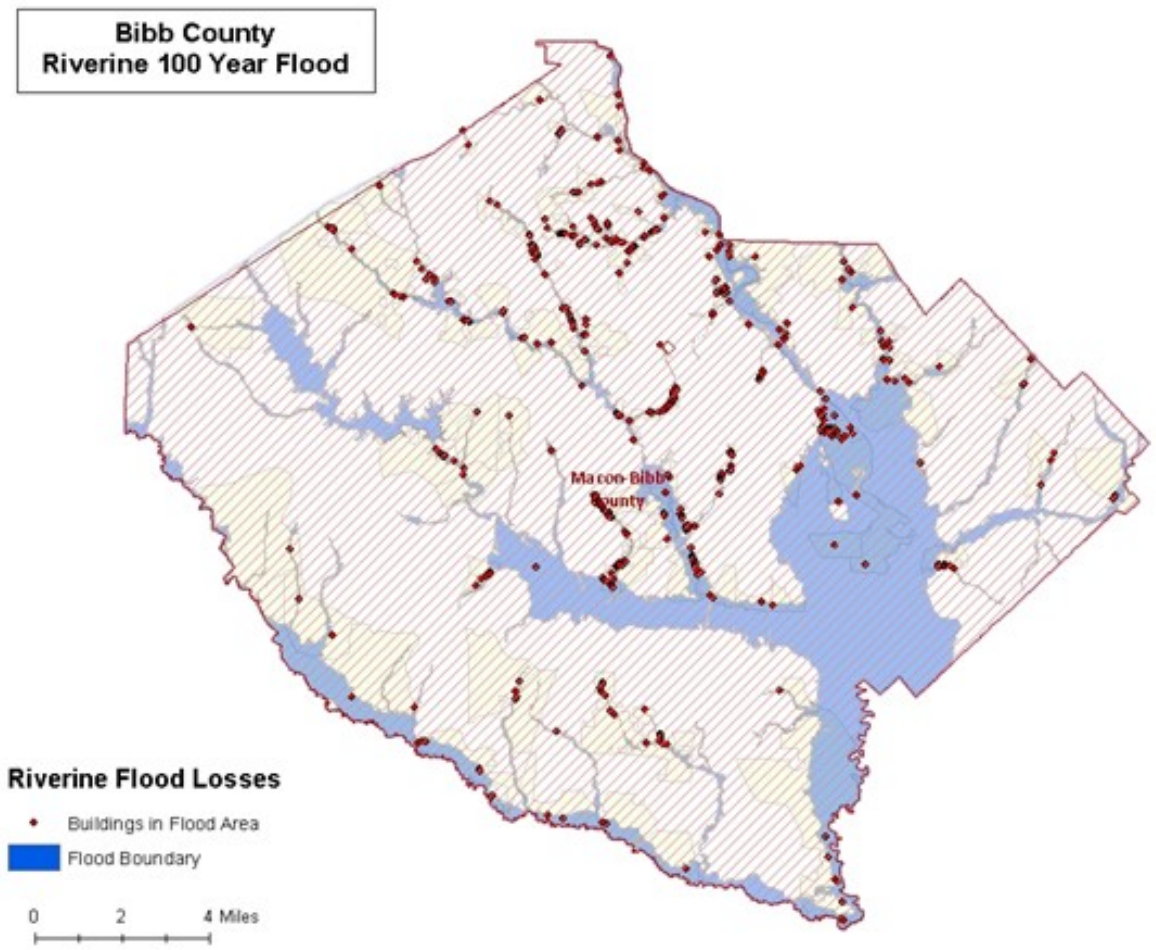
in Macon-Bibb County that might be experienced from the 1% flood. The map below illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 3-30. Macon-Bibb County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
Macon-Bibb County					
Residential	54,888	439	$13,359,311,655	$120,623,809	0.90%
Commercial	4,424	90	$11,310,133,750	$75,665,342	0.67%
Government	202	3	$526,771,052	$1,466,272	0.28%
Industrial	2,417	82	$9,556,580,830	$27,910,775	0.29%
County Total					
Total	61,931	614	$34,752,797,287	$225,666,198	--

Source: Hazus Hurricane Risk Analysis, 2026

Figure 3-18. Damaged Buildings in 1% Riverine Flood



Source: Hazus Hurricane Risk Analysis, 2026

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). The Hazus analysis identified that there was one essential facility subject to substantial damage and loss of use in the Macon-Bibb County riverine 1% probability floodplain, which was a fire station.

Repetitive Loss Properties: A repetitive loss property is a property for which two or more flood insurance claims of more than $1,000 have been paid by the NFIP within any 10-year period since 1978. An analysis of repetitive loss was completed to examine repetitive losses within the planning area.

There are 14 NFIP repetitive loss properties in Macon-Bibb County. Three properties in Macon are severe repetitive loss properties. NFIP repetitive loss structures reflect areas of recurring flood risk. While these structures are not directly associated with flood events, they help identify locations that could experience increased impacts in the event of a flood.

Environment

During a flood or heavy rain event, chemicals and other hazardous substances may end up contaminating local water bodies. Flooding kills animals and in general disrupts the ecosystem. Snakes and insects may also make their way to the flooded areas.

Floods and heavy rain can also cause significant erosion, which can alter streambanks and deposit sediment, changing the flow of streams and rivers and potentially reducing the drainage capacity of those waterbodies.

Hazus estimates the amount of debris that will be generated by the flood, which could greatly impact the county's environment and ecosystem. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

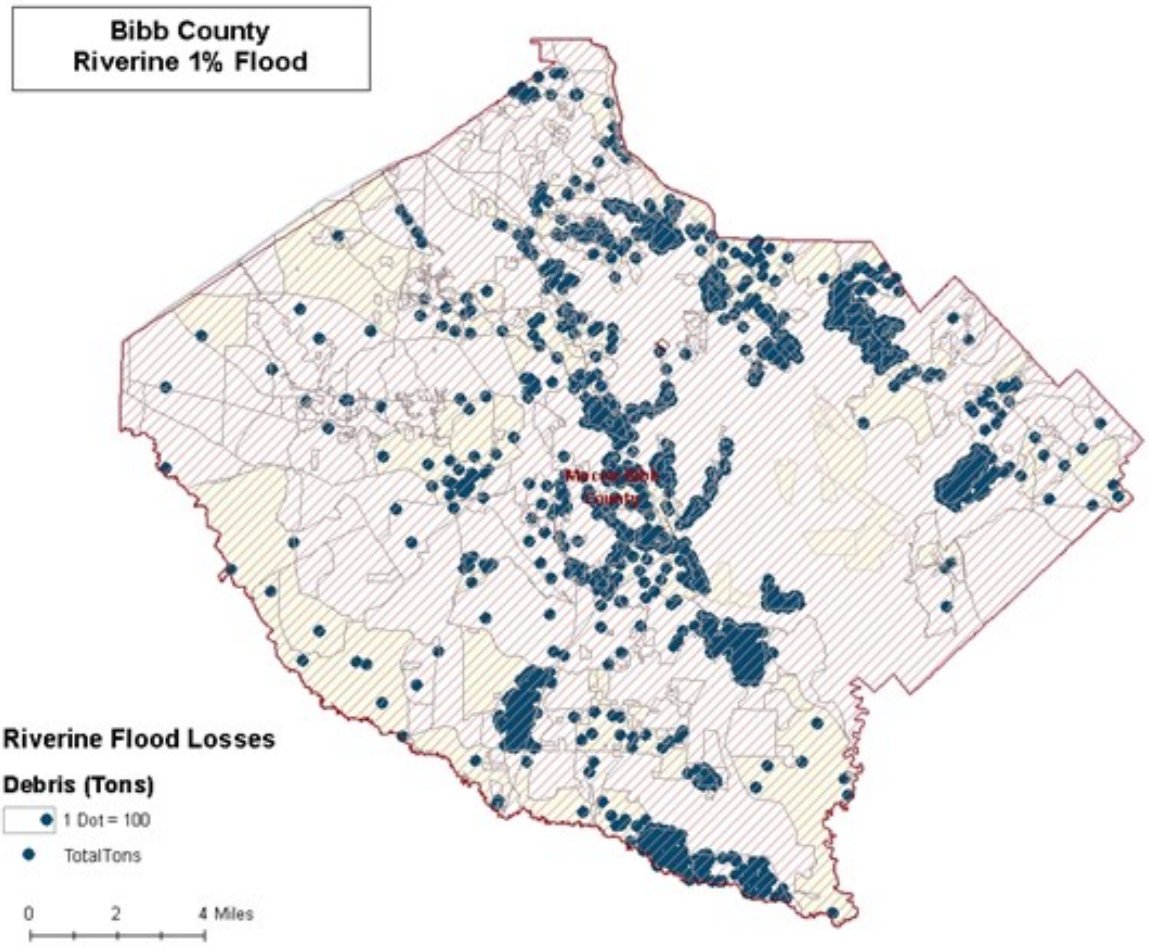
Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus are unique to the Hazus model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 166,107 tons of debris might be generated:

- Finishes: 21,830 tons
- Structural: 74,086 tons
- Foundations: 69,191 tons

The results are mapped below.

Figure 3-19. Flood Debris Weight (Tons) in Riverine Flood



Source: Hazus Hurricane Risk Analysis, 2026

Land Use & Development Trends

Changes in development can impact vulnerability by increasing flood risk. The Hazard Mitigation Plan Update Committee noted that new development results in an increase in impervious surface and elevation changes outside of the SFHA, which has increased stormwater runoff, altered drainage patterns, and exacerbated flooding. For example, new development can be built in areas prone to flooding, and that development can also cause changes to the floodplain and flood flows that cause existing properties to become exposed to flood. Properly elevating new development, limiting fill, requiring compensatory storage, and other development restrictions can mitigate the impacts of new development on flood risk.

Macon-Bibb County participates in the National Flood Insurance Program (NFIP) and follows the program's guidelines to ensure future development is carried out in the best interests of the public. The county (CID No. 130680B) first entered the NFIP on August 26, 2018. However, this is after the consolidation of the City of Macon and Bibb County. Both the City of Macon

and Bibb County have been active NFIP participants since 1979. According to the NFIP guidelines, the county has executed a Flood Damage Prevention Ordinance. This ordinance attempts to minimize the loss of human life and health as well as minimize public and private property losses due to flooding. The ordinance requires any potential flood damage be evaluated at the time of initial construction and that certain uses be restricted or prohibited based on this evaluation. The ordinance also requires that potential homebuyers be notified that a property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes and the International Building Codes.

Consequence Analysis

The table below summarizes the potential detrimental consequences of flooding.

Table 3-31. Consequence Analysis, Flooding

Category	Consequences
Public	Localized impact is expected to be severe for incident areas and moderate to light for other adversely affected areas.
Responders	First responders are at risk when attempting to rescue people from their homes. They are subject to the same health hazards as the public. Flood waters may prevent access to areas in need of response, or the flood may prevent access to the critical facilities themselves which may prolong response time. Damage to personnel will generally be localized to those in the flood areas at the time of the incident and is expected to be limited.
Continuity of Operations (including Continued Delivery of Services)	Floods can severely disrupt normal operations, especially when there is a loss of power. Damage to facilities in the affected area may require temporary relocation of some operations. Localized disruption of roads, facilities, and/or utilities caused by incident may postpone delivery of some services.
Property, Facilities, and Infrastructure	Buildings and infrastructure, including transportation and utility infrastructure, may be damaged or destroyed. Impacts are expected to be localized to the area of the incident. Severe damage is possible.
Environment	Chemicals and other hazardous substances may contaminate local water bodies. Wildlife and livestock deaths are possible. The localized impact is expected to be severe for incident areas and moderate to light for other areas affected by the flood.
Economic Condition of the Jurisdiction	Local economy and finances will be adversely affected, possibly for an extended period of time. During floods (especially flash floods), roads, bridges, farms, houses and automobiles are destroyed. Additionally, the local government must deploy firefighters, law enforcement and other emergency response personnel and equipment to help the affected area. It may take years for the affected communities to be rebuilt and business to return to normal.
Public Confidence in the Jurisdiction's Governance	Ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective.

3.9.6 Priority Risk Index

The following table summarizes flood hazard risk for Macon-Bibb County. Flood risk due to heavy rain, riverine flooding, flash flooding, and stormwater flooding exists across most of the county. Macon-Bibb County is exposed to a moderate to high risk of flooding. Impact ratings were based upon Hazus loss estimates.

Table 3-32. Flooding Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	3	3	3	3	3.0	H

3.10 Natural Hazard: Space Weather

3.10.1 Hazard Description

Space weather refers to disturbances in the near-Earth space environment caused by activity on the sun, including solar flares, coronal mass ejections (CMEs), and high-speed solar wind streams. These events release bursts of electromagnetic radiation and charged particles that can interact with the Earth's magnetic field and upper atmosphere. Agencies such as the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) monitor and forecast space weather due to its potential to disrupt critical infrastructure on Earth.

Although Macon–Bibb County is not directly exposed to physical damage from space weather in the same way as natural hazards like floods or tornadoes, it remains vulnerable to the indirect effects of severe geomagnetic storms. These effects can include disruptions to electrical power systems, communications networks, GPS services, and satellite operations. Strong geomagnetic disturbances have the potential to induce currents in long conductors such as power lines, which can damage transformers and lead to localized or widespread power outages. Communication systems used for emergency services, aviation, and transportation may also experience degradation or temporary loss of functionality.

The severity of space weather impacts varies depending on the magnitude of the solar event and the resilience of local infrastructure. While minor events occur frequently and often go unnoticed, extreme events—such as those comparable to the historic Carrington Event in 1859—have the potential to cause widespread and prolonged disruptions across large geographic regions. In Macon–Bibb County, the primary concern is the cascading impact on critical services, including electricity, water supply systems, healthcare operations, and communications, rather than direct physical damage.

Overall, space weather is considered a low-frequency but potentially high-consequence hazard. Its impacts are regional to global in scale, meaning that even areas without direct exposure to other natural hazards, such as Macon–Bibb County, may still experience significant disruptions due to dependence on interconnected technological systems.

3.10.2 Hazard Location

In evaluating assets that are susceptible to space weather, the Macon-Bibb County Plan Update Committee determined that all public and private communications capabilities are at risk to space weather, including all critical facilities. This is due to the lack of spatial boundaries of space weather events.

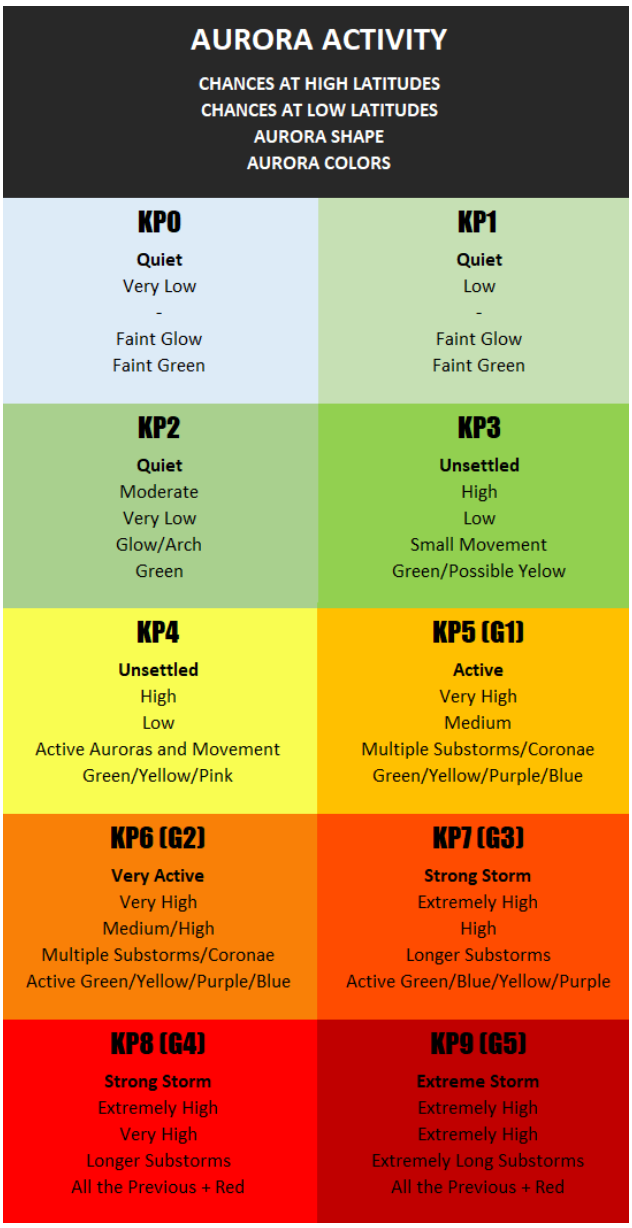
3.10.3 Hazard Extent

The extent of space weather hazards is evaluated using standardized indices and measurements that quantify the magnitude, intensity, and potential impacts of solar and geomagnetic activity on Earth. Key metrics are provided by the National Oceanic and Atmospheric Administration (NOAA) through its Space Weather Prediction Center and include the Geomagnetic Storm

Scale (G1–G5), Solar Radiation Storm Scale (S1–S5), and Radio Blackout Scale (R1–R5). These scales classify events based on observed and forecasted impacts to technological systems, with higher categories indicating more severe and widespread disruptions.

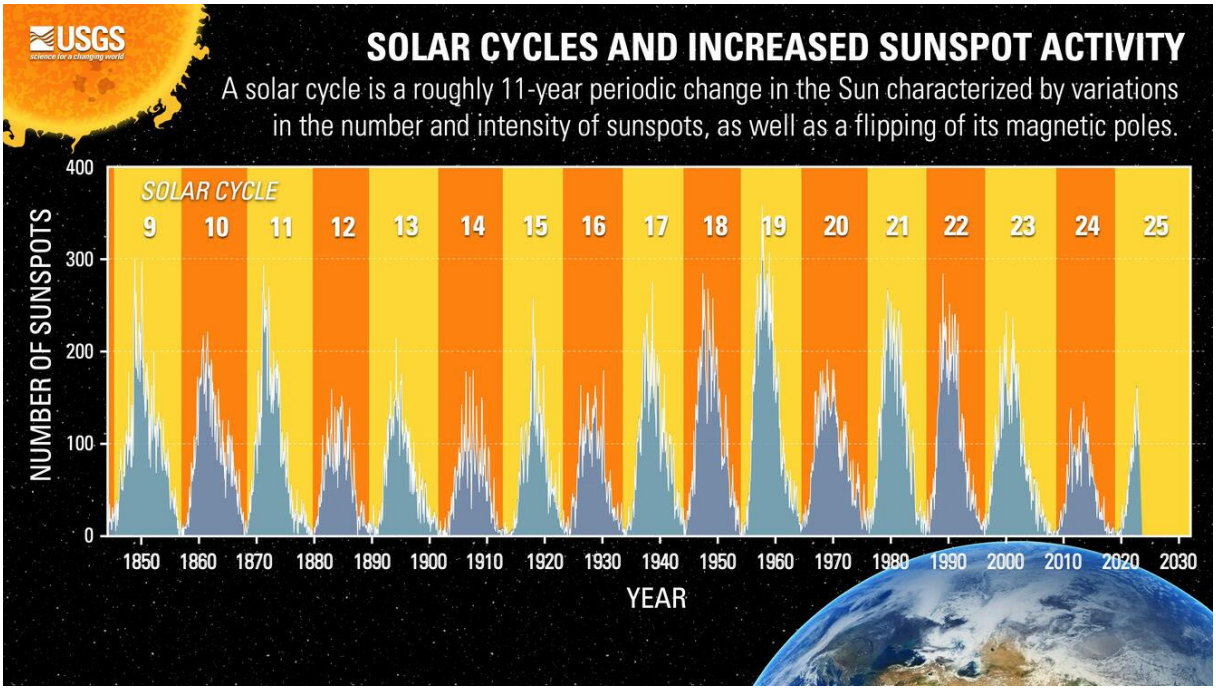
Geomagnetic storm intensity is commonly measured using the Kp index, which ranges from 0 to 9 and reflects disturbances in the Earth's magnetic field. Events reaching Kp levels of 5 or higher (G1 and above) are considered storm conditions, while extreme events (G5) can result in significant impacts to power grids and communications infrastructure. Additional measures, such as solar wind speed, proton flux, and X-ray flux, are used to assess the strength of solar flares and coronal mass ejections and their potential to affect Earth. The Kp index with the corresponding Geomagnetic Storm Scale is shown below.

Figure 3-20. Kp Index



Solar activity follows an approximately 11-year solar cycle, during which the frequency of solar flares, coronal mass ejections, and geomagnetic storms increases during solar maximum periods. The sun also flips its magnetic poles during this time. Below is a chart demonstrating the solar cycle.

Figure 3-21. Solar Cycles



In Macon–Bibb County, hazard extent is primarily defined by the severity of impacts to critical infrastructure rather than geographic footprint, as space weather events affect large regional to global areas simultaneously. Extent can be characterized by the duration of disruptions, the geographic scale of power or communication outages, and the level of interference with satellite and navigation systems. For example, minor events may cause brief communication degradation, while extreme events—such as those comparable to the Carrington Event—could result in prolonged, multi-state power outages and widespread technological disruption.

3.10.4 Historical Occurrences

There are no documented records of space weather events specifically impacting Macon–Bibb County in a direct or localized way. This is largely because space weather hazards are regional to global in scale, and their effects are typically recorded at national or continental levels rather than by individual counties. As a result, historical documentation rarely attributes impacts to specific jurisdictions like Macon–Bibb County, even when effects were likely experienced locally.

However, several major space weather events have affected large portions of the United States and would have indirectly impacted areas such as Macon–Bibb County. For example, the Carrington Event caused widespread telegraph system disruptions across North America when it peaked on September 1-2 in 1859. The Carrington Event is defined as the most intense

geomagnetic storm in recorded history, which is thought to have been caused by a coronal mass ejection (CME) from the sun that traveled very quickly and directly to Earth. The geomagnetically induced current from the electromagnetic field disrupted telegraph systems across Europe and the United States, although some were still able to send and receive messages even with their power source turned off due to the electromagnetic current. Auroras were also seen throughout the world at lower latitudes, even as far south as Colombia, and would have certainly been seen in Georgia.

Similarly, a geomagnetic storm in March 1989 led to a major power outage in Quebec and caused disturbances to electric systems and satellites across the U.S. Military operations and stock trading systems were disrupted, as well. Auroras were again seen as far south as Texas and Florida. More recently, periodic geomagnetic storms have resulted in minor disruptions to GPS accuracy, radio communications, and satellite operations nationwide. Although no specific impacts were recorded in Macon-Bibb County, similar effects—such as brief communication interference—may have occurred but were not formally documented at the local level.

Probability of Future Occurrence

Space weather events are continuous and cyclical phenomena, meaning the probability of future occurrence is considered high, although the severity of impacts varies widely. Solar activity follows an approximately 11-year solar cycle, making the occurrence of increased solar flares and CMEs relatively predictable. According to the National Oceanic and Atmospheric Administration (NOAA), minor to moderate space weather events occur regularly and can be expected to impact Earth—and therefore Macon–Bibb County—on a routine basis.

While low-level events occur frequently, the probability of a severe or extreme geomagnetic storm—especially one that impacts Macon-Bibb County—is much lower but still possible. Historical analyses suggest that events comparable to the Carrington Event are rare, but smaller yet still disruptive storms occur periodically. As reliance on technology and interconnected infrastructure continues to grow, even moderate events have an increased likelihood of causing noticeable impacts.

Overall, Macon–Bibb County can expect recurring exposure to minor space weather effects, with a low but non-negligible probability of more severe events that could result in significant disruptions to power, communications, and satellite-dependent systems.

3.10.5 Vulnerability Assessment

A geomagnetic storm of a similar magnitude to the Carrington Event occurring today could potentially cause widespread electrical disruptions, blackouts, and damage to the electrical power grid. Depending on where a solar flare or CME strikes the Earth, Macon-Bibb County has the potential to be in the path of impact.

People

Residents of Macon–Bibb County are indirectly vulnerable to space weather due to their reliance on electricity, communications, and critical services. Disruptions to the power grid caused by geomagnetic storms could affect large portions of the population, particularly

vulnerable groups such as the elderly, medically dependent individuals, and those without access to backup power. Interruptions to communication systems, including cellular networks and emergency services, could hinder public safety response and access to information. While space weather does not pose a direct physical threat to human life at ground level, cascading impacts from infrastructure disruptions could increase risks during prolonged outages or concurrent hazard events.

Property

Space weather poses a risk to property primarily through its potential impacts on electrical and technological infrastructure. High-voltage transformers, power lines, and substations are particularly vulnerable to geomagnetically induced currents, which can cause equipment damage or failure. In Macon–Bibb County, damage to the electrical grid could result in extended outages affecting residential, commercial, and industrial properties. Additionally, disruptions to GPS and communication systems could affect transportation networks, logistics operations, and businesses that rely on real-time data. Although buildings themselves are not physically damaged by space weather, the functional integrity and economic productivity of developed areas are highly dependent on the infrastructure that may be impacted.

Environment

The natural environment in Macon–Bibb County is minimally affected by space weather events, as these hazards do not produce direct physical changes to land, water, or ecosystems at ground level. However, indirect environmental impacts could occur if infrastructure failures lead to secondary incidents, such as disruptions at water or wastewater treatment facilities, which may result in temporary water quality issues. Additionally, prolonged power outages could affect environmental control systems and monitoring capabilities. Overall, environmental vulnerability is considered low, with potential impacts largely dependent on the severity and duration of infrastructure disruptions rather than direct effects from space weather itself.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to space weather beyond continued population growth.

Consequence Analysis

The table below summarizes the potential negative consequences of space weather.

Table 3-33. Consequence Analysis, Space Weather

Category	Consequences
Public	Localized impact could include power outages affecting homes; loss of heating/cooling; limited access to information; disruption to healthcare for medically dependent individuals; and reduced access to fuel, food, and essential services.
Responders	First responders are at risk due to communication disruptions (radio, cellular, GPS), reduced situational awareness, delayed response times, and challenges coordinating multi-agency operations.

Category	Consequences
Continuity of Operations (including Continued Delivery of Services)	Space weather can cause major interruptions to government operations; disruption of IT systems, data access, and communications; and reduced ability to deliver critical services such as public safety, utilities, and administrative functions.
Property, Facilities, and Infrastructure	Damage to electrical grid components (e.g., transformers), widespread or prolonged power outages, disruption to transportation systems and traffic control, and impacts to telecommunications infrastructure are likely impacts due to a geomagnetic storm.
Environment	Localized impacts to the environment include potential secondary impacts from infrastructure failure (e.g., wastewater system disruptions, water quality issues) with minimal direct environmental damage.
Economic Condition of the Jurisdiction	The local economy may experience business interruptions, loss of productivity, supply chain disruptions, and financial losses due to prolonged outages and infrastructure damage.
Public Confidence in the Jurisdiction's Governance	Decreased confidence if outages are prolonged or response is perceived as inadequate. Increased public concern over infrastructure resilience and emergency preparedness may occur.

3.10.6 Priority Risk Index

The following table summarizes space weather risk for Macon-Bibb County.

Table 3-34. Space Weather Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	2	1	4	4	3	2.4	M

3.11 Natural Hazard: Thunderstorm

3.11.1 Hazard Description

This section provides general and historical information about thunderstorms, including:

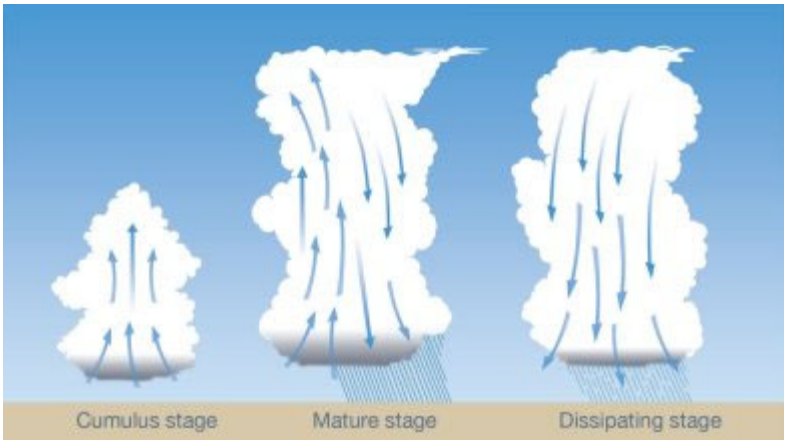
- High wind
- Lightning
- Hail

Other elements of thunderstorms, such as tornadoes and flooding due to heavy rain, are addressed in their own sections.

Thunderstorm/High Wind: Thunderstorms are formed when moist air near the earth's surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted by the upper troposphere, both the anvil shape and a downdraft form. This system of up-drafting and down-drafting air columns is termed a "cell."

As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail, which falls when the formations are heavy enough to push through the updraft. The collision of water and ice particles within the cloud creates a large electrical field that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven precipitation continues until the cell dies.

Figure 3-22. Thunderstorm Cell Cycle



Each thunderstorm cell can extend several miles across its base and reach 40,000 feet in altitude. Thunderstorm cells may compound and move abreast to form a squall line of cells, extending farther than any individual cell's potential. There are four ways in which thunderstorms can organize: single cell, multi-cell cluster, multi-cell lines (squall lines), and supercells. Even though supercell thunderstorms are most frequently associated with severe weather phenomena,

thunderstorms most frequently organize into clusters or lines. Warm, humid conditions are favorable for the development of thunderstorms. The average single cell thunderstorm is approximately 15 miles in diameter and lasts less than 30 minutes at a single location. However, thunderstorms, especially when organized into clusters or lines, can travel intact for distances exceeding 600 miles.

Thunderstorms are responsible for the development and formation of many severe weather phenomena, posing great hazards to the population and landscape. Damage that results from thunderstorms is mainly inflicted by lightning, downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorms are capable of producing tornadoes and waterspouts. While conditions for thunderstorms may be anticipated within a few hours, severe conditions are difficult to predict. Regardless of severity, storms generally pass within a few hours.

Lightning: Lightning is a sudden electrical discharge released from the atmosphere that follows a course from cloud to ground, cloud to cloud, or cloud to surrounding air, with light illuminating its path. Lightning's unpredictable nature causes it to be one of the most feared weather elements.

All thunderstorms produce lightning, which often strikes outside of the area where it is raining and is known to fall more than 10 miles away from the rainfall area. When lightning strikes, electricity shoots through the air and causes vibrations, creating the sound of thunder. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Nationwide, lightning kills 75 to 100 people each year. Lightning strikes can also start building fires and wildland fires, and damage electrical systems and equipment.

The watch/warning time for a given storm is usually a few hours. There is no warning time for any given lightning strike. Lightning strikes are instantaneous. Storms that cause lightning usually pass within a few hours.

Hail: According to the National Oceanic and Atmospheric Administration (NOAA), hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere causing them to freeze. The raindrops form into small frozen droplets and then continue to grow as they come into contact with super-cooled water, which will freeze on contact with the frozen rain droplet. This frozen rain droplet can continue to grow and form hail. As long as the updraft forces can support or suspend the weight of the hailstone, hail can continue to grow.

At the time when the updraft can no longer support the hailstone, it will fall down to the earth. For example, a ¼" diameter or pea sized hail requires updrafts of 24 mph, while a 2 ¾" diameter or baseball sized hail requires an updraft of 81 mph. The largest hailstone recorded in the United States was found in Vivian, South Dakota on July 23, 2010; it measured eight inches in diameter, almost the size of a soccer ball. While soccer-ball-sized hail is the exception, even small pea sized hail can do damage.

Hailstorms in Georgia cause damage to property, crops, and the environment and kill and injure livestock. According to NOAA, hail damage in the United States totaled over $1 billion. Crops are most vulnerable to hail. Even relatively small hail can shred plants to ribbons in a matter of

minutes. Vehicles, roofs of buildings and homes, and landscaping are the other things most commonly damaged by hail. Hail has been known to cause injury to humans; occasionally, these injuries can be fatal.

The onset of thunderstorms with hail is generally rapid. However, advancements in meteorological forecasting allow for some warning. Storms usually pass in a few hours.

3.11.2 Hazard Location

Thunderstorm, high wind, lightning, and hail events do not have a defined vulnerability zone. The scope of lightning and hail is generally confined to the footprint of its associated thunderstorm. The entirety of Macon-Bibb County shares equal risk to the threat of severe weather and extreme heat.

3.11.3 Hazard Extent

One of the first scales to estimate wind speeds and the effects was created by Britain's Admiral Sir Francis Beaufort (1774-1857). He developed the scale in 1805 to help sailors estimate the winds via visual observations. The scale starts with 0 and goes to a force of 12. The Beaufort scale is still used today to estimate wind strengths, including during thunderstorms.[16]

[16] https://www.weather.gov/mfl/beaufort. Retrieved March 25, 2026.

Figure 3-23. Beaufort Scale, Thunderstorm

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

Source: NOAA National Weather Service, 2026

Given the ever-present risk of thunderstorms, Macon-Bibb County is likely to experience numerous adverse impacts including damage to utilities, residential and commercial buildings/property, and agricultural losses. There is also a risk of fire due to lightning strikes. According to the Vaisala U.S. National Lightning Detection Network, from 2015-2019, the State of Georgia averaged approximately 6,200,040 lightning flashes per year, ranking the state in 14th place for total lightning count densities.[17] In 2024 specifically, Georgia ranked ninth in the U.S. with 7,479,998 lightning strikes.[18]

[17] https://www.weather.gov/media/safety/lightning/15-19lightning_density_state.pdf. Retrieved March 25, 2026.

[18] https://indd.adobe.com/view/97f5506f-f312-493b-a9d2-d6f3bd06408a. Retrieved March 25, 2026

Lightning is commonly measured using the Lightning Activity Level (LAL), which is a scale that describes the frequency of lightning strikes in a specific area.[19] This scale can be seen below.

Table 3-35. Lightning Activity Levels

LAL	Description
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms: Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud-to-ground strikes in a 5-minute period.
LAL 3	Widely scattered thunderstorms: Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud-to-ground strikes in a 5-minute period.
LAL 4	Scattered thunderstorms: Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud-to-ground strikes in a 5-minute period.
LAL 5	Numerous thunderstorms: Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud-to-ground strikes in a 5-minute period.

There have also been reports of hail measuring up to 2.75 inches in diameter in Georgia. Hailstones of this size can destroy roofs, break windows, damage vehicles, kill livestock, and injure people, resulting in significant financial and personal losses.

The TORRO Hailstorm Intensity Scale measures and categorizes hailstorms and extends from H0 (hard hail, no damage) to H10 (super hailstorm, extensive structural damage, risk of severe/fatal injuries), with its increments of intensity or damage potential related to hail size (distribution and maximum), texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind.[20] The scale could be modified depending on factors such as building materials and types (e.g., whether roofing tiles are predominantly slate, shingle, or concrete). See the scale in the table below.

Table 3-36. TORRO Hailstorm Intensity Scale

Scale	Intensity Category	Diameter (Inches)	Approximate Size	Typical Damage Impacts
H0	Hard Hail	0 - 0.33	Pea	No damage
H1	Potentially Damaging	0.33 - 0.60	Marble/Mothball	Slight general damage to plants, crops
H2	Potentially Damaging	0.60 - 0.80	Dime/Grape	Significant damage to fruit, crops, vegetation

[19] https://www.weather.gov/media/rnk/fire/LAL.pdf. Retrieved March 25, 2026.

[20] https://www.torro.org.uk/research/hail/hscale. Retrieved March 25, 2026.

Scale	Intensity Category	Diameter (Inches)	Approximate Size	Typical Damage Impacts
H3	Severe	0.80 - 1.20	Nickel to Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.20 - 1.60	Half Dollar	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.60 - 2.00	Silver Dollar to Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.00 - 2.40	Egg	Bodywork of grounded aircraft dented, brick walls pitted
H7	Very Destructive	2.40 - 3.00	Tennis Ball	Severe roof damage, risk of serious injuries
H8	Very Destructive	3.00 - 3.50	Baseball to Orange	(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	3.50 - 4.00	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	4.00 +	Softball and up	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

While most severe weather events are limited in terms of their impact, duration, and spatial extent, the hazard remains one of the most common in the state and for Macon-Bibb County.

3.11.4 Historical Occurrences

Thunderstorms are a common occurrence across the U.S., including the State of Georgia. According to SHELDUS/NCEI data referenced in the Georgia Hazard Mitigation Strategy Standard and Enhanced Plan (effective March 2024 to March 2029), an average of 488 severe weather events occurred across the state between 1952 and 2022. These events in total caused 1,162 injuries, 200 fatalities, and more than $1.7 billion in damages. Over the period from 2002 to 2022, the historic occurrence jumped to 942 severe weather events per year, which equates to a significant chance of a severe weather occurrence in any given year.

Averaging 20-30 days annually for thunderstorms, all of Macon-Bibb County is at risk, although it is likely that the official number is a low estimate due to poor record keeping in decades past.

Thunderstorm/High Wind: The NOAA/NCEI Storm Events Database does not have a specific classification to encompass all thunderstorms. In order to paint a picture of historical occurrences for this event type, heavy rain, high wind, strong wind, and thunderstorm wind events were compiled for Macon-Bibb County from January 1, 2005 to December 31, 2025.

NOAA/NCEI reports 100 days with thunderstorm events in Macon-Bibb County (117 events total). Note that thunderstorm events occurring on the same day were combined into a single entry when they were part of the same storm system.

The following provides more specific details on significant thunderstorm events included in the NOAA/NCEI database:

April 22, 2005, Macon, Thunderstorm Wind—The Bibb County Emergency Management Director reported that numerous trees and power lines were down throughout the city. The Macon Telegraph reported that trees were down on power lines in four different areas of Macon. In addition, thunderstorm winds capsized a boat on Lake Tobesofkee, approximately 9 miles west of Macon. $25,000 in property damage was reported.

January 17, 2006, Macon-Bibb County (Zone), Strong Wind—The public reported that a large 1.5 foot diameter pine tree was blown down by strong gradient winds ahead of a cold front. The tree fell across and damaged two fences and one vehicle. $15,000 in property damage was reported.

July 20, 2007, Macon, Thunderstorm Wind—An unusually strong late July cold front and northwest flow aloft combined with a moist and unstable atmosphere to produce one of the most widespread outbreaks of severe weather seen across the Peachtree City forecast area since mid-April. The was marked by a mesoscale convective complex which began early in the day across northeast Alabama and quickly spread southeast through west central and into central Georgia during the afternoon. Numerous reports of large hail were received and wind damage was widespread in the path of the convective complex.

The public and the Bibb County 911 Center reported that at least two dozen trees were blown down around the City of Macon. The Macon Telegraph reported that numerous trees were toppled onto power lines around the city leaving as many as 20,000 residents without power during the height of the storm. Neighborhoods in the southern part of the county suffered the greatest damage from downed trees. One tree fell through the roof of a home on Ashland Drive causing damage throughout the house. Another tree fell onto three vehicles outside a home on Goodall Mill Road. $225,000 in property damage was reported.

February 17, 2008, Lizella, Thunderstorm Wind—An intense closed upper low was rotating negatively from the southern plains toward the Ohio Valley. A strong cold front in advance of this system was moving across Mississippi into Alabama during the evening of the 17th. A wedge cold front was located across north and central Georgia. Very warm, unstable air was present across southern Alabama and southern Georgia, south of the wedge front. While only marginal instability was present, very strong shear was noted with a 60-70 knot low-level jet evident across Alabama and western and central Georgia. These systems combined to bring a strong squall line of thunderstorms to west and north Georgia during the mid and late afternoon hours. Most of the damage associated with this line of thunderstorms was straight-line wind damage. However, an isolated embedded EF1 tornado within a quasi-linear convective system did occur in west central Georgia in Carroll county. Meanwhile, along the southern end of the convective line, a long-lived supercell tracked from southern Alabama into southwest Georgia, south of Columbus, and continued on a near 100-mile track across west central and central Georgia from just south of Fort Benning to just northeast of Macon. Multiple tornadoes, ranging

in strength from EF0 to EF1 were reported within broken segments along the track of this supercell, resulting in considerable damage to trees, power lines, and property. Several injuries were reported during the stronger portion of the tornadic supercell in Taylor and Crawford counties, southwest of Macon.

An aerial and ground survey conducted by the National Weather Service Forecast Office in Peachtree City in cooperation with the Georgia State Patrol and the Bibb county Emergency Management Director concluded that the supercell that had spawned an almost continuous tornado from southern Alabama across Stewart, Chattahoochee, Marion, Taylor, and Crawford counties, continued into Bibb county, but only as thunderstorm with straight-line wind gusts of 80 to 90 mph across far northern Bibb county. The survey was unable to confirm a tornado touchdown within Bibb county. The path of wind damage began just northwest of Lizella in northwest Bibb county near the Crawford county line and continued on an east to east-northeastward track across far northern Bibb county, across the northern portion of Macon, and into the Arkwright area. Numerous large pine and oak trees were blown down, uprooted, or split off along the wind damage path. Several homes and office buildings sustained damage from downed trees or roof damage from the wind. At least four homes had significant damage. At least 50 large trees were uprooted in the area. The majority of the damage occurred along Arkwright Road in the northeast part of the county. At least $150,000 in property damage was reported.

May 11, 2008, Lizella, Thunderstorm Wind—A stationary front was draped across north Georgia early on May 10th with an active northwest flow aloft. Meanwhile, a vigorous short wave aloft was approaching the area from the southern plains. The stationary front provided the focus for two rounds of showers and thunderstorms, one early in the morning on the 10th and another in the afternoon. The activity tracked east-southeast with the upper flow aloft, mainly across north Georgia during the early morning and across central Georgia during the afternoon. An isolated strong supercell also tracked across the southern part of central Georgia during the evening. After a lull of convective activity for about four hours, intense multicell thunderstorms tracked into the area from Alabama after midnight and before dawn on the 11th. As these thunderstorms tracked across west central and central Georgia, 15 tornadoes were identified by subsequent surveys making this the most significant tornado outbreak to affect the area since the Katrina-associated tornadoes on August 29, 2005. Millions of dollars of property damage were reported as many homes were destroyed from these tornadoes from the western and southern suburbs of Atlanta southeastward across Macon, Dublin, and other counties in east central and southeast Georgia. Many of these counties were eligible for disaster assistance from the federal government.

In addition to the tornadoes and thunderstorm winds that caused extensive damage in dozens of counties across north and central Georgia during the early morning hours of May 11th, strong gradient winds developed on the back side of the strong cold front that moved through the area as low pressure intensified across the mid-Atlantic region. The strong winds combined with wet ground resulted in dozens of trees being blown down in some north Georgia counties. There were also two deaths as a result of downed trees in Barrow and Gwinnett county, all non-thunderstorm-related winds.

A damage survey conducted by the National Weather Service in Peachtree City, Georgia concluded that in addition to the EF2 tornado damage from Lizella, through Macon, and east to the Twiggs county line near Dry Branch, extensive straight-line wind damage was also observed south of the tornado path across central and southern Bibb county. The damage consisted mainly of widespread downed trees and power lines with some minor structural damage. At least one outbuilding was destroyed. The NOAA/NCEI Storm Events Database reported $150,000 in property damage, although actual damages were certainly much higher due to additional unreported impacts.

October 24, 2008, Macon-Bibb County (Zone), High Wind—A deep upper trough was amplifying and sweeping through the eastern and southeastern United States. A strong cold front accompanied the upper trough. While instability was minimal and no significant thunderstorms were observed with this system in north or central Georgia, a gravity wave developed on the back edge of a large area of light to moderate rain as it was moving into the eastern portions of central and south Georgia. This gravity wave resulted in strong to high winds with gusts of 40 to 50 mph, causing a number of trees to be blown down in several counties between Macon and Vidalia. Wind gusts likely reached or exceeded 60 mph in Bibb County, which experienced the most extensive damage during this event.

The Macon Telegraph reported that very strong winds blew down numerous trees and dozens of power lines throughout the county. At least 10,000 people in the Bloomfield and north Macon area left without power for several hours following the incident. In addition, a large window was shattered at the Acapulco Mexican Restaurant in downtown Macon was shattered by the high winds. At least seven other buildings in the downtown area sustained window damage from the high winds. There were also several reports of garage doors being blown in by the strong winds. Doppler radar base velocity data showed 50-60 knot winds affecting much of Bibb county on the back side of a rain area moving eastward through the county during this time frame. $50,000 in property damage was reported.

April 5, 2011, Lizella, Thunderstorm Wind—An extremely progressive and highly kinematic upper flow remained in place across the U.S. A deep, full-latitude negatively tilted trough and associated strong Pacific cold front swept through the eastern U.S. April 4th into April 5th. An intense northeast to southwest oriented squall line of thunderstorms accompanied this front. Wind gusts of 60 to 70 mph were common along this line of thunderstorms as it traversed the entire Peachtree City (WFO FFC), Georgia Weather Forecast county warning area. Nearly every county received at least one severe thunderstorm warning during this event and nearly every county experienced extensive wind damage from these thunderstorms.

The Macon ASOS in southern Bibb County at the Middle Georgia Regional Airport recorded a wind gust of 65 mph at 137 am EDT. The Bibb County Emergency Management Director reported that wind damage across the county was widespread. Dozens of trees and power lines were down countywide, even outside the small area affected by the EF1 tornado, just southwest of Skipperton. Seven roads across the county were closed as a result of downed trees and power lines. Several homes sustained minor damage as a result of downed trees. Heard Elementary school sustained significant roof damage, on the order of $12,000. At least $75,000 in property damage was reported.

August 8, 2011, Payne City & Macon, Thunderstorm Wind—Unstable northwest flow aloft continued to strengthen across the region in response to a vigorous upper low moving through the Great Lakes and the gradual retrogression of the strong subtropical ridge into Texas. This combined with the continued hot, humid air mass in place across the region and numerous outflow boundaries from overnight upstream thunderstorm activity in the Tennessee Valley supported scattered afternoon and evening thunderstorms throughout north and central Georgia. In fact, this ended up being one of the more significant convective days for the region for August 2011. Several of the storms became strong to severe with damaging downburst winds and producing penny to nickel-sized hail.

Local Macon broadcast media reported that dozens of trees were down across the Macon area. Some of the worst damage occurred in the Payne City area on the north side of Macon where at least one tree was down on a home. Trees were also down along Forest Hill Road between Vineville and Wimbush Road on the north side of Macon. WSR-88D radar data showed a strong downburst moved from northwest to southeast across the eastern half of Bibb County during this time frame. $25,000 in property damage was reported.

September 27, 2011, Macon, Thunderstorm Wind—A deep closed upper low continued to meander about the southern Appalachians, as it had for nearly a week. As the upper low was finally beginning to shift east, a significant short wave rotated through the base of the upper low. Warm, moist air remained in place across east central and southeast Georgia. The combination of unusually cold temperatures aloft and the warm, moist, unstable air mass across the southeast part of the state combined to produce scattered afternoon severe thunderstorms. As would be expected with cold air aloft, large hail was the main concern. However, there were a few incidents of damaging downburst winds as well.

Amateur radio operators reported a thunderstorm downburst just southeast of Macon that caused considerable damage to trees and property in the area. At least 14 trees were either uprooted or blown over. The downed trees caused minor to moderate damage to three structures in the area. $100,000 in property damage was reported.

May 16, 2012, Macon-Bibb County (Zone), Thunderstorm Wind—An upper level trough was in place across the area. An old cold front that had moved across north Georgia on May 15th continued to push into central Georgia on the afternoon of the 17th, allowing scattered thunderstorms to develop. One storm became severe in Bibb County with several downed trees. Another storm sparked a lightning fire in Pulaski County. The Bibb County 911 Center and Macon Broadcast Media reported that at least seven trees were blown down at various locations across Macon. Trees fell on homes along Second Avenue and along Saint Charles Place. $60,000 in property damage was reported.

March 18, 2013, Rivoli, Thunderstorm Wind—A strong upper level system combined with a moist south to southeast flow, moderate instability, a cold pool aloft, and enhanced surface convergence along and ahead of an approaching cold front moving through the Deep South. This combination of parameters resulted in widespread severe weather across northwest, west central, and central Georgia including damaging winds, large hail, and a tornado. A wedge of cold air was in place across northeast Georgia, which acted to stabilize this area with only isolated reports of severe weather. The bulk of the severe weather was concentrated along a

zone just to the south and west of the wedge front, where instability and low-level shear were maximized. Ham radio operators and the Macon Fire Department reported wind damage across the Macon area. Numerous trees and power lines were down across the city. Several trees fell on homes, trapping the occupants inside. Media also reported that the press box at the First Presbyterian Day School on Calvin Drive was blown over. $450,000 in property damage was reported.

June 28, 2013, Skipperton, Thunderstorm Wind—A strong upper low was in place across the Great Lakes, allowing continued intermittent upper level disturbances to rotate around and affect the Southeast. A complicated surface pattern in place with multiple boundaries left over from previous days' convection as well as a weak nearly stationary front, combined with ample moisture and high levels of instability provided plenty of focus for thunderstorm development. Numerous storms did indeed develop, and many of these became severe with mainly damaging winds reported. The public reported several trees down on Fran Drive. One fell through a mobile home. Additional trees and a power line were blown down on Jones Road. $20,000 in property damage was reported.

September 12, 2016, Skipperton, Thunderstorm Wind—Ample moisture, moderate instability, strong daytime heating and a weak stationary front combined to produce isolated severe thunderstorms across portions of north and central Georgia during the afternoon and evening. The Bibb County Emergency Manager reported several trees blown down in the vicinity of Bloomfield Road and Reynolds Drive. A few of these trees fell on homes. The fire station at the corner of Bloomfield Road and Rocky Creek Road had part of its metal roof peeled off. $30,000 in property damage was reported.

April 3, 2017, Avondale, Thunderstorm Wind—A strong short wave and associated surface low swept through the southern and eastern U.S. and combined with moderate instability and strong shear resulted in widespread severe weather, including numerous tornadoes, across north and central Georgia from late morning through the afternoon. A report was received on social media of damage to a home on McArrell Drive. $25,000 in property damage was reported.

March 3, 2019, Payne City, Thunderstorm Wind—A powerful storm system moved across the mid-south and southeast United States producing widespread severe weather and numerous tornadoes. In middle Georgia, significant damage from fourteen separate tornadoes was observed. Thousands of trees were snapped or uprooted and numerous homes and businesses were damaged or destroyed. Across central Georgia, incredibly, no deaths were reported, with only around a dozen minor injuries. The Bibb County Emergency Manager reported a tree blown down onto a house on Morgan Drive. $20,000 in property damage was reported.

July 1, 2020, Payne City, Thunderstorm Wind—Ample moisture, moderate instability and strong surface heating combined with a weak front settling into central Georgia to produce isolated severe thunderstorms during the afternoon. The Bibb County 911 center reported a tree blown down onto a home on Sherbrooke Drive. No injuries were reported. $12,000 in property damage was reported.

Lightning: There are five reported lightning events in Macon-Bibb County from the Storm Events Database. To better describe the effect of each event, including deaths/injuries and property damage, all reported lightning events are listed below.

Table 3-37. Lightning Events, Macon-Bibb County

Location	Date	Injuries/Deaths	Property Damage	Description
Countywide	08/24/2006	0/0	$0	Lightning struck in three different places—a mobile home, 911 center, and a building on 6th St. Electrical equipment was damaged.
Franklinton	04/26/2009	0/0	$5,000	Lightning struck a small shed on Mealer St and set it on fire.
Skipperton	08/14/2010	1/0	$0	A mail carrier was injured when struck by lightning while placing mail in a mailbox on Rocky Creek Rd in Macon.
Lake Tobesofkee	06/26/2011	0/0	$150,000	Lightning struck a home on Thomaston Rd, setting it on fire and causing significant damage.
Wesleyan College	07/06/2011	0/0	$100,000	Lightning struck a home in the Lake Wildwood community, suffering severe roof damage from the resulting fire. Numerous fire alarms were set off by lightning strikes throughout the area.

Source: NOAA/NCEI Storm Events Database, 2005-2025

Hail: Macon-Bibb County reported 38 hail events from January 1, 2005 to December 31, 2025, according to NOAA/NCEI. No injuries or deaths were reported from these hail events. The hailstones from these events range in size from 0.75 inches to 2.5 inches. $8,765,000 in total property damage occurred due to these hail events, although additional damage likely occurred that went unreported. Note that hail events occurring on the same day were counted as a single entry when they were part of the same storm system. If multiple locations recorded hail on the same day, these entries were also combined (though all locations are noted).

The following provides more specific details on severe hail events included in the NOAA/NCEI database:

January 2, 2006, Macon, Hail—The public reported golf ball-sized hail. $100,000 in property damage was reported.

May 10, 2008, Lizella, Dry Branch & Macon, Hail—Numerous reports of large hail were received from the broadcast media, the public, and amateur radio operators from much of Bibb County. Penny to quarter-sized hail was reported from amateur radio operators in north central Bibb County and northwest of Macon. The largest hail observed was golf ball-sized by

personnel at WMAZ Television in Macon. Hail reports continued to the east side of the county where the public observed penny-sized hail from the intersection of Interstate-75 and Interstate-16 to about five or six miles down Interstate-16 toward the Twiggs County line. Quarter-sized hail covered the ground on Houston Road in the southern part of the county and on Griffin Road just northeast of the Macon airport. Radar supported at least quarter-sized hail across much of the southern part of the county from southwest of Macon to southeast of Rutland. $1,000,000 in property damage was reported.

March 28, 2010, Macon & Arkwright, Hail—Several reports of hail ranging in size from pennies to golf balls were received from the public and one trained storm spotter from the far north and northeast part of the county, near Lake Wildwood and Wesleyan. $125,000 in property damage was reported.

March 26, 2011, Lizella & Macon, Hail—A quasi-stationary frontal boundary extended from north Texas to north Georgia early on the 26th. The front took two to three days to move from north Georgia southward to the Gulf Coast. The upper flow was highly zonal, but embedded with numerous vigorous short waves. An unseasonably warm, unstable air mass presided south of the frontal boundary. Numerous areas and complexes of thunderstorms developed in waves repeatedly along the front boundary and plagued north and central Georgia for two to three days. Several reports of golf ball-sized hail were received from the western half of Bibb County from Lizella and Lake Tobesofkee to near Macon. There was even one report of tennis-ball-sized hail near Lizella. The hail decreased to quarter size as the storm moved into the western suburbs of Macon and to nickel size as it moved further into Macon. However, there were several reports within the City of Macon of hail covering the ground like snow. Nickel-sized hail was observed at the terminal station in downtown Macon. There was also one report of a damaged camper at a campground near Macon caused by a downed tree. A storm spotter observed golf ball-sized hail just north of the Macon Regional Airport on Hartly Bridge Road. An amateur radio operator relayed a report of half-dollar-sized hail from southern Bibb County and a trained spotter observed quarter-sized hail in southern Bibb County, just west of Rutland. $3,840,000 in property damage was reported.

April 25, 2015, Skipperton, Hail—A short wave moving out of the central plains into the Tennessee Valley combined with strong instability and moderate shear in the lower and middle levels of the atmosphere to produce widespread severe thunderstorms with damaging winds and large hail across central Georgia. A picture of several golf ball size hail stones that fell on Hartley Bridge Road was received via social media. $1,700,000 in property damage was reported.

March 3, 2019, Skipperton & Macon, Hail—A powerful storm system moved across the mid-south and southeast United States producing widespread severe weather and numerous tornadoes. In middle Georgia, significant damage from fourteen separate tornadoes was observed. Thousands of trees were snapped or uprooted and numerous homes and businesses were damaged or destroyed. Across central Georgia, incredibly, no deaths were reported, with only around a dozen minor injuries. The Bibb County Emergency Manager reported golf ball to lime size hail on the south side of Macon from around the intersection of Allen Road and Houston Road to the Middle Georgia Regional Airport. $2,000,000 in property damage was reported.

Probability of Future Occurrence

Macon-Bibb County experienced 100 days with thunderstorms in the 21-year period between 2005-2025. Based on these occurrences, the county can expect a thunderstorm event with 100% probability per year, or 4.76 events per year. This number is based on historical recorded events and may be lower than actual thunderstorm totals. A hail event is expected with 100% probability per year at 1.81 events per year. A significant lightning event is expected with 23.8% probability per year at 0.24 events per year. As such, and according to Table 3-2. Probability Categories, the likelihood of each separate event—i.e., hail, lightning, and thunderstorm wind—occurring is highly likely, likely, and highly likely respectively. However, for a combined likelihood of a thunderstorm event, it is highly likely for the entire planning area.

3.11.5 Vulnerability Assessment

Severe thunderstorms, including high winds, hail, and lightning, are a serious threat to the residents and infrastructure of Macon-Bibb County. Severe thunderstorms are the most frequently occurring natural hazard in Macon-Bibb County.

Most of the available information relating to severe thunderstorm events in Macon-Bibb County fails to accurately describe damage estimates in great detail. Thunderstorm events are likely to have unreported costs related to infrastructure repair, public safety response, utility repair, and personal property and business repair.

In evaluating assets that are susceptible to severe thunderstorms, the Macon-Bibb County Plan Update Committee determined that all public and private property is at threat by severe thunderstorms, including all critical facilities. This is due to the lack of spatial boundaries for severe thunderstorm events.

People

People and populations exposed to the elements are most vulnerable to severe weather. A common hazard associated with wind events is falling trees and branches. The risk of being struck by lightning is greater in open areas, at higher elevations, and on the water.

Lightning can also cause cascading hazards, including power loss. Loss of power could critically impact those relying on energy to service, including those that need powered medical devices. Additionally, the ignition of fires is always a concern with lightning strikes.

The availability of sheltered locations, such as basements, buildings constructed using hail-resistant materials and methods, and public storm shelters, all reduce the exposure of the population. Residents living in mobile homes are more vulnerable to high wind and hail events due to the lack of shelter locations and the vulnerability of the housing unit to damages. Individuals who work or play outdoors may also face increased risk.

Since 2001, the NCEI records zero fatalities and zero injuries attributed directly or indirectly to thunderstorm weather in Macon-Bibb County.

Property

Thunderstorm/High Wind: Macon-Bibb County has recorded 100 thunderstorm wind events since 2005; of these events, the range of magnitude was between 35 and 85 miles per hour with an average of 55 miles per hour. Based on the Beaufort Scale (as shown in Figure 3-23), Macon-Bibb County and its participating jurisdictions can expect 4.76 thunderstorm events per year ranging from Beaufort Scale 7 "Moderate Gale" to Beaufort Scale 12 "Hurricane Force." According to NOAA/NCEI, thunderstorms have caused $1,816,000 in recorded property damage since 2005. The Environmental Working Group (EWG), which provides data on crop insurance and agricultural losses, reported $55,794 in crop insurance indemnities due to wind/excess wind in Macon-Bibb County from 1995-2024.

Thunderstorm wind can cause widespread property damage ranging from minor to severe. Strong straight-line winds may down trees, utility poles, and power lines, leading to roof damage, broken windows, damaged siding, and impacts to vehicles. Manufactured homes, older structures, and buildings with weakened roofs or attachments are especially vulnerable. Wind-driven debris can further damage residential, commercial, and public facilities, while power outages and blocked roadways can increase repair costs and prolong recovery efforts.

Lightning: Since 2005, Macon-Bibb County has recorded five significant lightning events. The entire planning area is vulnerable to lightning strikes with a future probability of 20% per year. According to NOAA/NCEI, lightning has caused $255,000 in recorded property damage since 2005.

Property damage caused by lightning usually occurs in one of two ways—either by direct damages through fires ignited by lightning, or by secondary impacts due to power surge or loss. According to data collected on lightning strikes in Macon-Bibb County, the vast majority of recorded property damage was due to structure fires.

Hail: Macon-Bibb County has recorded 38 hail events since 2005, of which the range of magnitude was between 0.75 and 2.5 inches in diameter. Based on the hailstorm average and future probability, Macon-Bibb County and its participating jurisdictions can expect approximately two hail events per year ranging from "potentially damaging" to "destructive." According to NOAA/NCEI, hail has caused $8,765,000 in recorded property damage since 2005.

General damages to property from hail are direct, including destroyed windows, dented cars, and building, roof, and siding damage in areas exposed to hail. Hail damage can total a vehicle. The level of damage is commensurate with both a material's ability to withstand hail impacts and the size of the hailstones that are falling. Construction practices and building codes can help maximize structural resistance to damage. Large amounts of hail may need to be physically cleared from roadways and sidewalks, depending on accumulation. Hail can cause other cascading impacts, including power loss.

It should be noted that property damage due to hail is usually insured loss, with damages covered under most major comprehensive insurance plans. Because of this, hail losses are notoriously underreported by the NCEI. While NCEI data is still used to form a baseline of incident occurrence and general losses, it is important to note that national average hail claim

losses, according to State Farm Insurance 2021 reports, homeowner's claims averaged $12,000 and vehicle claims averaged $5,000.[21]

Environment

The main environmental impact from wind is damage to trees or crops. Wind can cause other environmental impacts including the distribution of trash and debris, soil erosion, and spreading of pollutive elements. Wind events can also bring down power lines, which could cause a fire and result in even greater environmental impacts. Lightning may also result in the ignition of wildfires. This is part of a natural process, however, and the environment will return to its original state in time. Hail can cause extensive damage to the natural environment, pelting animals, trees, and vegetation with hailstones. Melting hail can also increase both river and flash flood risk.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to thunderstorms beyond continued population growth.

Consequence Analysis

The table below summarizes the potential negative consequences of thunderstorms.

Table 3-38. Consequence Analysis, Thunderstorm

Category	Consequences
Public	Injuries; fatalities
Responders	Injuries; fatalities; potential impacts to response capabilities due to storm impacts
Continuity of Operations (including Continued Delivery of Services)	Potential impacts to continuity of operations due to storm impacts; delays in providing services
Property, Facilities, and Infrastructure	Possibility of structure fire ignition; potential for disruptions in power and communications infrastructure; destruction and/or damage to any exposed property, especially windows, cars and siding; mobile homes see increased risk
Environment	Potential fire ignition from lightning; hail damage to wildlife and foliage
Economic Condition of the Jurisdiction	Lightning damage contingent on target; can severely impact/destroy critical infrastructure and other economic drivers
Public Confidence in the Jurisdiction's Governance	Public confidence is not generally affected by severe weather events.

[21] https://newsroom.statefarm.com/oh-hail-we-go-again/. Retrieved March 30, 2026.

3.11.6 Priority Risk Index

The following table summarizes thunderstorm hazard risk for Macon-Bibb County. Thunderstorms, lightning, and hail may strike anywhere in the county. Where priority ratings vary between thunderstorm, lightning, and hail for impact and spatial extent, these scores represent an average rating with greater weight given to thunderstorms because they occur much more frequently.

Table 3-39. Thunderstorm Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	4	3	3	4	1	3.2	H

3.12 Natural Hazard: Tornado

3.12.1 Hazard Description

A tornado is a violent, dangerous, rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. Often referred to as a twister or a cyclone, they can strike anywhere and with little warning. Tornadoes come in many shapes and sizes but are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris and dust. Tornadoes are usually born in "supercell" thunderstorms and present certain physical signs that include a dark, greenish sky, large hail, and a powerful train-like roar.

Tornadoes have the potential to produce winds in excess of 200 mph and can be very expansive—some in the Great Plains have exceeded two miles in width. According to the NWS, the widest tornado ever recorded in the U.S. was 2.6 miles wide, and it occurred on May 31, 2013, in El Reno, Oklahoma. Sadly, it claimed the lives of eight people, all of whom were in vehicles, and left a path of destruction ($40-$50 million in damage). The costliest tornado on record hit Joplin, Missouri, on May 22, 2011, resulting in $2.8 billion in damage. It killed 158 people and injured more than a thousand others.

As evidenced by past events, tornadoes can cause all kinds of damage to buildings, infrastructure, and property. Tornadoes have been known to lift and move objects weighing more than three tons, toss homes more than 300 feet from their foundations, and siphon millions of tons of water. However, less spectacular damage is much more common.

Tornadoes can also generate a tremendous amount of flying debris. If wind speeds are high enough, airborne debris can be hurled at buildings with enough force to penetrate windows, roofs, and walls. Most tornado-related injuries or deaths are caused by flying debris.

Violent tornadoes comprise only about two percent of all tornadoes, but they cause 70 percent of all tornado deaths and may last an hour or more. While tornado forecasters cannot provide the same kind of warning that hurricane watchers can, they can do enough to help save lives. Today the average warning time for a tornado alert is 13 minutes.

3.12.2 Hazard Location

Tornadoes are nature's most violent storms, and they are Georgia's number one weather-related killer. They can strike anywhere in Macon-Bibb County, placing the entire planning area at risk.

According to the National Hurricane Center (NHC), Hurricane Ivan (2004) produced 127 tornadoes (25 in Georgia), and Hurricane Frances (2004) produced 106 tornadoes (eight in Georgia). Even though Hurricane Katrina (2005) made landfall 280 miles away from Georgia, it spawned 20 tornadoes in the state, the highest recorded number in history for the month of August. The NWS issued 12 tornado warnings in Georgia during Hurricane Michael (2018), according to its Twitter feed, but, thankfully, no tornado-related injuries or deaths were reported. Per the NHC, about 10% of the tropical cyclone-related fatalities are caused by tornadoes.

3.12.3 Hazard Extent

Until 2007 the Fujita Tornado Scale ranked the severity of tornadoes. The Fujita scale assigned a numerical F value, F0 through F5, based on the wind speeds and estimated damage. Since 2007 the U.S. switched over to the Enhanced Fujita Scale.[22] The altered scale adjusted the wind speed values per F level and introduced a rubric for estimating damage. An EF0 tornado could lightly damage structures to the extent they would become unsafe to use until repaired. An EF1 or larger tornado could destroy the entire neighborhood, town, or city or damage any number of structures to the point where they would be unusable for at least a year.

Table 3-40. Enhanced Fujita Scale

EF Scale	Class	Windspeed (mph)	Windspeed (km/h)	Description
EF0	Weak	65–85	105–137	Gale
EF1	Weak	86–110	138–177	Weak
EF2	Strong	111–135	178–217	Strong
EF3	Strong	136–165	218–266	Severe
EF4	Violent	166–200	267–322	Devastating
EF5	Violent	> 200	> 322	Incredible

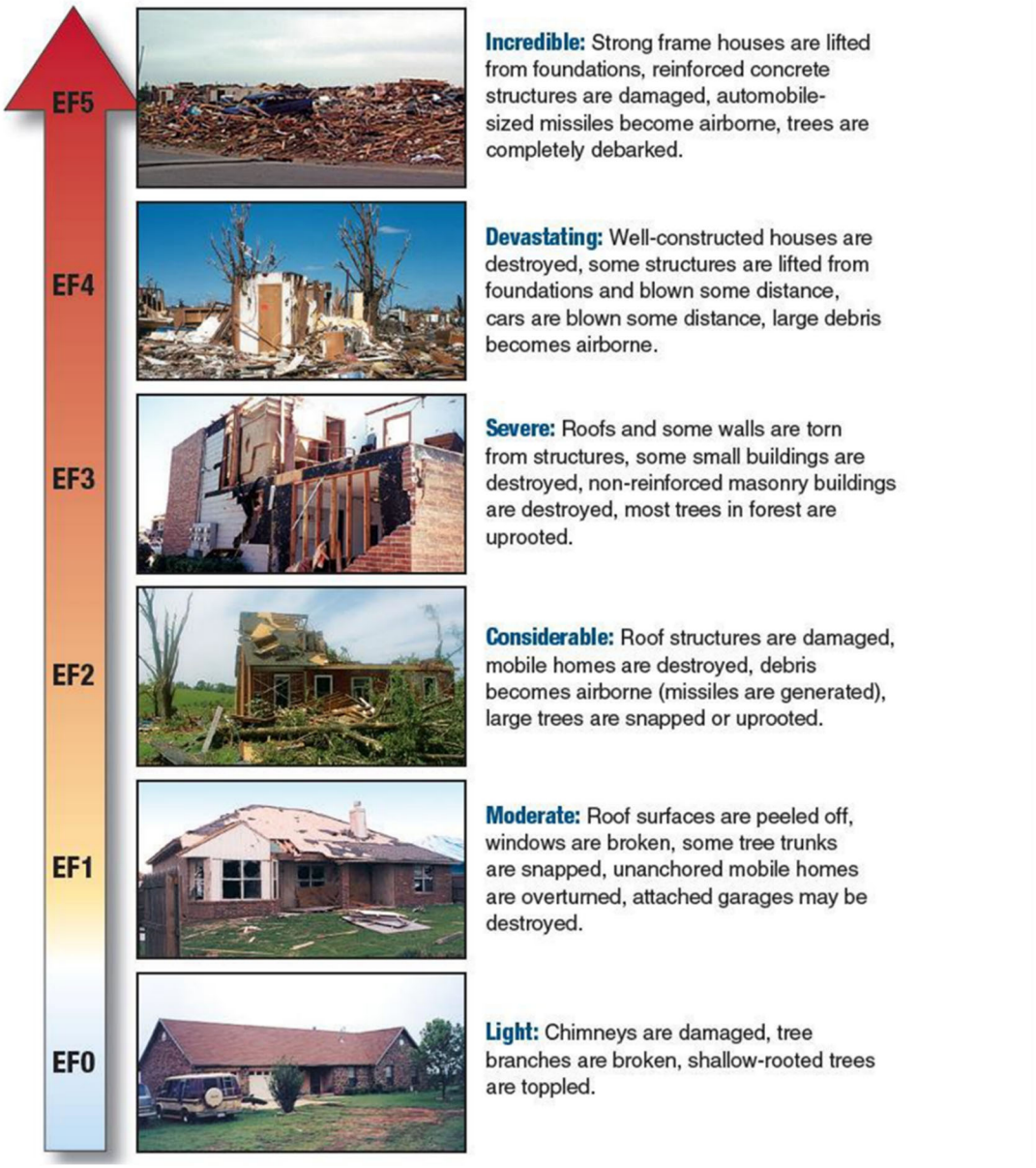
Source: NOAA, 2025

Therefore, the county should expect to experience tornadoes measuring at least EF0 to EF1 on the Enhanced Fujita (EF) Scale but also be prepared for a rare EF3 or worse.

Tornadoes are a real threat to Macon-Bibb County. This includes the county's entire population (now estimated at 157,056) and all critical facilities, buildings (commercial and residential), and infrastructure. While all assets are considered at risk from this hazard, a particular tornado would only cause damage along its specific track. Historically, the destruction has ranged from minor to catastrophic depending on the intensity, size, and duration of the twister. Structures made of light materials, such as mobile homes, are most susceptible to damage. The following illustration describes the level of damage associated with each tornado category of the EF scale.

[22] https://www.spc.noaa.gov/efscale/. Retrieved March 31, 2026.

Figure 3-24. Enhanced Fujita Scale, Damage Depiction



3.12.4 Historical Occurrences

According to NOAA's Storm Prediction Center, Macon-Bibb County experienced 12 tornado incidents between 2005 and 2025, causing $7,890,000 in property damage, and no fatalities, injuries, or crop damage. However, this damage estimate may be under-reported, as damage was reported in the narratives of many events but was not recorded in terms of a monetary value. It is likely that there have been several tornadoes that occurred but went unreported. The following table shows historical tornadoes in Macon-Bibb County during this time period.

Table 3-41. Tornado Events, Macon-Bibb County

Location	Date	Magnitude	Injuries/Deaths	Property Damage	Crop Damage
Lizella	03/01/2007	EF3	0/0	$25,000	$0
Payne City, Macon	03/01/2007	EF0	0/0	$100,000	$0
Lizella, Macon, Dry Branch	05/11/2008	EF2	0/0	$5,000,000	$0
Walden, Skipperton	04/05/2011	EF1	0/0	$300,000	$0
Rivoli, Arkwright	04/16/2011	EF1	0/0	$2,000,000	$0
Walden, Rutland	08/04/2017	EF1	0/0	$100,000	$0
Skipperton, Dry Branch	11/07/2018	EF0	0/0	$15,000	$0
Bloomfield, Lanier Heights	03/03/2019	EF0	0/0	$100,000	$0
Wesleyan College	04/13/2020	EF1	0/0	$250,000	$0
Payne City	04/05/2022	EF1	0/0	$0	$0
Avondale	03/31/2025	EF0	0/0	$0	$0
Dry Branch	04/06/2025	EF1	0/0	$0	$0

Source: NOAA/NCEI Storm Events Database, 2005-2025

The following provides more specific details on significant tornado events included in the NOAA/NCEI database:

March 1, 2007, Lizella, Tornado—A storm survey conducted by the National Weather Service in Peachtree City, GA concluded that an EF3 tornado which originally touched down approximately four miles east of Knoxville in Crawford County, continued east-northeast into Bibb County lifting just southeast of Lizella. The tornado entered Bibb County three miles south-southeast of Lizella and lifted about one mile east-southeast of Lizella. The path length within Bibb County was about three miles long with a maximum path width of one-quarter mile wide. Damage within Bibb County was primarily confined to trees and power lines. However, one home did sustain damage on Lower Thomaston Road. Several trees were down east of Lizella near U.S. Highway 80.

March 1, 2007, Payne City & Macon, Tornado—A storm survey conducted by the National Weather Service in Peachtree City, GA concluded that a second tornado tracked across northwest and north Bibb County. This tornado was only an EF0 tornado and damage was minor. The tornado touched down about 6.5 miles west of Payne and lifted near the intersection of Zebulon Road and Interstate-475 on the northwest side of Macon near the Wildwood subdivision. The tornado path length was between two and three miles long with a maximum path width of 100 yards. Damage was light and confined mainly to minor roof damage in the Wildwood subdivision. Several business signs and traffic signals were either damaged or torn

down in the area. A gas station building was damaged near the intersection of Zebulon Road and Interstate-475. Several trees and some power lines were down along the path of the tornado.

May 11, 2008, Lizella, Macon, & Dry Branch, Tornado—A damage survey conducted by the National Weather Service Forecast Office in Peachtree City, Georgia confirmed that an EF2 tornado touched down near Lizella and continued across Bibb County into extreme western Twiggs County near Dry Branch producing sporadic, but significant damage as it varied in intensity from EF0 to EF2. The tornado tracked from just east-northeast of Lizella across the south shores of Lake Tobesofkee, then across the City of Macon, producing widespread significant damage, and then eastward to the Twiggs County line. By far the most significant damage occurred within the City of Macon, especially along Eisenhower Parkway and Pio Nono Avenue where two businesses were completely destroyed and several others were heavily damaged. Macon State College was also hit by the tornado, destroying the gymnasium and causing significant damage to a number of other buildings on the campus. In addition, more than 50 percent of the trees on the campus either snapped in half or uprooted. Maximum wind speeds within the tornado were estimated at 130 mph, which occurred near the intersection of Eisenhower Parkway and Pio Nono Avenue. Nearly all of the 18 mile long path of the tornado fell within Bibb County. Less than one mile of the tornado occurred within Twiggs County. The maximum path width of the tornado was estimated to be 100 yards, mainly as it traveled through the Macon State College area.

A summary of damages from Bibb County shows that 1,479 homes suffered at least some damage as a result of the storms. Ninety-three of these homes were destroyed, 275 suffered major damage, and 569 sustained minor damage.

April 5, 2011, Walden & Skipperton, Tornado—A damage survey conducted by the National Weather Service Forecast Office in Peachtree City, Georgia confirmed that a brief EF1 tornado had touched down in southern Bibb County, approximately two miles southwest of Skipperton. The tornado path length was approximately 1.1 miles long, maximum path width was 50 yards, and maximum wind speeds were estimated to be 105 mph. The tornado touched down near the intersection of Sardis Church Road and Goodall Mill Road and tracked northeast 1.1 miles before lifting just east of the 6900 block of Andalusia Drive. Around 100 trees were either blown over, uprooted, or snapped along the path of the tornado. Nine homes suffered minor to moderate damage from downed trees and/or the tornadic winds. One of the homes sustained significant damage when the wind blew out the garage and caused the entire home to shift off its foundation. No fatalities or injuries were reported in conjunction with this tornado.

April 16, 2011, Rivoli & Arkwright, Tornado—A damage survey conducted by meteorologists from the National Weather Service Forecast Office in Peachtree City, Georgia confirmed that an EF1 tornado touched down approximately five miles northwest of Macon and tracked 2.5 to 3.5 miles lifting approximately five miles north-northwest of Macon. The tornado tracked through the northern suburbs of Macon between Interstate-475 and Interstate-75, just south of the Monroe County line yet lifting just before reaching the Jones County line. The maximum path width was determined to be 500 yards. The maximum wind in the tornado was determined to be 110 mph. Extensive damage was reported from a largely residential area of Bibb County. From 20 to 25 homes sustained damage. Four of these homes were destroyed and another 10 of these suffered major damage. A motel and an adjacent commercial building suffered roof

damage. Two storage buildings were destroyed or heavily damaged. At least 200 trees were uprooted, snapped, or blown over by the tornado. There were no fatalities or injuries reported from this tornado.

August 4, 2017, Walden & Rutland, Tornado—A National Weather Service survey team found that an EF1 tornado with maximum wind speeds of 105 MPH and a maximum path width of 200 yards occurred in southern Bibb County. The tornado resulted in damage across a residential area just northwest of the Middle Georgia Regional Airport. The main damage occurred from near the initial touchdown on Joseph Chandler Drive near Luke Drive to Houston Road south of Sardis Church Road. In this area the tornado caused significant damage to the roof of a house and snapped a few trees. An outbuilding was removed from its foundation and destroyed on Whittington Drive and a few trees were snapped with part of a fence blown down along Houston Road. To the east northeast, along Walden Road, the tornado caused damage in a sunflower field, uprooted multiple trees, and caused roof damage to a barn and another outbuilding. The tornado lifted along Chriswood Drive just west of Industrial Highway 41 after causing more tree damage.

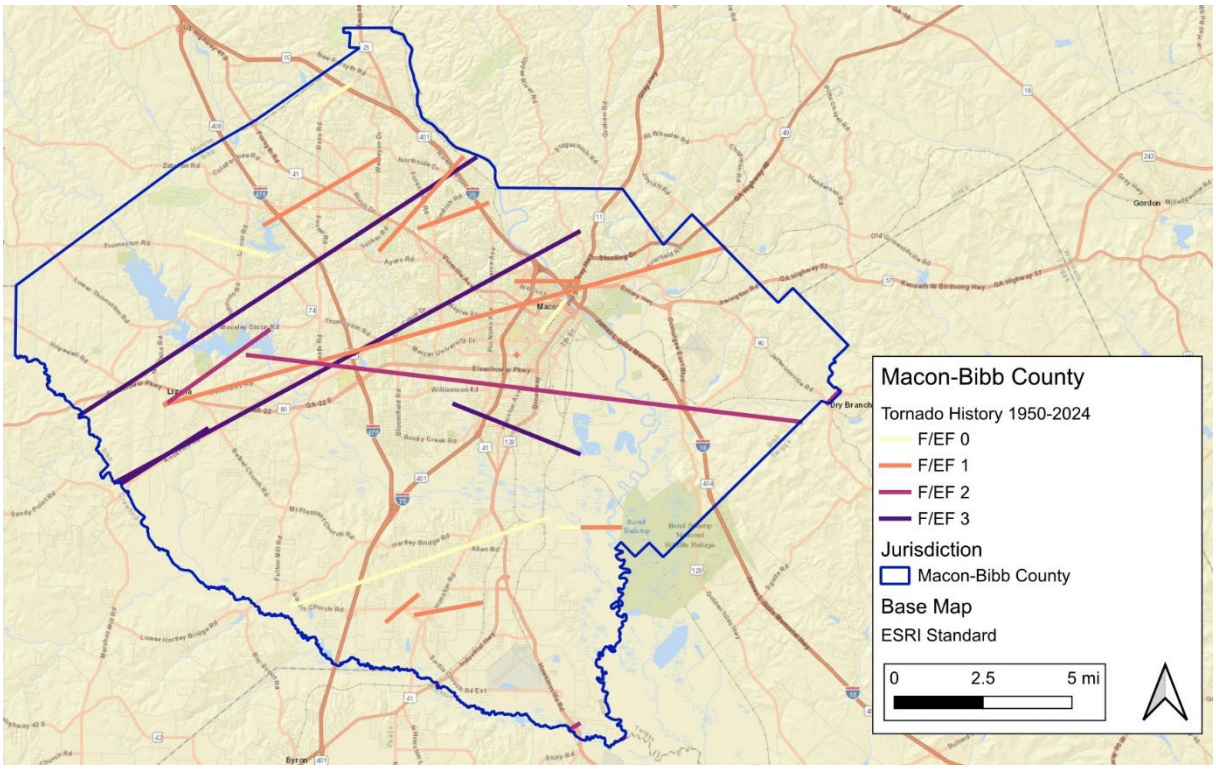
March 3, 2019, Bloomfield & Lanier Heights, Tornado—A National Weather Service survey team found that an EF0 tornado with maximum winds of 85 mph and a maximum path width of 150 yards moved across portions of downtown Macon. The tornado touched down around the intersection of Oglethorpe and 1st Street and moved north-northeast along 1st Street. The tornado crossed Arch Street where a transformer was blown. A building at Hemlock Street and 1st Street had second story windows blown in. At the Medical Center along 1st Street and Hemlock Street, a large flag pole was bent 90 degrees approximately 3 feet from the base. In addition, 5 windows on the southeast side of the hospital were broken. The tornado continued along 1st street where various pieces of small to medium debris and limbs were tossed about. A building near Pine Street sustained minor damage to the shingles on its roof. The tornado crossed directly over the Macon-Bibb Emergency Operations Center where several Emergency Management Agency vehicles had their windows blown out. A weather station on the roof of the building recorded a 66 mph wind gust before the anemometer broke. Additional windows in buildings along 1st Street were blown out around the Poplar Street intersection along with the directional street sign. Large, heavy tables were lifted and tossed near this intersection. Trees were blown down around the intersections with Mulberry Street and Walnut Street. A 5th story window was blown out in a building along Mulberry St. The tornado lifted as it crossed Riverside Drive and approached the Ocmulgee River. No injuries were reported.

April 13, 2020, Wesleyan College, Tornado—A tornado briefly touched down in Macon as a line of severe storms moved through the city. The tornado first touched down on Edgewater Drive causing a tree to fall onto a house. The storm crossed I-475, ripping shingles and roofing material off of 2 hotels next to the interstate as well as blowing a fence down. The storm crossed Zebulon Rd where the front door and windows of a Walgreens Store were completely blown in and a large hole was blown through the roof. Most of the interior shelving and ceiling was blown over and downed with significant damage occurring to the store. A Walmart adjacent to the Walgreens had its sunroofs blown out with minor roof damage elsewhere. Numerous trees were uprooted in and around the Walmart Parking lot. Further up Zebulon, a gas station canopy sustained damage as much of the metal sheeting was peeled and thrown. Significant shingle

damage occurred to a small professional building next to the gas station. A large tree was downed onto Zebulon Rd next to the Chick-Fil-A. The storm continued NE it hit the subdivision along Huddersfield Rd and Wakefield Way hard with numerous large trees downed including several onto homes causing major damage to the homes. The tornado began to weaken as it continued NE crossing Forsyth Rd with branches and limbs down. The tornado ended near Wesleyan Dr and Tharpe Dr with a few trees downed.

Several of Macon-Bibb County's most significant past tornadoes are mapped in the figure below along with jurisdictional boundaries.

Figure 3-25. Historical Tornado Tracks, Macon-Bibb County



Probability of Future Occurrence

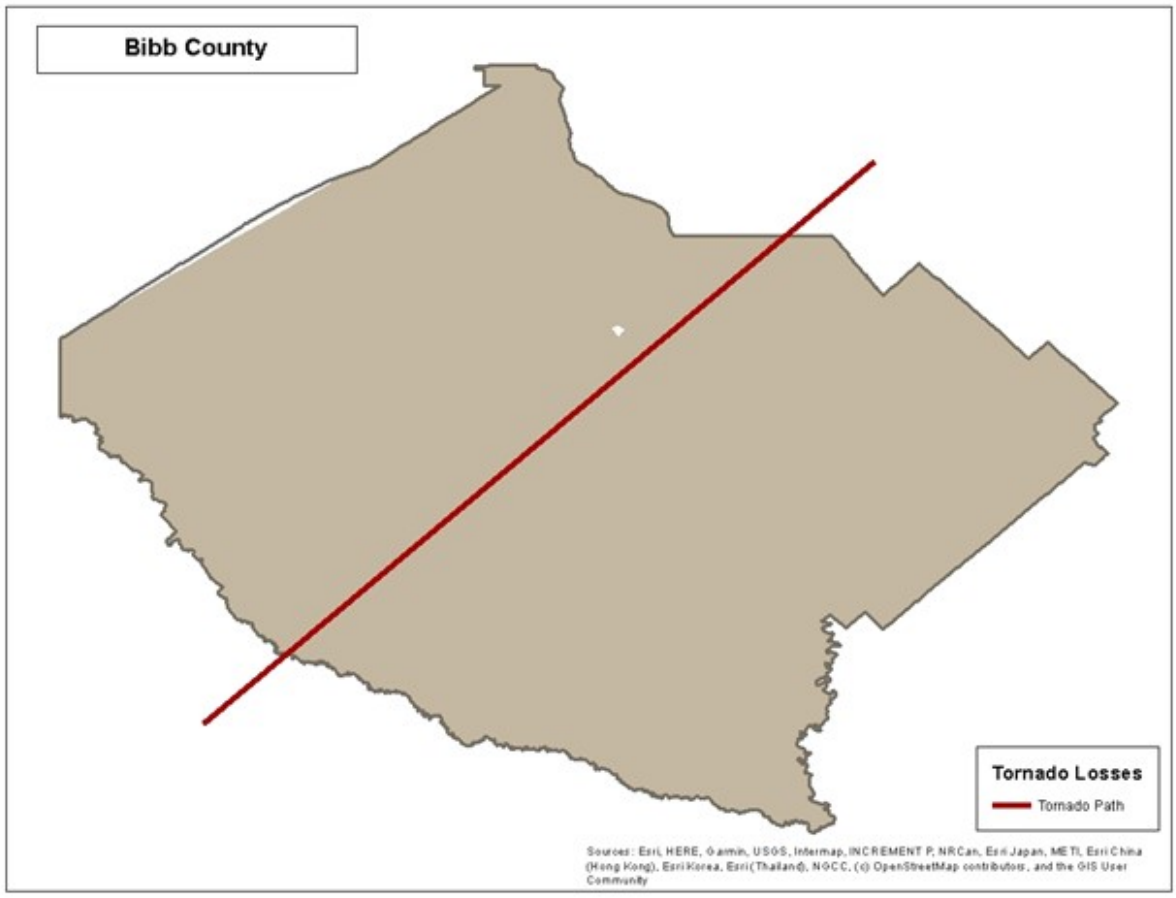
Probability of future occurrence was calculated based on past occurrences and was assumed to be uniform across the county. Macon-Bibb County can expect a tornado with a probability of 57% per year, or 0.57 tornadoes per year. This number was derived by dividing the number of recorded events (12) by the year range used (21 years). Calculating future probability is not the only predictor of future occurrences. The probability of a tornado happening in the planning area is likely.

3.12.5 Vulnerability Assessment

The 2026 Hazus Risk Assessment Analysis provided insight into a hypothetical EF-3 tornado scenario that crosses through Macon, as seen in the map below. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds,

path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. The table following the map depicts tornado path widths and expected damage. The Hazus analysis is available in Appendix H for studies and future reference if probabilistic tornadic strength increases in the region.

Figure 3-26. Hypothetical EF3 Tornado Path



Source: Hazus Hurricane Risk Analysis, 2026

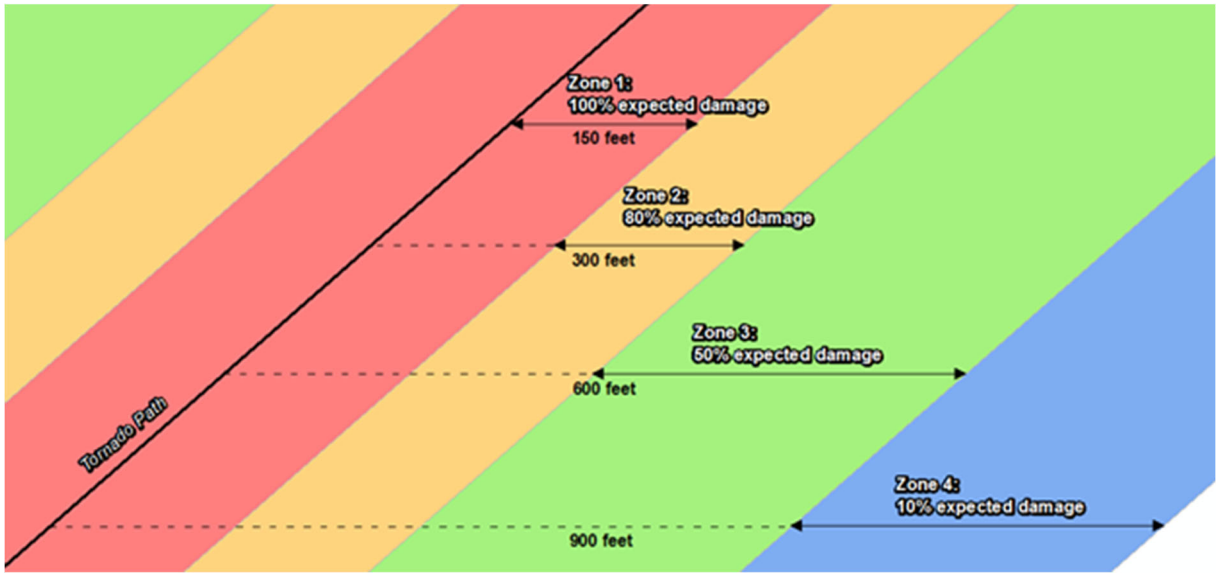
Table 3-42. Tornado Path Widths and Damage Curves

Enhanced Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF5	2,400	100%
EF4	1,800	100%
EF3	1,200	80%
EF2	600	50%
EF1	300	10%

Source: Hazus Hurricane Risk Analysis, 2026

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. The following figure describes the zone analysis.

Figure 3-27. EF Scale Tornado Zones



Source: Hazus Hurricane Risk Analysis, 2026

Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage.

People

People and populations exposed to the elements are most vulnerable to tornadoes. The availability of sheltered locations, such as basements, buildings constructed using tornado-resistant materials and methods, and public storm shelters, all reduce the exposure of the population. Mobile homes and their occupants have a disproportionate risk to tornado damage. According to the 2024 American Community Survey (ACS) 5-Year Estimates, 1,585 occupied housing units (2.6%) in Macon-Bibb County are classified as "mobile homes or other types of housing." Using the 2024 ACS persons per household estimate of 2.51, the population at risk due to their housing type was estimated at 3,978 residents. Individuals who work and play outdoors may also face increased risk.

Since 2005, the NOAA/NCEI database records no fatalities and no injuries attributed to tornadoes in Macon-Bibb County.

Property

Since tornadoes threaten the entire planning area equally, all municipal structures are considered exposed and vulnerable. The most recent Hazus analysis done by the Coastal Regional Commission (2026) estimated that approximately 2,547 buildings could be damaged,

with estimated building losses of approximately $184.2 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Macon-Bibb County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in the table below.

Table 3-43. Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses
Agricultural	3	$45,662
Commercial	193	$78,216,766
Educational	7	$119,786
Governmental	7	$2,155,513
Industrial	63	$11,930,332
Residential	2,274	$91,712,434
Total	**2,547**	**$184,180,452**

Source: Hazus Hurricane Risk Analysis, 2026

General damages to property are both direct (what the tornado physically destroys) and indirect, which focuses on additional costs, damages, and losses attributed to secondary hazards spawned by the tornado or due to the damages caused by the tornado. Depending on the size of the tornado and its path, a tornado is capable of damaging and eventually destroying almost anything. Construction practices and building codes can help maximize the resistance of the structures to damage.

Secondary impacts of tornado damage often result from damage to infrastructure. Downed power and communications transmission lines, coupled with disruptions to transportation, create difficulties in reporting and responding to emergencies. These indirect impacts of a tornado put tremendous strain on a community. In the immediate aftermath, the focus is on emergency services and the restoration of essential services and utilities.

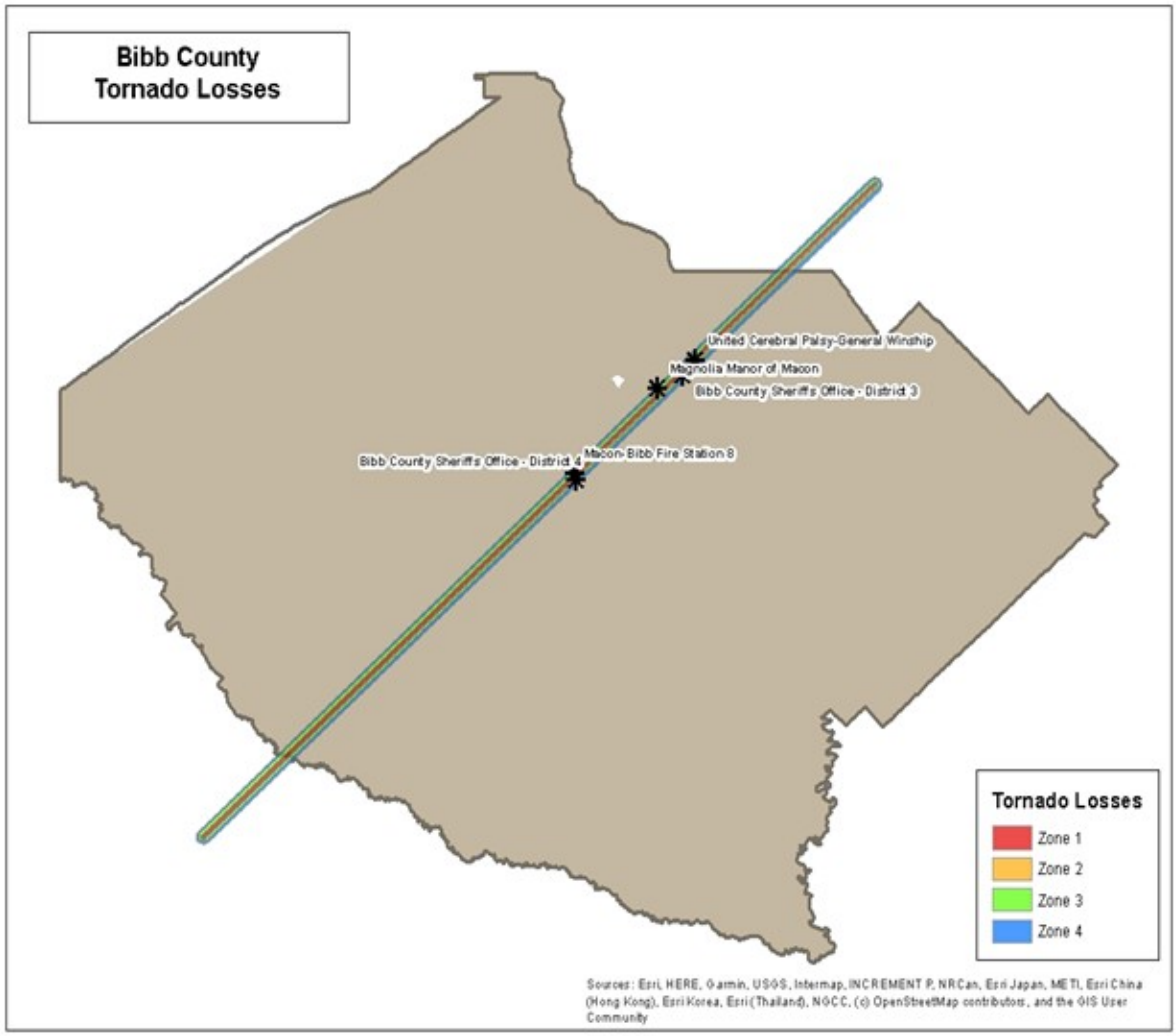
Since 2005, damaging tornadoes in the county are directly responsible for $7,890,000 worth of damage to property according to NOAA/NCEI data. This equates to an annualized loss of $375,714.29.

According to the most recent Hazus analysis for Macon-Bibb County, there were five essential facilities located in the tornado path. The specific facilities damaged in this scenario are listed below:

- United Cerebral Palsy—General Winship
- Magnolia Manor of Macon
- Bibb County Sheriff's Office—District 3
- Macon-Bibb Fire Station 8
- Bibb County Sheriff's Office—District 4

The locations of the damaged Essential Facilities are mapped in the figure below.

Figure 3-28. Modeled Essential Facility Damage in Macon-Bibb County



Source: Hazus Hurricane Risk Analysis, 2026

Environment

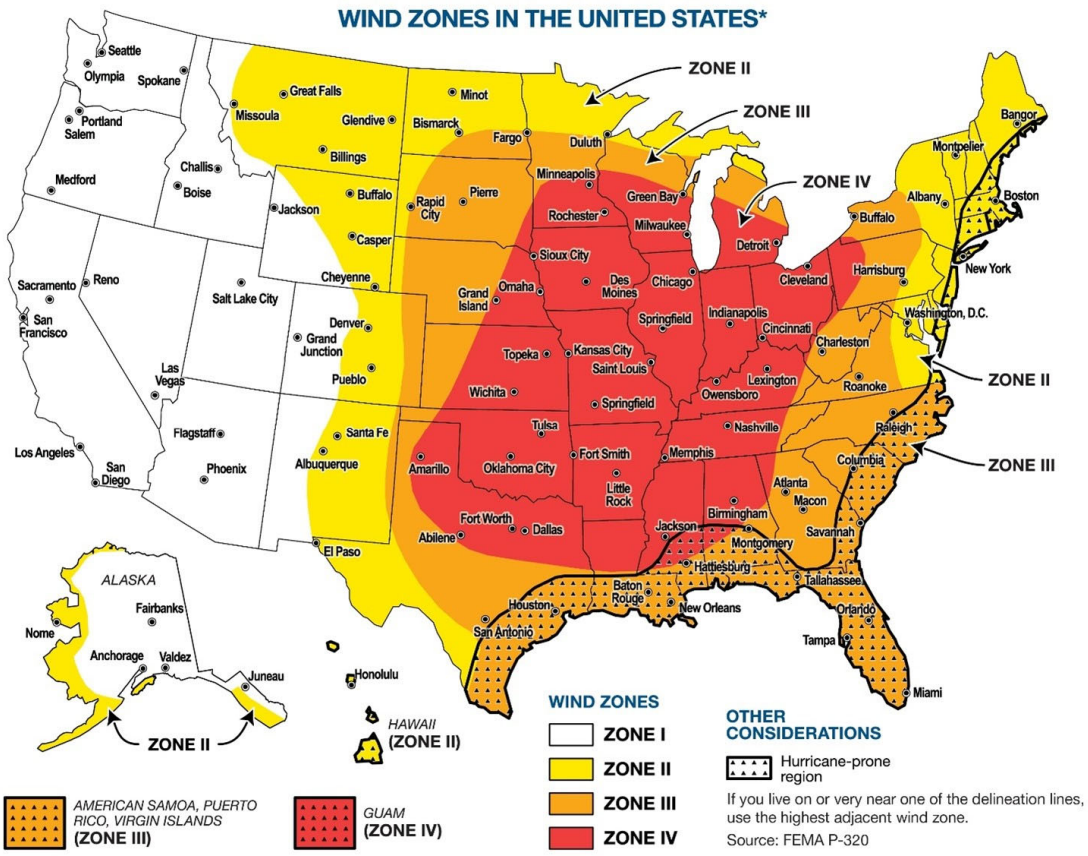
Tornadoes can cause massive damage to the natural environment, uprooting trees and other debris within the tornado's path. This is part of a natural process, however, and not of concern with the possible exception of hazardous materials releases or pollution/litter/debris spread by tornado winds.

Land Use & Development Trends

Aside from an overall increase in exposure due to development throughout the planning area, there have been no significant changes in development in the planning area that would affect vulnerability to tornado in Macon-Bibb County.

Macon-Bibb County is located in Wind Zone III (as seen on the map below), which is associated with 200 mph wind speeds. Existing building codes do not require structures to meet or exceed design wind speeds of 200 miles per hour. As a result, any mitigation steps taken related to tornadoes should consider retrofitting and should be undertaken on a countywide basis.

Figure 3-29. Wind Zones in the United States



Source: FEMA, 2010

Consequence Analysis

The following table summarizes the potential negative consequences of tornado.

Table 3-44. Consequence Analysis, Tornado

Category	Consequences
Public	Injuries; fatalities
Responders	Injuries; fatalities; potential impacts to response capabilities due to storm impacts
Continuity of Operations (including	Potential impacts to continuity of operations due to storm impacts; delays in providing services

Category	Consequences
Continued Delivery of Services)	
Property, Facilities, and Infrastructure	The weakest tornadoes, EF0, can cause minor roof damage, while strong tornadoes can destroy frame buildings and even badly damage steel reinforced concrete structures. Buildings are vulnerable to direct impact from tornadoes and also from wind borne debris. Mobile homes are particularly susceptible to damage during tornadoes.
Environment	Hazardous materials releases, litter, debris.
Economic Condition of the Jurisdiction	Contingent on tornado's path; can severely impact/destroy critical infrastructure and other economic drivers.
Public Confidence in the Jurisdiction's Governance	Public confidence in the jurisdiction's governance may be influenced by severe tornado events if response and recovery are not timely and effective.

3.12.6 Priority Risk Index

The following table summarizes tornado hazard risk for Macon-Bibb County.

Table 3-45. Tornado Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	3	2	4	1	2.7	H

3.13 Natural Hazard: Tropical Cyclone

3.13.1 Hazard Description

Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. A tropical cyclone refers to any such circulation that develops over tropical waters. Tropical cyclones act as a "safety-valve," limiting the continued build-up of heat and energy in tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the pole-ward latitudes. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation, and tornadoes.

The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, warm sea surface temperature, rotational force from the spinning of the earth, and the absence of wind shear in the lowest 50,000 feet of the atmosphere. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico during the official Atlantic hurricane season, which encompasses the months of June through November. The peak of the Atlantic hurricane season is in early to mid-September and the average number of storms that reach hurricane intensity per year in the Atlantic basin is about six.

While hurricanes pose the greatest threat to life and property, tropical storms and depressions also can be devastating. A tropical disturbance can grow to a more intense stage through an increase in sustained wind speeds. The progression of a tropical disturbance is described below.

- **Tropical Depression:** A tropical cyclone with maximum sustained winds of 38 mph (33 knots) or less.
- **Tropical Storm:** A tropical cyclone with maximum sustained winds of 39 to 73 mph (34 to 63 knots).
- **Hurricane:** A tropical cyclone with maximum sustained winds of 74 mph (64 knots) or higher. In the western North Pacific, hurricanes are called typhoons; similar storms in the Indian Ocean and South Pacific Ocean are called cyclones.
- **Major Hurricane:** A tropical cyclone with maximum sustained winds of 111 mph (96 knots) or higher, corresponding to a Category 3, 4, or 5 on the Saffir-Simpson Hurricane Wind Scale.

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricanes are given a classification based on the Saffir-Simpson Scale; this scale is reproduced in the table in the Location & Extent section below.

Damage during hurricanes may also result from inland flooding from associated heavy rainfall.

Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful.

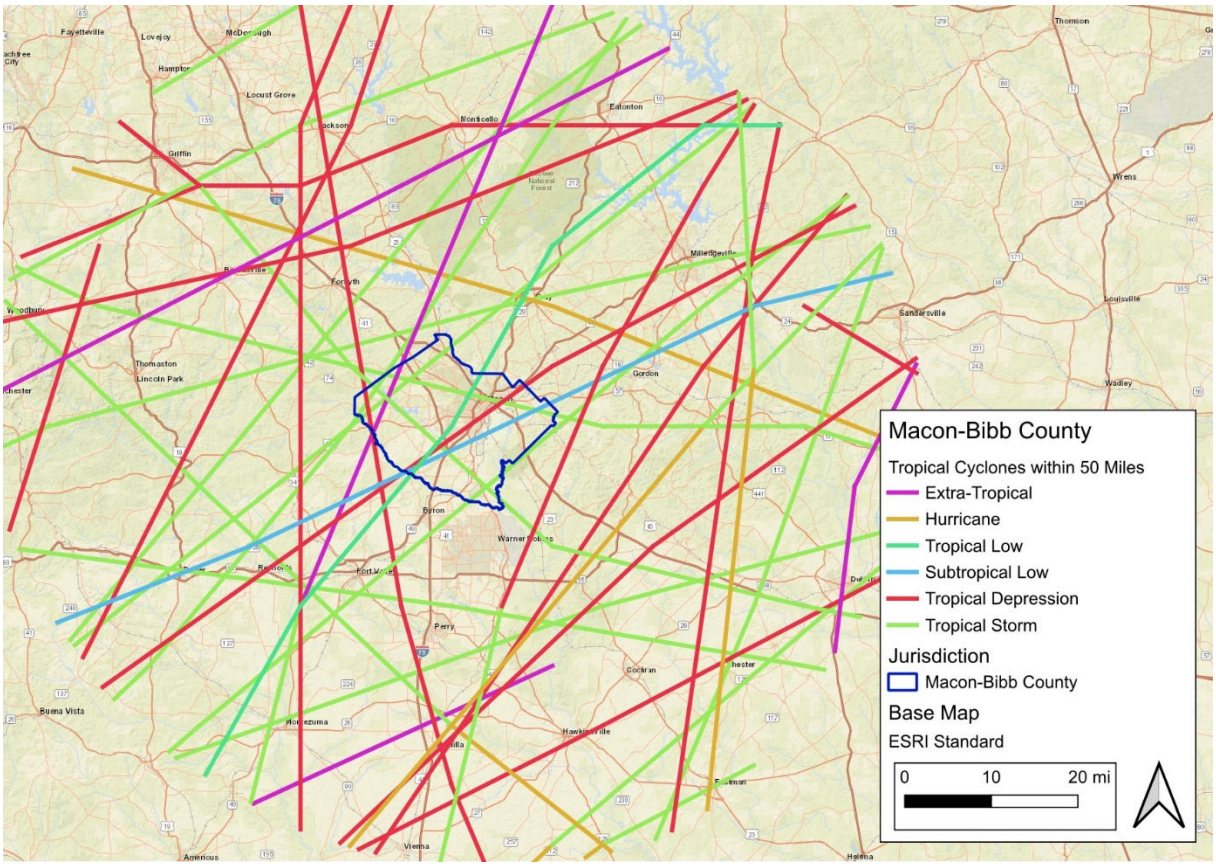
Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding. There are two main components to a nor'easter: (1) a Gulf Stream low-pressure system (counter-clockwise winds) generated off the southeastern U.S. coast, gathering warm air and moisture from the Atlantic, and pulled up the East Coast by strong northeasterly winds at the leading edge of the storm; and (2) an Arctic high-pressure system (clockwise winds) which meets the low-pressure system with cold, arctic air blowing down from Canada. When the two systems collide, the moisture and cold air produce a mix of precipitation and can produce dangerously high winds and heavy seas. As the low-pressure system deepens, the intensity of the winds and waves increases and can cause serious damage to coastal areas and areas just inland of the coast as the storm moves northeast.

3.13.2 Hazard Location

Hurricanes and tropical storms can occur anywhere within the Macon-Bibb County planning area. While coastal areas are most vulnerable to hurricanes, their wind and rain impacts can be inland. Macon-Bibb County's proximity to the Atlantic coast increases the likelihood of a tropical cyclone impacting the area. Additionally, Macon's location at the intersections of Interstates 16 and 75 make it uniquely susceptible to significant influxes of evacuees fleeing either Florida or the Georgia coast.

The following figure depicts past tropical cyclone tracks within 50 miles of Macon-Bibb County, showing the geographical range and frequency with which tropical cyclones can impact Macon-Bibb County.

Figure 3-30. Countywide Tropical Cyclone within 50 miles, Macon-Bibb County



3.13.3 Hazard Extent

One of the first scales to estimate wind speeds and the effects was created by Britain's Admiral Sir Francis Beaufort (1774-1857). He developed the scale in 1805 to help sailors estimate the winds via visual observations. The scale starts with 0 and goes to a force of 12. The Beaufort scale is still used today to estimate wind strengths, including during tropical cyclones.[23]

[23] https://www.weather.gov/mfl/beaufort. Retrieved March 31, 2026.

Figure 3-31. Beaufort Scale, Tropical Cyclone

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

Source: NOAA National Weather Service, 2026

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Scale, which rates hurricane intensity on a scale of 1 to 5, with 5 being the most intense.

Table 3-46. Saffir-Simpson Scale

Category	Maximum Sustained Wind Speed (MPH)	Types of Damage
1	74–95	Very dangerous winds will produce some damage; Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96–110	Extremely dangerous winds will cause extensive damage; Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3	111–129	Devastating damage will occur; Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4	130–156	Catastrophic damage will occur; Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5	157+	Catastrophic damage will occur; A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: National Hurricane Center, 2026

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds and barometric pressure, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as “major” hurricanes and, while hurricanes within this range comprise only 20% of total tropical cyclone landfalls, they account for over 70% of the damage in the United States. The following table describes the damage that could be expected for each category of hurricane. Damage during hurricanes may also result from spawned tornadoes, storm surge, and inland flooding associated with heavy rainfall that usually accompanies these storms.

Table 3-47. Hurricane Damage Classifications

Storm Category	Damage Level	Description of Damages	Photo Example
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	
3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland.	
4	EXTREME	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	

Source: National Hurricane Center, Federal Emergency Management Agency

The Saffir-Simpson scale provides a measure of extent of a hurricane. The county is susceptible to the full force of every category of hurricane.

3.13.4 Historical Occurrences

The National Hurricane Center (NHC) has accumulated records of the tropical cyclones that have affected the State of Georgia since 1851. The NWS and NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML) also have records of tropical cyclone activity affecting the Georgia Coast. The table below presents the total number of hurricanes, by intensity, that have affected any portion of Georgia from 1851 through the present.

Table 3-48. Hurricanes by Intensity, State of Georgia

Hurricane Intensity	Number of Hurricanes
Category 1	20
Category 2	6
Category 3	2
Category 4	1
Category 5	0

Source: NOAA/National Hurricane Center

The following table details the more notable events in Georgia's tropical cyclone history over the last 45 years. The table does not include all events affecting the state, but it highlights those that had a substantial impact. Damage values are given in historic dollars.

Table 3-49. 45-Year Cyclone History, Notable Events, Georgia

Year	Hurricane	Area Affected	Comments
1959	Gracie	Coastal Georgia	$5M in damages
1964*	Dora*	Coastal Georgia	FEMA DR177; $8M in damages
1979	David	Coastal Georgia	2 deaths
1990*	Klaus/Marco	Central Georgia	FEMA DR880; $6M in damages
1994*	Alberto	Statewide	FEMA DR1033; extreme flooding in Flint and Ocmulgee Rivers; >$400M in damages
1995*	Opal	Western Georgia	FEMA DR1071; widespread wind damages
2004*	Frances, Ivan, and Jeanne	Statewide	FEMA DR1554 and DR1560; wind and rain damage in 107 counties
2005*	Dennis	Statewide	Wind and rain damage; flooding
2016*	Matthew	Coastal Georgia	FEMA DR4284; wind, rain, and coastal flooding in 20 Southeast Georgia counties; $175M in damages
2017*	Irma	Statewide	FEMA DR4338; wind, rain and coastal flooding affecting all 159 Georgia counties; 1.5M people without power; 5 fatalities; estimated $150M in uninsured damages
2018*	Michael	Southwest, Central and East Georgia	FEMA DR4400; wind and rain in Southwest and Central Georgia; 3 fatalities; $350M in uninsured losses; $2.3-$2.8B in agricultural and timber losses

Year	Hurricane	Area Affected	Comments
2019	Dorian	Coastal Georgia	EM 3482; emergency declaration only due to evacuations and other preparedness efforts related to the approaching hurricane and potential impacts
2020*	Zeta	Northwest and Northeast Georgia	FEMA 4579; wind/rain in Northwest and Northeast Georgia; sustained power outages throughout North Georgia; >1 million without power; 3 fatalities; $21 million in estimated damages to public infrastructure
2023	Idalia	South and Southeast Georgia	FEMA 4738; wind/rain in South and Southeast Georgia; sustained power outages; >200,000 without power; 1 fatality, 8 injuries; estimated >$41 million in public infrastructure damages
2024*	Helene	South Central Georgia	Wind/rain in South Central Georgia, especially along I-75 corridor; widespread power outages, structural damage, and severe tree damage; 37 fatalities; estimated $6.46 billion in damage to Georgia's agriculture and forestry industries

*Source: NOAA/SHELDUS, *FEMA Presidential Disaster Declarations*

It should be noted that the hazard event risk analyses consider the recurrence interval of the hazards. Because the historical record of tropical cyclonic events is limited and subject to seasonality, a true recurrence interval is unknown and changes yearly (as demonstrated by NWS forecasting). However, using various sources for Georgia's tropical cyclone history (NOAA, SHELDUS), one can estimate that over a 200-year period, around 36 tropical cyclones affected the state (not necessarily a direct hit). This translates to about an 18% chance of a tropical cyclone affecting Georgia per year or approximately one storm every 5.5 years.

Specific to Macon-Bibb County, the following table presents all of the tropical storms, cyclones, and high wind events listed in the Storm Events Database that have made landfall in Macon-Bibb County from 2005 through 2025, for a total of 12 events. These storms have been classified under "Hurricane," "Tropical Depression," and "Tropical Storm" in the database. Note that events occurring on the same day were combined into a single entry when they were part of the same storm system.

Table 3-50. Tropical Cyclone Events, Macon-Bibb County

Location	Date	Storm Type	Storm Name	Injuries/ Deaths	Property Damage
Macon-Bibb County (Zone)	06/12/2005	Tropical Storm	Arlene	0/0	$0
Macon-Bibb County (Zone)	07/06/2005	Tropical Storm	Cindy	0/0	$0
Macon-Bibb County (Zone)	07/10/2005	Hurricane	Dennis	0/0	$0
Macon-Bibb County (Zone)	08/29/2005	Hurricane	Katrina	0/0	$0
Macon-Bibb County (Zone)	10/05/2005	Tropical Storm	Tammy	0/0	$0
Macon-Bibb County (Zone)	08/21/2008	Tropical Storm	Fay	0/0	$0
Macon-Bibb County (Zone)	11/10/2009	Tropical Storm	Ida	0/0	$0
Macon-Bibb County (Zone)	09/04/2011	Tropical Storm	Lee	0/0	$0
Macon-Bibb County (Zone)	09/11/2017	Tropical Storm	Irma	0/0	$300,000
Macon-Bibb County (Zone)	10/10/2018	Tropical Storm	Michael	0/0	$0
Macon-Bibb County (Zone)	10/28/2020	Tropical Storm	Zeta	0/0	$0
Macon-Bibb County (Zone)	09/27/2024	Tropical Storm	Helene	0/0	$1,000

Source: NOAA/NCEI Storm Events Database, 2005-2025

Details pertaining to some of the significant events listed above are explained in the NOAA/NCEI narratives below:

August 29, 2005, Macon-Bibb County, Hurricane—Hurricane Katrina, a horrific category 4 hurricane with winds of 140 mph made landfall just east of New Orleans around 8 am August 29th, continued north-northeast as a hurricane across eastern Mississippi during the day on the 29th, then moved into western and middle Tennessee by early morning on August 30th. While this storm will be most remembered for the extensive devastation that was done to southeast Louisiana, particularly New Orleans, and eastward along the Mississippi Gulf Coast, Katrina was a very large and powerful storm with far reaching effects to the east. By mid-afternoon on August 29th, strong spiral bands of showers and thunderstorms made their way into west Georgia. These spiral bands gradually propagated eastward through the state during the evening and overnight hours. Between 4 pm EDT and 1 am EDT, a total of 16 confirmed tornadoes touched down in north and central Georgia. The first tornado struck northern Heard county at

424 pm EDT, while the last tornado struck the town of Helen in the northeast Georgia mountains shortly after midnight at 1230 am EDT. All together there were three F2 tornadoes, three F1 tornadoes, and ten F0 tornadoes within north and central Georgia. These tornadoes resulted in one fatality and six injuries. Dozens of homes and businesses were destroyed with property damage estimated at $12,860,000. The poultry industry was particularly hard hit, especially in west Georgia, where the tornadoes in Heard and Carroll counties destroyed over 300,000 chickens in nearly a dozen chicken houses. Strong thunderstorms with damaging winds were also reported in several counties that did not experience any tornadoes. Overall damage associated with Katrina in north and central Georgia was approximately $14,000,000.

Because of the distance of the core of Hurricane Katrina from Georgia, rainfall problems were minor, mostly isolated reports of street flooding. Unlike Tropical Storm Cindy and Hurricane Dennis, which affected the same areas during early July, no flash flooding in north or central Georgia during Katrina. Gusty west winds developed on August 30th as Katrina was dissipating over the Tennessee and Ohio Valley. However, wind gusts were mostly in the 20-30 mph range, which resulted in just isolated incidents of downed trees and power lines throughout the day across north and west Georgia.

September 11, 2017, Macon-Bibb County, Tropical Storm—On the morning of August 30th Tropical Storm Irma developed rapidly over the eastern Atlantic Ocean, just west of the Cape Verde Islands. Tropical Irma quickly strengthened as it moved west, reaching hurricane strength by the morning of August 31st. Hurricane Irma continued to move steadily westward across the Atlantic Ocean, intensifying to category 4 storm on the Saffir-Simpson scale as it approached the northern Leeward Islands of the Lesser Antilles on September 4th. By the morning of the September 5th Hurricane Irma had reached category 5 and remained so into the morning of September 8th as it moved through the northern Antilles and approached the Bahamas. Irma continued moving west northwest as a category 4 storm before turning north over the Florida Straits, and crossing the Florida Keys on the 9th and 10th. Hurricane Irma made landfall over southwest Florida as a category 4 storm during the evening of the 10th and travelled north northwest through western Florida before weakening to a category 1 hurricane as it crossed into southwest Georgia the afternoon of September 11th. Tropical Storm Irma crossed southwest Georgia through the day of the 11th before weakening to a tropical depression over north Alabama early on the morning of the 12th. Tropical storm strength winds produced widespread damage across central and north Georgia through the day of September 11th and into the early morning hours of the 12th. Isolated flash flooding associated with Tropical Storm Irma was reported as well.

The news media reported numerous trees and power lines blown down across the county, including several on homes, other structures and vehicles. A shopping center in Macon had damage to its facade and roof. Much of the county was without electricity for varying periods of time. A 61-mph wind gust was measured at the Middle Georgia Regional Airport south of Macon. Radar estimated between 2 and 4 inches of rain fell across the county with 3.81 inches measured north of Macon. No injuries were reported.

October 10, 2018, Macon-Bibb County, Tropical Storm—Hurricane Michael made landfall along the Florida panhandle at Mexico beach (just southeast of Panama City) on the afternoon of October 10, 2018 as a high-end Category 4 hurricane (max winds of 155 MPH). Michael

then moved rapidly inland, causing widespread wind damage along its path as it swept northeast across south and central Georgia. Hurricane Michael was the first major hurricane, category 3 or higher, to directly impact Georgia since the 1890s. In southwest Georgia, wind gusts as high as 115 mph were recorded. Within the NWS Atlanta/Peachtree City county warning area, wind gusts of 40-60 MPH, with some gusts over 70 mph, across portions of central Georgia on the evening of October 10th into the morning of October 11th led to widespread tree damage and power outages with damage to numerous structures. Severe crop damage was also reported, especially to cotton and pecan crops, as well as devastating impacts to commercial timberland. In addition, a few brief tornadoes in the outer bands of Michael caused isolated damage in portions of the north and central Georgia while heavy rainfall led to localized flooding. Michael quickly exited the state as a tropical storm late on the morning of October 11th.

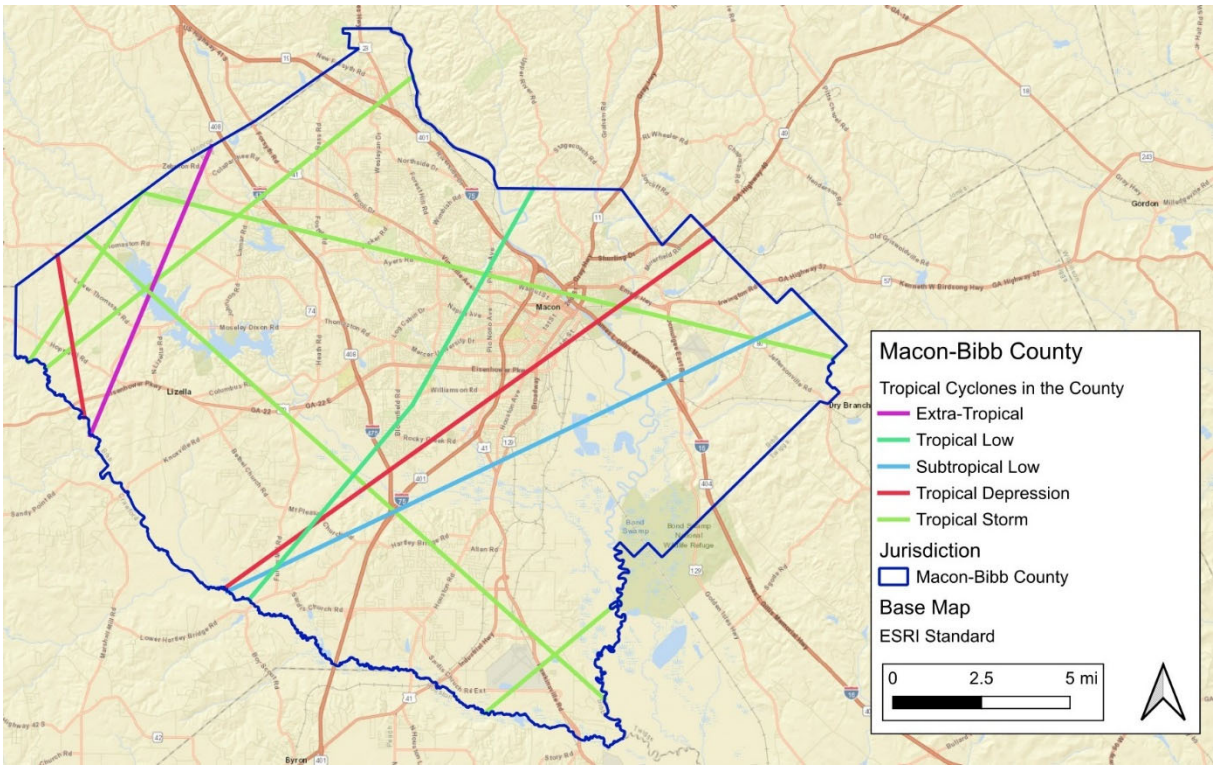
A National Weather Service survey consisting of an analysis of measured wind data, along with reports from Emergency Managers and various other local, state and federal officials, found that tropical storm conditions occurred in the county. There were numerous reports of trees and power lines blown down and some damage to structures. Wind speeds were estimated between 40 and 55 mph.

September 27, 2024, Macon-Bibb County, Tropical Storm—Hurricane Helene made landfall as a Category 4 hurricane in the Big Bend region of Florida at 11 PM EDT. Helene moved quickly inland bringing wind gusts between 50 and 100 mph to portions of east and central Georgia. Widespread rainfall totals between 6 and 14 inches were observed in association with Helene across north and central Georgia. The highest rainfall amounts were primarily observed in portions of east-central Georgia and in the Atlanta Metropolitan area. Due to the prolonged heavy rain, numerous instances of flash flooding and river flooding were reported. The combination of strong winds and heavy rain also downed millions of trees with widespread power outages and numerous structures damaged or destroyed, mostly from falling trees. Ahead of Hurricane Helene, there were several showers/storms in the rainbands that had low-level rotation. One of these storms spawned a short-lived tornado occurred in Wheeler County during the evening of the 26th.

Georgia Department of Transportation reported a tree down on I-75 southbound near the exit for SR 247/US 41 and Pio Nono Ave, which blocked the right two lanes. The ASOS station at Macon (KMCN) reported a 59-mph wind gust.

The following map depicts the tracks of past tropical cyclones that have directly impacted and moved through Macon-Bibb County.

Figure 3-32. Countywide Tropical Cyclone Direct Impact, Macon-Bibb County



Probability of Future Occurrence

Macon-Bibb County and its participating jurisdictions can expect a tropical cyclone with a 57% probability per year, or 0.57 events per year. This number was derived by dividing the number of recorded events (12) by the year range used (21 years). The probability of a tropical cyclone event happening in the planning area is likely.

3.13.5 Vulnerability Assessment

Macon-Bibb County has recorded 12 tropical cyclone events over the past 21 years. This equates to 0.57 tropical cyclones events per year. Communities closer to the coast are more susceptible to cyclone events as they are located closest to where hurricane wind will originate. Hurricane wind will be a secondary disaster from a hurricane landing ashore. The wind impacts will potentially be felt across the county, therefore, making the entire county vulnerable to a hurricane wind event.

Property at risk to hurricanes was estimated using current property assessment and parcel data (from March 2026) in Hazus. Hazus developed a probabilistic wind damage risk assessment and modeled a Tropical Storm with maximum winds of 72 mph. The vulnerability data displayed below is only for wind-related damages. Hurricanes may also cause substantial damages from heavy rains and subsequent flooding, which is addressed in Section 3.8 Flooding.

People

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

In addition to the usual risks posed by tropical cyclones, Macon-Bibb County is in the unique position of being a major landing location for coastal evacuees from both the Georgia coast and the Florida Panhandle in the event of a tropical cyclone threatening those areas. This is due to the confluence of Interstate 16 and Interstate 75 in Macon, both of which are major evacuation routes from coastal areas. Macon-Bibb County has hosted and assisted with shelter operations from the American Red Cross as well as many other private organizations looking to provide adequate housing for storm evacuees. As a result, the influx of storm evacuees is a major concern related to tropical cyclones for Macon-Bibb County.

Hazus estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. The results are listed in the table below.

Table 3-51. Displaced Households and People

Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Tropical Storm	0	0

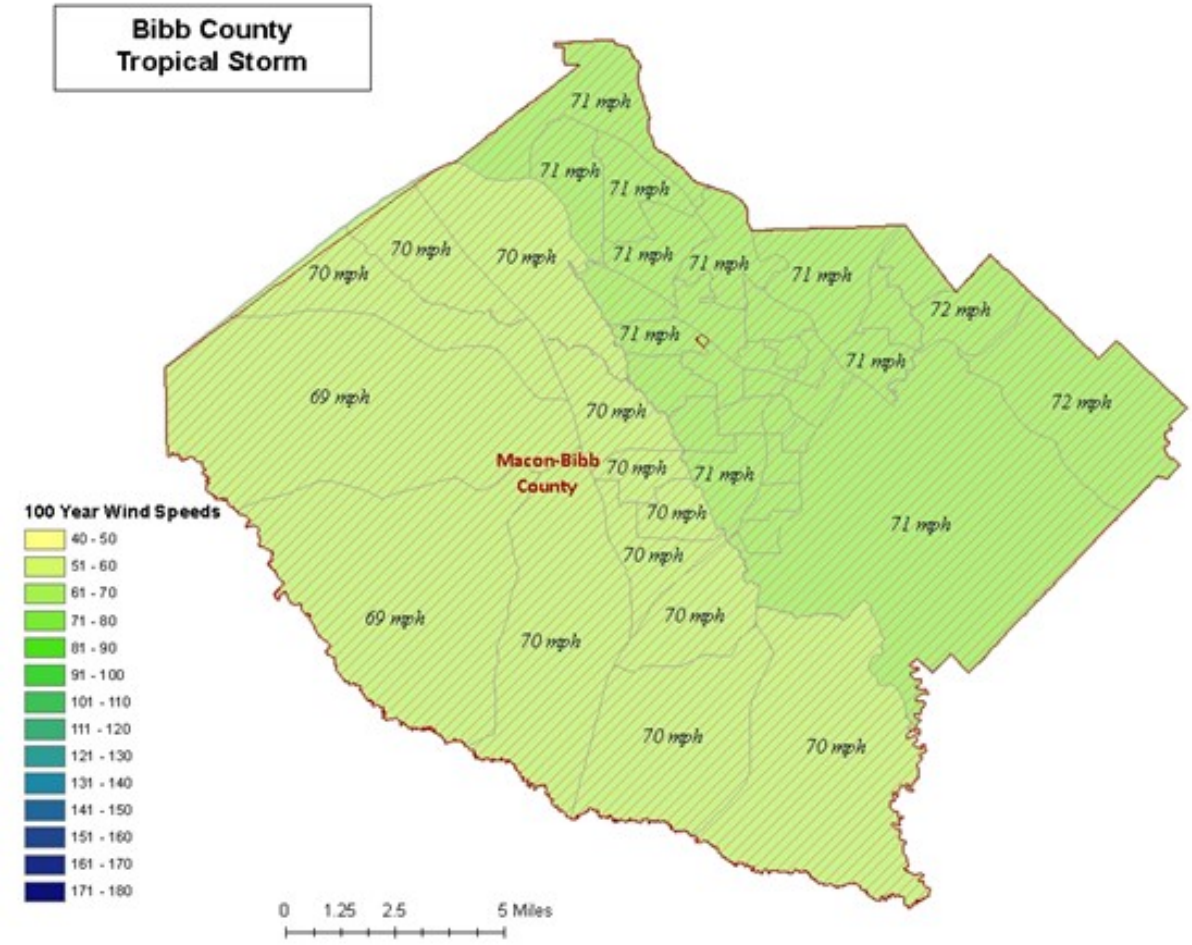
Source: Hazus Hurricane Risk Analysis, 2026

Property

Hurricanes can cause catastrophic damage to coastlines and several hundred miles inland. Hurricanes can produce winds exceeding 157 mph as well as tornadoes and microbursts. Additionally, hurricanes often bring intense rainfall that can result in flash flooding. Floods and flying debris from the excessive winds are often the deadly and most destructive results of hurricanes.

According to the most recent Hazus report for Macon-Bibb County, wind losses were determined from probabilistic models run for the Tropical Storm which equates to the 1% chance storm event. The following figure shows wind speeds for the modeled Tropical Storm.

Figure 3-33. Wind Speeds by Storm Category



Source: Hazus Hurricane Risk Analysis, 2026

Buildings in Macon-Bibb County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Macon-Bibb County for the Tropical Storm (100 Year Event). The loss ratio expresses building losses as a percentage of total building replacement cost in the county.

Table 3-52. Hurricane Wind Building Damage

Classification	Number of Buildings Damaged	Total Building Damage	Total Economic Loss	Loss Ratio
Tropical Storm	152	$13,901,190	$17,291,080	0.04%

Source: Hazus Hurricane Risk Analysis, 2026

Given equal vulnerability to hurricane winds across all of Macon-Bibb County, all critical facilities are considered to be at risk. Certain buildings may perform better than others based on their age and construction, among other factors. The potential loss of functionality may have significant consequences to the community. Hazus identified the essential facilities that may be moderately or severely damaged by winds. There were 164 essential facilities identified in Macon-Bibb County that had expected loss of use of less than one day. Zero facilities were moderately or completely damaged. The types of essential facilities considered are listed in the table below.

Table 3-53. Number of Essential Facilities, Macon-Bibb County

Classification	Number
Care Facilities	54
EOCs	1
Fire Stations	21
Police Stations	13
Schools	75

Source: Hazus Hurricane Risk Analysis, 2026

Environment

Aquatic species within lakes or rivers may either be displaced or destroyed. The velocity of the flood wave will likely destroy riparian and instream vegetation and destroy wetland function. The flood wave will likely cause erosion within and adjacent to streams and the coast. Deposition of eroded deposits may choke instream habitat or disrupt riparian areas.

Debris can be extremely detrimental to the county's environment, as well. Hazus estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in the table below. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

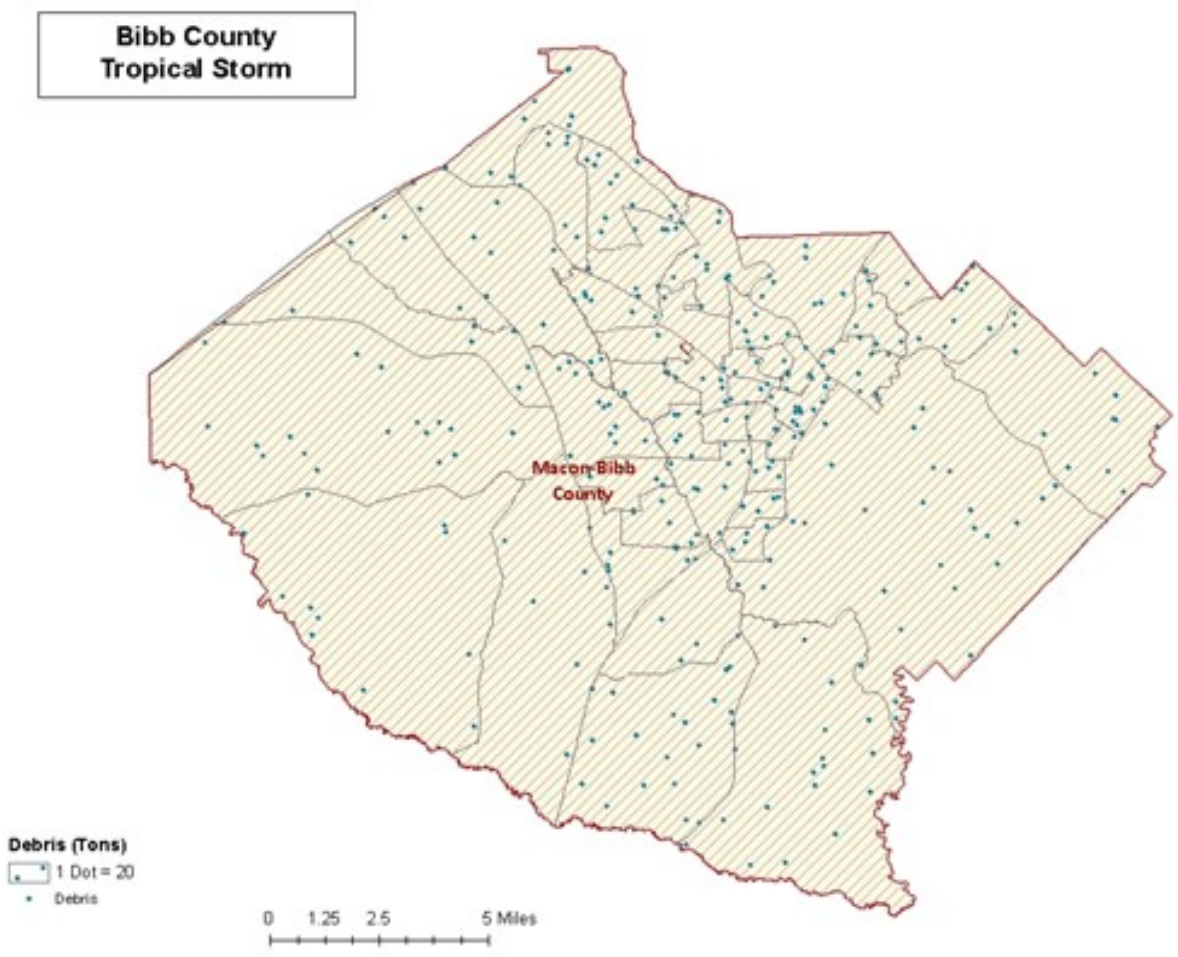
Table 3-54. Wind-Related Debris Weight (Tons)

Classification	Brick, Wood, and Other	Reinforced Concrete and Steel	Eligible Tree Debris	Other Tree Debris	Total
Tropical Storm	2,243	--	4,510	16,415	23,168

Source: Hazus Hurricane Risk Analysis, 2026

The following figure shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

Figure 3-34. Wind-Related Debris Weight (Tons)



Source: Hazus Hurricane Risk Analysis, 2026

Land Use & Development Trends

Aside from an overall increase in exposure due to development throughout the planning area, there have been no significant changes in development in the planning area that could affect vulnerability to tropical storms in Macon-Bibb County.

The largest concerns during a hurricane event are the reparations after flooding caused by heavy rainfall, and more frequently the damage from high winds. The likelihood of storm surge as far inland as Macon-Bibb County is non-existent.

Consequence Analysis

The following table summarizes the potential negative consequences of tropical cyclones.

Table 3-55. Consequence Analysis, Tropical Cyclone

Category	Consequences
Public	Impacts include injury or death, loss of property, outbreak of diseases, mental trauma and loss of livelihoods. Power outages and flooding are likely to displace people from their homes. Water can become polluted such that if consumed, diseases and infection can be easily spread. Residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed, resulting in cascading impacts on the public.
Responders	Localized impact expected to limit damage to personnel in the inundation area at the time of the incident. Responders may also be residential victims of hazard impacts, which could limit their ability to work or respond to calls to duty.
Continuity of Operations (including Continued Delivery of Services)	Damage to facilities/personnel from flooding or wind may require temporary relocation of some operations. Operations may be interrupted by power outages. Disruption of roads and/or utilities may postpone delivery of some services. Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may reduce deliveries.
Property, Facilities, and Infrastructure	Structural damage to buildings may occur; loss of glass windows and doors by high winds and debris; loss of roof coverings, partial wall collapses, and other damages requiring significant repairs are possible in a major (category 3 to 5) hurricane. Flooding from storm surge may also negatively impact facilities and infrastructure.
Environment	Hurricanes can devastate wooded ecosystems and remove all the foliation from forest canopies, and they can change habitats so drastically that the indigenous animal populations suffer as a result. Specific foods can be taken away as high winds will often strip fruits, seeds and berries from bushes and trees. Secondary impacts may occur; for example, high winds and debris may result in damage to an above-ground fuel tank, resulting in a significant chemical spill. Saltwater intrusion and flash flooding from hurricane-related storm surge and rain may also cause erosion, damage to vegetation, and relocation of wildlife.
Economic Condition of the Jurisdiction	Local economy and finances adversely affected, possibly for an extended period of time, depending on damages. Intangible impacts also likely, including business interruption and additional living expenses.
Public Confidence in the Jurisdiction's Governance	Likely to impact public confidence due to possibility of major event requiring substantial response and long-term recovery effort.

3.13.6 Priority Risk Index

The following table summarizes tropical cyclone hazard risk for Macon-Bibb County. While hurricanes have the possibility of being catastrophic across the county, certain areas may have higher vulnerability. Impacts may be greater in more highly developed areas with greater amounts of impervious surface and higher exposure in terms of both property and population density. Areas with more mobile homes are also more vulnerable to damage, while areas with higher property values have greater overall financial exposure and potential for damages. Despite these differences, the entire county has the possibility for catastrophic impacts.

Table 3-56. Tropical Cyclone Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	3	4	1	3	3.0	H

3.14 Natural Hazard: Wildfire

3.14.1 Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires have the ability to consume large areas, including infrastructure, property, and resources. When massive fires develop near populated areas, evacuations possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of downwind populations. There are three general types of fire spread that are recognized.

- **Ground fires:** Burn organic matter in the soil beneath surface litter and are sustained by glowing combustion.
- **Surface fires:** Spread with a flaming front and burn leaf litter, fallen branches, and other fuels located at ground level.
- **Crown fires:** Burn through the top layer of foliage on a tree, known as the canopy or crown fires. Crown fires, the most intense type of fire and often the most difficult to contain, need strong winds, steep slopes, and a heavy fuel load to continue burning.

Generally, wildfires are started by humans, either through arson or carelessness, or by lightning strikes. Fire intensity is controlled by both short-term weather conditions and longer-term vegetation conditions. During intense fires, understory vegetation, such as leaves, small branches, and other organic materials that accumulate on the ground, can become additional fuel for the fire. The most explosive conditions occur when dry, gusty winds blow across dry vegetation.

Weather plays a major role in the birth, growth, and death of a wildfire. The National Weather Service Fire Weather Program emerged in response to a need for weather support for large and dangerous wildfires. This service is provided to federal and state land management agencies for the prevention, suppression, and management of forest and rangeland fires.

Weather conditions favorable to wildfire include drought, which increases flammability of surface fuels, and winds, which aid a wildfire‘s progress. The combination of wind, temperature, and humidity affects how fast wildland fires can spread. Rapid response can contain wildfires and limit their threat to property.

With more people making their homes in wooded settings near forests and remote mountain sites, the threat of wildfire is steadily on the rise. This is because the demographic change is expanding the size of the area where structures and other human development meet or intermingle with undeveloped wildland, otherwise known as the wildland-urban interface (WUI). The WUI creates an environment in which fire can move readily between structure and vegetation fuels, often resulting in massive fires, or conflagrations, which may lead to widespread evacuations.

A wildfire risk assessment can determine the level of risk of a particular location. The “boundary” WUI is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land, or public forests or parks. There is a clearly defined boundary between the suburban fringe

and the rural countryside. WUI areas deemed as "intermix" are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just starting to transition from rural to urban land use. "Island" WUI areas, also called occluded interface, are plots of undeveloped wildland, such as remnant forests and parks, within predominately urban or suburban locales.

Wildfires are also notorious for producing secondary hazards long after the original fire is extinguished. Such hazards include flash flooding, debris flow, and landslides, which all result from fire consuming the vegetation that provides precipitation interception and infiltration as well as slope stability.

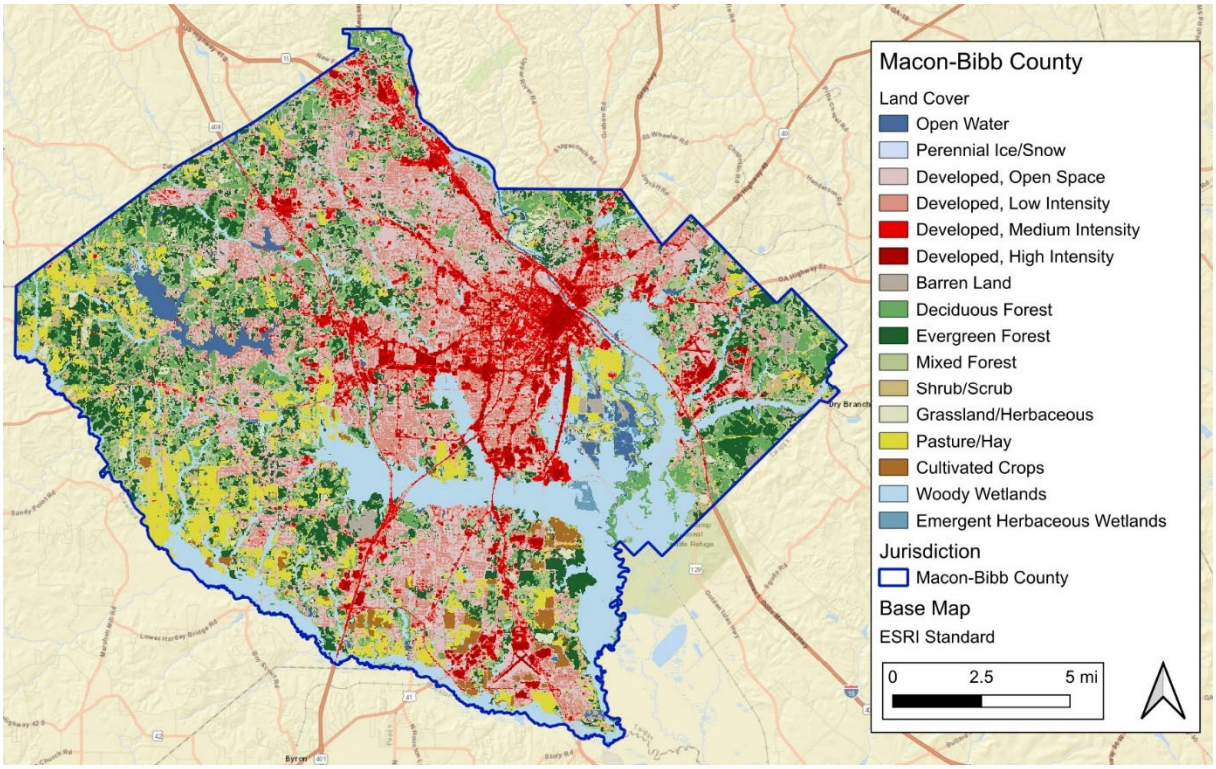
Fire services can mitigate wildfires by regularly engaging in preventative burns and proactive land use measures. Homeowners and business owners can also do their part by taking precautionary efforts, such as following local fire-related ordinances; removing leaves, limbs, and other debris from property; and creating a defensible space around structures. Among those emphasizing the need for such preemptive actions is Firewise USA, a national recognition program that provides instructional resources to inform people how to adapt to living with the risk of wildfire.

3.14.2 Hazard Location

As mentioned in the Georgia Hazard Mitigation Strategy Standard and Enhanced Plan, effective March 4, 2024 through March 3, 2029, all of Georgia is prone to wildfire, especially during drier seasons (which vary across the state). This is primarily due to the presence of abundant and quick-burning wildland fuels including coniferous, deciduous, and mixed forests; shrub-land; grasslands/herbaceous; and woody and emergent wetlands. Approximately 17.5% of Macon-Bibb County's land is forested and/or set aside for conservation uses, and its WUI continues to expand.[24] Approximately 86.7% of Macon-Bibb County's population lives within the WUI. A map of Macon-Bibb County's land cover can be seen below. The northwestern portion of the county holds the highest percentage of forestry and pasture.

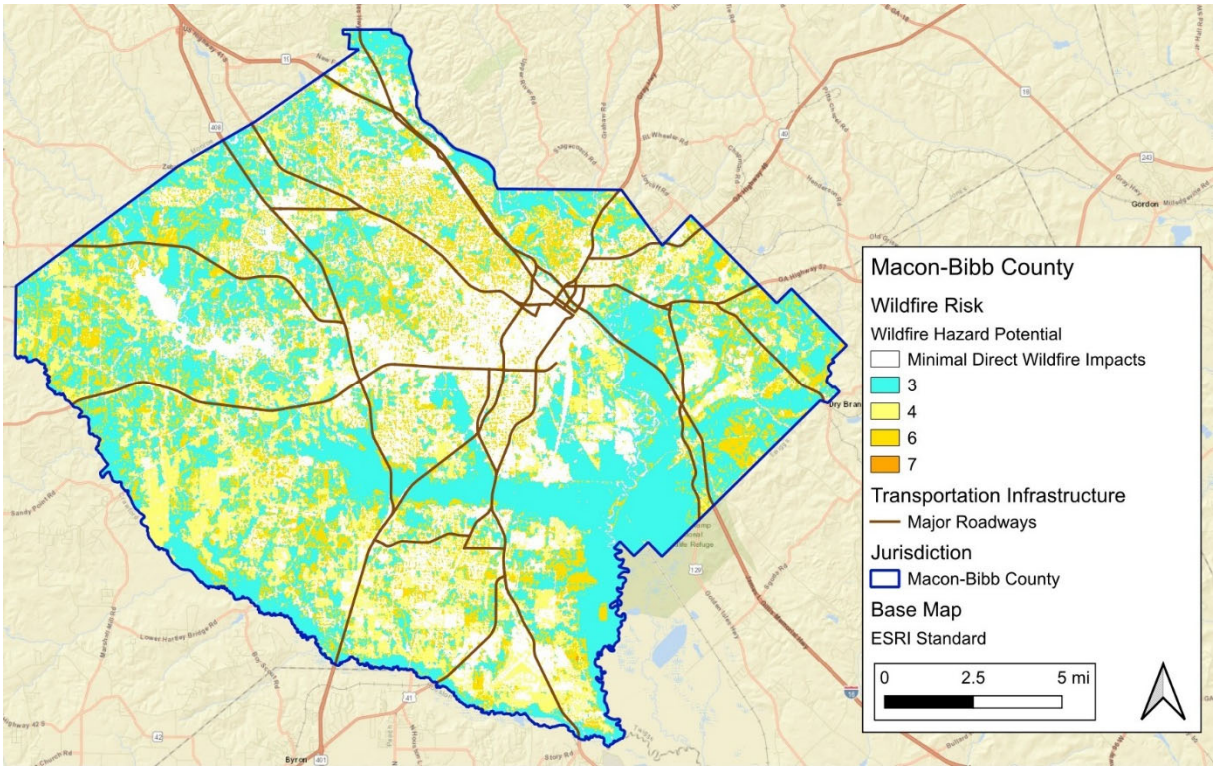
[24] https://mbpz.org/wp-content/uploads/2022/11/2050-Macon-Bibb-County-Comprehensive-Plan-FINAL_20221027.pdf. Retrieved April 1, 2026.

Figure 3-35. Macon-Bibb County Land Cover



Of equal concern, Macon-Bibb County often experiences wildfire-conducive weather conditions, such as extended drought, low relative humidity, and high winds. Such conditions in certain combinations make some communities more vulnerable to wildfire damage than others. Applying a "set of conditions" method is perhaps the best way for Macon-Bibb County to define WUI areas when planning for wildfire prevention, mitigation, and protection activities. Macon-Bibb County's wildfire hazard potential can be seen in the map below.

Figure 3-36. Wildfire Hazard Potential, Macon-Bibb County



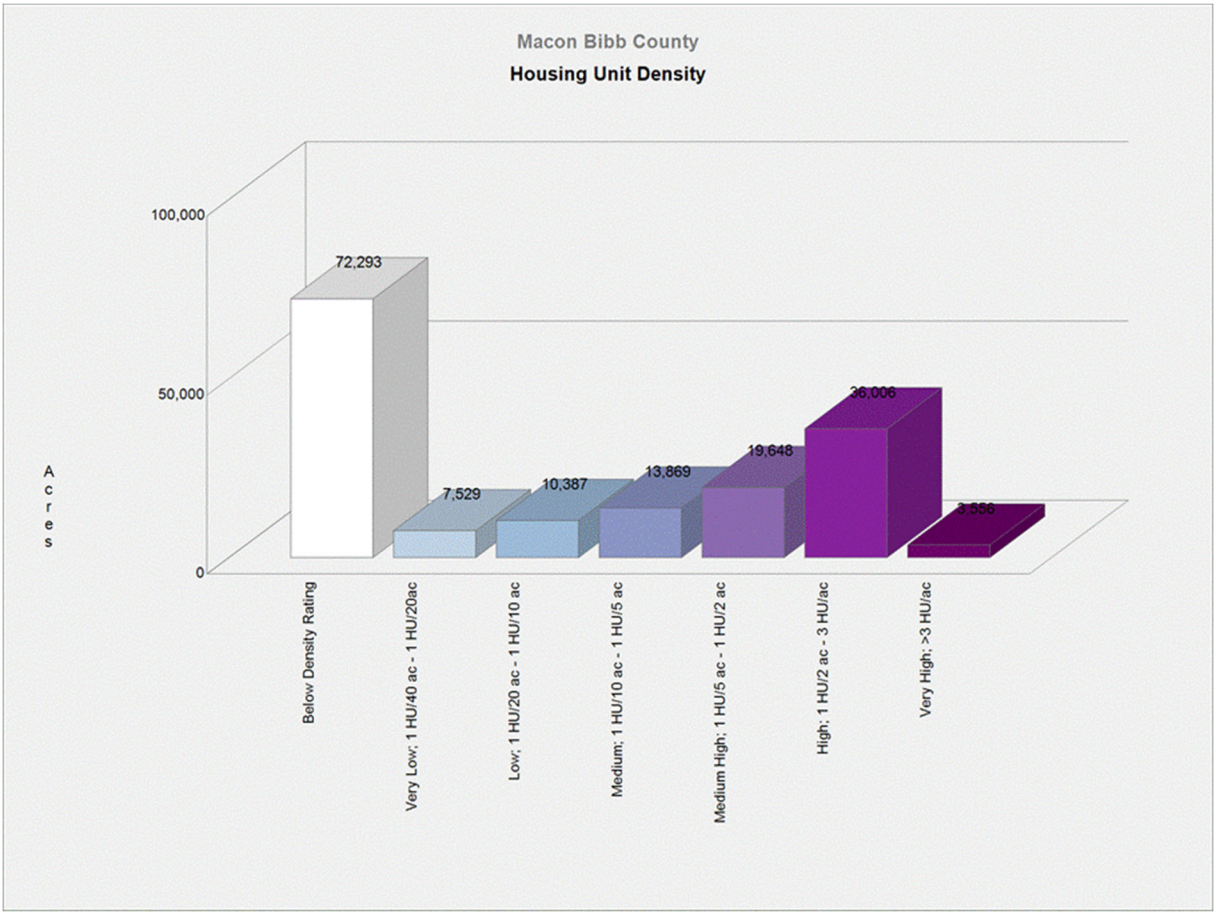
The Southern Wildfire Risk Assessment Summary Report, last conducted in 2025 by Macon-Bibb County, displays housing unit density measured in housing units per square kilometer and reflects 2020 estimates of housing unit counts from the U.S. Census Bureau, combined with building footprint data from Onegeo and USA Structures—both reflecting 2022 conditions.

Figure 3-37. Housing Unit Density Categories, Macon-Bibb County

	Housing Unit Density Category	Acres	Percent
	Below Density Rating	72,293	44 %
	Very Low; 1 HU/40 ac - 1 HU/20ac	7,529	5 %
	Low; 1 HU/20 ac - 1 HU/10 ac	10,387	6 %
	Medium; 1 HU/10 ac - 1 HU/5 ac	13,869	8 %
	Medium High; 1 HU/5 ac - 1 HU/2 ac	19,648	12 %
	High; 1 HU/2 ac - 3 HU/ac	36,006	22 %
	Very High; >3 HU/ac	3,556	2 %
	Total	**163,286**	**100 %**

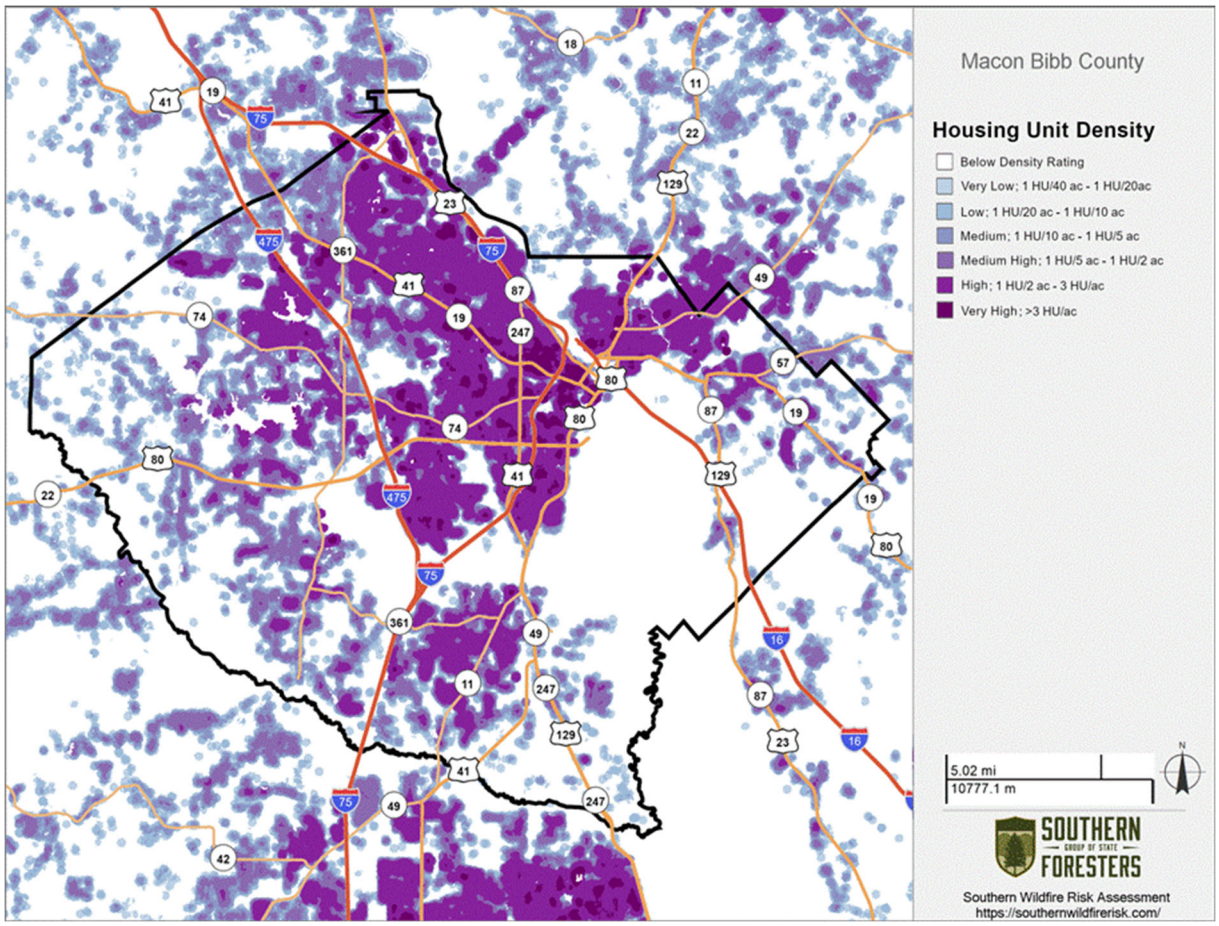
Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-38. Housing Unit Density, Macon-Bibb County



Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-39. Housing Unit Density Map, Macon-Bibb County



Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

3.14.3 Hazard Extent

The Functional WUI represents a classification of the land near buildings into zones that generally describe wildfire exposure to structures and risk mitigation activities appropriate for each. Buildings used in producing Functional WUI are defined as greater than 40 square meters.

- **Primary Exposure:** The Primary Exposure zone identifies where structures are immediately nearby (within 75m of) burnable land cover. Reducing fire intensity and ember production in this zone would reduce the exposure of nearby buildings to heat and embers. Buildings in this zone also require hardening of the structure to resist ignition.
- **Secondary Exposure:** The Secondary Exposure zone identifies land where structures are within 1500 m of burnable land cover, meaning homes in this zone could be impacted by lofted embers or by home-to-home spread even though they are not immediately located with vegetation types classified as burnable. Structures in this zone would benefit from the hardening of the structure to resist ignition from embers and

nearby structures, but defensible space is usually not required due to the heavily developed nature of the zone.

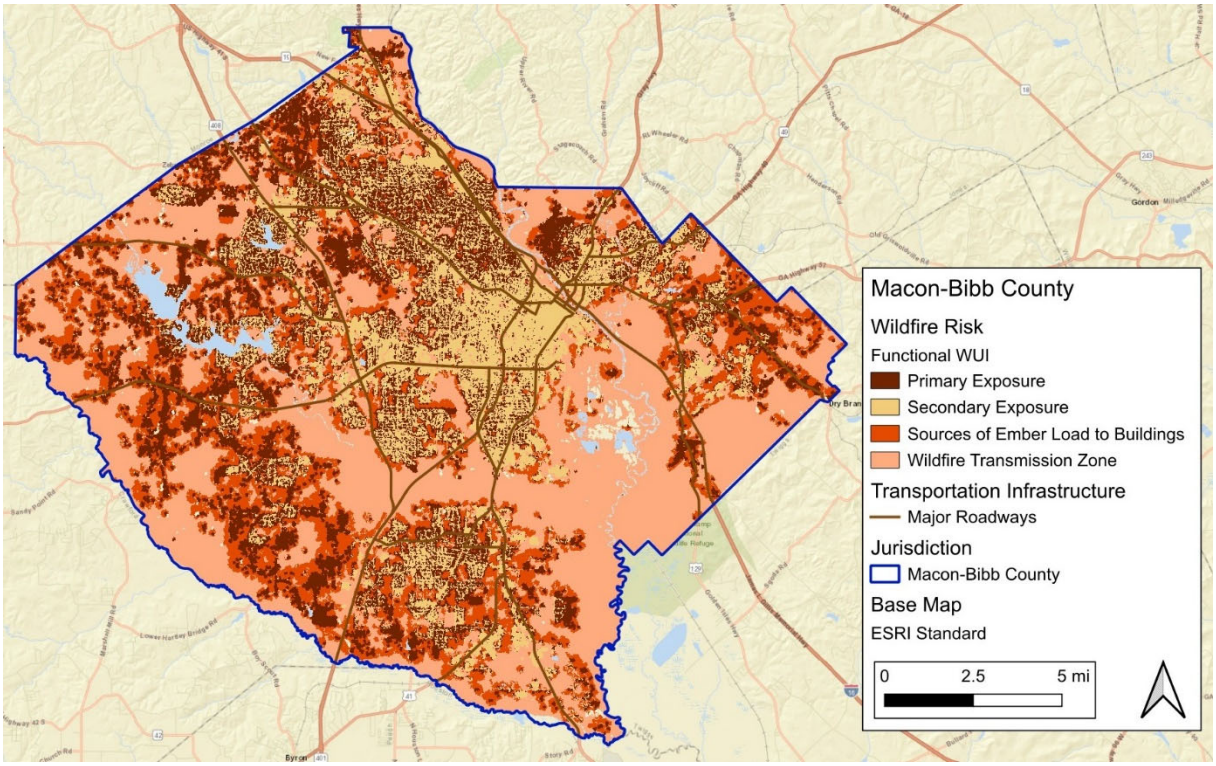
- **Sources of Ember Load to Buildings:** These are areas of burnable land cover that produces embers capable of reaching nearby buildings. Ember production is a function of fire type and intensity, and ember travel is a function of wind speed and direction. Fuel treatment in this zone is a priority for reducing ember load to the nearby buildings.
- **Wildfire Transmission Zone:** The Wildfire Transmission Zone is the unpopulated land within about 2.4 km of a group of structures. Fires that originate within or spread to the Wildfire Transmission Zone have an immediate threat of reaching the nearby structures; fuel treatments that slow fire spread in this zone can reduce risk to these structures.
- **Low-to-No Exposure:** The Low-to-No Exposure zone identifies where structures beyond 1500m from a large (500 ha) contiguous blocks of burnable land cover. Flames—even from home-to-home spread—and embers have a relatively low likelihood of reaching structures in this zone, but smoke and evacuations could still impact this area.
- **Water:** Classified as Non-burnable Water (NB8) in the Surface Fuel Map.

Figure 3-40. Functional WUI Categories, Macon-Bibb County

	Functional Wildland Urban Interface Category	Acres	Percent
	Primary Exposure	36,974	23 %
	Secondary Exposure	28,017	17 %
	Sources of Ember Load to Buildings	63,566	39 %
	Wildfire Transmission Zone	30,178	18 %
	Low to No Exposure	0	0 %
	Water	4,551	3 %
	Total	**163,286**	**100 %**

Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-41. Functional WUI Map, Macon-Bibb County



Per the Georgia Forestry Commission, debris-burning is Georgia's number one cause of wildfire. In fact, it accounts for over 50 percent of all wildfires in the state. Debris-burning is categorized into different types: yard leaf piles, agricultural, forestry site preparation, construction land clearing, and escaped prescribed burning. A major cause of debris-burn wildfires is when residents or visitors burn in a location not permitted with weather that will only increase the fire. By not obtaining a permit and burning with improper weather conditions, visitors or residents would not know the proper areas or time of the year to burn material. The Commission has a wildfire prevention initiative to reach debris-burners and educate them on proper debris-burning techniques.

The Characteristic Fire Intensity Scale within the Southern Wildfire Risk Assessment Summary Report identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on fuel and a weighted average of five percentile weather categories.

Table 3-57. Characteristic Fire Scale Classification, Macon-Bibb County

Classification	Description
Class 1, Very Low	Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
Class 2, Low	Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by

Classification	Description
	trained firefighters with protective equipment and specialized tools.
Class 3, Moderate	Flames up to 9 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
Class 4, High	Large flames, up to 40 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
Class 5, Very High	Flames exceeding 200 feet in length; expect extreme fire behavior.

Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

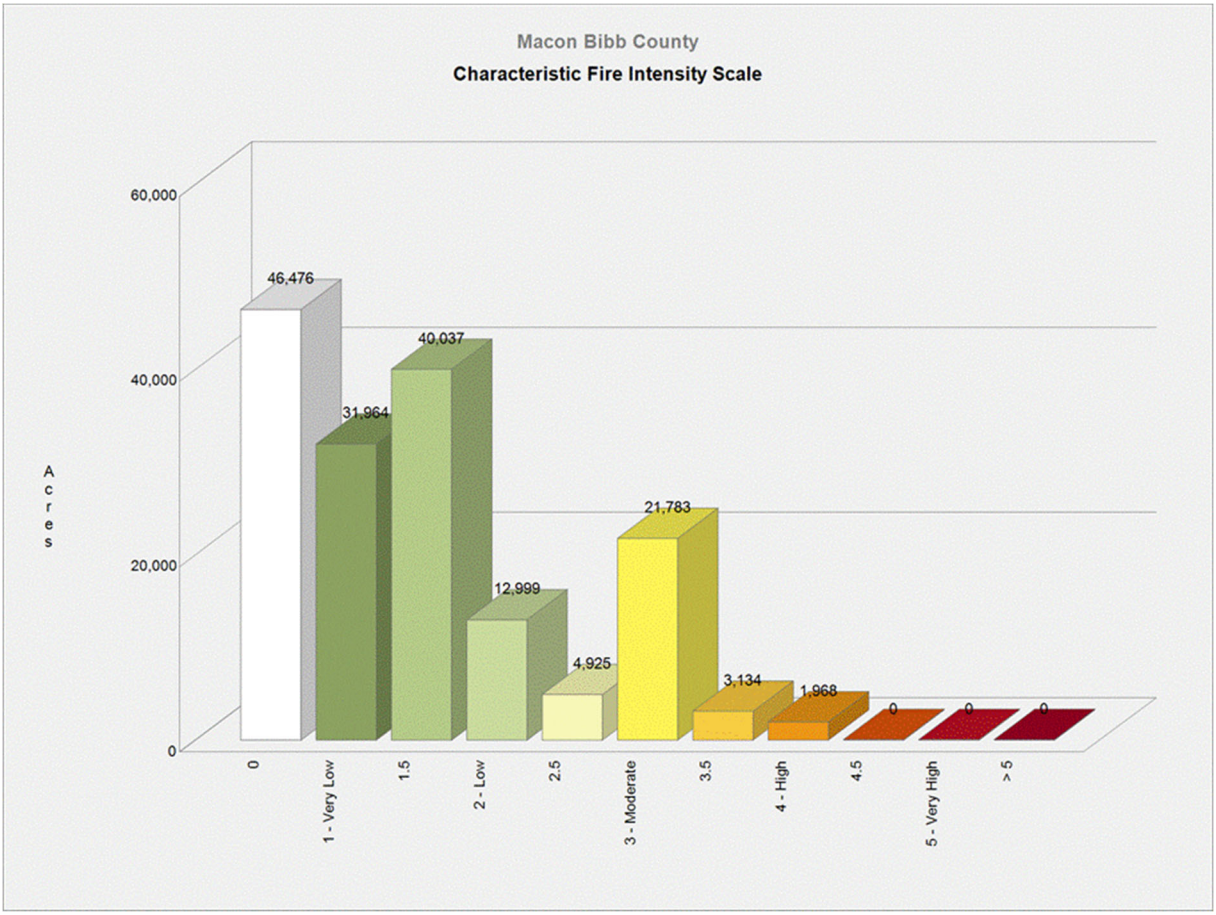
The fire intensity scale map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county, or local planning efforts. Below is the Characteristic Fire Intensity Scale along with acreage for the planning area:

Figure 3-42. Characteristic Fire Intensity Scale Categories, Macon-Bibb County

	Characteristic Fire Intensity Scale Category	Acres	Percent
	0	46,476	28 %
	1 - Very Low	31,964	20 %
	1.5	40,037	25 %
	2 - Low	12,999	8 %
	2.5	4,925	3 %
	3 - Moderate	21,783	13 %
	3.5	3,134	2 %
	4 - High	1,968	1 %
	4.5	0	0 %
	5 - Very High	0	0 %
	>5	0	0 %
	Total	**163,286**	**100 %**

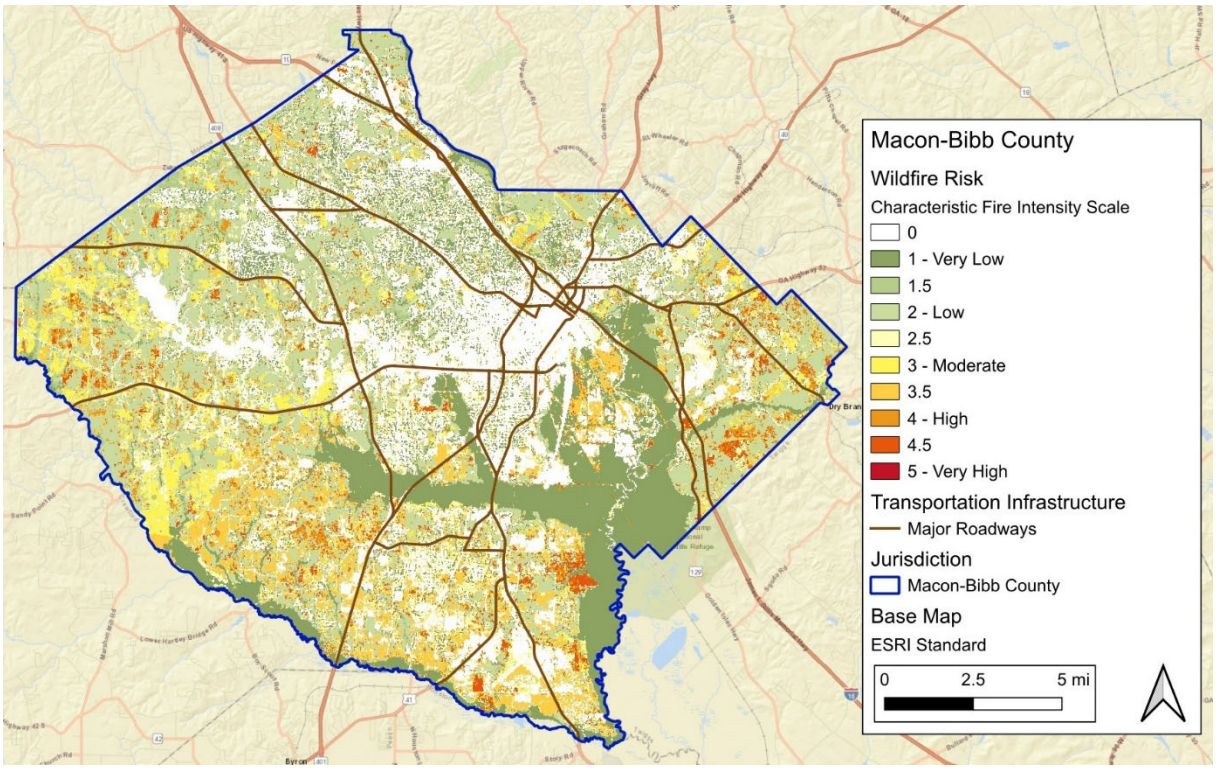
Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-43. Characteristic Fire Intensity Scale, Macon-Bibb County



Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-44. Characteristic Fire Intensity Scale Map, Macon-Bibb County



Another method for classifying wildfires is the Burn Severity Index (BSI), which is a measure used to assess the ecological impact of a wildfire on vegetation and soil. It reflects how intensely an area burned and how much the fire altered the landscape, including changes to plant cover, soil color, and organic matter. BSI is often derived from satellite imagery or field surveys and helps determine the potential for erosion, vegetation recovery, and post-fire management needs.

Table 3-58. Burn Severity Index

Rank	Burn Severity	Description	Characteristics
0	Unburned	Fire extinguished before reaching microsite.	• Leaf litter from previous years intact and uncharred • No evidence of char around base of trees and shrubs • Pre-burn seedlings and herbaceous vegetation present

Rank	Burn Severity	Description	Characteristics
1	Low Severity Burn	Surface fire which consumes litter yet has little effect on trees and understory vegetation.	• Burned with partially consumed litter present • Evidence of low flame heights around base of trees and shrubs (<0.5 m) No significant decreases in overstory & understory basal area, diversity or species richness from pre-burn assessments • Usually burning below 80° C
2	Medium-Low Severity Burn	No significant differences in overstory density and basal area, & no significant differences in species richness. However, understory density, basal area, and species richness declined.	• No litter present and 100% of the area covered by duff • Flame lengths <2m • Understory mortality present, little or no overstory mortality
3	Medium-High Severity Burn	Flames that were slightly taller than those of medium-low intensity fires, but these fires had occasional hot spots that killed large trees with significant reduction in the understory.	• Soil exposure on 1-50% of the area • Flame lengths <6m • High understory mortality with some overstory trees affected
4	High Severity Burn	Crown fires, usually a stand replacing burn with relatively high overstory mortality.	• Soil exposure >50% • Flame lengths >6m • Higher overstory mortality >20% • Usually burning above 800° C

Source: Southern Appalachian Forest Coalition

The National Interagency Coordination Center (NICC), the focal point for coordinating mobilization of resources for wildland fire and other incidents throughout the United States, reported that 11,896 acres burned in Georgia in 2024. Additionally, the Insurance Information Institute ranked Georgia as number five on its "Top Ten States for Wildfires Ranked by Number of Fires and by Number of Acres Burned" in 2023. Georgia is listed behind California, Texas, North Carolina, and Florida respectively, with 2,386 fires reported in the state.

Macon-Bibb County experiences a variety of wildfire conditions found in the Keetch-Byram Drought Index (KBDI), which is described in the following table.[25] Information available during the risk assessment showed that Macon-Bibb County is experiencing moderate to severe drought as of April 2026. For this period, the KDBI is in the 400-600 range.

[25] https://www.drought.gov/data-maps-tools/keetch-byram-drought-index. Retrieved April 1, 2026.

Table 3-59. Keetch-Byram Drought Index Fire Danger Rating System

KBDI	Description
0-200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses, and some light surface fuels will burn in sports and patches.
200-400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.
400-600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600-800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

3.14.4 Historical Occurrences

According to the National Interagency Fire Center (NIFC), Georgia had a total of 2,492 fires in 2024, burning a total of 11,896 acres. Two of these fires were started by lightning, and the remaining were human-caused.[26]

The Georgia Forestry Commission maintains monthly records of acreage burned and number of fires burned that are accessible to the public under the Georgia Open Records Law. The Commission also maintains the Community Wildfire Protection Plans for dozens of Georgia counties. The purpose of this type of plan is to assess wildfire risks in the county and plan to mitigate such risks as funding becomes available. However, Macon-Bibb County does not currently have a Community Wildfire Protection Plan.

The region experienced prolonged periods of severe drought in 2011-2012 and 2016. These periods of drought may explain some of the annual variation in fires and acreage burned.

While Macon-Bibb County is clearly at a high risk of wildfire, NOAA/NCEI has recorded zero wildfire events in the Storm Events Database. Many wildfires occur in the state of Georgia and Macon-Bibb County without being formally recorded by NOAA/NCEI, NIFC, or other agencies.

Probability of Future Occurrence

Burn probability is the likelihood of wildfire burning a specific location within a set time frame, commonly represented as the chance of burning during one calendar year or wildfire season. Burn probability can be expressed as a fraction (e.g., 0.005) or odds (e.g., 1-in-200) and is based on fire behavior modeling across thousands of simulations of possible fire seasons. Burn probability for Macon-Bibb County received a ranking matrix of 1-12, with 1 being the lowest probability and 12 being the highest. In each simulation, factors contributing to the probability

[26] https://www.nifc.gov/fire-information/statistics. Retrieved April 1, 2026.

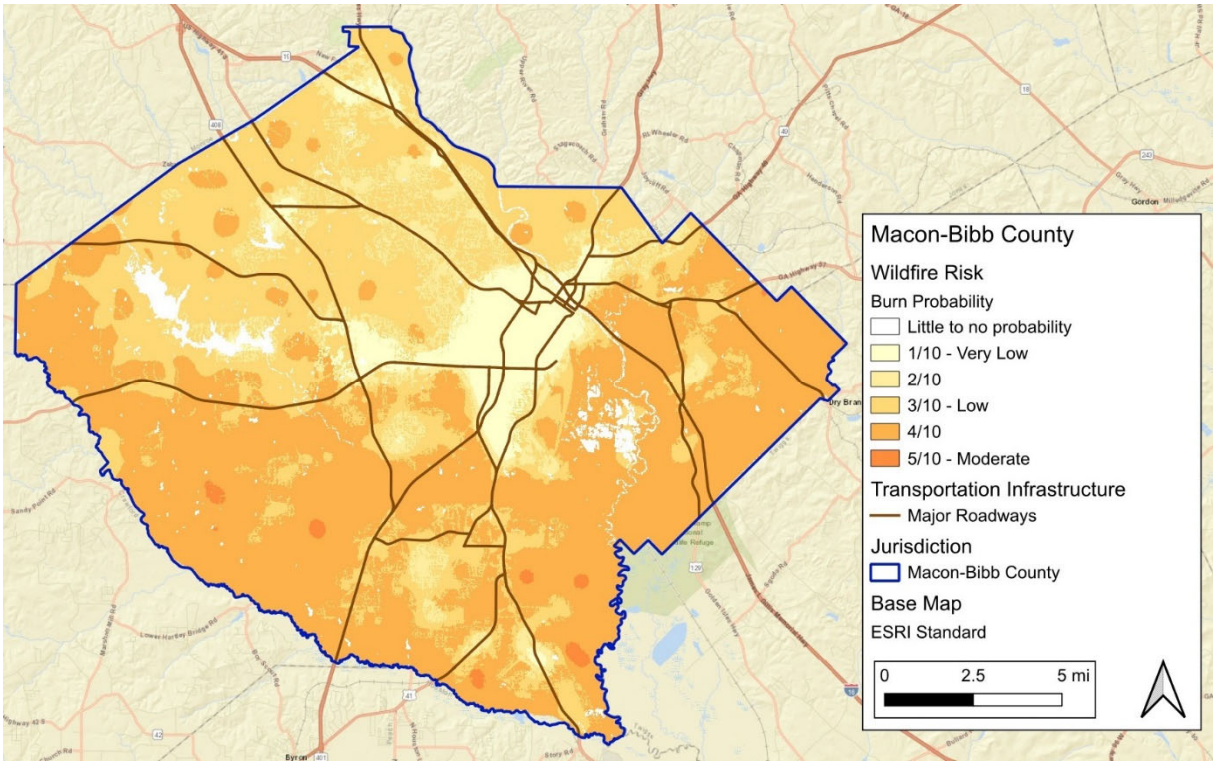
of a fire occurring, including weather and ignition likelihood are varied based on patterns derived from observations in recent decades. Burn probability is not predictive and does not reflect any forecast weather or fire danger conditions. It also does not calculate fire intensity. The burn probability for Macon-Bibb County is presented below.

Figure 3-45. Burn Probability Map, Macon-Bibb County

	Burn Probability Category	Burn Probability - Percent	Burn Probability - Odds	Acres	Percent
	Little to no probability	0	0	4,551	3 %
	1/10 - Very Low	< 0.01 %	> 0 to 1-in-10,000	11,046	7 %
	2/10			14,049	9 %
	3/10 - Low	< 0.1 %	< 1-in-1,000	55,455	34 %
	4/10			77,393	47 %
	5/10 - Moderate			793	0 %
	6/10	< 1.0 %	< 1-in-100	0	0 %
	7/10 - High			0	0 %
	8/10	~ 1-2 %	~ 1-in-100 to 1-in-50	0	0 %
	9/10 - Very High	~ 2-5 %	~ 1-in-50 to 1-in-20	0	0 %
	10/10	~ 5-10 %	~ 1-in-20 to 1-in-10	0	0 %
	Total			**163,286**	**100 %**

Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-46. Burn Probability Map, Macon-Bibb County



81.8% percent of Macon-Bibb County has a burn probability ranking between 3 and 5. Zero percent of the county has a ranking of 6. The areas of higher burn probability are located in the southwestern to southeastern portions of the county. The northern portion of the county has a burn probability of 0 to 4. The probability of wildfire across the county is considered likely, defined as between a 10% and 70% annual chance of occurrence. The communities containing a higher burn probability, as noted, have a comparatively higher probability of occurrence.

For Macon-Bibb County, the rare incidence of wildland fires every year, and the probability of the planning area experiencing a wildland fire is categorically determined to be possible. However, based on the type of wildlands that exist within the planning area and the number of structures within the WUI, the hazard is determined to be likely.

3.14.5 Vulnerability Assessment

The Southern Wildfire Risk Assessment (SWRA) Report provides additional details on wildfire risk in Macon-Bibb County. It is available in Appendix J of this plan.

People

Wildfire can cause fatalities and human health hazards. The greatest vulnerability of a jurisdiction's population is the inability to properly evacuate in an emergency situation. The population can be caught off guard due to slow or improper warning systems, erratic weather conditions, etc., and become trapped in a growing wildfire. Ensuring procedures are in place for rapid warning and evacuation are essential to reducing vulnerability.

No injury or death has occurred in Macon-Bibb as a direct result of wildfire.

Property

Wildfire can cause direct property losses, including damage to buildings, vehicles, landscaped areas, agricultural lands, and livestock. Construction practices and building codes can increase fire resistance and fire safety of structures. Techniques for reducing vulnerability to wildfire include using street design to ensure accessibility to fire trucks, incorporating fire resistant materials in building construction, and using landscaping practices to reduce flammability and the ability for fire to spread.

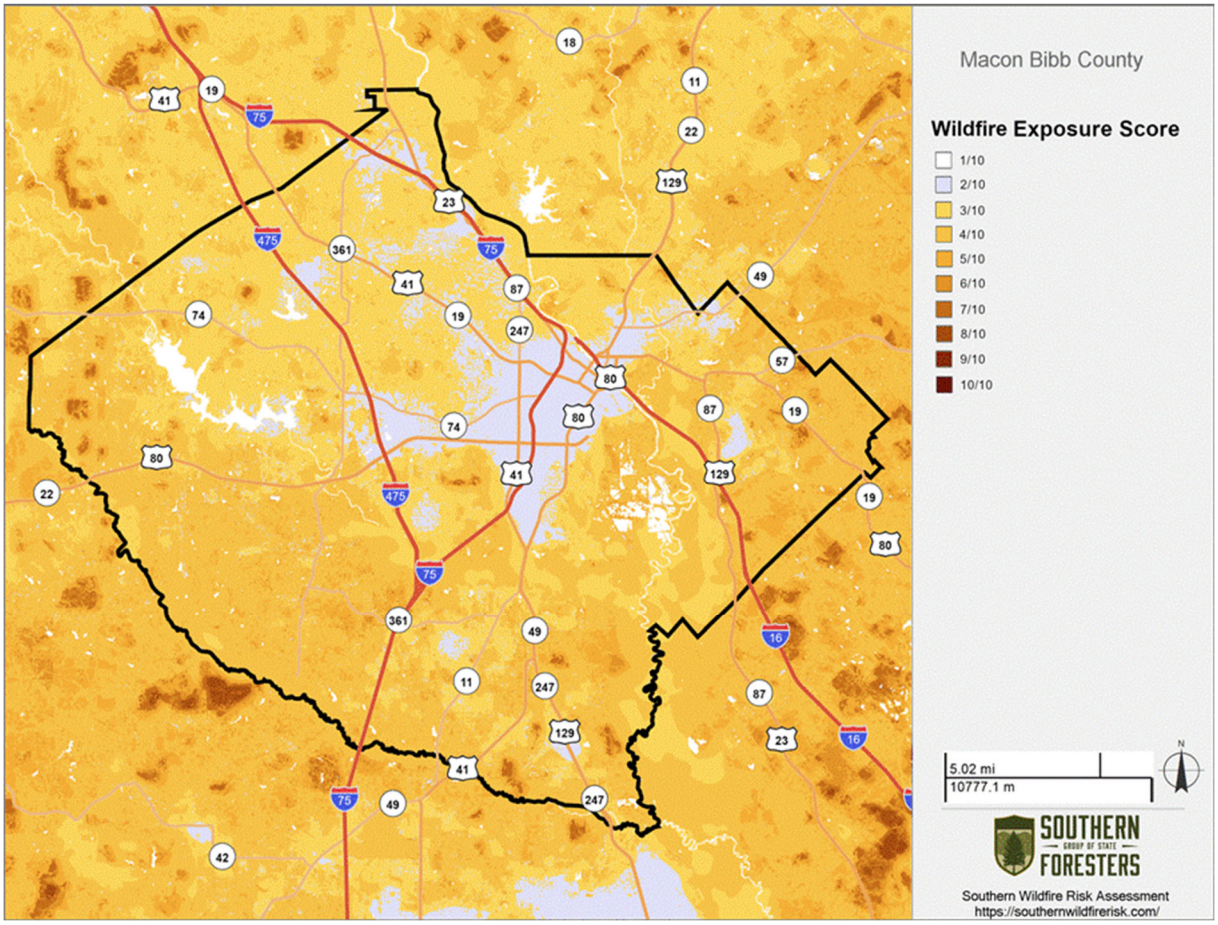
The SWRA provides a wildfire exposure risk score by acreage. The data shows a rating of the potential impact of wildfire on homes, people, and property. This index ranges from 1 to 10, where lower values are least exposed. Communities with a large amount of wooded brush and grassy areas are at highest risk of wildfires. Additionally, areas that have experienced prolonged droughts, or are excessively dry, are also at a higher risk of wildfires. The following table summarizes the number of acres in each score category and a percentage of the county. This table represents potential risks in the event of a wildfire may differ. The next figure shows the areas of structure exposure.

Figure 3-47. Wildfire Exposure Score Categories, Macon-Bibb County

	Wildfire Exposure Score Category	Acres	Percent
	1/10	4,551	3 %
	2/10	21,650	13 %
	3/10	60,404	37 %
	4/10	65,302	40 %
	5/10	8,698	5 %
	6/10	2,102	1 %
	7/10	579	0 %
	8/10	0	0 %
	9/10	0	0 %
	10/10	0	0 %
	Total	**163,286**	**100 %**

Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Figure 3-48. Wildfire Exposure Score Map, Macon-Bibb County



Source: Southern Wildfire Risk Assessment Summary Report, 2025; Pyrologix, 2023

Environment

Wildfires have the potential to destroy forest and forage resources and damage natural habitats. Wildfire can also damage agricultural crops on private land. Wildfire is part of a natural process, however, and the environment will return to its original state in time.

Land Use & Development Trends

Wildfire can result in residential and commercial property loss, impacts to industry (e.g., commercially grown timber trees), costs of extensive firefighting operations, health hazards (e.g., smoke inhalation), and displaced residents requiring temporary shelter. As the county experiences an increase in population, new development will occur more frequently and further encroach on forest and wildland areas. The wildfires that cause the greatest impact to loss of life and property are those located in the WUI.

The duration of a wildfire within the WUI depends on weather conditions, how dry it is, the availability of fuel to spread, and the capabilities of responders to contain and extinguish the fire.

Continued expansion of Macon-Bibb County's WUI will create a number of public safety challenges for local fire services: (1) the water supply in the immediate areas may be inadequate for fire suppression; (2) if the development is in an outlying area, there may be a longer response time for emergency services; (3) in a wildfire emergency, the access road(s) may need to simultaneously support evacuation of residents and the arrival of emergency vehicles; and (4) when wildland fire disasters strike, many structures may be involved simultaneously, quickly exceeding the capability of local fire services. Further, firefighters in the WUI may encounter hazards other than fire itself, such as hazardous materials, utility lines, and poor access.

Fortunately, Macon-Bibb County will have an opportunity to significantly influence the wildland fire safety of new developments. It is important that new development be planned and constructed to provide for public safety in the event of a wildland fire emergency. It is equally important for the residents of Macon-Bibb County to work together to minimize the risk.

Consequence Analysis

The following table summarizes the potential detrimental consequences of wildfire.

Table 3-60. Consequence Analysis, Wildfire

Category	Consequences
Public	In addition to the potential for fatalities, wildfire and the resulting diminished air quality pose health risks. Exposure to wildfire smoke can cause serious health problems within a community, including asthma attacks and pneumonia, and can worsen chronic heart and lung diseases. Vulnerable populations include children, the elderly, people with respiratory problems or with heart disease. Even healthy individuals may experience minor symptoms, such as sore throats and itchy eyes.

Category	Consequences
Responders	Public and firefighter safety is the first priority in all wildland fire management activities. Wildfires are a real threat to the health and safety of the emergency services. Most firefighters in rural areas are 'retained'. This means that they are part-time and can be called away from their normal work to attend to fires.
Continuity of Operations (including Continued Delivery of Services)	Wildfire events can result in a loss of power which may impact operations. Downed trees, power lines and damaged road conditions may prevent access to critical facilities and/or emergency equipment.
Property, Facilities, and Infrastructure	Wildfires frequently damage community infrastructure, including roadways, communication networks and facilities, power lines, and water distribution systems. Restoring basic services is critical and a top priority. Efforts to restore roadways include the costs of maintenance and damage assessment teams, field data collection, and replacement or repair costs. Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground distribution lines, and soil erosion or debris deposits into waterways after the fire. Utilities and communications repairs are also necessary for equipment damaged by a fire. This includes power lines, transformers, cell phone towers, and phone lines.
Environment	Wildfires cause damage to the natural environment, killing vegetation and animals. The risk of floods and debris flows increases after wildfires due to the exposure of bare ground and the loss of vegetation. In addition, the secondary effects of wildfires, including erosion, landslides, introduction of invasive species, and changes in water quality, are often more disastrous than the fire itself.
Economic Condition of the Jurisdiction	Wildfires can have significant short-term and long-term effects on the local economy. Wildfires, and extreme fire danger, may reduce recreation and tourism in and near the fires. If aesthetics are impaired, local property values can decline. Extensive fire damage to trees can significantly alter the timber supply, both through a short-term surplus from timber salvage and a longer-term decline while the trees regrow. Water supplies can be degraded by post-fire erosion and stream sedimentation.
Public Confidence in the Jurisdiction's Governance	Wildfire events may cause issues with public confidence because they have very visible impacts on the community. Public confidence in the jurisdiction's governance may be influenced by actions taken pre-disaster to mitigate and prepare for impacts, including the amount of public education provided; efforts to provide warning to residents; response actions; and speed and effectiveness of recovery.

3.14.6 Priority Risk Index

The following table summarizes wildfire hazard risk for Macon-Bibb County. Wildfire warning time and duration do not vary by area. Spatial extent ratings were estimated based on the proportion of area within the WUI. Impact ratings were based on fire intensity data from SWRA. Probability ratings were determined based on burn probability data from SWRA.

Table 3-61. Wildfire Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	2	3	3	4	3	2.8	H

3.15 Natural Hazard: Winter Storm

3.15.1 Hazard Description

A winter storm can range from moderate snowfall over a period of a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Events may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Some winter storms might be large enough to affect several states, while others might affect only localized areas. Occasionally, heavy snow might also cause significant property damage, such as roof collapses on older buildings.

All winter storm events have the potential to present dangerous conditions to the affected area. Larger snowfalls pose a greater risk, reducing visibility due to blowing snow and making driving conditions treacherous. A heavy snow event is defined by the National Weather Service as an accumulation of four or more inches in 12 hours or less. A blizzard is the most severe form of winter storm. It combines low temperatures, heavy snow, and winds of 35 miles per hour or more, which reduces visibility to a quarter mile or less for at least three hours. Winter storms are often accompanied by sleet, freezing rain, or an ice storm. Such freeze events are particularly hazardous as they create treacherous surfaces.

Ice storms are defined as storms with significant amounts of freezing rain and are a result of cold air damming (CAD). CAD is a shallow, surface-based layer of relatively cold, stably-stratified air entrenched against the eastern slopes of the Appalachian Mountains. With warmer air above, falling precipitation in the form of snow melts, then becomes either super-cooled (liquid below the melting point of water) or re-freezes. In the former case, super-cooled droplets can freeze on impact (freezing rain), while in the latter case, the re-frozen water particles are ice pellets (or sleet). Sleet is defined as partially frozen raindrops or refrozen snowflakes that form into small ice pellets before reaching the ground. They typically bounce when they hit the ground and do not stick to the surface. However, it does accumulate like snow, posing similar problems and has the potential to accumulate into a layer of ice on surfaces. Freezing rain, conversely, usually sticks to the ground, creating a sheet of ice on the roadways and other surfaces.

Polar vortices are also possible winter hazards in Macon-Bibb County. Polar vortex events refer to periods when a large area of low pressure and cold air normally confined near the Arctic weakens or shifts, allowing frigid air to move southward into the United States. Although Macon–Bibb County typically experiences a mild winter climate, these events can bring unusually cold temperatures, strong winds, and occasional winter precipitation to central Georgia. Such conditions may lead to rapid temperature drops, increased demand on energy systems, and hazardous travel conditions, particularly when combined with ice or snow. While relatively infrequent, polar vortex events can significantly amplify the impacts of winter storms in the county by introducing extreme cold and prolonged freezing conditions that are not typical for the region.

3.15.2 Hazard Location

Winter storms are usually a countywide or regional hazard, impacting most or the entire county at the same time. The risk of severe winter weather occurring is uniform across Macon-Bibb County.

3.15.3 Hazard Extent

The National Oceanic and Atmospheric Administration (NOAA) uses the Regional Snowfall Index (RSI), shown in the table below for the Macon-Bibb County region, to assess the societal impact of winter storms in the six easternmost regions in the United States. The index makes use of population and regional differences to assess the impact of snowfall. For example, areas which receive very little snowfall on average may be more adversely affected than other regions, resulting in higher severity. The county may experience any level on the RSI scale. It is possible that more severe events and impacts could be felt in the future.

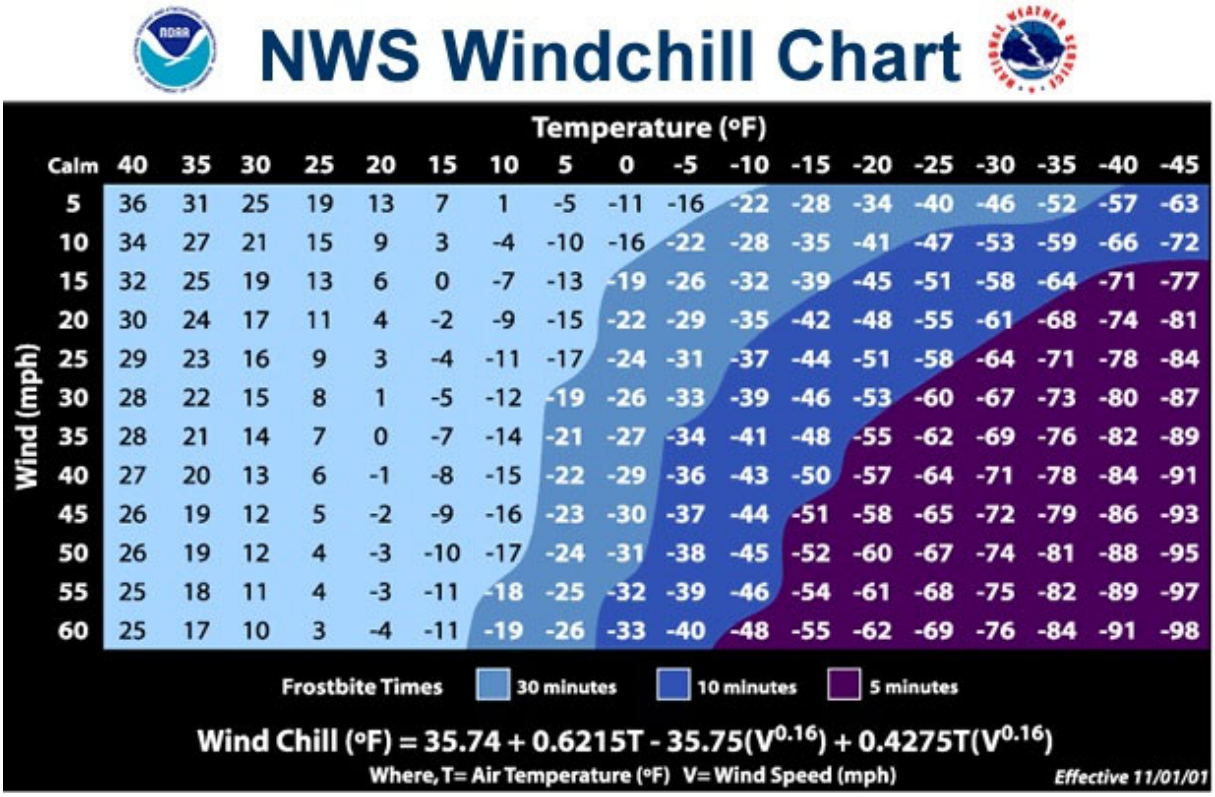
Table 3-62. Regional Snowfall Index (RSI) Values

Category	RSI Value	Description
1	1-3	Notable
2	3-6	Significant
3	6-10	Major
4	10-18	Crippling
5	18+	Extreme

Source: NOAA

Severe winter weather often involves a mix of hazardous weather conditions. The magnitude of an event can be defined based on the severity of each of the involved factors, including precipitation type, precipitation accumulation amounts, temperature, and wind. The NWS Wind Chill Temperature Index, shown in the figure below, provides a formula for calculating the dangers of winter winds and freezing temperatures.

Figure 3-49. Wind Chill Chart



Source: NOAA National Weather Service

The entirety of Georgia is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. Macon-Bibb County is accustomed to smaller scale severe winter weather conditions and often receives winter weather during the winter months. Given the atmospheric nature of the hazard, the entire county has uniform exposure to a winter storm and extreme cold events.

3.15.4 Historical Occurrences

The most significant recorded snow depths over the last 20 years took place recently in January 2025, with recorded depths of up to three inches in the county. Another significant snowstorm occurred in January 2026 with 1-3 inches of snow.

To get a full picture of the range of impacts of severe winter weather, data for the following weather types as defined by the National Weather Service (NWS) and tracked by NCEI were collected:

- **Blizzard:** A winter storm which produces the following conditions for 3 consecutive hours or longer: (1) sustained winds or frequent gusts 30 knots (35 mph) or greater, and (2) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile.

- **Frost/Freeze:** A surface air temperature of 32°F or lower, or the formation of ice crystals on the ground or other surfaces, for a period of time long enough to cause human or economic impact, during the locally defined growing season.
- **Heavy Snow:** Snow accumulation meeting or exceeding 12 and/or 24-hour warning criteria of 3 and 4 inches, respectively.
- **Ice Storm:** Ice accretion meeting or exceeding locally/regionally defined warning criteria of ¼ inch or greater resulting in significant, widespread power outages, tree damage, and dangerous travel. Issued only in those rare instances where just heavy freezing rain is expected and there will be no "mixed bag" precipitation meaning no snow, sleet, or rain.
- **Sleet:** Sleet accumulations meeting or exceeding locally/regionally defined warning criteria of ½ inch or more.
- **Winter Storm:** A winter weather event that has more than one significant hazard and meets or exceeds locally/regionally defined 12- and/or 24-hour warning criteria for at least one of the precipitation elements. Defined by NWS Raleigh Forecast Office as snow accumulations 3 inches or greater in 12 hours (4 inches or more in 24 hours); Freezing rain accumulations ¼ inch (6 mm) or greater; Sleet accumulations ½ inch (13 mm) or more. Issued when there is at least a 60% forecast confidence of any one of the three criteria being met.
- **Winter Weather:** A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation, but does not meet locally/regionally defined warning criteria.

According to the NOAA/NCEI Storm Events Database, there was one frost/freeze event, two heavy snow events, two ice storm events, two winter weather events, and two winter storm events from January 1, 2005 to December 31, 2025 (nine winter events total). As reported in NOAA/NCEI, severe winter weather caused two fatalities and at least $25,000 in property damage, though these types of impacts may not have been reported and are possible in future events. Winter storm related events in Macon-Bibb County are recorded in the following table. Note that winter storm events occurring on the same day were combined into a single entry when they were part of the same storm system.

Table 3-63. Recorded Winter Storm Events, Macon-Bibb County, 2005-2025

Location	Date	Event Type	Fatalities	Injuries	Property Damage	Crop Damage
Macon-Bibb County (Zone)	01/28/2005	Winter Storm	0	0	$25,000	$0
Macon-Bibb County (Zone)	04/07/2007	Frost/Freeze	0	0	$0	$0
Macon-Bibb County (Zone)	03/01/2009	Heavy Snow	0	0	$0	$0
Macon-Bibb County (Zone)	02/12/2010	Heavy Snow	0	0	$0	$0

Location	Date	Event Type	Fatalities	Injuries	Property Damage	Crop Damage
Macon-Bibb County (Zone)	01/10/2011	Ice Storm	0	0	$0	$0
Macon-Bibb County (Zone)	02/10/2011	Winter Weather	0	0	$0	$0
Macon-Bibb County (Zone)	01/28/2014	Winter Storm	0	0	$0	$0
Macon-Bibb County (Zone)	02/12/2014	Ice Storm	0	0	$0	$0
Macon-Bibb County (Zone)	01/17/2018	Winter Weather	2	0	$0	$0

Source: NOAA/NCEI Storm Events Database, 2005-2025

The following provides more specific details on winter storm events included in the NOAA/NCEI database:

January 28, 2005, Macon-Bibb County, Winter Storm—A significant and fairly prolonged winter storm/ice storm affected nearly all of North and Central Georgia from the evening of Friday January 28th to late morning on Sunday January 30th. The winter storm was a result of a very strong and very cold Arctic surface high pressure system located across the Mid-Atlantic states and an upper-level disturbance moving across the region from the west. North of a line from La Grange, to Thomaston, to Sandersville, the precipitation fell mostly as a mixture of sleet and freezing rain, with typical accumulations of one-half inch glaze ice and one to two inches of sleet. Some areas in North Central and Northeast Georgia experienced significant glaze ice accumulations of three-fourths to one inch. Further south, mainly south of a La Grange, to Thomaston, to Sandersville line, most of the frozen precipitation fell as freezing rain, with 1/4 to 1/2 inch accumulations of glaze ice common as far south as McRae, Abbeville, and Americus. In the southern areas, however, the ice accumulations were generally confined to trees, power lines, and other exposed objects with little or no accumulation of ice on the ground. Extensive damage to trees and power lines were reported throughout the area, especially in North Central, Northeast, and Central Georgia. Damage estimates were in the millions. Numerous vehicle accidents were also reported on the slick ice and sleet covered roads, especially in the Atlanta Metropolitan area. In Macon-Bibb County, 1/4 inch of glaze ice and a trace of sleet covered the ground. A number of trees and power lines were down throughout the county. Around 10,000 residents of the county were left without power for an extended period during the event.

March 1, 2009, Macon-Bibb County, Heavy Snow—A vigorous closed upper-level low, with very cold temperatures aloft, continued to intensify as it moved rapidly southeast from the Midwest into the southeast U.S. from the evening of February 28th into the afternoon of March 1st. At the same time, a polar air mass (marked by a 1040+ mb surface high) was spreading southeast from the central Canadian provinces into the eastern half of the U.S. The combination of these events brought a rare late season heavy snow storm to parts of north and central Georgia. Rain early in the morning changed to moderate to heavy snow just before noon on the

1st and spread from west to east across west central, north central, central, east central, and northeast Georgia. Macon-Bibb County received up to two inches of snow.

February 12, 2010, Macon-Bibb County, Heavy Snow—A full latitude trough was moving through the eastern United States. An associated area of surface low pressure was moving from the central into the eastern Gulf of Mexico. An Arctic air mass lingered across the eastern U.S. Very cold air aloft and the cold Arctic surface air mass combined with the overrunning Gulf moisture and upper dynamics to produce the most widespread snow observed across north and central Georgia in several years. All 96 counties within the Peachtree City, Georgia forecast area observed measurable snow, indeed a rarity at any time. Average snowfall across most of north and central Georgia was in the two to three inch range. Snowfall amounts ranged from less than one inch in Telfair County, to one inch in Dade County, to three to four inches in the Atlanta metropolitan area, to six inches in parts of Stewart County. Macon-Bibb County received up to three inches of snow.

January 28, 2014, Macon-Bibb County, Winter Storm—An arctic front pushed through the Southeast on the 27th, leaving very cold air in its wake. Behind the front, an area of moisture pushed north out of the Gulf on the 28th, spreading precipitation across north and central Georgia. With the surface cold air in place, the precipitation began as a mix of light sleet and snow across west central Georgia during the mid-morning hours on the 28th, and as the cold air continued to push south, rain across central Georgia changed over to freezing rain, ending as a sleet/snow mix by the evening of the 28th.

The complicating factor for this event was the fact that the high temperature for most of north Georgia occurred early on the 28th, with the strong cold air continuing to funnel in from the north behind the arctic front. Temperatures fell through the day, and at onset of snow in the Atlanta Metro area, temperatures were in the upper 20s. Massive gridlock ensued as businesses and schools let out just after noon on the 28th, with thousands of motorists stuck on roads for hours if not overnight. The significant societal impacts from this event made national news because of the gridlock in the Atlanta Metro area.

A significant winter storm impacted north and central Georgia on the 28th. Snow and sleet began Tuesday afternoon, accumulating to widespread amounts of 1 to 3 inches of snow, up to a half inch of sleet, and up to a quarter of an inch of freezing rain.

February 12, 2014, Macon-Bibb County, Ice Storm—A significant winter storm impacted north and portions of central Georgia on Tuesday the 11th and Wednesday the 12th. For areas south of the Atlanta Metropolitan area and into central Georgia, the event began Wednesday morning the 12th. Rain mixed with and changed over to freezing rain through the morning hours, resulting in ice accretions of a tenth (0.1) to a third (0.33) of an inch of ice. Widespread power outages were reported, with some customers without power for over two days. The event ended as a round of light snow Wednesday evening.

January 17, 2018, Macon-Bibb County, Winter Weather—A strong surface low and cold front associated with a large and deep upper-level trough, brought light to moderate snow to much of north and central Georgia from the afternoon of the January 16th through the morning of January 17th. With most of the precipitation post-frontal, temperatures were well below freezing (lower to mid 20s) as the snow occurred. This resulted in widespread icy and snow-

packed roadways across the area, especially those that were not pre-treated by GDOT or Public Works.

The ASOS observer measured an inch of snow accumulation at the Macon airport. The Bibb County Emergency Manager reported several accidents caused by the slick roads. On I-75 around mile marker 160, a car slid off of the roadway hitting the guardrail. A second car also lost control and slid off of the roadway at this location, striking and killing the driver of the first car who had exited the vehicle and a passenger still inside the first vehicle.

Probability of Future Occurrence

NCEI records nine severe winter weather related events during the 21-year period from 2005 through 2025, which equates to a 42.9% annualized probability in any given year. This number is based on historical events and was derived by dividing the number of recorded events (9) by the year range used (21 years). The likelihood of a severe winter weather event happening in the planning area is likely.

3.15.5 Vulnerability Assessment

Winter storms, which often involve snow, ice, freezing rain, sleet, and periods of extreme cold, pose a recurring hazard in Georgia, particularly during the winter months. Although these events occur less frequently than in northern states, Georgia remains vulnerable due to limited winter weather infrastructure, infrequent public exposure, and a lack of widespread preparedness for prolonged cold conditions. Ice storms present the greatest concern, as freezing rain can accumulate quickly on roadways, trees, and power lines, leading to hazardous travel conditions, widespread power outages, and damage to utility infrastructure. Winter weather events often disrupt transportation networks, delay emergency response, and increase the risk of vehicle accidents. Additionally, winter storms can cause economic impacts through business closures, school disruptions, and interruptions to essential services. Due to these vulnerabilities, effective preparedness measures, public communication, and infrastructure resilience are critical to reducing the impacts of winter storms in Georgia.

People

The National Weather Service notes that the leading cause of death during winter storms is from automobile or other transportation accidents due to poor visibility and/or slippery roads. About 70% of ice- and snow-related deaths occur in automobiles; another estimated 25% are people caught out in the storm. Two fatalities occurred in Macon-Bibb County on January 17, 2018 when two vehicles lost control on slick roads and collided. Additionally, exhaustion and heart attacks caused by overexertion may result from winter storms as residents unaccustomed to hard labor endeavor to shovel driveways and sidewalks, free vehicles from snow, and perform other strenuous and relatively unusual tasks.

Power outages during very cold winter storm conditions can also create dangerous situations. Elderly people account for the largest percentage of hypothermia victims. In addition, if the power is out for an extended period, residents tend to seek alternative means to heat their homes. Danger arises from carbon monoxide released from improperly ventilated heating sources such as space or kerosene heaters, furnaces, and blocked chimneys. House fires also occur more

frequently in the winter due to lack of proper safety precautions when using an alternative heating source. About 20% of cold-temperature exposure related deaths occur inside the home.

Property

$25,000 in property damage was reported in association with a severe winter storm event recorded by the NOAA/NCEI on January 28, 2005 in Macon-Bibb County, largely due to downed trees and power lines. This is the only property damage recorded in the Storm Events Database, although additional damage has almost certainly occurred in the past. However, the Environmental Working Group (EWG), which provides data on crop insurance and agricultural losses, reported $4,660 in crop insurance indemnities due to freeze in Macon-Bibb County from 1995-2024.[27]

Environment

Winter storm events may include ice or snow accumulation on trees which can cause large limbs, or even whole trees, to snap and fall. Additionally, the cold weather associated with winter storms can cause water to freeze, impacting plants and wildlife.

Land Use & Development Trends

Aside from an overall increase in exposure due to development throughout the planning area, there have been no significant changes in development in the planning area that could affect vulnerability to winter storms in Macon-Bibb County.

Consequence Analysis

The table below summarizes the potential consequences of winter storms.

Table 3-64. Consequence Analysis, Winter Storm

Category	Consequences
Public	Localized impact expected to be severe for affected areas and moderate to light for other less affected areas.
Responders	Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel.
Continuity of Operations (including Continued Delivery of Services)	Localized disruption of roads and/or utilities caused by incident may postpone delivery of some services.
Property, Facilities, and Infrastructure	Localized impact to facilities and infrastructure in the areas of the incident. Power lines and roads most adversely affected.
Environment	Environmental damage to trees, bushes, etc.
Economic Condition of the Jurisdiction	Local economy and finances may be adversely affected, depending on damage.

[27] https://farm.ewg.org/cropinsurance.php?fips=13021&summpage=IN_REGPAGE. Retrieved April 2, 2026.

Category	Consequences
Public Confidence in the Jurisdiction's Governance	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

3.15.6 Priority Risk Index

The following table summarizes winter storm hazard risk for Macon-Bibb County. Winter storms may occur anywhere in the county.

Table 3-65. Winter Storm Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	2	4	1	3	2.7	H

3.16 Technological Hazard: Communications Failure

3.16.1 Hazard Description

A communications failure is the disruption, degradation, or loss of systems used to transmit information across Macon–Bibb County, including telecommunications networks, internet services, radio systems, and public safety communications. These failures may result from a variety of causes, such as severe weather, infrastructure damage, cyber incidents, power outages, or technical malfunctions; however, a communications failure could also be a solo incident itself. Communications infrastructures are particularly vulnerable to both natural and manmade hazards.

In Macon–Bibb County, communications systems are critical for emergency response coordination, public information dissemination, and daily government operations. A failure can impact 911 services, first responder radio networks, cellular and broadband connectivity, and communication between government agencies. The extent of impact can range from localized service interruptions to widespread outages affecting large portions of the community. A lack of communication with outside sources could lead to public panic, poor emergency response capabilities, and other domino hazards.

3.16.2 Hazard Location

Communications failures in Macon–Bibb County have the potential to occur countywide, as telecommunications and data networks are interconnected and serve all geographic areas. However, certain locations may be more susceptible to disruptions, including areas with concentrated infrastructure, such as cellular towers, network hubs, data centers, Operational Technology (OT), Supervisory Control and Data Acquisition (SCADA) systems, and public safety communication facilities. Critical corridors and developed areas—particularly within and around Macon—may experience more significant impacts due to higher demand and reliance on communication systems. Additionally, areas with limited network redundancy, rural portions of the county, or locations dependent on a single service provider may be more vulnerable to prolonged outages. Overall, while communications failures are not confined to a specific hazard zone, their impacts are most pronounced in areas with high population density, critical facilities, and essential service infrastructure.

3.16.3 Hazard Extent

The extent of a communications failure is evaluated based on the scope, duration, and severity of disruption to communication systems across the jurisdiction. Key measures include the geographic area affected (localized, regional, or countywide), the number of users or critical facilities impacted, and the type of systems disrupted, such as 911 services, radio communications, cellular networks, internet connectivity, OT, SCADA, or data systems.

Magnitude is further defined by the duration of the outage, ranging from short-term interruptions lasting minutes or hours to prolonged disruptions lasting multiple days. The extent also considers the level of service degradation, from partial loss (e.g., reduced signal strength or intermittent connectivity) to complete system failure. Impacts to public safety

communications, including emergency dispatch and first responder radio systems, are typically used as a key indicator of severity.

Additional factors include the availability of backup systems and redundancy, the speed of system restoration, and the presence of cascading effects from related hazards, such as power outages or cyber incidents. Overall, communications failure is measured by the scale of service disruption, the duration of the event, and the degree to which critical communication functions are impaired.

While cyberattacks could also be defined as hostile events (Section 3.19) in this plan, actors predominantly target critical infrastructure that controls daily life and essential services. These services, like energy, healthcare, government operations, and finance are often controlled by OT and/or SCADA systems, which are the predominant cyberattack targets.

3.16.4 Historical Occurrences

Macon-Bibb County has experienced several recent communications disruptions/failures in the past 20 years, several of which are outlined below:

- May 11, 2008: A tornado on Mother's Day tracked directly through Bibb County and the City of Macon, causing millions of dollars in damage and disrupting cellular and communication systems from widespread damage to power lines and infrastructure.
- May 25, 2017: A fiber/cable line between Atlanta and Macon was cut and caused a widespread outage that impacted numerous county facilities, including public safety and administrative buildings. The 911 center was not interrupted.[28]
- October 25, 2022: An outage with the county's phone provider caused disruptions to many government phone lines. 911 emergency services remained operational.[29]
- May 14, 2024: Macon–Bibb County experienced a cybersecurity incident that forced officials to shut down government networks, resulting in loss of internet, email, and some phone services. Many public-facing services, including online payments and requests, were unavailable for an extended period.[30]
- January 23, 2026: A temporary outage occurred with the Bibb County Jail inmate phone system, which was restored within a day.[31]

[28] https://www.maconbibb.us/phoneoutagesmay25/?utm_source=chatgpt.com. Retrieved April 3, 2026.

[29] https://www.41nbc.com/macon-bibb-county-offices-experiencing-phone-outage-temporary-numbers-provided/?utm_source=chatgpt.com. Retrieved April 3, 2026.

[30] https://www.41nbc.com/update-macon-bibb-county-restores-landline-phone-email-services-network-remain-offline/?utm_source=chatgpt.com. Retrieved April 3, 2026.

[31] https://www.41nbc.com/bibb-county-jail-inmate-phone-system-restored/?utm_source=chatgpt.com. Retrieved April 3, 2026.

Probability of Future Occurrence

While specific data on the number of occurrences is not known, the probability of future communications failures is likely. Based on available data and recorded events over a 20-year period, Macon-Bibb County jurisdictional entities and businesses could expect to either indirectly or directly experience a communications failure or disruption every four years; this consideration should be used for annualized probability only.

3.16.5 Vulnerability Assessment

The Macon-Bibb County Plan Update Committee has determined that communications failures pose a high risk to the county due to the unpredictable nature of the incident.

People

People are vulnerable to communications failures through the loss of personal information, exposure to fraud, and disruption of essential services such as healthcare, education, and utilities. These incidents can cause financial hardship, delays in critical care, and learning or work interruptions, with impacts falling hardest on those with limited digital literacy, economic resources, or access to recovery support.

Communications failures can also inflict huge amounts of economic damage in many different ways. Cyberattacks targeting financial institutions (banks, stock markets, etc.) can directly impact the overall economy while other attacks may target individual businesses.

Property

Property is vulnerable when business operations, financial systems, and facility management technologies are disrupted. Communications failures can force closures, damage records, and compromise building systems, such as security, utilities, or point-of-sale networks, leading to revenue loss and costly recovery. Prolonged downtime or data loss may also reduce property values, increase vacancies, and create long-term economic instability for owners and tenants.

Environment

The environment is vulnerable when critical infrastructure systems that manage water, wastewater, energy, or industrial processes are targeted. A successful attack could disrupt treatment operations, release pollutants, or cause hazardous materials incidents, leading to contamination of air, soil, or waterways. Such impacts not only threaten ecosystems but also create long-term public health and safety risks.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to communications failures.

Consequence Analysis

The table below summarizes the potential detrimental consequences of a communications failure.

Table 3-66. Consequence Analysis, Communications Failure

Category	Consequences
Public	Medically fragile residents relying on hospital/clinic services (care delays). Households dependent on uninterrupted water/wastewater and fuel distribution (public health, economic activity). Students/families during school outages (learning loss, childcare disruption). Small businesses and logistics operators dependent on continuous port/trucking systems (cash-flow shocks).
Responders	Responder operations may be impacted by failures in operating systems such as radios, internet services, medical tracking/reporting systems, and SCADA systems.
Continuity of Operations (including Continued Delivery of Services)	Payroll, finance, tax/revenue, 911/CAD interfaces, records, courts, records access, diagnostics, and scheduling services may be delayed or inaccessible.
Property, Facilities, and Infrastructure	Gate systems, building access systems, terminal operations, trucking appointment systems, train scheduling systems, and airport operating systems could be impacted.
Environment	Environmental consequences could arise from failures to control hazardous materials, radiological materials, biologicals, sewer systems and other elements that can become environmental threats if not properly managed and controlled.
Economic Condition of the Jurisdiction	Communications failures can impact government, business, and personal financial security. If daily operations are interrupted, the economy will be impacted.
Public Confidence in the Jurisdiction's Governance	Loss of public confidence is likely as a failure impacts personal data, finances, or ability to do business; additional loss of confidence and trust may result if response and recovery are not swift and effective.

3.16.6 Priority Risk Index

The following table summarizes communications failure risk for Macon-Bibb County. Given the nature of disruptions and the widespread impacts, risk and vulnerability are considered equal for the whole county.

Table 3-67. Communications Failure Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	3	4	4	3	3.3	H

3.17 Technological Hazard: Dam & Levee Failure

3.17.1 Hazard Description

A dam is a barrier constructed across a watercourse that stores, controls, or diverts water. Dams are usually constructed of earth, rock, concrete, or mine tailings. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet. One acre-foot is the volume of water that covers one acre of land to a depth of one foot. Dams can benefit farmland, provide recreation areas, generate electrical power, and help control erosion and flooding issues. A dam failure is the collapse or breach of a dam that causes downstream flooding. Dam failures may be caused by natural events, manmade events, or a combination. Due to the lack of advance warning, failures resulting from natural events, such as earthquakes or landslides, may be particularly severe. Prolonged rainfall and subsequent flooding are the most common causes of dam failure.

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

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

Levee failure is the breach, overtopping, or structural failure of a levee system designed to contain or control floodwaters. Levees are earthen or engineered barriers built along rivers, streams, or coastlines to reduce the risk of flooding; however, they can fail when water levels exceed design capacity, when erosion or seepage weakens the structure, or due to poor maintenance or structural defects.

Water released by a failed dam or levee generates tremendous energy and can cause a flood that is catastrophic to life and property. Dam failures are generally catastrophic if the structure is breached or significantly damaged. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major casualties

and loss of life could result, as well as water quality and health issues. Potentially catastrophic effects to roads, bridges, and homes are also of major concern. Associated water quality and health concerns could also be issues. Factors that influence the potential severity of a full or partial dam failure are the amount of water impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

Dam and levee failure can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures and breaches can take much longer to occur, from days to weeks, as a result of debris jams or the accumulation of melting snow.

Dam failures are of particular concern because the failure of a large dam has the potential to cause more death and destruction than the failure of any other manmade structure. This is because of the destructive power of the flood wave that would be released by the sudden collapse of a large dam. Dams are innately hazardous structures. Failure or poor operation can result in the release of the reservoir contents—this can include water, mine wastes, or agricultural refuse–causing negative impacts upstream or downstream or at locations far from the dam. Negative impacts of primary concern are loss of human life, property damage, lifeline disruption, and environmental damage.

3.17.2 Hazard Location

Of greatest concern in Macon-Bibb County is Lake Tobesofkee Dam, a 54-foot dam that holds 43,054 acre-feet of water in west Macon. This structure is the largest of Macon-Bibb County's Category I dams. Additionally, Macon is protected by the Macon Levee along the Ocmulgee River. Failure of this levee could have severe consequences for a large swath of southeast Macon. During the 1994 Tropical Alberto flood event, the levee was overtopped by water from the Ocmulgee River.

The threat of a dam failure in Macon-Bibb County could potentially lead to downstream flooding. This downstream flooding would have many of the same hazards as a flood event, but with the onset of such an event being much quicker than in a typical flood event. This concern applies directly to two dams that are not in Macon-Bibb County's jurisdiction but would directly impact Macon-Bibb County. These are Javors Lucas Lake on Town Creek in Jones County and Lloyd Shoals Dam at the Butts-Jasper County line on the Ocmulgee River. Javors Lucas Lake, which provides drinking water to Macon and the surrounding area, is a 95-foot earthen dam with over 26,000 acre-feet of water. A failure at this location would have significant impacts along the Ocmulgee River.

Lloyd Shoals Dam is a 100-foot concrete, hydroelectric dam on the Ocmulgee River and is owned and operated by Georgia Power. This dam created Jackson Lake at the confluence of the South, Yellow, and Alcovy Rivers which combine to form the Ocmulgee River. Construction on Lloyd Shoals dam began in 1908 and began commercial operation in 1911. Jackson Lake covers 4,750 acres and has 135 miles of shoreline. A failure at this dam location could have significant impact along the Ocmulgee River downstream from Lloyd Shoals, including Macon-Bibb County.

The following maps depict the locations of dams and levees in Macon-Bibb County, including government-owned and privately owned dams.

Figure 3-50. Dam Locations in Macon-Bibb County

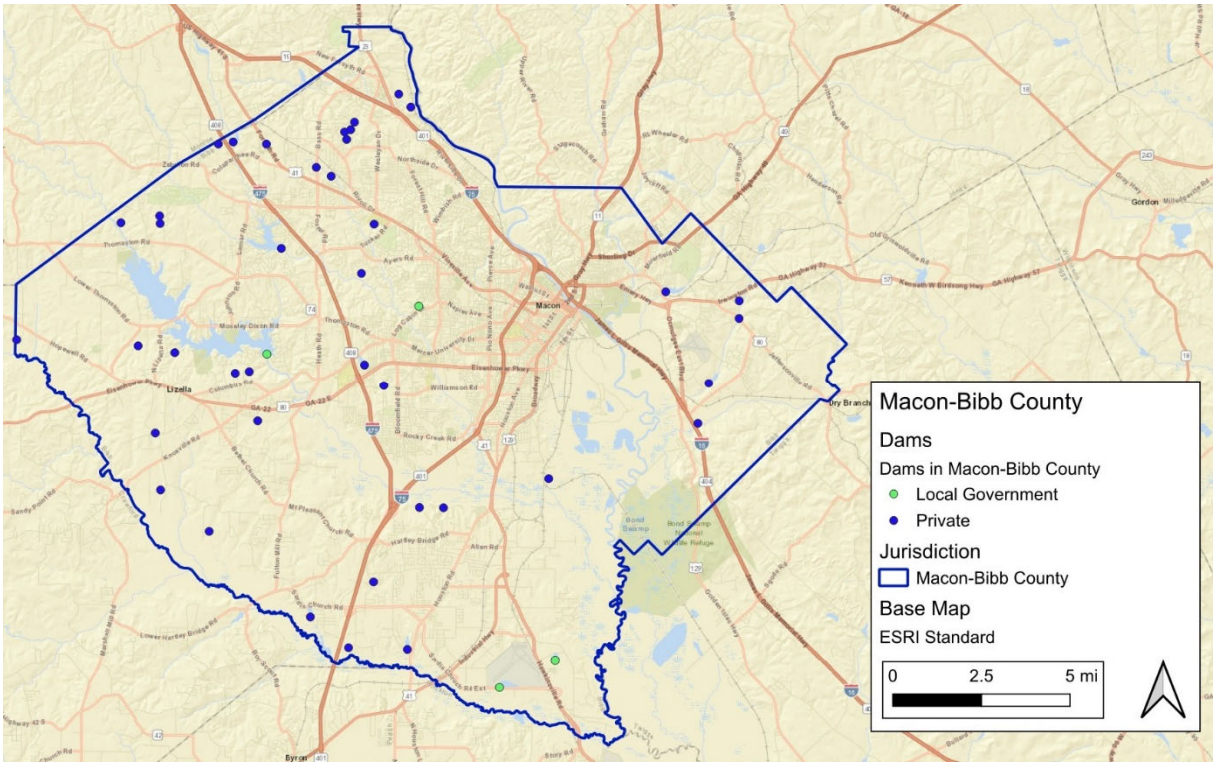
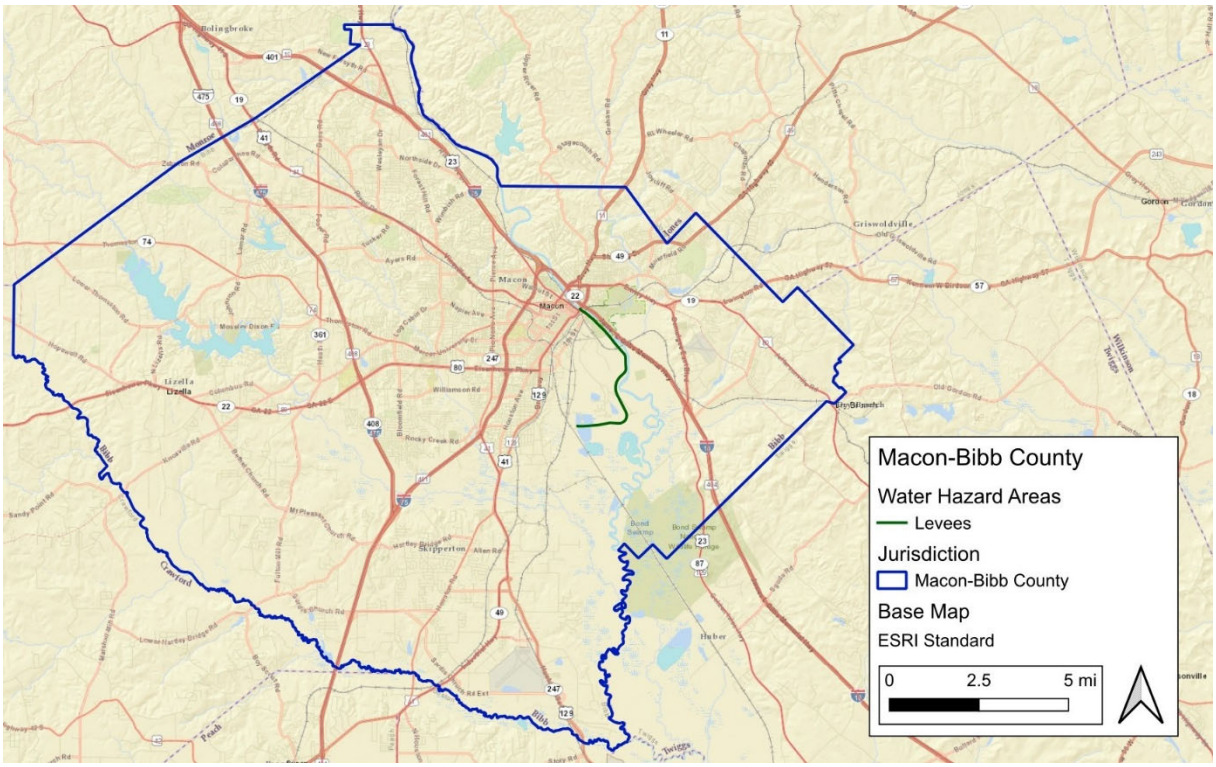


Figure 3-51. Levee Locations in Macon-Bibb County



Macon's levee, completed in 1950, begins at Martin Luther King Jr. Boulevard and spans more than five miles. It protects Central City Park, Macon-Bibb's landfill, one of Macon Water Authority's sewage treatment plants, and other industrial areas from the Ocmulgee River.[32]

The table below provides details for all 44 dams listed in the National Inventory of Dams database as of April 2026 that are located within Macon-Bibb County.

Table 3-68. Macon-Bibb County Dams

Dam Name	NID ID	Owner Name	Height (ft.)	Max Storage (acre-ft.)	Classification	EAP
Airport Lake Dam	GA03708	City of Macon	13	285	Undetermined	NR
Bateman Peach Orchard Pond Dam	GA03284	Macon - Bibb County Industrial Authority	8	83	Low	NR
Lake Tobesofkee Dam	GA00201	Bibb County Board of Commissioners	54	43054	High	Yes
Reynolds Lake Dam	GA00341	Reynolds, Carl W.	23	100	Low	NR

[32] https://www.13wmaz.com/article/news/13investigates-the-state-of-macons-levee/93-05f0d8c9-fe7a-4e77-9a65-acea467007ec. Retrieved April 8, 2026.

Dam Name	NID ID	Owner Name	Height (ft.)	Max Storage (acre-ft.)	Classification	EAP
Gibson Lake Dam	GA00208	Casey, Robert Todd	17	237	Low	NR
Newberry Lake Dam	GA03283	Newberry, M. C.	11	86	Low	NR
Lawhorn Lake Dam	GA00501	Lawhorn, Daniel	16	76	Low	NR
Daughtery Lake Dam	GA03001	Debra Bowen	17	113	Low	NR
Tobee Creek Subdivision Lake Dam	GA06009	Parker, Wendell	27	247	Low	NR
Evans Lake Dam	GA04342	Evans Lake Dam	22	86	Low	NR
Rowell Lake Dam	GA03006	Carter, Judy Lynn Rowell	23	219	Low	NR
Mcquillan & Yamnitz Lake Dam	GA00378	Webb, Robert	50	89	Undetermined	NR
Kersey Lake Dam	GA05824	Kersey, Dana P.	27	62	Low	NR
Rivoli Lake Dam #4	GA06079	Rivoli Downs Homeowners Etal	20	65	Low	NR
Edwards Lake Dam	GA00204	Prentiss, Linda M.	12	111	Low	NR
Fowler Lake Dam	GA05278	Harmon, Paul	32	96	Low	NR
Sawyer Lake Dam	GA00206	Peacock Jr., Edward	14	74	Low	NR
Rivoli Lake Dam #3	GA00518	Rivoli Lake Dam #3	21	59	Low	NR
North Lakewoods Lake Dam	GA05277	Reaves, Kevin; Sledge, Joseph & Laurie	27	103	Low	NR
Rivoli Lake Dam #1	GA03003	Rivoli Downs Lake Etal	24	230	Low	NR
Rivoli Lake Dam #2	GA03993	Rivoli Downs Homeowners Etal	23	82	Low	NR
Clay Lake Dam #2 (Upper)	GA02998	Thomaston Road Properties, Inc.	26	161	Low	NR
VFW Lake Dam	GA00202	Horne, James, Quartermaster	31	330	High	No
Clay Lake Dam #1 (Lower)	GA02631	Thomaston Road Properties, Inc.	25	173	Low	NR
Stone Creek Dam (East)	GA03991	Dunwoody Properties, Inc Et Al	10	179	Low	NR

Dam Name	NID ID	Owner Name	Height (ft.)	Max Storage (acre-ft.)	Classification	EAP
Bankston Lake Dam	GA00209	Horne, Billy C., Bankston Lake Rd, Macon, GA 31216	22	100	Low	NR
Lakeside Dam	GA00207	Lakeside Properties LLC; Norfolk Southern Corporation	45	2118	High	Yes
Nowell Lake Dam	GA03992	L. C. Nowell Estate, Equity Trust Company as Custol.	17	151	Low	NR
Yarbrough Lake Dam	GA06008	Yarbrough, C.N. Mr.	26	80	Low	NR
James Stokes Lake Dam	GA03002	Stokes Jr., James A.	23	160	Low	NR
Ga Power Plant Arkwright Ash Pond #2	GA03968	Southern Company Services	34	79	Undetermined	NR
Ga Power Plant Arkwright Ash Pond #3	GA03967	Southern Company Services	32	150	Low	NR
Margaret Lamon Lake Dam	GA00213	Clearwater HoA	24	437	Low	NR
Barnes Dam	GA05737	Walter Oswald	17	50	Low	No
Stokes Lake Dam	GA03994	Stokes, E. L.	15	86	Undetermined	NR
Hardy Lake Dam	GA00210	OGCC Investments LLC, 111 Robins Ridge, Fitzgerald, GA 31750	16	53.06	Low	NR
Lake Wildwood Dam	GA00212	Lake Wildwood Association	32	3420	High	Yes
J.R. Gibson Lake Dam	GA00211	J.R. Gibson Lake Dam	18	240	Low	NR
Frank C. Amerson Jr. Lake Dam	GA04343	Amerson, Carl	25	208	High	Yes
Wesleyan College Lake Dam	GA03004	Wesleyan College	29	77	Low	NR
Sun Valley Lake Dam	GA04682	Rader, C. R.	22	67	Low	NR
Durr Lake Dam	GA04340	City of Macon	21	56.3	Low	NR

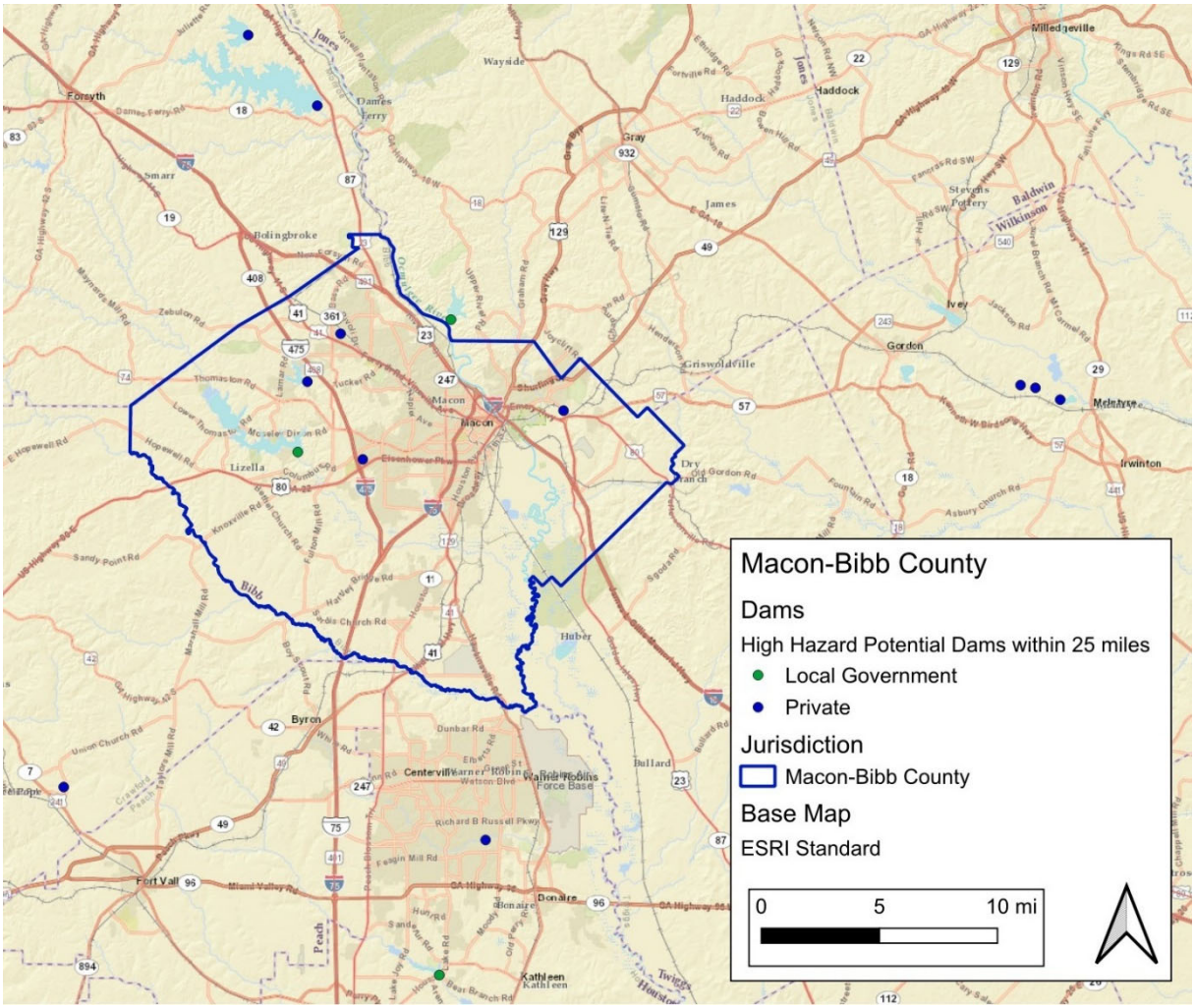
Dam Name	NID ID	Owner Name	Height (ft.)	Max Storage (acre-ft.)	Classification	EAP
Crystal Lake Dam	GA03005	RS Global Corporation, LLC	22	54.4	Low	NR
Graphic Packaging South Ash Pond	GA07235	Graphic Packaging International, Inc.	22	131.5	Undetermined	NR

3.17.3 Hazard Extent

The National Inventory of Dams ranks dams as high, significant, low, or undetermined. The NID lists 44 dams in Macon-Bibb County with varying ratings. Macon-Bibb County has five dams that are classified as high, zero classified as significant, and 34 classified as low. All five of these high-hazard dams would impact downstream areas in the county if a dam breach occurred. There are also four additional dams classified as high that are located upstream of Macon whose waters could reach Macon in the event of a failure. These nine dams are identified in the list below and marked on the following map.

- Frank C. Amerson Jr. Lake Dam, Macon-Bibb County
- Lake Wildwood Dam, Macon-Bibb County
- Lake Tobesofkee Dam, Macon-Bibb County
- VFW Lake Dam, Macon-Bibb County
- Lakeside Dam, Macon-Bibb County
- Town Creek Reservoir Dam, Jones County
- Plant Scherer Main Storage Pond Dam, Monroe County
- Plant Scherer Ash Pond Dam, Monroe County
- Lloyd Shoals, Jasper County

Figure 3-52. HHPD within 25 Miles of Macon-Bibb County



Each state has definitions and methods to determine the hazard potential of a dam. In Georgia, dams are recognized by the state if they are 25 feet or more in height or impound 100 acre-feet or more. The height of a dam is measured from the highest point on the crest of the dam to the lowest point on the downstream toe, and the storage capacity is the volume impounded at the elevation of the highest point on the crest of the dam. A dam is regulated only if it is deemed that its failure would result in loss of human life.

The Georgia Safe Dams Program, an entity of the Georgia Department of Natural Resources' Environmental Protection Division, provides an inventory of all High Hazard Potential Dams (Category I) in the state. Only two dams are eligible for this classification in Macon-Bibb County as of 2022. These dams are Lake Wildwood Dam and Lakeside Dam.

Georgia Safe Dams Program engineers determine the "hazard potential" of a dam based on the consequences of failure, meaning the probable damage in terms of loss of human life that would occur if the structure failed. Dams are assigned one of two categories based on their hazard potential:

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

Category I dams are then further classified by their size with corresponding minimum spillway design requirements expressed in terms of probable maximum precipitation (PMP), as follows:

- Small: 25% PMP
- Medium: 33.3% PMP
- Large: 50% PMP
- Very Large: 100% PMP

Category I dams are assessed bi-annually by Georgia Environmental Protection Division staff and quarterly by their owners to ensure safety and compliance with regulations. Category II dams are reevaluated every five years for any hazard potential. The Safe Dams Program notes that there is a significant backlog in work, which means many Category II and proposed dams throughout the state need further study. Given the lack of high hazard dams in the planning area, potential impact is considered limited. It is possible that dams in the planning area present greater risk since they were last evaluated due to downstream development and increased exposure, but without a reevaluation of these dams it is difficult to draw any conclusions.

3.17.4 Historical Occurrences

On March 28, 2023, Lake Tchukolaho Dam in Wilkinson County, Georgia failed shortly after reconstruction after a previous failure on May 1, 2020. This dam is located only 23 miles away from Macon, although no impacts were noted downstream.[33]

Macon's levee is located on the western floodplain of the Ocmulgee River, south of Macon. According to the U.S. Army Corps of Engineers, the levee is "minimally acceptable" and not as strong or stable as it was originally designed to be.[34] The levee itself is also not as high as it needs to be to withstand the 100-year flood, which was evident during the Great Flood of 1994 as a result of Tropical Storm Alberto. The levee overtopped during the flooding, which swept away bridges and roads, flooded homes and businesses, and shut down the city's water supply for three weeks.[35]

There have been no other publicly documented dam or levee failures in Macon-Bibb County.

[33] https://damsafety.org/incidents. Retrieved April 8, 2026.

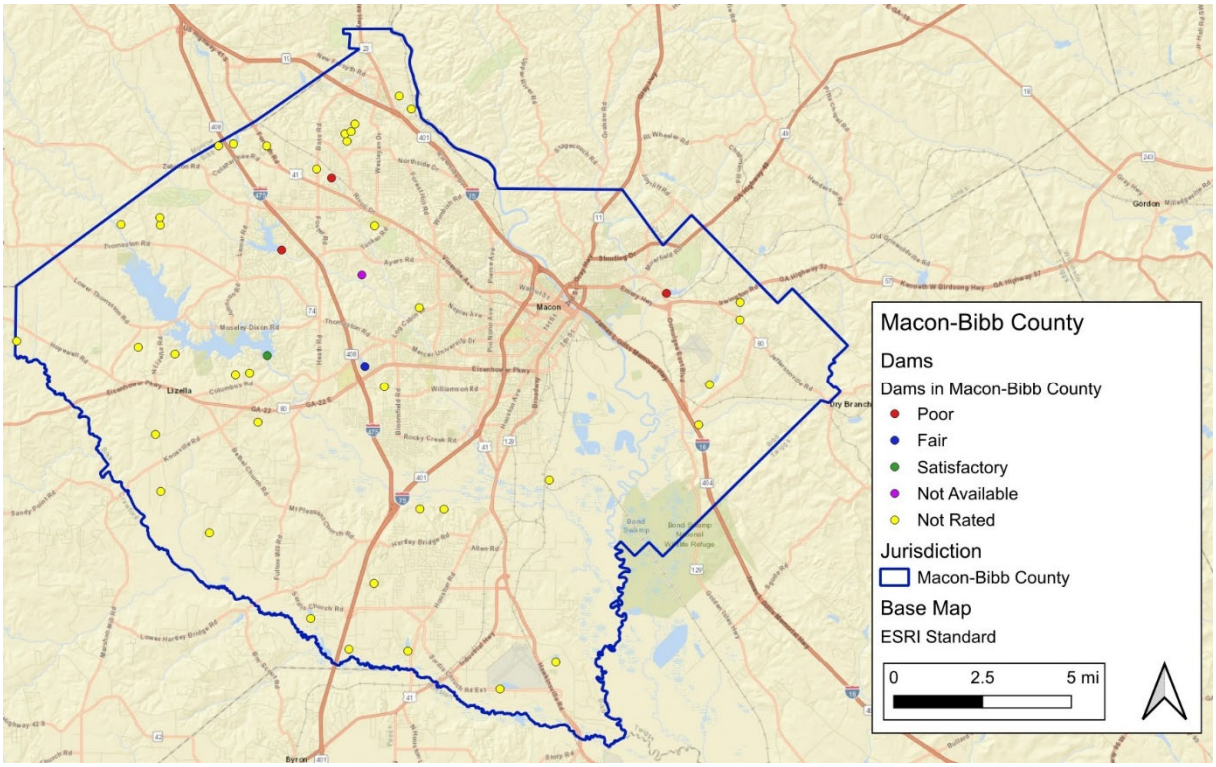
[34] https://www.13wmaz.com/article/news/13investigates-the-state-of-macons-levee/93-05f0d8c9-fe7a-4e77-9a65-acea467007ec. Retrieved April 8, 2026.

[35] https://maconmelody.com/the-flood-that-changed-macon-30-years-later/. Retrieved April 8, 2026.

Probability of Future Occurrence

There are five high hazard dams within Macon-Bibb County that could impact the county, making the probability of future flooding from a dam or levee failure possible. Regular monitoring is necessary to prevent these events from occurring. With heavy rain events becoming more frequent and intense, conditions conducive to dam failure may occur more frequently, as well. Several dams are already in poor condition and would be more susceptible to failure, as seen in the map below.

Figure 3-53. Macon-Bibb County Dams by Condition



In regard to the Macon levee specifically, the levee can no longer support a 100-year flood event, meaning there is a one to two percent chance the levee could overtop given a 1% flood.

3.17.5 Vulnerability Assessment

No data was available on dam inundation areas in order to estimate potential losses that could result from dam failure. Therefore, this vulnerability assessment provides a qualitative assessment of the potential impacts of dam failure.

People

A person's immediate vulnerability to a dam failure is directly associated with the person's distance downstream of the dam as well as proximity to the stream carrying the floodwater from the failure. For dams that have an Emergency Action Plan (EAP), the vulnerability of loss of life for persons in their homes or on their property may be mitigated by following the EAP

evacuation procedures; however, the displaced persons may still incur sheltering costs. For persons located on the river (e.g., for recreation) the vulnerability of loss of life is significant.

People are also vulnerable to the loss of use of a reservoir upstream of a dam following failure. Several uses are minor, such as aesthetics or recreational use. However, some reservoirs serve as drinking water supplies and their loss could disrupt the drinking water supply and present a public health problem.

The potentially devastating flooding that occurs with a dam or levee break could lead to injury and death. The warning time for a dam failure is often very small—sometime only seconds—giving no time for people located downstream to make it to higher ground.

Property

Given the current dam inventory and historic data, a dam breach is possible in the future. However, regular monitoring can help mitigate or prevent failures if appropriate actions are taken when it is determined a failure may be likely.

Vulnerability of the built environment includes damage to the dam itself and any manmade feature located within the inundation area caused by the dam failure. A detailed assessment of exposure to dam failure could not be completed because no data was available on dam inundation areas.

Downstream of a dam or levee, vulnerability includes potential damage to homes, personal property, commercial buildings and property, and government owned buildings and property; destruction of bridge or culvert crossings; weakening of bridge supports through scour; and damage or destruction of public or private infrastructure that crosses the stream, such as water and sewer lines, gas lines, and power lines. Water dependent structures on a reservoir upstream of the dam, such as docks/piers, floating structures, or water intake structures, may be damaged by the rapid reduction in water level during the failure.

Repetitive Loss Properties: A repetitive loss property is a property for which two or more flood insurance claims of more than $1,000 have been paid by the NFIP within any 10-year period since 1978. An analysis of repetitive loss was completed to examine repetitive losses within the planning area.

There are 14 NFIP repetitive loss properties in Macon-Bibb County. Three properties in Macon-Bibb County are severe repetitive loss properties. NFIP repetitive loss structures reflect areas of recurring flood risk and may overlap with downstream areas affected by privately owned dams. While these structures are not directly associated with dam failure events, they help identify locations that could experience increased impacts if a dam were to fail.

Environment

Aquatic species within the reservoir may be displaced or destroyed by a dam or levee failure. The velocity of the flood wave will likely damage or destroy riparian and instream vegetation and negatively affect wetland function. The flood wave will likely cause erosion within and adjacent to the stream. Deposition of eroded deposits may choke instream habitat or disrupt riparian areas. Sediments within the reservoir bottom and any low oxygen water from within

the reservoir may be dispersed, potentially causing fish kills or releasing heavy metals found in the reservoir sediment layers.

Land Use & Development Trends

As land improvements, rezoning, and development occur downstream of a Category II dam, the overall exposure to dam failure may result in a need to increase the rating of that dam to Category I, which would require more stringent maintenance and reporting criteria. However, given that Category II dams are only inspected every five years and that there is a delay between development occurring and a Category change being made, it is possible that some Category I dams are currently unrecognized as such and that actual exposure to high hazard dam failure has increased. Changes in development could continue this trend. In both cases, risk is greater during the period where exposure has increased, but additional reporting and maintenance criteria have not been enacted. Communication between Macon-Bibb County, local dam owners, and the Georgia Safe Dams Program is vital to understanding the current conditions of HHPDs and other dams so critical maintenance concerns do not go unnoticed. It is also important to maintain and regularly update EAPs and for the county to remain aware of these updates.

Macon-Bibb County participates in the National Flood Insurance Program (NFIP) and follows the program's guidelines to ensure future development is carried out in the best interests of the public. The county (CID No. 130680B) first entered the NFIP on August 26, 2018. However, this is after the consolidation of the City of Macon and Bibb County. Both the City of Macon and Bibb County have been active NFIP participants since 1979. According to the NFIP guidelines, the county has executed a Flood Damage Prevention Ordinance. This ordinance attempts to minimize the loss of human life and health as well as minimize public and private property losses due to flooding.

Consequence Analysis

The following table summarizes the potential negative consequences of dam and levee failure.

Table 3-69. Consequence Analysis, Dam and Levee Failure

Category	Consequences
Public	Localized impact expected to be severe for inundation area and moderate to light for other adversely affected areas.
Responders	Localized impact expected to limit damage to personnel in the inundation area at the time of the incident.
Continuity of Operations (including Continued Delivery of Services)	Damage to facilities/personnel in the area of the incident may require temporary relocation of some operations. Localized disruption of roads and/or utilities may postpone delivery of some services. Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may reduce deliveries.
Property, Facilities, and Infrastructure	Localized impact to facilities and infrastructure in the inundation area of the incident. Some severe damage possible.
Environment	Localized impact expected to be severe for inundation areas and moderate to light for other adversely affected areas. Consequences

Category	Consequences
	include erosion, water quality degradation, wildlife displacement or destruction, and habitat destruction.
Economic Condition of the Jurisdiction	Local economy and finances adversely affected, possibly for an extended period of time, depending on damage and length of investigation.
Public Confidence in the Jurisdiction's Governance	Localized impact expected to primarily adversely affect only the dam owner and local entities.

3.17.6 Priority Risk Index

The following table summarizes dam and levee failure hazard risk for Macon-Bibb County. Warning time and duration are inherent to the hazard and remain constant across the county. Spatial extent of any dam failure will be negligible relative to the planning area. There are five high hazard potential dams in the county, so the county was assigned a probability rating of possible and an impact rating of critical.

Table 3-70. Dam Failure Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	2	3	3	4	2	2.7	H

3.18 Technological Hazard: Hazardous Materials Incident

3.18.1 Hazard Description

A hazardous substance is any substance that may cause harm to persons, property, or the environment when released to soil, water, or air. Chemicals are manufactured and used in increasing types and quantities. Each year over 1,000 new synthetic chemicals are introduced and as many as 500,000 products pose physical or health hazards and can be defined as "hazardous chemicals." The U.S. Department of Transportation (DOT) categorizes hazardous substances into nine major hazard classes. A hazard class is a group of materials that share a common major hazardous property, i.e., radioactivity, flammability, etc. These hazard classes include:

- Class 1—Explosives
- Class 2—Compressed Gases
- Class 3—Flammable Liquids
- Class 4—Flammable Solids; Spontaneously Combustible Materials; Dangers When Wet Materials/Water-Reactive Substances
- Class 5—Oxidizing Substances and Organic Peroxides
- Class 6—Toxic Substances and Infectious Substances
- Class 7—Radioactive Materials
- Class 8—Corrosives
- Class 9—Miscellaneous Hazardous Materials/Products, Substances, or Organisms

Hazardous materials are so widely used, transported, and stored, often in large quantities, that a spill or other event could happen nearly anywhere in the U.S. The effects may involve a local site or many square miles. Health problems may be immediate, such as corrosive effects on skin and lungs, or be gradual, such as the development of cancer from a carcinogen. Damage to property could range from immediate destruction by explosion to permanent contamination by a persistent hazardous material. Accidents involving the transportation of hazardous materials could be just as catastrophic as those associated with stored chemicals, possibly more so, since the location of a transportation accident is not predictable.

Certain incidents involving hazardous materials, whether in transit, stored, in use, or produced, are reported to the federally established National Response Center (NRC). Staffed 24 hours a day by U.S. Coast Guard officers and marine science technicians, the NRC is the designated federal point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the U.S. and its territories. Reports to the NRC activate the National Contingency Plan and the federal government's response capabilities. The NRC maintains reports of all releases and spills in a national database. In 2024, it logged 22,966 incidents nationwide.

Eight of the most common hazardous materials that first responders, HazMat teams, and perhaps the NRC's On-Scene Coordinator are likely to encounter in the event of an industrial accident or transportation-related incident are: carbon dioxide, chlorine, fireworks, gasoline, argon, sulfuric acid, propylene, and liquified petroleum gas (LPG). The "List of Lists:

Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 112(r) of the Clean Air Act" is available from the U.S. Environmental Protection Agency (EPA).

Fixed Hazardous Materials Incident

A fixed hazardous materials incident is the release of chemical substances or mixtures during production or handling at a fixed facility. Hazardous materials releases can be accidental or intentional.

Fixed facilities with hazardous materials can include industrial, commercial, and federal facilities. The Emergency Planning and Community Right-to-Know Act (EPCRA) created several methods for tracking facilities with hazardous materials. Section 313 of the EPCRA created the Toxics Release Inventory (TRI). The TRI tracks toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. TRI data is made publicly available by the U.S. Environmental Protection Agency (EPA). Section 312 of the EPCRA mandated additional reporting of hazard materials by businesses and organizations with quantities of hazardous materials over a certain threshold. Tier II reports must be submitted annually, and help local fire departments, Local Emergency Planning Committees (LEPC), and State Emergency Response Commissions (SERCs) plan for and respond to chemical emergencies. Tier II facility reports are identified and mapped as part of the county's Emergency Operations Plans. Figure 3-54 provides the locations of Tier II facilities in Macon-Bibb County.

Transportation Hazardous Materials Incident

A transportation hazardous materials incident is the accidental release of chemical substances or mixtures during transport. Transportation hazardous materials incidents in Macon-Bibb County can occur during railroad, highway, pipeline, or air transport. Railroad and highway accidents involving hazardous materials pose great potential for public exposures. Both nearby populations and motorists can be impacted and become exposed by accidents and releases. Trains carry larger quantities and mixed quantities of hazardous materials, which can have a greater impact on populations and the environment. Trucks carry hazardous materials on busy streets and highways, often in close proximity to residences and essential facilities. Pipelines can pose a risk if structural failure occurs. If airplanes carrying hazardous cargo crash, or otherwise leak contaminated cargo, populations and the environment in the impacted area can become exposed. Figures 3-55 and 3-56 show the location of railroads and major roadways that transport hazardous materials in Macon-Bibb County.

Pipeline Incident

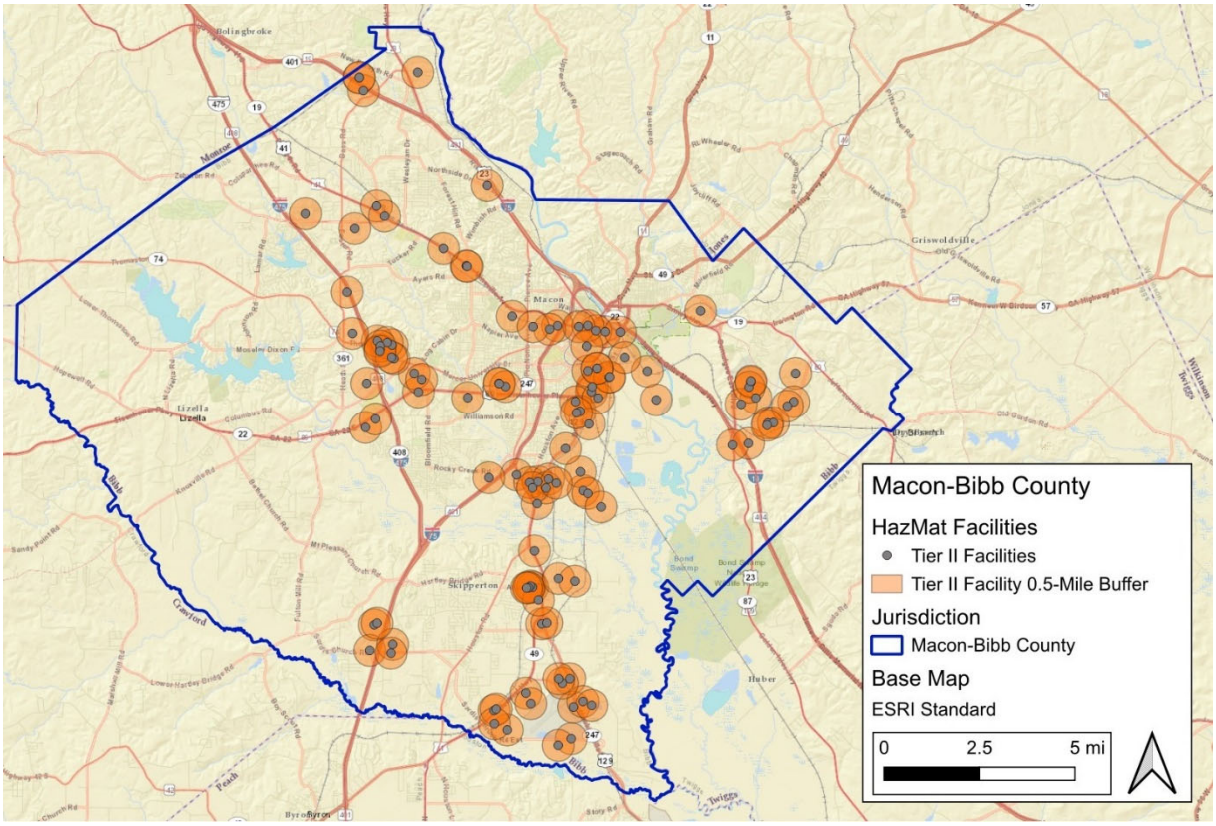
A pipeline transportation incident occurs when a break in a pipeline creates the potential for an explosion or leak of a dangerous substance (oil, gas, etc.) possibly requiring evacuation. An underground pipeline incident can be caused by environmental disruption, accidental damage, or sabotage. Incidents can range from a small, slow leak to a large rupture where an explosion is possible. Inspection and maintenance of the pipeline system along with marked gas line locations and an early warning and response procedure can lessen the risk to those near the

pipelines. The U.S. Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) maintains an inventory of the location of all gas transmission and hazardous liquid pipelines as well as liquid natural gas plants and hazardous liquid breakout tanks. Figure 3-57 depicts the location of all pipelines in the county.

3.18.2 Hazard Location

The locations of Tier II facilities in Macon-Bibb County are depicted in the map below along with a half mile buffer zone around each facility to show the potential danger zone should a hazardous material incident occur. In Macon-Bibb County, there are 12,976 parcels and 30,847.58 acres located within half a mile of Tier II facilities.

Figure 3-54. Tier II Facilities with Buffer, Macon-Bibb County



Regarding the transport of hazardous materials, there are many avenues for doing so across Macon-Bibb County. Passing through Macon-Bibb County are Interstates 16, 475, and 75, U.S. Highways 23, 41, 80, and 129, and Georgia Highways 11, 19, 22, 49, 74, 87, 247, and 540 (Fall Line Freeway). Of the greatest concern to the Macon-Bibb County Hazard Mitigation Plan Update Committee are Interstates 16 and 75, which serve as major transportation routes connecting the Port of Savannah to Metro Atlanta. Mobile vehicle incidents account for nearly 40% of hazardous materials incidents of a reportable amount in Macon-Bibb County.

Hazardous materials releases can also be the result of railway or fixed facility incidents. Fixed facilities continue to be an increasing concern due to Macon-Bibb County's large industrial

footprint. 43% of reported hazardous materials incidents have occurred at fixed facilities. Equipment failure has been the most cited cause of hazardous materials releases in Macon-Bibb County (33%). Overall trends show a steady ebb-and-flow to the number of reported hazardous materials releases since 1990 with no discernable increase or decrease.

Railroads do not report hazmat cargo documents to a central government agency in advance of a shipment. Instead, they must maintain electronic and physical documentation and provide it to the appropriate parties including their own crews and emergency responders before and during transport. The Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Railroad Administration (FRA) oversee and enforce these requirements. Following are two maps showing county boundaries and the major transportation routes and railroads in Macon-Bibb County with half mile buffer zones for major roadways and active railroads. When a half mile buffer zone is added around each route and railroad, the number of homes, mobile homes, and facilities within those buffers can be calculated. In Macon-Bibb County, there are 34,670 parcels and 68,409.15 acres located within half a mile of major roads; and 15,623 parcels and 37,814.45 acres located within half a mile of railroads. These are the areas that may be at risk should a hazardous material incident occur on one of these major roads or railroads.

Figure 3-55. Roadway Infrastructure with Buffer, Macon-Bibb County

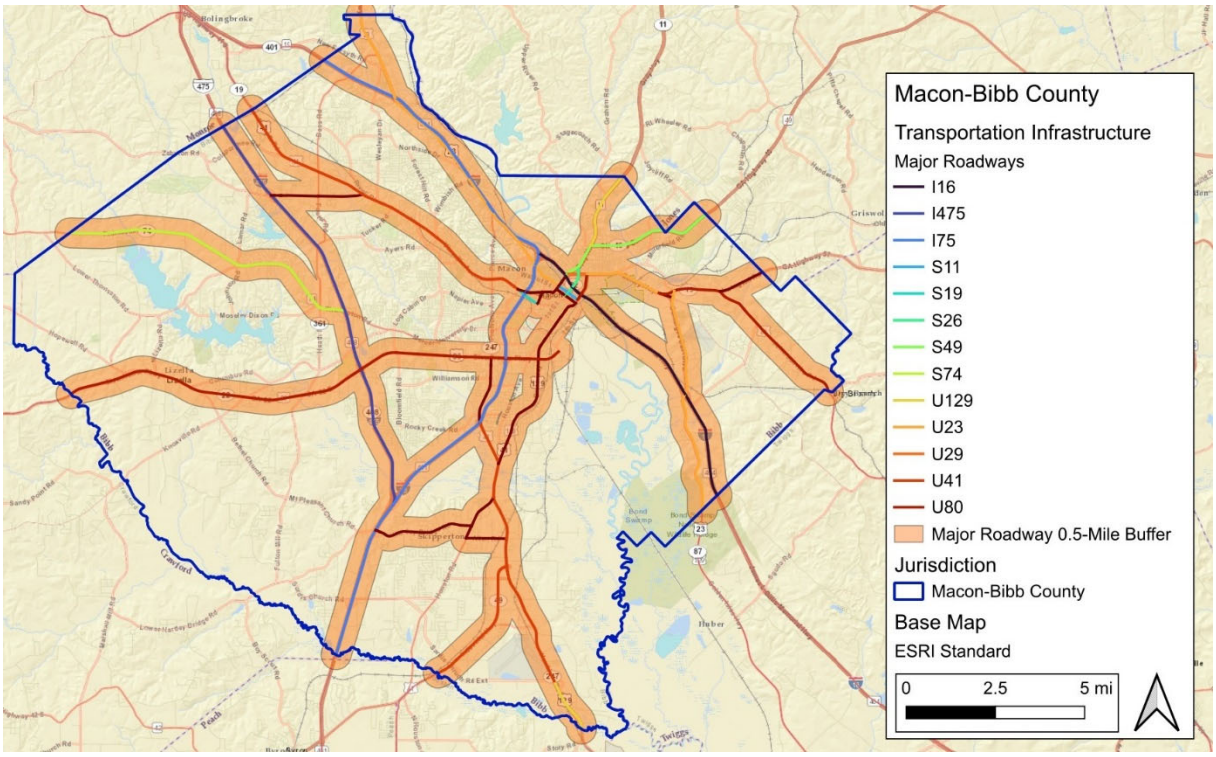
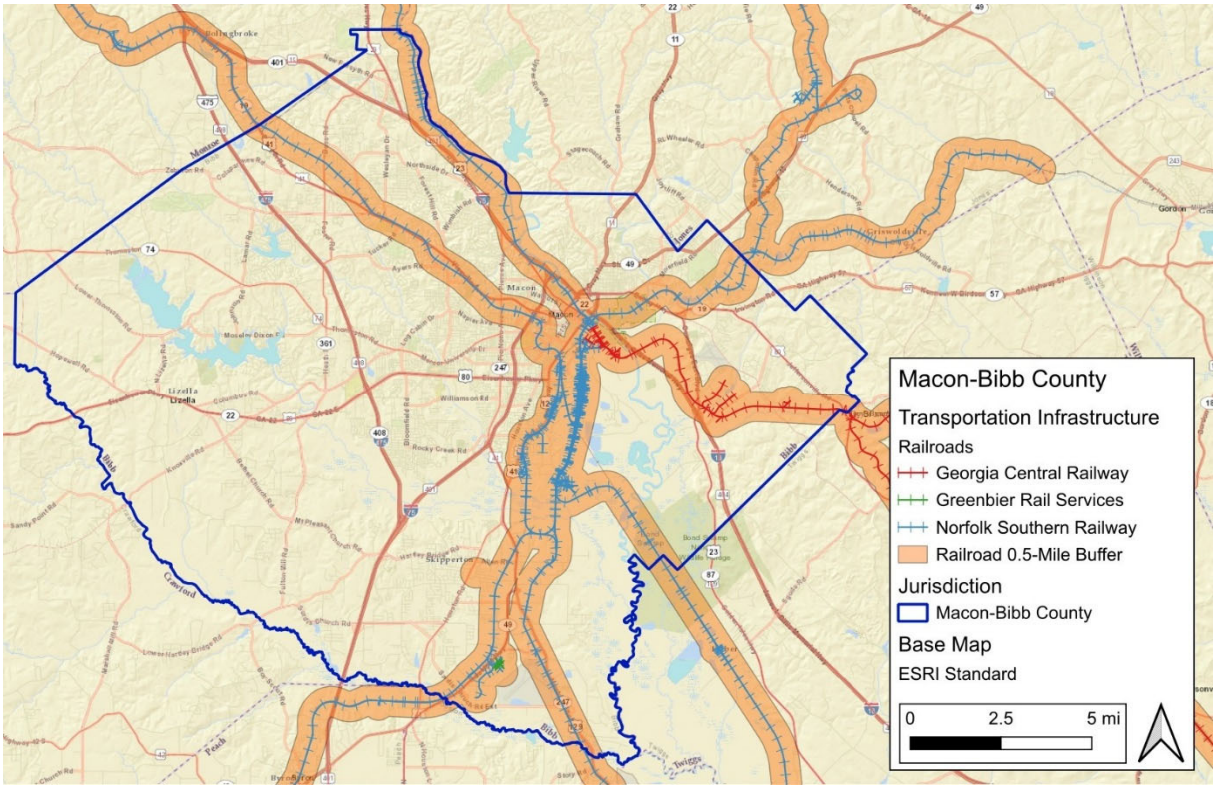


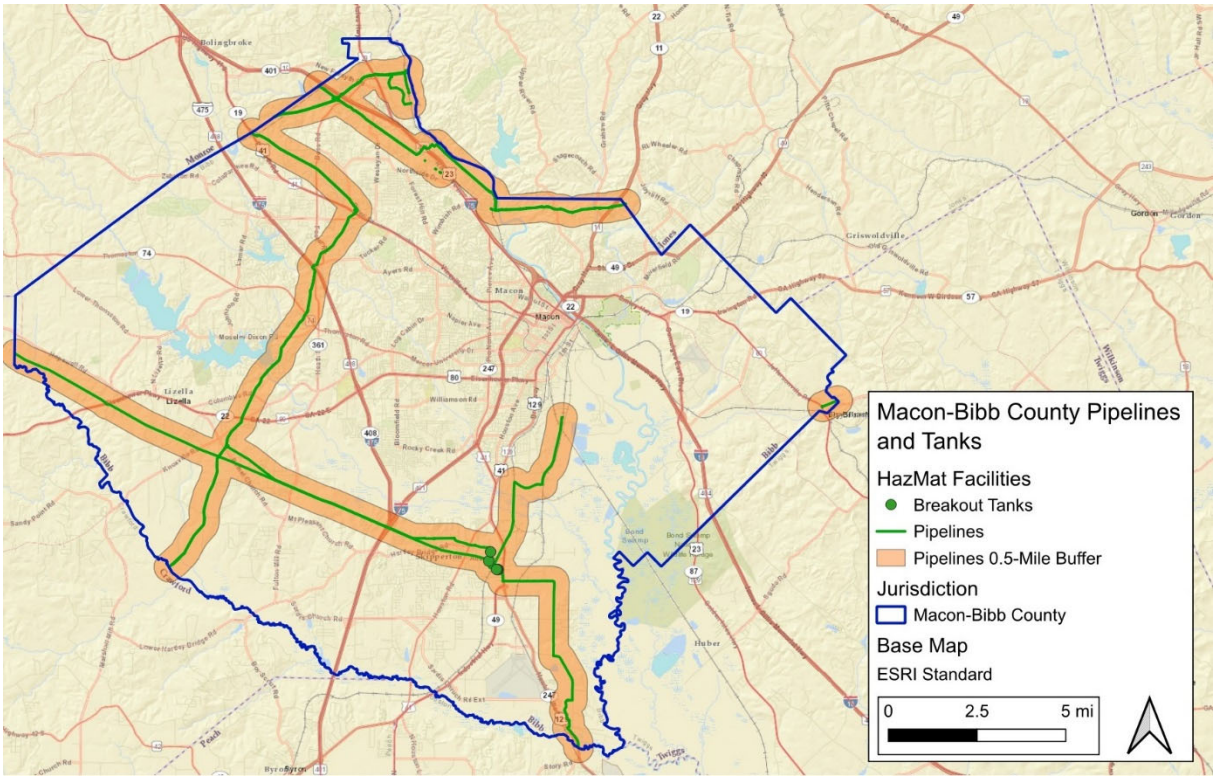
Figure 3-56. Railroad Infrastructure with Buffer, Macon-Bibb County



According to the National Pipeline Mapping System, Macon-Bibb County has several mapped gas and hazardous liquid pipelines, which can be seen in the map below along with a half-mile buffer around each pipeline.[36] In Macon-Bibb County, there are 8,700 parcels and 37,513.84 acres located within half a mile of pipelines and breakout tanks.

[36] https://www.npms.phmsa.dot.gov/. Retrieved April 21, 2026.

Figure 3-57. Pipelines and Breakout Tanks with Buffer, Macon-Bibb County



3.18.3 Hazard Extent

According to 2023 Toxics Release Inventory (TRI) data (2014-2023), of the nation's 30,054 toxics-releasing facilities, 994 are located in the state of Georgia. In fact, the state ranks number 22 out of 56 states/territories based on total releases per square mile.

Adding to the risk of a HazMat incident occurring within Macon-Bibb County is the presence of illegal drugs. Home-based labs producing methamphetamines are of particular concern as they involve the mixing of extremely dangerous chemicals. Georgia has the unwanted record of having one of the biggest meth busts on American soil after five men were arrested in fall 2017 for trafficking 30 kilos of the drug, which had a street value of more than $3 million.

Both the Drug Enforcement Administration (DEA) and Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) maintain comprehensive records (now accessible for public view) of the homes and locations of known and closed methamphetamine labs either flagged for mitigation, demolition, or other remediation strategies.

Diamond-shaped NFPA 704 signs ranking the health, fire, and instability hazards on a numerical scale from zero (least) to four (greatest) along with any special hazards are usually required to be posted on chemical storage buildings, tanks, and other facilities. Similar NFPA 704 labels may also be required on individual containers stored and/or used inside facilities.

The magnitude of a hazardous materials incident can be defined by the material type, the amount released, and the location of the release. The U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration (PHMSA), which records hazardous material incidents across the country, defines a "serious incident" as a hazardous materials incident that involves:

- a fatality or major injury caused by the release of a hazardous material,
- the evacuation of 25 or more persons as a result of release of a hazardous material or exposure to fire,
- a release or exposure to fire which results in the closure of a major transportation artery,
- the alteration of an aircraft flight plan or operation,
- the release of radioactive materials from Type B packaging,
- the release of over 11.9 galls or 88.2 pounds of a severe marine pollutant, or
- the release of a bulk quantity (over 199 gallons or 882 pounds) of a hazardous material.

Prior to 2002, however, a hazardous materials "serious incident" was defined as follows:

- a fatality or major injury due to a hazardous material
- closure of a major transportation artery or facility or evacuation of six or more persons due to the presence of hazardous material, or
- a vehicle accident or derailment resulting in the release of a hazardous material.

3.18.4 Historical Occurrences

The PHMSA publishes yearly incident summary reports and 10-year incident summary reports of all reported releases of hazardous materials during transportation, including highways, railways, waterways, and air. 895 incidents were recorded in Georgia in 2025 (875 highway, 15 air, and 5 railway). The number of incidents per year in Georgia since 2016 (the earliest year currently available) is shown in the table below.

Table 3-71. PHMSA Yearly Incidents, Georgia

Incident Year	Incident Count
2016	684
2017	671
2018	688
2019	897
2020	671
2021	808
2022	1,024
2023	916
2024	974
2025	895

Source: PHMSA, 2016-2025

There are dozens of Tier II facilities located in Macon-Bibb County. Many of them are clustered along Hwys 74, 41, and 129. Given the presence of many TRI facilities in Macon-Bibb County

and the continuous storage, production, use, and transportation of hazardous materials across its main thoroughfares, all of Macon-Bibb County is at risk of a HazMat incident.

The National Response Center (NRC) maintains HazMat data from 1990 to present day. For the purposes of this plan, incidents recorded from January 1, 2005 to December, 31 2025 in Macon-Bibb County are included in the table below. The NRC reports all accidents with the potential for a hazardous material release even if one did not occur.[37]

Table 3-72. NRC Incident Report, 2005-2025

Date	Location	Type of Incident	Incident Cause	Description
1/5/2005 10:00	Macon	fixed	unknown	Caller stated that company is releasing unknown material and chemicals into the air and white ash is covering all the cars in the used car lot.
2/7/2005 8:00	Macon	fixed	equipment failure	A transformer released material onto the ground due to failed equipment. material entered a storm drain.
3/4/2005 7:45	Macon	railroad	unknown	During an inspection, slosh was discovered coming from the top of the railcar onto the ballast and ground due to unknown causes.
4/5/2005 22:55	Macon	railroad	equipment failure	The material released from a tank car due to a ruptured disk.
4/18/2005 17:20	Macon	railroad	unknown	Caller stated there was a release of materials from 2 rail cars due to unknown causes.
4/20/2005 8:30	Macon	fixed	equipment failure	The caller stated that a quarter inch line going to a seal on a pump started leaking.
4/30/2005 13:30	Macon	railroad	unknown	Engine had an oil overflow due to unknown causes releasing materials onto the ballast.
5/15/2005 6:30	Macon	railroad	unknown	Caller reporting a car was discovered leaking material in the yard
6/15/2005 8:00	Macon	storage tank	equipment failure	30-50 gallons of high sulfur diesel leaked out of a 6" pipe connected to tank #4 due to equipment failure and released onto the ground.
6/23/2005 11:00	Macon	railroad	equipment failure	A bad valve gasket on top of a rail car caused material to release onto the ground and ballast.
7/6/2005 0:05	Macon	railroad	unknown	The caller is stating that during a coupling operation they had a spill of sodium hydroxide solution on to the rail ballast.
9/15/2005 9:00	Macon	railroad	equipment failure	Hydraulic oil spilled onto the rail ballast from a leaking hydraulic line on the rail tracks.
9/18/2005 12:25	Macon	fixed	other	Reporting an employee fatality (track employee collapsed). No equipment involved.
10/6/2005 15:00	Macon	storage tank	equipment failure	Anhydrous ammonia released from a storage tank due to a hole in the tank.

[37] https://nrc.uscg.mil/. Retrieved April 10, 2026.

Date	Location	Type of Incident	Incident Cause	Description
1/27/2006 22:25	Macon	railroad	derailment	The caller stated that a locomotive derailed causing diesel to leak from the fuel tank
2/2/2006 13:15	Macon	mobile	other	Due to a motor vehicle on I-75 a saddle tank on a tractor trailer ruptured and released diesel onto the ground and into the Ocmulgee river.
2/12/2006 8:40	Macon	railroad non-release	unknown	51 cars were being pushed by a train into a forwarding yard to be attached to a locomotive when 28 cars escaped the control of the crew and ran into another train in the yard. the cause is unknown at this time.
5/11/2006 8:00	Macon	fixed	unknown	Caller reporting mercury was discovered on the street in a residential neighborhood.
7/15/2006 11:00	Macon	fixed	equipment failure	Caller reported equipment failure to an overhead pole mounted transformer resulting in the release of transformer oil to the ground and into the storm drain.
7/25/2006 4:45	Macon	pipeline	equipment failure	Chevron blocked the line causing the manifold to go into a relief situation and over filling of the sump.
9/14/2006 16:05	Macon	fixed	unknown	Caller stated there was a release of materials from a hazmat disposal facility due to unknown causes. there is fire at the scene and the fire department is on the scene.
10/6/2006 15:15	Macon	mobile	transport accident	The caller is reporting a release of materials onto the ground from an overturned tractor trailer due to a transport accident.
12/24/2006 6:30	Macon	fixed	equipment failure	Caller reports a flange on a the valve to the blast recircular vessel on a ref system was leaking anhydrous ammonia. Cause of leak was due to equipment failure.
1/16/2007 20:45	Macon	fixed	equipment failure	Non-pcb mineral oil spilled onto the pavement and into a storm drain from a failed pad mounted transformer.
3/7/2007 14:00	Lizella	fixed	tornado	Caller stated on 01-mar-07, a tornado knocked down a utility pole with an over head pole mounted transform on it discharging mineral oil into a drainage ditch that lead to a main creek. Caller stated that the release is secured.
3/26/2007 18:20	Macon	railroad	unknown	The caller is reporting a release of materials onto the ballast from a rail car due to unknown causes.
3/27/2007 6:33	Macon	mobile	transport accident	Caller stated another vehicle did not yield and struck their tractor trailer truck's passenger front fender which caused the truck to overturn and spill an unknown amount of diesel fuel from the saddle tanks. Caller did not have any injuries to report from this incident.
6/2/2007 21:00	Macon	fixed	transport accident	The caller reported that due to a vehicle colliding with an utility pole material was released into the environment.
7/12/2007 9:00	Macon	railroad	equipment failure	Caller stated there was a spill of materials from a freight train due to equipment failure on the locomotive sump drain.

Date	Location	Type of Incident	Incident Cause	Description
8/1/2007 13:15	Macon	railroad	unknown	Caller is reporting that a locomotive struck a broken retard shoe which in turn caused the fuel tank to rupture. approximately 1.5 gallons of diesel fuel spilled onto the ballast.
8/20/2007 8:00	Macon	fixed	dumping	Caller reported that company is dumping used motor oil onto their property and then covering it up with dirt and gravel.
10/6/2007 15:00	Macon	fixed	dumping	Caller is reporting that a lawn chemical company has been dumping lawn waste materials into a storm drain and into the soil.
12/17/2007 13:45	Macon	mobile	transport accident	Caller stated a tractor trailer truck hit a curb and punctured the saddle tank. This resulted in a spill of materials onto the roadway. The materials traveled sixty feet into a storm drain.
12/21/2007 16:35	Macon	fixed	unknown	Caller is reporting the discovery of diesel fuel in the center ditch between the engine terminal and the car shop at the rail facility. The diesel is from an unknown source.
12/27/2007 12:15	Macon	railroad	equipment failure	Caller is reporting the discovery of a leak on the bottom of a tank car that released to the ballast due to a cracked tank shell.
2/2/2008 2:45	Macon	railroad	unknown	The caller is reporting a small vapor release of sulfur trioxide stabilizer from the top dome valve on a tank car located in a Norfolk southern rail yard. The cause of the release is unknown at this time.
3/29/2008 5:30	Macon	railroad	equipment failure	Caller is reporting a release of cane molasses from a rail car due to a broken end cap on a pipe.
3/31/2008 10:00	Macon	railroad	unknown	Caller is reporting that 100 gallons of animal fat was discovered in the rail yard in the gauge of the rail from an unknown source.
4/25/2008 14:00	Macon	railroad	equipment failure	Caller reported that liquid plasticizer released from a rail car onto the ballast due to a loose manway cover.
5/12/2008 9:35	Macon	fixed	tornado	Caller reported due to a tornado touching down in the Brosnan rail yard a transformer was damaged causing transformer oil to release onto the ground.
5/13/2008 9:00	Macon	fixed	tornado	The caller is reporting various (several dozen) spills from transformers in Macon, GA due to the severe storms/tornadoes experienced. Caller currently has the location of one of the transformers and will call back with the rest of the locations.
5/29/2008 12:47	Macon	mobile	transport accident	Caller reported that a tanker truck over turned due to a vehicle accident and released 1500 gallons of off road diesel onto the ground and into a creek.
7/28/2008 20:00	Macon	fixed	natural phenomenon	Caller is reporting a release of methyl mercaptan from a vent at the recovery furnace due to lightning causing the

Date	Location	Type of Incident	Incident Cause	Description
				fire to go out causing a venting of materials. The release went into the atmosphere.
9/25/2008 17:20	Macon	mobile	operator error	Caller is reporting a release of diesel fuel from a fuel tank on the tractor trailer truck inside the railyard property due to operator error during an unloading operation. Time of incident: 1720 EST.
9/3/2008 14:30	Macon	mobile	transport accident	Caller reported that a commercial hazmat truck was turning around and was struck from behind by a tractor trailer. This caused the commercial truck to overturn and release unknown hazardous material onto the caller's property.
11/20/2008 5:45	Macon	railroad	equipment failure	Caller stated due to a blown engine on a locomotive, one pint of lube oil released onto the ballast and ground.
2/26/2009 15:00	Macon	storage tank	other	Caller is reporting that (30-35) 55 gallon drums and (6) 300 gallon totes containing unknown material were discovered in 5 mini unit at a storage facility. Caller stated that material released from one of the tote's onto the floor of a unit. Caller also stated that the drums belong to a company by the name of ykk and 25 of the drums were labeled "hazardous waste".
5/12/2009 14:00	Macon	railroad	unknown	The caller is reporting the discharge of oil from a transformer that was stored at the rail yard due to unknown causes
5/14/2009 7:00	Macon	fixed	equipment failure	Caller is reporting a spill automatic transmission fluid from a hydraulic hose from a retarder due to unknown causes.
7/16/2009 16:00	Macon	fixed	equipment failure	Caller is reporting a release of ammonia due to a pop off valve failing on a unit.
8/15/2009 8:00	Macon	fixed	equipment failure	Caller stated there was a release of anhydrous ammonia due to a line break at the facility.
8/27/2009 14:00	Macon	railroad	equipment failure	Caller is reporting that due to a faulty gasket on the rail car 100 gallons of kaolin slurry was released onto the ballast from a single freight car in the rail yard.
10/21/2009 13:30	Macon	railroad	other	Caller is reporting a discharge of soybean soap stock from a rail car due to valve on the bottom of the car needed to be adjusted.
11/12/2009 12:15	Macon	railroad	other	The caller is reporting that a locomotive in a rail yard had a rail car roll into the side of it, which punctured a fuel tank. As a result 150 gallons of diesel discharged to the ballast.
1/11/2010 15:00	Macon	fixed	dumping	Caller states that workers at the family dollar store was dumping motor oil into the grass by the store from used oil cans.

Date	Location	Type of Incident	Incident Cause	Description
12/3/2009 12:00	Macon	fixed	other	Caller stated that the septic tank has overflowed and the trailer park smells of human waste. Water from the tank has migrated to the surface. Also the owners filled an empty swimming pool with a mobile home and trash then covered it with dirt.
2/1/2010 12:00	Macon	storage tank	unknown	Caller is reporting a discharge of diesel fuel possibly from an underground tank at the address location due to an unknown cause.
2/21/2010 6:00	Macon	fixed	equipment failure	A line broke off of an injector gauge resulting in a spray of material.
3/10/2010 8:30	Macon	storage tank	other	The caller stated that the suspected responsible party was supposed to empty their grease container, but failed to due so on the scheduled date(04-march). As a result rain water caused vegetable oil to overflow into the parking lot.
4/9/2010 17:00	Macon	fixed	unknown	Caller stated that there is an odor of sewage and a dark discoloration of the water on the lake, the cause is unknown.
5/18/2010 13:15	Macon	railroad	unknown	Caller stated that there was a train derailment and a release of 200 gallons of salt by product onto the ballast, the cause was due to the train derailing, there were no fires and no injuries, and no impact to any waterways. a contractor is enroute.
10/2/2010 18:30	Macon	storage tank	other	Caller reported a 25000 gallon stationary oil tank was being transloaded and overflowed.
10/18/2010 15:30	Macon	fixed	dumping	Caller is reporting there were multiple individuals that are dumping/draining the material from vehicles before they take them to the recycling center for money. Caller stated the individuals are doing this next to a private residence.
11/29/2010 16:45	Macon	railroad	equipment failure	Locomotive suffered a ruptured fuel tank.
1/7/2011 9:30	Macon	fixed	unknown	Caller reported a ten gallon lube oil spill in the ballast due to unknown reasons. The spill was discovered in a railyard with no train involvement.
2/15/2011 0:01	Macon	fixed	equipment failure	Caller stated due to equipment failure there was a spill of hydraulic oil from a trash compactor.
2/15/2011 20:55	Macon	railroad	unknown	A car load of sugar rolled free, hit other cars and flipped over.
2/25/2011 9:00	Macon	railroad	unknown	Caller states that there was a vapor leak of turpentine from a rail car.
4/20/2011 10:30	Macon	fixed	equipment failure	Caller stated due to equipment failure there was a spill of hydraulic fluid from an elevator.

Date	Location	Type of Incident	Incident Cause	Description
4/28/2011 17:00	Macon	railroad	unknown	A loaded tank car of sulfuric acid is leaking from the dome. Approximately 1/2 gallon has leaked at time of call.
5/13/2011 10:30	Macon	railroad	equipment failure	Caller stated that there was a load of molasses that was released onto the ballast, the cause was due to a gasket blowing on a pump during the filling of the tank car.
6/14/2011 12:00	Macon	fixed	dumping	An auto shop is painting cars without a paint booth, and spilling oil and antifreeze onto the ground. this has been occurring for at least two years.
8/23/2011 20:00	Macon	railroad	unknown	The caller stated that a rail car is leaking turpentine from the dome of a rail car. the material is evaporating before impacting the ground.
9/22/2011 12:01	Macon	railroad	operator error	Caller reported that a rail car was discovered to have about 2 gallons of dried phosphoric acid on top of the car due to possible operator error.
10/22/2011 18:30	Macon	railroad	unknown	Caller is reporting a rail car leaking turpentine onto the ballast.
3/1/2012 12:00	Macon	fixed	unknown	Caller is reporting a discharge of an unknown petroleum based substance from an unknown source due to an unknown cause at this time.
5/11/2012 7:00	Macon	mobile	unknown	Caller reported a school bus leaking oil onto the ground.
7/9/2012 14:54	Macon	fixed	equipment failure	Caller is reporting a discharge of hydraulic fluid from a piece of equipment (not track equipment) due to an equipment failure.
7/9/2012 17:30	Macon	mobile	operator error	Caller is reporting a release polymeric isocyanate onto the concrete. Caller stated that cargo box truck was punctured by a forklift during an unloading process.
7/24/2012 10:13	Macon	mobile	other	Caller stated that there was a traffic accident that resulted in approximately 75 gallons of diesel to be released onto the roadway and soil.
7/26/2012 16:40	Macon	railroad	equipment failure	Caller is reporting a release of hydrogen sulfide onto the ballast. Caller stated that a damaged bottom outlet valve.
8/3/2012 5:30	Macon	fixed	natural phenomenon	Caller stated due to the weather, a tree fell on a pole causing a transformer to fall and release non pcb transformer oil onto the ground and into a storm drain.
8/6/2012 9:00	Macon	fixed	other	Caller states the responsible party has improperly maintained equipment and vehicles on the property leaking diesel fuel, hydraulic fluid and motor oil all over the place and this has been ongoing for approx. six months.
9/3/2012 12:00	Macon	fixed	unknown	Caller stated that there is raw sewage being released onto their property from faulty sewage lines.

Date	Location	Type of Incident	Incident Cause	Description
9/7/2012 14:30	Macon	mobile	unknown	Caller stated that about a pint of motor oil discharged from a vehicle into a drain that leads to a separator system.
9/12/2012 8:50	Macon	fixed	equipment failure	Caller is reporting a discharge of 40 gallons of sewage from a building, the cause was due to a failed lift station.
9/14/2012 21:45	Macon	railroad	operator error	Caller is reporting a discharge of diesel fuel onto concrete and the ballast. Caller stated that while a locomotive was being filled in the railway shop, employees left the hose unattended leading to the spill.
10/28/2012 3:05	Macon	railroad	equipment failure	Caller reported the computer mis routed a single rail car during humping operations causing a spill of materials.
11/2/2012 20:00	Macon	railroad	other	The caller reported that ethanol released from railcars due to loose manway covers.
11/12/2012 2:24	Macon	railroad non-release	unknown	Caller is reporting that an engineer was found at the base of a engine while swapping crews. Caller stated that the engineer sustained a head injury from unknown causes resulting in a fatality.
11/16/2012 6:00	Macon	mobile	transport accident	Multiple vehicle accident resulting in the release of diesel fuel onto the roadway and nearby drainage ditch. The fuel impacted a nearby storm drain.
12/3/2012 9:45	Macon	storage tank	equipment failure	Caller stated 350 gallons of waste water released from piping on a storage tank onto the ground, ballast and about 5% entered into a storm drain on the property. This occurred when they were transferring from one tank to another.
11/30/2012 20:30	Macon	fixed	equipment failure	The caller is reporting a discharge of gasoline onto the concrete. The caller stated that a faulty pump at a local gas station lead to the discharge. The caller stated that there have been several spills at the gas station from the faulty pump.
12/17/2012 9:15	Macon	storage tank	unknown	Caller stated that a pipe coming from a fuel tank leaked diesel fuel onto the ground. The exact cause of the release is currently unknown at this time.
12/18/2012 13:20	Macon	railroad	equipment failure	Caller stated that a locomotive, located on the "shop track", was found to have released approximately 10 gallons of lube oil due to an equipment failure.
2/7/2013 2:00	Macon	railroad	derailment	Caller is reporting that a yard shove derailed seven rail cars and three of the rail cars had a spill of ballast.
2/24/2013 13:30	Macon	fixed	equipment failure	Caller stated that there was a vent valve that failed at a compressor station that released 22,000 mcf's of natural gas to the atmosphere.
3/1/2013 23:09	Macon	mobile	transport accident	Caller is reporting a discharge of gasoline from a tanker truck due to a vehicle accident.

Date	Location	Type of Incident	Incident Cause	Description
3/10/2013 3:30	Macon	railroad	equipment failure	Caller is reporting a discharge of lube oil from a locomotive (ns9196) due to a mechanical failure. caller states the locomotive was part of freight train #282g309.
3/19/2013 0:10	Macon	fixed	natural phenomenon	The caller reported that an estimated 20 gallons of mineral oil, possibly containing pcb's, discharged from a 25kva overhead transformer (7258a) due to high winds and heavy rains. The caller stated that there is a possibility that the material entered lake wildwood. However, there are no visible traces of a sheen.
5/1/2013 16:55	Macon	fixed	unknown	Caller reports an acidic chemical odor in the air. the source is unknown, but there are some manufacturing facilities in the area. This material is causing respiratory problems
5/20/2013 13:00	Macon	fixed	unknown	Fumes from an unknown chemical used inside the store are causing health problems for the employees.
5/31/2013 3:00	Macon	railroad	other	Caller stated that they had a coal car in the yard and the bottom door was slightly cracked and it discharged 1 1/2 tons of coal onto the ballast.
6/16/2013 15:30	Macon	railroad	equipment failure	Caller stated that while a train was trading out crews, they noticed that the locomotive was leaking motor oil. the caller stated that approximately 20 gallons was released.
6/18/2013 7:00	Macon	fixed	equipment failure	A level indicator in a silo malfunctioned, which caused an overfill. The wind had carried the material (calcium hydroxide) to two additional properties.
6/25/2013 11:45	Walden	railroad	derailment	Caller reported that two rail cars released 9 gallons of plastic pellets onto the ballast.
6/26/2013 21:00	Macon	railroad	unknown	Caller stated that while a rail car was being loaded there was a discharge of about twenty gallons of clay slurry onto the ballast.
7/10/2013 13:30	Macon	railroad	unknown	Caller is reporting (a hopper car filled with corn) that the hopper door was loose and 500 pounds of corn spilled to the ballast.
7/24/2013 21:00	Lorane	railroad	equipment failure	The caller is reporting a release of grain residue onto the ballast. The caller stated that the hopper door disengaged (mechanical failure).
8/13/2013 4:15	Macon	fixed	equipment failure	Caller reported the exceedance of materials from the flare due to a cooling pump malfunction.
11/12/2013 9:33	Macon	mobile	unknown	Caller is reporting a release of approximately 80 gallons of diesel onto the roadway and into the grass nearby due to a tractor trailer truck turning over. Cause is unknown.
12/5/2013 14:30	Macon	mobile	unknown	The caller stated that a city garbage truck released a significant amount of an unknown petroleum product onto a driveway. The caller is concerned about the drainage and a nearby stream.

Date	Location	Type of Incident	Incident Cause	Description
2/1/2014 20:49	Macon	fixed	equipment failure	Caller is reporting a release of natural gas from a relief valve that went off at their compressor station.
2/3/2014 17:00	Macon	railroad	equipment failure	Caller stated that they had a car in their yard that leaked approximately a 1/2 gallon of ethanol onto the ballast.
3/20/2014 19:30	Macon	railroad	equipment failure	Caller reported a tank car leaking ethanol due to equipment failure.
4/4/2014 11:50	Macon	railroad	unknown	Caller stated there was a spill of coal from a rail car in a rail yard. The door became disengaged (open) due to unknown reasons.
6/10/2014 10:00	Macon	railroad non-release	derailment	Caller is reporting that a yard job derailed 11 cars (5 cars are reported to be turned over), the cause of the derailment is unknown.
7/22/2014 9:38	Macon	fixed	natural phenomenon	Caller stated that due to bad weather a tree came down and knocked down 4 power poles resulting in a discharge of 30 gallons of pcb mineral oil to the ground and into a storm drain that leads to a creek.
9/25/2014 14:18	Macon	railroad	other	Caller is reporting a release of kaolin clay, caller stated that there were some used parts that were laying out in the rail yard and when it started to rain the clay went into a nearby storm drain.
10/3/2014 16:22	Macon	fixed	unknown	Caller is reporting a fire at a vacant gym for unknown reasons. there were oil barrels present but material has not spilled as of yet.
10/7/2014 22:00	Macon	railroad	equipment failure	Ethanol released from a rail car due to a leak on the bottom outlet valve.
10/29/2014 8:30	Macon	railroad	equipment failure	Caller stated due to equipment failure there was a spill of materials from a locomotive on the main line.
11/28/2014 10:00	Macon	railroad	unknown	The caller reported that soy bean oil discharged from a railcar due to unknown causes.
4/10/2015 18:30	Macon	fixed	unknown	Caller stated less than 50 gallons of raw sewage backed up in a rail yard due to unknown causes.
4/22/2015 11:30	Macon	railroad	unknown	Caller is reporting 15 pounds of grain meal that was discharged onto the ground. Caller stated that the meal leaked out of a covered hopper.
5/12/2015 7:45	Macon	storage tank	transport accident	Caller stated that a tractor trailer truck carrying totes was discovered to have a leak in one of them that has released an unknown amount of canola oil onto the roadways for approximately 5 to 7 miles. There was at least one storm drain impacted in that route.
5/12/2015 10:35	Macon	railroad	equipment failure	Caller stated that a tank car was discovered leaking 1 gallon of oxanone oil.
5/31/2015 8:50	Macon	railroad	unknown	Caller stated there was a spill of stone from a single rail car in a rail yard due to unknown causes.

Date	Location	Type of Incident	Incident Cause	Description
6/7/2015 18:00	Macon	fixed	unknown	Caller reported a natural gas odor around the rail yard coming from a next door facility.
6/18/2015 12:30	Macon	continuous	unknown	Caller is reporting a continuous release of ammonia into the atmosphere.
8/7/2015 1:15	Macon	mobile	other	The caller is reporting a discharge of hydraulic fluid due a vehicle accident. The caller stated that a ua77 (pole utility truck) went off rode and crashed into a wetland. no reported injuries. The impact is the wetlands.
9/25/2015 13:00	Macon	fixed	unknown	The caller is reporting a release of several unknown chemicals due to abandoned drums at a defunct lab. The drums on site are deteriorating, as well as broken glass and pipettes. The caller stated that this is a OPA clean up site. The impact is soil.
12/24/2015 9:00	Macon	fixed	natural phenomenon	Caller stated that rain caused a vehicle to hydro plane, and hit the utility pole causing transformer oil to be discharged onto the ground, and into a storm drain.
1/6/2016 13:30	Macon	fixed	unknown	Caller is reporting a spill of a half of gallon of diesel fuel on the ground in a railyard. The source of the spill is unknown at this time.
2/3/2016 21:00	Macon	railroad	derailment	Caller stated there were six rail cars and one locomotive derailed in a railyard. Caller stated there was a spill of soybean meal and possibly additional unknown materials. Caller stated there are hazmat materials on the some of the derailed cars but none of the hazmat reported has spilled at this point. Caller stated the damaged amount is over $150000
3/19/2016 7:00	Macon	fixed	other	Caller is reporting that the water treatment plant is sand blasting and coating water tanks and the sand and other chemicals are going into the water supply and could cause health problems for people drinking the water.
4/9/2016 6:00	Macon	railroad	derailment	Caller is reporting that there was a derailment of one locomotive in the yard and as a result the fuel tank was punctured and discharged approximately 200 gallons of diesel fuel to the ballast.
9/12/2016 9:30	Macon	mobile	unknown	Caller stated that an 18 wheeler tractor trailer was parked outside a residence. The driver left the truck unattended for approximately 6 hours. During that time there was a strong odor that was emanating from the truck. The truck contained a material placarded as 1866.
12/28/2016 20:01	Macon	fixed	unknown	Caller is reporting a discharge of gasoline onto the ground at a gas station. The cause is unknown at this time.
1/21/2017 16:40	Macon	fixed	natural phenomenon	The rp is reporting a discharge of non-pcb transformer oil due to storm damage to a pole mounted transformer. The impact is a storm drain.

Date	Location	Type of Incident	Incident Cause	Description
1/22/2017 8:50	Macon	storage tank	unknown	Caller stated 45 gallons of gasoline released from a pump at a gas station due to unknown causes. Caller stated most of the fuel entered into a storm drain.
4/5/2017 16:10	Macon	fixed	natural phenomenon	Caller is reporting that a lightning strike on a transformer resulted in a spill of non-pcb oil to a storm drain.
4/15/2017 3:00	Macon	railroad	equipment failure	Caller is reporting a railcar experienced a leak, resulting in a release soybean soap stock.
4/16/2017 11:15	Macon	railroad	equipment failure	Caller is reporting that 25 gallons of lube oil discharged from a locomotive onto ballast due to unknown causes.
5/8/2017 4:00	Macon	railroad	equipment failure	Caller is reporting that a locomotive had a fuel line rupture resulting in the discharge of approximately 50 gallons of diesel fuel onto ballast at the Norfolk southern rail yard.
5/12/2017 10:00	Macon	storage tank	equipment failure	Caller is reporting that a pipe broke on a fuel storage tank resulting in a discharge of 50 gallons of diesel fuel to the ballast.
8/16/2017 14:20	Macon	mobile	other	Caller stated that 40 gallons of diesel fuel discharged onto the shoulder and roadway during a vehicle accident.
9/14/2017 13:37	Macon	storage tank	other	Caller stated one gallon of hydraulic fluid was sitting in a bucket and rain water caused the mixture to overflow onto the ground and into a levee that was already boomed off.
9/17/2017 18:30	Macon	vessel	vessel sinking	Caller is reporting that a vessel sank at the dock and there is a sheen on the water.
9/19/2017 18:24	Macon	vessel	vessel sinking	Caller is reporting that a vessel has sunk in the lake. there is a sheen in the water at this time. Caller reports that he believes that the vessel sunk due to heavy rains in the area.
12/4/2017 21:38	Macon	railroad	unknown	Caller stated that approximately 5 gallons of corn syrup was released from a rail car (rail car number is unknown) onto the ballast, in the rail yard, due to an unknown cause.
12/20/2017 2:00	Macon	railroad	derailment	Caller is reporting a derailment of 1 rail car releasing kaolin clay to ballast
12/26/2017 8:46	Macon	railroad	derailment	Caller stated a single rail car in a rail yard derailed due to unknown causes. Caller stated 4000 pounds of wheat were released onto the ballast.
2/6/2018 10:50	Macon	storage tank	equipment failure	Caller is reporting that a chlorine cylinder is leaking gas to the air.
4/6/2018 11:00	Macon	mobile	equipment failure	Caller stated that a hydraulic line broke on a track hoe causing the release of 3 gallons of hydraulic oil with less than one gallon entering the waters of the rocky creek.

Date	Location	Type of Incident	Incident Cause	Description
5/4/2018 18:28	Macon	mobile	unknown	Caller is reporting that a pick up truck caught on fire, the fuel tank ruptured and spilled gasoline on the ground at the gas station.
5/16/2018 0:05	Macon	railroad	derailment	Freight train derailment due to an unknown cause at this time. Six rail cars derailed. Damage amount is over $150,000.
5/29/2018 8:10	Macon	fixed	natural phenomenon	An estimated 10 gallons of dielectric fluid (containing pcb's) discharged from a 25kva pole mounted transformer, due to suspected high winds and lightning. the fluid failed initial pcb testing and sampling from the transformer will be conducted. All product released onto the ground and into a wet-weather ditch (no water impact).
6/28/2018 13:11	Macon	fixed	unknown	Caller stated that there was a fire at a chemical facility causing the release of unknown chemicals (possibly acetone and thyrine). Caller received the information from the scene and was unsure of the exact names of the chemicals. Fire has been extinguished.
7/16/2018 17:40	Macon	fixed	dumping	Caller is reporting the dumping of mobile homes from the 40s, 50s, & 60s that contain asbestos, unknown oil cans, and possible unknown materials.
8/18/2018 14:15	Macon	railroad	derailment	The caller is reporting that approximately 150 gallons of crude oil was discharged from a tanker car due to a derailment. There were 34 cars in the unit that were being moved in a railyard. the discharge impacted ballast. The caller states that 10 cars were derailed and they expect that the damages will exceed the $1500.00 threshold.
8/19/2018 18:30	Lizella	unknown sheen	unknown	Caller reports a heavy oil sheen on a pond in the area of a pipeline.
9/8/2018 12:40	Macon	fixed	unknown	Caller is reporting a release of approximately 103 pounds of hydrogen sulfide into the air at the incident location. Release was caused during an annual outage, due to unknown causes.
11/9/2018 16:59	Macon	mobile	unknown	caller is reporting that an 18 wheeler hydroplaned due to unknown causes and released diesel fuel onto the roadway. no injuries were reported at this time.
12/17/2018 9:00	Macon	railroad	equipment failure	Caller is reporting that a hopper door on a railcar failed resulting in the release of ammonium nitrate onto the ballast. Release was estimated at 300-500 pounds.
2/12/2019 15:55	Macon	railroad	equipment failure	Caller reported 28 tons of stone was released onto the ballast from a rail car due to the bottom door opening unintentionally while switching cars.
3/3/2019 16:00	Macon	fixed	natural phenomenon	Caller reports a discharge of five gallons of non-pcb transformer oil onto the ground and into a drainage ditch

Date	Location	Type of Incident	Incident Cause	Description
				from a pole mounted transformer caused by a downed tree due to a storm.
3/6/2019 12:35	Macon	railroad	equipment failure	Caller reported that a railcar latch failed and released crushed stone onto the ballast at the terminal.
3/8/2019 14:30	Macon	railroad	equipment failure	Caller is reporting a spill of 120 tons of crushed stone onto the ground at the incident location. Spill was from a faulty latch on multiple car doors.
4/3/2019 18:15	Macon	railroad	equipment failure	Caller reports that a bottom discharge door experienced equipment failure resulting in a release of stone to ballast.
4/21/2019 5:30	Macon	railroad	derailment	Caller is reporting a spill of approximately 70 tons of plastic pellets and 100 tons of stone onto the ground at the incident location. spill was from a train derailment, due to unknown causes.
5/20/2019 14:00	Macon	fixed	equipment failure	Caller reported 5 gallons of sewage was released from a broken sewer main piping in the yard onto the ground due to equipment failure.
5/26/2019 6:45	Macon	railroad	operator error	Caller stated that a bottom hatch released on a covered hopper, dropping approximately 500 pounds of crushed stone into the ballast.
6/1/2019 9:00	Macon	fixed	dumping	Caller reported motor oil, anti-freeze, and transmission oil was dumped into soil and a storm drain at an unregistered auto shop. Caller stated this has been going on for approximately 2 years.
6/10/2019 0:40	Macon	railroad	equipment failure	Natural crushed stone released from a rail car due to a faulty door under the car. The rail car was not part of a train.
6/18/2019 18:00	Macon	railroad	equipment failure	Caller reported 50 gallons of natural crushed stone was released from a railcar onto the ballast due to equipment failure.
7/7/2019 13:30	Macon	unknown sheen	unknown	Caller reported an unknown sheen in an unnamed creek near smith chapel road near Macon, GA.
7/18/2019 1:45	Macon	railroad	equipment failure	Caller is reporting a spilled of crushed rock in a rail yard due to the bottom hopper doors on two rail cars (itfx13202 & itfx13216) that came open. Caller stated 100,000 pounds of crushed rock was spilled from freight train car number itfx13202 and 60,00 pounds of crushed rock was spilled from freight car number itfx13216.
7/24/2019 15:30	Mogul	railroad	unknown	Caller is reporting a discharge of an unknown amount of lube oil onto other railcars at the incident location. Discharge was from a locomotive that caught fire, due to unknown causes. Fire is extinguished. No injuries reported.

Date	Location	Type of Incident	Incident Cause	Description
8/1/2019 16:00	Macon	railroad	unknown	Caller is reporting that a bottom hopper door on a rail car (jtsx30006) opened and spilled crushed stone onto the ballast.
8/2/2019 3:00	Macon	railroad	equipment failure	Crushed stone released from a hopper car due to a partially opened hopper door (failed latch). The hopper car was not part of a train.
8/9/2019 2:00	Macon	railroad	equipment failure	Natural stone released from a rail car due to a bottom door failure. The rail car was not part of a train.
8/12/2019 2:30	Macon	railroad	equipment failure	Caller is reporting a spill from a rail car in a rail yard due to the door hatch that came open.
8/24/2019 18:15	Macon	fixed	other	Caller reported a torrential rainstorm overwhelmed the containment on a loading rack which resulted in a discharge of product.
9/5/2019 20:00	Macon	railroad	equipment failure	Rock released from a rail car due to mechanical failure causing the door to open.
4/9/2019 9:00	Macon	fixed	dumping	Caller is reporting the discharge of lube oil at the incident location. Caller stated he was instructed to dump a run off catch basin of lube oil in to the woods at the incident location. Caller stated that his employment was threatened if he did not comply. Caller stated that this has happened many times in the past
11/25/2019 15:25	Macon	mobile	unknown	Caller reports a tractor trailer overturned, causing the release of oil onto the ground.
12/9/2019 7:30	Macon	storage tank	equipment failure	Lube oil discharged from an oil holding tank inside the rail yard due to an air-line leak.
1/3/2020 19:00	Macon	fixed	natural phenomenon	Caller reported due to thunderstorms, a tree hit a power pole and knocked over a transformer causing a release of non-pcb transformer oil on the ground and into a storm drain.
3/9/2020 11:00	Macon	fixed	dumping	Caller is reporting that workers are clearing out a junk yard and the oil and fuel from the vehicles is being dumped onto the ground and onto the road. This has been going on for the last three days. It is unknown if the materials have gone to a nearby creek.
4/7/2020 14:00	Macon	railroad	unknown	Caller reported a release of 1000 gallons of ethyl alcohol from a tank car in the railyard onto the ground due to equipment failure.
4/29/2020 23:30	Macon	fixed	natural phenomenon	A residual amount of a mixture of diesel fuel and gasoline released from the loading rack strip drains due to heavy rain fall (rack was overwhelmed with water).
5/13/2020 6:30	Macon	railroad	unknown	Caller is reporting a spill of diesel from a locomotive in a rail yard due to unknown causes.

Date	Location	Type of Incident	Incident Cause	Description
6/8/2020 9:00	Macon	mobile	equipment failure	Caller reported a trash truck that picks up trash in their neighborhood that is leaking an unknown oil onto and along the ground.
7/20/2020 10:00	Macon	fixed	dumping	Caller stated when customers return anything that contains oil or fuel, the company dumps the material onto the side of the property onto the ground.
11/12/2020 14:00	Macon	pipeline	operator error	Caller is reporting the discharge of raw sewage into two private residences from a drain system that was being cleaned out by a local company. Caller stated an employee accidently placed the wrong apparatus onto a line going into homes which caused the release.
12/10/2020 5:13	Macon	railroad non-release	derailment	Freight train derailment due to an unknown cause at this time. Caller states five empty rail cars derailed.
6/17/2021 14:00	Macon	fixed	other	The caller states the srp has a lot of trash in the yard. there is a cooler filled with oil, which has begun leaking to the soil. The caller states the trash and standing water has caused mosquito infestation into neighboring properties.
7/11/2021 9:00	Macon	storage tank	dumping	Caller is reporting a potential release of gasoline from a storage container that was dumped onto the back of their property.
9/1/2021 17:00	Macon	fixed	dumping	Caller stated individual is dumping oil onto the ground in the back of the property. Caller states there are open containers of oil on the property as well. Caller is concerned because the children in the area play near this location and its contaminated with oil.
9/21/2021 8:41	Macon	mobile	operator error	Caller is reporting the release of 55 gallons of diesel from the saddle tanks of a tractor trailer truck. The released material went onto the ground and into a storm drain that leads to the Ocmulgee river. The cause of the release is due to operator error.
10/4/2021 21:20	Macon	fixed	other	The caller is reporting a release of methyl mercaptan into the atmosphere the evaporator. The cause of the incident occurred due to the vent closing the evaporator due to pressure dropping.
10/8/2021 8:30	Macon	fixed	other	Caller states 12 gallons of transformer oil discharged onto the pavement and into a storm drain and storm water ditch that lead to Ocmulgee river. The discharge was from 3 pole mounted transformers when a dump truck backed into the pole. It is unknown if the oil contains pcbs.
10/13/2021 10:30	Macon	fixed	unknown	Caller is reporting a foul smell in the air from a paper plant nearby. The caller stated that the air smells like dead animals.

Date	Location	Type of Incident	Incident Cause	Description
11/24/2021 4:00	Macon	railroad	equipment failure	Caller is reporting they had a tank rail car that released soy bean oil onto the ground from the bottom outlet valve on the car due to equipment failure of that valve.
2/9/2022 0:01	Macon	railroad	unknown	The caller stated that a rail car had a ruptured tank, due to a bypassed coupler while switching. because of this incident 50 gallons of diesel released onto the ballast.
2/18/2022 13:00	Macon	mobile	operator error	Caller reported a driver opened their valve on a tanker truck to take a sample and spilled materials onto the ground.
2/22/2022 8:00	Macon	fixed	unknown	Caller reported the release of raw sewage at the grounds of an apartment building causing a strong sewage odor. this is affecting the residents of the complex. The cause of the release is unknown.
4/5/2022 12:00	Macon	fixed	natural phenomenon	Caller is reporting the release of 5 gallons of transformer oil (non-pcb) from a pole mounted transformer. The released material went onto the ground, roadside ditch, and an unknown amount went into a storm drain. The cause of the release is due to natural phenomenon (heavy winds).
4/5/2022 12:00	Macon	fixed	natural phenomenon	Caller is reporting the release of 1 gallon of non-pcb transformer oil from a pole mounted re-closer. The released material went onto the ground, a roadside ditch, and an unknown amount went into a storm drain. The cause of the release is due to natural phenomenon (heavy winds).
4/9/2022 9:00	Macon	fixed	other	Caller reported a paint shop that is painting cars outside of the facility and the fumes are bothering the citizens nearby.
6/26/2022 5:30	Macon	railroad	derailment	Caller is reporting the release of 500 gallons of diesel fuel from a locomotive (ns6212) that derailed and is upright. the locomotive (ns6212) was part of a train (gm44) at a railyard that side swiped train (gm64). There was no release of materials and no derailed cars from train (gm64). The released material came from locomotive (ns6212) train (gm44) and went onto the ballast. There were 3 railroad employees that went to the hospital with non life threatening injuries. The three rail employees were from both trains. The caller also stated that train (gm64) was not moving during the incident.
7/4/2022 3:05	Macon	railroad non-release	derailment	Caller reports a yard switching train suffered a 5 car derailment. 3 of the cars were empty, and 2 were carrying a load. There was no spill reported due to this incident. The amount of damages from this incident totaled $350,924.

Date	Location	Type of Incident	Incident Cause	Description
9/22/2022 8:30	Macon	fixed	dumping	Caller is reporting a neighbor dumping various oils and debris onto the ground.
9/20/2022 11:25	Macon	railroad non-release	derailment	Caller is reporting a derailment of 9 rail cars due to a wheel lift through a turn out in a rail yard. 1 car was loaded with lumber and the other 8 cars were empty. All the cars derailed upright and damage amount is being reported as greater than 150k.
12/27/2022 12:00	Macon	fixed	natural phenomenon	Caller states due to freezing weather back in December a paper mill had a release of 100 million gallons of waste water release into the Ocmulgee river. Caller states this information was obtained from the local news.
2/20/2023 14:30	Macon	fixed	equipment failure	Transformer oil discharged from an overhead transformer due to equipment failure. It is unknown if the transformer contains pcb at this time. Caller states the base of the pole caught on fire as a result of the incident.
3/28/2023 3:30	Macon	railroad	derailment	Caller is reporting the derailment of 2 trains containing 1 locomotive that was part of train gm21-27 and 4 rail cars that were part of train 378.27 at the Brosman yard. The released materials went onto the ground and ballast. All 4 of the rail cars were carrying stone but only cars frkx0028, itfx5691 and the locomotive(ns6214) released materials. The caller stated that the damage amount will exceed the $150,000 dollar threshold. Caller stated that all the cars are upright and will be re railed.
3/30/2023 10:30	Macon	fixed	dumping	Caller is reporting the release of freon stemming from a/c units at an apartment complex near the address provided. Caller states there is construction workers conducting renovations and allowing freon to release into the air / atmosphere.
4/21/2023 20:00	Macon	railroad	unknown	Caller is reporting a spill of diesel from a single locomotive in a railyard due to unknown causes.
4/27/2023 18:56	Macon	fixed	equipment failure	Caller is reporting they had a venting release of hydrogen sulfide into the air. The cause of the release was due to two malfunctioning valves at their facility.
12/23/2022 14:25	Macon	railroad non-release	derailment	Caller is reporting train 175g21 pulling in to forwarding track 1 and derailed 10 cars, the cause was split web outside joint bar limits.
5/1/2023 21:00	Macon	railroad non-release	derailment	Caller reported a mis matched coupling during humping operations that resulted in the derailment of 8 rail cars.
6/14/2023 14:30	Macon	fixed	other	Caller stated company is mixing cyanide and acids together at their facility. There is a strong chemical odor being released from the building into the air and surrounding areas. the odor goes from a strong smell to an almond smell (sweet smell). Caller is concerned because

Date	Location	Type of Incident	Incident Cause	Description
				of the health issues this can cause. The material is also being sent to the local landfill for disposal. This has been going on for many years now and occurs everyday.
8/1/2023 20:00	Macon	fixed	operator error	The caller is reporting a release of anhydrous ammonia into the atmosphere from ammonia piping in the facility. the cause of the release was due to an unknown team member striking the piping with a high reach fork lift. the caller states that all employees have been evacuated at this time.
7/25/2023 10:00	Macon	storage tank	unknown	Caller reported a 3000-4000 gallon storage tank was discovered leaking. the tank is labeled "chrome dump collection", but the material released is unknown at this time. the facility was a former plating shop.
8/9/2023 11:10	Macon	railroad	derailment	Caller stated a yard job was making a shove move in the yard when 4 rail cars derailed. one car is on its side and the other three cars are upright. There was a release of crushed rocks to the ballast. the cause of derailment is under investigation. No injuries were reported.
8/14/2023 2:25	Macon	railroad non-release	derailment	The caller states a freight train derailed (9) cars in the Brosnan yard. The cars derailed upright, no release of product. This incident did not impede passenger service. the damage amount is $187,840.00.
8/22/2023 15:00	Macon	unknown sheen	unknown	The caller stated that they discovered an unknown sheen from an unknown source in the Ocmulgee river. the caller stated that they discovered wildlife in the area cover with oil. The callers dogs were also covered with oil.
9/4/2023 22:36	Macon	railroad non-release	derailment	Caller is reporting a four car freight train derailment in a rail yard with no spill of materials. The damage amount is unknown and this incident was not on the main line. No injuries or fatalities.
9/15/2023 12:00	Lizella	mobile	equipment failure	Hydraulic oil discharged from a busted hose on a mobile piece of equipment while cutting power lines.
10/22/2023 10:30	Macon	railroad	equipment failure	Nitric acid released from the top of a tank car due to a missing gasket on the liquid line on the camlock. It is unknown if that tank car was part of a train at this time.
10/23/2023 16:58	Macon	railroad	derailment	Caller is reporting a (1) car derailment which resulted in a non hazardous release of kaolin. Caller stated the car that was carrying the material derailed on its side. There were impacts to ballast and no impacts to water reported. This occurred inside the Brosnan railyard.
11/26/2023 12:20	Macon	storage tank	operator error	Caller stated a delivery driver was delivering fuel to a store and releasing gas vapors into the air. The cause of release was due to driver not having a vapor recovery

Date	Location	Type of Incident	Incident Cause	Description
				system. this is allowing vapors to release into the air at a location where there are customers.
12/23/2023 10:17	Macon	railroad non-release	derailment	Caller is reporting that five rail cars derailed upright within a railyard. These cars were not part of a freight train just maintenance yard movement. Caller states no release or potential release of any material.
1/2/2024 16:00	Macon	railroad	equipment failure	Liquid ethanol released from a rail car due to a bottom main valve leak. The rail car was not part of a train.
3/6/2024 1:49	Macon	railroad	derailment	The caller is reporting a derailment of 4 empty freight cars in the Macon railyard. The cause of the derailment was due to two local freight train colliding inside of a railyard. The caller states that only one train had 4 cars derail, and there is no release of materials at this time.
5/5/2024 15:30	Macon	railroad non-release	derailment	Caller reported a yard job that was switching when a five cars derailed. The damage amount is expected to exceed the threshold for reporting.
5/22/2024 3:30	Macon	railroad	derailment	Caller stated a train shoving over the hump in a rail yard derailed 7 rail cars. 2 of the cars are on their side. the cars were carrying crushed stone / rocks which have all released onto the ballast. No injuries were reported. the cause of the incident is unknown at this time.
5/27/2024 12:00	Macon	railroad	unknown	The caller reported that an empty and stationary tank car was discovered leaking an unknown amount of chlorine vapor at Norfolk southern railyard. The material was released from a prd (pressure release device). It is unknown what caused the release at this time. The tank car was isolated in a 300 foot radius, and an independent contractor is on-site for inspection and repairs.
6/10/2024 16:30	Macon	fixed	dumping	Caller is reporting that a company dug a hole in the ground and dumped oil into it. The incident is located in a large field at the edge of the wood line.
8/25/2024 12:50	Macon	railroad	equipment failure	The caller reported that a tank car in a rail yard was discovered leaking propane gas into the atmosphere due to a defective pressure plate fitting. The amount released is unknown. no trains were involved. This was not a grade crossing incident.
9/14/2024 15:00	Macon	fixed	unknown	Caller is reporting a strong chemical smell in his neighborhood and on his property. Caller reports that this has been happening for approximately two weeks. Caller believes that it is coming from a building with several businesses in it near the intersection of Houston Ave and triple hill dr in Macon, GA. Caller reports that the smell has been making them feel sick, experience headaches

Date	Location	Type of Incident	Incident Cause	Description
				and breathing issues. Caller states that it is present at all times of the day and night.
10/10/2024 15:30	Macon	fixed	unknown	The caller reported that chlorine has been released from a chemical facility into the atmosphere, causing health concerns. The cause of the release is due to a fire at the facility. It is unknown what started the fire. The fire has reportedly not been extinguished yet.
11/10/2024 9:00	Macon	railroad	derailment	Caller states 6 rail cars derailed at a railyard releasing 15 cubic yards of corn meal onto railyard ballast from one of the cars. The cause of the derailment is under investigation. damage amount is expected to exceed $150,000. No injuries or fatalities reported.
12/16/2024 6:00	Macon	mobile	transport accident	The caller stated that while transporting radioactive material a cow was struck which caused a fire to erupt. because of this the radioactive material was burned and released material into the atmosphere. according to the caller (180) mci of technetium, and (0.15) mci of iodine 123 was onboard the vehicle at the time of this event. The amount of material that released is unknown to the caller. because of this incident the driver received unspecified injuries and was transported to a local hospital for treatment. The east bound side of state highway 74 was closed.
3/12/2025 10:04	Macon	railroad non-release	trespasser	Caller reported that a freight train struck a pedestrian at a grade crossing. It is unknown if there were any injuries or fatalities. There was no derailment, and no materials released.
5/18/2025 20:00	Macon	railroad	derailment	Caller is reporting a two car freight train derailment in a rail yard with a spill of materials (soybean meal and powered clay). Caller stated there were no waterways impacted. The damage amount is $200,048. Caller stated the yard track is closed.
5/19/2025 11:10	Macon	railroad	derailment	The caller is reporting a derailment of 9 grain railcars, onto the ballast, with 3 of the cars derailing on their sides, 1 of which is releasing grain. The caller states the cause of the derailment is unknown at this time. The caller states the specific car that is releasing the grain is unknown at this time.
8/11/2025 6:30	Macon	aircraft	operator error	Caller reported that approximately 10 gallons of jet-a1 jp5 jet fuel overflowed during a fueling event of a commercial aircraft. Material discharged onto tarmac and within two feet of a storm drain, although none is reported to have entered it.

Date	Location	Type of Incident	Incident Cause	Description
9/16/2025 10:00	Macon	fixed	unknown	Caller is reporting a release of carbon monoxide in their home. The release is coming from a restaurant next door. the cause of release is unknown at this time. The incident started a month ago and is still ongoing today. 5 people were evacuated from the building by the fire department.
12/14/2025 12:40	Macon	railroad	derailment	Caller reported a freight train in a railyard was making a switch move and their train went into emergency. Upon inspection it was discovered that six cars derailed and spilled soy bean onto the ground. The damage amount is expected to be above the threshold for reporting.

Source: National Response Center, 2005-2025

Probability of Future Occurrence

By using the National Response Center's data to determine future event probability, Macon-Bibb County can expect a hazardous material incident with a 100% probability per year. This number was derived by dividing the number of recorded events by the year range used. The likelihood of a hazardous material event happening in the planning area is highly likely.

3.18.5 Vulnerability Assessment

Hazardous materials that are processed correctly and transported safely are not impactful to the community in a negative way. However, hazardous materials could have a large impact if there were to be a chemical release or explosion involving chemicals. HazMat incidents pose significant risk to humans, animals, and the environment in Macon-Bibb County. Depending on the type of hazardous material(s) and the size of the area impacted, the losses could be minor, major, or significant.

People

Hazardous materials incidents can cause injuries, hospitalizations, and even fatalities to people nearby. People living near hazardous facilities and along transportation routes may be at a higher risk of exposure, particularly those living or working downstream and downwind from such facilities. For example, a toxic spill or release of an airborne chemical near a populated area can lead to significant evacuations and have a high potential for loss of life. Individuals working with or transporting hazardous materials are also at heightened risk.

In addition to the immediate health impacts of releases, a handful of studies have found long term health impacts, such as increased incidence of certain cancers and birth defects among people living near certain chemical facilities. However, there has not been sufficient research done on the subject to allow detailed analysis.

The primary economic impact of hazardous material incidents results from lost business, delayed deliveries, property damage, and potential contamination. Large and publicized hazardous material-related events can deter tourists and could potentially discourage residents

and businesses. Economic effects from major transportation corridor closures can be significant.

Property

The impact of a fixed hazardous facility, such as a chemical processing facility is typically localized to the property where the incident occurs. The impact of a small spill (e.g., liquid spill) may also be limited to the extent of the spill and remediated if needed. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to property.

Impacts of hazardous material incidents on critical facilities are most often limited to the area or facility where they occurred, such as at a transit station, airport, fire station, hospital, or railroad. However, they can cause long-term traffic delays and road closures resulting in major delays in the movement of goods and services. These impacts can spread beyond the planning area to affect neighboring counties or vice-versa. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to critical facilities, but there is a chance they may be impacted.

Environment

The environment is particularly vulnerable to the threat posed by hazardous materials. Waterways are at a high risk for contamination from hazardous materials. Widespread effects occur when hazards contaminate the groundwater and eventually the municipal water supply, or they migrate to a major waterway or aquifer. Water contamination is of particular concern to the Macon-Bibb County Plan Update Committee. Macon-Bibb County has mitigated some water contamination concerns by having their main water source, Javors Lucas Lake, located well uphill from the Ocmulgee River and away from any major transportation routes.

Hazardous material incidents may affect a small area at a regulated facility or cover a large area outside such a facility. Impacts on wildlife and natural resources can also be significant. Airborne hazardous materials can be carried by the wind for five miles or more, creating a risk of contamination to the environment and health risks to animals.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to Hazardous Materials beyond continued population growth and increased transportation between Metro Atlanta and the Port of Savannah. However, if and when a HazMat incident occurs in Macon-Bibb County, there is a chance it will not only involve dirt or surface material, but also flowing water in ditches, rivers, or small streams. Therefore, special attention to the location of new or expanding industries/facilities is warranted. Such efforts will help minimize the potential for water contamination and help preserve the local environment.

Consequence Analysis

The table below summarizes the potential detrimental consequences of hazardous materials incidents.

Table 3-73. Consequence Analysis, Hazardous Materials

Category	Consequences
Public	Contact with hazardous materials could cause serious illness or death. Those living and working closest to hazardous materials sites face the greatest risk of exposure. Exposure may also occur through contamination of food or water supplies.
Responders	Responders face similar risks as the general public but a heightened potential for exposure to hazardous materials.
Continuity of Operations (including Continued Delivery of Services)	A hazardous materials incident may cause temporary road closures or other localized impacts but is unlikely to affect continuity of operations.
Property, Facilities, and Infrastructure	Some hazardous materials are flammable, explosive, and/or corrosive, which could result in structural damages to property. Impacts would be highly localized.
Environment	Consequences depend on the type of material released. Possible ecological impacts include loss of wildlife, loss of habitat, and degradation of air and/or water quality.
Economic Condition of the Jurisdiction	Clean up, remediation, and/or litigation costs may apply. Long-term economic damage is unlikely.
Public Confidence in the Jurisdiction's Governance	A hazardous materials incident may affect public confidence if the environmental or health impacts are enduring.

3.18.6 Priority Risk Index

The following table summarizes hazardous materials risk for Macon-Bibb County. Warning time and duration do not vary. Spatial extent and impact ratings were estimated based on the number of Tier II facilities, railroads, and/or pipelines in the county. Probability ratings were determined based on available data on hazardous materials incidents with significant impacts in the county.

Table 3-74. Hazardous Materials Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	4	3	3	4	2	2.7	H

3.19 Technological Hazard: Hostile Event

3.19.1 Hazard Description

This section provides general and historical information about hostile events, including:

- Active Shooter
- Mass Violence
- Terrorism

There is no universal globally agreed-upon definition of hostile events. In a broad sense, hostile groups or individuals use violence and threats to intimidate or coerce, especially against civilians, in the pursuit of political aims. Terrorism, as part of the broader hostile event category, is defined in the United States by the Code of Federal Regulations as "the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof, in furtherance of political or social objectives."

For this analysis, this hazard encompasses the following sub-hazards: enemy attack, biological terrorism, chemical terrorism, conventional terrorism, radiological terrorism, and public disorder (cyberattack is addressed separately in Section 3.16). These hazards can occur anywhere and demonstrate unlawful force, violence, and/or threat against persons or property causing intentional harm for purposes of intimidation, coercion, or ransom in violation of the criminal laws of the United States. These actions may cause massive destruction and/or extensive casualties. The threat of hostile events, both international and domestic, is ever present, and an attack can occur when least expected.

Enemy attack is an incident that could cause massive destruction and extensive casualties throughout the world. Some areas could experience direct weapons' effects: blast and heat; others could experience indirect weapons' effect. International political and military activities of other nations are closely monitored by the federal government, and the State of Georgia would be notified of any escalating military threats.

The use of biological agents against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom can be described as biological terrorism. Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point of line sources, such as munitions, covert deposits, and moving sprayers. Biological agents vary in the amount of time they pose a threat. They can be a threat for hours to years depending upon the agent and the conditions in which it exists.

Chemical terrorism involves the use or threat of chemical agents against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom. Effects of chemical contaminants are similar to biological agents.

Use of conventional weapons and explosives against persons or property in violation of the criminal laws of the United States for purposes of intimidations, coercion, or ransom is conventional terrorism. Hazard effects are instantaneous; additional secondary devices may be used, lengthening the time duration of the hazard until the attack site is determined to be clear. The extent of damage is determined by the type and quantity of explosives. Effects are generally

static other than cascading consequences and incremental structural failures. Conventional terrorism can also include tactical assault or sniping from remote locations.

Radiological terrorism is the use of radiological materials against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom. Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point of line sources such as munitions, covert deposits, and moving sprayers or by the detonation of a nuclear device underground, at the surface, in the air, or at high altitude.

Mass demonstrations, or direct conflict by large groups of people, as in riots and non-peaceful strikes, are examples of public disorder. These are assembling of people together in a manner to substantially interfere with public peace to constitute a threat, and with use of unlawful force or violence against another person, or causing property damage or attempting to interfere with, disrupting, or destroying the government, political subdivision, or group of people. Labor strikes and work stoppages are not considered in this hazard unless they escalate into a threat to the community. Vandalism is usually initiated by a small number of individuals and limited to a small target or institution. Most events are within the capacity of local law enforcement.

The Southern Poverty Law Center (SPLC) reports 41 active hate groups in Georgia, shown in the table below. The SPLC defines a hate group as any group with "beliefs or practices that attack or malign an entire class of people—particularly when the characteristics being maligned are immutable." It is important to note that inclusion on the SPLC list is not meant to imply that a group advocates or engages in violence or other criminal activity.

Table 3-75. Active Hate Groups in Georgia

Group	Type	Location
The United Nuwaubians Worldwide/All Eyes on Egypt	Black Nationalist	Athens
Great Millstone	Black Nationalist	Atlanta
House of Israel	Black Nationalist	Atlanta
Israel United in Christ	Black Nationalist	Atlanta
Israelite School of Universal Practical Knowledge	Black Nationalist	Atlanta
Luxor Couture	Black Nationalist	Atlanta
Nation of Islam	Black Nationalist	Atlanta
New Black Panther Party	Black Nationalist	Atlanta
New Black Panther Party for Self Defense	Black Nationalist	Atlanta
Sicarii 1715	Black Nationalist	Atlanta
Proud Boys	General Hate	Atlanta
Affirmative Right	White Nationalist	Atlanta
Identity Evropa	White Nationalist	Atlanta
Occidental Quarterly/Charles Martel Society	White Nationalist	Atlanta
Nation of Islam	Black Nationalist	Augusta
Nationalist Liberty Union	General Hate	Augusta
Covenant People's Ministry	Christian Identity	Brooks
Nation of Islam	Black Nationalist	Brunswick
League of the South	Neo-Confederate	Cartersville

Group	Type	Location
International Keystone Knights of the Ku Klux Klan	Ku Klux Klan	Cedartown
United Northern and Southern Knights of the Ku Klux Klan	Ku Klux Klan	Ellijay
Proud Boys	General Hate	Gainesville
Wildman's Civil War Surplus and Herb Shop	Neo-Confederate	Kennesaw
The United Nuwaubians Worldwide/All Eyes on Egipt	Black Nationalist	Lithonia
All Eyes on Egypt Bookstore	Black Nationalist	Macon
Dustin Inman Society, The	Anti-Immigrant	Marietta
Sunshine on Government (SONG) Alliance	Anti-Muslim	Newton
American Vision	Anti-LGBT	Powder Springs
League of the South	Neo-Confederate	Powder Springs
Israel United in Christ	Black Nationalist	Savannah
Israelites Saints of Christ	Black Nationalist	Savannah
Identity Evropa	White Nationalist	Savannah
Asatru Folk Assembly	General Hate	Statewide
American White Knights of the Ku Klux Klan	Ku Klux Klan	Statewide
Identity Dixie	Neo-Confederate	Statewide
Atomwaffen Division	Neo-Nazi	Statewide
Traditionalist Worker Party	Neo-Nazi	Statewide
Blood and Honour Social Club	Racist Skinhead	Statewide
Confederate Hammerskins	Racist Skinhead	Statewide
Crew 38	Racist Skinhead	Statewide
Patriot Front	White Nationalist	Statewide

Source: Southern Poverty Law Center, 2024

Generally, no warning is given for specific acts of terrorism. Duration is dependent on the mission, magnitude, time and need to control, and criminal investigation time of a hostile event.

3.19.2 Hazard Location

A hostile event could occur at any location in the county but are more likely to target highly populated areas, critical infrastructure, or symbolic locations. Any of the critical facilities identified by the Plan Update Committee could be targeted.

3.19.3 Hazard Extent

The extent of a hostile event is tied to many factors, including the attack vector, location, time of day, and other circumstances; for this reason, it is difficult to assess a single definition or conclusion of the extent of "terrorism." As a general rule, terrorism incidents are targeted to where they can do the most damage and have the maximum impact possible, though this impact is tempered by the weapon used in the attack itself.

3.19.4 Historical Occurrences

There have been no major terror events in Macon-Bibb County; however, threats of terrorist activity occur often, though no devices have been found. There is still, however, some possibility that one could occur in the future given the incidents that have occurred in the United States in the past and the facilities and locations in the county that could be potential targets. Below are a few recent threats or disturbances that developed in Macon-Bibb County.

November 17, 2022, potential shooter, Macon—A man was seen with a firearm in his car in the parking lot of Westside High School. When he was approached by a campus police officer, he jumped out and ran into the woods with the firearm. Weaver Middle School was placed on lockdown as a precautionary measure as officers tracked down the suspect for 4.5 hours at which point he was found and apprehended.[38]

November 30, 2022, false active shooter report, Macon—The Bibb County Sheriff's Office confirmed that a call came in reporting an active shooter at a high school in Macon-Bibb County. It was eventually determined to be a false claim.[39]

June 23, 2023, Antisemitic demonstrations and arrest, Macon—Members of the Goyim Defense League (GDL)—an antisemitic hate group—staged aggressive protests outside Temple Beth Israel in Macon, Georgia, during the Jewish Sabbath. The demonstrators spouted hate speech and hung an antisemitic effigy wrapped in a Pride flag from a street sign. The leader of the group was arrested by the Bibb County Sheriff's Office for misdemeanor disorderly conduct and public disturbance after he refused to stop using a bullhorn in front of the temple.

January 31, 2024, Antisemitic threats against Jewish State House Representative and the Rabbi or Temple Beth Israel—State Representative Esther Panitch received an antisemitic postcard her home the morning of January 31, 2024; Rabbi Elizabeth Bahar received an antisemitic postcard from Ramos at her home the following day. In January 2026, a North Carolina man was sentenced to the statutory maximum of five years in prison for sending antisemitic threats after both women publicly backed the passage of Georgia House Bill 30, the state's first legislation defining antisemitism.

August 26, 2025, false active shooter report, Macon—Two 911 calls came in claiming there was an active shooter on the campus of Central Georgia Technical College and Rutland High School. Officers responded and searched the schools, but no threat was found, and the calls were determined to be hoaxes.[40]

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[38] https://wgxa.tv/news/local/campus-police-spot-gun-in-vehicle-at-westside-high-school-suspect-flees. Retrieved April 10, 2026.

[39] https://wgxa.tv/news/local/likely-a-false-claim-report-of-active-shooter-being-investigated-at-macon-high-school?utm_source=chatgpt.com. Retrieved April 10, 2026.

[40] https://www.13wmaz.com/article/news/local/macon/hoax-shooter-call-prompts-lockdown-police-response-at-central-georgia-tech/93-3e344d3d-9fe5-4bfa-9b52-5351e9cca630?utm_source=chatgpt.com. Retrieved April 10, 2026.

January 27, 2026, bomb threat, Macon—Macon-Bibb County authorities responded to a bomb threat at Stratford Academy after a witness reported someone with a strange voice calling and saying a bomb was inside the school. The school was safely evacuated and everyone was accounted for. No bomb was found.[41]

Probability of Future Occurrence

While difficult to estimate when a deliberate act like terrorism may occur, it can be inferred that the probability of a terrorist attack in any one area in the county is very low at any given time. When identified, credible threats may increase the probability of an incident; these threats are generally tracked by law enforcement.

3.19.5 Vulnerability Assessment

An official hostile event assessment with hypothetical scenarios has not been conducted for Macon-Bibb County, but the possible and likely impacts are outlined in the section below.

People

People can suffer death, illness, or injury as a result of a terrorist attack. Symptoms of illness from a biological or chemical attack may go undetected for days or even weeks. Local healthcare workers may observe a pattern of unusual illness or early warning monitoring systems may detect airborne pathogens. People will face increased risk if a biological or chemical agent is released indoors, as this may result in exposure to a higher concentration of pathogens, whereas agents that are released outdoors would disperse in the direction of the wind. Physical harm from a weapons attack or explosive device is not dependent on location, but risk is greater in areas where higher numbers of people may gather. People could also be affected by an attack on food and water supply. In addition to impacts on physical health, any terrorist attack could cause significant stress and anxiety.

Property

The potential for damage to property is highly dependent on the type of attack. Buildings and infrastructure may be damaged by an explosive device or by contamination from a biological or chemical attack. Impacts are generally highly localized to the target of the attack.

Environment

Environmental impacts are also dependent on the type of attack. Impacts could be negligible or could require major clean-up and remediation.

Land Use & Development Trends

Land use and development patterns can influence the exposure and vulnerability of a community to hostile events. In Macon-Bibb County, growth has primarily occurred in residential subdivisions, commercial corridors, educational campuses, and industrial facilities,

[41] https://wgxa.tv/news/local/bibb-county-authorities-respond-to-bomb-threat-at-stratford-academy-sheriffs-office-6010-peake-rd-macon-ga-bomb-threat-call-investigation-underway. Retrieved April 10, 2026.

particularly within and around incorporated areas. These higher-occupancy and publicly accessible locations may increase the potential consequences of hostile acts, such as threats, targeted violence, or public disorder, even though no major terrorist incidents have occurred locally. Ongoing development emphasizes the importance of integrating crime prevention, site design, and coordination with public safety agencies to reduce risk and enhance community resilience.

Consequence Analysis

The following table summarizes the potential detrimental consequences of a hostile event.

Table 3-76. Consequence Analysis, Hostile Event

Category	Consequences
Public	Illness, injury, or fatality are possible; these impacts would be highly localized to the attack. Widespread stress and psychological suffering may occur.
Responders	Responders face increased risks during an effort to stop an attack or rescue others while an attack is underway.
Continuity of Operations (including Continued Delivery of Services)	Critical infrastructure may be targeted by an attack; therefore, continuity of operations may be affected. Long-term issues may arise if transportation or utility infrastructure is severely damaged.
Property, Facilities, and Infrastructure	Impacts depend of the type of attack. Buildings and infrastructure could be unaffected or completely destroyed.
Environment	Water and food supply could be contaminated by a biological or chemical attack. Remediation could be required.
Economic Condition of the Jurisdiction	The local economy could be disrupted, depending on the location and scale of an attack.
Public Confidence in the Jurisdiction's Governance	Loss of public confidence likely should an attack be carried out; additional loss of confidence and trust may result if response and recovery are not swift and effective.

3.19.6 Priority Risk Index

The following table summarizes hostile events risk for Macon-Bibb County. Given the nature of hostile events and the understanding that they can occur anytime and anywhere, risk and vulnerability are considered equal throughout the county.

Table 3-77. Hostile Event Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	1	4	1	4	2	2.3	M

3.20 Technological Hazard: Infrastructure Failure

3.20.1 Hazard Description

Infrastructures are particularly vulnerable to both natural and technological hazards. These include electrical utilities, water utilities, gas pipelines, fuel supplies, and other infrastructures that supply vital supplies and services to the community. While an infrastructure failure would most likely be a secondary hazard of one of the other hazards identified in this plan, an infrastructure failure could be a solo incident itself.

A lack of connection with outside sources could lead to public panic, poor emergency response capabilities, and other domino hazards. These events pose a significant threat to many jurisdictions. Natural gas pipelines traverse the south and southeast sections of Macon-Bibb County while gas transmission pipelines traverse the west and northwest sections of the county. Both types of pipeline could cause a significant hazardous materials incident if breached or could cause significant gas and natural gas outages across the region if supply was interrupted for an extended period of time.

One particular area of concern for Macon-Bibb County is the stormwater management system. Macon-Bibb County's system is outdated and utilizes terracotta, brick, and corrugated metal structures that are often undersized and do not allow for proper water flow. There have been some structural failures of the stormwater system in some areas.

3.20.2 Hazard Location

Infrastructure failures in Macon–Bibb County can occur throughout the entire jurisdiction, as critical systems, such as power, water, wastewater, transportation, and communications networks, are widely distributed and interconnected. However, certain areas are more vulnerable, including locations with concentrated infrastructure assets, such as substations, water and wastewater treatment facilities, major transportation corridors (e.g., Interstate 16 and Interstate 75), and densely developed urban areas within and around Macon. Additionally, areas with aging infrastructure, limited redundancy, or high service demand may be more susceptible to failure or prolonged outages. While infrastructure failure is not confined to a specific geographic zone, impacts are often most significant in areas that support essential services and critical facilities.

3.20.3 Hazard Extent

The extent of infrastructure failure is evaluated based on the scale, duration, and severity of disruption to critical systems within Macon–Bibb County. Key measures include the geographic area affected (localized, regional, or countywide), the type and number of systems impacted (e.g., power, water, wastewater, transportation, communications), and the population and critical facilities served by the disrupted infrastructure. Failures may range from isolated service interruptions affecting a small area to widespread outages impacting large portions of the county.

Magnitude is further defined by the duration of the disruption, which can vary from short-term outages lasting hours to prolonged failures lasting days or longer, particularly if repairs are complex or resources are limited. The level of service disruption is also considered, including partial degradation (e.g., reduced water pressure, intermittent power) versus complete system failure. Impacts to critical infrastructure and essential services, such as hospitals, emergency response, and utilities, are key indicators of severity.

Additional factors used to assess extent include the availability of redundancy and backup systems, the speed of restoration, and the potential for cascading effects, where failure of one system (such as electrical power) leads to disruptions in others (such as communications or water systems).

3.20.4 Historical Occurrences

During the Tropical Storm Alberto floods in 1994, parts of the Macon Water Authority service area, which had around 160,000 customers at that time, were without water for 18 days due to the flooding of the water treatment plant. To mitigate this threat in future emergency events, a new water treatment facility was built in Jones County at Javors Lucas Lake. This facility is well above any potential flooding from the Ocmulgee River and should allow for a more robust and continuous flow of water to the residents of Macon-Bibb County and surrounding jurisdictions during a disaster.

More recently in September 2017 during Hurricane Irma, widespread infrastructure disruption left approximately 55,000 homes and businesses without power in Macon–Bibb County at the peak of the event, with outages lasting several days and impacting transportation systems such as traffic signals.[42] The next month in October 2017, a broken water main left approximately 200 customers in southeast Macon-Bibb County without water for about 24 hours and required a boil water advisory for three days after service was restored.[43]

Probability of Future Occurrence

While specific data on the number of occurrences is not known, the probability of future infrastructure failures is likely. Local studies have found that much of the county's stormwater system is aging, clogged, and at risk of failure, with past inspections identifying violations and degraded conditions that increase the likelihood of system malfunction during heavy rainfall.[44] These deficiencies increase the probability of a future infrastructure failure.

[42] https://www.maconbibb.us/irmaupdate1. Retrieved April 11, 2026.

[43] https://www.maconbibb.us/mwaboilwater/. Retrieved April 11, 2026.

[44] https://macon-newsroom.com/8215/news/youll-be-paying-for-a-rainy-day-under-macon-bibbs-new-stormwater-utility. Retrieved April 11, 2026.

3.20.5 Vulnerability Assessment

Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding utility failure.

People

Residents of Macon–Bibb County are vulnerable to infrastructure failure due to their reliance on essential services such as electricity, water, transportation, and communications. Disruptions to these systems can affect daily life by limiting access to clean water, food, healthcare, and emergency services. Prolonged outages may disproportionately impact vulnerable populations, including the elderly, individuals with disabilities, low-income households, and those who rely on electricity for medical equipment. Infrastructure failures can also hinder evacuation, delay emergency response, and reduce access to critical information, increasing risks to public health and safety. Overall, the extent of impact on people is closely tied to the duration and scale of the disruption, as well as the availability of backup resources and support systems.

Property

Infrastructure failures can significantly impact property in Macon–Bibb County by disrupting the systems that support the functionality and value of residential, commercial, and industrial structures. Power outages can lead to loss of heating and cooling, food spoilage, and damage to electrical systems, while water and wastewater system failures may cause plumbing issues, water damage, or sanitary concerns. Transportation and access disruptions can limit the ability to reach properties or conduct business operations. Although infrastructure failure may not always cause direct structural damage, prolonged or severe disruptions can result in economic losses, reduced property usability, and increased maintenance or repair costs, particularly for businesses and critical facilities that rely on continuous service.

Environment

Infrastructure failures can have indirect but notable impacts on the natural environment in Macon–Bibb County, particularly when disruptions involve water, wastewater, or stormwater systems. Failures at treatment facilities or pump stations may result in sanitary sewer overflows or untreated discharges, which can degrade water quality in local streams and rivers, such as the Ocmulgee River. Power outages can also impair environmental monitoring and control systems, increasing the risk of unregulated releases or delayed response to spills. While most environmental impacts are temporary, repeated or prolonged failures can contribute to ecosystem stress, contamination, and public health concerns, particularly in sensitive or low-lying areas.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to infrastructure failures beyond continued population growth and an ever-increasing industrial footprint.

Consequence Analysis

The following table summarizes the potential detrimental consequences of infrastructure failure.

Table 3-78. Consequence Analysis, Infrastructure Failure

Category	Consequences
Public	The public may experience loss of essential services (power, water, communications); limited access to healthcare, food, and fuel; and increased health and safety risks, especially for vulnerable populations.
Responders	Responders could encounter disrupted communications; delayed response times; limited access to incident locations due to transportation or system failures; and reduced coordination between agencies.
Continuity of Operations (including Continued Delivery of Services)	Ther county may have to navigate the interruption of government functions; inability to deliver critical services (e.g., public safety, utilities, administrative services); and/or loss of data or system access.
Property, Facilities, and Infrastructure	Consequences to property and structures include damage to infrastructure systems; service outages affecting buildings and facilities; reduced functionality of critical facilities; and increased maintenance and repair costs.
Environment	Potential water contamination from sewer overflows or treatment failures, reduced environmental monitoring, and localized ecosystem impacts are possible environmental effects.
Economic Condition of the Jurisdiction	Business interruptions; loss of productivity and revenue; supply chain disruptions; increased costs for repairs and emergency response.
Public Confidence in the Jurisdiction's Governance	Reduced trust in government response and infrastructure reliability; increased public concern over preparedness; potential reputational impacts if outages are prolonged or poorly managed.

3.20.6 Priority Risk Index

The following table summarizes infrastructure failure risk for Macon-Bibb County.

Table 3-79. Infrastructure Failure Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	3	3	3	4	3	3.1	H

3.21 Technological Hazard: Transportation Incident

3.21.1 Hazard Description

There are many secondary hazards that could be associated with transportation incidents. Injuries or deaths can occur as a result of the impact of a transportation accident, by a hazardous materials release as a result of a transportation incident, or by other related transportations hazards. Transportation can occur via roadways, highways, interstates, railways, air or navigable waterways. Each transportation type poses their own unique hazard issues and consequences.

Roadway hazards are most likely to be caused by a motor vehicle accident involving one or more cars, trucks, vans, or transport vehicles. These incidents can have injuries as a result of the impact of the MVA or a hazardous materials release into the local environment, including waterways. The Public Works Department in Macon-Bibb County maintains 1,064+ miles of paved registered roads and 39 miles of unpaved registered roads throughout Macon-Bibb County, along with maintenance of various alleyways.

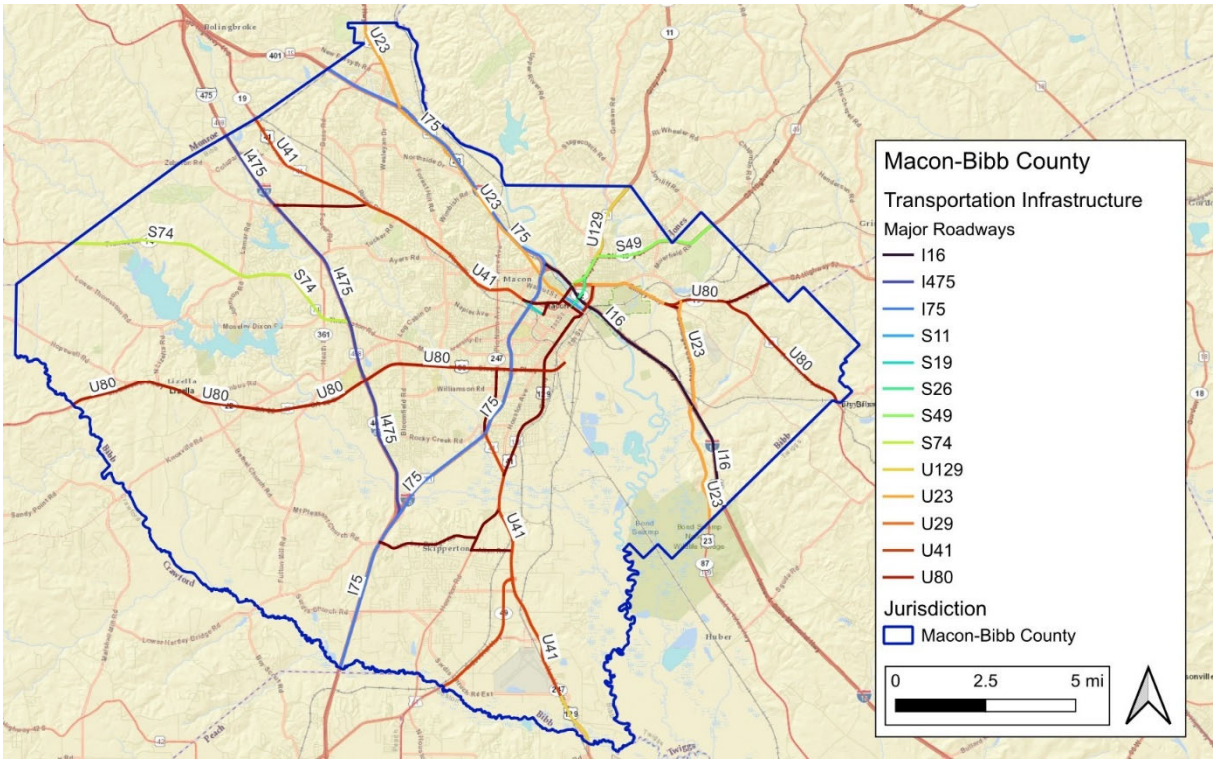
Railway incidents pose many of the same dangers as motor vehicle accidents. However, the threat of a hazardous materials release is greatly increased when railway transportation incidents are considered.

Air accidents can include commercial airplanes, private airplanes, hot air balloons, helicopters, or other forms of air travel. Each of these incidents can cause a significant threat to human life as well as posing a hazardous material threat due to the cargo being transported or the fuel being used. Navigable waterway incidents can create formidable incidents for response organizations. Because of the waterway, technical expertise is needed to carry out rescue operations, especially in swift-moving waterways. Also, any incident in a waterway is likely to have environmental impacts.

3.21.2 Hazard Location

Transportation incidents are of a significant concern in Macon-Bibb County. All assets and critical facilities located along or near any transportation route could potentially be impacted by a transportation incident. Areas within Macon-Bibb County that are not located along or near a transportation route could still face residual impacts. Passing through Macon-Bibb County are Interstates 16, 475, and 75, U.S. Highways 23, 41, 80, and 129, and Georgia Highways 11, 19, 22, 49, 74, 87, 247, and 540 (Fall Line Freeway). Of the greatest concern to the Macon-Bibb County Hazard Mitigation Plan Update Committee are Interstates 16 and 75. Macon-Bibb County's major roadways can be seen in the map below.

Figure 3-58. Major Roadways in Macon-Bibb County

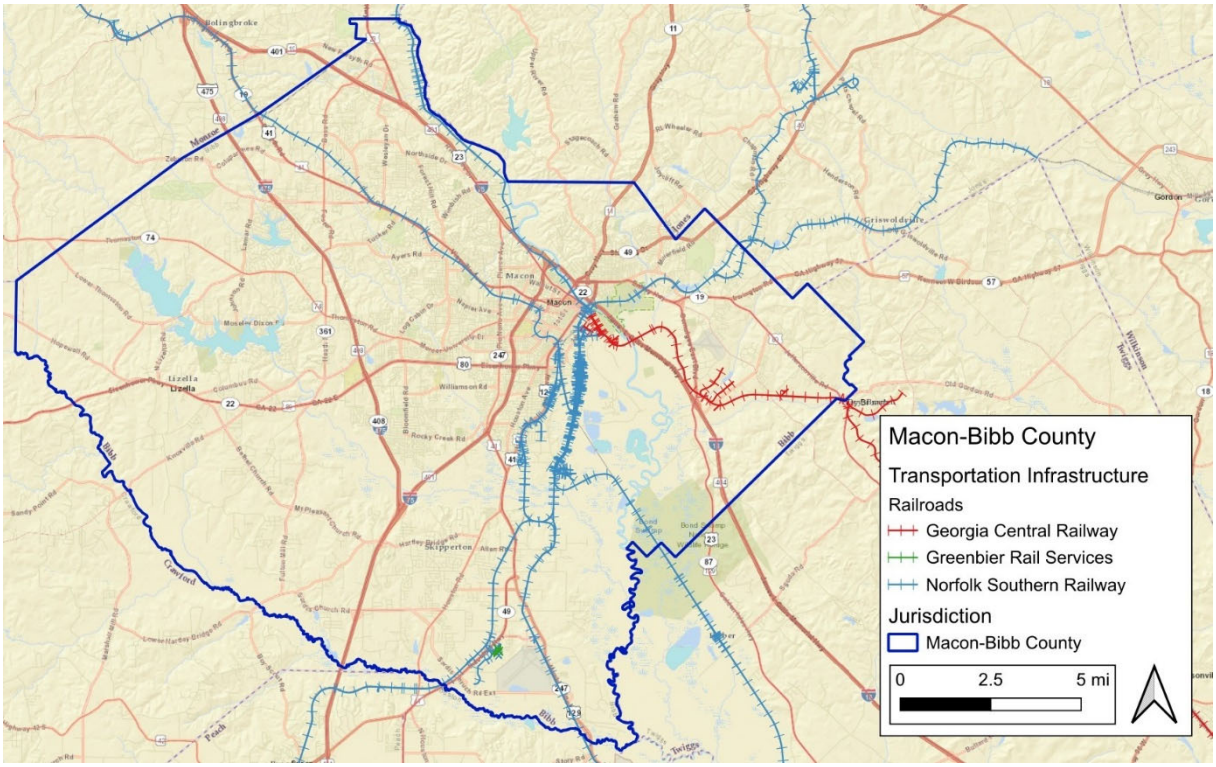


In Macon-Bibb County, four local roads have been identified as frequent locations for serious vehicular accidents. These four roads are Pio Nono Avenue, Mercer University Drive, Hawkinsville Road, and Eisenhower Parkway.[45]

The county has several railroads that pass through the county, which are owned and operated by the Georgia Central Railway, Greenbrier Rail Services, and Norfolk Southern Railway. The map below depicts the paths of these railroads.

45 https://www.macon.com/news/local/article312428059.html?utm_campaign=trueanthem&utm_medium=social&utm_source=facebook&fbclid=IwY2xjawRJ4hFleHRuA2FlbQIxMQBicmlkETFYWGpMcWI2M2xwSkU2dDlhc3J0YwZhcHBfaWQQMjIyMDM5MTc4ODIwMDg5MgABHpb2tiZOB-gmnOMTOJ-PxGX03Rl0yGLxWnnGrlevi4_freJL2yF1WWMdr2Qy_aem_R0YDBgdVeYomE7itEWuU4g. Retrieved April 13, 2026.

Figure 3-59. Railroads in Macon-Bibb County



The largest airport in Macon-Bibb County is Middle Georgia Regional Airport, located about 10 miles south of the central business district Macon-Bibb County. The airport is county-owned and available for public use, with one commercial airline in service there. Macon Downtown Airport is located three miles southeast from the central business district of Macon. It is not available for commercial use but is open to the public and mostly services small private planes and hosts air training programs for Middle Georgia State University. These airports can be seen in the map below, and the five-mile airspace buffer for each airport is depicted in Figure 3-61. In Macon-Bibb County, there are 17.247 parcels and 49,879.19 acres located within five miles of these airports. These are the areas that may be at risk should an air incident occur during takeoff or approach.

Figure 3-60. Airports in Macon-Bibb County

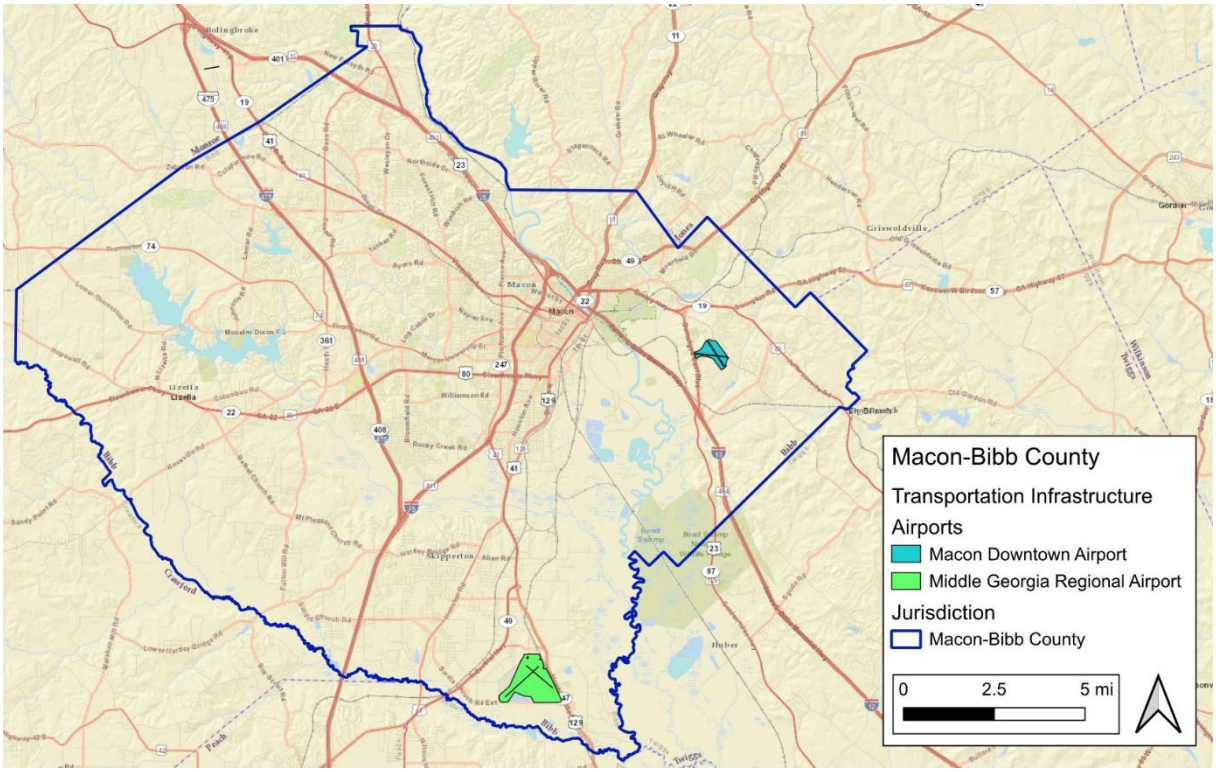
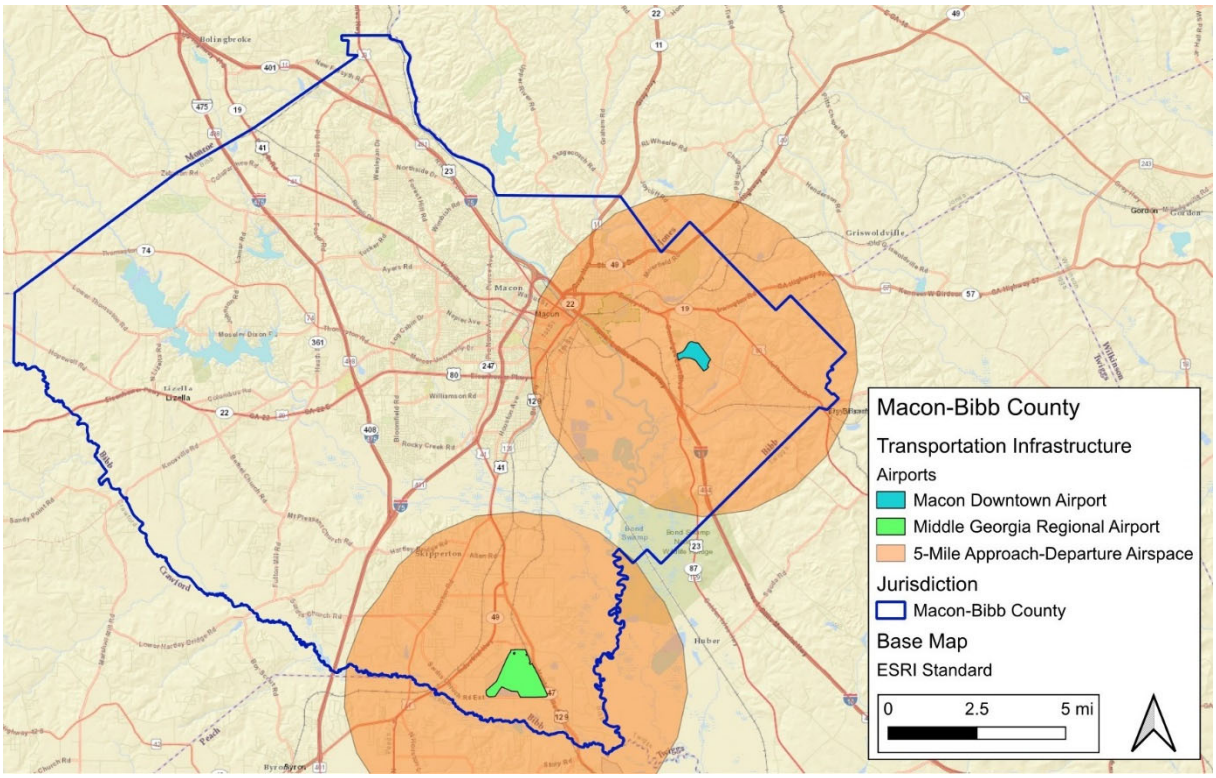


Figure 3-61. 5-Mile Airspace Buffer, Macon-Bibb County



3.21.3 Hazard Extent

The extent of transportation incidents in Macon–Bibb County is evaluated based on the type, scale, and severity of the incident, as well as the area and population affected. Key measures include the number of vehicles involved, the presence of injuries or fatalities, and whether the incident involves hazardous materials, which can significantly increase the magnitude and complexity of the event. Incidents may range from minor, localized accidents to major events involving multiple vehicles, commercial carriers, or rail systems.

Magnitude is further defined by the duration of roadway or rail closures, the extent of traffic disruption, and the impact on major transportation corridors, such as Interstate 16, Interstate 75, and key arterial roadways. Additional factors include the need for evacuations, detours, or emergency response resources, as well as any secondary impacts to nearby infrastructure, businesses, or residential areas.

3.21.4 Historical Occurrences

Transportation incidents occur regularly in Macon–Bibb County due to the presence of major transportation corridors, including I-16 and I-75. Historical records indicate a consistent pattern of vehicle crashes ranging from minor accidents to severe, multi-vehicle collisions involving injuries and fatalities. These incidents frequently result in temporary road closures, traffic congestion, and demands on emergency response resources.

The Georgia Department of Transportation displays crash data for the years 2020 to 2024 in all of Georgia. In Macon-Bibb County specifically, 33,547 vehicular crashes and 216 fatalities occurred during that timeframe. See the table below for a breakdown of crashes, injuries, and fatalities by year.[46]

Table 3-80. GDOT Car Crash Count, 2020-2024, Macon-Bibb County

Year	Crash Count	Injuries	Fatalities
2020	7,076	3,438	39
2021	7,383	3,503	47
2022	6,715	3,472	52
2023	6,274	2,858	42
2024	6,099	2,673	36
Total	**33,547**	**15,944**	**216**

In addition to routine roadway accidents, the county has experienced more significant incidents involving commercial vehicles and hazardous materials, which have required specialized response and, in some cases, temporary evacuations or extended roadway closures. Rail-related incidents, while less frequent, also present potential risks due to the transport of hazardous

[46] https://www.dot.ga.gov/GDOT/pages/CrashReporting.aspx. Retrieved April 13, 2026.

materials through the jurisdiction. Any recent incidents involving hazardous materials are detailed in Section 3.18 Technological Hazard: Hazardous Materials.

Probability of Future Occurrence

The probability of future transportation incidents in Macon–Bibb County is considered highly likely, as these events occur on a routine and ongoing basis. The presence of major transportation corridors, including heavily traveled interstates and local roadways, combined with daily commuter traffic and commercial vehicle movement, contributes to a consistent likelihood of accidents. While most incidents are minor, the probability of more severe events—such as multi-vehicle collisions or hazardous materials incidents—is lower but still present.

3.21.5 Vulnerability Assessment

All assets and critical facilities located along or near any transportation route could potentially be impacted by a transportation incident. Areas within Macon-Bibb County that are not located along or near a transportation route could still face residual impacts. Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding transportation incidents.

People

Residents and visitors in Macon–Bibb County are vulnerable to transportation incidents due to daily reliance on roadways for commuting, commerce, and access to essential services. These incidents can result in injuries or fatalities, particularly in high-speed or multi-vehicle crashes on major corridors. Secondary impacts may include traffic delays, limited access to healthcare and emergency services, and increased exposure to hazardous materials in the event of spills. Vulnerable populations, such as the elderly, individuals with disabilities, and those without alternative transportation options, may be disproportionately affected by disruptions.

Property

Transportation incidents can impact property in Macon–Bibb County through direct damage to vehicles, structures, and infrastructure located along roadways and rail lines. Collisions involving commercial vehicles or hazardous materials may result in damage to nearby buildings, signage, guardrails, and utilities, as well as contamination requiring cleanup. Rail incidents, while less frequent, can pose risks to adjacent industrial or commercial properties. In addition to physical damage, transportation incidents may cause temporary loss of access to businesses and residences, disrupting operations and reducing property usability. The extent of impact depends on the severity of the incident, type of materials involved, and proximity to developed areas.

Environment

Transportation incidents can negatively impact the environment in Macon–Bibb County, particularly when they involve hazardous material spills, fuel leaks, or debris. Accidents along major roadways or rail lines may result in contaminants entering nearby soil, stormwater systems, or waterways such as the Ocmulgee River, leading to potential water quality degradation and harm to aquatic ecosystems. Even non-hazardous incidents can contribute to

localized pollution from vehicle fluids and debris. While most environmental impacts are short-term and can be mitigated through cleanup efforts, larger or more complex incidents may result in longer-term contamination and ecological stress, particularly in sensitive or low-lying areas.

Land Use & Development Trends

Macon-Bibb County currently has no land use trends related to transportation incidents beyond an increase in overall population which, in turn, increases the likelihood and potential impact of a transportation incident and an ever-increasing industrial footprint.

Consequence Analysis

The following table summarizes the potential detrimental consequences of a transportation incident.

Table 3-81. Consequence Analysis, Transportation Incident

Category	Consequences
Public	Transportation incidents may result in injuries or fatalities and can limit access to essential services due to road closures and traffic disruptions.
Responders	Emergency personnel may experience delayed response times and coordination challenges, especially when incidents block major routes or involve hazardous materials.
Continuity of Operations (including Continued Delivery of Services)	Government operations and service delivery can be disrupted when key transportation routes are inaccessible or when staff are unable to reach facilities.
Property, Facilities, and Infrastructure	Damage to vehicles, roadways, rail lines, and nearby structures can occur, leading to repair costs and reduced functionality of infrastructure.
Environment	Hazardous material spills or fuel leaks from transportation incidents can contaminate soil and water, causing short- or long-term environmental impacts.
Economic Condition of the Jurisdiction	Local businesses may experience interruptions, reduced customer access, and financial losses due to delays, detours, and supply chain disruptions.
Public Confidence in the Jurisdiction's Governance	Public trust may decline if transportation incidents are frequent or if emergency response and traffic management are perceived as ineffective.

3.21.6 Priority Risk Index

The following table summarizes transportation incident risk for Macon-Bibb County.

Table 3-82. Transportation Incident Risk Ranking Summary

Jurisdiction	Probability	Impact	Spatial Extent	Warning Time	Duration	Score	Priority
Macon-Bibb County	4	3	1	4	1	2.8	H

3.22 Hazard Risk Summary

As discussed in 3.3.6 Priority Risk Index, the Priority Risk Index was used to rate each hazard on a set of risk criteria and determine an overall standardized score for each hazard. The conclusions drawn from this process are summarized below on the county level. The following table summarizes the degree of risk assigned to each identified hazard us ing the PRI method.

Table 3-83. Summary of PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Conflagration	Unlikely	Critical	Moderate	Less than 6 hrs.	Less than 24 hrs.	2.4
Drought	Likely	Minor	Large	More than 24 hrs.	More than 1 week	2.5
Earthquake	Possible	Minor	Moderate	Less than 6 hrs.	Less than 6 hrs.	2.0
Extreme Temperature	Highly Likely	Minor	Large	More than 24 hrs.	Less than 1 week	2.7
Infectious Disease	Unlikely	Critical	Large	More than 24 hrs.	More than 1 week	2.5
Flooding	Likely	Critical	Moderate	6 to 12 hrs.	Less than 1 week	3.0
Space Weather	Possible	Minor	Large	Less than 6 hrs.	Less than 1 week	2.4
Thunderstorm	Highly Likely	Critical	Moderate	Less than 6 hrs.	Less than 6 hrs.	3.2
Tornado	Likely	Critical	Small	Less than 6 hrs.	Less than 6 hrs.	2.7
Tropical Cyclone	Likely	Critical	Large	More than 24 hrs.	Less than 1 week	3.0
Wildfire	Possible	Critical	Moderate	Less than 6 hrs.	Less than 1 week	2.8
Winter Storm	Likely	Limited	Large	More than 24 hrs.	Less than 1 week	2.7
Communications Failure	Likely	Critical	Large	Less than 6 hrs.	Less than 1 week	3.3
Dam and Levee Failure	Possible	Critical	Moderate	Less than 6 hrs.	Less than 24 hrs.	2.7
Hazardous Materials Incident	Highly Likely	Critical	Moderate	Less than 6 hrs.	Less than 24 hrs.	3.3
Hostile Event	Unlikely	Catastrophic	Negligible	Less than 6 hrs.	Less than 24 hrs.	2.3
Infrastructure Failure	Likely	Critical	Moderate	Less than 6 hrs.	Less than 1 week	3.1
Transportation Incident	Highly Likely	Critical	Negligible	Less than 6 hrs.	Less than 6 hrs.	2.8

The results from the PRI have been classified into three categories based on the assigned risk value, which are summarized in the table below:

- **High Risk:** Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread.
- **Moderate Risk:** Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **Low Risk:** Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal. This is not a priority hazard.

Table 3-84. Summary of Hazard Risk Classification

Risk Ranking	Hazard
High Risk (> 2.4)	Drought Extreme Temperature Infectious Disease Flooding Thunderstorm Tornado Tropical Cyclone Wildfire Winter Storm Communications Failure Dam and Levee Failure Hazardous Materials Incident Infrastructure Failure Transportation Incident
Moderate Risk (2.0 - 2.4)	Conflagration Space Weather Hostile Event
Low Risk (< 2.0)	Earthquake

CHAPTER 4 MITIGATION STRATEGY

4.1 Summary of Updates for Chapter 4

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Macon-Bibb County Hazard Mitigation Plan 2020.

Table 4-1. 2026 Chapter 4 Updates

Section	Section Title	Updates
4.1	Summary of Updates	• Completed new summary of updates for 2026
4.2	Mitigation Goals	• Updated goals to match the needs of Macon-Bibb County • Content revised
4.3	Mitigation Action Identification & Prioritization	• Updated methodology used to evaluate hazard probability, magnitude, and vulnerability • Reviewed mitigation strategies identified in the 2020 plan and made updates • The prioritization process was identified
4.4	Mitigation Action Plans	• Updated the countywide mitigation action plans, including new actions decided upon by the Plan Update Committee
4.5	Completed/Removed Mitigation Actions	• Added a table that lists past mitigation actions that have either been completed or removed since the 2020 plan update
4.6	Stormwater Management Mitigation	• Noted progress that has been made since the 2020 plan update • Content revised

4.2 Mitigation Goals

Requirement §201.6(c)(3)

Requirement §201.6(c)(3)(i)

It is important that state and local government, public-private partnerships, and the average resident can see the results of these mitigation efforts; therefore, the goals and strategies need to be achievable. The mitigation goals and objectives form the basis for the development of specific mitigation actions. County officials should consider the listed goals before making community policies, public investment programs, economic development programs, or community development decisions for their communities. Mitigation goals should reflect community priorities and should be consistent with other plans in the county.

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

- Objectives are short term aims which, when combined, form a strategy or course of action to meet a goal. Objectives provide more specific criteria for achieving goals.

Goals were developed that would focus mitigation efforts on reducing personal, material, and productivity losses from the type of hazard events detailed in this plan. The goals and action steps developed by the Macon-Bibb County Hazard Mitigation Plan Update Committee and subsequent Plan Update Committees are contained herein.

One key consideration in evaluating these goals was to ensure that the goals of the Hazard Mitigation Plan align with other community planning efforts such as comprehensive and land use plans. These documents are important guides for future growth within the community.

Macon-Bibb County has limited ability to fully implement the mitigation actions described in this plan. The jurisdiction is severely hampered by the small population and tax base when attempting to raise sufficient revenue to pursue many of these actions. Macon-Bibb County lacks the needed financial strength and staffing to implement all of the actions described in this plan. Many of the actions will be pursued through grant programs and by partnering with public and private organizations who can supplement the needed resources to accomplish the goals outlined in this plan. For actions where grant funding or partnerships are not available, Macon-Bibb County revenue streams may be supplemented through Special Purpose Local Option Sales Tax (SPLOST) funds, which are voted on by the electorate.

The following goals and objectives were reviewed and maintained from the 2020 mitigation plan. Minor changes were proposed to the previous goals in an effort to clarify their wording and intent. The updates were validated by the Plan Update Committee. The Committee then reviewed, discussed, and revised the objectives to further guide the creation of mitigation actions. The 2026 goals and objectives approved by the Committee are presented below. The objectives state a more specific outcome that Macon-Bibb County strives to accomplish over the next five years. Action steps are the specific steps necessary to achieve these objectives.

1. **Goal 1:** Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors.
    a. **Objective 1.1:** Increase the ability of Macon-Bibb County and its citizens to respond to natural and manmade hazards through emergency service measures.
    b. **Objective 1.2:** Increase collaboration between local industry and emergency response agencies/departments.
    c. **Objective 1.3:** Minimize the impacts on local citizens, industry, and infrastructure of an HHPD or other local dam breach.
2. **Goal 2:** Harden communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective.
    a. **Objective 2.1:** Minimize the damage to property and loss of life through property protection measures.
    b. **Objective 2.2:** Minimize the damage to property and loss of life through natural resource protection activities.
    c. **Objective 2.3:** Implement additional protective measures and capabilities in response to manmade and HHPD incidents.

3. **Goal 3:** Reduce and, where possible, eliminate repetitive damage, loss of life, and property from disasters.
    a. **Objective 3.1:** Reduce damage to property and loss of life through the utilization of preventative activities.
    b. **Objective 3.2:** Reduce damage to property and loss of life through the utilization of structural mitigation projects.
4. **Goal 4:** Bring greater awareness throughout the community about potential hazards and the need for community preparedness.
    a. **Objective 4.1:** Increase public education and awareness of natural hazards.
    b. Objective 4.2: Increase public awareness of local manmade hazards and proper response to those hazards.

4.3 Mitigation Action Identification & Prioritization Methodology

Requirement §201.6(c)(3)(iv)

Requirement §201.6(c)(3)(iii)

4.3.1 Identification Process

In updating Macon-Bibb County's mitigation strategy, a wide range of activities were considered in order to help achieve the mitigation goals and objectives. This includes the following activities as by the Emergency Management Accreditation Program (EMAP):

- The use of applicable building construction standards;
- Hazard avoidance through appropriate land-use practices;
- Relocation, retrofitting, or removal of structures at risk;
- Removal or elimination of the hazard;
- Reduction or limitation of the amount or size of the hazard;
- Segregation of the hazard from that which is to be protected;
- Modification of the basic characteristics of the hazard;
- Control of the rate of release of the hazard;
- Provision of protective systems or equipment for both cyber and physical risks;
- Establishment of hazard warning and communication procedures; and
- Redundancy or duplication of essential personnel, critical systems, equipment, and information materials.

To identify and select mitigation projects, the Committee targeted those hazards considered high and moderate priorities for the planning area, based on the analysis provided in Chapter 3 Hazard Identification & Risk Assessment. The following hazards were determined based on the Priority Risk Index scores to be high and moderate priority hazards (Earthquake was determined to be low priority):

- Drought
- Extreme Temperature
- Infectious Disease
- Flooding
- Space Weather
- Thunderstorm

- Tornado
- Tropical Cyclone
- Wildfire
- Winter Storm
- Communications Failure
- Dam and Levee Failure
- Hazardous Materials Incident
- Infrastructure Failure
- Transportation Incident
- Conflagration
- Hostile Event

The term "All" is utilized in the "Hazards Addressed" column of Table 4-3 below where all of the above hazards apply to a specific mitigation action. Otherwise, specific hazards are listed in that column.

Once it was determined which hazards warranted the development of specific mitigation actions, the Committee analyzed viable mitigation options that supported the identified goals and objectives. Each mitigation action identified in this plan is directly linked to the vulnerabilities and impacts identified in the Risk Assessment and Vulnerability Assessment sections. Actions were developed to reduce long-term risk to people, property, critical facilities, infrastructure, the economy, and the environment from identified hazards. The Committee organized actions based on the following list of mitigation categories, which are utilized as part of the CRS planning process but are also applicable to multi-hazard mitigation.

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

More details on the range of mitigation alternatives considered by the Committee are provided in Appendix E.

The Plan Update Committee was also provided with the FEMA publication Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013) and geographically relevant examples of potential mitigation actions for each of the above categories. The Committee was instructed to consider both future and existing buildings in evaluating possible mitigation actions. The Committee also reviewed existing actions in the 2020 plan and considered which incomplete actions would be continued in this action plan.

4.3.2 Prioritization Process

In the process of identifying continuing and new mitigation actions, the Committee was provided with a set of criteria to assist in deciding why one action might be more important, more effective, or more likely to be implemented than another. Committee members were asked to rate each action with an approach modified from the FEMA STAPLEE criteria. The considerations for action prioritization were as follows:

- **Socially Acceptable:** Is the action acceptable to the community? Does it have a greater impact on a certain segment of the population? Are the benefits fair?

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

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority, as reflected in the prioritization criteria above. Most items that require grant funding must undergo a full benefit-cost analysis to determine the action's actual cost effectiveness prior to funding. For each action, the Committee considered the benefit-cost analysis in terms of:

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

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

The prioritization ranking, simplified as High, Medium, or Low, for each mitigation action considered by the Committee is provided in the Mitigation Action Plans below. These priority rankings are relative and assigned by each jurisdiction's representatives on the Committee but can be generally defined as follows:

- **High:** Project can be implemented quickly and/or easily, provides the best return on investment, and/or addresses a high-priority hazard or significant vulnerability.
- **Medium:** Project provides a good benefit-cost ration but requires some additional support to implement.
- **Low:** Project requires significant administrative or financial support to implement, is a long-range pursuit, has a low benefit-cost ratio, and/or does not address a high-priority hazard.

The responsible party listed in the mitigation action plans will be responsible for the jurisdictional administration and implementation of the mitigation strategy prioritization.

Prioritization was determined based on many factors. These include the likelihood of the event, the potential impact of the event, the current readiness posture of Macon-Bibb County for the event, the all-hazard impact of the mitigation strategy, and a cost-benefit analysis for the mitigation action. For example, mitigation actions that address high-likelihood, high-impact events with a low cost would rate higher than low-likelihood, high-impact events with a high cost.

Changes in priorities are reflected in the priority rankings of the mitigation actions and in the actions that have been deleted from the mitigation plan (detailed in Section 4.5). Priorities for mitigation were impacted by findings in the updated risk assessment, changes in local capability, and changes in resources available for mitigation.

4.4 Mitigation Action Plans

Requirement §201.6(c)(3)(ii)
Requirement §201.6(d)(3)

Each countywide mitigation action recommended for implementation is listed in Table 4-3 along with detail on the hazards addressed, the goal and objective addressed, the priority rating, the lead agency responsible for implementation, potential funding sources for the action, a projected implementation timeline, and the 2026 status and comments on the status for actions that were carried forward from the 2020 plan. Potential funding sources are generally abbreviated in the mitigation action tables and are defined in the table below:

Table 4-2. Potential Mitigation Funding Sources

Name/Acronym	Description
CIP	Capital Improvement Projects
County Operating Budget	General income funds appropriated to specific departments and/or projects
DHS	Department of Homeland Security Grants
Federal Grants	Federal Grants other than DHS/FEMA
FMA	Flood Mitigation Assistance
General Funds	General income funds appropriated to specific departments and/or projects
HMGP	Hazard Mitigation Grant Program
Local Funds	General income funds appropriated to specific departments and/or projects
NGO Grants	Non-Governmental Organization Grants
PDM	Pre-Disaster Mitigation
SPLOST	Special Purpose Local Option Sales Tax
SRL	Severe Repetitive Loss
State Grants	State originated and/or administered grants

Table 4-3. Mitigation Action Plans, Macon-Bibb County

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
GOAL 1: Objective 1.1										
1.a	Purchase a four-wheel drive crossover utility vehicle to facilitate dam inspection in flood conditions	Macon-Bibb Engineering	Flood, Tropical Cyclone	Local Funds, DHS, Federal Grants	$12,000	24 months	None due to other projects taking priority	None due to other projects taking priority	High	Property Protection Emergency Services Structural Projects
1.b	Purchase two 10,000-gallon water storage tanks to utilize for clean water storage in flood situations	Macon-Bibb Public Works	Flood, Tropical Cyclone	Local Funds, DHS, Federal Grants, FMA, HMGP, PDM	$15,000	30 months	None due to other projects taking priority	None due to other projects taking priority	High	Emergency Services
1.c	Purchase emergency sewer bypass pumps	Macon Water Authority	Flood, Thunderstorm, Tropical Cyclone	Local Funds, DHS, Federal Grants, FMA, HMGP, PDM	$85,000	24 months	2 pumps in place; 1 more in 2019-2020 budget	Ongoing	Medium	Structure Projects
1.d	Maintain current tornado sirens and update/replace as necessary	Macon-Bibb EMA	Tornado	Local Funds, HMGP, PDM	$125,000	60 months	NEW	Ongoing	High	Emergency Services Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.e	Purchase tornado sirens as need is determined	Macon-Bibb EMA	Tornado	Local Funds	$3 million	6 months	NEW	In progress	High	Emergency Services Public Information and Outreach
1.f	Establish ESF-2 (Communications) backup to emergency communications	Bibb County Sheriff's Office	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Extreme Temps	Local Funds, HMGP, PDM	$500,000	60 months	NEW	Ongoing	Medium	Emergency Services
1.g	Conduct two severe weather drills in every public school each year	Bibb County BOE	Tornado	Local Funds	Staff time	12 months	In place; drills completed each February and November	In place; drills completed each February and November	High	Public Information and Outreach
1.h	Maintain database of critical facilities located in wildfire hazard area	Macon-Bibb Planning and Zoning and Macon-Bibb Fire Department	Wildfire	Local Funds	Staff time	24 months	In place; continue	In place; continue	Medium	Emergency Services
1.i	Acquire a mobile unit to provide the 911 Center with a backup location	Bibb County Sheriff's Office	Flood, Winter Weather, Thunderstorm, Tornado, Tropical	Local Funds, DHS, Federal Grants, HMGP, PDM	$200,000	48 months	NEW	Carry Forward	Medium	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
			Cyclone, Earthquake							
1.j	Construct a new edifice at the 911 Center	Bibb County Sheriff's Office	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$250,000	60 months	NEW	Carry Forward	Medium	Emergency Services
1.k	Assess options for creating plan for Macon-Bibb County Health Department to continue limited operations during water disruptions including boil water advisory, contamination, and no water available	Macon-Bibb Health Department	Flood, Tornado, Tropical Cyclone, Drought, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$5,000	30 months	NEW	Carry Forward	Medium	Emergency Services
1.l	Maintain records of existing on-site sewage systems and private well for use in evaluating homes and	Macon-Bibb Health Department	Flood, Tropical Cyclone	Local Funds	Staff time	36 months	NEW	Carry Forward	Medium	Natural Resource Protection, Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	other structures damaged during manmade or natural emergency situations									
1.m	Purchase four-wheel drive response vehicles	Macon-Bibb County Sheriff's Office and Fire Department	Flood Winter Weather, Wildfire	Local Funds, DHS, Federal Grants, HMGP, PDM	$500,000	48 months	NEW	Ongoing	Low	Emergency Services
1.n	Replace wood chipper for increased debris management capabilities	Macon-Bibb Parks and Beautification	Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$20,000	30 months	NEW	Carry Forward	Medium	Emergency Services
1.o	Purchase 12 new chainsaws to utilize fin cutting downed limbs during disaster cleanup	Macon-Bibb Public Works	Winter Weather, Thunderstorm, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$5,000	24 months	None due to other projects taking priority	Carry Forward	Medium	Emergency Services
1.p	Utilize MBC Alert to alert the general public regarding road conditions and impacted roadways and bridges from the effects of winter storms	Macon-Bibb County Office of Communications and EMA	Winter Weather	Local Funds	Staff time	12 months	Ongoing; In place	Carry Forward	High	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.q	Perform a study to determine what resources are needed for mitigating impacted roadways and bridges from the effects of winter storms	Macon Bibb Engineering and Public Works	Winter Weather	Local Funds	Staff time	24 months	Modified to research resource needs	Ongoing	High	Prevention
1.r	Purchase new salt spreaders for dump trucks	Macon Bibb Parks	Winter Weather	Local Funds, DHS, Federal Grants, HMGP, PDM	$50,000	48 months	NEW	Carry Forward	Medium	Emergency Services
1.s	Provide NIMS 700 and ICS 100 and 200 training to school administrators	Macon-Bibb Schools	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	Staff time	18 months	Exploring best means of training	Carry Forward	Medium	Emergency Services
1.t	Conduct at least one table top exercise per year simulating various hazards	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Drought, Wildfire,	Local Funds	Staff time	12 months	Ongoing; In Place; Schools to host 2020 TTX	Ongoing; In Place	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
			Earthquake, Extreme Temps							
1.u	Conduct monthly fire drills in all schools and 2 severe weather drills annually	Macon-Bibb Schools and Macon-Bibb Fire Dept	Thunderstorm, Tornado, Tropical Cyclone, Wildfire	Local Funds	Staff time	12 months	In Place; Continue	In Place; Continue	High	Emergency Services Public Information and Outreach
1.v	Conduct local training sessions on how to use regional disaster relief resources	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Emergency Services
1.w	Purchase medical evacuation sleds for hospital evacuations	Coliseum Health and Navicent Health	Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$15,000	30 months	None; budgetary constraints	Carry Forward	Medium	Emergency Services
1.x	Identify Macon Water Authority contact for emergency operations. Develop into full-time emergency and	Macon-Bibb EMA and Macon Water Authority	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Drought,	Local Funds	Staff time	12 months	Contact identified; exploring full-time position feasibility	Ongoing	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	security position by 2020		Wildfire, Earthquake, Extreme Temps							
1.y	Develop and maintain a list of temporary debris dumping sites for disaster response	Macon-Bibb Public Works	Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	Staff time	12 months	Sites being reviewed	Ongoing	High	Emergency Services
1.z	Partner with American Red Cross to plan for and collaborate in disaster response	American Red Cross and Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds	Staff time	12 months	Partnership in place; more collaboration needed	Ongoing	Medium	Emergency Services
1.aa	Partner with American Red Cross to re-evaluate and study the quantity and adequacy of Red Cross-approved shelters in Macon-Bibb County, determine need for sheltering volunteers, and associated training	American Red Cross, DFCS, and Macon-Bibb EMA	Flood, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds and NGO Grants	Staff time	36 months	None; Other projects were of higher priority	Carry Forward	Medium	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.bb	Participate in monthly fire drills at local private schools	Macon-Bibb Fire Department	Wildfire, Earthquake	Local Funds	Staff time	12 months	NEW	Ongoing	Low	Emergency Services Public Education and Outreach
1.cc	Develop, test, and implement hazard-specific emergency response and evacuation plans for key (high occupancy) county buildings	Macon-Bibb EMA	Earthquake	Local Funds	Staff time	18 months	Evacuation plans for fire in place	Evacuation plans for fire in place	Medium	Emergency Services
1.dd	Conduct training for city and county employees on proper emergency response and building evacuation procedures	Macon-Bibb EMA	Earthquake	Local Funds	Staff time	24 months	In place for fire drills	In place for fire drills	Medium	Emergency Services
1.ee	Conduct routine testing and preventative maintenance on all county generators	Macon-Bibb Facilities Management	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	Staff time and $50,000	12 months	In place; Continue	In place; Continue	High	Property Protection Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.ff	Conduct routine test and preventative maintenance on traffic signals and systems	Macon-Bibb Facilities Management	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds	Staff time and $20,000	12 months	In place; Continue	In place; Continue	Medium	Property Protection Emergency Services
1.gg	Conduct routine testing and preventative maintenance on fiber communication network	Macon-Bibb Facilities Management	Flood, Winter Weather, Tropical Cyclone, Wildfire, Earthquake	Local Funds	Staff time	24 months	In place; Continue	In place; Continue	Medium	Property Protection Emergency Services
1.hh	Purchase 60 to 70-foot bucket truck to facilitate maintenance and repair operations	Macon-Bibb Facilities Management and Public Works	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone	Local Funds, DHS, Federal Grants, HMGP, PDM	$100,000	36 months	None; budgetary constraints	None; budgetary constraints	Medium	Structure Projects
1.ii	Purchase 10 portable generator light trees to facilitate nighttime maintenance and repairs	Macon-Bibb Facilities Management and Public Works	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$30,000	48 months	None; Other projects taking priority	None; Other projects taking priority	Medium	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.jj	Purchase 6 4WD pickup trucks to utilize in disaster response	Macon-Bibb Facilities Management and Public Works	Flood, Winter Weather, Tropical Cyclone, Wildfire	Local Funds, DHS, Federal Grants, HMGP, PDM	$180,000	60 months	None; Other projects taking priority	None; Other projects taking priority	Medium	Emergency Services
1.kk	Purchase 250 construction barrels to block off roads during a disaster	Macon-Bibb Public Works	Flood, Winter Weather, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$18,000	30 months	None; Budgetary constraints	None; Budgetary constraints	Medium	Emergency Services
1.mm	Purchase 15 800 MHz radios to facilitate communication between drivers, staff, EMA, fire, and EMS	Macon-Bibb Solid Waste	Flood, Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$40,000	36 months	None; Budgetary constraints	None; Budgetary constraints	Low	Emergency Services
1.nn	Purchase portable air curtain incinerators which will be used to burn debris after a disaster	Macon-Bibb Solid Waste	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$100,000	60 months	None; budgetary constraints	None; budgetary constraints	Medium	Natural Resource Protection Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.oo	Purchase two roll-off containers to clear debris in disaster response	Macon-Bibb Solid Waste	Winter Weather, Thunderstorm, Tropical Cyclone, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$50,000	60 months	None; Other projects taking priority	None; Other projects taking priority	Low	Emergency Services
1.pp	Conduct routine testing and preventative maintenance of all county operated vehicles	Macon-Bibb Fleet Services	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Emergency Services
1.qq	Purchase 4WD vehicles for the Fire Department and Sheriff's Office	Macon-Bibb Fire and Sheriff's Office	Flood, Winter Weather, Tropical Cyclone, Wildfire	Local Funds, DHS, Federal Grants, HMGP, PDM	$100,000	36 months	NEW	Carry Forward	Medium	Emergency Services
1.rr	Update MBC Alert System with translation system for non-English speaking populations	Macon-Bibb EMA Office of Communications	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone	Local Funds, DHS, Federal Grants, HMGP, PDM	$10,000	24 months	NEW	Carry Forward	High	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.ss	Assess options for creating a plan for the Macon-Bibb County Health Department to continue limited operations during water disruptions	Macon-Bibb Health Department	Flood, Winter Weather, Tropical Cyclone, Drought, Earthquake	Local Funds	Staff time	24 months	NEW	Carry Forward	Medium	Emergency Services
1.uu	Train all county department heads and any other personnel who will be expected to staff the EOC in ICS 100, 200, 700, and 800	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps	Local Funds	Staff time	30 months	NEW	Ongoing	High	Emergency Services
GOAL 1: Objective 1.2										
1.vv	Evaluate and maintain records of permitted care facilities with approved EOPs and ensure facilities are not operating without an approved EOP	Macon-Bibb Health Department	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Drought, Earthquake,	Local Funds	Staff time	24 months	NEW	Carry Forward	High	Emergency Services
1.ww	Inspect and re-open permitted care facilities once	Macon-Bibb Health Department	Flood, Tornado, Tropical	Local Funds	Staff time	24 months	NEW	Carry Forward	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	disruption of utilities has been corrected		Cyclone, Earthquake							Structure Projects
1.xx	Join SEADOG disaster support group to coordinate with other regional airports in disaster preparedness and response	Macon-Bibb Aviation	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Wildfire, Earthquake,	Local Funds	Staff time	24 months	Under research	Carry Forward	Low	Emergency Services
1.yy	Develop and maintain a list of contractors and monitors to utilize in disaster relief situations	Macon-Bibb Public Works	Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	Staff time	18 months	Some contractors identified; more needed	Ongoing	Medium	Emergency Services
1.zz	Evaluate and encourage facilities to have appropriate emergency plans	Macon-Bibb Health Department	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps	Local Funds	Staff time	12 months	NEW	Ongoing	High	Emergency Services
1.aaa	Create a pre-identified list of vendors who can respond to a train	Macon-Bibb County Fire Department and EMA	Hazmat, Transportation Incident,	Local Funds	Staff time	12 months	NEW	Carry Forward	Medium	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	derailment for cleanup		Infrastructure Failure							
1.bbb	Meet annually with Norfolk Southern representatives for training	Macon-Bibb Fire Department and EMA	Hazmat, Transportation Incident	Local Funds	Staff time	12 months	NEW	Ongoing	High	Emergency Services
1.ccc	Meet annually with Norfolk Southern reps for training updates	Macon-Bibb emergency response agencies and Norfolk Southern	Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Conflagration	Local and private Funds	Staff time	12 months	NEW	Ongoing	High	Emergency Services
1.ddd	Develop HAM radio equipment and capabilities at Piedmont hospitals	Piedmont Hospital and Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Wildfire, Earthquake, Hostile Event, Infrastructure Failure, Communication Failure	Federal Grants, HMGP, EMGP, PDM	$3,000	12 months	N/A	New	Medium	Emergency Services
GOAL 1: Objective 1.3										

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.eee	Perform general maintenance and inspection for all government operated dams and levees including HHPDs	Macon-Bibb Engineering	Dam and Levee Failure, Hostile Event, Infrastructure Failure	Local Funds	Staff time	36 months	In place for Category I and II dams	In place for Category I and II dams	High	Property Protection, Natural Resource Protection, Structural Projects
1.fff	Reduce flooding by exploring if existing levee can be reduced in size to reclaim natural floodplain areas. Would allow limited resources to be used protecting existing development and vital infrastructure instead of several miles of levee protecting largely undeveloped land.	Macon Water Authority / USACE	Flood, Dam and Levee Failure	Local Funds, State Grants, Federal Grants, FMA, HMGP	Staff time	24 months	N/A	New	High	Structural Projects
1.ggg	Levee sand boil repairs within the historical break/scour area near STA 140+00, N-LV-01	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$200,000	12 months	N/A	New	High	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
1.hhh	Remove sediment from levee relief wells, NT-LV-02	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$250,000	36 months	N/A	New	High	Structural Projects
1.iii	Levee- Breach Pond remediation, NT-LV-03	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$150,000	24 months	N/A	New	High	Structural Projects
1.jjj	Levee Gravity Floodwall Improvements, NT-LV-07	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$500,000	36 months	N/A	New	High	Structural Projects
1.kkk	Levee Cantilever Floodwall Improvements, NT-LV-08	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$500,000	36 months	N/A	New	High	Structural Projects
1.lll	Levee Embankment Improvements, NT-LV-09	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$100,000	18 months	N/A	New	High	Structural Projects
1.mmm	Levee Stabilization at GDOT MLK BLVD Bridge Widening project. Station 0+00 to 0+50, NT-LV-10	Macon Water Authority	Flood, Tropical Cyclone, Earthquake	HMGP, PDM	$300,000	48 months	N/A	New	High	Structural Projects
1.nnn	Water-River Building - overhaul river pumps, 14 MGD river	Macon Water Authority	Drought	HMGP, PDM	$600,000	24 months	N/A	New	High	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	pump addition, NT-W-02									
1.ooo	Hypochlorite & CLO2-Engineering Study/design, NT-W-04	Macon Water Authority	Tornado, Tropical Cyclone	HMGP, PDM	$80,000	18 months	N/A	New	Medium	Structural Projects
1.ppp	Water-Reservoir Building and Reservoir - reservoir pumps and motor rehabilitation, reservoir check valves, reservoir pump VFD upgrade, rebuild reservoir pump #3, raw water air release, NT-W-06	Macon Water Authority	Drought	HMGP, PDM	$400,000	60 months	N/A	New	High	Structural Projects
1.qqq	Water Generator Building - AWTP generator control system, generator fuel control system, generator fuel storage/transfer replacement controls, ATS replacement, NT-W-12	Macon Water Authority	Infrastructure Failure	HMGP, PDM	$200,000	48 months	N/A	New	High	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
GOAL 2: Objective 2.1										
2.a	Continue phasing out portable units at all Bibb County Schools and building new school facilities	Bibb County BOE	Thunderstorm, Tornado, Tropical Cyclone	Local Funds, State Grants, Federal Grants, SPLOST, NGO Grants	$8 million	60 months	Ongoing; Down to 75 units, started with several hundred	Ongoing	High	Prevention, Property Protection
2.b	Continue demolition of unsafe/ condemned buildings located in Macon-Bibb County	Macon-Bibb County BOC	Winter Weather, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds, State Grants, Federal Grants, FMA, HMGP	$1 million annually	60 months	Annual project; 20-25 demolitions occurred in 2019	Annual project	Medium	Structural Projects
2.c	Perform a grounding study and take necessary corrective actions at Bibb BOE, Middle GA State, Coliseum Health, Navicent Health, and MWA facilities	Bibb BOE, Middle GA State, Coliseum Health, Navicent, and Macon Water Authority	Thunderstorm, Tropical Cyclone	Local Funds, State Grants, Federal Grants, HMGP	$20,000	60 months	NEW	Carry Forward	Low	Structural Projects
2.d	Perform periodic inspections of all county critical facilities for proper grounding	Macon-Bibb Facilities Management	Thunderstorm, Tropical Cyclone	Local Funds	Staff time	18 months	Ongoing; In Place	Ongoing; In Place	Medium	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.e	Conduct analysis of proper grounding at Macon-Bibb Aviation Department facilities	Macon-Bibb Aviation, GA DOT, FAA, and TBI	Thunderstorm, Tropical Cyclone	Local Funds, State Grants, Federal Grants, HMGP, PDM	Staff time	24 months	Ongoing; In place	Ongoing; In place	Medium	Structural Projects
2.f	Purchase and install a generator at the Macon-Bibb libraries for temperature control to preserve the books	Macon-Bibb Library	Witner Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP, PDM	$60,000	48 months	NEW	Carry Forward	Low	Structural Projects
2.g	Purchase new /adapt existing generator at new campus to allow for operations at Macon Bibb County Health Department	Macon-Bibb Health Department and EMA	Witner Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP, PDM	$30,000	36 months	NEW	Carry Forward	Medium	Structural Projects
2.h	Purchase emergency generator for Breezy Hill Water Pump Station	Macon Water Authority	Witner Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP, PDM	$20,000	30 months	Equipment needs under review	Carry Forward	Medium	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.i	Inventory and assess need for generators at critical facilities	Macon Bibb Facilities Management and Critical Facility operators	Witner Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP, PDM	$50,000 for assessment	24 months	Assessments Ongoing	Assessments Ongoing	High	Emergency Services, Structural Projects
2.j	Purchase portable generators for all county operated critical facilities that do not currently have access to a generator	Macon-Bibb Facilities Management	Witner Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP, PDM	$5 million	60 months	Awaiting assessments in strategy 2.i	Ongoing	High	Emergency Services
2.k	Reduce sediment on active railway off Lamar Mounds Road by restoring mine area	National Park Service	Hazmat, Transportation Incident	NPS budget/Private industry funds	$500,000	12 months	N/A	New	Medium	Prevention
2.l	Assess community risk to communication failure and space weather	MBC EMA	Flood, Tropical Cyclone, Communication Failure, Space Weather	Local Funds	Staff time	12 months	N/A	New	Medium	Emergency Services
2.m	Sommers Drive Storm Pipe Upgrade, NT-SW-17	Macon Water Authority	Flood, Tropical Cyclone	FMA, HMGP, PDM	$200,000	24 months	N/A	New	Medium	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.n	Derbyshire Drive Drainage Improvements, NT-SW-26	Macon Water Authority	Flood, Tropical Cyclone	FMA, HMGP, PDM	$200,000	24 months	N/A	New	Medium	Structural Projects
2.o	Ocala Plantation Drainage Improvements, NT-SW-30	Macon Water Authority	Flood, Tropical Cyclone	FMA, HMGP, PDM	$200,000	24 months	N/A	New	Medium	Structural Projects
GOAL 2: Objective 2.2										
2.p	Analyze sewer overflows during floods in order to determine maintenance needs	Macon Water Authority	Flood, Thunderstorm, Tropical Cyclone	Local Funds	Staff time	30 months	CMOP program preparedness out to EPA to continue monitoring	CMOP program preparedness out to EPA to continue monitoring	High	Property Protection, Structural Projects
2.q	Purchase emergency pump to pump flood water out of landfill	Macon-Bibb Solid Waste	Flood, Thunderstorm, Tropical Cyclone	Local Funds, State Grants, Federal Grants, FMA, HMGP, PDM,	$45,000	24 months	None due to budgetary constraints	None due to budgetary constraints	High	Property Protection, Natural Resource Protection, Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.r	Encourage private owners of operating/in use private well effected by flooding/drought conditions to have evaluated to ensure water is still potable.	Macon Planning and Zoning	Flood, Tropical Cyclone	Local Funds	Staff time	18 months	NEW	Ongoing	Medium	Structural Projects
2.t	Remove trees in the right of way along roadways in Macon-Bibb County that are deemed "probable to fall" in the event of a winter storm or wind event	Macon-Bibb Parks and Beautification	Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds, State Grants, Federal Grants, HMGP	$50,000	30 months	NEW	Ongoing	Medium	Prevention
2.u	Vinson Road Detention Pond Dredging and Retro-fit, NT-SW-19	Macon Water Authority	Flood, Tropical Cyclone	Local Funds, FMA, HMGP, PDM	$60,000	36 months	N/A	New	High	Structural Projects
2.v	Detention Pond Dredging & Retro-fit, NT-SW-28	Macon Water Authority	Flood, Tropical Cyclone	Local Funds, FMA, HMGP, PDM	$60,000	36 months	N/A	New	High	Structural Projects
2.w	Skipperton Road Detention Pond Upgrades, NT-SW-29	Macon Water Authority	Flood, Tropical Cyclone	Local Funds, FMA, HMGP, PDM	$60,000	36 months	N/A	New	High	Structural Projects

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.x	Improve ability to maximize delivery of Ocmulgee river water to the Amerson WTP reservoir and thereby maximize the volume of available raw water available for treatment in the event of a disaster impacting the Ocmulgee river.	Macon Water Authority	Flood, Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps, Dam and Levee Failure	Local Funds, FMA, HMGP, PDM	$1 million	36 months	N/A	New	Medium	Natural Resource Protection, Structural Projects
GOAL 2: Objective 2.3										
2.y	Have all Macon-Bibb County agencies and departments take cybersecurity training, such as the "know before" online training	Macon-Bibb County IT	Hostile Event, Infrastructure Failure, Communication Failure	Local Funds	Staff time	24 months	NEW	Ongoing	High	Emergency Services
2.z	Create a Cybersecurity Plan for Macon-Bibb County	Macon-Bibb County IT	Hostile Event, Communication Failure	Local Funds, DHS, State Grants, HMGP, PDM	$40,000	30 months	NEW	Carry Forward	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.aa	Create a response team for cybersecurity incidents	Macon-Bibb County IT and EMA	Hostile Event, Communication Failure	Local Funds	Staff time	18 months	NEW	Carry Forward	High	Emergency Services
2.bb	Hold an exercise on potential cascading effects of a train derailment/ hazmat incident at Brosnan Yard	Macon-Bibb EMA and Fire Department	Hazmat, Transportation Incident	Local Funds, NGO Grants, DHS	$2,500	24 months	NEW	Carry Forward	Medium	Emergency Services
2.cc	Install a generator at Wastewater treatment facilities and pump stations	Macon Water Authority	Hostile Event, Infrastructure Failure	Local Funds, FMA, HMGP, PDM	$5 million	60 months	NEW	Carry Forward	Medium	Emergency Services
2.ee	Purchase emergency flare to expel methane gas from landfill	Macon-Bibb Solid Waste	Hazmat, Infrastructure Failure	Local Funds, State Grants, Federal Grants	$500,000	60 months	None; budgetary constraints	Carry Forward	Medium	Emergency Services
2.ff	Ensure businesses shipping, receiving, or storing hazardous materials perform drills and routine maintenance to avoid the possibility of a spill at Brosnan Yard or other railroad tracks	Macon-Bibb EMA and Norfolk Southern	Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Conflagration	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
2.gg	Conduct annual large scale terrorism crisis simulations to address vulnerabilities like HHPDs, aviation, healthcare, and education facilities.	Macon-Bibb EMA, MWA, Bibb BOE, Coliseum Health, Navicent Health, Macon-Bibb Aviation, Macon-Bibb Fire, Macon-Bibb SO, etc.	Dam and Levee Failure, Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Infectious Disease, Communication Failure, Conflagration	Local Funds	Staff time	36 months	In planning stages	In planning stages	Medium	Emergency Services
2.hh	Reinstitute Safe Havens "First 30 Seconds" Training program	Bibb BOE	Hostile Event	Local Funds	Staff time	12 months	In planning stages	In planning stages	Medium	Emergency Services
2.ii	Conduct regular lockdown drills in all public schools	Bibb BOE	Hostile Event	Local Funds	Staff time	12 months	In place in many schools, but not all	In place in many schools, but not all	Medium	Emergency Services Public Information and Outreach
2.jj	Maintain and improve safety equipment in Bibb County Schools	Bibb BOE	Hazmat, Hostile Event, Infectious Disease,	Local Funds, State Grants, Federal Grants, DHS	$5 million	60 months	Appropriate measures under research	Appropriate measures under research	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
			Communication Failure							
2.kk	Conduct routine testing and preventative maintenance on all county security systems	Macon-Bibb Facilities Management	Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Communication Failure	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Property Protection Emergency Services
2.ll	Create a cybersecurity plan and a cyber incidents response team for Macon-Bibb County	Macon-Bibb IT	Hostile Event, Infrastructure Failure, Communication Failure	Local Funds	Staff time	24 months	NEW	Carry Forward	High	Emergency Services
2.nn	Conduct a series of “cascading events” exercises for a train derailment/ hazmat release at Brosnan Yard/ other track locations	Macon-Bibb EMA and Norfolk Southern	Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Communication Failure, Conflagration	Local Funds	Staff time	36 months	NEW	Carry Forward	Medium	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
GOAL 3: Objective 3.1										
3.a	Continue to conduct stormwater management study to address recurring stormwater issues	Macon Water Authority; Macon-Bibb Public Works; Macon-Bibb Engineering	Flood, Thunderstorm, Tropical Cyclone	Local Funds, FMA, HMGP, PDM	$5-7.5 million	36 months	In progress; Some inspections completed; exploring grant opportunities	In progress; Some inspections completed; exploring grant opportunities	High	Property Protection Structural Projects
3.b	Seek to buyout and remove any flood prone properties, as applicable	Macon -Bibb County BOC; Economic Development	Flood, Thunderstorm, Tropical Cyclone	Local Funds, FMA, HMGP, PDM, SRL	$500,000	60 months	One property bought; more to be completed	Ongoing	Low	Prevention Property Protection
3.c	Ensure continued enforcement of all floodplain management ordinances and regulations	Macon-Bibb Business Development Srvcs, Planning/Zoning, Health Dept, Engineering	Flood, Tropical Cyclone	Local Funds, FMA, HMGP, PDM,	Staff time	12 months	In place; continue	In place; continue	High	Prevention
3.d	Ensure all public parks comply with the same measures for park closures during flood situations	Macon-Bibb Parks and Beautification	Flood, Tropical Cyclone	Local Funds	Staff time	12 months	In place; continue	In place; continue	High	Prevention

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
3.e	Encourage minimum width private road and driveway standards to allow emergency vehicles access, as well as to decrease grades at stream crossings for same effect	Macon-Bibb Planning and Zoning	Flood, Winter Weather, Thunderstorm, Tropical Cyclone, Wildfire, Earthquake	Local Funds	Staff time	12 months	Codes in place; Inspections ongoing	Codes in place; Inspections ongoing	Medium	Emergency Services
3.f	Educate portable sanitation contractors of requirement to remove portable toilets from areas prone to flooding or locating in documented flood zones prior to flooding events.	Macon-Bibb Health Department	Flood, Tropical Cyclone	Local Funds	Staff time	12 months	NEW	Carry Forward	High	Public Information and Outreach
3.g	Install generators at hospital facilities	Atrium Health Navicent	All Hazards	HMGP, PDM	$100,000	24 months	New	New	High	Property Protection Emergency Services
GOAL 3: Objective 3.2										
3.h	Purchase gate and closure systems for	Macon-Bibb Parks and Beautification	Flood, Tornado, Tropical	Local Funds	$25,000	30 months	In progress; Ongoing	In progress; Ongoing	High	Property Protection,

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	all entrances to Amerson River Walk and the Ocmulgee Heritage Trail		Cyclone, Wildfire, Earthquake							Natural Resource Protection
3.i	Construct storage building for Macon-Bibb County salt trucks	Macon-Bibb Public Works	Winter Weather	Local Funds	$30,000	48 months	Options being researched	Options being researched	Low	Emergency Services
3.j	Develop annual road and bridge repair project list	Macon-Bibb Engineering, Public Works, and Planning/ Zoning	Flood, Tropical Cyclone, Earthquake	Local Funds	Staff time	12 months	In place; Needs updating	In place; Needs updating	High	Property Protection
3.k	Regularly maintain roads and bridges in Macon-Bibb County	Macon-Bibb Engineering and Public Works	Flood, Tropical Cyclone, Earthquake	Local Funds, State and Federal Grants	$1 million	30 months	Continuous operations	Continuous operations	High	Prevention
3.l	Identify and partner to have a well on each hospital property	Piedmont Hospital and Macon Water Authority	Hazmat, Hostile Event, Infrastructure Failure	PDM, HMGP	$500,000	24 months	N/A	New	Low	Structural Projects
3.m	2022 Flood Relief for CBD block of 3rd St., Plum St., MLK, and Pine St., NT-SW-04	Macon Water Authority	Flood, Tropical Cyclone	FMA, PDM, HMGP	$100,000	24 months	N/A	New	Medium	Property Protection, Structural Projects
3.n	South Bibb County Drainage Improvements Phase	Macon Water Authority	Flood, Tropical Cyclone	FMA, PDM, HMGP	$200,000	48 months	N/A	New	Medium	Property Protection,

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	1 Nowell Estates, NT-SW-05									Structural Projects
3.o	Walnut Street and 7th Street stormwater improvements, NT-SW-08	Macon Water Authority	Flood, Tropical Cyclone	FMA, PDM, HMGP	$150,000	36 months	N/A	New	Medium	Property Protection, Structural Projects
3.p	3rd Street @ Mulberry Street Lane drainage study, NT-SW-13	Macon Water Authority	Flood, Tropical Cyclone	FMA, PDM, HMGP	$50,000	12 months	N/A	New	Medium	Property Protection, Structural Projects
3.q	South Walden Road/Sardis Church Road Extension flooding and drainage improvements, NT-SW-22	Macon Water Authority	Flood, Tropical Cyclone	FMA, PDM, HMGP	$200,000	36 months	N/A	New	Medium	Property Protection, Structural Projects
GOAL 4: Objective 4.1										
4.a	Hold a campaign to encourage people who live, work, and/or play in Macon-Bibb County to sign up for MBC Alert system	Macon-Bibb County Office of Communications and EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	$5,000	24 months	NEW	Carry Forward	High	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
4.b	Continue to encourage citizens to sign up for MBC Alert through the use of marketing campaigns	Macon-Bibb County Office of Communications and EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Earthquake	Local Funds	$3,500	12 months	NEW	Carry Forward	High	Public Information and Outreach
4.c	Encourage sheltering-in-place and general tornado safety through the distribution of FEMA brochures and other safety information at EMA and Red Cross functions	Macon-Bibb EMA and Red Cross	Thunderstorm, Tornado, Tropical Cyclone	Local Funds	$1,000 annually	12 months	In place; continue	Carry Forward	Medium	Public Information and Outreach
4.d	Continue public education and awareness programs regarding dangers posed by tornadoes and high winds	Macon-Bibb EMA	Thunderstorm, Tornado, Tropical Cyclone	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Public Information and Outreach
4.e	Purchase signage to identify shelters within public areas	Macon-Bibb Parks and Beautification	Tornado, Tropical Cyclone	Local Funds, HMGP, PDM	$10,000	24 months	Have decided on verbiage for signs; “Tornado Refuge”	Continue	High	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
4.f	Distribution of pamphlets to homeowners on clearing underbrush a safe distance from house	Macon-Bibb Fire Department and Macon-Bibb EMA	Wildfire	Local Funds	$1,000	24 months	Regular PSAs for burn permits, nut not for underbrush	Regular PSAs for burn permits, nut bot for underbrush	Medium	Public Information and Outreach
4.g	Continue countywide tornado/ high winds public safety and awareness campaign; includes encouraging citizens to have a weather radio for monitoring purposes	Macon-Bibb EMA	Flood, Thunderstorm, Tornado, Tropical Cyclone	Local Funds	Staff time	18 months	In place; Continue	In place; Continue	High	Public Information and Outreach
4.h	Increase public awareness of warming and cooling stations during extreme temperature events	Macon-Bibb EMA	Extreme Temps	Local Funds	Staff time	18 months	NEW (Suggested by Public)	Ongoing	Medium	Public Information and Outreach
4.i	Provide for marketing campaign to encourage permitted facilities to create and have approved Emergency Plans which would allow for limited operations	Macon-Bibb Health Department	Flood, Winter Weather, Tornado, Tropical Cyclone, Earthquake	Local Funds	$7,500	30 months	NEW	Carry Forward	Medium	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	if complying during interruption of utilities									
4.j	Push out fireworks safety related to wildfire potential during high volume holidays such as 4th of July, New Years Eve, etc.	Macon-Bibb County Office of Communications	Wildfire	Local Funds	Staff time	12 months	NEW	Ongoing	Medium	Public Information and Outreach
4.k	Identify ways to work with the Homeless Coalition to help notify the homeless population of impending severe weather	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Extreme Temps	Local Funds	Staff time	24 months	NEW	Ongoing	Medium	Public Information and Outreach
4.l	Upgrade MBC Alert system to include non-English language options for better message saturation	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone	Local Funds, Federal Grants	$10,000	24 months	NEW	Ongoing	Medium	Public Information and Outreach
4.m	Incorporate information on benefits of lightning rods and surge	Macon-Bibb EMA	Thunderstorm, Tropical Cyclone	Local Funds	Staff time	12 months	Ongoing; In Place	Ongoing; In Place	Medium	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	protectors in PSAs made during Lightning Awareness Week									
4.n	Conduct timely awareness campaign related to extremes in weather so businesses and organizations institute proper preparedness actions	Macon-Bibb EMA and County Office of Communications	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Drought, Extreme Temps	Local Funds, HMGP, PDM	$10,000	24 months	NEW	Ongoing; In Place	High	Public Information and Outreach
4.o	Through the use of PSAs, EMA meetings, and educational materials, inform citizens and local businesses regarding various mitigation and preparedness activities and programs available throughout the county	Macon-Bibb EMA and County Office of Communications	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps	Local Funds	$15,000	24 months	Ongoing; In place	Ongoing; In place	High	Public Information and Outreach
4.p	Continue educating Macon-Bibb employees regarding hazards through	Macon-Bibb EMA	Flood, Winter Weather, Thunderstorm, Tornado,	Local Funds	Staff time	12 months	In place; Continue	In place; Continue	High	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	monthly ESF meetings		Tropical Cyclone, Drought, Wildfire, Earthquake, Extreme Temps							
4.q	Institute fire safety public awareness campaigns around firework-friendly holidays, such as 4th of July and NYE	Macon-Bibb County Office of Communications	Wildfire, Extreme Temps	Local Funds	Staff time	12 months	NEW	In place; Continue	Medium	Public Information and Outreach
4.r	Partner with the Homeless Coalition to improve hazard awareness and create notification procedures for severe weather with the homeless population	Macon-Bibb County Office of Communications	Flood, Winter Weather, Thunderstorm, Tornado, Tropical Cyclone, Extreme Temps	Local Funds	Staff time	12 months	NEW	In place; Continue	High	Public Information and Outreach
4.s	Educate portable sanitation contractors of requirement to remove portable toilets from areas prone to flooding prior to flood events	Macon-Bibb Health Department	Flood, Tropical Cyclone	Local Funds	Staff time	18 months	NEW	In place; Continue	Low	Public Information and Outreach

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
4.t	Encourage private owners utilizing abandoned wells during water interruptions to have water tested for potability before consumption	Macon-Bibb Health Department	Drought	Local Funds	Staff time	18 months	NEW	In place; Continue	Low	Public Information and Outreach
GOAL 4: Objective 4.2										
4.u	Encourage /promote that all citizens, volunteers, first responders, community partners and verify they have received current vaccinations. Vaccinations prior to emergency events protects everyone from illness and injury.	Macon-Bibb Health Department	Hostile Event, Infectious Disease	Local Funds	Staff time	18 months	NEW	In place; Continue	Medium	Public Information and Outreach
4.v	Pursue available training to help local officials prepare, plan for, and effectively handle HazMat	Macon-Bibb EMA and Fire Department	Hazmat, Hostile Event, Transportation Incident, Infrastructure	Local Funds, State and Federal Grants	Staff time	24 months	In place; Continue	In place; Continue	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	accidents and incidents; ensure trained personnel stay current and proficient		Failure, Conflagration							
4.w	Create local Anti-Terrorism Advisory Committee to address vulnerability reduction of HHPDs, dams and levees, transportation and utility infrastructure, communications networks, weaponized contagions, and fires caused by intentional acts.	Macon-Bibb EMA, BOE, MWA, Coliseum Health, Navicent, Aviation, Fire, Sheriff's Office, etc.	Dam and Levee Failure, Hazmat, Hostile Event, Transportation Incident, Infrastructure Failure, Infectious Disease, Communication Failure, Conflagration	Local Funds	Staff time	30 months	None	Carry Forward	Medium	Emergency Services

4.5 Completed/Removed Mitigation Actions

Table 4-4. Completed/Removed Mitigation Actions, Macon-Bibb County

Strategy #	Action Description	Lead and Supporting Department/ Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
GOAL 1: Objective 1.1										
1.ll	Purchase 3 solar message boards to convey information during disaster situations	Macon-Bibb Public Works	Flood, Tornado, Tropical Cyclone, Wildfire, Earthquake	Local Funds, DHS, Federal Grants, HMGP, PDM	$90,000	36 months	None; Budgetary constraints	Completed by EMA	Medium	Emergency Services
1.tt	Maintain records of existing on-site sewage systems and private wells for use in evaluating homes and other structures damaged during events	Macon-Bibb Health Department	Flood, Tropica Cyclone, Drought, Earthquake	Local Funds	Staff time	24 months	NEW	Removed Redundant with 1.l	Low	Natural Resource Protection, Structural Projects
GOAL 2: Objective 2.2										
2.s	Encourage private owners using abandoned well during water interruption to have tested for potability before consuming the water from well.	Macon-Bibb Health Department	Flood, Tropical Cyclone	Local Funds	Staff time	18 months	NEW	Removed Redundant with 4.t	Medium	Prevention
GOAL 2: Objective 2.3										
2.mm	Create a pre-approved list of subcontractors who can	Macon-Bibb EMA, Fire	Hazmat, Hostile Event,	Local Funds	Staff time	18 months	NEW	Removed	High	Emergency Services

Strategy #	Action Description	Lead and Supporting Department/ Agency	Hazards Addressed	Potential Funding Source	Estimated Cost	Completion Timeframe	2020 Status	2026 Status	Priority	Mitigation Categories
	assist with train derailment cleanup	Department, and Norfolk Southern	Transportation Failure, Infrastructure Failure					Redundant with 2.bb		
GOAL 4: Objective 4.2										
4.y	Encourage and promote all citizens, volunteers, first responders, community partners, and the media to have current vaccinations prior to emergency events	Macon-Bibb Health Department	Infectious Disease	Local Funds	Staff time	18 months	NEW	Removed Redundant with 4.u	Medium	Public Information and Outreach

4.6 Stormwater Management Mitigation

Stormwater management falls under the umbrella of several of the natural hazards included in this plan, including Thunderstorm, Flooding, and Tropical Cyclone. Although stormwater is seen as more of a secondary hazard than a primary hazard, Macon-Bibb County views it as a major concern and potential threat to the community. Due to this threat, stormwater management in Macon-Bibb County is overseen by the Macon Water Authority (MWA), which assumed responsibility for the program in 2020 due to prior resource limitations and regulatory non-compliance under federal requirements. The program focuses on reducing pollutants in stormwater runoff, maintaining drainage infrastructure, and ensuring compliance with the Clean Water Act through the National Pollutant Discharge Elimination System (NPDES) permit program.

MWA manages a network of public stormwater systems—including pipes, drains, ditches, and detention ponds—and provides services such as cleaning storm drains, repairing infrastructure, maintaining ditches, and addressing localized drainage issues. The program is primarily aimed at improving water quality and reducing localized flooding; large-scale flood control is managed by MWA who works with other local, state, and federal agencies as appropriate.

Funding for stormwater management is provided through a stormwater utility fee, which supports ongoing maintenance, infrastructure improvements, regulatory compliance, and public education efforts.

Additionally, the 2021 Stormwater Guidebook developed by the Macon Water Authority serves as a policy and guidance document outlining how stormwater is managed, maintained, and regulated in Macon-Bibb County following the Authority's assumption of stormwater responsibilities. The guidebook establishes the extent and level of service, clarifies which infrastructure the Authority is responsible for (primarily within public rights-of-way), and explains the roles of property owners in managing runoff on private property. It also provides an overview of stormwater system operations, maintenance practices, regulatory requirements, and funding mechanisms, including the stormwater utility fee used to support infrastructure improvements and compliance with federal environmental standards.[47]

The following mitigation strategies were discussed during the 2026 HMP update and are included in the Mitigation Action Plans table:

- Flood relief for CBD around 3rd St., Plum St., MLK, and Pine St.
- Nowell Estates drainage improvements
- Walnut and 7th St. stormwater improvements
- 3rd St. and Mulberry St. drainage study
- Sommers Dr. storm pipe upgrade
- Vinson Rd. detention pond dredging and retrofit
- S Walden Rd. and Sardis Church Rd. Ext. flooding and drainage improvements

[47] https://maconwater.org/operations/stormwater-management/. Retrieved April 23, 2026.

- Derbyshire Dr. drainage improvements
- Skipperton Rd. detention pond upgrades
- Ocala Plantation drainage improvements

CHAPTER 5 CAPABILITY ASSESSMENT

5.1 Summary of Updates for Chapter 5

This section has been reorganized and revised from the previous version. Below is a brief summary of the changes that have been made to the Capability Assessment:

Table 5-1. 2026 Chapter 5 Updates

Section	Section Title	Updates
5.1	Summary of Updates	• Completed new summary of updates for 2026
5.2	Overview	• New section added • The purpose of the capability assessment was more clearly defined
5.2	Findings	• New section added • Updated content to reflect 2026 capabilities and NFIP information • A new CRS table was incorporated to show the current class and percentage discount for the county • Macon-Bibb County's other capabilities were highlighted
5.3	Conclusions	• New section added • Affirmed the county's ability to implement hazard mitigation efforts

5.2 Overview

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy, and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects. As in any planning process, it is important to try to establish which goals, objectives, and actions are feasible, based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A capability assessment helps to determine which mitigation actions are practical and likely to be implemented over time given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources, and current political climate.

The capability assessment completed for the Macon-Bibb County planning area serves as a critical planning step toward developing an effective mitigation strategy. Coupled with the risk assessment, the capability assessment helps identify and target effective goals, objectives, and mitigation actions that are realistically achievable under given local conditions.

To facilitate the inventory and analysis of local government capabilities within the planning area, a detailed Local Capability Self-Assessment worksheet was distributed to members of the Plan Update Committee after the first planning committee meeting. The survey questionnaire requested information on a variety of "capability indicators," such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the region's ability to

implement hazard mitigation actions. Other indicators included information related to the region's fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes, and existing education and outreach programs that can be used to promote mitigation. Communities were also asked to comment on the current political climate with respect to hazard mitigation, an important consideration for any local planning or decision-making process.

At a minimum, the survey results provide an extensive and consolidated inventory of existing local plans, ordinances, programs, and resources in place or under development. With this information, inferences can be made about the overall effect on hazard loss reduction in each community.

5.3 Findings

The findings of the capability assessment are summarized in this plan to provide insight into the relevant capacity of Macon-Bibb County to implement hazard mitigation activities. Information is based upon input provided by community representatives on the Committee through a local capability self-assessment as well as research conducted by the planning consultant. Some county representatives did not provide capability information for their respective departments or organizations; in these cases, information was based on research and on the 2020 Macon-Bibb County Hazard Mitigation Plan.

5.3.1 Planning & Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment in a responsible manner, while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning. Regulatory capability also includes the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built, as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision-making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools or programs in place or under development for the Macon-Bibb County planning area, along with their potential effect on loss reduction. This information will help identify opportunities to address gaps, weaknesses, or conflicts with other initiatives and integrate the implementation of this plan with existing planning mechanisms where appropriate.

The table below provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the Macon-Bibb County planning area. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Hazard Mitigation Plan.

Table 5-2. Relevant Plans, Ordinances, and Programs

Plan/Ordinance/Program	Macon-Bibb County
Hazard Mitigation Plan	✓
Comprehensive Land Use Plan	✓
Floodplain Management Plan	✓
Open Space Management Plan	✓
Stormwater Management Plan	✓
Emergency Operations Plan	✓
SARA Title III Plan	
Radiological Emergency Plan	
Continuity of Operations Plan	✓
Evacuation Plan	
Disaster Recovery Plan	✓
Capital Improvement Plan	✓
Economic Development Plan	✓
Historic Preservation Plan	✓
Transportation Plan	
Flood Damage Prevention Ordinance	
Zoning Ordinance	✓
Subdivision Ordinance	
Site Plan Review Requirements	
Unified Development Ordinance	
Post-Disaster Recovery Ordinance	
Building Code	✓
Fire Code	✓
Community Wildfire Protection Plan	
National Flood Insurance Program	✓
Community Rating System	

Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management, as is shown in the figure below. Mitigation is interconnected with all other phases and is an essential component of effective preparedness, response, and recovery. Opportunities to reduce potential losses through mitigation practices are most often implemented before a disaster event, such as through the elevation of flood-prone structures or by regular enforcement of policies that regulate development. However, mitigation opportunities can also be identified during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane. Furthermore, incorporating mitigation during the long-term recovery and redevelopment process following a disaster event is what enables a community to become more resilient.

Figure 5-1. The Four Phases of Emergency Management

Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions.

Hazard Mitigation Plan

A hazard mitigation plan is a community's blueprint for how it intends to reduce the impact of natural, and in some cases human-caused, hazards on people and the built environment. The essential elements of a hazard mitigation plan include a risk assessment, capability assessment, and mitigation strategy.

Disaster Recovery Plan

A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster event. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and

ordinances to be enacted following a hazard event. Macon-Bibb County has a current countywide disaster recovery plan.

Emergency Operations Plan

An emergency operations plan outlines the responsibilities of different departments and how resources will be deployed during and following an emergency or disaster. Current for 2026, Macon-Bibb County has an emergency operations plan.

Continuity of Operations Plan

A continuity of operations plan establishes a chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event. Per the 2026 capability findings, Macon-Bibb County has a continuity of operations plan in place.

General Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists, and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals, even though they may not be designed as such.

Comprehensive/General Plan

A comprehensive land use plan, or general plan, establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically, a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions. Macon-Bibb County has a current comprehensive plan as of 2022.

Capital Improvements Plan

A Capital Improvements Plan (CIP) guides the scheduling of spending on public improvements. A CIP can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments. Macon-Bibb County has a current CIP.

Historic Preservation Plan

A historic preservation plan is intended to preserve historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards, and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way. Macon-Bibb County has a historic preservation plan.

Zoning Ordinance

Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas. Macon-Bibb County has and enforces a zoning ordinance.

Subdivision Ordinance

A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development. Macon-Bibb County does not currently enforce a subdivision ordinance.

Building Codes, Permitting, and Inspections

Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community. Macon-Bibb County has and enforces a building code.

The adoption and enforcement of building codes by counties are routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program, developed by the Insurance Services Office, Inc. (ISO). The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The expectation is that communities with well-enforced, up-to-date codes should experience fewer disaster-related losses, and as a result should have lower insurance rates.

Floodplain Management

Flooding represents the greatest natural hazard facing the nation, yet the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards, such as education, outreach, and the training of local officials, the National Flood Insurance Program (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program.

In order for a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings be protected from damage by a 100-year flood

event, and that new development in the floodplain not exacerbate existing flood problems or increase damage to other properties.

In the event of flooding that causes damage to structures in the flood hazard areas, Macon-Bibb County will activate their floodplain management plans, addressing substantial damage and substantial improvements. The county will be guided by the list of properties that sustained damage during the event. Macon-Bibb County's response team inspects these properties and the surrounding properties 3-5 days after the water recedes. Inspectors collect damage information and photographs during inspections of affected properties, while also distributing repair and permitting information to SFHA property owners. Teams remain in close contact with property owners, insurance adjusters, and repair companies to ensure continued SI/SD compliance.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

Macon-Bibb County participates in the NFIP and will continue to comply with all required provisions of the program. The county (CID No. 130680B) first entered the NFIP on August 26, 2018. However, this is after the consolidation of the City of Macon and Bibb County. Both the City of Macon and Bibb County have been active NFIP participants since 1979. Floodplain management is managed through zoning ordinances, building code restrictions, and the county building inspection program. The county will coordinate with NCEM and FEMA to develop maps and regulations related to Special Flood Hazard Areas within their jurisdictional boundaries and, through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property. The table below provides NFIP policy and claim information for Macon-Bibb County.

Table 5-3. NFIP Policy and Claim Information

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Written Premium in Force	Closed Losses	Total Payments
Macon-Bibb County	09/28/79	06/07/17	125	$39,101,000	$110,777	155	$507,623.68

Source: FEMA NFIP Policy Statistics, HUDEX Report, Community Status Book Report

Community Rating System

An additional indicator of floodplain management capability is active participation in the Community Rating System (CRS). The CRS is an incentive-based program that encourages communities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP. Each of the CRS mitigation activities is assigned a point value. As a community earns points and reaches identified thresholds, they can apply for an improved CRS class. Class ratings, which range from 10 to 1 and increase on 500-point increments, are tied to flood insurance premium reductions. Every class improvement earns an additional 5 percent

discount for NFIP policyholders, with a starting discount of 5 percent for Class 9 communities and a maximum possible discount of 45 percent for Class 1 communities.

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years, based on community comments intended to make the CRS more user friendly, and extensive technical assistance available for communities who request it. Macon-Bibb County does not currently participate in the CRS program, but the county may choose to pursue participation in the future.

Floodplain Management Plan

A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts. Macon-Bibb County has a floodplain management plan.

According to the NFIP guidelines, the county has also executed a Flood Damage Prevention Ordinance. This ordinance attempts to minimize the loss of human life and health as well as minimize public and private property losses due to flooding. The ordinance requires any potential flood damage be evaluated at the time of initial construction and that certain uses be restricted or prohibited based on this evaluation. The ordinance also requires that potential homebuyers be notified that a property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes and the International Building Codes.

Open Space Management Plan

An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state, and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity. Macon-Bibb County has an open space plan.

Stormwater Management Plan

A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

Stormwater management in Macon-Bibb County is overseen by the Macon Water Authority (MWA), which assumed responsibility for the program in 2020 due to prior resource limitations and regulatory non-compliance under federal requirements. The program focuses on reducing pollutants in stormwater runoff, maintaining drainage infrastructure, and ensuring compliance with the Clean Water Act through the National Pollutant Discharge Elimination System (NPDES) permit program.

MWA manages a network of public stormwater systems—including pipes, drains, ditches, and detention ponds—and provides services such as cleaning storm drains, repairing infrastructure, maintaining ditches, and addressing localized drainage issues. The program is primarily aimed at improving water quality and reducing localized flooding; large-scale flood control is managed by MWA who works with other local, state, and federal agencies as appropriate. Funding for stormwater management is provided through a stormwater utility fee, which supports ongoing maintenance, infrastructure improvements, regulatory compliance, and public education efforts.

Additionally, the 2021 Stormwater Guidebook developed by the Macon Water Authority serves as the county's stormwater management plan and outlines how stormwater is managed, maintained, and regulated in Macon-Bibb County following the Authority's assumption of stormwater responsibilities. The guidebook establishes the extent and level of service, clarifies which infrastructure the Authority is responsible for (primarily within public rights-of-way), and explains the roles of property owners in managing runoff on private property. It also provides an overview of stormwater system operations, maintenance practices, regulatory requirements, and funding mechanisms, including the stormwater utility fee used to support infrastructure improvements and compliance with federal environmental standards.

5.3.2 Administrative & Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using geographic information systems (GIS) to analyze and assess community hazard vulnerability. The Local Capability Self-Assessment was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

The following table provides a summary of the Local Capability Self-Assessment results for the region regarding relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in the county with the specified knowledge or skill. An asterisk (*) indicates that the given capability is being developed for future implementation.

Table 5-4. Relevant Staff/Personnel Resources

Plan/Ordinance/Program	Macon-Bibb County
Planners with knowledge of land development and land management practices	✓

Plan/Ordinance/Program	Macon-Bibb County
Engineers of professionals trained in construction practices related to buildings and/or infrastructure	✓
Planners or engineers with an understanding of natural and/or human-caused hazards	✓
Building Official	✓
Emergency Manager	✓
Floodplain Manager	✓
Land surveyors	
Scientist familiar with the hazards of the community	✓
Staff with education or expertise to assess the community vulnerability to hazards	✓
Personnel skilled in Geographic Information Systems (GIS) and/or Hazus	✓
Resource development staff or grant writers	✓
Maintenance programs to reduce risk	✓
Warning systems/services	✓
Mutual Aid Agreements	✓

Source: Local Capability Assessment Survey

5.3.3 Fiscal Capability

The ability of a local government to implement mitigation actions is often dependent on the amount of money available. This may take the form of outside grant funding awards or locally based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as the acquisition of flood-prone houses, which can require a substantial commitment from local, state, and federal funding sources.

Macon-Bibb County has access to capital improvement programing, community development block grants, special purpose taxes, and fees. Additionally, general obligation, revenue, or special tax bonds may be available. Jurisdictions with limited fiscal capability should seek opportunities to hire grant writers or resource development staff, create local funding sources, such as stormwater utility fees, or seek alternate funding sources.

5.3.4 Education & Outreach Capability

This type of local capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Macon-Bibb County has ongoing public education or information programs. These could include but are not limited to responsible water use, fire safety, household preparedness, and environmental education. Additionally, some areas may have school programs, StormReady certification, and local groups or non-profit organizations that focus on environmental protection or emergency preparedness.

5.3.5 Mitigation Capability

This type of local capability refers to ongoing property mitigation and efforts to acquire and implement mitigation projects with federal funding by the communities in this plan.

Macon-Bibb County applies for mitigation grant funding and performs reconstruction projects, building elevations, and acquisitions.

5.3.6 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority or it may conflict with or impede other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies, as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

Macon-Bibb County indicated that political leaders are willing to implement mitigation measures. However, fiscal limitations were noted as a limitation for garnering political support.

5.4 Conclusions

As previously discussed, one of the reasons for conducting a capability assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified. Macon-Bibb County used the capability assessment as part of the basis for the mitigation actions where the county addresses their ability to expand on and improve their existing capabilities.

The county is capable of implementing hazard mitigation efforts to varying degrees. Communities may refer to this assessment to identify gaps and opportunities for improvement in order to increase local capability to implement mitigation projects.

The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Committee considered not only the county's level of hazard risk, but also their existing capability to minimize or eliminate that risk.

CHAPTER 6 PLAN IMPLEMENTATION & MAINTENANCE

6.1 Summary of Updates for Chapter 6

This section provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The section also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement. The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Macon-Bibb County Hazard Mitigation Plan 2020.

Table 6-1. 2026 Chapter 6 Updates

Section	Section Title	Updates
6.1	Summary of Updates	• Completed new summary of updates for 2026
6.2	Adoption	• New section added • Included which steps from the 10-step planning process were met through the adoption process
6.3	Implementation	• Revised content to refine the implementation process and intent
6.4	Monitoring & Maintenance	• Added comprehensive list of the monitoring and maintenance process • Identified how the HMP will be incorporated into existing planning mechanisms and how the public will continue their involvement
6.5	Plan Distribution	• No changes needed

6.2 Adoption

The purpose of formally adopting this plan is to secure buy-in from all participating jurisdictions, raise awareness of the plan, and formalize the plan's implementation. The adoption of this plan completes Planning Step 9 of the 10-step planning process: Adopt the Plan, in accordance with the requirements of DMA 2000. Each participating jurisdiction will adopt the Hazard Mitigation Plan by ordinance or resolution. Copies of adopted ordinance or resolution are provided on the following pages along with a copy of the FEMA plan approval letter.

6.3 Implementation

Requirement §201.6(c)(4)(ii)

Once adopted, the plan must be implemented to be effective. While this plan contains many worthwhile actions, Macon-Bibb County will need to decide which action(s) to undertake first. The priority assigned to the actions in the planning process and funding availability will affect

that decision. Low or no-cost actions are often the easiest way to demonstrate progress toward successful plan implementation.

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

6.3.1 Responsibility for Implementation of Goals and Activities

As the sole jurisdiction participating in the Macon-Bibb County Hazard Mitigation Plan, Macon-Bibb County is responsible for implementing specific mitigation actions as prescribed in this plan. In the Mitigation Strategy section, every proposed strategy is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the designation of a local lead department or agency, some strategies have secondary or assisting department or agencies listed, as well. This allows for a sharing of responsibility and coordination of effort for some of the identified strategies that cross lines of departmental responsibility. The completion date has been assigned in order to assess whether identified mitigation strategies are being implemented in a timely fashion.

Macon-Bibb County will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified and targeted for the proposed actions listed in the mitigation strategies. It will be the responsibility of the county to determine additional implementation procedures beyond those listed within the Macon-Bibb County Hazard Mitigation Plan.

This plan, as a joint effort between Macon-Bibb County and its community partners and will serve as a comprehensive mitigation plan. The mitigation strategies, hazard identification, and other information identified in this plan will be integrated into all comprehensive Macon-Bibb County plans in the future. Incorporation of these strategies will occur, as necessary, throughout this planning cycle covered by this Hazard Mitigation Plan Update. Aspects of this plan will be integrated into the Macon-Bibb County Comprehensive Plan during the next planning cycle.

Identified hazards and mitigation strategies of the 2020 Macon-Bibb County Hazard Mitigation Plan were integrated into the Local Emergency Operations Plan, multiple county SOPs and SOGs, and future planning and zoning plans. Macon-Bibb County will integrate mitigation strategies identified in this plan into the Macon-Bibb County Comprehensive Plan, Community Wildfire Protection Plan, Continuity of Operations Plan and other future plans. Strategies identified in the previous plan were applied to grant applications, building and zoning requirements, and development planning considerations for Macon-Bibb County. Many of these strategies will be applied using previously identified policies and ordinances, including

the NFIP compliance ordinances and water-use ordinances, which have now been applied countywide.

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local jurisdictions to implement hazard mitigation activities.

6.3.2 Role of Plan Update Committee in Implementation, Monitoring, & Maintenance

With adoption of this plan, Macon-Bibb County will be responsible for the plan implementation and maintenance. As such, the county agrees to continue its relationship with the Hazard Mitigation Plan Update Committee and:

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

The Committee's primary duty moving forward is to see the plan successfully carried out and report to each local governing body, Macon-Bibb County Emergency Management, GEMA/HS, and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about mitigation, passing concerns on to appropriate entities, and posting relevant information on local websites (and others as appropriate).

6.4 Monitoring & Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized.

6.4.1 Maintenance Schedule

Macon-Bibb County EMA is responsible for initiating plan reviews. In order to monitor progress and update the mitigation strategies identified in the action plan, the Committee will revisit this plan annually and following a hazard event. Macon-Bibb County EMA will submit a five-year written update to GEMA/HS and FEMA Region IV, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan

update anticipated to be fully approved and adopted in 2026, the next plan update for Macon-Bibb County will occur in 2031.

In the fourth quarter of 2030, Macon-Bibb County plans to begin the Hazard Mitigation Plan Update process for the fifth time. This planning process will include bi-monthly meetings to accomplish the identified goals of the Macon-Bibb County Hazard Mitigation Plan Update. This process will be headed up by the Macon-Bibb County Emergency Management Agency. The Macon-Bibb County Hazard Mitigation Plan Update Committee will follow a similar process as was undertaken during this planning cycle to complete all FEMA and GEMA requirements for the Hazard Mitigation Plan Update. This process will be completed by the second quarter of 2031 to meet all identified planning deadlines.

6.4.2 Maintenance Evaluation Process

Requirement §201.6(c)(4)(iii)

In order to adhere to best practices, state and federal guidelines, and lessons learned, the Macon-Bibb County Hazard Mitigation Plan Update Committee has developed a method to ensure the regular review and update of the plan occurs. Plan maintenance protocols identified during the 2020 Macon-Bibb County Hazard Mitigation Plan was followed to the best abilities of Macon-Bibb County. This most importantly included an increased attempt for public participation and inclusion in the planning process. The Macon-Bibb County Hazard Mitigation Plan Update Committee will reconvene annually in February to monitor and evaluate the progress of the mitigation strategies in the plan. Macon-Bibb County's Emergency Management Director will be responsible for implementing this meeting. The Committee will discuss the following questions annually:

- Do the goals address current and expected hazards and conditions?
- Are the goals and objectives still relevant to the county?
- Has the nature or magnitude of risks changed?
- Does the risk assessment portion of the plan need to be updated or modified?
- Are the goals and objectives meeting changes in state and federal policy?
- Are the current resources appropriate for implementing the plan?
- Are there local implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Did the county, agencies, and other partners participate in the plan implementation process as proposed?

The responsible parties for various mitigation strategies will provide a report during this annual meeting regarding the following:

- How well did the implementation processes work?
- Were any difficulties encountered during implementation?
- How successful was the coordination of efforts?
- Are there any suggestions for revision of any strategies?

Macon-Bibb County's Emergency Management Director will send the minutes from this annual meeting to Macon-Bibb County Board of Commissioners for review.

If there are any updates or modifications to the Macon-Bibb County Hazard Mitigation Plan, the Emergency Management Director will forward the changes to the Georgia Emergency Management Agency's Hazard Mitigation Officer. All annual reviews of the Macon-Bibb County Hazard Mitigation Plan will be open to the public. These meetings will be advertised both in the local newspapers, but also on signage in the publicly used facility hosting the meeting.

Table 6-2. Mitigation Log

Revision Date	Revised Section	Reason for Revision	Revised By
2025-2026	Five Year Hazard Mitigation Plan Update	FEMA Requirement	Macon-Bibb County Hazard Mitigation Plan Update Committee with assistance from AG Witt

6.4.3 Maintenance Criteria

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan during annual reviews in preparation for the five-year update. More specifically, annual reviews will monitor changes to the following information:

- Community growth or change in the year.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure, including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.

- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

6.4.4 Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effective and low-cost is incorporation of the goals, objectives, and recommendations of this plan into other plans and policies. Where possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. As previously stated, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. The 2026 plan was made available to county and area planning organizations, including the Macon-Bibb County Planning Commission to serve as a foundation for planning and mitigation efforts. This plan update will be presented to the agencies, writers, consultants and/or committees responsible for comprehensive and land use planning, capital improvements planning, emergency operations planning, and other related documents for their use in integrating this plan into future planning, preparedness, and mitigation efforts.

This plan update builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms, such as comprehensive plans, floodplain management ordinances, emergency operations plans, and building codes and other ordinances. Those Committee members involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc., as appropriate. As described in Section 6.3 Implementation, incorporation into existing planning mechanisms will be done through the routine actions of:

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

The successful implementation of this mitigation strategy will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this Hazard Mitigation Plan.

6.4.5 Continued Public Involvement

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

When the Plan Update Committee reconvenes for the five-year update, they will coordinate with all stakeholders participating in the planning process—including those that joined the Committee since the planning process began—to update and revise the plan. In reconvening, the Committee will be responsible for coordinating the activities necessary to involve the greater public, including disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held and public comments will be solicited on the plan update draft.

6.5 Plan Distribution

This plan will be distributed, but not limited, to the following departments and organizations within Macon-Bibb County:

- Macon-Bibb County Board of Commissioners
- Macon-Bibb County Fire Department
- Macon-Bibb County Emergency Management Agency
- Macon-Bibb County Engineering
- Macon-Bibb County Sheriff's Office
- Macon-Bibb County Public Works
- Macon-Bibb County Parks and Beautification
- Macon-Bibb County Code Enforcement
- Bibb County Board of Education
- Macon Water Authority

In order to maintain standards of quality, improve performance, and provide credibility to the Macon-Bibb County Hazard Mitigation Plan Update, representatives of local emergency management agencies bordering Macon-Bibb County conducted a peer review of the plan. The peer review of this plan constitutes a form of self-regulation, accountability, and new insights offered by qualified professionals in neighboring communities, which face many of the same natural and technological hazards.

A printed copy of the approved plan will be available for viewing at the Macon-Bibb County Commissioner's Office located at 700 Poplar Street in Macon, GA 31201.

All comments, questions, concerns, and opinions about the plan will be directed to the Macon-Bibb County Emergency Management Agency for follow-up.