HABERSHAM COUNTY BOARD OF COMMISSION

EXECUTIVE SUMMARY

SUBJECT: Adopt Five Year Hazard Mitigation Plan/Resolution

DATE: July 29, 2024

(X) RECOMMENDATION
( ) POLICY DISCUSSION
( ) STATUS REPORT
( ) OTHER

BUDGET IFORMATION:
ANNUAL- In Kind Match
CAPITAL-

COMMISSION ACTION REQUESTED ON: August 19,2024

PURPOSE: This is to recommend the Hazard Mitigation Plan update for adoption. This was an approved grant project. The 75/25 match can be met by in kind matching funds. The adoption of the updated plan and signing of the resolution are the final steps needed for the update to be completed.

BACKGROUND / HISTORY: The current Hazard Mitigation Plan will expire this year. A grant was obtained to help update the plan. The adoption of the plan along with a signed resolution is required to be eligible for Federal reimbursement if Habersham County is declared in a Presidential declaration. This was a yearlong process with participation from the county and municipalities. The cities will need to adopt the plan to be eligible for Federal reimbursement also.

FACTS AND ISSUES:

a. This is a requirement every 5 years by FEMA to obtain money reimbursement during a Presidential declaration.
b. This plan requires involvement of County and Cities representatives as well as adoption.
c. This process requires public meetings and a facilitator
d. This plan must meet FEMA standards to obtain reimbursement during a Presidential declaration.

OPTIONS:

1) Adopt plan and resolution
2) Not adopt plan and resolution
3) None

RECOMMENDED SAMPLE MOTION: I make a motion to adopt the five-year Hazard Mitigation plan and sign the attached resolution.

DEPARTMENT: Emergency Management

Prepared by: Lynn Smith

Director _____

ADMINISTRATIVE COMMENTS:_____

_____

_____

_____ **DATE:**_____

County Manager

RESOLUTION – HABERSHAM COUNTY, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED,* by the Board of Commissioners of Habersham County, Georgia, that:

1) Habersham County, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Board of Commissioners of Habersham

County, Georgia, in regular session this _____ day of _____, 20_____.

_____ _____

Chairperson County Clerk

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2024 - 2029

Habersham County Emergency Management Agency

Director Lynn Smith

175 EOC Drive

Cornelia, Georgia 30531

lsmith@Habershamga.com

706.778.9500

Lux Mitigation and Planning Corp.

Habersham County, Georgia

Hazard Mitigation Plan Update 2024 – 2029

HABERSHAM COUNTY
GEORGIA | Est. 1818

Prepared for the Habersham County Board of Commissioners
130 Jacob's Way, Suite 301
Clarkesville, Georgia 30523
706.839.0200
www.Habershamga.com

This document was funded in part by the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Planning Grant awarded to Habersham County, Georgia, through the Georgia Emergency Management Agency (GEMA) to fulfill the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Habersham County's 2018 Hazard Mitigation Plan was updated by the Habersham County Hazard Mitigation Plan Update Committee and was prepared by Lux Mitigation and Planning Corp. For additional information, please contact Habersham County Emergency Management Agency.

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 citizens, 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.

Habersham County and its municipalities realize the benefits achieved by the development and implementation of mitigation plans and strategies in their community. Habersham 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:

Habersham County
City of Baldwin
City of Clarksville
City of Cornelia
City of Demorest
Town of Alto
Town of Mount Airy
Town of Tallulah Falls

Adoption Resolution – Habersham County

Requirement §201.6(c)(5)

RESOLUTION – HABERSHAM COUNTY, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Board of Commissioners of Habersham County, Georgia, that:

1) Habersham County, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Board of Commissioners of Habersham County, Georgia, in regular session this _____ day of _____, 20_____.

_____ _____

Chairperson County Clerk

Adoption Resolution – City of Clarkesville

RESOLUTION – CITY OF CLARKESVILLE, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and City Council of Clarkesville, Georgia, that:

1) The City of Clarkesville, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Clarkesville, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor City Clerk

Adoption Resolution – City of Baldwin

RESOLUTION – CITY OF BALDWIN, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and City Council of Baldwin, Georgia, that:

1) The City of Baldwin, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Baldwin, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor City Clerk

Adoption Resolution – City of Demorest

RESOLUTION – CITY OF DEMOREST, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and City Council of Demorest, Georgia, that:

1) The City of Demorest, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Demorest, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor City Clerk

Adoption Resolution – City of Cornelia

RESOLUTION – CITY OF CORNELIA, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and City Council of Cornelia, Georgia, that:

1) The City of Cornelia, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Cornelia, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor City Clerk

Adoption Resolution – Town of Alto

RESOLUTION – TOWN OF ALTO, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and Town Council of Alto, Georgia, that:

1) The Town of Alto, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the Town of

Alto, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor Town Clerk

Adoption Resolution – Town of Tallulah Falls

RESOLUTION – TOWN OF TALLULAH FALLS, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and Town Council of Tallulah Falls, Georgia, that:

1) The Town of Tallulah Falls, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the Town of Tallulah Falls, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor Town Clerk

Adoption Resolution – Town of Mount Airy

RESOLUTION – TOWN OF MOUNT AIRY, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Habersham County Hazard Mitigation Plan 2023 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and Town Council of Mount Airy, Georgia, that:

1) The Town of Mount Airy, Georgia, has adopted the Habersham County Hazard Mitigation Plan 2023; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Habersham County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the Town of Mount Airy, Georgia, in regular session this ____ day of _____, 2023.

_____ _____

Mayor Town Clerk

Table of Contents

CHAPTER ONE – INTRODUCTION

Summary of Updates for Chapter One

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Habersham County Hazard Mitigation Plan 2018.

Chapter 1 Section	Updates
Authority	• Verbiage updated
Funding	• Verbiage updated
Scope	• Verbiage updated
Purpose	• Verbiage updated
Consistency with Federal Guidelines	• Verbiage updated
Plan Review	• Verbiage updated • Updated mitigation meeting dates for 2023 planning process
Hazard Mitigation Plan Update Committee	• Updated committee list with the 2023 planning participants • Updated to meet Federal guidelines
Public Participation	• Updated to match the 2023 planning process
Multi-Jurisdictional Considerations	• Updated with requirement descriptions
Incorporation of Existing Plans, Studies, and Resources	• Updated with new plan, study, and resource incorporations

Purpose

The purpose of the Habersham County Hazard Mitigation Plan Update is to:

- 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 Habersham 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.

Goals

The Habersham 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 and FEMA.

It is important that state and local government, public-private partnerships, and community citizens can see the results of these mitigation efforts; therefore, the goals and strategies need to be achievable. Habersham County's Hazard Mitigation Plan Update Committee 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

Scope

The scope of the Habersham County Hazard Mitigation Plan Update encompasses all areas of Habersham County, including municipalities. The Plan identifies all natural and technological hazards that could threaten life and property in Habersham 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 One 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 Two of the Plan details the Habersham County profile, including the demographics, municipalities, and history of the county.

Chapter Three 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 CFFR 201.4(c)(2). Additionally, Chapter Three identifies and analyzes potential technological hazards faced by Habersham County.

Chapter Four identifies Habersham 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 Five 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).

Funding

Habersham County was awarded a Hazard Mitigation Planning Grant by FEMA through GEMA for the update of Habersham County's 2018 Hazard Mitigation Plan. FEMA contributed 90% toward the total cost of the Plan Update. The Hazard Mitigation Planning Grant required a 10% match by Habersham County. This match was fulfilled entirely (100%) by In-Kind contributions; time spent by county and municipal employees, local stakeholders, representatives from organizations, and citizen volunteers updating the Plan was provided instead of cash from the County's budget.

Consistency with Federal and 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 safer, more disaster resistant communities;
- Develop strategies for long-term community sustainability during 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 Habersham County Hazard Mitigation Plan recognizes, adopts, incorporates, and endorses the following principles:

- Develop a strategic mitigation plan for Habersham 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.

It is vital that the private sector 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 citizens 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 Habersham County Hazard Mitigation Plan supports the following FEMA recommendations regarding individual citizens:

- 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.

Authority

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

State and local communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities. To implement the new DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

Developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans, Habersham County's Updated Hazard Mitigation Plan will be brought forth to each participating jurisdiction in Habersham County to be formally adopted. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules, and legislation:

Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390); and FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.

Plan Review

Requirement §201.6(c)(1)

The contractor, Lux Mitigation and Planning, had the primary responsibility for collecting updated information and presenting pertinent data to the Plan Update Committee. An online, Dropbox folder was created for Habersham County's Plan Update. The approved 2018 Hazard Mitigation Plan was uploaded to the Dropbox folder, and the link to the folder was emailed to all members of the Hazard Mitigation Plan Update Committee. Each chapter of the 2018 Plan was reviewed. Hazard vulnerability and risk assessment data was updated, as was critical infrastructure information.

Special attention and consideration were given to the review and edit of mitigation strategies listed in the 2018 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 the county and municipalities. Mitigation strategies from other Georgia counties 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 Habersham County's needs and was included in the 2023 Plan. The contractor sent the Committee, including sporadically attending participants, regular emails which contained a Dropbox link to the most updated version of the Plan and encouraged the Committee to thoroughly critique each version.

Hazard Mitigation Plan Update Committee Meeting Dates

Tuesday, July 18, 2023	
Morning Session	Kick-Off Meeting; Introduction to Hazard Mitigation
Afternoon Session	Hazard Identification and Prioritization; Community Risk Assessment Analysis
Tuesday, August 15, 2023	
Morning Session	Essential and Critical Facilities
Afternoon Session	Review and Edit 2018 Mitigation Strategies
Tuesday, September 19, 2023	
Morning Session	Discuss/Create New Mitigation Strategies for 2023 Plan
Afternoon Session	Discuss Draft of 2023 Plan; Discuss Available Hazard Mitigation Grants; Discuss Other Hazard Mitigation Plan Uses

*The public was welcome and encouraged to attend all Hazard Mitigation Plan Update meetings.

Significant Changes to the 2019 Plan

Each section of Habersham County's 2018 Hazard Mitigation Plan has been revised in some manner. Therefore, a summary of those changes will be listed in the first section of each chapter. Significant additions/modifications to this Plan include the following:

- Addition of Critical Infrastructure Failure to Technological Hazards
- Addition of Emergent Infectious Diseases to Technological Hazards

Hazard Mitigation Plan Update Participants

Requirement §201.6(b)(2)

The following 36 participants contributed to the update of Habersham County's 2018 Hazard Mitigation Plan: *(in alphabetical order)*

Stephanie Almango
Councilmember
City of Baldwin

Jerry Baggett
Director
Habersham County Public Works

Melanie Bellinger
Assistant Director
Habersham County EMA/E911

Jami Bolman
County Nurse Manager
Habersham County Health Department

Jamie Bowdon
Chief
Town of Mt Airy Police Department

Mike Bramlett
Facilities Management Director
Habersham County Facilities

Floyd K. Canup
Lieutenant
Habersham County Sheriff's Office

Danny Clouatre
Assistant Chief
City of Clarkesville Police Department

Jason Davey
Operations Chief
Habersham County Emergency Services

Stuart Delugach
Director of Security
Tallulah Falls School

Tonya Elrod
Chief
Town of Tallulah Falls Police Department

Keith Ethridge
Director
City of Cornelia Utilities Department

Justin Ferguson
Assistant Chief
City of Baldwin Police Department

Mark Fitzpatrick
Police Chief
North Georgia Technical College

Diana Gallegos
IT Administrator
Habersham County

Beth Hammond
Human Resources Director
North Georgia Technical College

Cilia Jarrell
Office Manager and Terminal Agency Coordinator (TAC)
Town of Alto Police Department

Samara K. Key
Clerk
City of Clarkesville Police Department

Jonathan Knight
Chief
City of Demorest Fire Department

Ryan Ledford
Patrol Sergeant
City of Clarkesville Police Department

Lauren Long
Grant Coordinator
Habersham County Finance Department

Clif McEntyre
Director
City of Cornelia Pubic Works

Cindy McGrew
Public Works Contract Services Engineer
Habersham County Public Works

Kevin Mull
Road Supervisor
Habersham County Road Department

Tamera Owens
Community Liaison – Habersham County Health Department
Georgia Department of Public Health – District 2

Bruce Palmer
County Commissioner
Habersham County Board of Commissioners

Jason Poole
Chief
City of Clarkesville Fire Department

Will Regan
Risk Manager
Habersham County Board of Commissioners

Sharon Roach
Operations Manager – Public Works
Habersham County Road Department

Joseph Roy
Chief
City of Baldwin Fire Department

Karen Roy
Court Clerk
Town of Alto Police Department

Chad Smith
Director of Public Safety
City of Cornelia

Lynn Smith
Director
Habersham County EMA/E911

Alicia Vaughn
County Manager
Habersham County Board of Commissioners

Tracy Williamson
IT Director
Habersham County

Emily Woodmaster
Chief Administrative Officer
City of Baldwin

The Plan Update Committee relied on their 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 and municipal departments, as well as community organizations and local businesses, which 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.

In an attempt to incorporate organizations that work with and/or represent vulnerable populations, the Habersham County Hazard Mitigation Plan Update committee invited the following organizations to participate in the planning process: UGA Extension Service, Northeast Georgia Health System, and the Northeast Georgia Medical Center – Habersham. Unfortunately, none of these organizations were able to participate in the planning process and provided no feedback.

All neighboring counties – Banks, Hall, Oconee (SC), Rabun, Stephens, Towns, White – were asked to peer review the 2023 Mitigation Plan draft. The Plan was sent to each County EMA office. Habersham County had significant support and contribution to the Hazard Mitigation Plan Update process from surrounding jurisdictions. Additionally, the EMA Directors from surrounding counties were asked to attend Plan Update Committee meetings in hopes they would share mitigation ideas from their own counties.

Public Participation

Requirement §201.6(b)(1)

State Requirement Element F2

Public awareness is a key component of any community's overall mitigation strategy. As citizens 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.

The following local organizations and businesses participated in the update of Habersham County's 2018 Mitigation Plan: Tallulah Falls School

The Plan Update Committee took it upon themselves to ensure the processes undertaken for the development, implementation, and maintenance of the 2023 Hazard Mitigation Plan adequately considered public needs and viewpoints.

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.
- Public Meetings were held on August 15, 2023 and September 19, 2023. These meetings were advertised through multiple medium, including the Now Habersham online newspaper. Now Habersham is a leading news source for Habersham County with over 30,000 online followers and is a source of news for a significant portion of the Habersham County population. Now Habersham sent a representative to the first meeting of the Habersham County Hazard Mitigation Plan Update Committee on July 18, 2023. The representative wrote an article that appeared on July 23, 2023 and encouraged participation from the community, particularly from vulnerable population groups, for the final two meetings of the Hazard Mitigation Plan Update Committee.
- Representatives from the City of Baldwin shared on social media their attendance in the first meeting of the Habersham County Hazard Mitigation Plan Update Committee. As part of this, they shared the 2018 plan to solicit any community comments and feedback regarding updating the plan to meet the particular needs of the City of Baldwin. No feedback was received from the general public.
- A virtual Public Meeting was held via conference call on April 4, 2024 to specifically encourage participation from vulnerable populations throughout Habersham County. A notice regarding this public meeting was posted on the Habersham County website and several county Facebook pages. It was also physically posted at the Habersham County Senior Citizens Center and Habersham County Aquatic Center to encourage attendance from the vulnerable populations who frequent those locations. Attendees at this virtual public meeting included Habersham County Emergency Management Agency and a representative from the Habersham County Board of Commissioners. No members of the public attended the meeting and no public feedback was provided.

Documentation of Public Meeting Notice

Public Meeting Documentation (Now Habersham Website)

Area News

Second Hazard Mitigation Plan meeting set Aug. 15

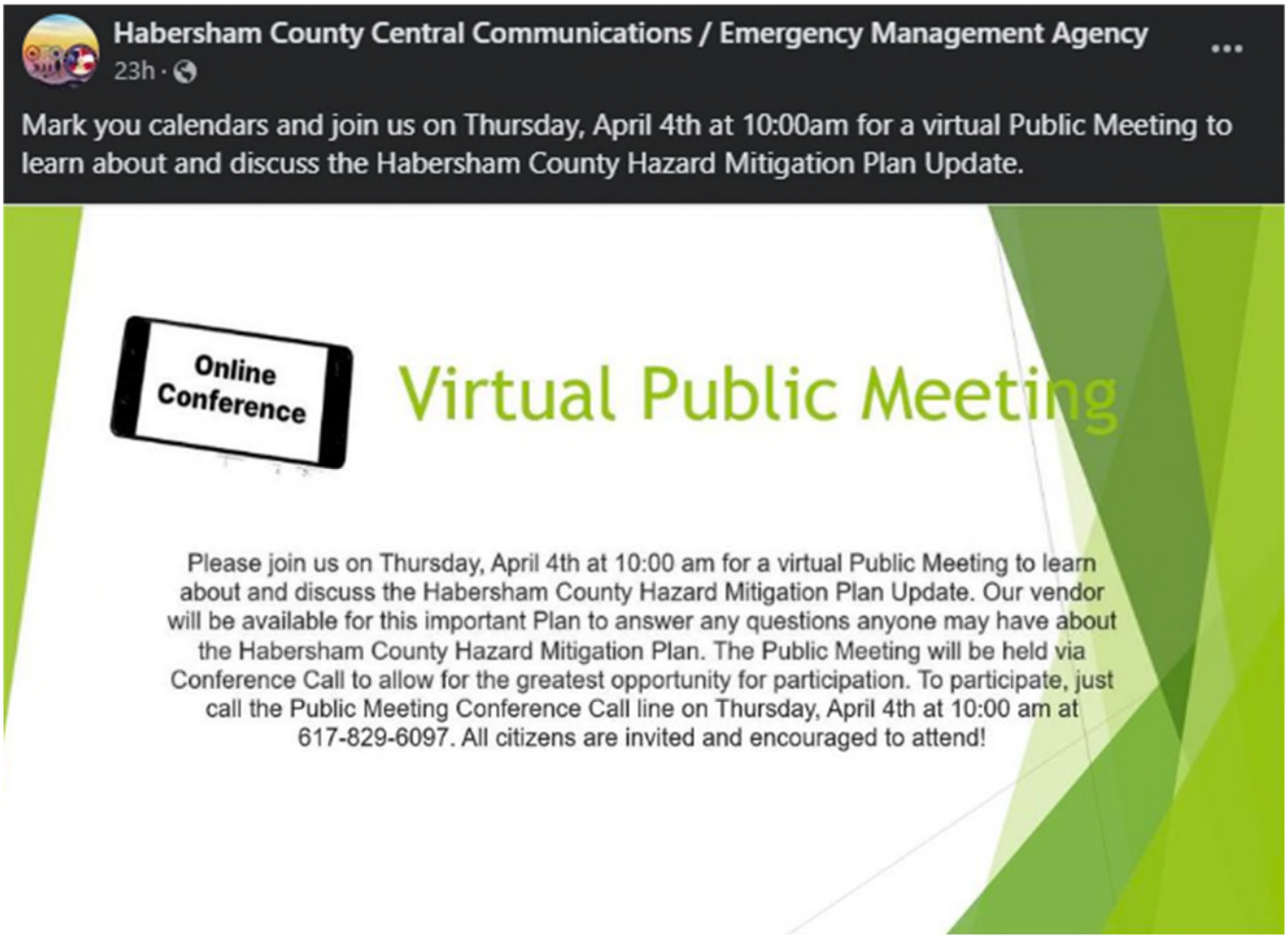
By **Staff Report** - August 8, 2023 | Updated: August 08

Emergency officials and community stakeholders discuss updates to Habersham County's Hazard Mitigation Plan during a meeting on July 18, 2023, in Clarkesville. (photo submitted)

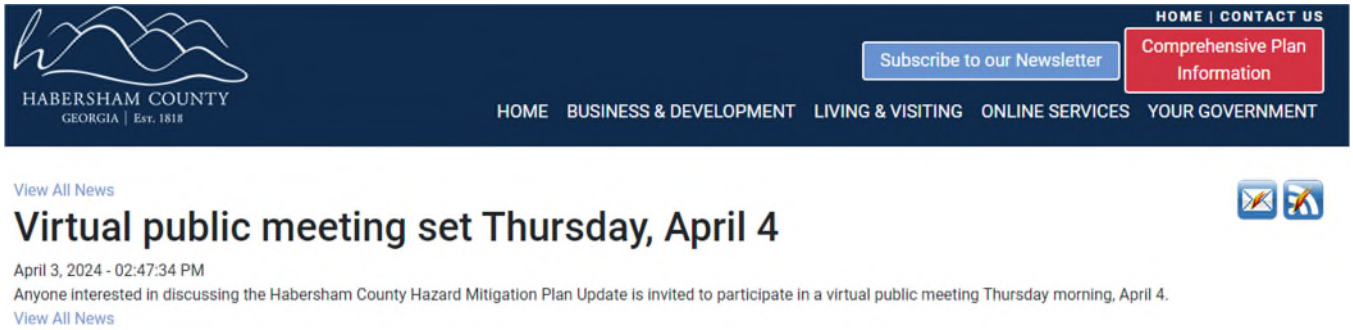
The next Habersham County Hazard Mitigation Plan meeting will be held at 10 a.m. Tuesday, August 15, in Clarkesville.

The county is updating its five-year plan and has contracted with Lux Mitigation and Planning for that update.

Virtual Public Meeting Notice – April 4, 2024 (Habersham County Central Communications/EMA Facebook Page)



Virtual Public Meeting Notice – April 4, 2024 (Habersham County website)



View All News

Virtual public meeting set Thursday, April 4

April 3, 2024 - 02:47:34 PM

Anyone interested in discussing the Habersham County Hazard Mitigation Plan Update is invited to participate in a virtual public meeting Thursday morning, April 4.

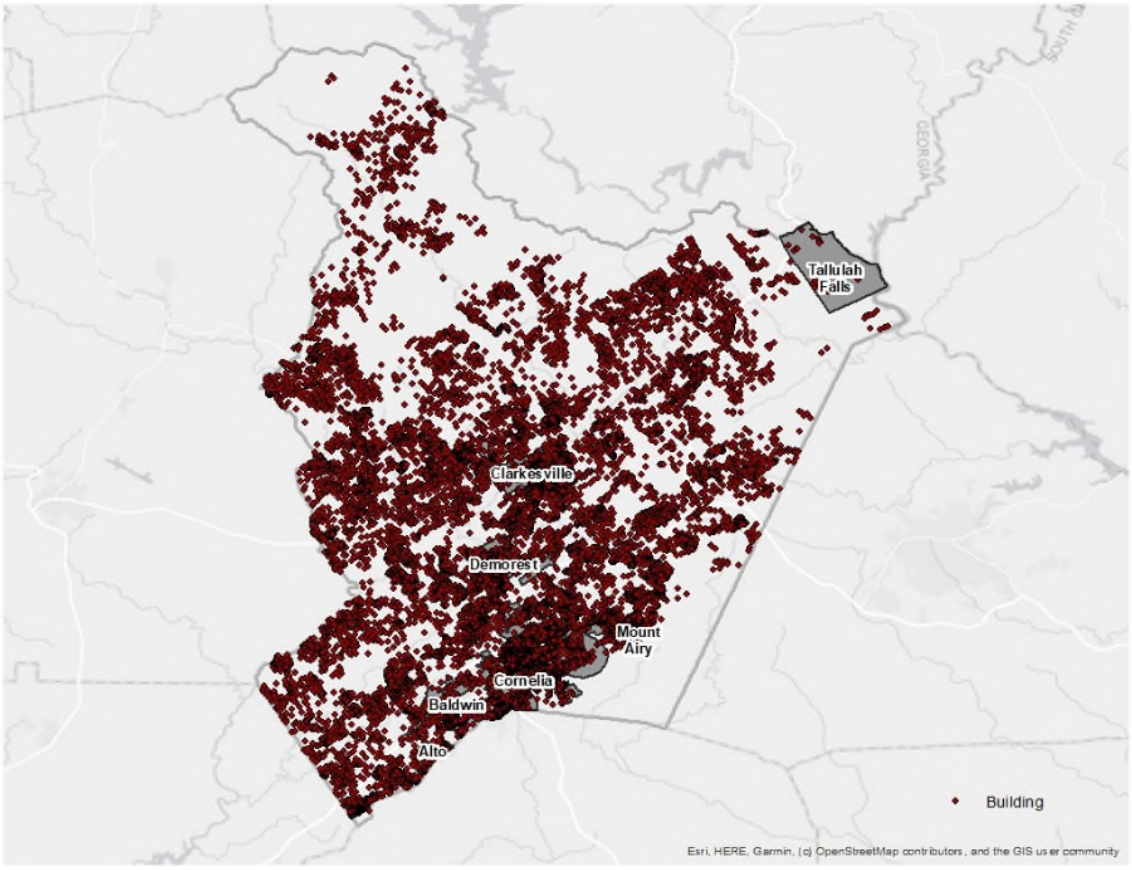
View All News

Multi-Jurisdictional Considerations

FEMA does not require cities and Habersham 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. Habersham County's most recent Hazard Mitigation Plan was approved by FEMA in October 2018. The 2023 Mitigation Plan is the third five-year update. This FEMA-approved 2023 Hazard Mitigation Plan makes Habersham County, the City of Baldwin, the City of Clarksville, the City of Cornelia, the City of Demorest, the Town of Alto, the Town of Mount Airy, and the Town of Tallulah Falls 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. Habersham County is dedicated to work in the best interests of the County, as well as its municipalities. A few mitigation strategies in Habersham County's 2023 Mitigation Plan apply to a specific municipality. Unless noted otherwise, mitigation strategies apply equally to all jurisdictions. During the creation and update of this Plan, Habersham County Emergency Management Agency solicited and received participation from the following Habersham County municipalities: Hiawassee and Young Harris.

Distribution of Buildings in Habersham County



Source: 2023 Habersham County HAZUS Report

Incorporation of Existing Plans, Studies, and Resources

Requirement §201.6(b)(3)

State Requirement Element F3

Existing Plans

2018 Habersham County Pre-Disaster Hazard Mitigation Plan
2019 State of Georgia Hazard Mitigation Plan
Habersham County Local Emergency Operations Plan
Georgia Forestry Commission's Habersham Co. Community Wildfire Protection Plan
Habersham County Joint Comprehensive Plan

Studies

2023 Hazard Risk Analyses (HAZUS Report)
2017 United States Department of Agriculture Ag Census
2010 United States Census
2020 United States Census
2009 Habersham County Flood Insurance Study
Radeloff, V. C., R. B. Hammer, S. I Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. *The Wildland Urban Interface in the United States.* Ecological Applications 15:799-805.

Resources

2014 City of Boston Natural Hazard Mitigation Plan Update
2010 Camden County Joint Hazard Mitigation Plan Update
2010 Northern Virginia Hazard Mitigation Plan Update
National Climactic Data Center
National Weather Service
Habersham County Tax Assessor's Data
Habersham 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

Application of Existing Plans and Studies

Existing Planning Mechanism	Reviewed? Yes/No	Incorporation into 2022 Mitigation Plan
2018 Habersham County Hazard Mitigation Plan	Yes	Baseline for the 2022 Plan; updated mitigation strategies; updated hazards; updated Habersham County information
2019 State of Georgia Hazard Mitigation Plan	Yes	Hazard descriptions; potential hazards; mapping mechanisms; potential mitigation strategies that could be adopted on a local level
Habersham County Local Emergency Operations Plan (LEOP)	Yes	Identification of current resources; identification of current capabilities
Georgia Forestry's Habersham County Community Wildfire Protection Plan (CWPP)	Yes	Mitigation strategies for wildfire and drought; historical data
2017 USDA Agriculture Census	Yes	Agricultural data regarding potential losses for drought and wildfire
2020 United States Census	Yes	To update Habersham County's profile information
2009 Habersham County Flood Insurance Study	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
Habersham 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
Habersham County Flood Mitigation Assistance Plan	No	No such plan exists
2023 Habersham County HAZUS Report	Yes	Hazard Analysis

CHAPTER TWO – COUNTY PROFILE

Summary of Updates for Chapter Two

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Habersham County Hazard Mitigation Plan 2018.

Chapter 2 Section	Updates
Past Hazards	• This information involved a review of the hazards listed in the previous plan. • Information was updated for the last 50 years
History	• Expanded and updated from previous plan
Past Events	• Identification of major hazard events in Habersham County for the last 50 years • Focus on Federal Declarations and events since the last Hazard Mitigation Plan Update
Demographics	• Updated data to the 2020 Census information
Economy	• Updated data and information
Government	• Updated verbiage
Municipalities	• Updated verbiage
Transportation	• Updated verbiage
Climate	• Updated verbiage
Utilities	• Updated verbiage
NFIP Compliance	• Updated verbiage

History

Habersham County was officially created in 1818 from lands that originally were part of the Cherokee Nation. The county is named after Revolutionary War hero and U.S. Postmaster General Joseph Habersham. During 1828 and 1829, Habersham County's borders were enlarged when more Cherokee lands were claimed. However, through the years parts of it were used in the creation of Banks, Cherokee, Lumpkin, Rabun, Stephens, and White counties.

The first settlers came to Habersham County after the Indian Cessions of 1818 and 1819. These early settlers were enticed by free land distributions and settled along the banks of the county's four major rivers: the Chattahoochee, Soque, Tallulah, and Tugaloo. The discovery of gold in northeast Georgia brought rapid growth to the area which eventally resulted in the removal of the Cherokees from the area in 1838.

Some of the early industry included leather tanning, iron mining, and the processing and mining of minerals such as asbestos, cynanite, and tourmaline. During the Civil War, a local iron works and manufacturing company produced arms for the Confederacy. By 1900, Habersham County's economy was enhanced by the arrival of the railroad. Part of this econonim boost was due to tourists flocking to Tallulah Gorge beginning in 1882. The railroad also brought immigrants who planted orchards and vineyards. Today, notable agricultural products still include apples.

Habersham County is home to several museums and outdoor attractions. Museums include the Cornelia Railroad Depot Museum, the Johnny Mize Museum, the Loudermilk Boarding House Museum, and the Regional African American Museum. Outdoor attractions include Lake Russell, Panther Creek Park and Falls, and Tallulah Gorge. Habersham County is also home to two institutions of higher learning: Piedmont College and North Georgia Technial College.

Past Hazards

Habersham County, Georgia, has faced many natural hazards in its Habersham history. Severe thunderstorms have been the most prevalent of these hazards. In the last 50 years, Habersham County has been subjected to 198 documented severe 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 Habersham County, there have been 16 documented tornadoes in the last 50 years.

Because of heavy rainfall, either within Habersham County or upstream, flooding has also occurred. In the National Climactic Data Center (NCDC) databases of the National Weather Service, there is documentation of 41 flooding events for Habersham County.

Winter storms and heavy snowfall have affected Habersham County on 69 occasions over the last 50 years, according to the NCDC record. Because these natural events are barely an annual occurrence, the pre-planning and preparedness component of emergency management is not as robust as northern or western states that routinely see this type of weather.

Habersham County has also been impacted by the following: drought, excessive heat, tropical cyclones, earthquakes, and wildfires.

Habersham County has had 18 Presidential Disaster Declarations (FEMA-declared major disasters) – three of which have occurred since the adoption of the 2018 Hazard Mitigation Plan (two for COVID-19 in 2020 and one for Tropical Storm Zeta in 2021).

Notable Past Events

- **2021, Tropical Storm Zeta (Federal Declaration)**
- **2020, COVID-19 Pandemic (Federal Declaration x2)**
- 2020, Tornado (EF0)
- 2020, Tornado (EF1)
- 2020, Flash Flood
- **2017, Hurricane Irma (Federal Declaration x2)**
- **2015, Severe Ice Storm (Federal Declaration)**
- **2014, Severe Ice Storm (Federal Declaration x2)**
- **2011, Severe Storm, Tornado (EF2) (Federal Declaration)**
- 2005, Thunderstorm Wind
- 2005, Thunderstorm Wind
- 2005, Ice Storm
- **2004, Hurricane Ivan (Federal Declaration)**
- 2004, Tornado (F1)
- 2004, Flood
- 2004, Flood
- 2002, Ice Storm
- **2000, Severe Winter Storm (Federal Declaration)**

- **1998, Severe Storm, Flood (Federal Declaration)**
- 1997, Tornado (F1)
- 1997, Ice Storm
- **1995, Hurricane Opal (Federal Declaration)**
- **1994, Tornado, Flood, Severe Storm (Federal Declaration)**
- 1994, Tornado (F1)
- 1994, Tornado (F1)
- **1993, Severe Winter Storm (Federal Declaration)**
- 1989, Tornado (F3)
- 1989, Tornado (F2)
- 1989, Tornado (F1)
- 1983, Tornado (F1)
- 1983, Tornado (F1)
- 1983, Tornado (F0)
- 1979, Tornado (F0)
- 1979, Tornado (F1)
- **1977, Drought (Federal Declaration)**
- **1976, Flood and Severe Storm (Federal Declaration)**
- 1976, Tornado (F2)

National Flood Insurance Program Compliance

Jurisdiction	Participating?	Participation Date	Effective Map Date
Habersham County	Yes	4/2/1991	1/5/2018
Alto	Yes	10/30/2006	1/5/2018
Baldwin	No	----------	
Clarksville	Yes	2/17/1988	1/5/2018
Cornelia	Yes	8/1/1986	1/5/2018
Demorest	Yes	11/15/2010	1/5/2018
Mount Airy	Yes	6/2/2009	1/5/2018
Tallulah Falls	Yes	8/13/1982	6/2/2009

**** The City of Baldwin is Currently in the process of exploring NFIP Compliant Ordinances***

Demographics

Habersham County

	2000 Census	2010 Census	2020 Census
Population	35,902	43,041	46,031
White	88.9%	85.7%	89.9%
African American	4.5%	3.4%	3.9%
Hispanic/Latino	7.7%	12.4%	16.6%
Asian	1.9%	2.2%	2.3%
American Indian	0.3%	0.5%	1.1%
Two or More Races	1.4%	1.8%	1.9%
Median Age	36.4	38.6	39.3
Median Household Income	$36,905	$39,879	$56,680
Persons in Poverty	11.2%	18.8%	13.3%
Homeowners	69.1%	73.4%	77.8%

Municipalities – Population

	2000 Census	2010 Census	2020 Census
Alto	876	1,172	970
Baldwin	2.425	3,279	3,629
Clarkesville	1,248	1,733	1,911
Cornelia	3,674	4,160	4,503
Demorest	1,465	1,823	2,022
Mount Airy	604	1,284	1,391
Tallulah Falls	164	168	199

Social Vulnerability Information

Social vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as a toxic chemical spill. The Center for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry (CDC/ATSDR) rates social vulnerability on 16 variables.

These variables are:

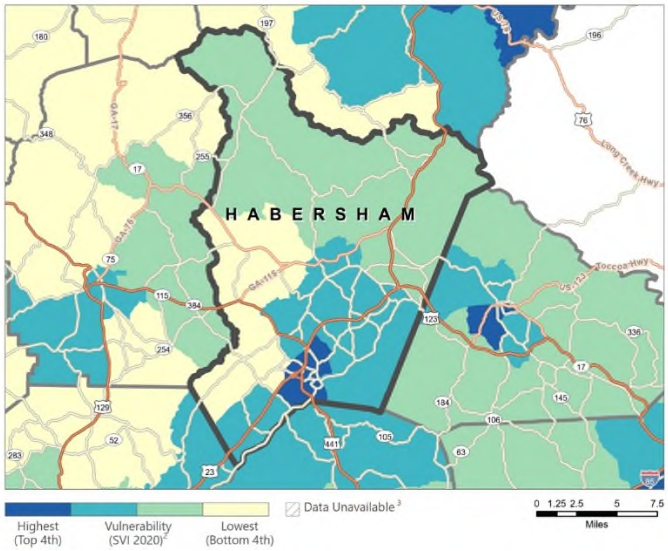
- Percentage below the poverty level
- Unemployment rate
- Per capita income
- Percentage of population 25+ without a high school diploma
- Percentage of population below 65 without insurance
- Percentage of population under 18 years of age
- Percentage of population age 65 and over
- Percentage of the population age 5 or older with a disability
- Percentage of households with a single parent
- Percentage of population that is Hispanic or non-white race
- Percentage of population over the age of 5 who speak English less than "well"
- Number of large apartment buildings (10 or more housing units per building)
- Percentage of mobile homes
- Number of housing units with more than one person per room
- Number of households with no vehicle available
- Percentage of population living in group quarters

These 16 variables are aggregated into four overall factors: Socioeconomic Status, Household Characteristics, Racial and Ethnic Minority Status, and Household Type/Transportation. Each census tract is then mapped based upon each of these four factors and the overall SVI based upon the full 16 variables. A score is assigned based upon these variables from 0 (no social vulnerability) to 1 (very high social vulnerability).

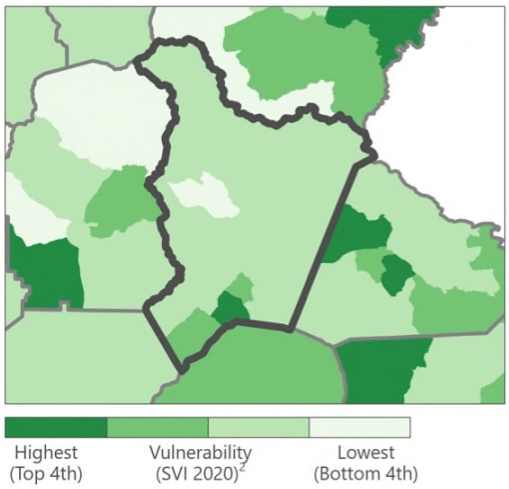
Habersham County has an Overall SVI score of 0.3354, which indicates a low to medium level of vulnerability. Habersham County also has low to medium levels of vulnerability for Socioeconomic Status (0.2595) and Housing Type/Transportation (0.4557). Habersham County has a medium to high level of vulnerability for Household Characteristics (0.6203) and a low level of vulnerability Racial/Ethnic Minority Status (0.1962).

Habersham County does have particular areas that score higher on the SVI Index and higher on each of the four factors. Areas in and around the City of Baldwin and the City of Cornelia, particularly areas south of downtown Cornelia, scored higher on each of the SVI factors than Habersham County as a whole.

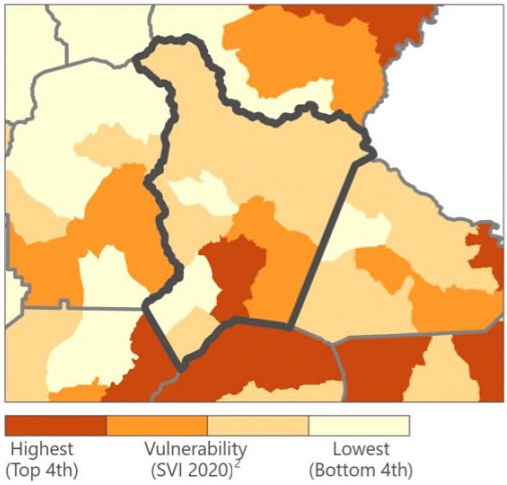
Overall Social Vulnerability



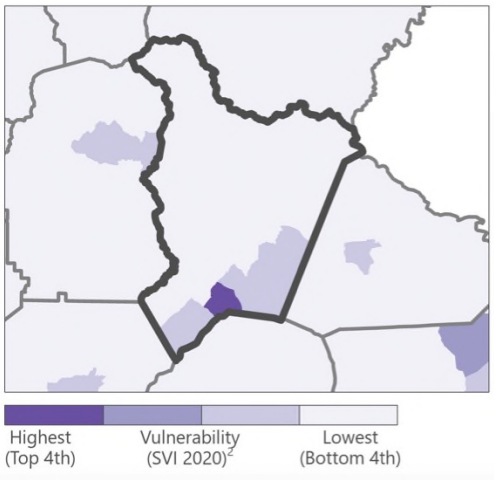
Socioeconomic Status



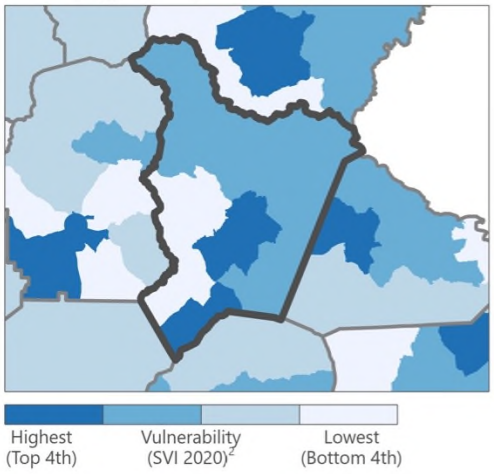
Household Characteristics



Racial and Ethnic Minority Status



Housing Type/Transportation



Economy

Habersham County's economy is primarily agricultural with some light industry. Habersham County's cost of living is 17.3% below the national average. The unemployment rate in Habersham County is 2.6%, which is below the State average of 3.2% and the National average of 3.7%. Habersham County has a median household income of $56,680, which is well below the national average of $69,021. The list of the ten largest private employers is from the Georgia Department of Labor (2021) and is listed in alphabetical order – not in order of company size or impact on the community.

The ten largest private employers in Habersham County are:

Company	Product/Service
Ethicon, Inc	Manufacturing: Medical
Fieldale Farms Corporation	Poultry
Georgia Department of Corrections	Correctional Institution
Ingles Market, Inc.	Retail: Grocery
Lindsay Windows South	Manufacturing: Windows
Lowe's Home Centers, Inc	Retail: Construction/Improvement
Piedmont College	College
Tallulah Falls School, Inc.	Private School
TC Baycor	Manufacturing: Textile
Walmart	Retail: General

Utilities

Habersham County's utility needs are met by a variety of public and private entities.
Electrical power in Habersham County is provided by the Habersham EMC, and Georgia Power.

Water in Habersham County is provided by the Town of Alto, the City of Baldwin, the City of Clarkesville, the City of Cornelia, the City of Demorest, the Town of Mount Airy, and the Town of Tallulah Falls. There are several Natural Gas suppliers in Habersham County including Atlanta Gas Light, Georgia Natural Gas, Gas South, and Scana.

Transportation

Habersham County's transportation system consists primarily of state highways and county-maintained roads. US Highways 23, 123, and 441, as well as State highways 15, 17, 105, 115, 197, 255, 356, 365, 384, and 385 are major transportation routes that carry the majority of passenger and commercial traffic in and out of Habersham County. Congestion in these transportation corridors create traffic problems, primarily because of the significant population growth in Habersham County over the last 25 years.

Freight rail services owned and operated by Norfolk Southern traverse Habersham County. Habersham County is serviced by the Habersham County Airport, which has a single 5,506-foot runway.

Government

The form of government specified in the County Charter is known as Commission-Administrator form of government, which provides for an elected body of Commissioners, one from each of five geographic districts, who are elected in staggered four-year terms and a County Administrator to oversee the day-to-day management of the County. Although each County Commissioner is elected as a representative from their respective districts, they represent the interests of the entire county and all its citizens. Chairmanship of the Board of Commissioners is rotated among the elected County Commissioners. Habersham County is the only county in Georgia with this type of rotating chairmanship.

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 citizens 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 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 citizens expect through the revenues that are raised annually. These include Fire and Ambulance protection; E-911 dispatch services; Zoning and Planning; Inspections; Code Enforcement; Animal Control; Public Library; Parks and Recreation; Public Works; Waste Management Collection Centers; and agencies that service all of these such as Building Maintenance, Vehicle Maintenance, and Emergency Management Services. 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.

Climate

Habersham 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 Habersham growing season in Georgia, perfect for ornamental and economic-boosting agricultural plants.

AVERAGE MONTHLY TEMPERATURES IN GEORGIA (FAHRENHEIT)

	Average Georgia Temperature	Average Habersham County Temperature
January	46	41
February	49	45
March	56	53
April	63	60
May	70	68
June	77	75
July	80	77
August	79	76
September	74	70
October	64	60
November	56	51
December	48	44

Municipalities

City of Baldwin

The City of Baldwin is governed by a Mayor/City Council form of government. The Mayor and all five city councilmembers are elected at-large by the citizens of Baldwin. Baldwin provides the following services to the citizens of Baldwin: Law Enforcement, Fire Department, Public Works, Parks and Recreation, Water, and Waste Water.

The City of Baldwin was incorporated in 1896. The city was originally known as Stonepile due to a large pile of stones that once stood in the center of town. This structure was erected by the Cherokee but the significance of it remains a mystery. The City of Baldwin was named after Joseph A. Baldwin, an Atlanta-Charlotte Air Line Railroad official who helped construct much of Georgia's rail network.

City of Clarkesville

The City of Clarkesville is governed by a Mayor/City Council form of government. The City Council consists of five representatives who are elected at large and serve four-year terms. The City of Clarkesville provides the following services to its citizens: Administrative, Law Enforcement, Planning/Development, Public Works, Utilities, and Water.

The City of Clarkesville was chartered in 1823 and was named for General John C. Clarke who served as governor of Georgia in 1819 and 1821. The city became known as a major resort town for wealthy families escaping the heat and malaria of the coasts of South Carolina and Georgia. Overtime these visitors began to build homes in the area and many of these homes still stand today. In the mid-1960s the City of Clarkesville decided to hold an annual community festival, the Mountain Laurel Festival, which is considered the oldest arts and crafts festival of its kind in Georgia.

City of Cornelia

The City of Cornelia is governed by a Mayor/City Council form of government. The city council is made up of four members. The City of Cornelia provides multiple services to its citizens. Some of these services include Building and Zoning, Code Enforcement, Community Development, Fire Department, Law Enforcement, Utilities, Public Works, and Sanitation.

The City of Cornelia was originally founded around 1860 and was situated near the boundary of the Cherokee and Creek Nations. As with many towns in the area, the City of Cornelia's growth parallels that of the railroad. In 1872, the Charlotte-Airline Railroad company laid track from Gainesville to Toccoa. In 1882, the Blue Ridge and Atlantic Railroad started a line from Cornelia to Clarkesville and Tallulah Falls.

The City of Cornelia is home to one of the world's largest apple structures and is affectionately known as The Big Red Apple. This structure was donated by the Southern Railway and is 7 feet high, 22 feet in circumference, and weighs about 5,200 pounds. In the early 1920s, agricultural production began to shift from cotton to apples and peaches. When the boll weevil destroyed cotton production in 1922, this shift to apples and peaches saved the surrounding community from falling apart along with cotton production. The Big Red Apple was erected in 1925 as a symbol of how the community was saved by apple production.

City of Demorest

The City of Demorest is governed by a City Manager form of government. The city offers the following services to its citizens: administrative and water.

The City of Demorest began as a piece of land which was given by the State of Georgia to W. Stripling in 1829. In 1840, Stripling transferred the land to Dr. Paul Rossignol who build a large summer home there. This home has since become a significant piece of the history of Demorest. It was one of the first buildings used by Piedmont College which was established in 1897.

The City of Demorest was officially incorporated in 1889. The city was founded by a group of individuals who had the desire to establish a community with high moral standards. This founding group of individuals determined that those caught selling, buying, or consuming alcohol, gambling, or engaging in prostitution would forfeit their property. The city became known as a Temperance Town and was named after a great Prohibition leader of the time.

In 1897, the J.S. Green Collegiate Institute was founded which later became known as Piedmont College and is still a place of higher learning today. Baseball Hall of Famer Johnny Mize was born in Demorest and played baseball at Piedmont College. Mize went on to play for the St. Louis Cardinals, New York Giants, and New York Yankees. One of the post popular landmarks today is the Johnny Mize Athletic Center and Museum which is located on the campus of Piedmont College.

Town of Alto

The Town of Alto is governed by a Mayor/City Council form of government. The city council is made up of five members. The Town of Alto provides the following services to its citizens: administrative, law enforcement, public works, and water.

Originally called Longview, the Town of Alto was officially incorporated in 1895. In its early years the Town of Alto was a shipping point for cotton and peaches. The town derives its name from the Italian word for “high” due to its elevation.

Town of Mount Airy

The Town of Mount Airy is governed by a Mayor/City Council form of government. The city council is made up of five members. The Town of Alto provides the following services to its citizens: administrative, law enforcement, and utilities.

The Town of Mount Airy was established in 1874 when a train station was built at the highest elevation between New Orleans and New York on the Richmond-Danville railroad. The site was named Mount Airy due to its elevation of 1,545 feet. For many years after its founding, the town was known as an exclusive resort town. However, once train travel began to decrease so did tourism.

Town of Tallulah Falls

The Town of Tallulah Falls is governed by a Mayor/City Council form of government.

Tallulah Falls was officially incorporated in 1885 and prospered as a Victorian-era resort town. The town is best known for the Tallulah River Gorge which contains five breathtaking waterfalls and has been called the Niagara of the South, the Grand Canyon of the East, and the largest gorge east of the Mississippi. The gorge measures 2 miles long and 1,000 feet deep. In 1970, high-wire artist Karl Wallenda walked over the gorge.

CHAPTER THREE – COUNTY PROFILE

Summary of Updates for Chapter Three

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Habersham County Hazard Mitigation Plan 2018.

Chapter 3 Section	Updates
Risk Assessment	• Expanded the explanation of the Risk Assessment • Added an explanation of each part of the Hazard Information
Natural Hazard Severe Thunderstorm	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Winter Storm	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Flooding	• Updated and consolidated hazard profile with new data • Land Use and Development trends updated to include municipal NFIP information • Content revised
Natural Hazard Tornado	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Drought	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Wildfire	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Earthquake	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Tropical Cyclone	• Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Landslide	• Updated hazard description • Updated and consolidated hazard profile data • Content revised
Technological Hazard Hazardous Materials	• Updated hazard description • Updated and consolidated hazard profile data

	• Content revised
Technological Hazard Dam Failure	• Updated hazard description • Updated and consolidated hazard profile data • Content revised
Technological Hazard Transportation Incident	• Updated and consolidated hazard profile with new data • Content revised
Technological Hazard Terrorism	• Updated and consolidated hazard profile with new data • Content revised
Technological Hazard Infrastructure Failure	• New Section – Not in 2018 Plan
Technological Hazard Emergent Infectious Diseases	• New Section – Not in 2018 Plan
Technological Hazard Radiological Incident	• Updated and consolidated hazard profile with new data • Content revised

Risk Assessment

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

The Habersham County Hazard Mitigation Planning Committee conducted a comprehensive Threat and Hazard Identification and Risk Assessment (THIRA) for Habersham County and all municipalities. This assessment developed the hazard basis for this plan. The assessment includes the following components for each hazard:

1. *Hazard Identification*: The Habersham County Hazard Mitigation Planning Committee identified eight natural hazards and seven technological hazards for this Hazard Mitigation Plan. This is an increase of two technological hazards from the previous iteration of the plan. 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 Habersham County.

3. *Profile of Hazards*: Each hazard was profiled as to how it could potentially impact the 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 municipalities and attempts to identify 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 importance regarding flooding and dam failure events.

7. *Multi-Jurisdictional Concerns*: Each jurisdiction was considered when determining the potential hazard impact.

The National Risk Index was utilized as a database of risk potential for how natural hazards have impacted Habersham County in the past and for how they could impact Habersham County in the future. The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, and Winter Weather.

The National Risk Index leverages available source data for Expected Annual Loss due to these 18 hazard types, Social Vulnerability, and Community Resilience to develop a baseline relative risk measurement for each United States county and Census tract. These measurements are calculated using average past conditions, but they cannot be used to predict future outcomes for a community. The National Risk Index is intended to fill gaps in available data and analyses to better inform federal, state, local, tribal, and territorial decision makers as they develop risk reduction strategies.

Here is how Habersham County scored in each category overall:

These scores indicate that Habersham County has lower overall risk and expected annual loss. It also indicates relatively high values of social vulnerability and relatively low levels of community resilience.

In addition to the overall scores, a matrix for each hazard is also produced by the National Risk Index.

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Score
Tornado	$1,565,035	Relatively High	Relatively Low	1.23	$1,915,763	64.2
Earthquake	$427,932	Relatively High	Relatively Low	1.23	$543,124	71.6
Strong Wind	$355,893	Relatively High	Relatively Low	1.23	$437,342	54.4
Lightning	$273,229	Relatively High	Relatively Low	1.23	$338,958	80.4
Hurricane	$271,820	Relatively High	Relatively Low	1.23	$332,104	55.3
Riverine Flooding	$223,315	Relatively High	Relatively Low	1.23	$266,050	38.7
Winter Weather	$120,956	Relatively High	Relatively Low	1.23	$149,021	73.6
Ice Storm	$97,726	Relatively High	Relatively Low	1.23	$121,471	62.3
Hail	$93,793	Relatively High	Relatively Low	1.23	$105,838	49.6
Wildfire	$46,750	Relatively High	Relatively Low	1.23	$53,535	54.2
Landslide	$21,900	Relatively High	Relatively Low	1.23	$26,574	49.9
Drought	$7,425	Relatively High	Relatively Low	1.23	$8,025	37.1
Cold Wave	$0	Relatively High	Relatively Low	1.23	$0	0
Heat Wave	$0	Relatively High	Relatively Low	1.23	$0	0

As the above graphic indicates, Tornadoes have the highest expected annual loss score of any potential hazard. As far as overall risk score, lightning is considered to be a higher risk event than any other hazard identified.

In addition to overall risk, the Habersham County Hazard Mitigation Plan Update Committee considered how each hazard could potentially impact the vulnerable populations in the community. Utilizing the National Risk Index and census tract data, a few trends were identified. The four census tracts with the highest overall risk in Habersham County – Census tracts 13137000502, 13137000604, 13137000300, and 13137000601 – all scored Relatively High or Very High on social vulnerability. Census tracts 13137000601 and 13137000604 are contiguous to one another in and around the City of Baldwin. Census

tracts 13137000300 and 13137000502 are contiguous to one another south and southeast of the City of Clarkesville. All four census tracts scored higher than average on risk for earthquake, lightning, landslide, riverine flooding, strong winds, and tornadoes.

At the first meeting of the Habersham County Hazard Mitigation Plan Update Committee, the attendees participated in a risk assessment of hazard for Habersham 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 Habersham County Hazard Mitigation Plan Update committee at future meetings, the hazards in this chapter were the agreed upon list. Several of the hazards identified by the committee members were consolidated into expanded hazard descriptions. Those incorporations are notated in the below hazard ranking.

Hazard	Likelihood Score	Preparedness Score	Total Score
Terrorism	23	46	**69**
Severe Thunderstorms	46	21	**67**
Transportation Incident	36	15	**51**
Tornado	36	12	**48**
Severe Winter Weather	29	16	**45**
Communications Failure*	6	28	**34**
Nuclear Incident	1	24	**25**
Emergent Infectious Disease	1	14	**15**
Dam Failure	4	11	**15**
Flooding	12	1	**13**
Hazardous Materials Incident	3	10	**13**
Critical Infrastructure Failure*	6	5	**11**
Earthquake	0	10	**10**
Utility Failure*	5	4	**9**
Water Contamination**	2	6	**8**
Tropical Cyclone	6	0	**6**
Civil Unrest/Riots***	4	0	**4**
Wildfire	4	0	**4**
Agricultural Incident******	0	2	**2**
Eclipse*******	1	0	**1**
Industrial Incident**	1	0	**1**
Extreme Temperatures	0	1	**1**
Zoonotic Incident********	0	0	**0**
Geological	0	0	**0**
Drought	0	0	**0**

** Utility Failure, Communications Failure, and Infrastructure Failure have been combined into a single hazard titled Critical Infrastructure Failure*

** Water Contamination and Industrial Incident have been incorporated into Hazardous Materials Incident*

**** Civil Unrest/Riots were incorporated into the Terrorism hazard*

***** Agricultural Incident information was incorporated into the Hazardous Materials Incident and Emergent Infectious Disease hazards*

****** Eclipse was removed as a hazard*

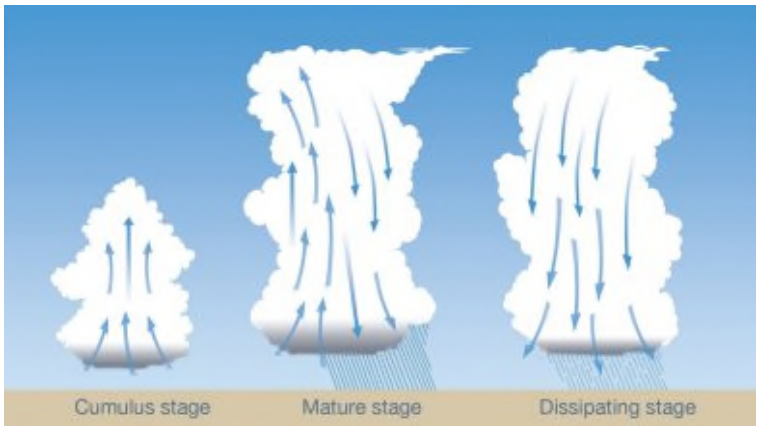
******* Zoonotic Incident was incorporated into the Emergent Infectious Disease hazard*

Hazard Description

This section provides general and historical information about thunderstorms, including high wind, lightning, and hail. Other elements of thunderstorms, such as tornadoes and flooding, are addressed in their own sections.

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.



Each thunderstorm cell can extend several miles across its base and to 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.

In terms of temporal characteristics, thunderstorms exhibit no true seasonality in that occurrences happen throughout the year. Convectively, driven systems dominate the summer while frontal driven systems dominate during the other seasons. The rate of onset is rapid in that a single cell endures only 20 minutes.

However, various cells in different stages of development may form a thunderstorm that lasts up to a few hours as it moves across the surface.

In terms of magnitude, the National Weather Service defines thunderstorms in terms of severity as a severe thunderstorm that produces winds greater than 57 mph and/or hail of at least 1 inch in diameter and/or a tornado. The National Weather Service chose these measures of severity as parameters more capable of producing considerable damage. Therefore, these are measures of magnitude that may project intensity.

Lightning

Lightning occurs when the difference between the positive and negative charges of the upper layers of the cloud and the earth's surface becomes great enough to overcome the resistance of the insulating air. The current flows along the forced conductive path to the surface (in cloud to ground lightning) and reaches up to 100 million volts of electrical potential. In Georgia, lightning strikes peak in July, with June and August being second highest in occurrence.

Hail

Hail is a form of precipitation that forms during the updraft and downdraft-driven turbulence within the cloud. The hailstones are formed by layers of accumulated ice (with more layers creating larger hailstones) that can range from the size of a pea to the size of a grapefruit. Hailstones span a variety of shapes but usually take a spherical form. Hailstorms mostly endanger cars but have been known to damage aircraft and structures.

Hazard Profile

Severe thunderstorms, including high winds, hail, and lightning, are a serious threat to the residents and infrastructure of Habersham County. Severe thunderstorms are the most frequently occurring natural hazard in Habersham County. Many of these storms include high winds, lightning, and hail. Hail up to 2.75 inches was recorded in Habersham County on several occasions, most recently in 1988. Thunderstorm winds of 80 mph have been reported on many occasions in Habersham County, with the most recent occurring in 2005. While there have been dozens of documented thunderstorm events affecting Habersham County over the last 50 years, it is likely that the official number is a low estimate due to poor record keeping in decades past. For example, only 33 thunderstorm events were recorded between 1973 and 1993, likely a vast underestimation of actual events.

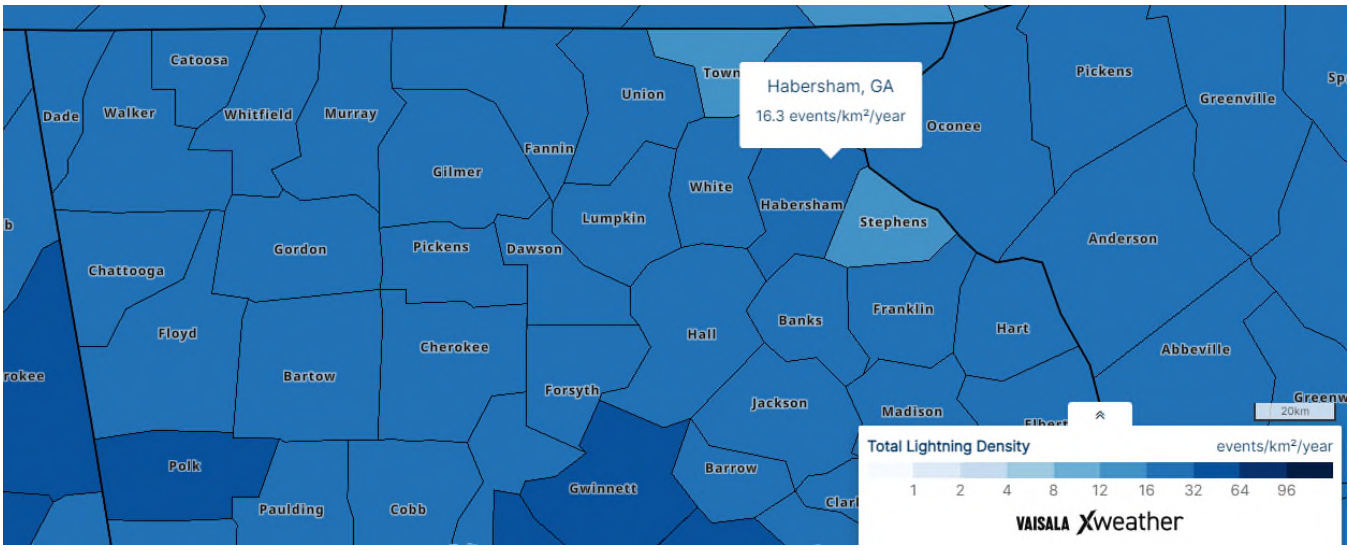
Most of the available information relating to severe thunderstorm events in Habersham County fails to describe damage estimates in any detail. With each thunderstorm event, there are likely unreported costs related to infrastructure costs, public safety response costs, utility repair costs, and personal home and business repair costs. Thunderstorms have occurred during all parts of the day and night and in every month in Habersham County.

The Habersham County Hazard Mitigation Plan Update Committee utilized data from the National Climatic Data Center, the National Weather Service, numerous weather-related news articles, and the Habersham County LEOP in researching severe thunderstorms and their potential impacts on the county. All information has been gathered on a countywide basis. All thunderstorm hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

During the last 50 years, 162 thunderstorm events were recorded in Habersham County, with 129 of those occurring in the last 30 years. This number includes 68 hail events and only 3 lightning reports. According to these records, Habersham County has a 1.18% daily chance of a thunderstorm event based upon data from the last 30 years. Over the last 10 years, Habersham County has averaged 2.9 thunderstorm events per year (29 events). Due to improved record keeping protocols, the Habersham County Hazard Mitigation Plan Update Committee believes the data from the last ten years provides a more accurate representation of the thunderstorm threat to the county. The Habersham County Hazard Mitigation Plan Update Committee has also determined that the lightning threat is severely under-reported, as shown in the NCDC data numbers.

Hailstone size	Measurement		Updraft Speed	
	in.	cm.	mph	km/h
bb	< 1/4	< 0.64	< 24	< 39
pea	1/4	0.64	24	39
marble	1/2	1.3	35	56
dime	7/10	1.8	38	61
penny	3/4	1.9	40	64
nickel	7/8	2.2	46	74
quarter	1	2.5	49	79
half dollar	1 1/4	3.2	54	87
walnut	1 1/2	3.8	60	97
golf ball	1 3/4	4.4	64	103
hen egg	2	5.1	69	111
tennis ball	2 1/2	6.4	77	124
baseball	2 3/4	7.0	81	130
tea cup	3	7.6	84	135
grapefruit	4	10.1	98	158
softball	4 1/2	11.4	103	166

As indicated by the below graphics, Habersham County averages 16.3 flashes of cloud to ground lightning per square kilometer per year. That equals a 4.5% chance of a cloud-to-ground lightning strike on any given day. This shows a much higher indication of lightning occurrences than has been reported to the National Weather Service and the National Climatic Data Center. It is the determination of the Habersham County Hazard Mitigation Plan Update Committee that this data shows a more accurate representation of the scope of the threat that lightning poses to the citizens and infrastructure of Habersham County.



Severe thunderstorm winds, which are defined as winds of at least 58 mph in conjunction with a convective event, have occurred with many thunderstorms that have affected Habersham County. These winds can exceed 100 mph and cause damage comparable to weak tornadoes.

Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust

Municipality	*# of Thunderstorms*	*Annual Risk*
CLARKESVILLE	34	100%
BALDWIN	9	36%
CORNELIA	17	68%
DEMOREST	6	24%
ALTO*	7	28%
TALLULAH FALLS*&	9	36%
MOUNT AIRY	5	20%

This Table identifies the number of Thunderstorms for municipalities over the last 25 years

**** Alto data includes information from Banks County***

*****Tallulah Falls data includes information from Rabun County***

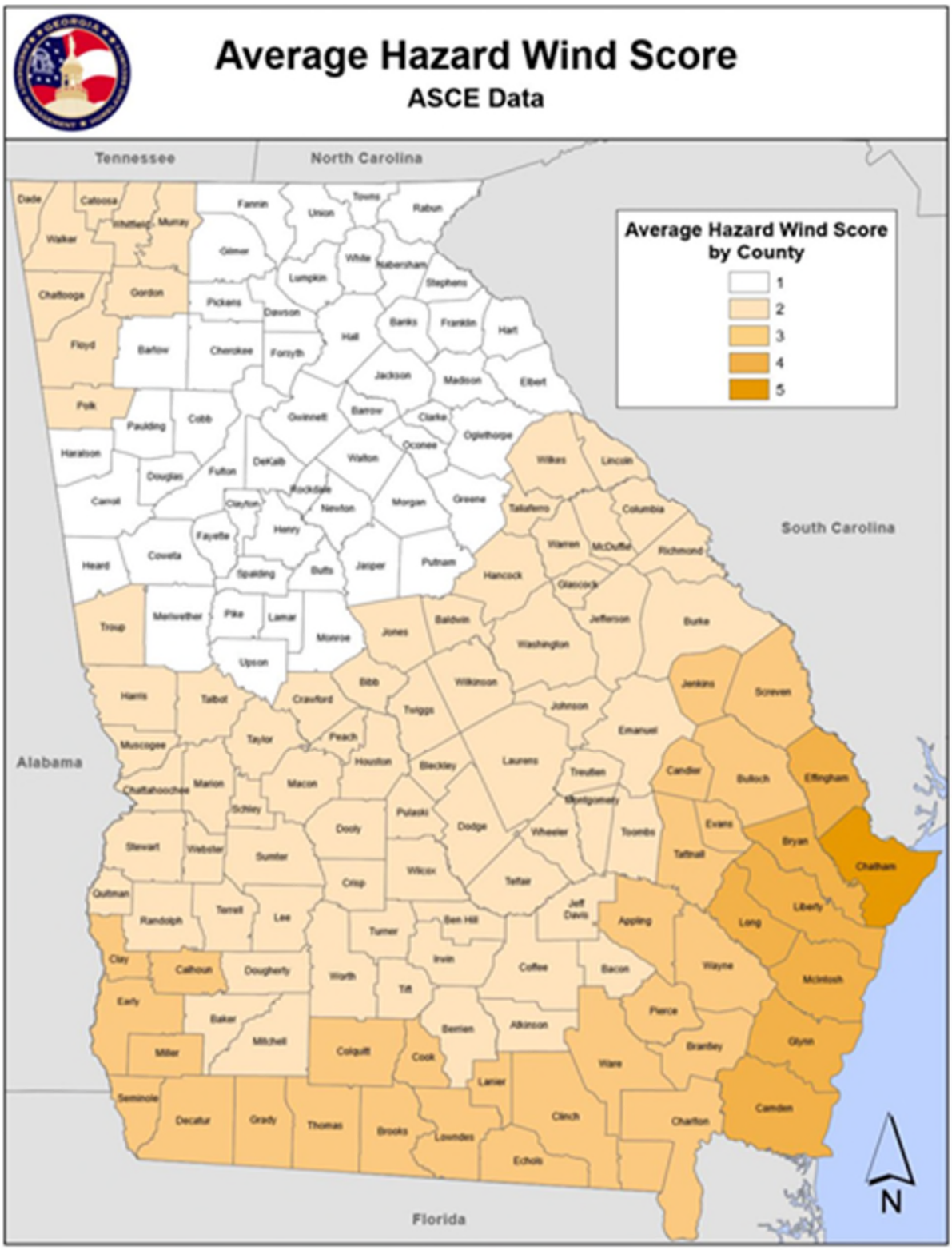
Assets Exposed to the Hazard

In evaluating assets that are susceptible to severe thunderstorms, the Habersham County HMPC determined that all public and private property is at threat by severe thunderstorms, including all critical facilities. This is due to the lack of spatially prejudice of severe thunderstorm events.

Estimated Potential Losses

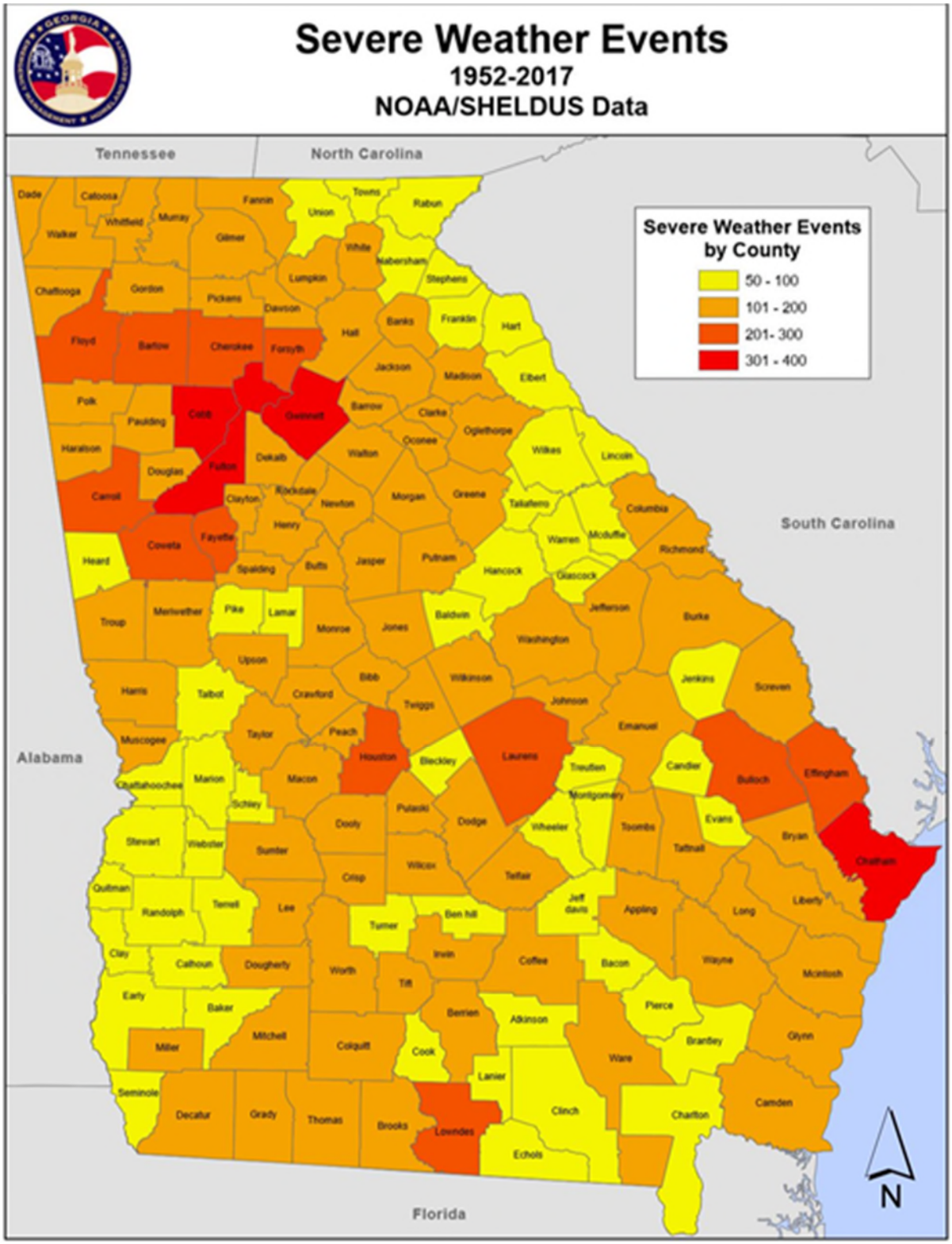
Estimates of damage for the past events of the last 50 years are over $1.3 million, or $26,360 annually. However, all estimated damages reported have occurred over the last 30 years. When extrapolated over 30 years, the annual average nearly doubles to $43,933. These numbers are thought to be a gross underestimation of actual past damages. According to the National Risk Index, Habersham County has an estimated annual loss of $722,915 for lightning, hail, and strong winds.

Natural Hazard: **Severe Thunderstorm**



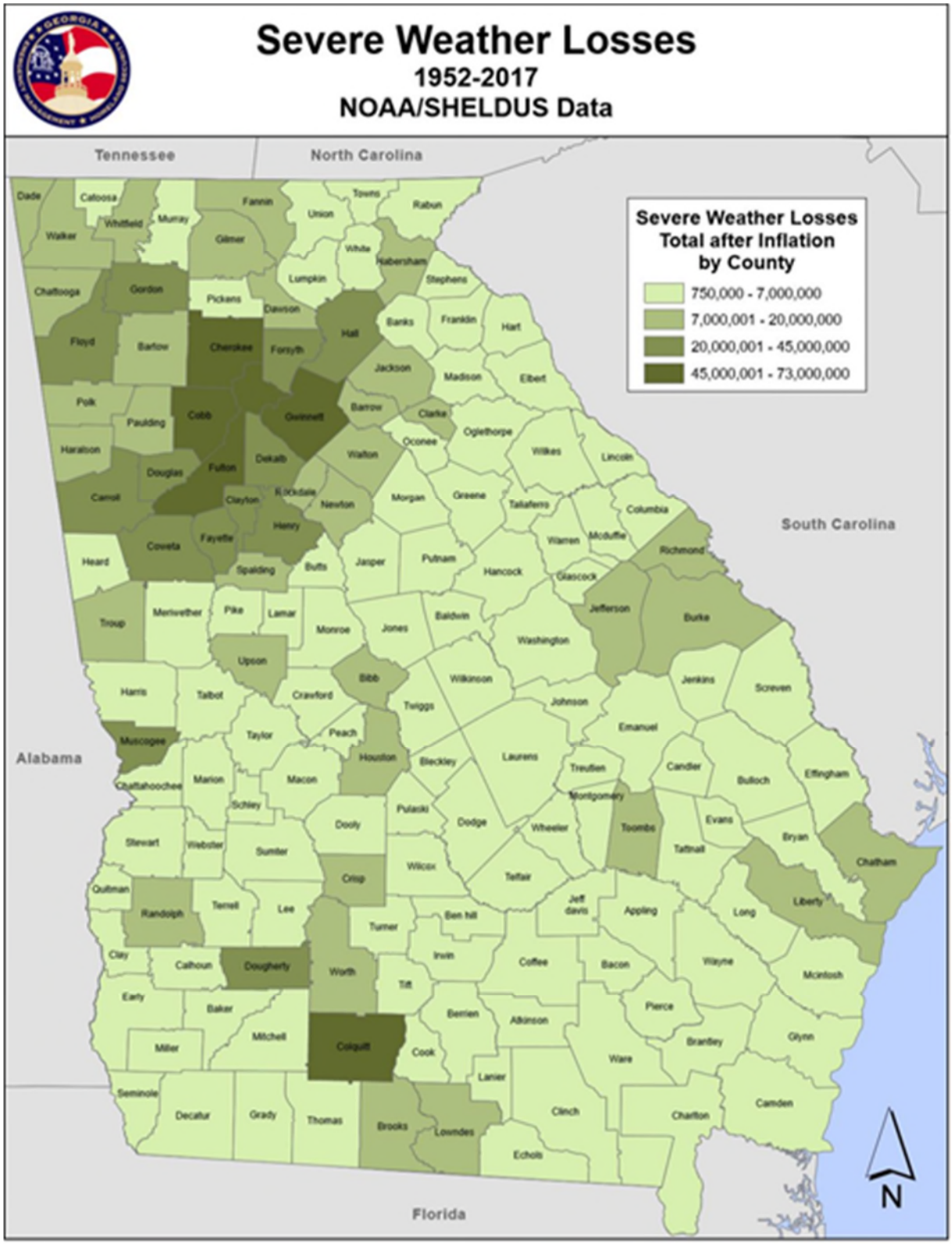
Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**

Land Use & Development Trends

Habersham County currently has no land use trends related to Thunderstorms beyond continued population growth – particularly around the City of Baldwin, City of Cornelia, City of Demorest, and City of Clarkesville.

Multi-Jurisdictional Considerations

Thunderstorm events have occurred across all areas of Habersham County. Crop damage from thunderstorm events would likely have the greatest impact in the rural areas of Habersham County. However, property damage numbers would be highest in more heavily populated areas due to greater population density. Thunderstorms have the potential to impact all areas of Habersham County.

Climate Change Considerations

How climate change impacts severe thunderstorms in Habersham County in the future has yet to be determined. It is possible that severe thunderstorms could increase, decrease, or remain the same in frequency and/or increase, decrease, or remain the same in severity.

Hazard Summary

Thunderstorm events pose one of the greatest threats of property damage, injuries, and loss of life in Habersham County. Thunderstorm events are the most frequently occurring weather event that threatens Habersham County. As a result, the Habersham County HMPC recommends that the mitigation measures identified in this plan for thunderstorms should be aggressively pursued due to the frequency of this hazard and the ability for this hazard to affect any part of Habersham County.

Thunderstorm Events Since 2018 in Habersham County

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
HILLS	HABERSHAM CO.	GA	03/17/2018	20:53	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	04/19/2019	04:57	Thunderstorm Wind	65 kts. EG	0	0	5.00K	0.00K
RAOUL	HABERSHAM CO.	GA	06/22/2019	00:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	05/05/2020	00:34	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/30/2020	17:53	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	03/26/2021	00:30	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	04/08/2021	20:41	Hail	0.75 in.	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	04/24/2021	19:08	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	04/24/2021	19:12	Hail	1.00 in.	0	0	0.00K	0.00K

Hazard Description

Severe winter storms bring the threat of ice and snow. There are many types of frozen precipitation that could create a severe winter weather event. Freezing rain consists of super cooled falling liquid precipitation freezing on contact with the surface when temperatures are below freezing. This results in an ice glazing on exposed surfaces including buildings, roads, and power lines. Sleet is easily discernable from freezing rain in that the precipitation freezes before hitting the surface. Often this sleet bounces when hitting a surface and does not adhere to the surface. However, sleet can compound into enough depths to pose some threat to motorists and pedestrians.

A heavy accumulation of ice, which is often accompanied by high winds, can devastate infrastructure and vegetation. Destructiveness in the southern states is often amplified due to the lack of preparedness and response measures. Also, the infrastructure was not designed to withstand certain severe weather conditions such as weight build-up from snow and ice. Often, sidewalks and streets become extremely dangerous to pedestrians and motorists. Primary industries, such as farming and fishing, suffer losses through winter seasons that produce extreme temperatures and precipitation.

Within Georgia, the impacts of winter storms are often contained within the northern part of the State. However, events like the 1993 “storm of the century” illustrated the vast impacts that one storm can have on the entire state. The winter storms with the greatest impacts on Georgia are the result of coastal storms coming up from the Gulf of Mexico, including the winter storms in 1973 and 1993. The 1973 storm produced snowfalls of up to 19 inches in parts of Central Georgia including the City of Thomaston in Upson County. Also, a major ice storm occurred in 2014, bringing up to 1 inch of ice to the eastern portion of the State near Augusta.

Severe winter weather exhibits seasonal qualities in that most occur within the months of January to March, with the highest probability of occurrence in February. The rate of onset and duration varies from storm to storm, depending on the weather system driving the storm. Severe winter weather rarely frequents the State of Georgia. However, the impacts of the storms substantiate severe winter weather’s inclusion in the risk assessment.

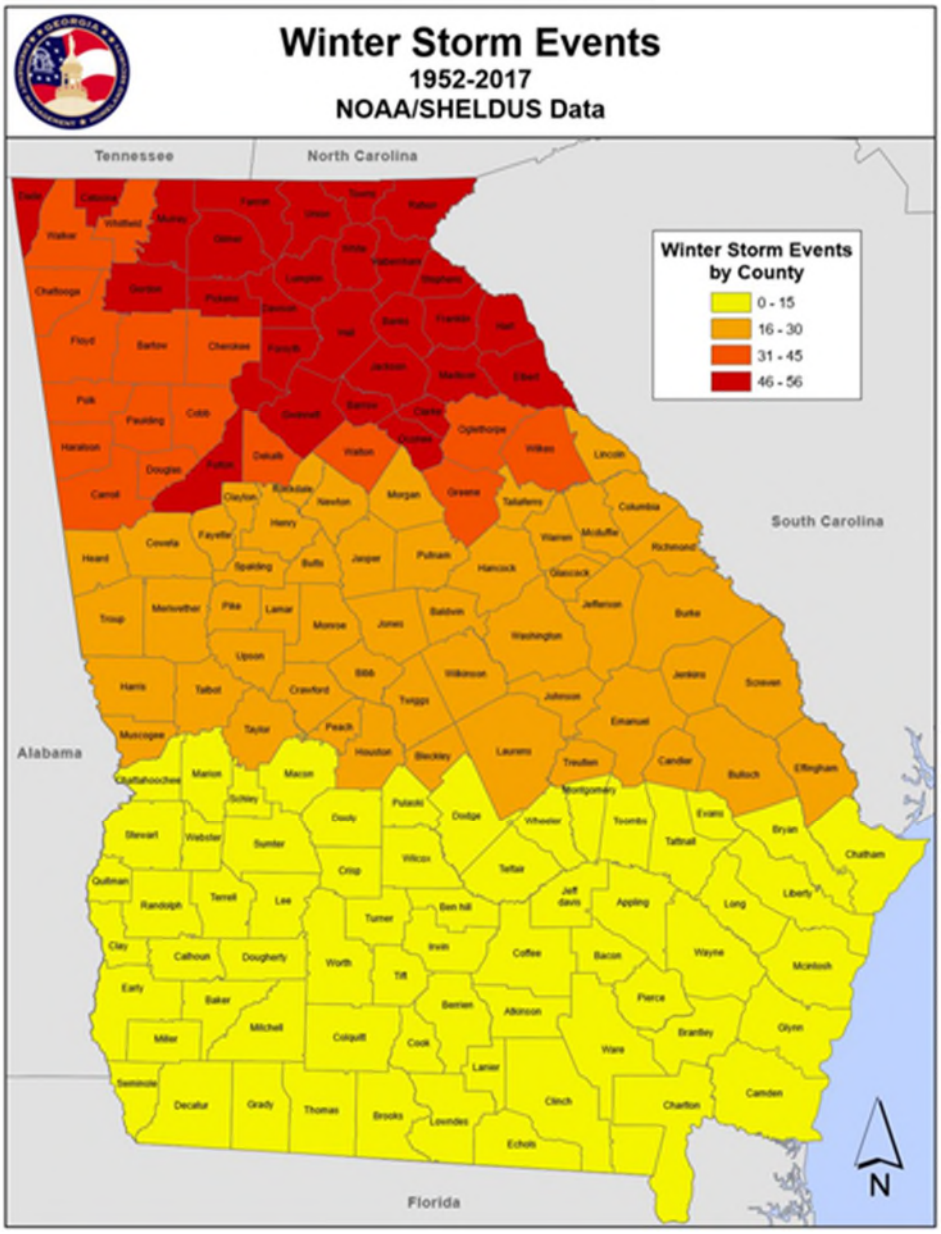
Hazard Profile

While winter storms are not as frequent of an occurrence in Habersham County as they are in areas in the Northern US, they still have the potential to wreak havoc on the community when they do occur. Winter storms in Habersham County typically cause drastic damage to infrastructure, such as roads, power lines, and bridges. The elevation changes, steepness of major roads, and lack of easy accessibility to some areas make winter weather particularly problematic for Habersham County.

They also can cause damage to private property, businesses, and trees throughout the county. The large number of trees in Habersham County can also become a hazard when the tree limbs become weighed down with snow and ice and begin to break and fall to the ground, potentially damaging private property, public property, or injuring people and animals.

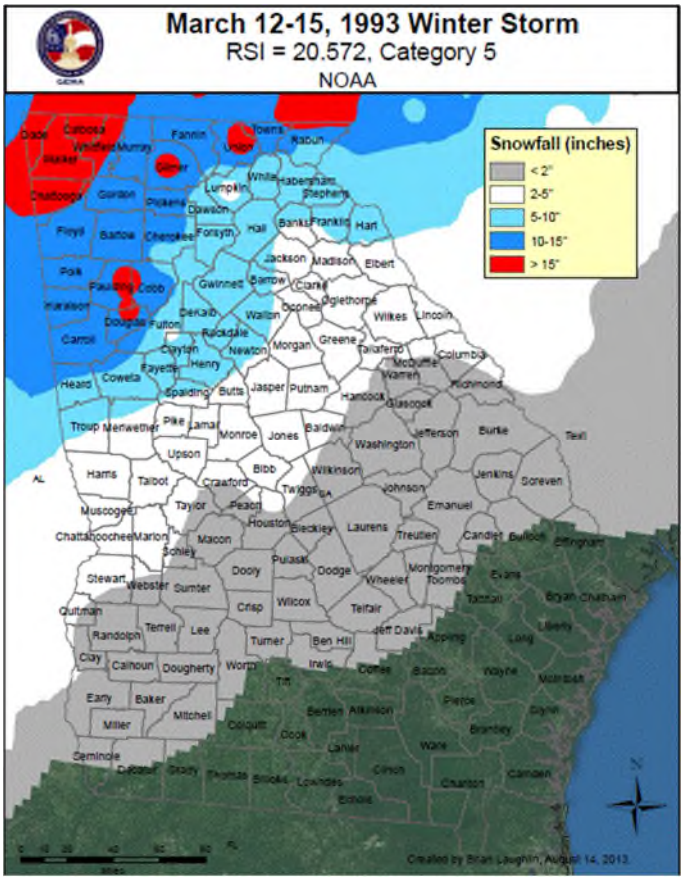
During the past twenty-seven years, documentation exists for 66 winter storm events in Habersham County. This equates to 2.4 winter storms per year in Habersham County. No consolidated data can be located prior to this timeframe. All winter storm data has been gathered on a countywide basis. For

additional historical data, please see Appendix D. All winter storm hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Individual events of Winter Weather can be drastically different depending on many factors, including the duration of the event, the type of precipitation involved, and the depth of the precipitation. Winter Storm events can be a light dusting of snow, ¼ inch of ice, or over a foot of snow. During the 1993 snow event, parts of Habersham County reported up to 10 inches of snow and all areas received at least 5 inches of snow. Ice event are another type of winter storm that has impacted Habersham County in the past. These types of winter storms can be particularly crippling due to the increased threat of tree falls related to the weight of accumulated ice and subsequent utility infrastructure failure.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

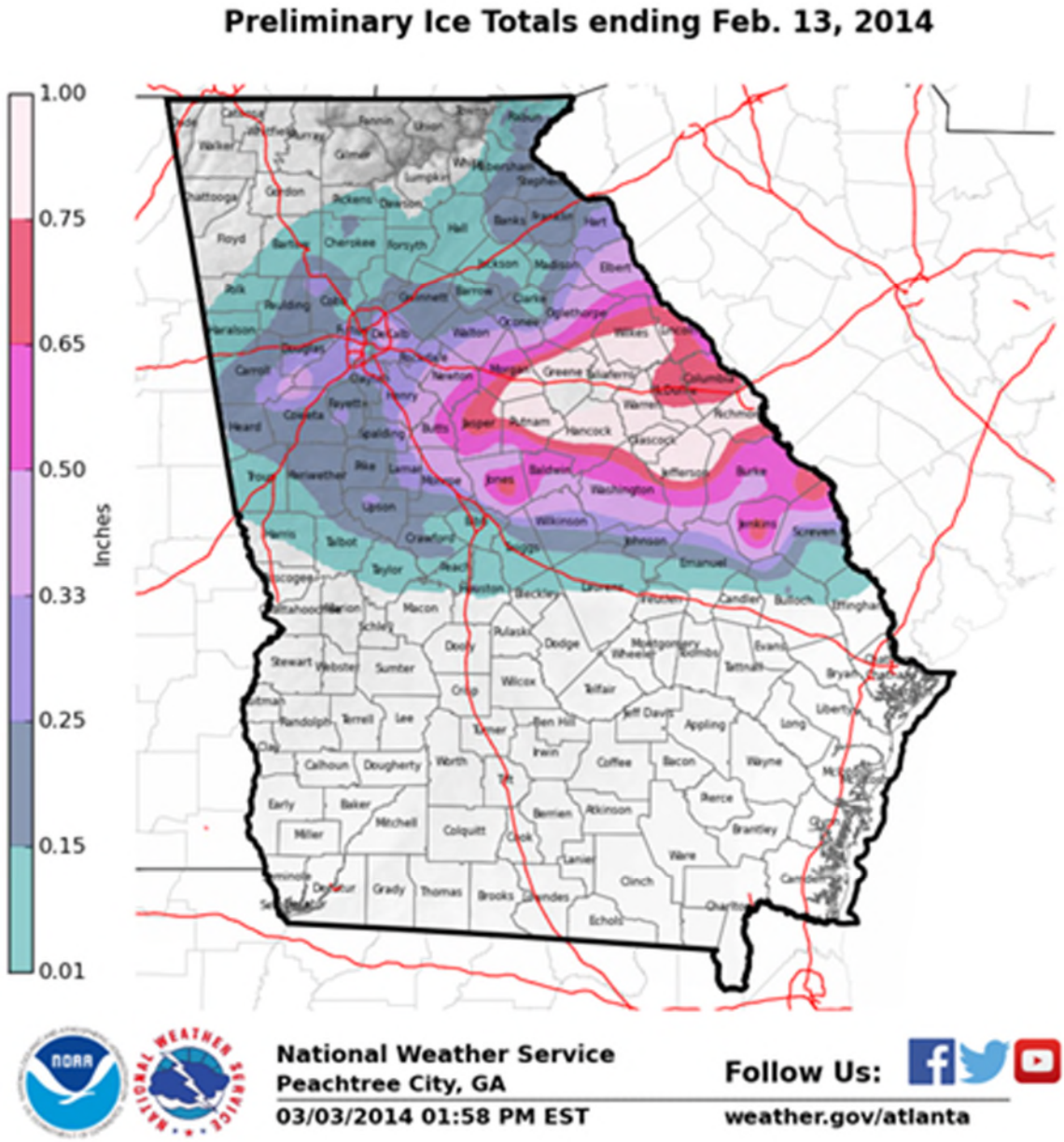
During the 2014 Ice Storm event, parts of eastern Habersham County received up to ¼ inch of ice and all areas received at least a trace amount of ice. Additionally, the same areas had received 2-4 inches of snow a couple of days before, which exacerbated the impact of the freezing rain. This event was similar to the 2002 ice storm event in which ¼ to ½ inch of ice was recorded in Habersham County. A large portion of the population of Habersham County was without power for 2-3 days.

Assets Exposed to the Hazard

Since winter storms are indiscriminate regarding location, the Habersham County HMPC determined that all public and private property, including all critical infrastructure, are susceptible to impacts from winter storms with areas of higher elevation more likely to receive direct impacts.

Estimated Potential Losses

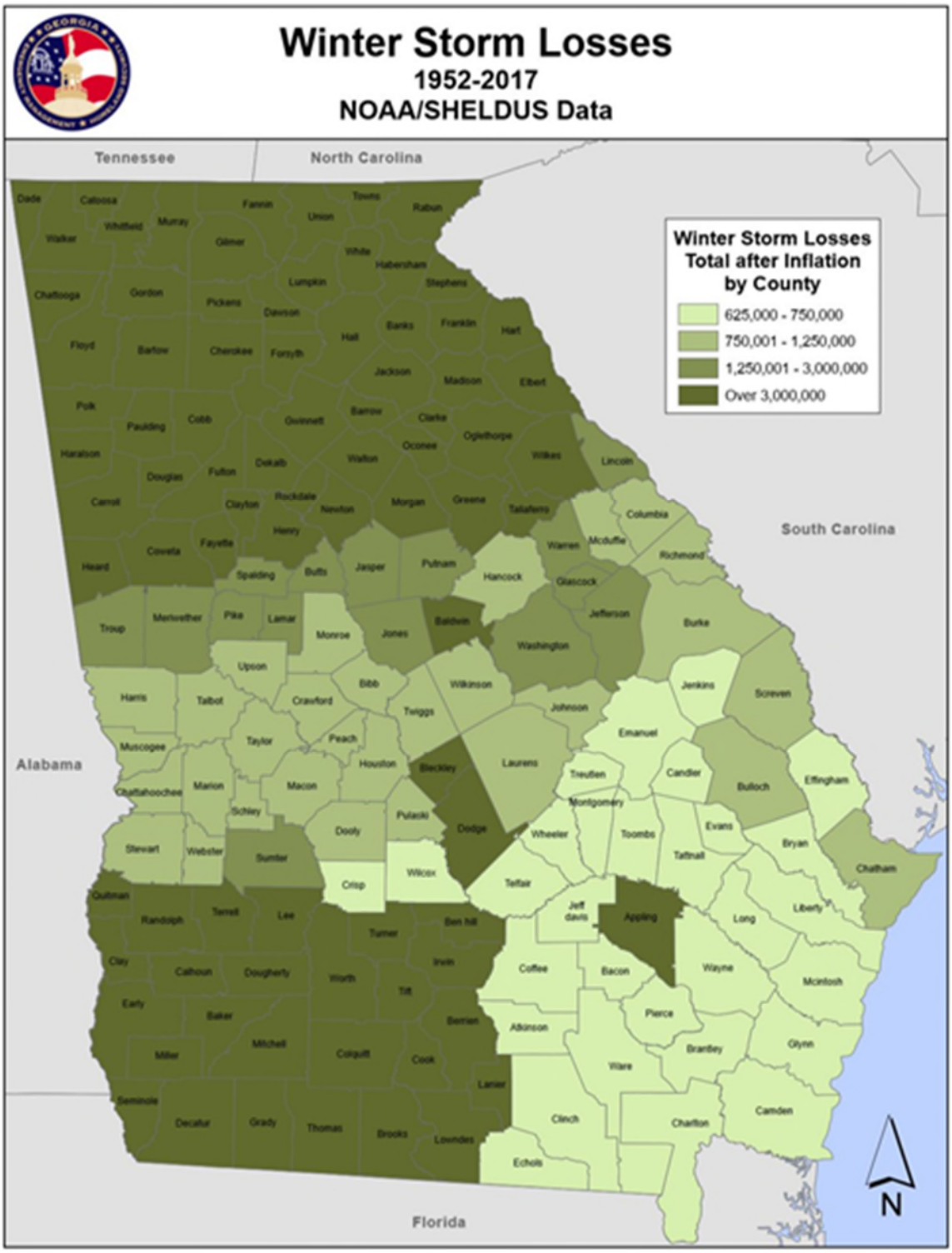
Over the last 50 years, over $600,000 in damages have been reported in Habersham County from winter storm events. This equates to $12,000 annually in damages. However, all reported damages have been from the last 25 years. When extrapolated over 25 years, the annual damage amount doubles to $24,000. However, this is likely a gross underestimation of the damages winter storms have caused in Habersham County in the past. According to the National Risk Index, Habersham County has an estimated annual loss of $218,682 related to severe winter weather.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Land Use & Development Trends

Habersham County currently has no land use trends related to Winter Storms beyond continued population growth – particularly around the City of Baldwin, City of Cornelia, City of Clarkesville, and City of Demorest.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Assets Exposed to the Hazard

Since winter storms are indiscriminate regarding location, the Habersham County HMPC determined that all public and private property, including all critical infrastructure, are susceptible to impacts from winter

Multi-Jurisdictional Considerations

All portions of Habersham County could potentially be impacted by a winter storm, including freezing rain, sleet, and snow. Therefore, all mitigation actions identified regarding winter storms should be pursued on a countywide basis and including all municipalities.

Climate Change Considerations

How climate change impacts winter storms in Habersham County in the future has yet to be determined. It is possible that winter storms could increase, decrease, or remain the same in frequency and/or increase, decrease, or remain the same in severity.

Hazard Summary

Winter storms, which can include freezing rain, sleet, or snow, typically afford communities some advance warning, which is different from many other severe weather phenomena. The National Weather Service issues winter storm watches, advisories, and warnings as much as a day before the storm's impacts begin. Unfortunately, communities in the Southern United States are not equipped to handle winter storms due to their relative infrequent nature. Oftentimes, communities can face severe impact from these storms. The Habersham County HMPC recognizes the potential threats winter storms could have on the community and have identified specific mitigation actions as a result.

Winter Storm Events since 2018 in Habersham County

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/17/2018	05:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/08/2020	09:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2021	15:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2022	00:00	EST-5	Heavy Snow		0	0	0.00K	0.00K

Natural Hazard: **Flooding**

Requirement §201.6(c)(2)(ii)
Requirement §201.6(c)(3)(ii)

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.

Hazard Profile

The Habersham County HMPC researched flooding information for the last fifty years. The main sources of information used by the Habersham County HMPC came from the National Climatic Data Center, the Habersham County Emergency Operations Plan, and news media sources. It was determined that flooding has caused significant damage on many occasions over the last 25 years.

One significant flooding event that affected Habersham County occurred in 2004. This event caused over $4.6 million in reported damages according to the National Climactic Data Center. During this event, a flash flooding initial event was followed by persistent moderate to heavy rainfall and more general flooding in Habersham County. Multiple waterways, including Toccoa Falls, Worley Creek, and the Tallulah River, flooded during this event. While Rabun County was the hardest hit area, Habersham County reported over $720,000 in damages. Families trapped by high water in Clarkesville and in areas of northern Habersham County had to be rescued. Overall, Habersham County has had over $1 million in damages from flooding events in the last 25 years. Extrapolated over 25 years, the equates to $43,080 in annual damages. While data was collected for the entire 50-year timeframe, little information was available regarding flood events prior to 1996, possibly due to poor record keeping. All flood data was gathered on a countywide basis.

Natural Hazard: **Flooding**

Flood events within Habersham County are typically associated with areas of special flood hazard as identified on Flood Rate Insurance Maps (FIRMs) published by FEMA. With each flooding event, it is likely that significant costs arose related to road repair, infrastructure repair, and public safety response operations. Most of the flood damage in Habersham County's history appears to be related to roads and culverts washing out because of flood waters. Habersham County's significant elevation changes also increases the impact of short duration, heavy rain events leading to flash flooding.

Habersham County and the City of Clarkesville has one flood gage that provides recent historical data and potential flood levels. This gage is located on the Soque River on Georgia Highway 197 near Sam Pitts Park. Flood stage at this location begins at 14 feet. At this level, Pitts City Park would be flooded with up to 3 feet of water. At 16 feet, some streets in the area, such as Beaverdam Road, will begin to flood. At 20 feet, homes on Beaverdam Road and Georgia Highway 197 north of the gage will be inaccessible and surrounded by floodwaters. In a 100-year (1% annual risk) flood event, greenhouses and homes off of Dixson Place Drive would be flooded by up to 3 feet of water. This gage has only been in place since 2007. In that timeframe, the gage has a recorded high water level of 16.52 feet, which occurred in September 2009.

For the City of Baldwin, there are no residential structures located within the 100-year (1% annual risk) floodplain. For this municipality, direct impacts would likely be the result of heavy rainfall events causing ponding of water in low-lying roads and other areas. Areas of Industrial Boulevard near the South Fork Little Mud Creek, areas of Airport Road near Dilmus Court, and low-lying areas of Baldwin Road would be at greatest risk for ponding in heavy rainfall events.

In Cornelia, there are several home that could be directly impacted by a 100-year (1% annual risk) flood event. Most areas in the City of Cornelia that would see these impacts would be along the South Fork of Mud Creek. In this type of event, homes on Galloway Street NW, Brookside Street, and Wayside Street could be inundated with up to 2 feet of water. Additionally, businesses on Moss Street, US 441 Business Route, and Berry Street could see up to 1 foot of water. The Cornelia Branch of Camp Creek could also impact homes in the eastern part of the City of Cornelia. This would potentially include homes on Soque Street, Elrod Street NE, and Brown Carter Street. Homes in this area could be inundated by up to 2 feet of water.

The Town of Mt Airy would have limited direct impacts from a 100-year (1% annual risk) flood event. The most likely direct impacts for the Town of Mt Airy would be in a heavy rain even that caused flooding and ponding in low-lying areas. The areas of Mt Airy that would be most susceptible to this type of event would include Lake Russell Road, Keller Road, 6th Street, and Crepe Myrtle Street.

In Demorest, the water treatment facility on Ivy Street is the area of greatest concern. This facility is only partially in the floodplain for a 100-year (1% annual risk) event, but could have significant impacts if it were to flood. In a 100-year (1% annual risk) flood event, athletics fields belonging to Piedmont College on Georgia Street would flood as a result of one of Camp Creek's tributaries. Additionally, homes on Chestnut Avenue and Florida Avenue would be inundated with up to 1 foot of water. There is significant areas along Hazel Creek and Camp Creek in the City of Demorest that would flood in a 100-year (1% annual risk) flood event. However, these areas are purposefully undeveloped and would not cause direct impacts to residents. However, flooding in these areas would block Central Avenue that runs through the center of Demorest and connects the City of Clarkesville to Demorest.

For the Town of Alto, only a very small portion of the town is in the 100-year (1% annual risk) floodplain. This area is in the far northwest part of the town. The most severe impact would be that BC Grant Road would be impassable just outside the town limits of Alto. For this municipality, direct impacts would likely be the result of heavy rainfall events causing ponding of water in low-lying roads and other areas. In general, even these impacts would be minor for the Habersham County portions of the Town of Alto as there are not significant low-lying areas. The areas of greatest concern for ponding are in the Banks County areas of Alto south of Gainesville Highway.

In Tallulah Falls, areas along the Tallulah River are the most susceptible to a 100-year (1% annual risk) flood event. The significant elevation changes along the Tallulah River could quickly accelerate the impact of a flash flood event in the area. However, due to these elevation changes and quick-impact flood events, very few structures would be impacted by a 100-year (1% annual risk) flood event. The most likely area to see inundation would be structures at the Tallulah Falls Power Station and sites along Yonah Lake on Tugalo Village Road immediately below Tugalo Dam.

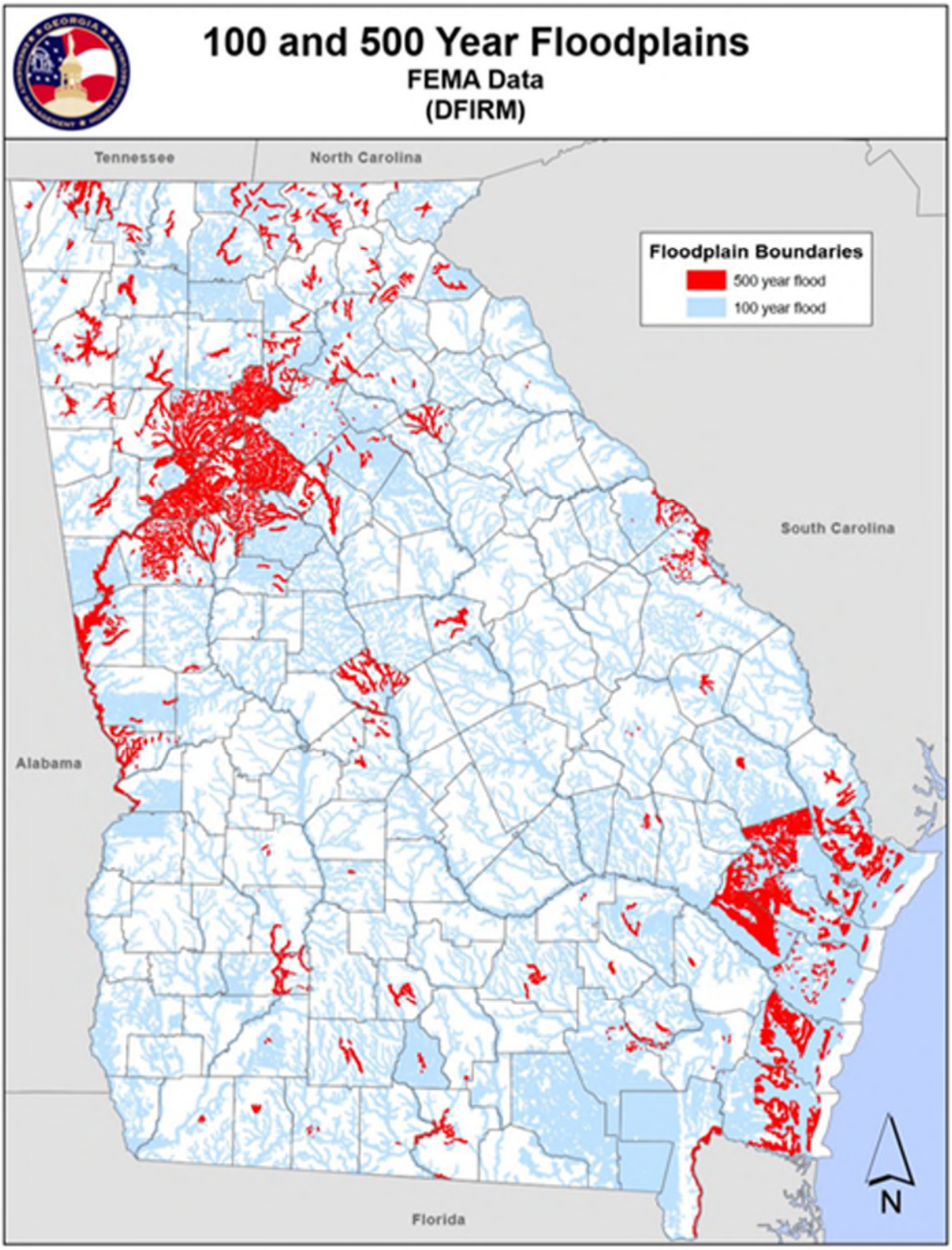
There are 33 documented flood events over the last 50 years. Based on the 50-year record, it can be inferred that such an event is likely to occur every 1.5 years in Habersham County. This relates to a 66% chance of a flood event occurring in a given year. However, all identified flood events have occurred over the last 27 years. When extrapolated over 27 years, Habersham County has averaged 1.2 flood events each year and has a near 100% annual chance of a flood event of some magnitude occurring. For additional historical data, please see Appendix D.

Assets Exposed to the Hazard

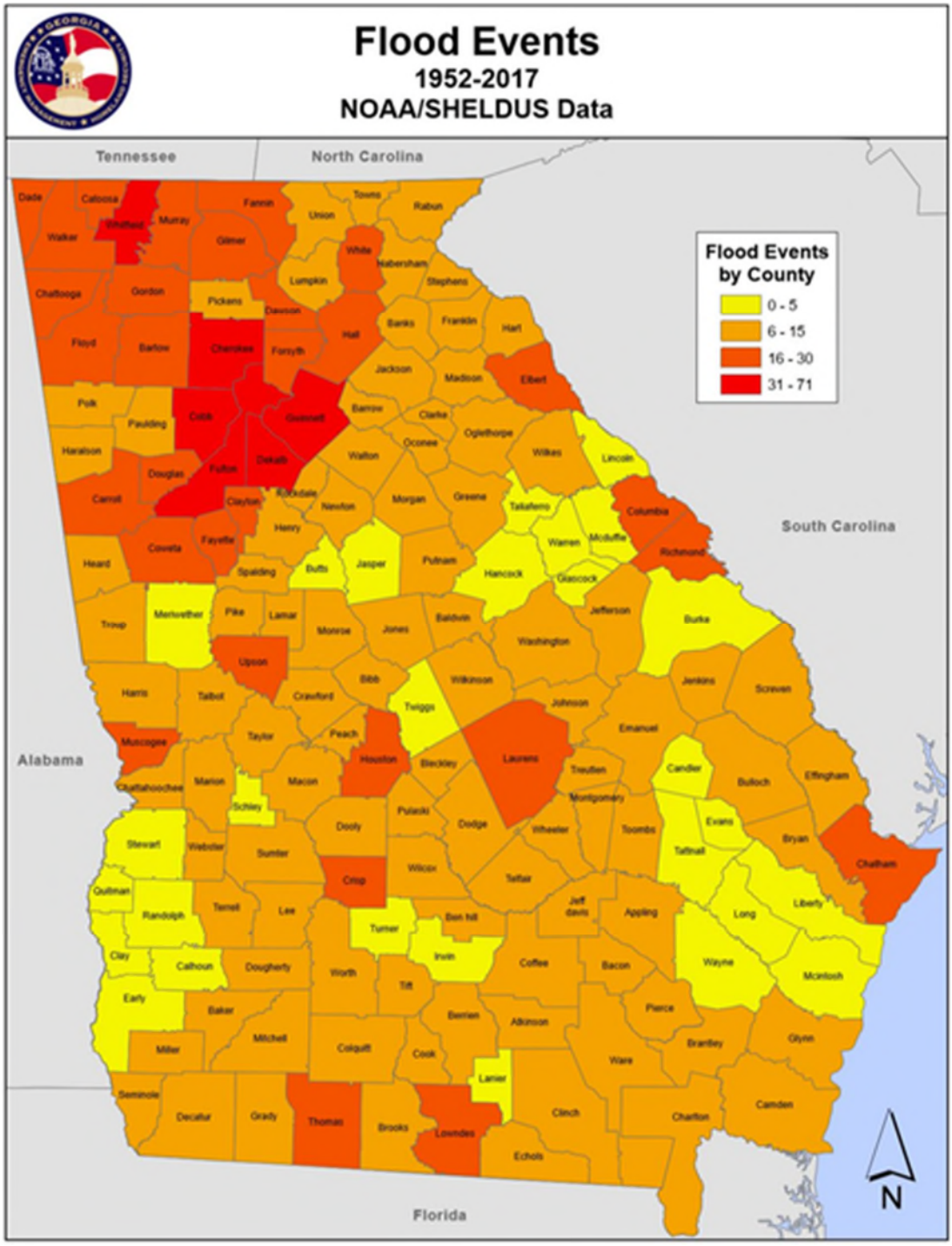
To evaluate the assets that would potentially be impacted by flooding, the Habersham County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. There are approximately 268 buildings identified in the flood plain.

Municipality	*# of Flood Events*	*Annual Risk*
BALDWIN	9	36%
CLARKESVILLE	21	84%
CORNELIA	10	40%
ALTO*	10	40%
TALLULAH FALLS*	10	40%
DEMOREST	9	36%
MT AIRY	10	40%

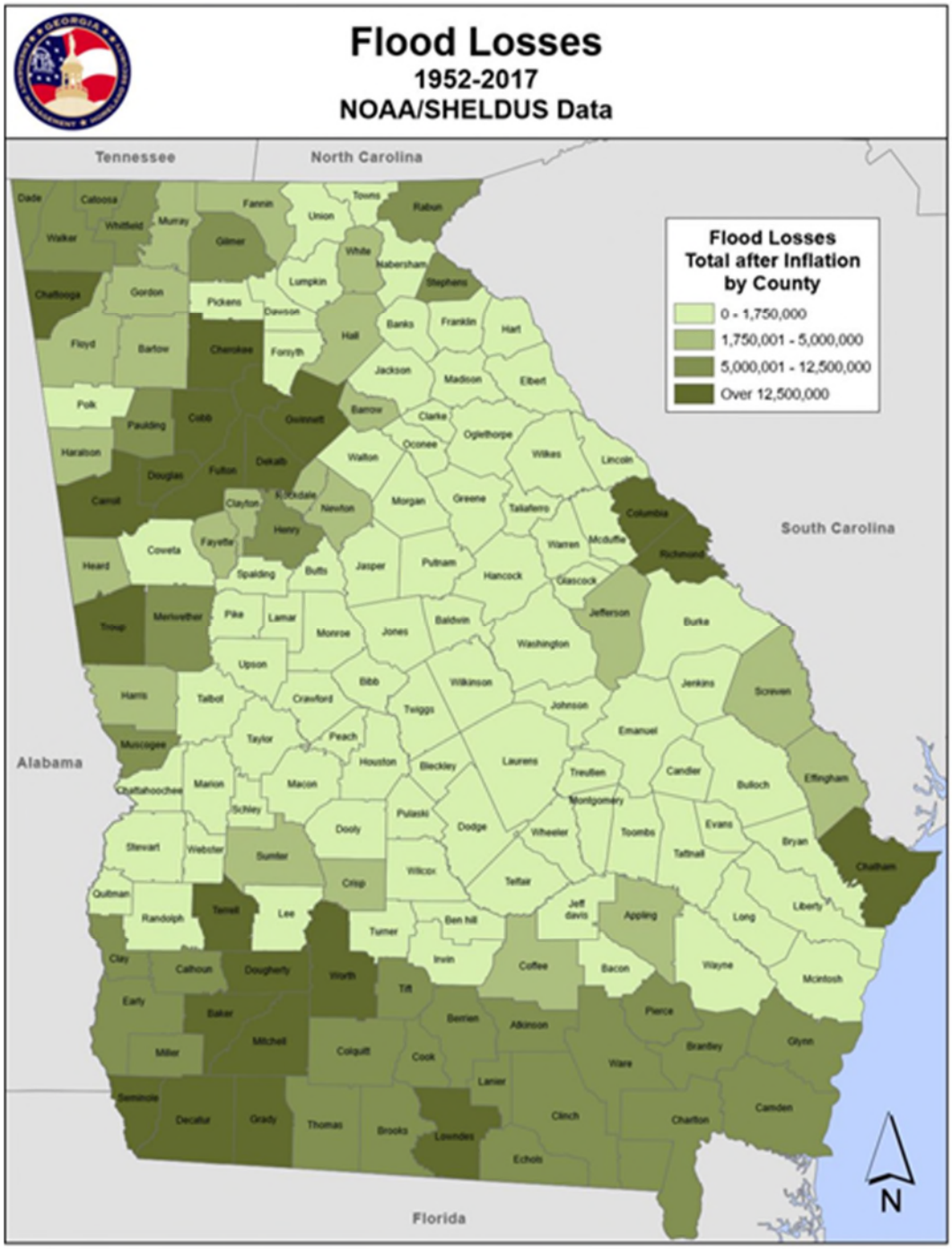
The above information is for the last 25 years
**** Includes data from Banks County***
***** Includes data from Rabun County***



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Estimated Potential Losses

The flooding events in Habersham County over the last 50 years have led to over $1 million in damages. Extrapolated over 50 years, this results in an annual average of $21,540 per year. However, all reported damages have occurred in the last 21 years. As a result, the average over the last 20 years is $53,850 annually. These estimations are believed to be a gross underestimation of both prior and potential damages from flood events. Based upon the estimations from the 2023 Habersham County HAZUS Report, a flood equivalent to the 1% riverine flood levels could result in estimated losses of more than $13.3 million (146 buildings). However, it is possible that some areas may not experience total losses while others not designated in the 1% annual risk areas may be inundated with flood water. According to the National Risk Index, Habersham County has an estimated annual loss of $223,315 related to Riverine Flooding events.

Land Use & Development Trends

Habersham 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. Habersham County (CID No. 130458B) first entered the NFIP on April 2, 1991. 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 of 2018 for Habersham County and all municipalities. Currently, the Habersham County municipalities of Alto, Cornelia, Clarkesville, Demorest, Mt Airy, and Tallulah Falls also participate in NFIP through the application of appropriate NFIP-compliant ordinances and regulations.

The City of Baldwin is in the process of reviewing NFIP guidelines to ensure compliance. Current regulations in place are believed to be in compliance and will be forwarded appropriately once reviewed.

The Habersham County Planning and Development Director is tasked as the administrator of the Habersham County Flood Prevention ordinance. The Flood Prevention ordinance is located in Article XVI of the Habersham County Codes of Ordinance. The responsibilities of the Flood Prevention administrator includes, but is not limited to:

1. Review proposed development to assure that the permit requirements of this article (Article XVI) have been satisfied.
2. Review proposed development to assure that all necessary permits have been received from governmental agencies from which approval is required by federal or state law, including section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. Require that copies of such permits be provided and maintained on file.
3. Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding.
4. When base flood elevation data or floodway data have not been provided in accordance with subsection 1602(B), then the Habersham County Planning and Development Director or his designee shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other sources in order to administer the provisions of article XVI.

5. Review and record the actual elevation in relation to mean sea level (or highest adjacent grade) of the lowest floor, including basement, of all new or substantially improved structures in accordance with subsection 1603(B)(2).
6. Review and record the actual elevation, in relation to mean sea level to which any new or substantially improved structures have been floodproofed, in accordance with subsection 1603(B)(2).
7. When floodproofing is utilized for a structure, the Habersham Planning and Development Director or his designee shall obtain certification of design criteria from a registered professional engineer or architect in accordance with subsection 1603(B)(1) and subsection 1604(B)(2) and (E)(2).
8. Make substantial damage determinations following a flood event or any other event that causes damage to structures in flood hazard areas.
9. Notify adjacent communities and the Georgia Department of Natural Resources prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Emergency Management Agency (FEMA).
10. For any altered or relocated watercourse, submit engineering data/analysis within six months to the FEMA to ensure accuracy of community flood maps through the letter of map revisions process. Assure flood carrying capacity of any altered or relocated watercourse is maintained.
11. Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Habersham County Planning and Development Director shall make the necessary interpretation. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
12. All records pertaining to the provisions of this article shall be maintained in the office of the Habersham County Planning and Development Director and shall be open for public inspection.

For the substantial damage portion of the flood prevention ordinance, the floodplain administrator will utilize tax assessor's data to determine market value for all damaged structures. Substantial damage will be determined by assessing whether the repairs needed to bring a structure back to pre-damage conditions exceeds 50% of the market value of the structure. If so, then the structure will be determined to be of "substantial damage." This determination will be communicated to the property owners and any appeals will be held in accordance with established appeals procedures for permit applications. Once appeals are resolved, permitting will commence and inspections will occur as normally scheduled. Any technical assistance needed will be requested from the State of Georgia and/or the Federal Emergency Management Agency.

There is one repetitive loss residential property in Habersham County. This property has a total loss of $22,733. This property is located in the City of Clarkesville.

Multi-Jurisdictional Considerations

During a large-scale flood event, many portions of Habersham County would potentially be impacted by flooding. However, the area's most prone to flooding have historically been those areas located within the 100-year floodplain – particularly those areas along the Soquee River and Glade Creek and their tributaries and distributaries and areas along Yonah Lake. All of Habersham County, including all municipalities, could potentially be impacted.

Climate Change Considerations

Climate change could also play a role in the future of how flooding events impact Habersham County. According to the 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan, increased heavy rainfall events would likely lead to a greater threat of future flood and flash flood events in Habersham County.

Hazard Summary

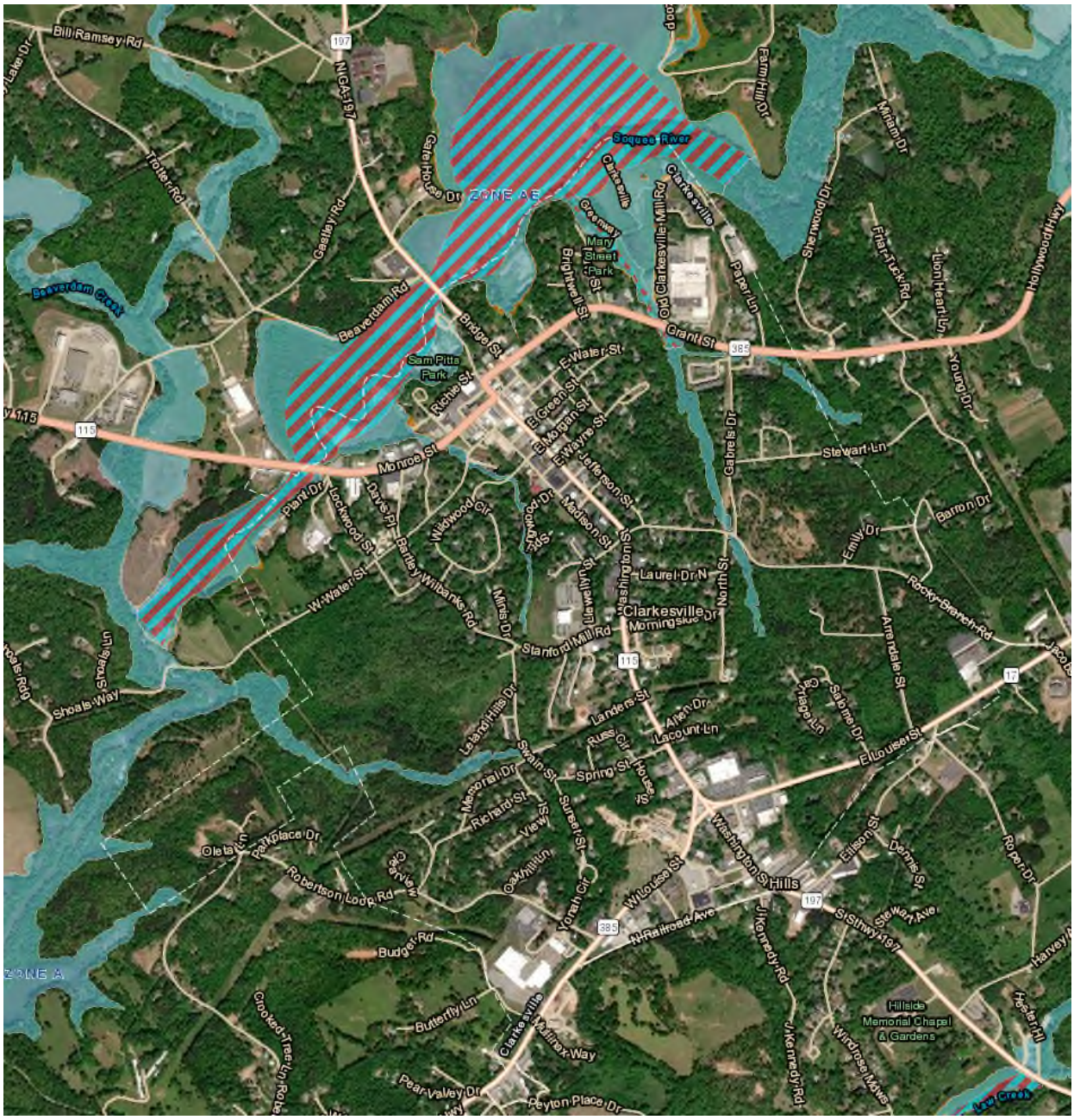
Flooding has the potential to inflict significant damage within Habersham County, particularly along the Soquee River and Glade Creek and their tributaries and distributaries and areas along Yonah Lake. Mitigation of flood damage requires the community to be aware of flood-prone areas, including roads, bridges, and critical facilities. The Habersham County HMPC identified flooding as a hazard requiring mitigation measures and identified specific goals, objectives, and action items they deemed necessary to lessen the impact of flooding for their communities.

Flood Events in Habersham County since 2018

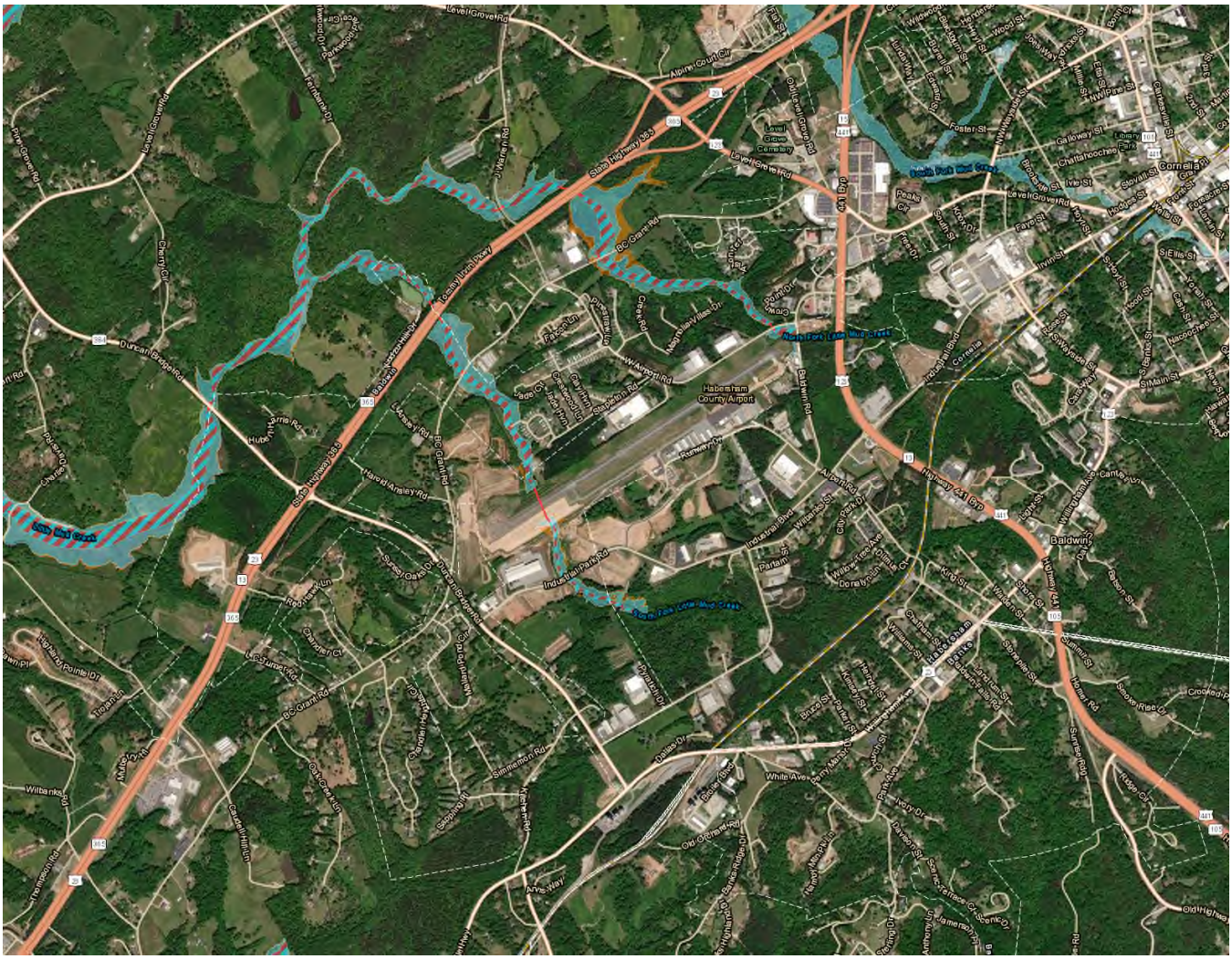
Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
WILEY	HABERSHAM CO.	GA	05/30/2018	01:30	Flash Flood		0	0	2.00K	0.00K
WILEY	HABERSHAM CO.	GA	05/30/2018	07:00	Flood		0	0	1.00K	0.00K
BURTON	HABERSHAM CO.	GA	12/28/2018	10:00	Flood		0	0	1.00K	0.00K
HABERSHAM GAP	HABERSHAM CO.	GA	02/06/2020	07:00	Flash Flood		0	0	2.00K	0.00K
DILLARD	HABERSHAM CO.	GA	02/06/2020	17:00	Flood		0	0	1.00K	0.00K
MOUNTAIN CITY	HABERSHAM CO.	GA	10/11/2020	03:00	Flash Flood		0	0	10.00K	0.00K
MOUNTAIN CITY	HABERSHAM CO.	GA	10/11/2020	07:00	Flood		0	0	1.00K	0.00K
LAKEMONT	HABERSHAM CO.	GA	10/07/2021	06:30	Flood		0	0	1.00K	0.00K
WILEY	HABERSHAM CO.	GA	09/05/2022	09:30	Flash Flood		0	0	1.00K	0.00K

Habersham County

Clarkesville



Baldwin


Level Grove Rd
Alpine Court Cir
Level Grove Cemetery
South Fork Little Mud Creek
Foster St
Galloway St
Chattahoochee Cir
Ivie St
Peaks Ct
Fair St
Irvin St
S Ellis St
S Main St
Cornelia
Industrial Blvd
Duncan Bridge Rd
Cherry Ct
Cherry Ln
Fairchild Dr
J Warren Rd
State Highway 365
County Line Pkwy
BC Grant Rd
Creek Rd
Habersham County Airport
W Airport Rd
Baldwin Rd
Renew Rd
Harris Rd
Harold Straley Rd
Airport Rd
Industrial Blvd
Highway 441 Bpd
Baldwin
Parham Dr
Williams Ave
Dorsey Dr
King St
Walker St
Stamus St
Surrey Rd
Crooked Pl
Shooter Rise Ct
Sunset Oaks Dr
Red Hawk Run
Chandler Ct
Legument Dr
Highland Pointe Dr
Toccoa Dr
Cedar Hill Dr
Whitaker Dr
Sandra Dr
Simmons Rd
Oakes Dr
White Ave
Bacon Grove Rd
Old Orchard Rd
Arvs Way
Wiltanks Rd
Thompson Rd
Mulkey Rd
Oakcrest Run
Cardinal Hill Ln
Seabrook Dr
Kinchafoonee Dr
Park Ave
Judy Dr
Darlene St
Seascape Trace
Scenic Dr
Old Highway 441
Bruce St
Parker St
Jones St
Hemphill St
Bowers St
Belmont Ave
Belmont Ter
Belmont Rd
Jackson St
Sycamore St
Mill St
Hood St
Hood Dr
Peaks Dr
Ivie St
Bridges St
Cornelia Cir
Sievin St
Nacoochee St
Nacoochee Trace
Cash St
Cash Way
Harwell St
Hall St
Pine St
Wood St
Willis St
Ellis St
Gainesville St
Jones Way
Oakview St
Ridgeway Dr
Fairchild Dr
Pine Grove Rd
Level Grove Rd
Cherry Ln
Duncan Bridge Rd
Rousey Rd
Charles Rd
Hubert Harris Rd
Harold Straley Rd
Renew Rd
Baldwin Rd
Habersham County Airport
W Airport Rd
Seaboard Rd
Gary Thurmond Rd
Jack Thurmond Rd
Lake Ct
Falcon Ln
Creek Rd
Haynie Villas Dr
Point Dr
Irvin St
Fair St
Peaks Ct
Peaks Dr
Hood Dr
Hood St
Nacoochee St
Nacoochee Trace
Cash St
Cash Way
Harwell St
Hall St
Pine St
Wood St
Willis St
Ellis St
Gainesville St
Jones Way
Oakview St
Ridgeway Dr
Fairchild Dr
Pine Grove Rd
Level Grove Rd
Cherry Ln
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Rousey Rd
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Baldwin Rd
Habersham County Airport
W Airport Rd
Seaboard Rd
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Point Dr
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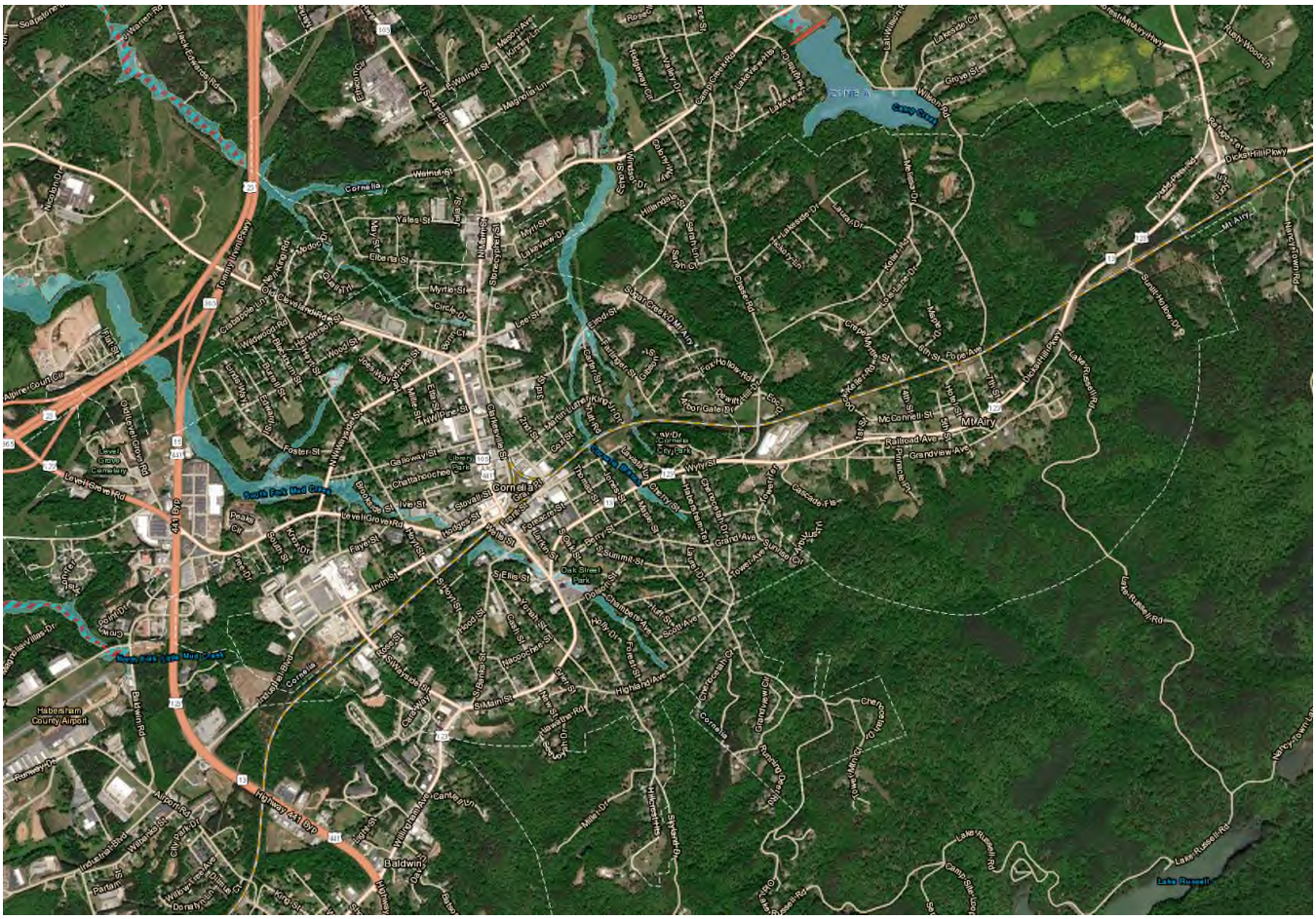
Peaks Ct
Peaks Dr
Hood Dr
Hood St
Nacoochee St
Nacoochee Trace
Cash St
Cash Way
Harwell St
Hall St
Pine St
Wood St
Willis St
Ellis St
Gainesville St
Jones Way
Oakview St
Ridgeway Dr
Fairchild Dr

Cornelia and Mt Airy



Demorest


ZONE A
Demorest
Piedmont College
Yonah Memorial Gardens
Tommy Irvin Pkwy
Spencer Dr
Windy Ridge Dr
Golf Course Rd
Windchase Ct
Bluegrass Ct
Bermuda Ave
Dogwood Acres Ln
Pheasant Dr
Springhill Dr
Vermont St
Maine St
Arizona St
Storie St
College Dr
Maryland St
Georgia St
Long St
Brooke Ave
Arlington St
Massachusetts Blvd
Tennessee St
Porter St
Holley St
Indian Trail
Ohio St
Walnut Ave
Cedar Ave
McMillan Ave
Blue Ridge Ave
Tomlin Ave
N Hazel Ave
Central Ave
Pine Ave
Hazel Ave
Sosebee Ln
Alabama St
Oak Ave
Laurel Ave
Florida Ave
Dorrin Dr
Cross St
Oak Ave
Hickory Ave
Chestnut Ave
Legacy Dr
Lake Towee Dr
Hancock Rd
Tiffany Ln
Cross Creek Rd
Lynbrook Dr
Gooseberry Ln
Trinity Dr
Hixie Park Ln
Eastside Dr
Charlie Batson Rd
Truckers Run Dr
Cap Ryd Rd
Brook Dr
Sky Dr
Robin Way
Waukee Dr
Sandy Dr
Golf Course Rd
Dogwood Acres Ln
Bluegrass Ct
Sweetgrass Ct
Red Hop Ln
Sweetgrass Dr
Tommy Irvin Pkwy
Lake Towee Dr
Sam Lee Dr
Windchase Ct
Windy Ridge Dr
Spencer Dr
Aldie St
Curry Dr
O'Leary Rd
Hazel Creek
Ash Log Creek
385
23

Tallulah Falls

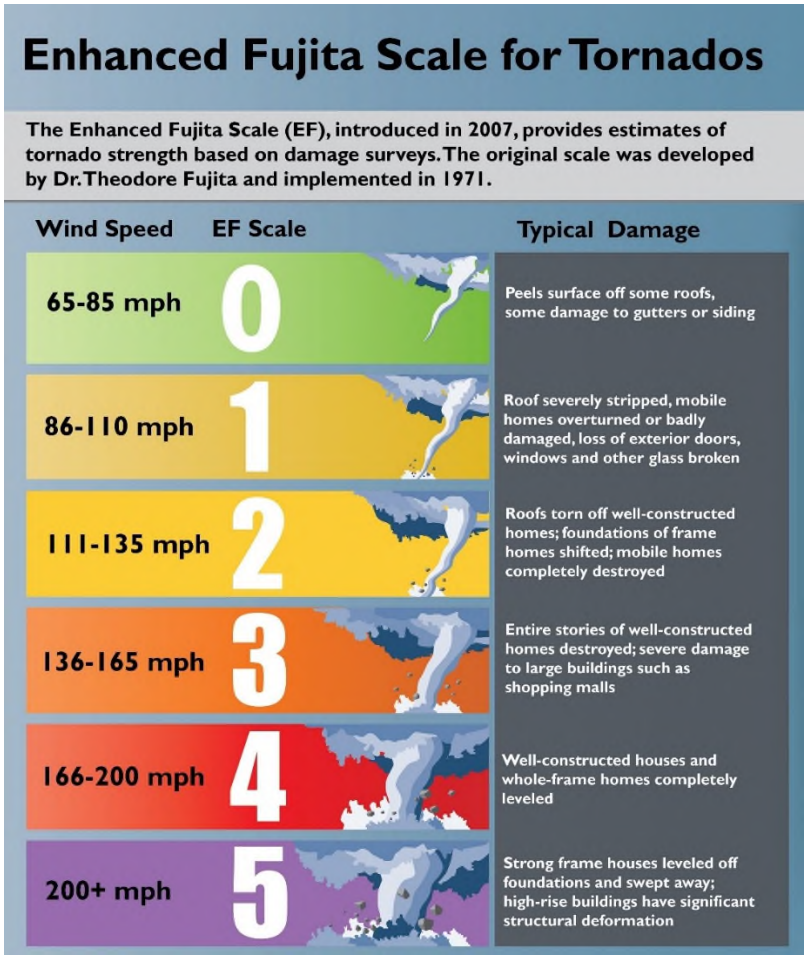
Alto

Note: All "light blue" shaded areas indicate the extent of the 100-year (or 1% annual) flood risk
All Flood Maps are from the Georgia DFIRM Flood Map Program

Hazard Description

A tornado is a violently rotating column of air (seen only when containing condensation, dust, or debris) that is in contact with the surface of the ground. Exceptionally large tornadoes may not exhibit the classic "funnel" shape, but may appear as a large, turbulent cloud near the ground or a large rain shaft. Destructive because of strong winds and windborne debris, tornadoes can topple buildings, roll mobile homes, uproot vegetation, and launch objects hundreds of yards.

Most significant tornadoes (excluding some weak tornadoes and waterspouts) stem from the right rear quadrant of large thunderstorm systems where the circulation develops between 15,000 and 30,000 feet. As circulation develops, a funnel cloud, a rotating air column aloft, or tornado descends to the surface. These tornadoes are typically stronger and longer-lived. The weaker, shorter-lived tornadoes can develop along the leading edge of a singular thunderstorm. Although tornadoes can occur in most locations, most of the tornado activity in the United States in the Midwest and Southeast. Tornadoes can occur anywhere within the State of Georgia.



Source: International Code Council

In terms of the continuum of area of impact for hazard events, tornadoes are fairly isolated. Typically ranging from a few hundred to one or two miles across, tornadoes affect far less area than larger

meteorological events such as tropical cyclones, winter storms and severe weather events. An exact season does not exist for tornadoes. However, most occur between early spring to mid-summer (February-June). The rate of onset of tornado events is rapid. Typically, the appearance of the first signs of the tornado is the descending funnel cloud. This sign may be only minutes from the peak of the event, giving those in danger minimal sheltering time. However, meteorological warning systems attempt to afford those in danger more time to shelter. The frequency of specific tornado intensities is undetermined because no pattern seems to exist in occurrence. Finally, the duration of tornado events ranges from the few minutes of impact on a certain location to the actual tornado lasting up to a few hours.

Tornadoes are measured after the occurrence using the subjective intensity measures. The Enhanced Fujita Scale describes the damage and then gives estimates of magnitude of peak 3-second gusts in miles per hour.

Hazard Profile

All areas within Habersham County are vulnerable to the threat of a tornado. Due to the indiscriminate and unpredictable nature of tornadoes, there is no reliable method to determine where or when a tornado will strike. There have been 14 documented tornadoes in the last 50 years in Habersham County. It is likely that other tornadoes have occurred within this timeframe, but available records are limited in nature.

Based on the 50-year information available for Habersham County, a tornado occurs every 3.6 years. On an annual basis, Habersham County has a 28% chance of being impacted from a tornado event. When only the last twenty years are considered, the likelihood of a tornado affecting Habersham County decreases to 15% (3 tornadoes since 2003).

Individual tornado events can cause extreme damage to an area. This holds true for Habersham County, as well. The strongest documented tornado to impact Habersham County was a F3 in 1989. This storm had winds estimated to be in excess of 150 mph. Six homes were destroyed and another six were heavily damaged. The community of Stonepile, approximately 5 miles northwest of Clarkesville, received the heaviest damage. The costliest documented tornado to impact Habersham County was a F1 in 1994. This storm damaged 24 homes and 2 businesses in Habersham County, causing up to $5 million in damages

All tornado hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

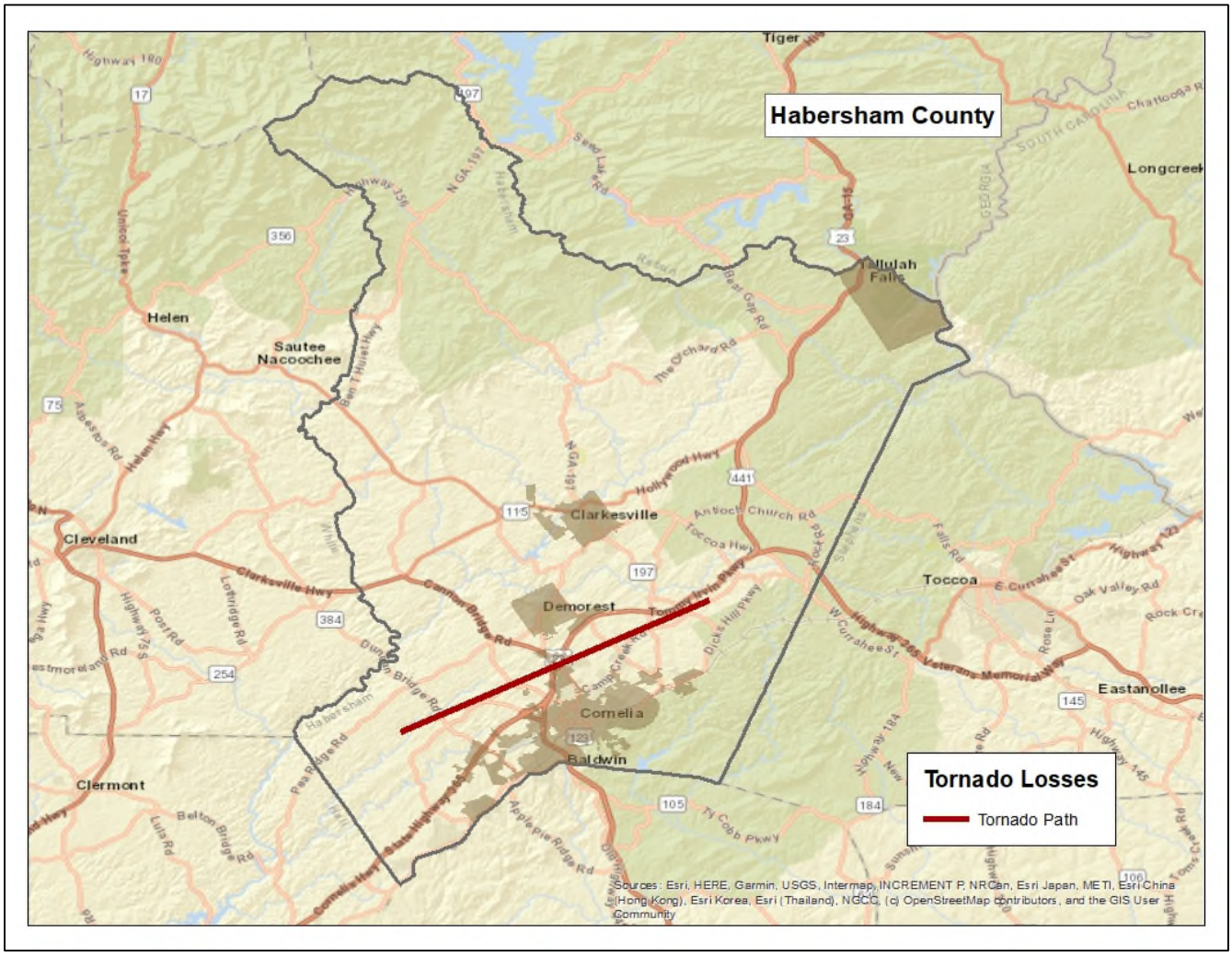
Assets Exposed to the Hazard

In evaluating assets that are susceptible to tornadoes, the Habersham County HMPC determined that all public and private property is threatened by tornadoes, including all critical facilities. This is due to the lack of spatial prejudice of tornadoes.

Estimated Potential Losses

Estimates of damage for the past events of the last 50 years are over $11.4 million, or $229,440 annually. However, singular events can cause a significant impact in the amount of losses. Documented damage estimates for tornado events in Habersham County have varied wildly depending on what was damaged. According to the National Risk Index, Habersham County has an estimated annual loss of $1.56 million related to tornado events.

Within the 2023 Habersham County HAZUS report, a theoretical tornado path for an EF3 was identified that would inflict maximum damage. HAZUS estimated that this theoretical tornado would cause damage to approximately 410 buildings and result in losses more than $29 million with the City of Clayton suffering the greatest economic impacts.



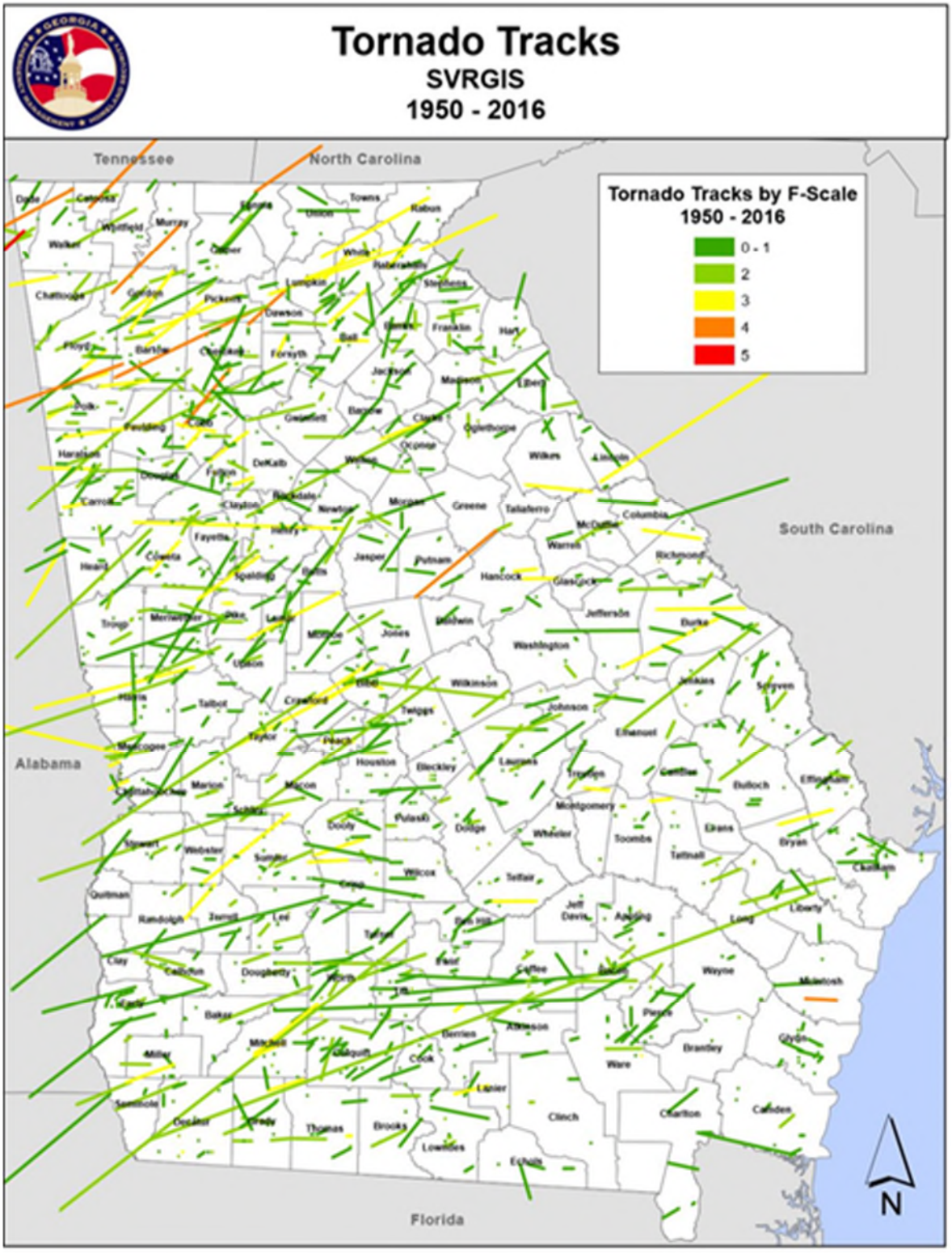
Source: 2022 Habersham County HAZUS Report

Land Use & Development Trends

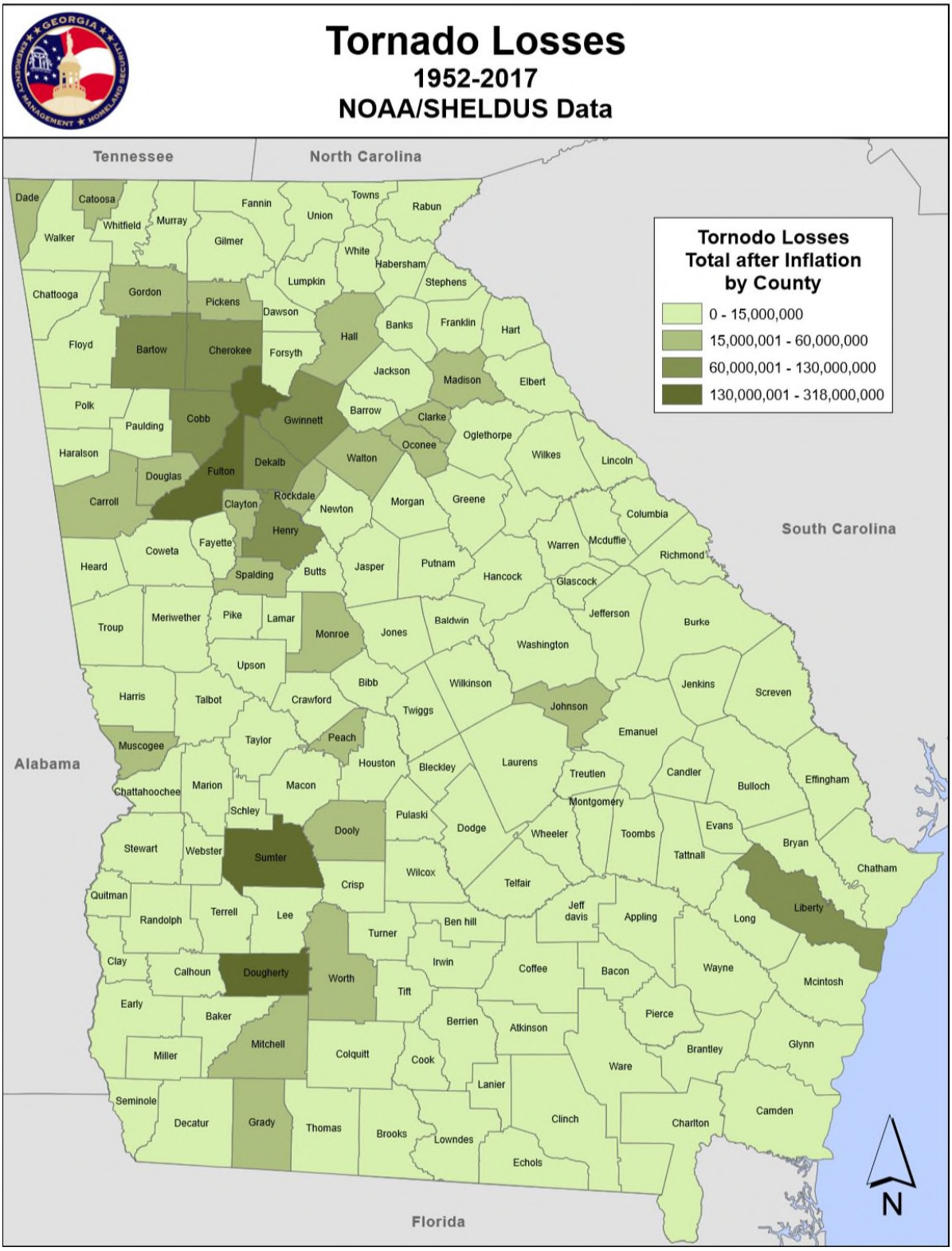
Habersham County main land use trend related to Tornadoes involves continued population growth – particularly around the City of Baldwin, City of Cornelia, City of Demorest, and City of Clarkesville.

Multi-Jurisdictional Considerations

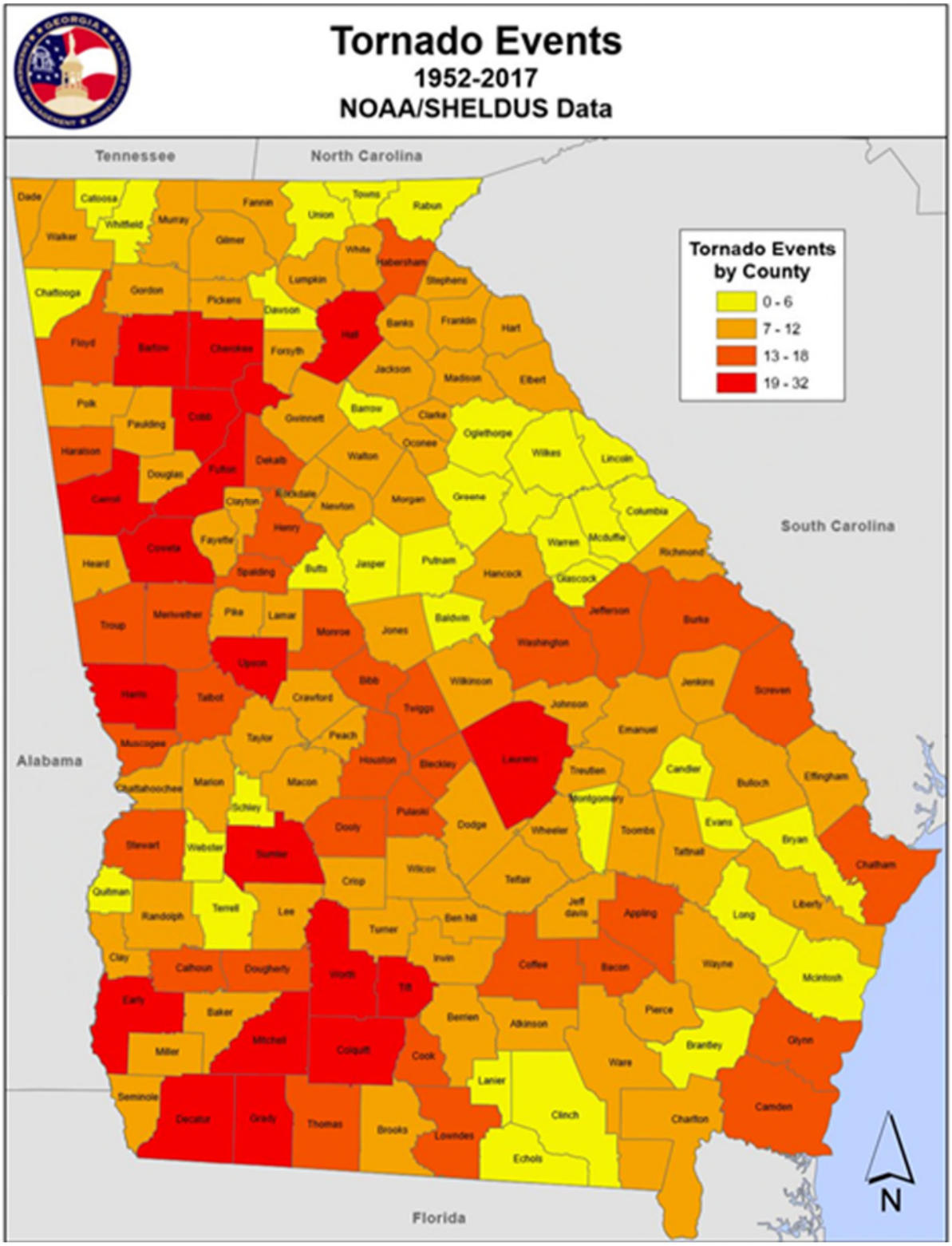
All portions of Habersham County could potentially be impacted by a tornado due to the indiscriminate nature of tornadic events. Therefore, all mitigation actions identified regarding tornadoes should be pursued on a countywide basis and included all municipalities.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Climate Change Considerations

How climate change impacts tornadoes in Habersham County in the future has yet to be determined. It is possible that tornadoes could increase, decrease, or remain the same in frequency and/or increase, decrease, or remain the same in severity.

Hazard Summary

Habersham County remains at risk to potential damage from tornadoes, especially considering the average of one tornado every 3.6 years over the last 50 years. Should a tornado strike in densely populated areas of the county, significant damage or loss of life could occur. Due to the destructive power of tornadoes, it is essential that the mitigation measures identified in this plan regarding tornado activity receive full consideration.

Habersham County Tornado Since 2018

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	20.00K	0.00K
RAOUL	HABERSHAM CO.	GA	04/13/2020	01:50	EST-5	Tornado	EF1	0	0	20.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	04/13/2020	02:01	EST-5	Tornado	EF0	0	0	0.00K	0.00K

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 sector. 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.

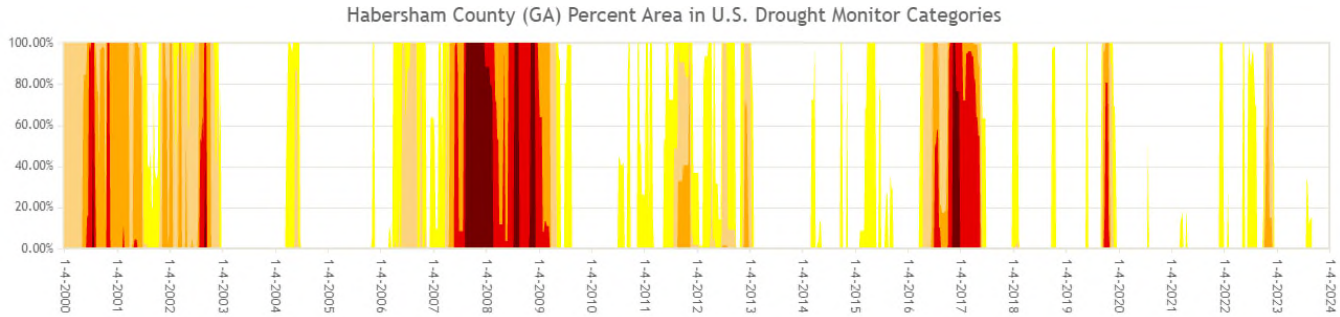
Droughts occur in virtually every climatic zone and on every continent. Because the impacts of drought conditions are largely dependent on the human activity in the area, the spatial extent of droughts can span a few counties to an entire country.

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 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 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.

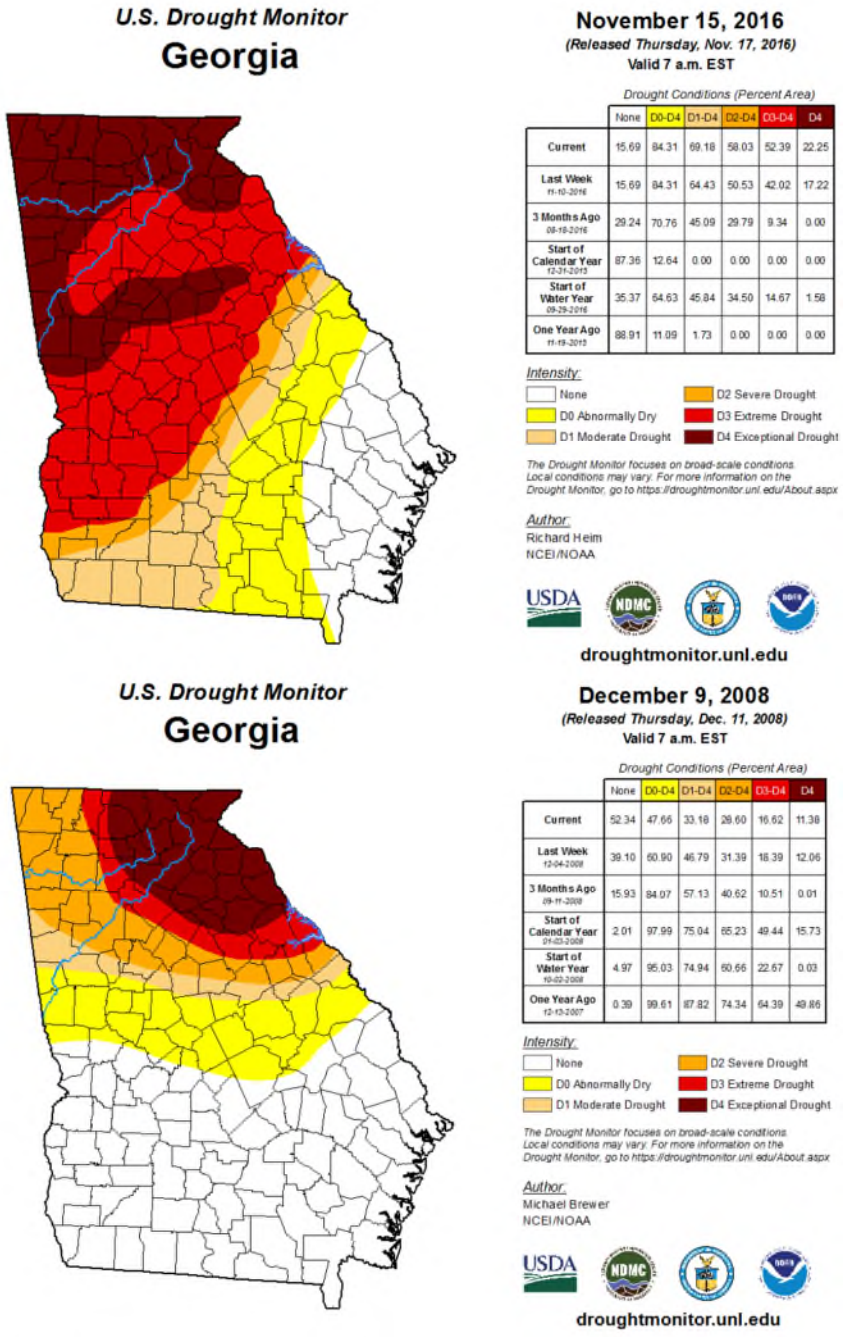
Hazard Profile

The Habersham County HMPC 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. Habersham County has been impacted by 11 drought events in the last 25 years, according to data from the National Climatic Data Center. This amounts to a 44% 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 Habersham County is limited to countywide data and is not broken down by jurisdiction.

There have been two recent examples of "exceptional" drought events affecting Habersham County. These events occurred in 2016 and 2008. Both events reached the D4 (Exceptional Drought) designation, according to data from the United States Drought Monitor. Below are maps of these two events.



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. Of particular concern to Habersham County is the impact drought can have on wildfire. Drought can exacerbate the impacts of a wildfire by increasing fire load and overall fire danger. Drought conditions of this extent can have devastating effects on the local agricultural industries, which has occurred in previous D4 level droughts.

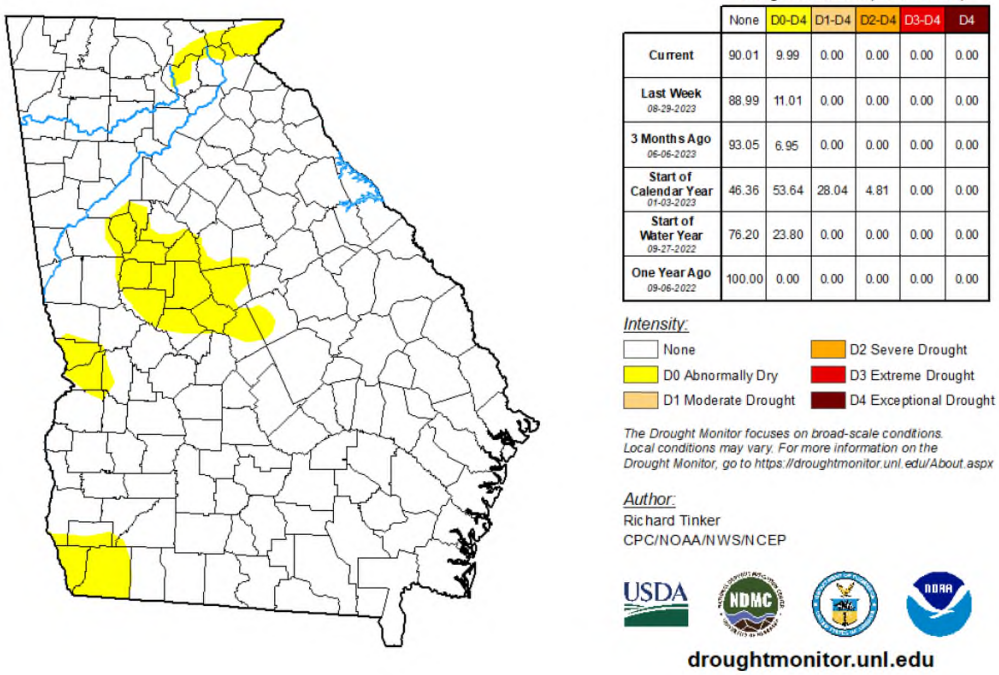
Assets Exposed to the Hazard

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

Estimated Potential Losses

No damage to structures or critical facilities is expected as a direct result of drought conditions. However, crop damage and subsequent losses can be expected to occur because of drought conditions. The degree of losses would depend on the duration of the drought, severity of the drought, temperatures during the drought, season in which the drought occurs, and the specific needs of the involved crops. Water system shortages and need for supply assistance for those systems could also lead to economic losses associated with the drought.

According to the National Risk Index, Habersham County has an estimated annual loss of $7,425 related to drought events. Additionally, according to the 2017 Agriculture Census data, Habersham County's market value of products sold was $122,980,000. The vast majority of this value is in the poultry industry.



Source: United States Drought Monitor (University of Nebraska-Lincoln)

Land Use & Development Trends

As growth continues, drought can become a larger threat for Habersham County due to the increased reliance on water infrastructure and wells countywide. This increased pull on these resources in Habersham County could quicken or deepen the impacts of a drought for residential, commercial, and industrial areas.

Multi-Jurisdictional Considerations

All portions of Habersham County could potentially be impacted by a drought, but agricultural areas of the county are potentially more at risk. Therefore, all mitigation actions identified regarding drought should be pursued on a countywide basis and include all municipalities.

Climate Change Considerations

It is unclear how climate change could impact droughts in the future. According to the 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan, droughts could become more frequent and more severe, although significant changes in the frequency and severity of droughts are not expected. Increased temperatures could lead to quicker evaporation rates for crops and wetland areas, which could have ecological and economic impacts for Habersham County.

Hazard Summary

Drought conditions can cause significant economic stress on the agriculture and forestry interests of Habersham County. The potential negative secondary impacts of drought are numerous. They include increased wildfire threat, decreased water supplies for residential and industrial needs, stream-water quality, and water recreation facilities. The Habersham County HMPC recognizes the potential threats drought conditions could have on the community and have identified specific mitigation actions as a result.

Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires can consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations could 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 nearby populations.

Wildfires result from the interaction of three crucial elements: fuel, ignition (heat), and oxygen. Natural and manmade forces cause the three crucial elements to coincide in a manner that produces wildfire events. Typically, fuel consists of natural vegetation. However, as the urban and suburban footprint expands, wildfires may utilize other means of fuel, such as buildings. In terms of ignition or source of heat, the primary source is lightning. However, humans are more responsible for wildfires than lightning. Manmade sources vary from the unintentional, such as fireworks, campfires, or machinery, to intentional arson. With these two elements provided, the wildfires may spread as long as oxygen is present.

Weather is the most variable factor affecting wildfire behavior. Strong winds propel wildfires quickly across most landscapes unless firebreaks are present. Shifting winds create erratic wildfires, which can complicate fire management efforts. Dry conditions provide faster-burning fuels, either making the area more vulnerable to wildfire or increasing the mobility of preexisting wildfires.

Wildfires are notorious for spawning secondary hazards, such as flash flooding and landslides, long after the original fire is extinguished. Both flash flooding and landslides result from fire consuming the natural vegetation that provides precipitation interception and infiltration as well as slope stability.

All of Georgia is prone to wildfire due to the presence of wildland fuels associated with wildfires. Land cover associated with wildland fuels includes coniferous, deciduous, and mixed forest; shrubland; grassland and herbaceous; transitional; and woody and emergency herbaceous wetlands. The spatial extent of wildfire events greatly depends on both the factors driving the fire as well as the efforts of fire management and containment operations.

In terms of seasonality, wildfires can occur during any season of the year. However, drier seasons, which vary within the State of Georgia, are more vulnerable to severe wildfires because of weather patterns and the abundant quick-burning fuels. In terms of rate of onset and duration, wildfires vary depending on the available fuels and weather patterns. Some wildfires can engulf an area in a matter of minutes from the first signs whereas others may be slower burning and moving. The frequency of wildfires is not typically measured because of the high probability of human ignition being statistically unpredictable. Magnitude and intensity are typically only measured by size of the wildfire and locations of burning.

Three classes of fires include understory, crown, and ground fires. Naturally induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal and self-extinguish due to low fuel loads or precipitation. Crown fires, which consist of fires consuming entire living trees, are low probability but high consequence events due to the creation of embers that can be spread by the wind. Crown fires typically match perceptions of wildfires. In areas with high concentrations of organic materials in the soil, ground fires may burn, sometimes persisting undetected for long periods until the surface is ignited.

Hazard Profile

Wildfires pose a serious threat to Habersham County. This is a result of the high amount of forestland and vegetation available to fuel potential wildfires, the significant elevation changes within the county, and the high percentage of inaccessible areas. The latter two make wildland firefighting operations significantly more difficult. Also, there is an increasing amount of wildland-urban interface (WUI) in Habersham County, which is defined as areas where structures and other human development meets undeveloped wildland properties. 98.9% of Habersham County's population lives within the WUI. All wildfire hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

Wildfire statistics were not available for the 50-year timeframe at the time of this profile. Georgia Forestry Commission, Habersham County had 117 wildfires from 2012 to 2023 that consumed a total of 1,883.6 acres. This equates to an average of 9.75 wildfires per year and these fires consume an average of 156.97 acres per year. Habersham County has a 2.7% daily chance of a wildfire. Historically, debris burning has been the top reason for wildfires in Habersham County. In 2014, a single large fire on public land burned a total of 143 acres – accounting for nearly 10% of all acreage burned in Habersham County since 2012. This single fire was the result of debris burning by the private landowner.

Assets *Exposed to the Hazard*

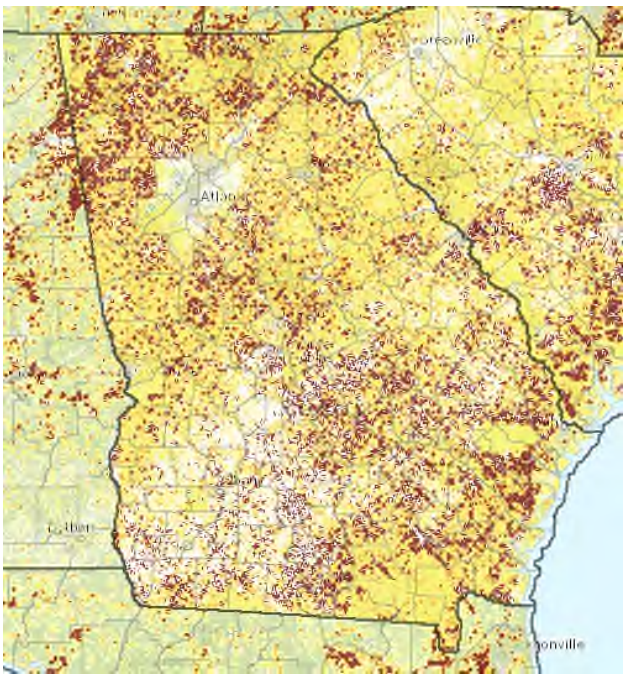
All public and private property located within the Wildland-Urban Interface, including critical infrastructures, are susceptible to impacts from wildfires. Due to the large area of wildland area in Habersham County and the large amount of WIU, all public and private property, including critical infrastructures, could be directly or indirectly impacted by the threat of wildfire.

Jurisdiction	Percentage of Population in WUI
Habersham County	*98.4%*
Baldwin	*97.2%*
Clarkesville	*97.8%*
Cornelia	*89.9%*
Demorest	*99.6%*
Alto	*100%*
Mt Airy	*100%*
Tallulah Falls	*100%*

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for wildfire losses in Habersham County. According to the 2017 Ag Census by the USDA, Habersham County has just over $1 million in annual agriculture sales. These areas would potentially be impacted by a wildfire event. According to the National Risk Index, Habersham County has an estimated annual loss of $46,750 related to wildfire events.

Georgia Wildfire Ignition Density



Source: Southern Group of State Foresters Wildfire Risk Assessment Portal

Land Use & Development Trends

With the continued increase in population, Wildland-Urban Interface (WUI) is increasing in Habersham County. The WUI creates areas where fire can easily move from wildland areas into developed areas and threaten structures and human life. The expansion of the WUI in Habersham County complicated wildland fire management operations and planning initiatives. This development trend is expected to continue in the future.

Multi-Jurisdictional Considerations

All portions of Habersham County, including all municipalities, could potentially be impacted by a wildfire due to the large amount of Wildland-Urban Interface, but the less developed areas of the county are more vulnerable. Therefore, all mitigation actions identified regarding wildfires should be pursued on a countywide basis and include all municipalities.

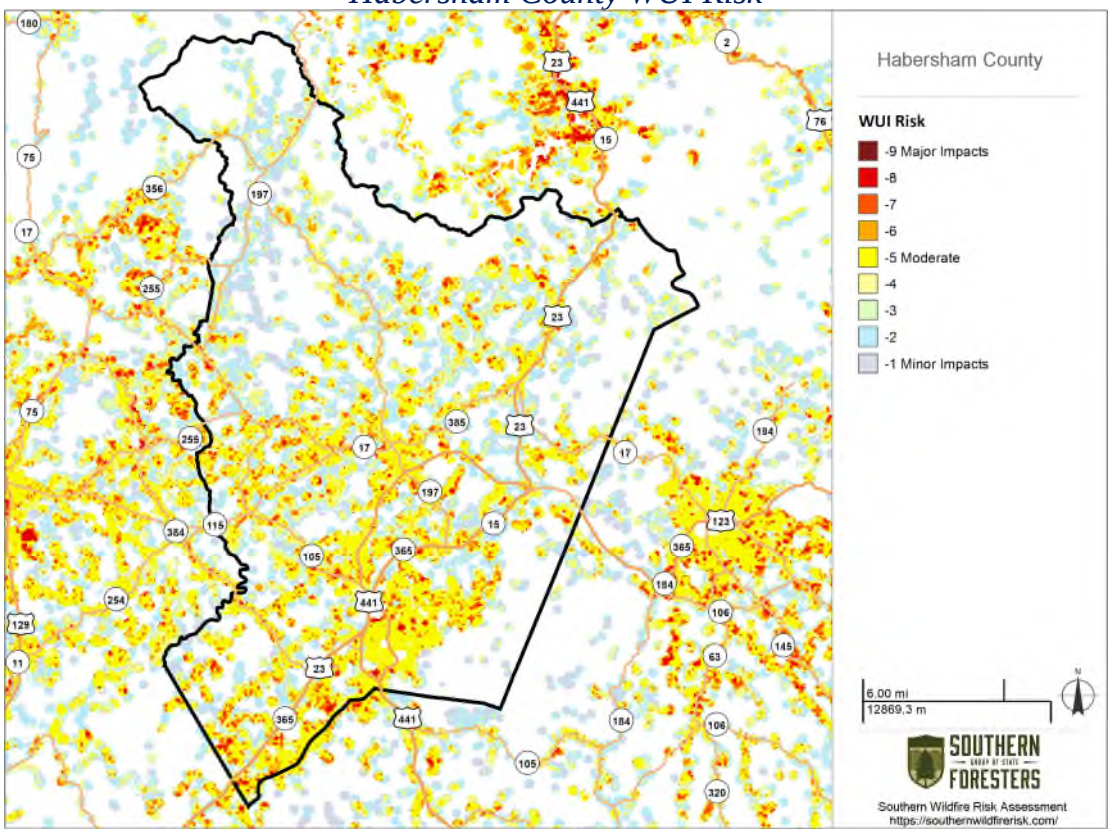
Climate Change Considerations

It is not clear how climate change could potentially impact wildfire development in Habersham County. Increased temperatures and increased evaporation rates could lead to a larger fire load for wildland fires in Habersham County.

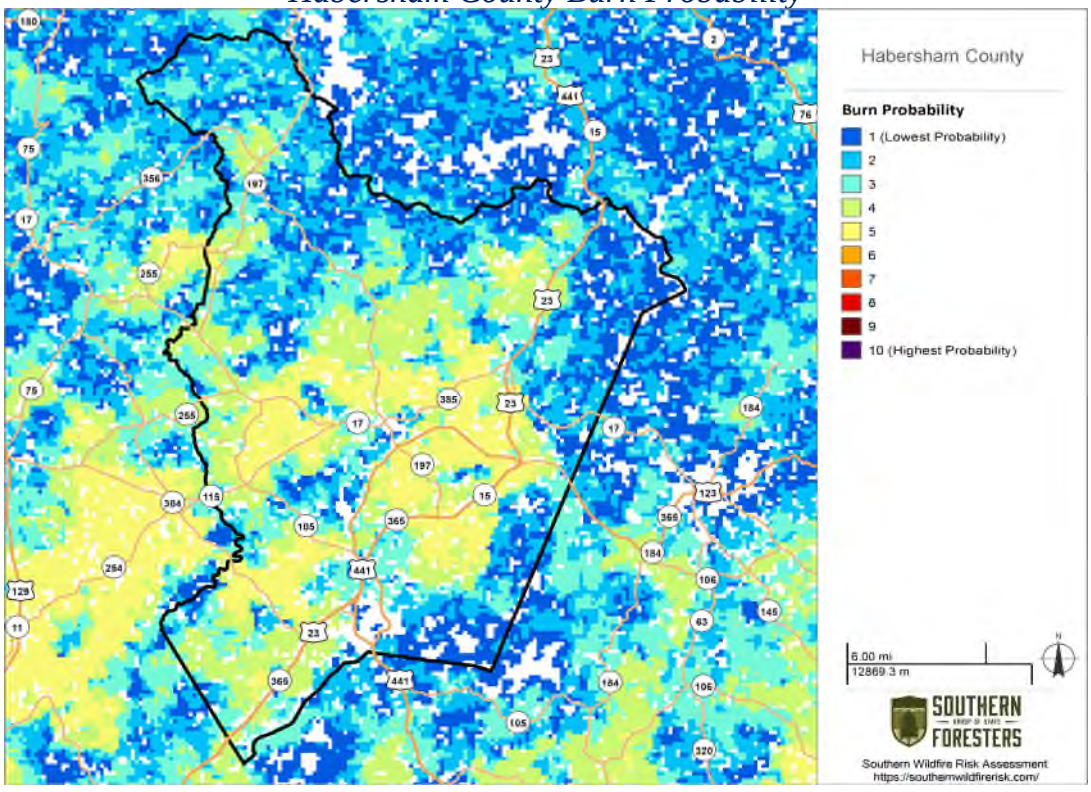
Hazard Summary

Wildfire is a significant threat to Habersham County due to the increased amount of Wildland-Urban Interface. The increasing amount of area where structures and other human development meets undeveloped, wildland property is where 98.4% of Habersham County's population lives. The mitigation measures identified in this plan should be aggressively pursued based on the high frequency of this hazard and the ability for wildfires to inflict devastation anywhere in Habersham County.

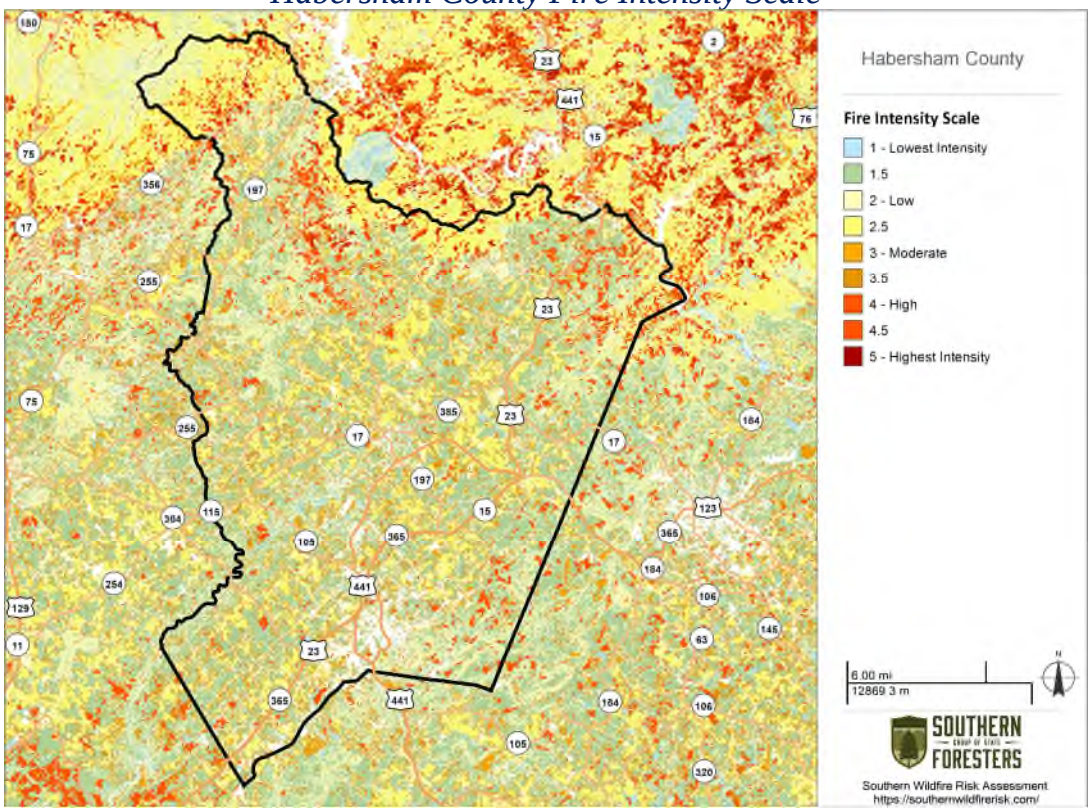
Habersham County WUI Risk



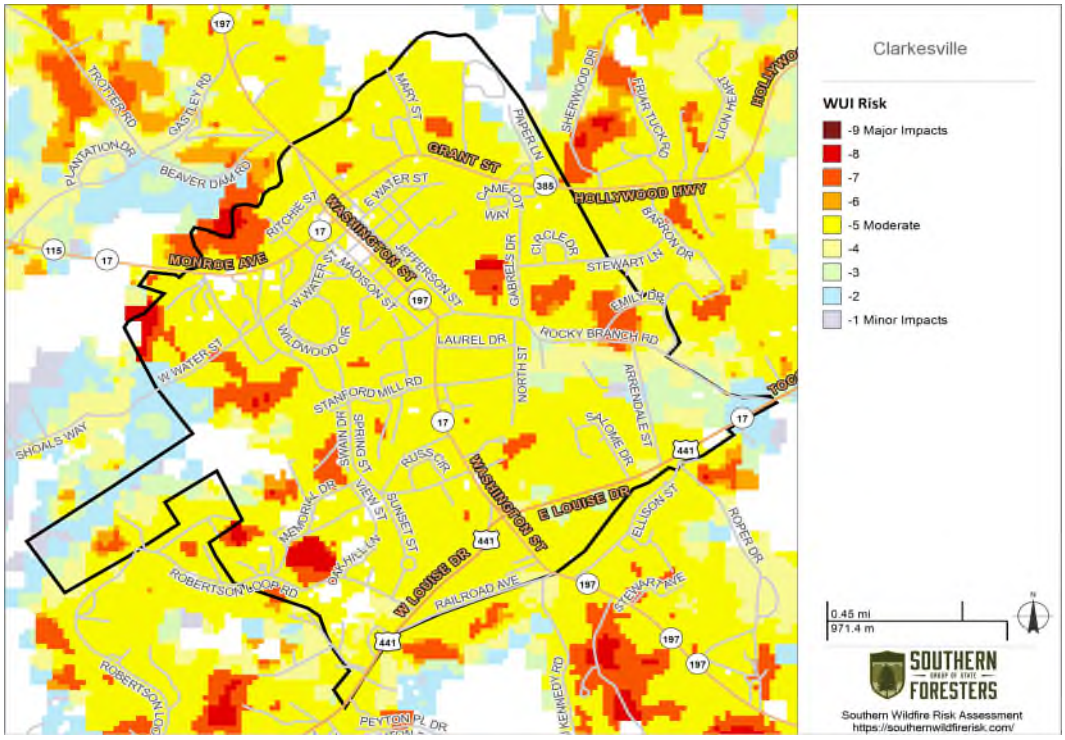
Habersham County Burn Probability



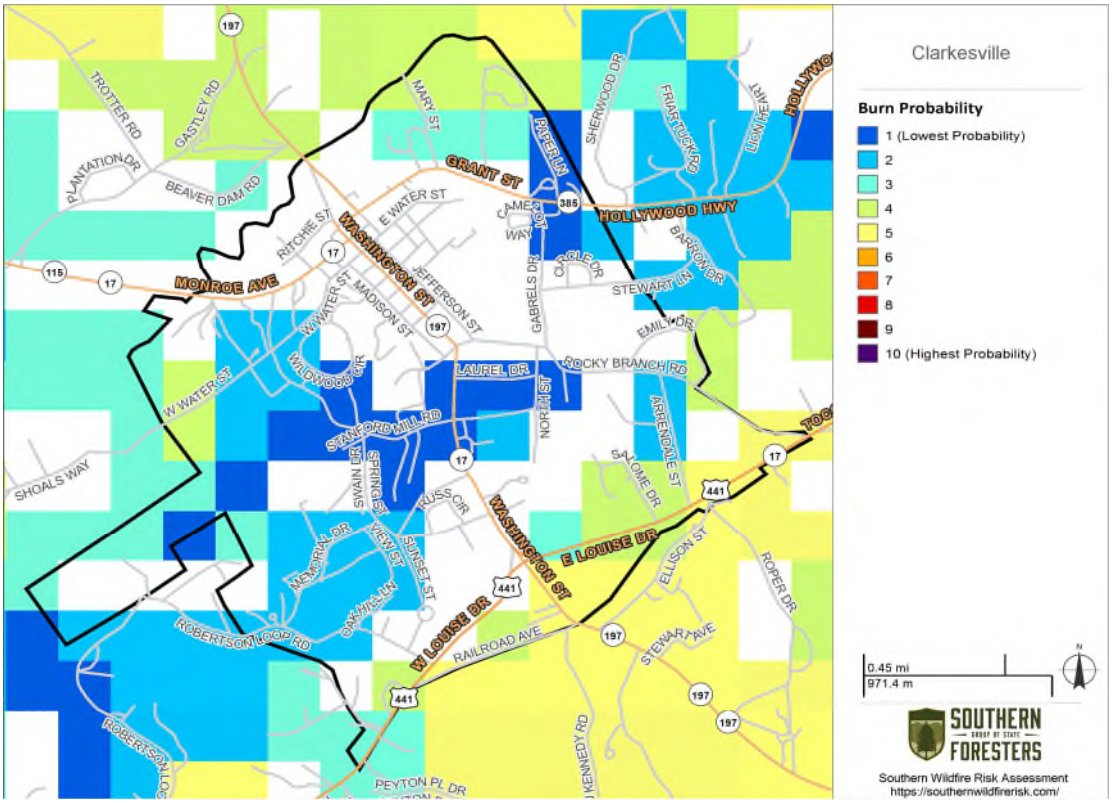
Habersham County Fire Intensity Scale



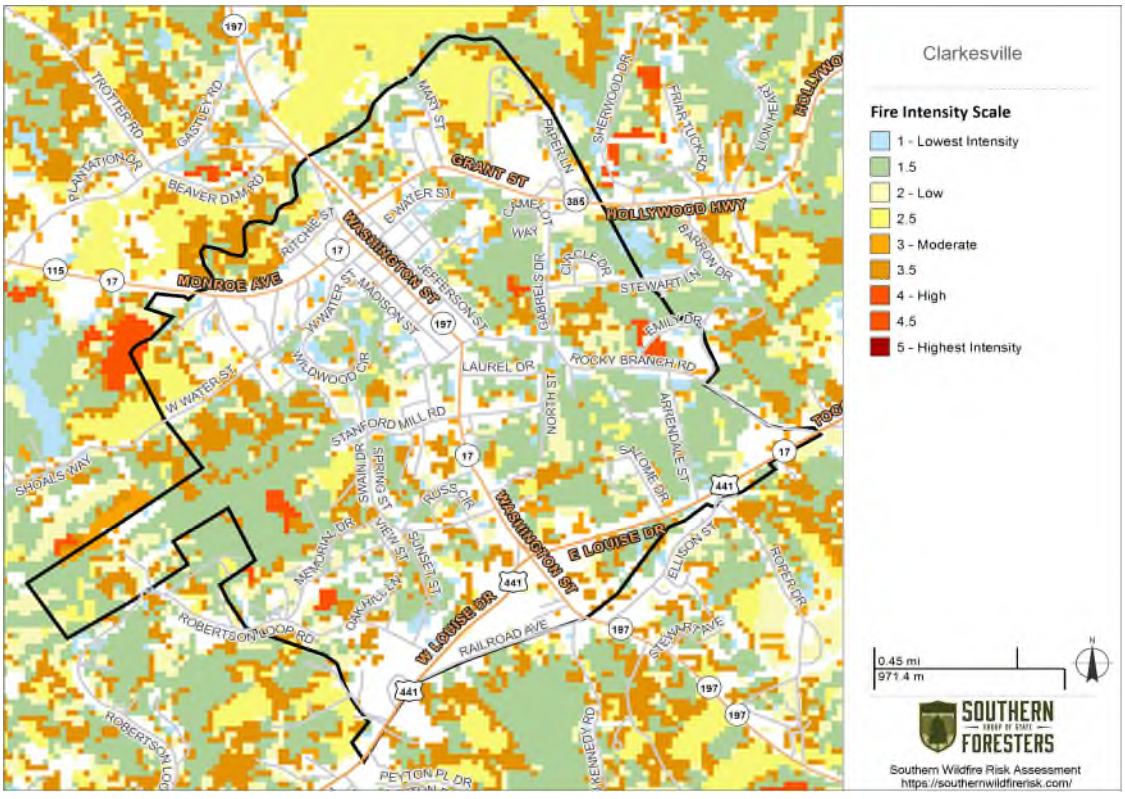
Clarkesville WUI Risk



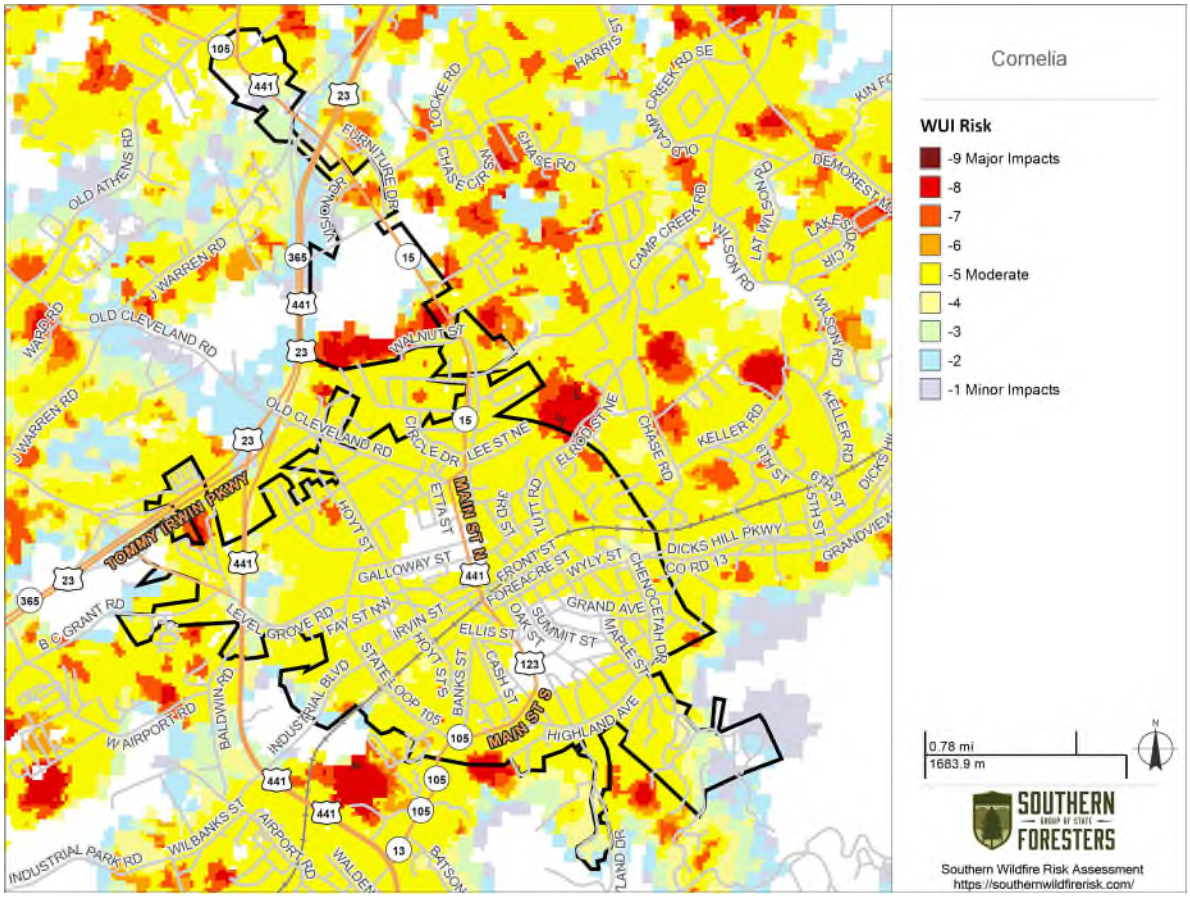
Clarkesville Burn Probability



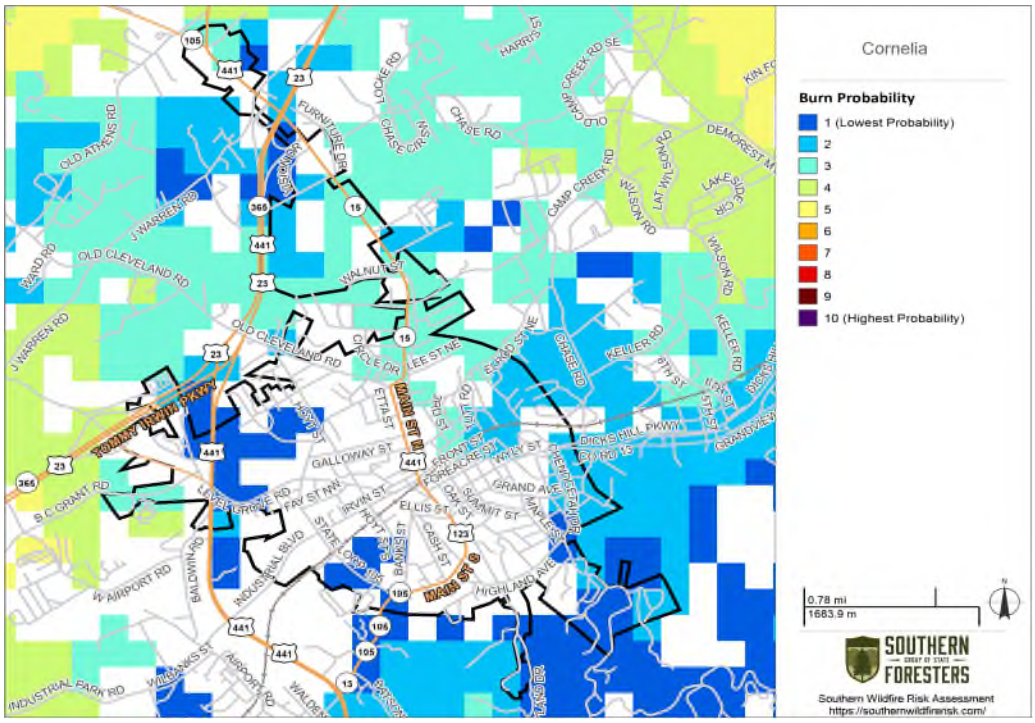
Clarkesville Fire Intensity Scale



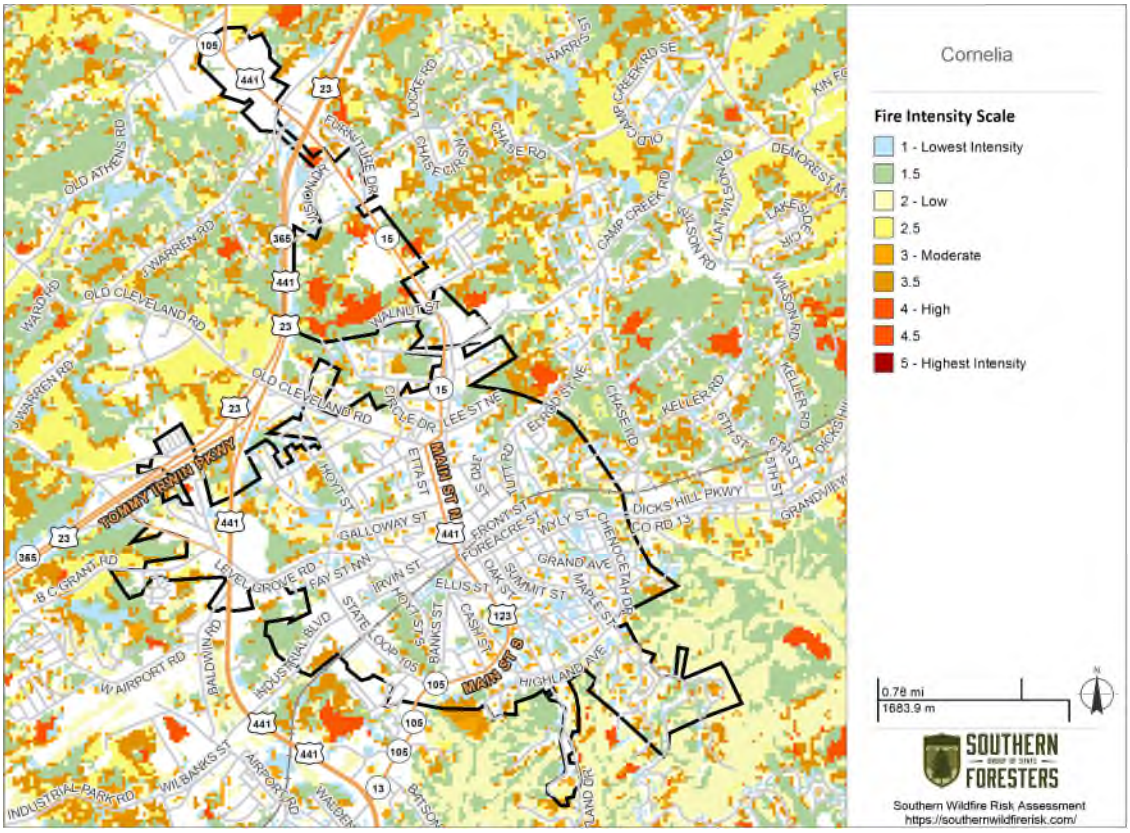
Cornelia WUI Risk



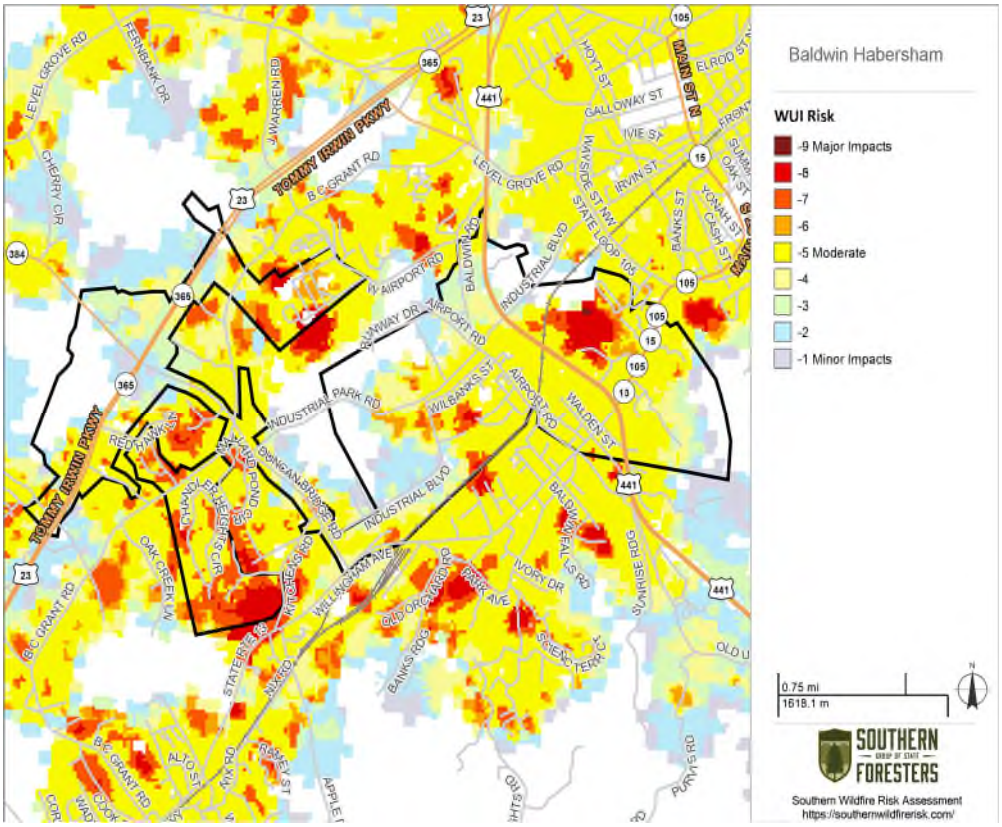
Cornelia Burn Probability



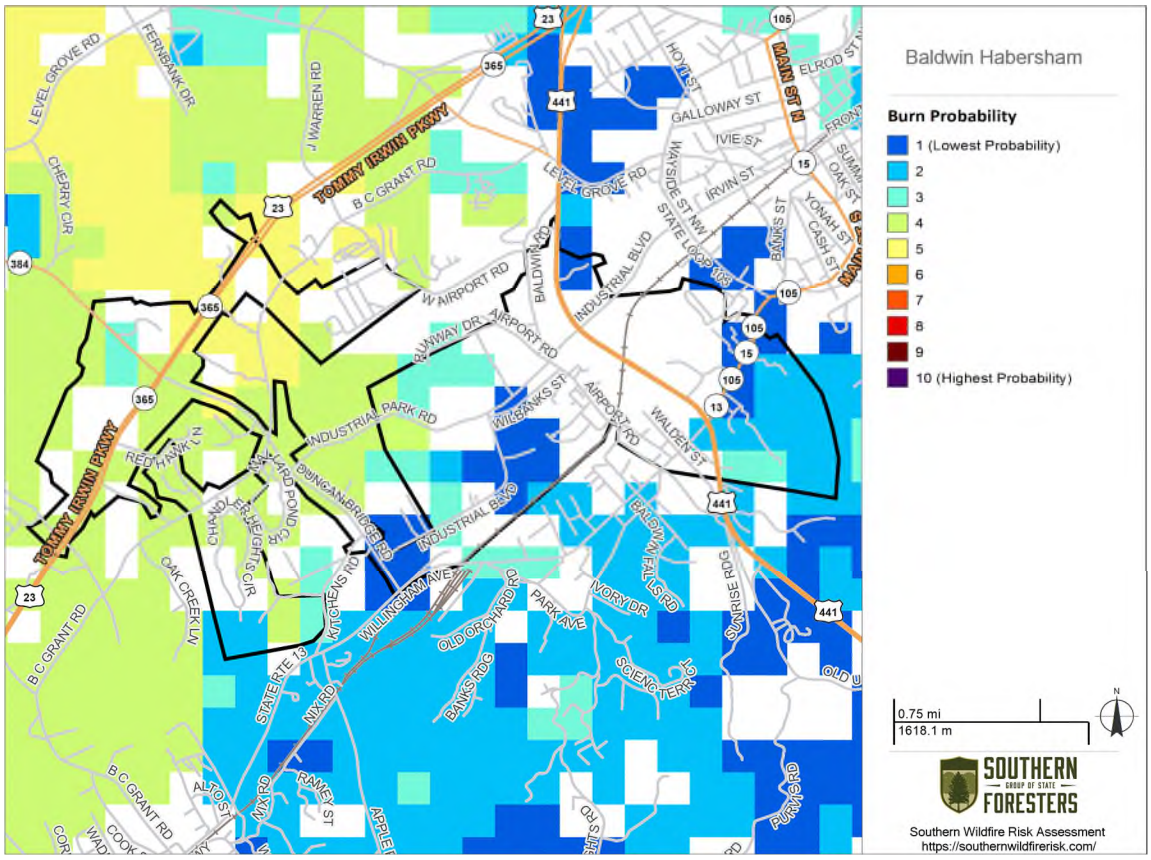
Cornelia Fire Intensity Scale



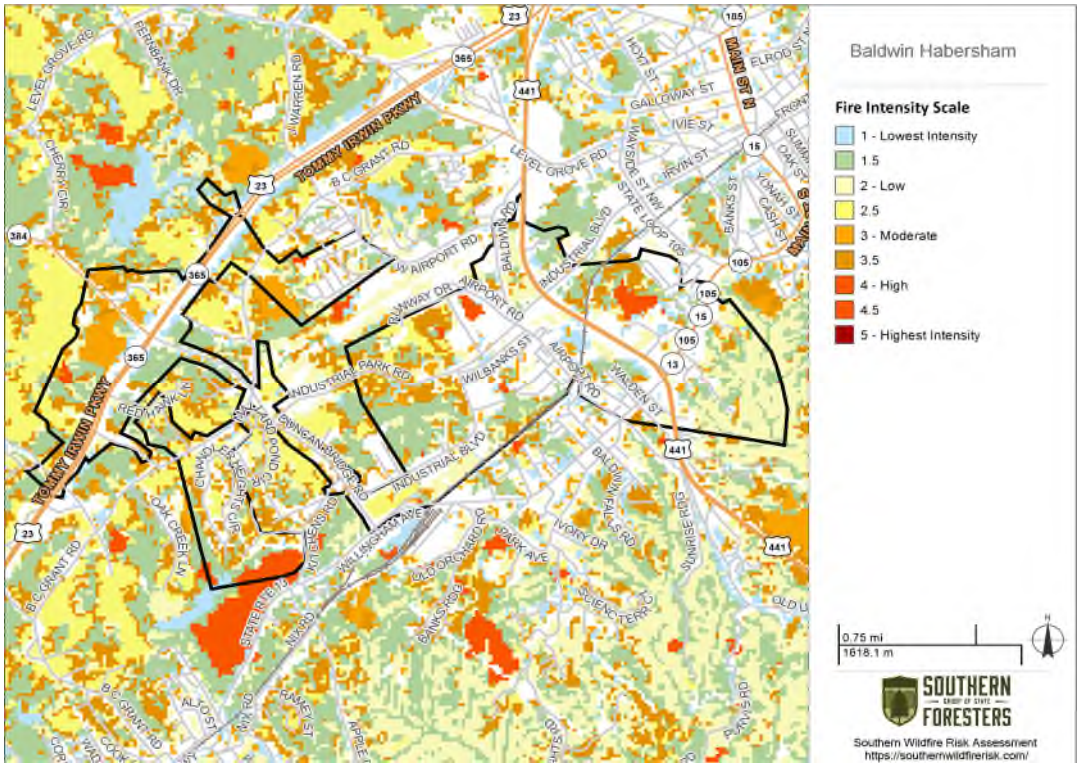
Baldwin WUI Risk



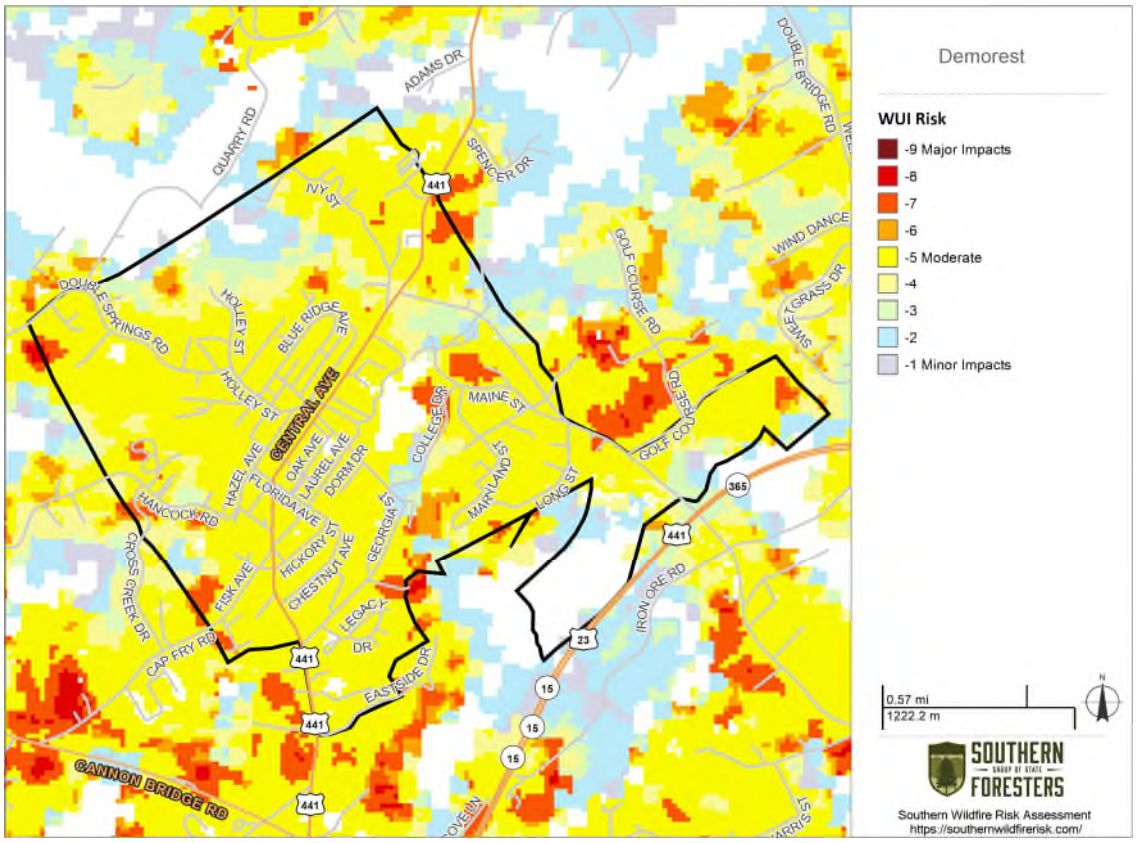
Baldwin Burn Probability



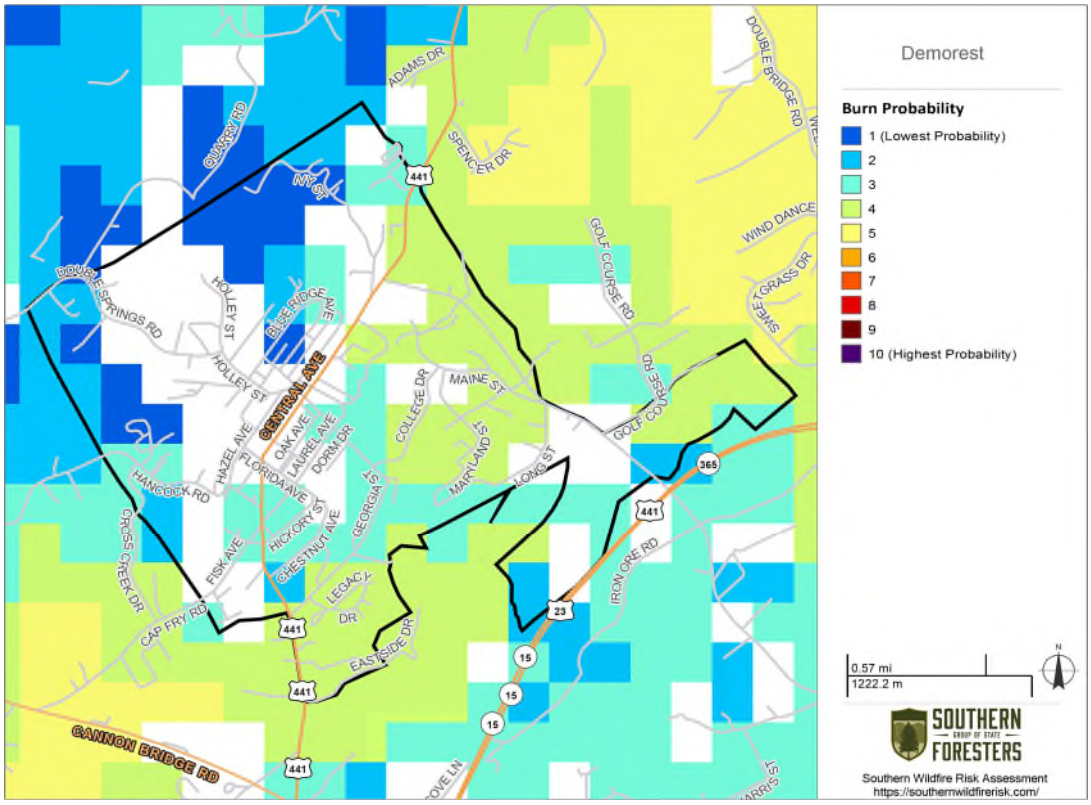
Baldwin Fire Intensity Scale



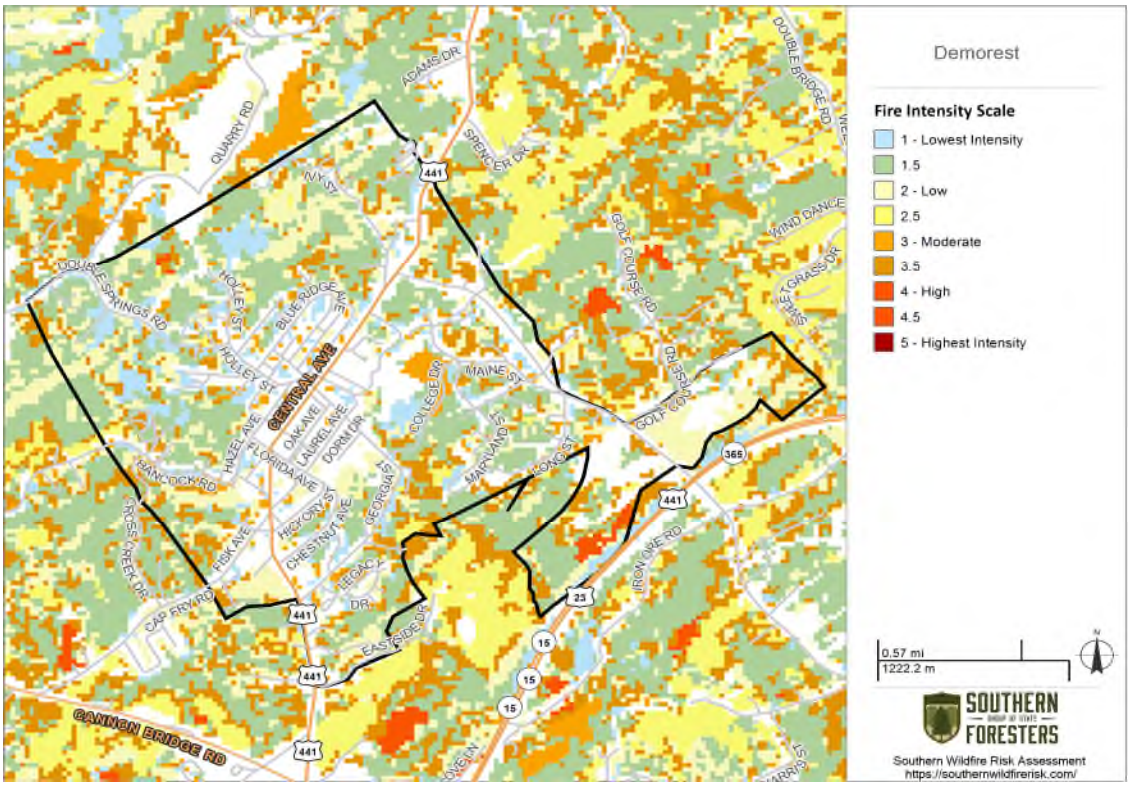
Demorest WUI Risk



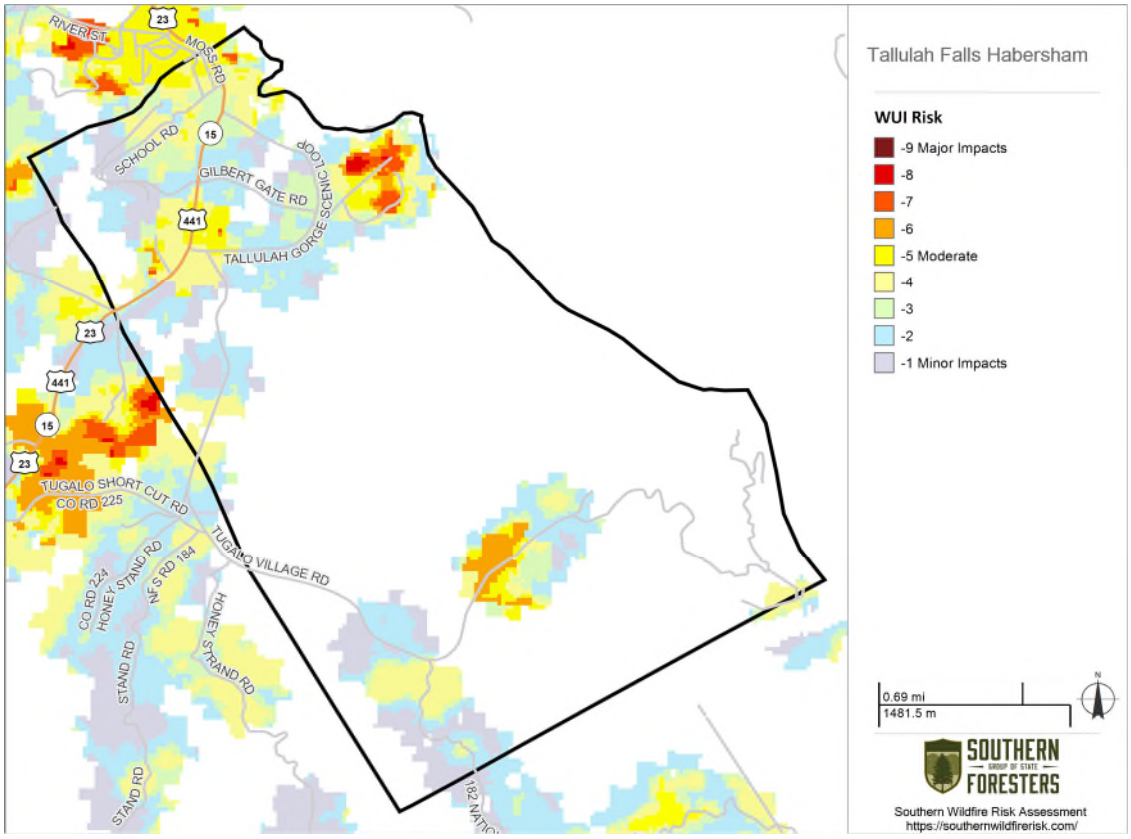
Demorest Burn Probability



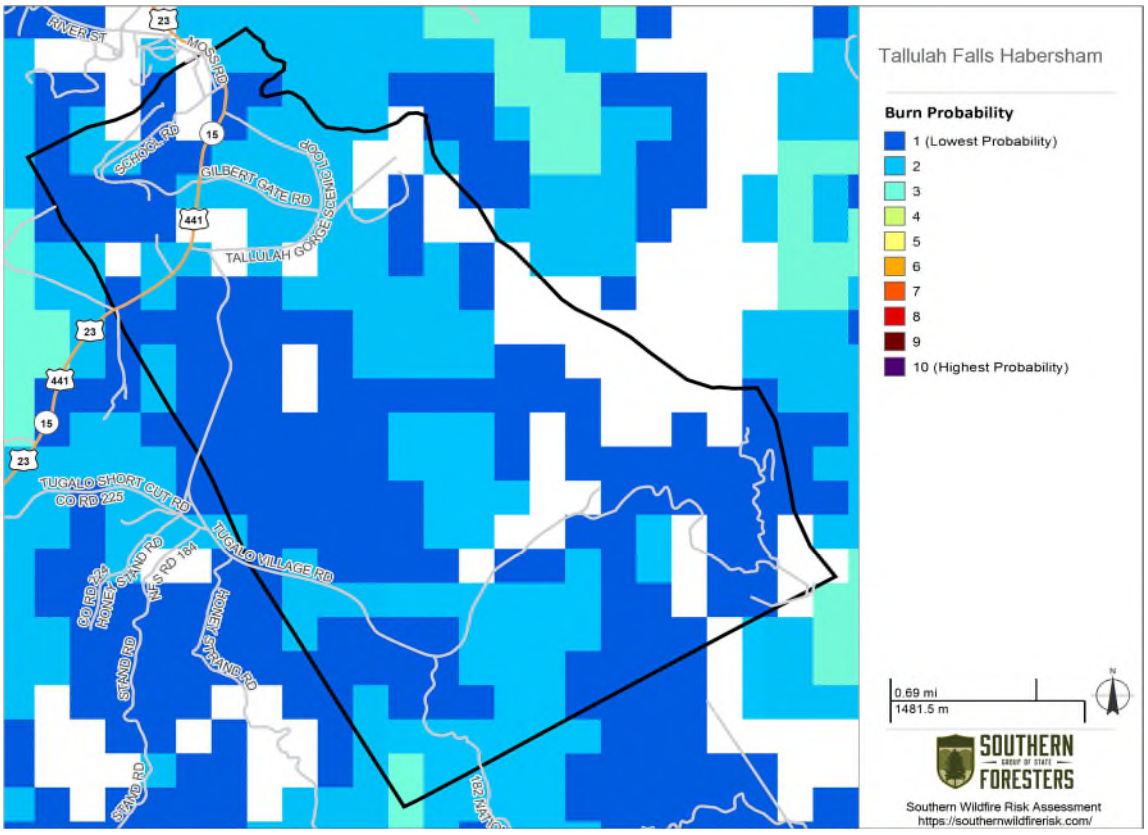
Demorest Fire Intensity Scale



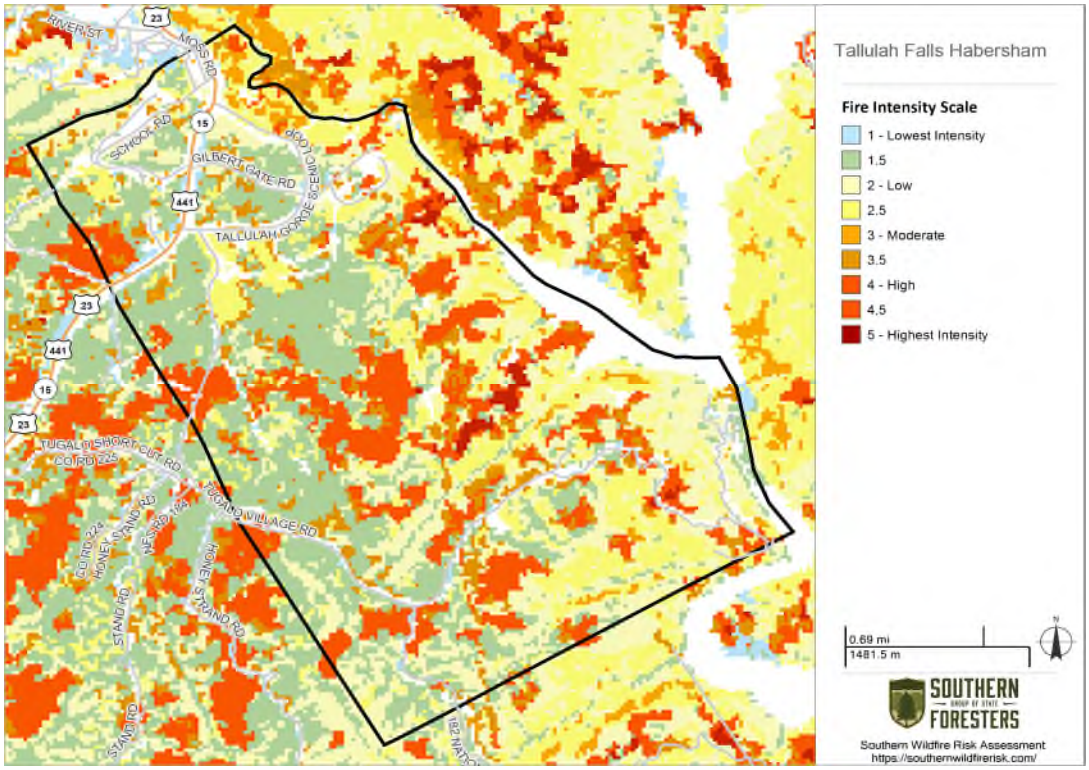
Tallulah Falls WUI Risk



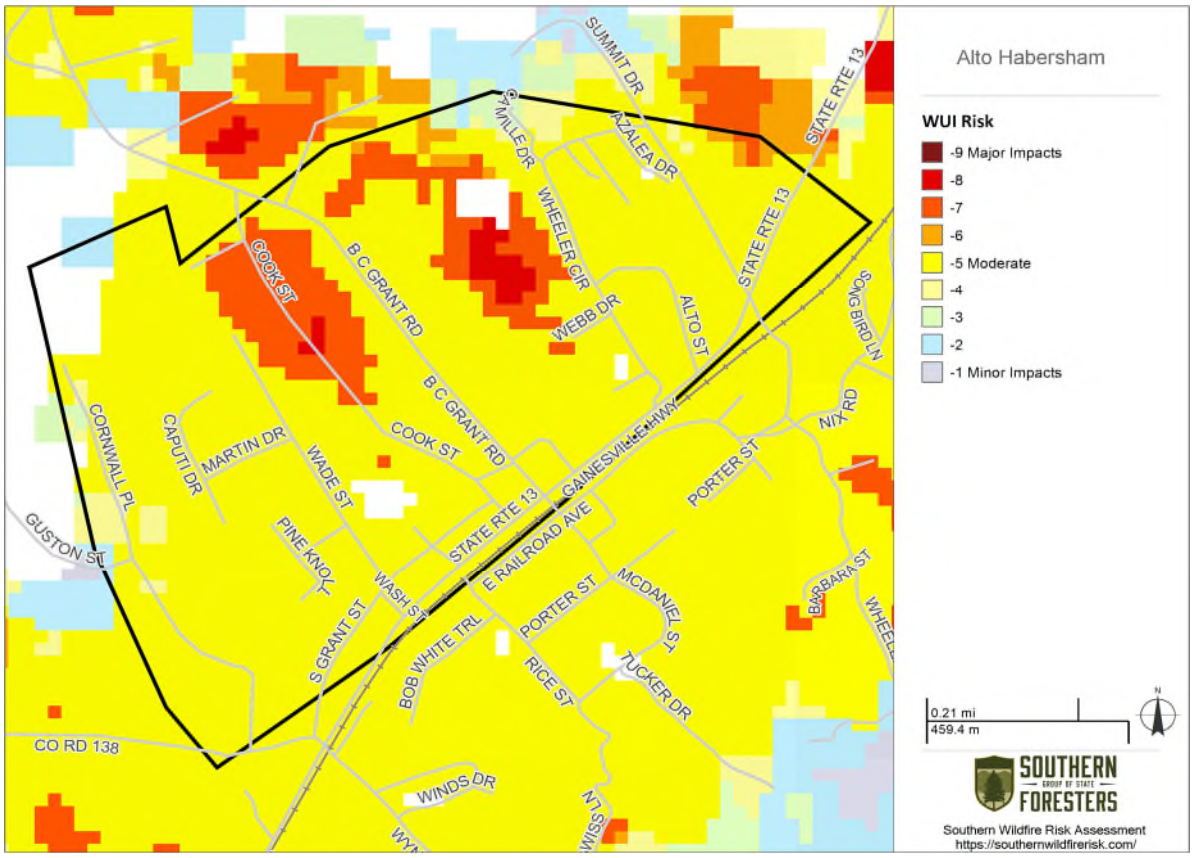
Tallulah Falls Burn Probability



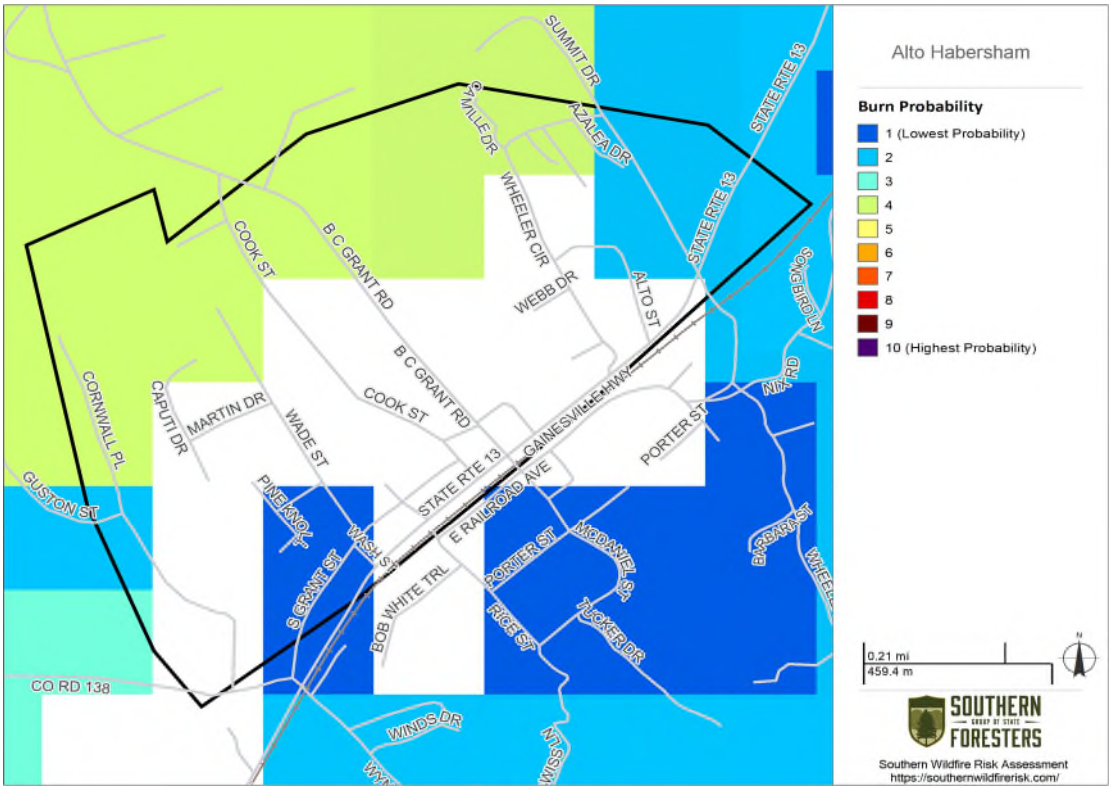
Tallulah Falls Fire Intensity Scale



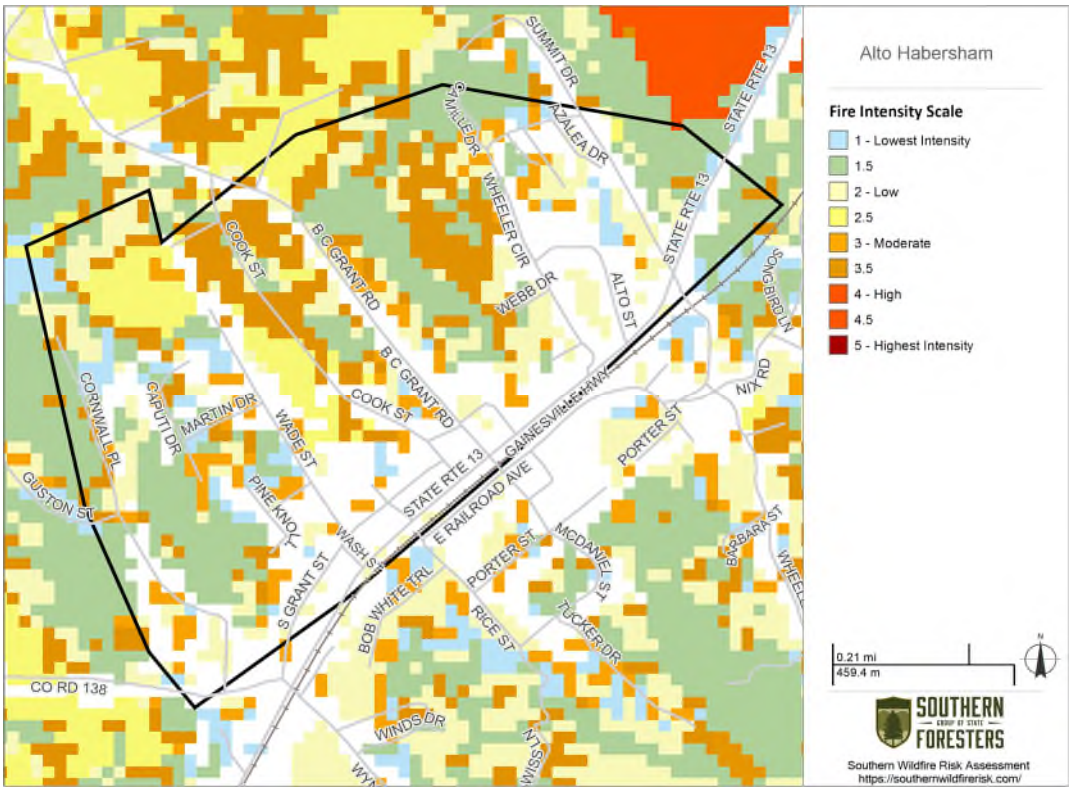
Alto WUI Risk



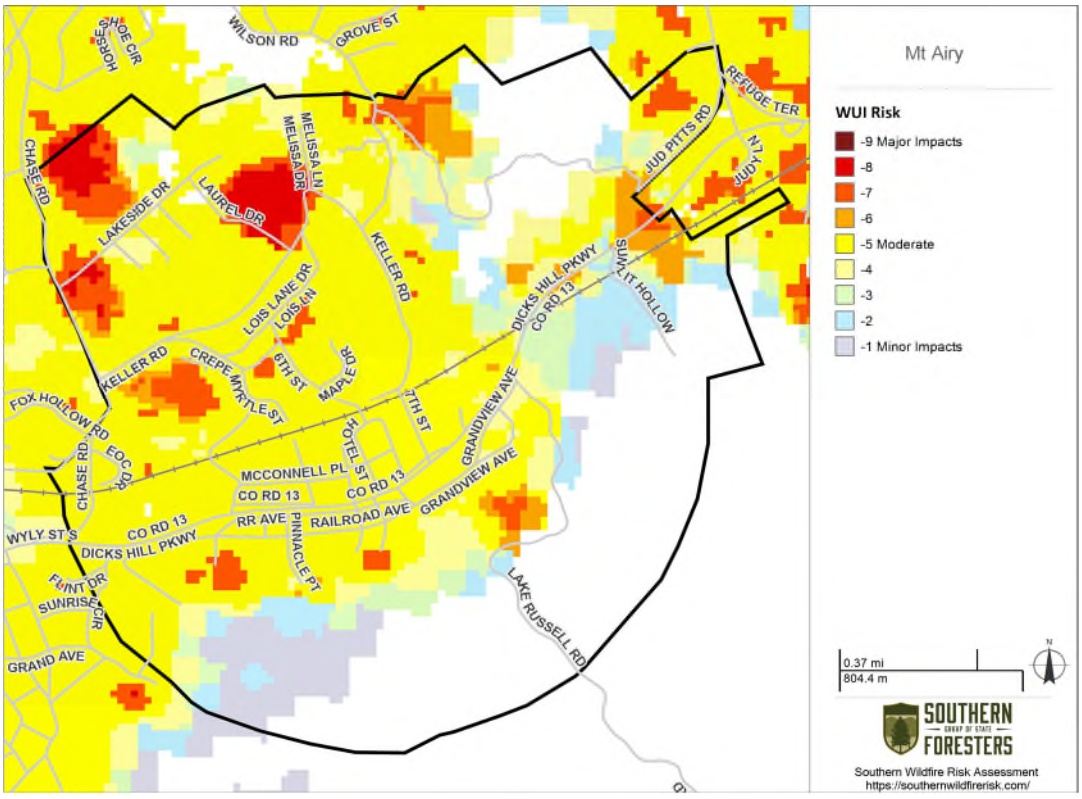
Alto Burn Probability



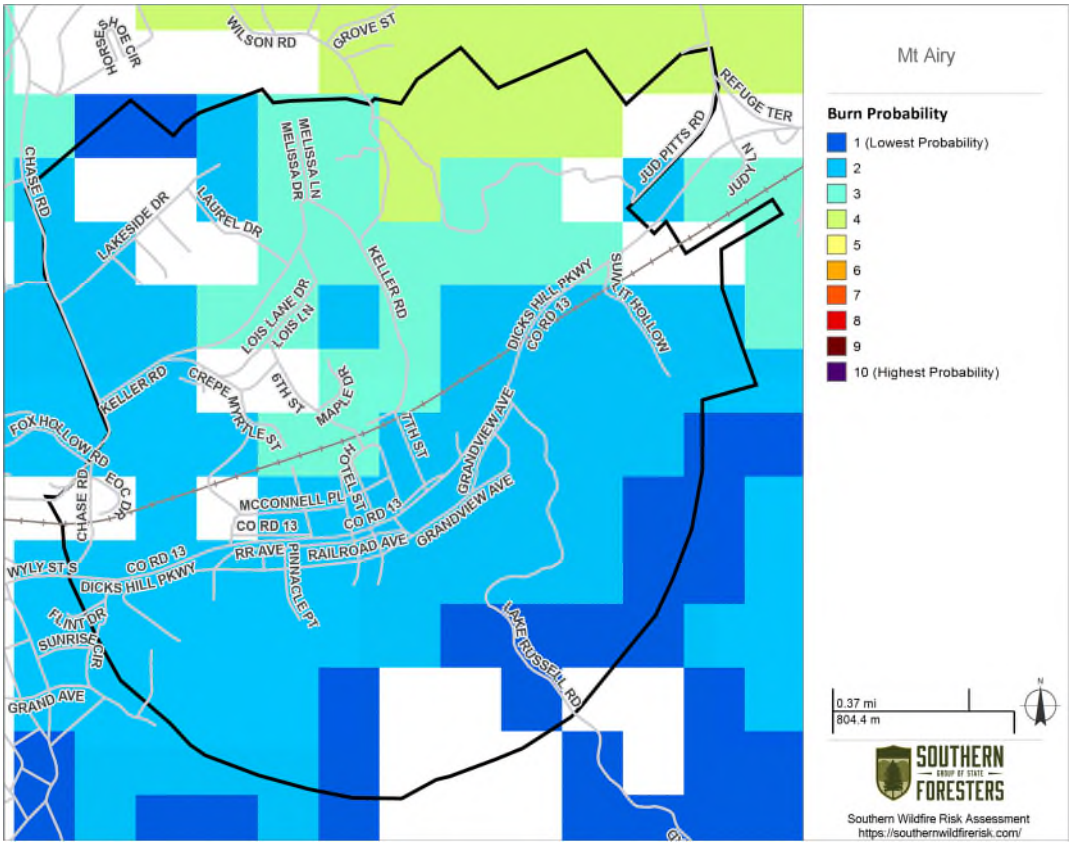
Alto Fire Intensity Scale



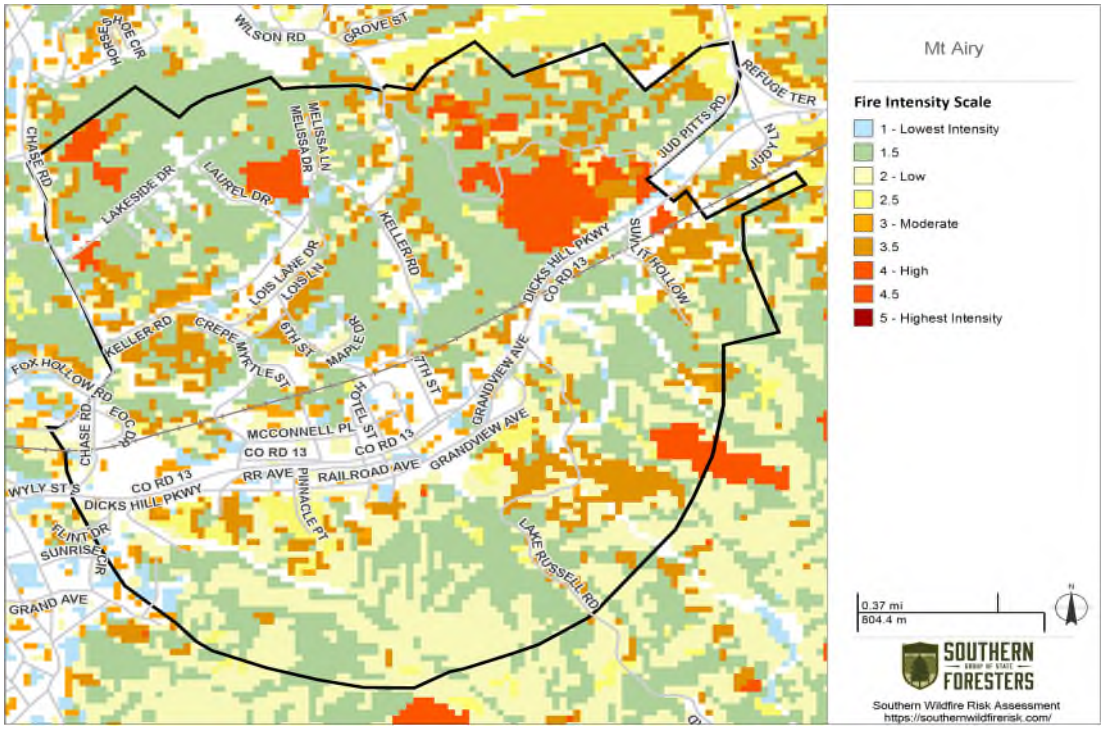
Mt Airy WUI Risk



Mt Airy Burn Probability



Mt Airy Fire Intensity Scale



All maps in this section are from the
Southern Group of State Foresters Wildfire Risk Assessment Portal

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 most of the 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.

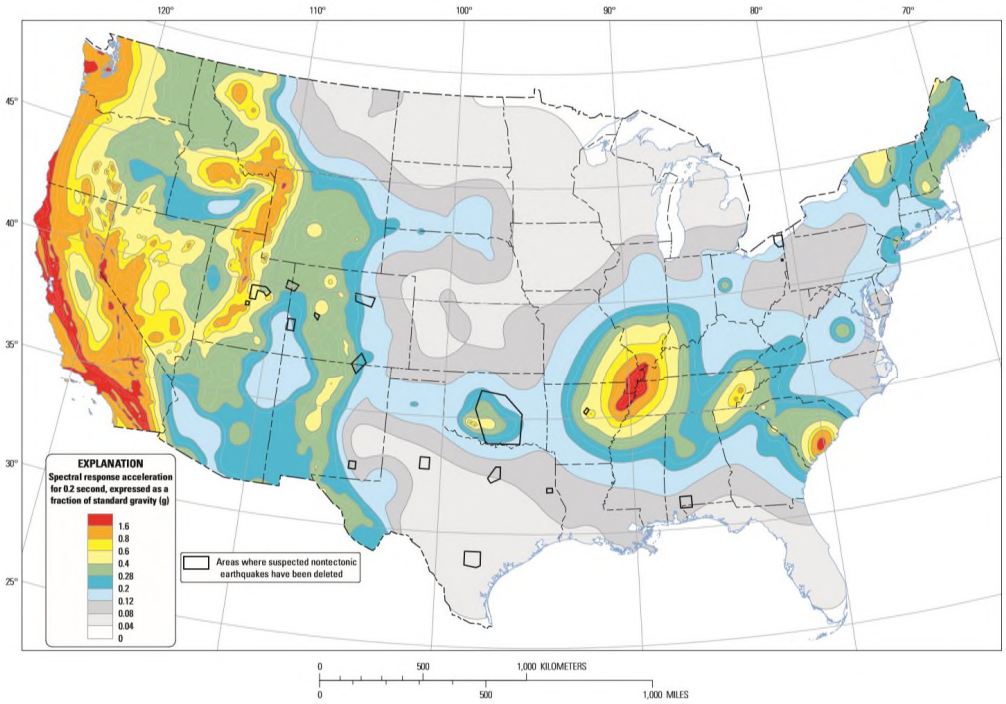
Another manifestation of earthquakes is surface faulting. This phenomenon is defined as the offset or tearing of the earth's surface by a differential movement across a fault. Structures built across active faults tend to sustain damage regularly. There are no active faults within or near Georgia. Distinct 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 US, the possibility of such events occurring anywhere along the Atlantic and Gulf coast exists.



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

Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

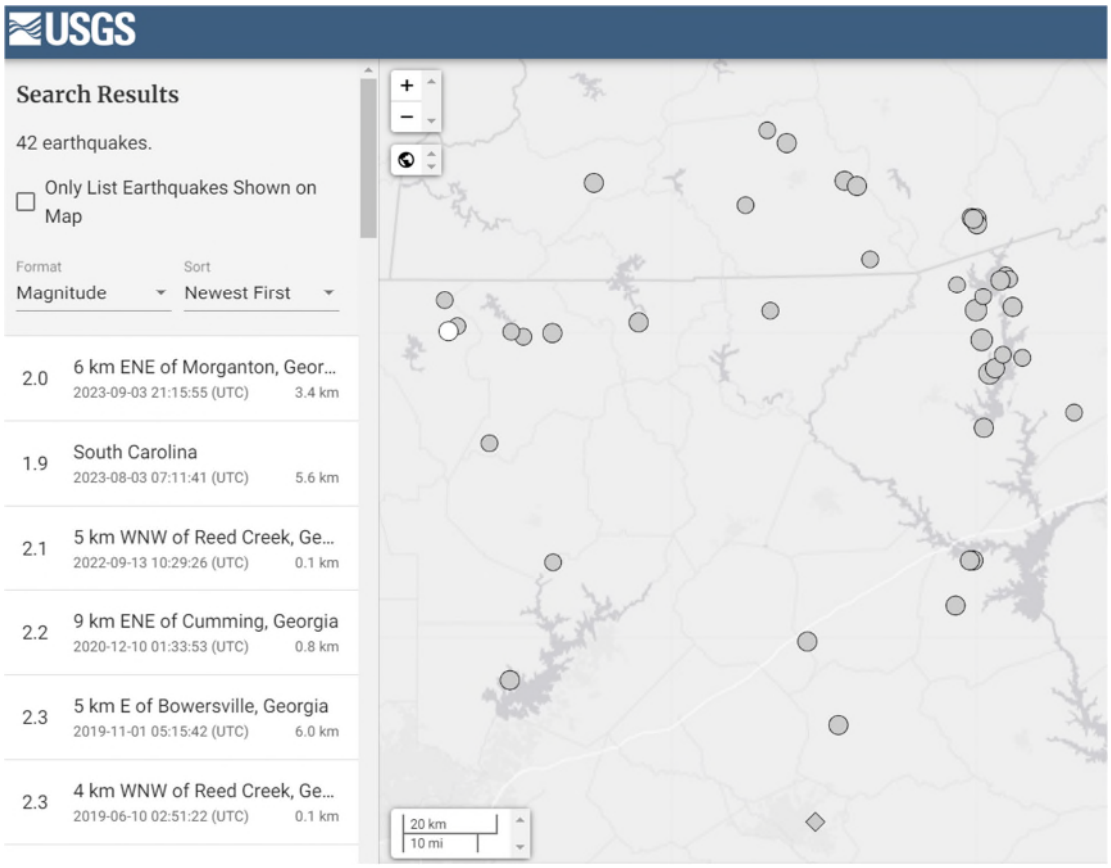
Hazard Profile

Habersham County is not one of the 37 Georgia counties with the highest earthquake risk, according to Georgia Emergency Management Agency. In reviewing data of the last 50 years, no earthquakes have originated from within Habersham County. However, 42 earthquakes have originated within 75 kilometers of Clarkesville, GA in the last 50 years. The closest earthquake to Habersham County was a 2.3 that occurred 4km south of Hiawassee, GA in 2015. The strongest earthquake to occur within the 75-kilometer radius was a 3.7 that occurred in 4km north of Salem, SC in 1979. Habersham County averages one earthquake every 1.19 years occurring within 75 kilometers of Clarkesville, GA. This equates to an 84% chance of an earthquake occurring within 75 kilometers of Clarkesville, GA in any given year. The most recent earthquake to occur within this area occurred on September 3, 2023 near Morganton, GA. According to the National Risk Index, Habersham County has a 0.078% annual chance of an earthquake. Historically, the 1886 Charleston, SC earthquake, estimated to be between 6.6 and 7.3 on the modern Richter Scale, likely caused impacts to Habersham County. Although no historical records exist exhibiting any damages, Habersham County was estimated to be in a level VI area of the Modified Mercalli Intensity scale for this event. 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 Habersham County, significant damage could occur. Therefore, the Habersham County HMPC has determined the threat of earthquakes to be higher than the statistics would indicate. All earthquake hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

Instrumental Intensity	Acceleration (%g)	Velocity (cm/s)	Perceived Shaking	Potential Damage
I	< 0.17	< 0.1	Not Felt	None
II-III	0.17 - 1.4	0.1 - 1.1	Weak	None
IV	1.4 - 3.9	1.1 - 3.4	Light	None
V	3.9 - 9.2	3.4 - 8.1	Moderate	Very light
VI	9.2 - 18	8.1 - 16	Strong	Light
VII	18 - 34	16 - 31	Very Strong	Moderate
VIII	34 - 65	31 - 60	Severe	Moderate to Heavy
IX	65 - 124	60 - 116	Violent	Heavy
X+	> 124	> 116	Extreme	Very Heavy

Assets Exposed to the Hazard

The Habersham County HMPC determined that all critical facilities and all public and private property within Habersham 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. This includes all municipalities.



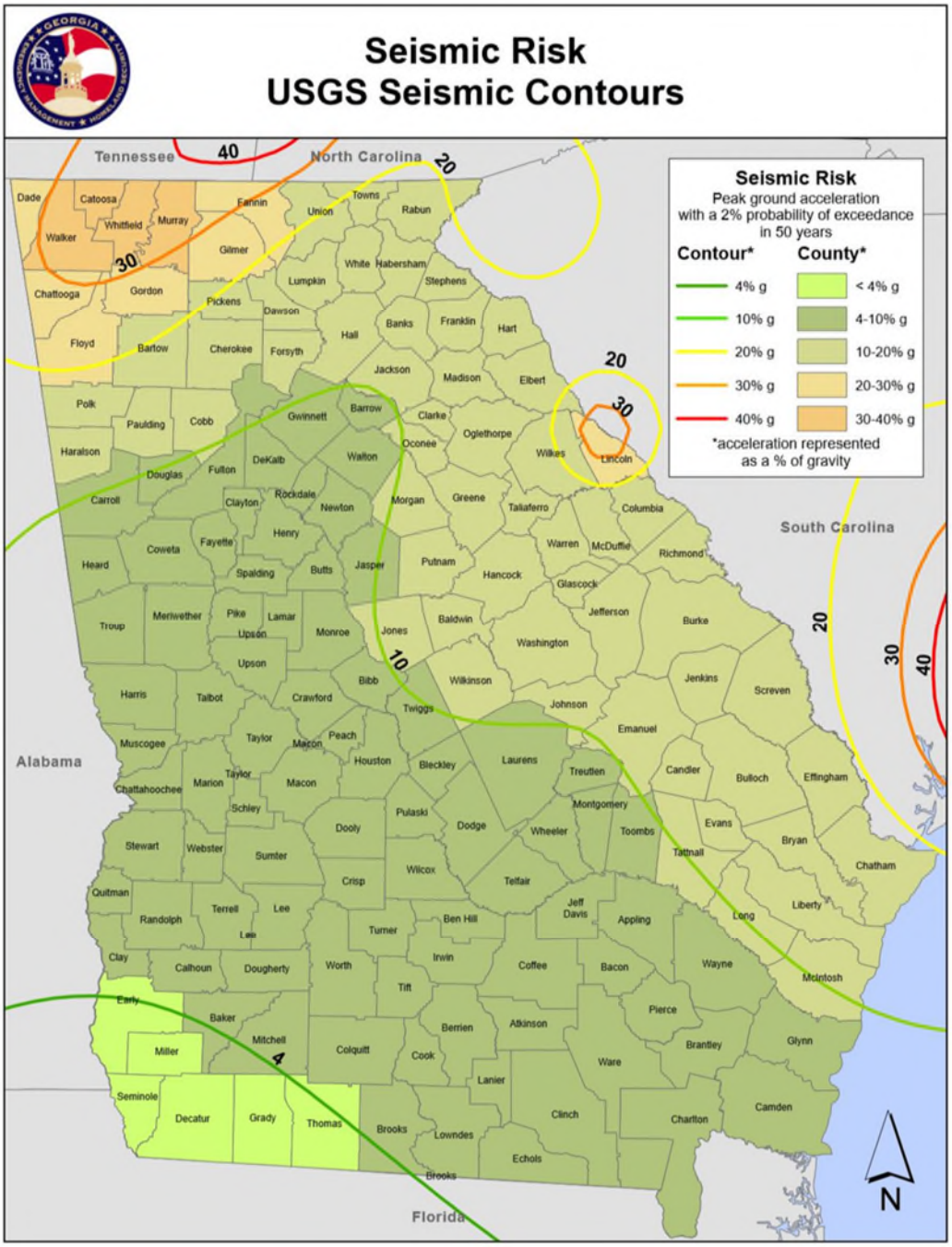
Source: United States Geological Survey (USGS) Earthquake Hazards Program

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for earthquake losses in Habersham County. According to the National Risk Index, Habersham County has an estimated annual loss of $427,932 related to earthquake events.

Land Use and Development Trends

Habersham County currently has no land use trends related to earthquakes.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, potentially could be threatened by earthquakes. As such, all earthquake mitigation actions should be pursued on a countywide basis and include all municipalities. Earthquakes near Habersham County have been more frequent in South Carolina near Lake Keowee, which would cause greater overall concern for impacts for the municipalities closer to the eastern reaches of Habersham County, such as Tallulah Falls.

Climate Change Considerations

Climate change is expected to have no impact on the future risk of earthquakes in Habersham County.

Hazard Summary

Even with the infrequency of earthquake impacts in Habersham County, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of the County and all municipalities. Secondary impacts, such as landslides during or after an earthquake, are also of a great concern and are detailed in a separate section of this plan. The mitigation measures identified in this plan should be pursued based on the high impact potential of this hazard and the ability for earthquakes to inflict widespread devastation anywhere in Habersham County.

Natural Hazard**: Tropical Cyclone**

Hazard Description

The National Weather Service describes tropical cyclones systems in the Atlantic Basin, including the Gulf of Mexico and Caribbean Sea, into four types based on strength.

Tropical Disturbance: A discrete tropical weather system of apparently organized thunderstorms – generally 100 to 300 nautical miles in diameter – originating in the tropics or subtropics, and maintaining its identity for 24 hours or more.

Tropical Depression: An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph (33 knots) or less.

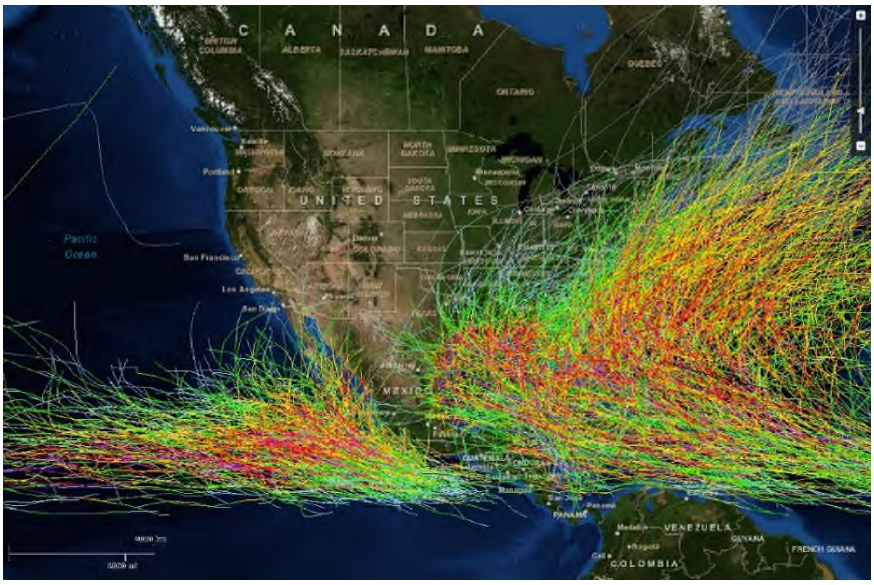
Tropical Storm: An organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 mph to 73 mph (34-63 knots).

Hurricane: An intense tropical weather system with a well-defined circulation, producing maximum sustained winds of 74 mph (64 knots) or greater. Hurricane intensity is classified into five categories using the Saffir-Simpson Hurricane scale. Winds in a hurricane range from 74-95 mph for a Category 1 hurricane to greater than 156 mph for a Category 5 hurricane.

Saffir-Simpson Scale for Hurricane Classification				
Strength	Wind Speed (Kts)	Wind Speed (MPH)	Pressure (Millibars)	Pressure
Category 1	64- 82 kts	74- 95 mph	>980 mb	28.94 "Hg
Category 2	83- 95 kts	96-110 mph	965-979 mb	28.50-28.91 "Hg
Category 3	96-113 kts	111-130 mph	945-964 mb	27.91-28.47 "Hg
Category 4	114-135 kts	131-155 mph	920-944 mb	27.17-27.88 "Hg
Category 5	>135 kts	>155 mph	919 mb	27.16 "Hg
Tropical Cyclone Classification				
Tropical Depression	20-34kts			
Tropical Storm	35-63kts			
Hurricane	64+kts or 74+mph			

Tropical cyclones can cause catastrophic damage to coastlines and areas several hundred miles inland. Tropical cyclones can produce sustained high winds and spawn tornadoes and microbursts. Additionally, tropical cyclones can create storm surges along the coast and cause extensive damage from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events.

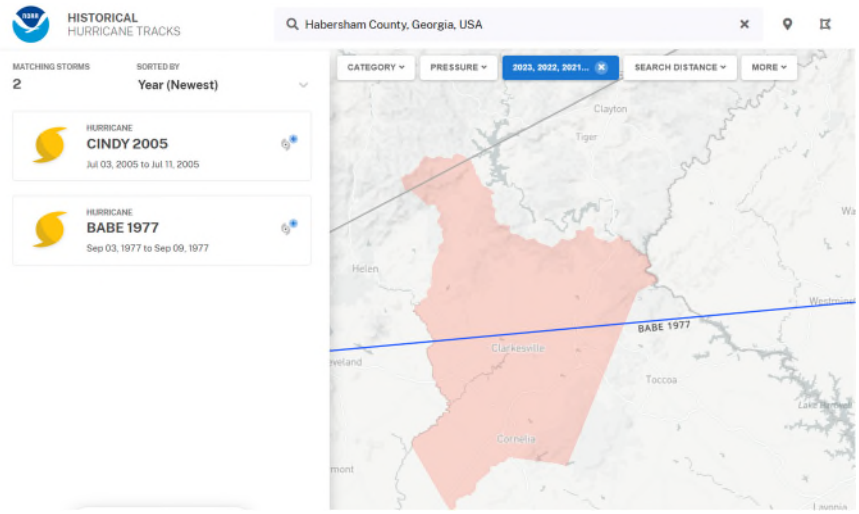
Slow moving tropical cyclones traveling into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mudslides. Flash flooding can also occur due to intense rainfall. Each of these hazards present unique characteristics and challenges; therefore, the following have been separated and analyzed as individual hazards: Tropical cyclones, Thunderstorms, Tornadoes, and Flooding. This section will focus on the direct effects of tropical cyclones.



Hazard Profile

Tropical cyclones have directly impacted Habersham County on an infrequent basis over the last 50 years. However, the possibility of a hurricane or tropical storm retaining their wind strength as far inland as Habersham County is possible. According to the National Centers for Environmental Information, there has only been 1 documented impact from Topical Cyclones in Habersham County over the last 20 years, which was Tropical Storm Zeta in 2020. This equates to a 5% chance of a tropical cyclone impacting Habersham County in any given year. The more likely impacts of a tropical cyclone on Habersham County would be secondary impacts, such as flooding, tornadoes, and severe thunderstorms.

Only two tropical cyclones – Hurricane Babe in 1977 and Hurricane Cindy in 2005 – have had a track that directly dissected Habersham County in the last 50 years. All tropical cyclone hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction. In 2017, Hurricane Irma dropped 2-2.5 inches of rain on Habersham County and wind gusts up to 55 mph (tropical storm-strength) were reported in the county.

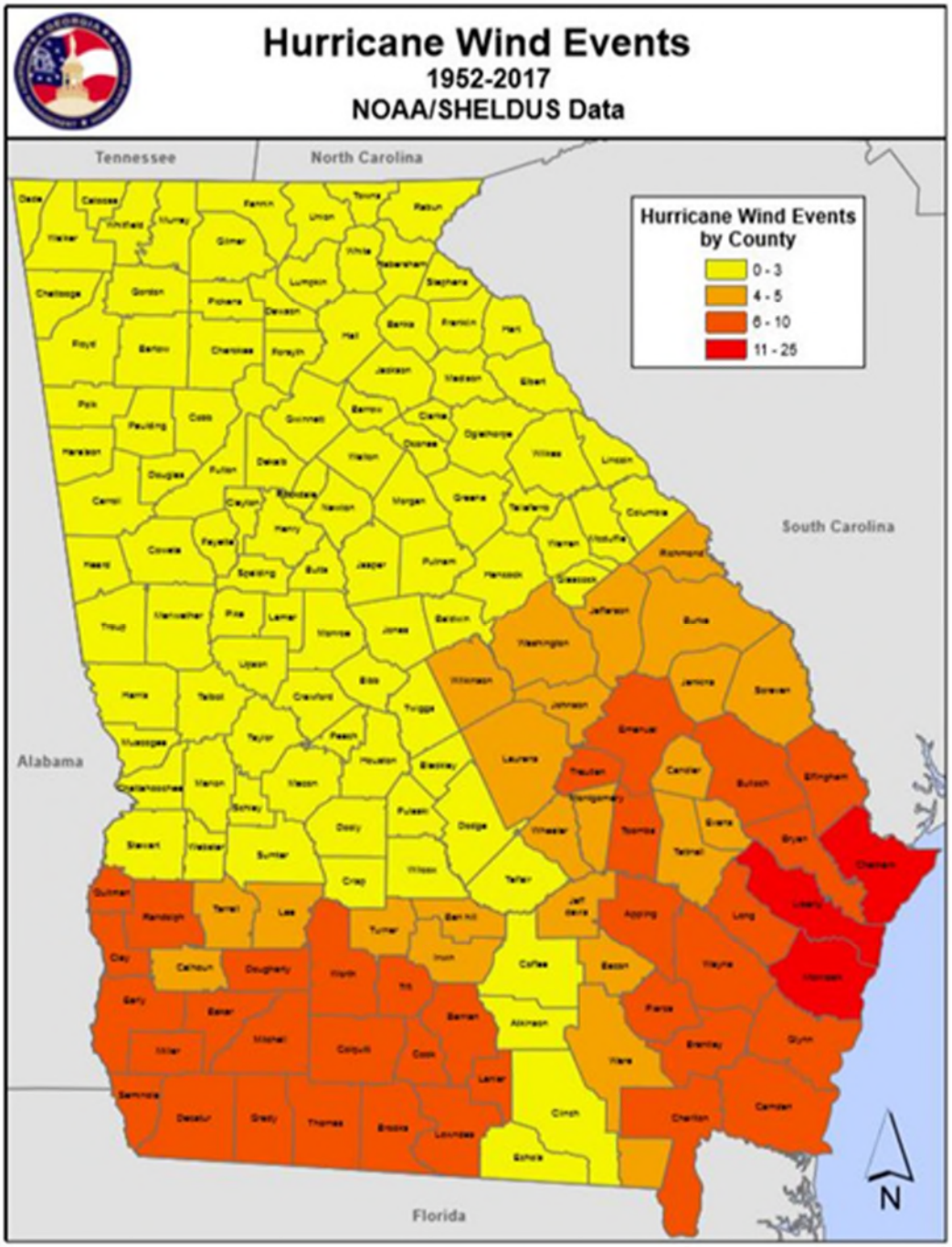


Source: NOAA Office for Coastal Management

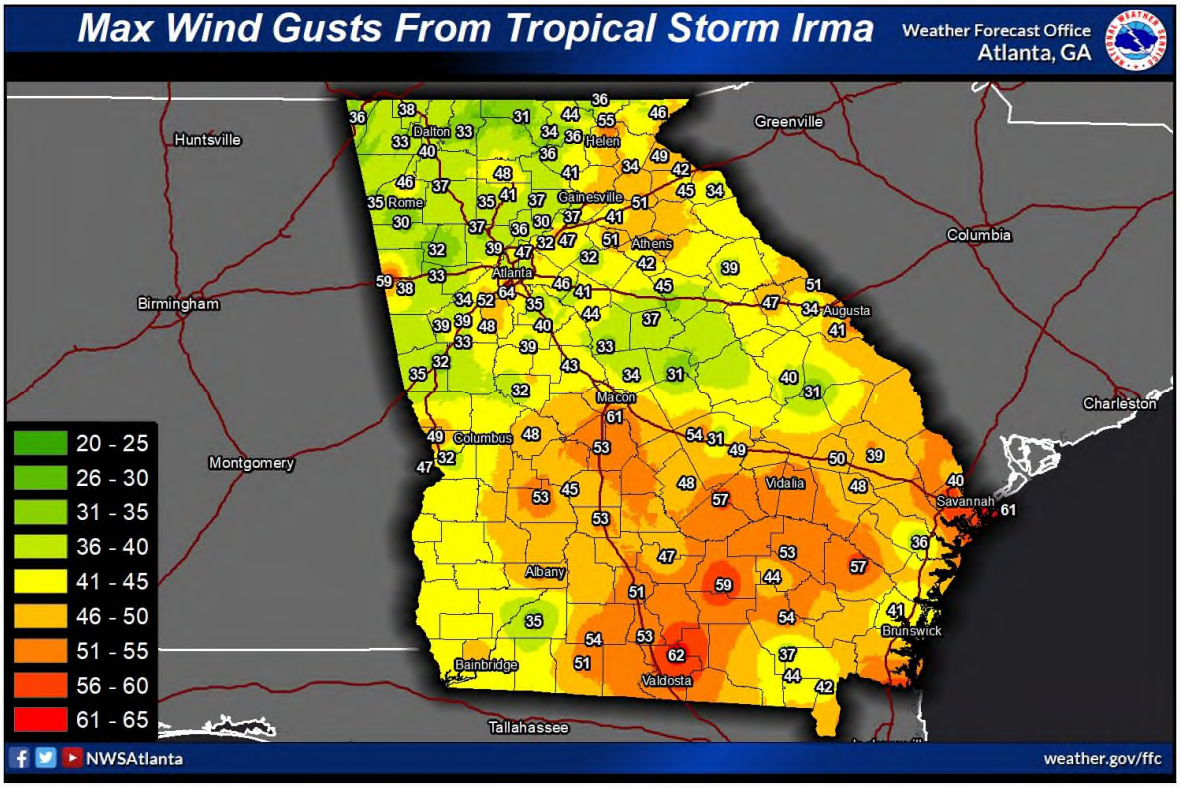
The impacts that would result from hurricane or tropical storm forces on the citizens, infrastructure, and critical facilities of Habersham County could be potentially catastrophic in nature.

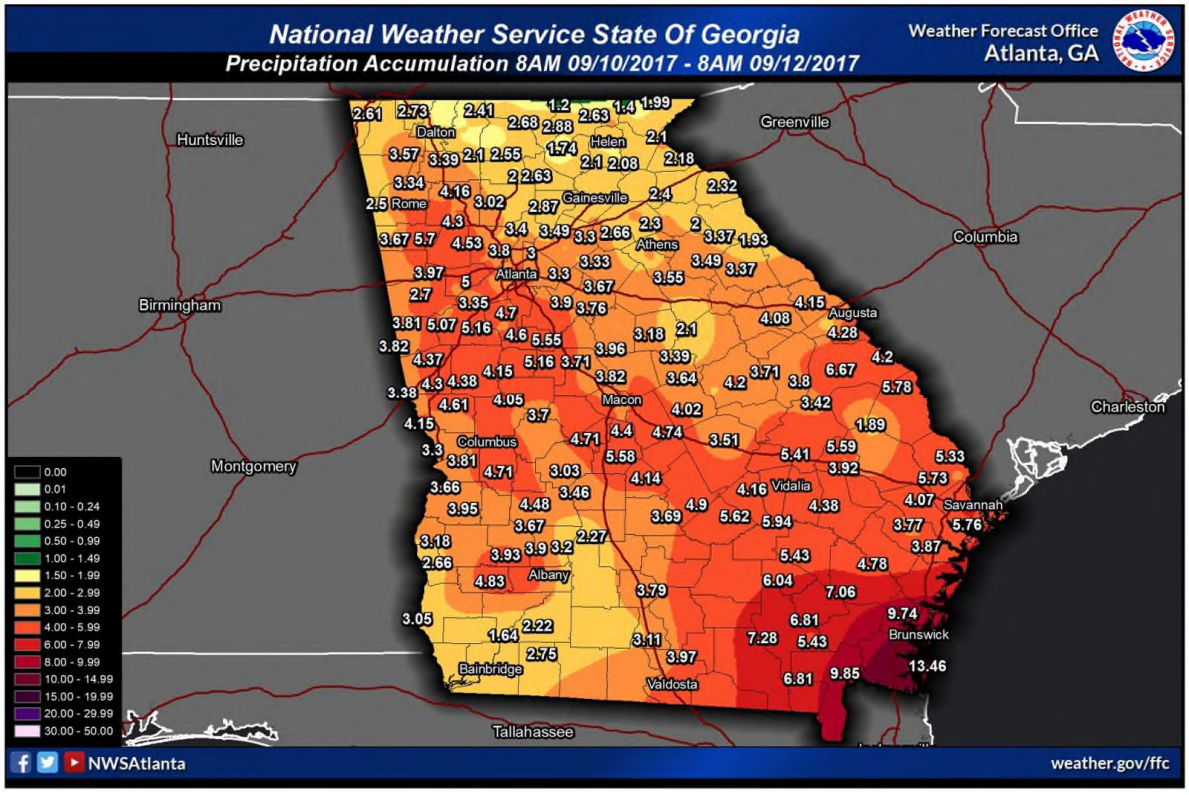
Assets Exposed to the Hazard

The Habersham County HMPC determined that all critical facilities and all public and private property within Habersham County are susceptible to the direct and indirect impacts of a tropical cyclone. This includes all municipalities.



Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan


Max Wind Gusts From Tropical Storm Irma
Weather Forecast Office
Atlanta, GA
Huntsville
Birmingham
Montgomery
Tallahassee
Greenville
Columbia
Charleston
Savannah
Augusta
Brunswick
Valdosta
Bainbridge
Albany
Vidalia
Macon
Columbus
Athens
Gainesville
Dalton
Rome
Helen
Atlanta
20 - 25
26 - 30
31 - 35
36 - 40
41 - 45
46 - 50
51 - 55
56 - 60
61 - 65
NWSAtlanta
weather.gov/ffc


National Weather Service State Of Georgia
Precipitation Accumulation 8AM 09/10/2017 - 8AM 09/12/2017
Weather Forecast Office
Atlanta, GA
Huntsville
Birmingham
Montgomery
Tallahassee
Greenville
Columbia
Charleston
Savannah
Augusta
Brunswick
Valdosta
Bainbridge
Albany
Vidalia
Macon
Columbus
Athens
Gainesville
Dalton
Rome
Helen
Atlanta
0.00
0.01
0.10 - 0.24
0.25 - 0.49
0.50 - 0.99
1.00 - 1.49
1.50 - 1.99
2.00 - 2.99
3.00 - 3.99
4.00 - 5.99
6.00 - 7.99
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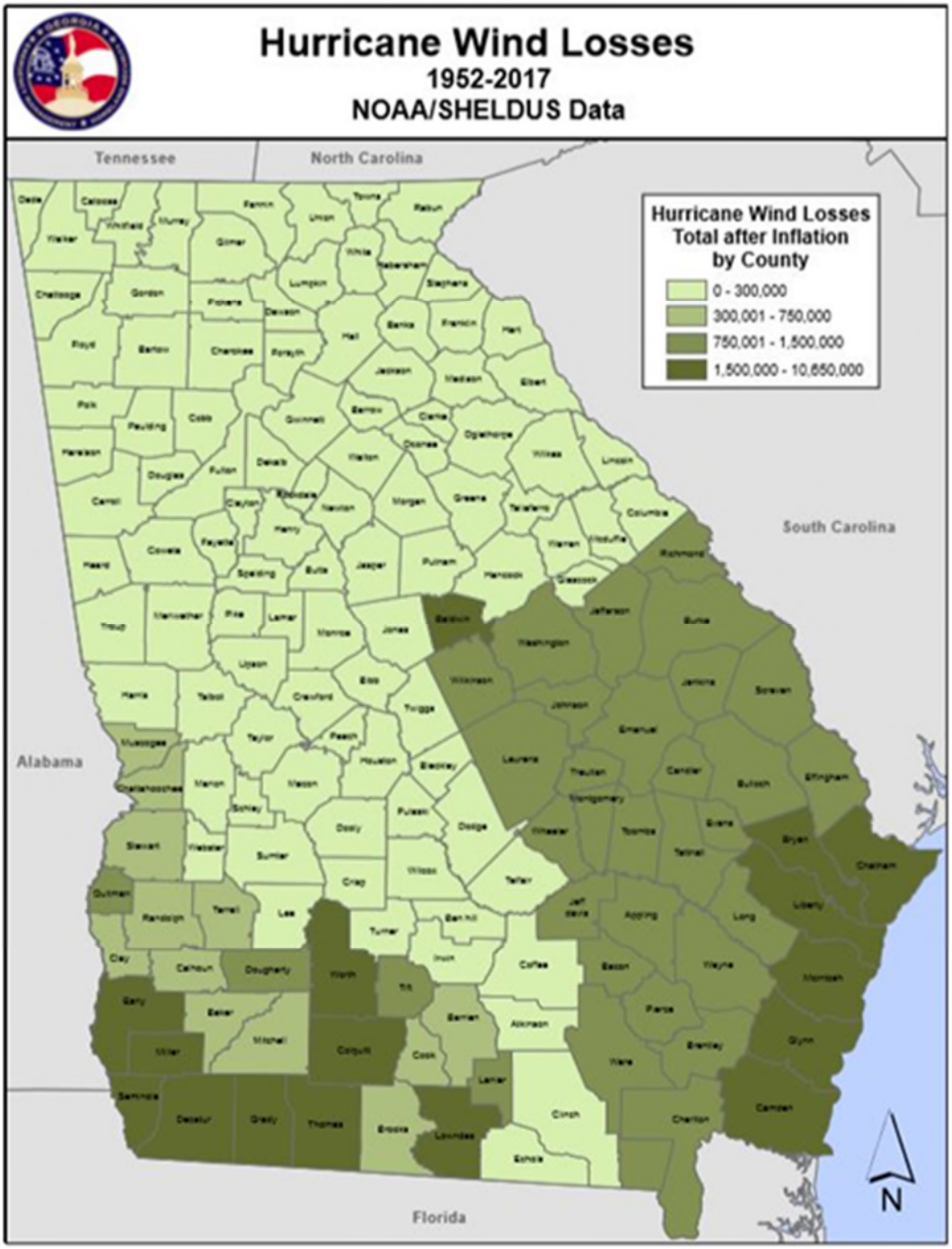
15.00 - 19.99
20.00 - 29.99
30.00 - 50.00
NWSAtlanta
weather.gov/ffc

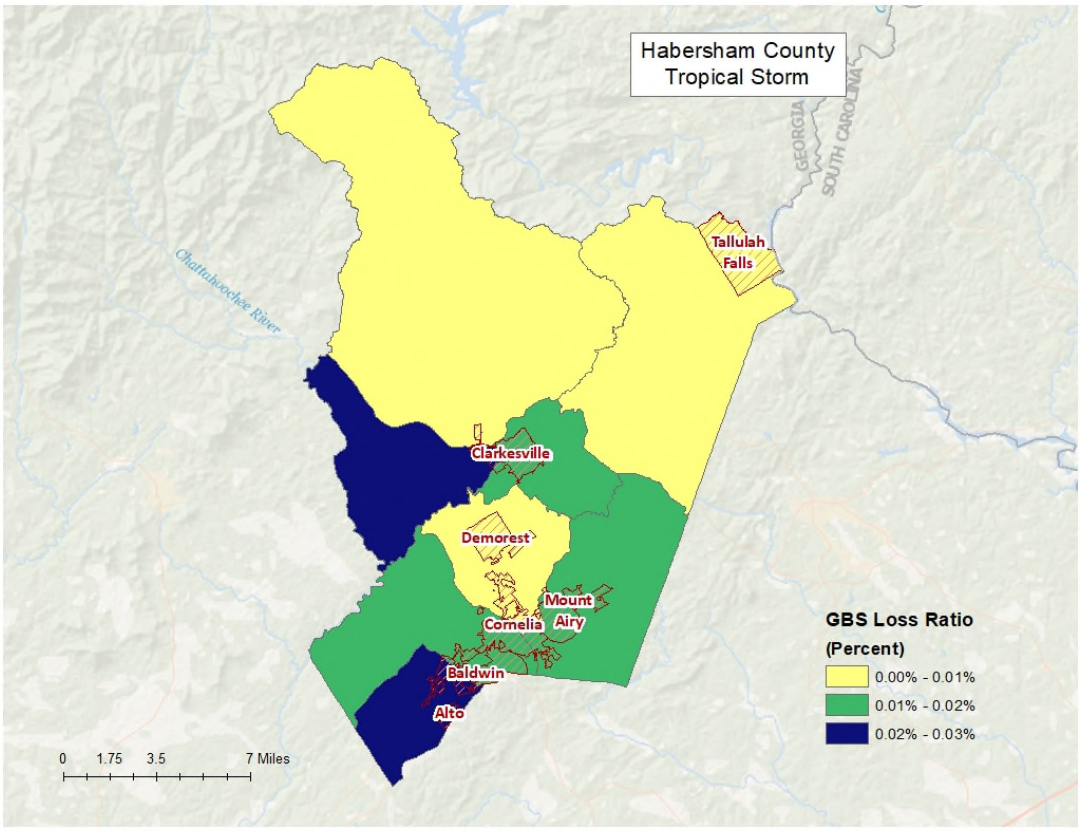


Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, is available for tropical cyclone losses in Habersham County. Most losses for these events have been labeled under other impacts, such as tornadoes and flooding. According to the National Risk Index, Habersham County has an estimated annual loss of $271,820 related to hurricane events.

According to the 2023 Habersham County HAZUS Report, a 1% annual risk tropical cyclone event would produce winds up to 63 mph in Habersham County, which would be a Tropical Storm. A storm of this magnitude would create more than $500,000 in damages, which equates to a 0.02% loss ratio. A storm of this magnitude would create nearly 20 tons of debris.



Source: 2021 Habersham County HAZUS Report

Land Use and Development Trends

Habersham County currently has no land use trends related to Tropical Cyclones.

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, could potentially be threatened by tropical cyclones. As such, all tropical cyclone mitigation actions should be pursued on a countywide basis and include all municipalities.

Climate Change Considerations

Climate change could, potentially, have a significant impact on the expected impacts of tropical cyclones on Habersham County. Tropical cyclones could become more frequent and/or more severe as a result of climate change. Some studies, however, have projected fewer, but stronger, tropical cyclones in the future. With either an increase in severity or an increase in frequency, tropical cyclones could pose a greater risk to Habersham County in the future.

Natural Hazard: **Tropical Cyclone**

Hazard Summary

Even with the relative infrequency of tropical cyclone impacts in Habersham County in the recent past, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of Habersham County and all municipalities. The mitigation measures identified in this plan for tropical cyclones should be pursued based on the high impact potential of this hazard and the ability for tropical cyclones to inflict widespread devastation anywhere in Habersham County. Habersham County has had seven Federally Declared Disaster related to Tropical Cyclones, most recently in 2021 (Hurricane Zeta).

Natural Hazard: **Landslide**

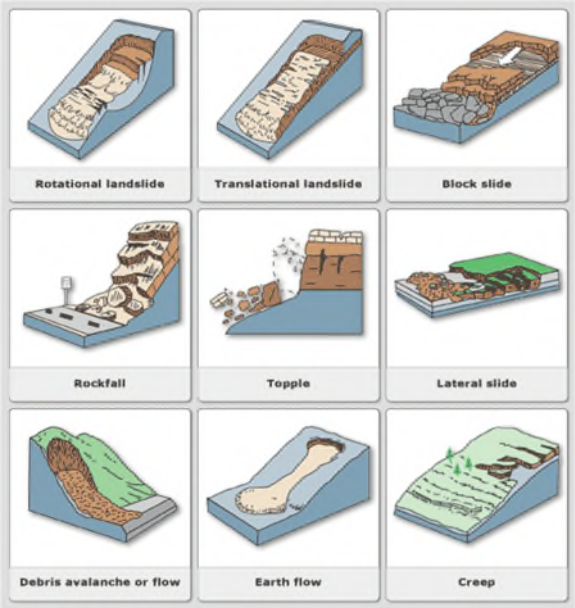
Hazard Description

The term landslide covers a wide range of ground movement. Landslides vary in size and can travel at a rate of a few inches per month to many feet per second depending on slope, type of materials, and moisture content.

Geology, topography, weather and other disasters, such as earthquakes or floods, contribute to landslides. Determining the probability of landslide events is difficult because so many factors can contribute to the cause of a ground failure. Because there is a history of landslides in unincorporated Habersham County in the past, it is safe to assume they will occur in the future. Landslides in Habersham County are normally associated with intense or prolonged rain. A combination of precipitation and slopes weakened by heavy rain creating saturated soils is one stimulus.

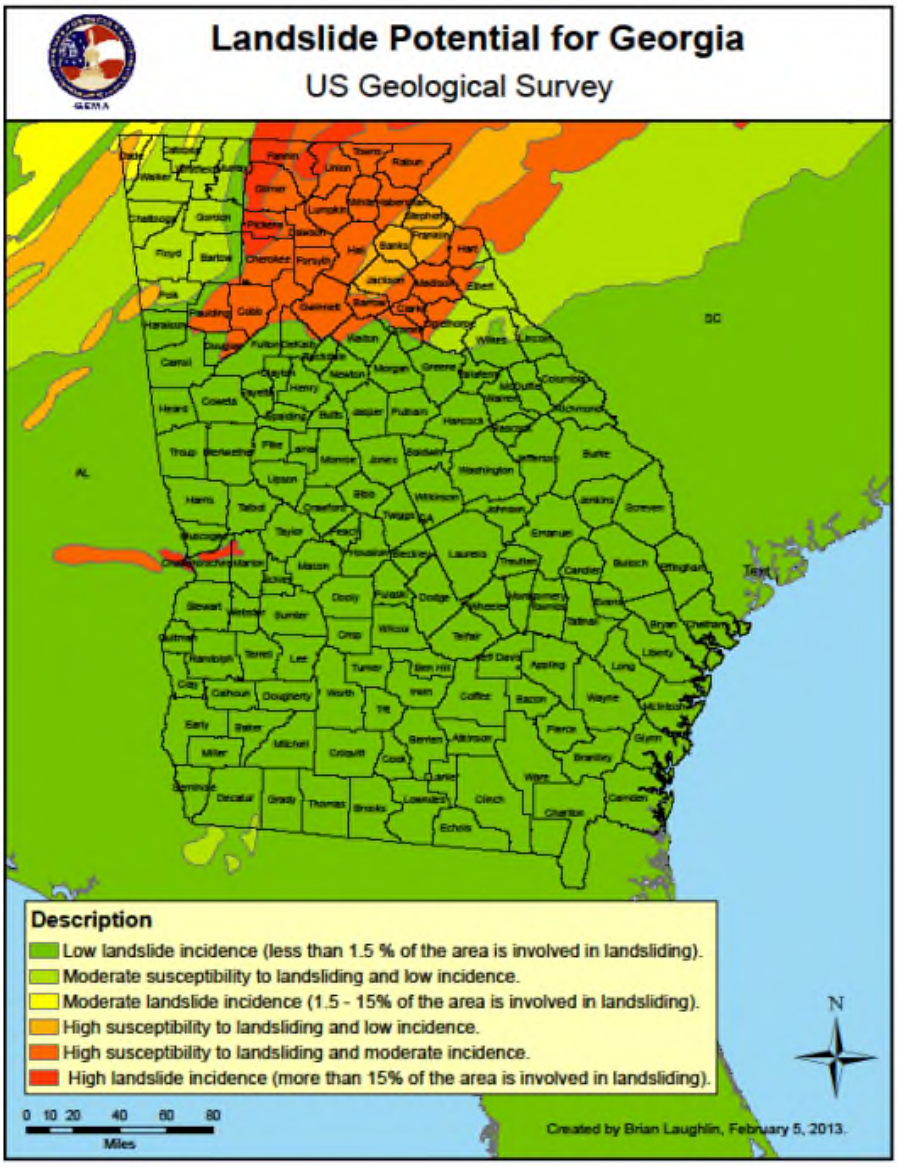
Earthquakes of a magnitude of 4.0 or greater can also induce landslides on susceptible slopes.

The primary types of landslides that occur in Habersham County are debris flows and earth flows. Debris flows are also called mudslides, mudflows, or debris avalanches. They are rivers of a combination of loose soil, rock, organic matter, water, and air that flow downhill. As they continue downhill they tend to grow in volume with the addition of water, soil, boulders and other materials. When the flow reaches flatter ground, it can spread over a large area. Earth flows usually occur in fine-grained materials or clay bearing rocks on moderate slopes. The slope's material liquefies and forms a bowl shape depression at the source area.



Hazard Profile

Normally, landslides in Habersham County have resulted in traffic problems on both state highways and county roads and property damage. There have been ongoing traffic blockages in the unincorporated county due to landslides. Roads along steep slopes are very susceptible to landslides and a slide can happen during milder rainfall conditions then would be expected for a major event. It would also be a threat to public health due to problems of access to medical services.



Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Expanded development will increase the incidence of landslides, especially on steep slopes. Debris flow on natural slopes is a threat to timber harvest as well. Landslides because of flooding will extend the spread of debris, increase property damages due to weakened structures, and may seriously restrict provision of emergency services.

According to the National Risk Index, there were no landslides in Habersham County from 2010-2021. There is no database of landslides from which to pull accurate frequency data. However, minor landslides are an annual occurrence in Habersham County. Landslides of a more significant impact are low frequency, but high impact, events.

Natural Hazard: Landslide

Assets Exposed to the Hazard

The Habersham County HMPC determined that all critical facilities and all public and private property within Habersham County are susceptible to the impacts of a landslide due to the unpredictable nature of landslides and overall high elevation of Habersham County. This includes all cities and towns located within Habersham County.

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, is available for landslide losses in Habersham County. According to the National Risk Index, the expected annual loss for a Landslide event in Habersham County is $21,900.

Land Use and Development Trends

Habersham County currently has no land use trends related to Landslides beyond continued development and population growth, which increases the likelihood of residential and commercial damage as a result of a landslide.

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, potentially could be threatened by landslides. As such, all landslide mitigation actions should be pursued on a countywide basis and include all cities and towns located within Habersham County.

Climate Change Considerations

It is unclear what impact climate change could have on future landslides in Habersham County. Increased drought conditions or increased heavy rainfall events could have opposing impacts on landslide potential. Additional information is needed in regards to the impact climate change could have on this hazard.

Hazard Summary

Even with the infrequency of landslide impacts in Habersham County, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of the County and its municipalities. The mitigation measures identified in this plan should be pursued based on the high impact potential of this hazard and the ability for landslides to inflict widespread devastation anywhere in Habersham County.

Technological Hazard**: Hazardous Materials**

Hazard Description

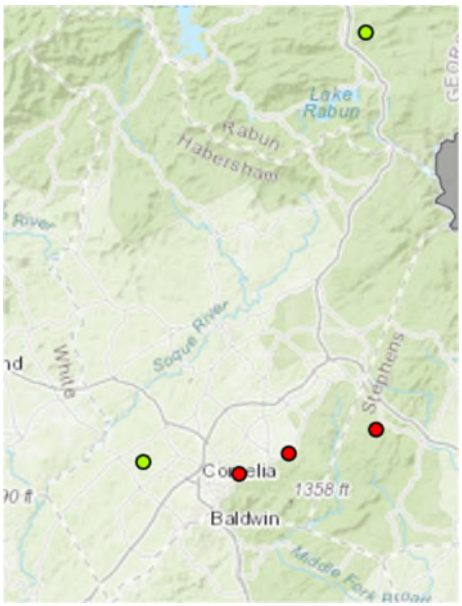
Hazardous materials, or hazmat, refers to any materials that may pose a real hazard to human health and/or the environment because of its quantity, concentration, and/or physical or chemical characteristics. Hazardous materials include explosives, flammables, combustibles, oxidizers, toxic materials, radioactive substances, and corrosives. Specific federal and state regulations exist regarding the transport and storage of hazardous materials.

A hazardous materials spill or release occurs when a hazardous material gets into the environment in an uncontrolled fashion. Response to a hazmat spill or release depends greatly on the type of material involved and the subsequent physical and chemical characteristics. Major sources of hazardous materials spills include transportation accidents on roadways and railways, pipeline breaches, and spills into rivers and creeks. Jurisdictions with facilities that produce, process, or store hazardous materials are at risk, as are facilities that treat or dispose of hazardous materials.

Hazard Profile

Data from the Pipeline and Hazardous Materials Safety Administration was reviewed regarding hazardous materials spill history in Habersham County. Data is available from 1989 to 2022 and all available data was reviewed. There were 2 PHMSA reported hazardous materials spills or releases in Habersham County over a 33-year period. It is anticipated that many more hazardous materials incidents have occurred over the last 33 years but have not been reported. According to the PHMSA data, Habersham County averages a hazardous materials incident of a reportable amount every 16.5 years. This equates to a 6.7% chance of a hazardous materials spill of a reportable amount each year.

According to the Georgia Department of Natura Resources Environmental Protection Division, there are three Hazardous Site Inventory locations in Henry County. These sites are the Mt Airy Wood Preserving Complex, the Chase Road Site, and the Habersham County Pea Ridge Road Landfill. Hazardous Site Inventory locations are areas where a known of suspected release of a regulated substance has occurred that was above a reportable quantity and which has you to properly show that state clean-up standards have been met.



Source: Georgia Department of Natural Resources Environmental Protection Division

Technological Hazard: **Hazardous Materials**

Of concern to the Habersham County Hazard Mitigation Committee is the exposure of water sources to potential hazardous materials incidents. A hazardous materials incident at or near drinking water sources could have devastating effects on a large population in Habersham County.

The greatest threat for a hazardous materials spill comes from the transportation of materials through Habersham County. This is particularly true for the US Highway 441 and US Highway 23 corridors which connects areas of Florida and Georgia to North Carolina and the Appalachian Mountains.

Hazardous materials releases can also be the result of railway or fixed facility incidents. Fixed facilities continue to be an increasing concern due to Habersham County's growing industrial footprint. Railways owned and operated by Norfolk Southern traverse the far southeast corner of Habersham County, including the municipalities of Cornelia, Baldwin, and Mt Airy. An incident along this railway could have devastating impacts for these communities.

Of concern to the Habersham County Hazard Mitigation Committee is the exposure of water sources to potential hazardous materials incidents. A hazardous materials incident at or near drinking water sources could have devastating effects on a large population in Habersham County.

Assets Exposed to Hazard

The environment is particularly vulnerable to the threat posed by hazardous materials. Waterways are at a high risk for contamination from hazardous materials. Water contamination is of concern to the Habersham County HMPC. Public and private property located near fixed hazardous materials facilities are also a greater risk than the general population of Habersham County. Water contamination from a hazardous materials release is of particular concern to the Habersham County Hazard Mitigation Planning Committee.

Estimated Potential Losses

Estimation of potential losses is difficult regarding hazardous materials due to the vast array of potential types of hazardous materials that could be involved in the incident and unknown costs regarding environmental damages. No recorded information was found regarding the losses associated with hazardous materials incidents in Habersham County. However, a hazardous materials release, whether in transport or at a fixed facility, would incur significant costs regarding emergency response, potential road closures, evacuations, watershed protection measures, expended man-hours, and cleanup materials, equipment, and personnel.

Land Use and Development Trends

Habersham County currently has no land use trends related to Hazardous Materials beyond continued population growth – particularly in and around the City of Clarkesville, City of Cornelia, and City of Baldwin.

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, are vulnerable to both fixed facility and transportation-related hazardous materials releases. However, areas along the US Highway 441 and US Highway 23 corridors, including the municipalities of Tallulah Falls and Baldwin, are of particular concern.

Technological Hazard: **Hazardous Materials**

Hazard Summary

Hazardous materials incidents pose a significant threat to the citizens, infrastructure, and critical facilities of Habersham County. Unknown quantities of hazardous materials are transported daily through Habersham County and all municipalities. These materials are often transported via highways. Water contamination because of a hazardous materials spill is of significant concern to the Habersham County HMPC. As a result of the threat posed by hazardous materials, the Habersham County HMPC has identified mitigation actions directly related to this threat.

Technological Hazard: **Dam Failure**

Hazard Description

Georgia law defines a dam as any artificial barrier, which impounds or diverts water, is 25 feet or more in height from the natural bed of a stream or has an impounding capacity at maximum water storage evaluation of 100 acre-feet or more. Dams are generally constructed to provide a ready supply of water for drinking, irrigation, recreation, and other purposes. Dams can be constructed from earth, rock, masonry, concrete or any combination of these materials.

Dam failure is a term used to describe a significant breach of a dam and the subsequent loss of contained water. Dam failure can cause significant damages downstream to structures, roads, utilities, and crops. Dam failure can also put human and animal lives at risk. National statistics indicate that one-third of all dam failures in the United States are caused by overtopping due to inadequate spillway design, debris blocking spillways, or settlement of the dam crest. Another third of all US dam failures are the result of foundation defects, including settlement and slope instability.

Hazard Profile

There are 12 category I and 34 category II dams located within Habersham County. Category I dams are those that would pose a possible threat to human life if a failure were to occur. All category I dams must be inspected annually according to Georgia's Safe Dams Act.

The threat of a dam failure in Habersham 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.

The dam of most concern would likely be the Soque River Watershed Structure #34. This 50-foot concrete dam has a maximum storage of 1,350 acre-feet of water. However, any of the 12 Category I dams located in Habersham County could have direct, devastating impacts on the local population.

Additionally, there would be concern for downstream areas if a breach at Tugalo Dam were to occur. Tugalo Dam is a 155-foot concrete dam along the Tallualh River that forms Tugalo Lake just south of Tallulah Falls. Tugalo Lake is a 597-acre lake. A breach at this location could have devastating impacts for areas downstream, mostly in Stephens County. However, homes along the shores of Yonah Lake, including those on Yonah Lake Place and Yonah Lake Road in Habersham County, could see significant impacts from a dam failure.

There have not been any dam failures in Habersham County in the last 10 years and no probability estimates can be made regarding the likelihood of a future event.

Assets Exposed to Hazard

To evaluate the assets that would potentially be impacted by a dam failure, the Habersham County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. All municipalities could be exposed to the hazards of other dams or face secondary hazards from the dams.

Estimated Potential Losses

Loss estimations are not applicable since it is not known which dam will fail and how significant of failure will occur.

Land Use and Development Trends

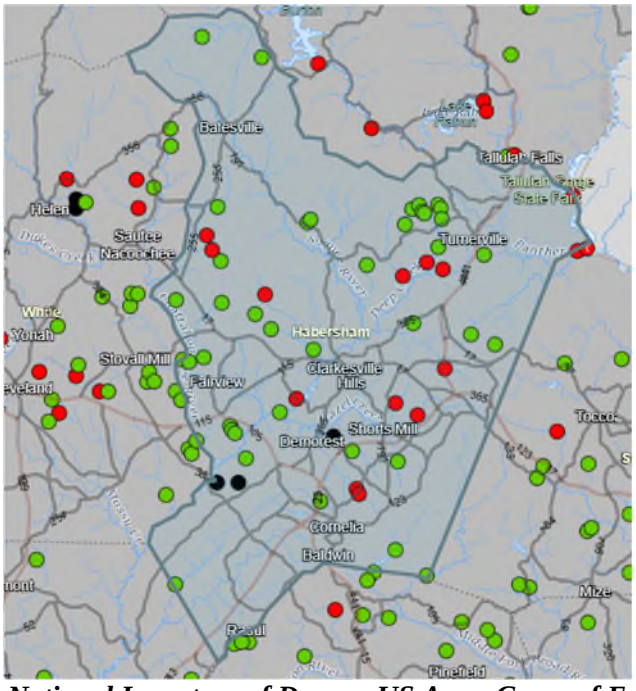
Habersham County participates in the National Flood Insurance Program (NFIP) and follows the program's guidelines to ensure future development is carried out in the best interests of the public. Habersham County (CID No. 130458B) first entered the NFIP on April 2, 1991. According to the NFIP guidelines, 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.

Multi-Jurisdictional Considerations

During a dam failure event, many portions of Habersham County would potentially be impacted by flooding. However, the area's most prone to flooding have historically been those areas located within the 100-year floodplain and downstream from dams.

Climate Change Considerations

Climate change could, potentially, have an impact on the expected impacts of dam failure in Habersham County. However, this would only be the case if the dam failure is directly related to a flooding event, which is the case in less than 20% of all dam failures. Dam failures are generally related to construction and age issues.



Source: National Inventory of Dams – US Army Corps of Engineers

Hazard Summary

Dam failure poses a threat to Habersham County and its citizens, infrastructure, and critical facilities. A dam failure could prove catastrophic for areas downstream of the dam, particularly if the failure were to occur at any of the Category I dams located in Habersham County. As a result, mitigation efforts for dam failure should be focused in this potentially affected area.

Hazard Description

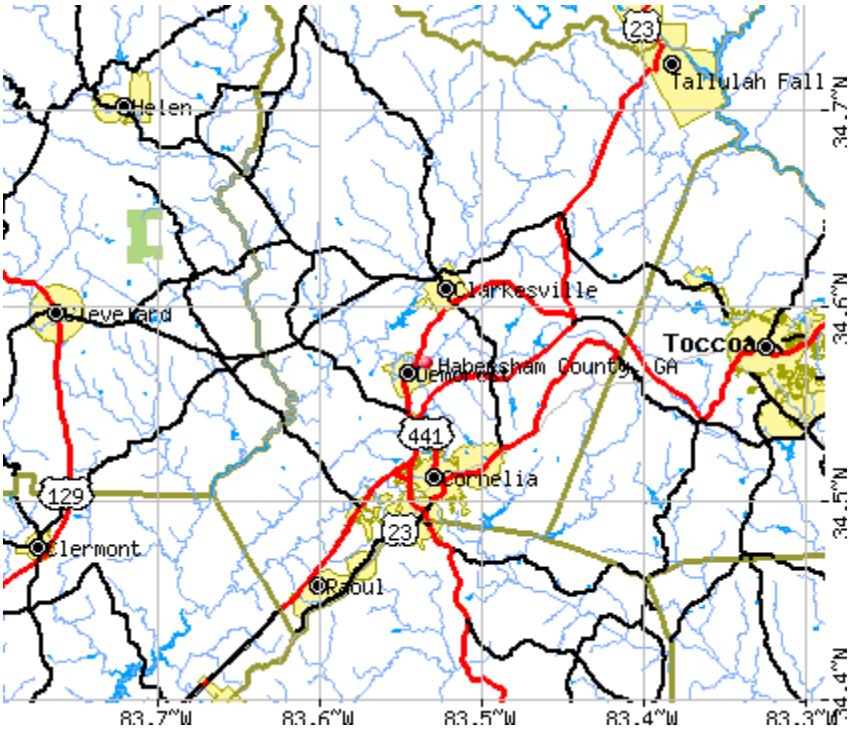
There are many secondary hazards that could be associated with transportation incidents. Injuries or deaths can occur as a result of the impact of a transportation accident, by a hazardous materials release because of a transportation incident, or by other related transportations hazards. Transportation 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 because of the impact of the MVA or a hazardous materials release into the local environment, including waterways. 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.

Hazard Profile

Transportation incidents are of a significant concern in Habersham County. Passing through Habersham County are US Highways 23, 123, and 441, and Georgia Highways 15, 17, 105, 115, 197, 255, 356, 365, 384, and 385. US Highways 23, 123, and 441, in particular, are major transportation routes. US Highways 23 and 441 connect parts of Georgia and Florida to the Great Smokey Mountain National Park.



Technological Hazard: **Transportation Incident**

Assets Exposed to Hazard

All assets and critical facilities located along or near any transportation route could potentially be impacted by a transportation incident. Areas within Habersham County that are not located along or near a transportation route could still face residual impacts.

Estimated Potential Losses

Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding transportation incidents.

Land Use and Development Trends

Habersham 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. The primary areas of growth have been in and around the City of Cornelia, City of Clarkesville, and City of Baldwin.

Multi-Jurisdictional Considerations

Habersham County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along the US Highways 23, 123, and 441 corridors are the greatest at risk. This includes the municipalities of Baldwin and Tallulah Falls.

Hazard Summary

The Habersham County HMPC has determined that transportation incidents pose a high risk to their jurisdictions due to the unpredictable nature and likelihood of the incident. As a result, the Habersham County HMPC has developed mitigation strategies and actions with transportation incidents in mind.

Technological Hazard: **Terrorism**

Hazard Description

The Federal Bureau of Investigation (FBI) defines terrorism as violent acts or acts dangerous to human life that violate federal or state law, appear to be intended to intimidate or coerce a civilian population, affect the conduct of a government by mass destruction, assassination, or kidnapping, and is calculated to influence or affect the conduct of a government by intimidation or retaliate against government conduct. Terrorism is usually referenced as being premeditated and politically motivated.

Terrorist acts are, by their very nature, designed and carried out with the intention of inflicting mass casualties and extensive property damage. When an act of terrorism is carried out in a jurisdiction, it will likely be necessary to implement multiple aspects of the emergency management system and summon additional resources from local, state, and federal partners.

Terrorism is generally divided into two types: domestic terrorism and international terrorism. Domestic terrorism is defined as terroristic acts focused on facilities and populations without foreign direction. International terrorism involves activities that are foreign-based and/or sponsored by organizations outside of the United States.

Terrorists often use threats to create fear among the public, to convince citizens that government is powerless to prevent terrorism and to get immediate publicity for their causes. Weapons of Mass Destruction (WMDs), including incendiary, explosive, chemical, biological, radiological, and nuclear agents, have the capability to cause death or serious bodily injury to a significant number of people, thus posing the threat of a catastrophic incident. Terrorism can also include arson, agro-terrorism, armed attack, intentional hazardous materials release, water or food contamination, and attacks on infrastructure and electronic information systems.

Hazard Profile

Terrorism targets have historically been facilities that make a large economic or social impact on the targeted government or jurisdiction. In Habersham County, all critical facilities could be potential targets. Terrorism includes a multitude of potential approaches, including agro-terrorism, which is terrorism targeted toward agriculture. Due to the high economic impact (over $15.7 million in annual agriculture-related sales) of agriculture in Habersham County, agro-terrorism could be of particular concern. Additionally, a terrorist contamination of the water sources is of concern.

Within Habersham County, there are many areas that could be viewed as potential targets for terrorism due to their economic impact on the area. This includes tourist-friendly areas throughout Habersham County, such as Tallulah Gorge State Park and Lake Burton.

While active shooter situations are not always classified as terrorism, for this plan, the Habersham County HMPC has chosen to classify them as such. Active shooter situations can occur in any location, including businesses, schools, government buildings, and public spaces. Schools are seen as particularly vulnerable to these types of situations due to the high publicity of recent active shooter events. While active shooter events and other acts of terrorism occur worldwide, they have low probability for Habersham County but would have devastating impacts if they were to occur. To help mitigate some of these impacts, Habersham County has exercised an active shooter response in the past to better prepare for any such event.

Assets Exposed to the Hazard

Due to the unpredictable nature of terrorism, all public and private structures are threatened by the terrorism hazard. This includes all critical facilities.

Estimated Potential Losses

Losses due to terrorism are difficult to estimate due to the unpredictable nature of terrorism. The type of terrorist act carried out, location of the act, and the impact of the act would all affect the potential losses. Please see the critical facilities information for estimated potential losses for each critical facility.

Land Use and Development Trends

Habersham County currently has no land use trends related to Terrorism.

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, are vulnerable to potential acts of terrorism. However, critical facilities and their surrounding areas are considered to be at the greatest risk.

Hazard Summary

Terrorism, while a low-probability hazard, would have devastating effects on Habersham County and all municipalities. These impacts would be immediate and long-lasting and could be potentially economically crippling to Habersham County and surrounding communities.

Technological Hazard: **Critical Infrastructure Failure**

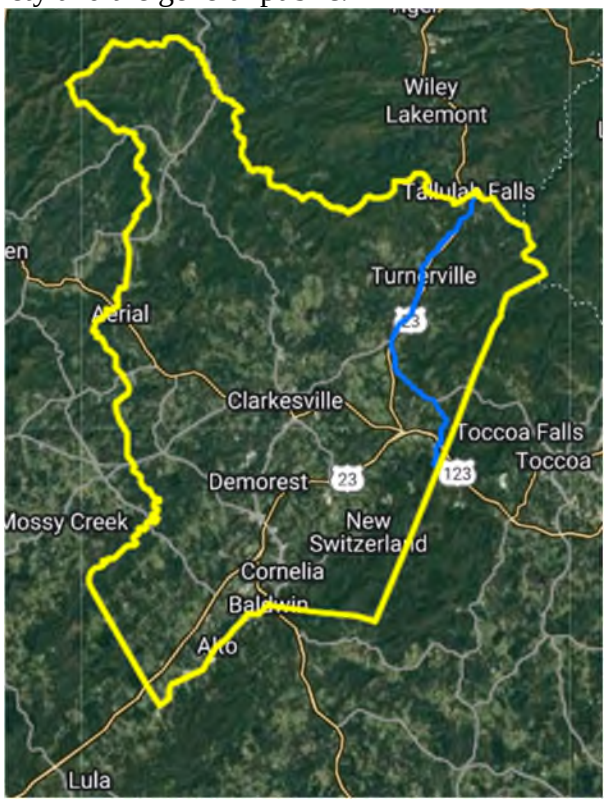
Hazard Description

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.

Hazard Profile

In case of any failure of a utility infrastructure, general difficulties would be exacerbated for both emergency responders and for the public. The reliance on wireless communications, particularly for the public safety sector, increases the vulnerability of Habersham County's emergency response agencies to a communications failure. A failure in the communications sector could have significant impacts to Habersham County's radio system, telephone systems, and internet infrastructure. Each of these would be devastating to both public safety and the general public.



Source: National Pipeline Mapping System

Additionally, a utility infrastructure failure is also of significant concern to the Habersham County Hazard Mitigation Planning Committee. This includes water, power, and natural gas utility failures. This type of failure would have significant impacts to the citizens of Habersham County. There is a gas transmission line that passes through the northeast portion of Habersham County that is of particular concern.

Technological Hazard: **Critical Infrastructure Failure**

Assets Exposed to Hazard

All assets and critical facilities within Habersham County could potentially be impacted by an infrastructure failure.

Estimated Potential Losses

Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding utility failure.

Land Use and Development Trends

Habersham County currently has no land use trends related to infrastructure failures beyond continued population growth and an ever-increasing industrial footprint.

Multi-Jurisdictional Considerations

All areas of Habersham County could potentially be impacted by an infrastructure failure.

Hazard Summary

The Habersham County HMPC has determined that utility failures pose a high risk to their jurisdictions due to the unpredictable nature of the incident. As a result, the Habersham County HMPC has developed mitigation strategies and actions with infrastructure failures in mind.

Technological Hazard: **Emergent Infectious Diseases**

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 below table outlines some of the contributing factors to this rise:

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

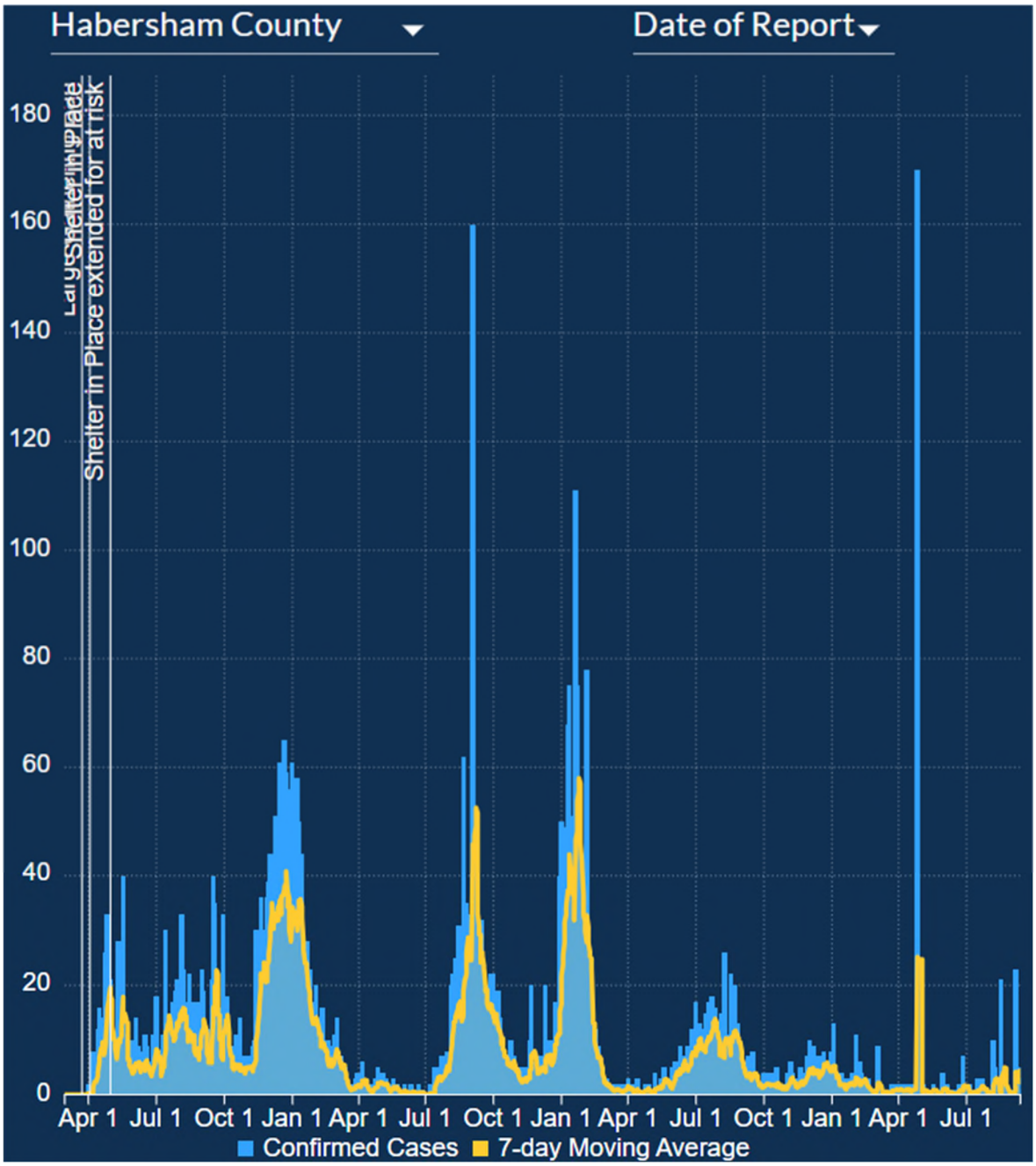
Technological Hazard: **Emergent Infectious Diseases**

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.

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
Monkeypox	MRSA
Nipah Virus Infection	Norovirus Infection
Pertussis	Plague
Polio	Rabies
Rift Valley Fever	Rotavirus Infection
Salmonellosis	SARS and COVID-19
Shigellosis	Smallpox
Sleeping Sickness (Trypanosomiasis)	Tuberculosis
Tularemia	Valley Fever (Coccidioidomycosis)
VISA/VRSA	Staphylococcus Aureus
West Nile Virus Infection	Yellow Fever

Hazard Profile

Emergent Infectious diseases are of significant concern to the Habersham County HMPC, particularly those that would have an impact on the human population or animal population of Habersham County. Habersham County would likely see significant economic impacts from an outbreak involving animal populations, such as an Avian Flu, due to the large economic base agriculture provides (over $120 million in annual sales). The lack of current vaccines and preparatory activities for these diseases has created a situation where the potential impact to Habersham County of a pandemic or epidemic could be catastrophic. The most recent pandemic scare in the Central Georgia area was the 2009-2010 H1N1 Swine Flu. There were 1286 cases of H1N1 in Georgia in 2009-2010 and 33 deaths. Most registered cases occurred with people between the ages of 5 and 29. This equates to a mortality rate of just over 2.5% - which is slightly lower than the 3% rate of the 1918-1919 Spanish Flu Pandemic. The 2019-2021 COVID-19 Pandemic, which was caused by SARS-CoV2, spready worldwide in a matter of weeks. As of February 21, 2023, there were over 674 million cases reported worldwide with nearly 7 million deaths. In Habersham County, as of September 13, 2023, there had been 9,994 confirmed cases and 269 deaths. The COVID-19 Pandemic was a Federally Declared Disaster.



Source: Georgia Department of Public Health

Over the last 25 years, emergent infectious disease outbreaks have occurred in other parts of the country. These include:

- 1993 Cryptosporidium Outbreak (Milwaukee, Wisconsin – 403,000 people ill and 100 deaths)
- 2010 Whooping Cough Outbreak (California – 9,500 people ill and 10 infant deaths)
- 2015 H5N2 Avian Flu Outbreak (Midwest – over 25 million chickens and turkeys destroyed as a precautionary measure at 83 locations)

Technological Hazard: **Emergent Infectious Diseases**

Assets Exposed to the Hazard

Due to the unpredictable nature of emergent infectious diseases, all public and private structures are threatened by the hazard. This includes all critical facilities.

Estimated Potential Losses

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. Please see the critical facilities information for estimated potential losses for each critical facility.

Laund Use and Development Trends

Habersham County has no land use trends directly related to Emergent Infectious Diseases.

Multi-Jurisdictional Considerations

All of Habersham County, including all municipalities, are vulnerable to emergent infectious diseases. However, livestock and other farm animals are considered to be the greatest at risk, along with areas that have a large, concentrated human population, such as schools.

Hazard Summary

An emergent infectious disease would have devastating effects on Habersham County and all municipalities. These impacts would be immediate and long-lasting and could be potentially economically crippling. Because of these considerations, the Habersham County HMPC has developed mitigation actions with emergent infectious diseases in mind.

CHAPTER FOUR-HAZARD MITIGATION STRATEGIES

Summary of Updates to Chapter Four

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Habersham County Hazard Mitigation Plan 2018.

Chapter 4 Section	Updates
Goals and Objectives	Updated goals to match the needs of the Habersham County
Identification and Analysis of Mitigation Techniques	Content Revised Reviewed mitigation strategies identified in the 2018 plan and made updates Identified mitigation strategies that were completed Identified mitigation strategies to be removed

Goals and Objectives

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 citizen 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. Habersham County officials should consider the listed goals before making community policies, public investment programs, economic development programs, or community development decisions for their communities. The goals of the Habersham County have changed slightly in the last five years (since 2018) due to specific threat events. Because of the recentness of the impacts of these hazards and the devastation that occurred, these types of events have taken a greater priority, particularly in the increased priority of mitigation strategies directly related to these events and the development of new mitigation strategies related to these hazards.

Each jurisdiction covered by the Habersham County Hazard Mitigation plan update – Habersham County, Baldwin, Clarkesville, Cornelia, Demorest, Alto, Mt Airy, and Tallulah Falls – has limited ability to fully implement the mitigation actions described in this plan. Habersham County and its municipalities lack the needed financial strength and staffing to implement all 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, the Habersham County and municipal revenue streams may be supplemented through Special Purpose Local Option Sales Tax (SPLOST) funds, which are voted on by the electorate.

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

These objectives state a more specific outcome that Habersham County strives to accomplish over the next five years. Action steps are the specific steps necessary to achieve these objectives. Objectives are not listed in order of importance.

OBJECTIVE 1	Reduce damage to property and loss of life through the utilization of preventative activities
OBJECTIVE 2	Minimize the damage to property and loss of life through property protection measures

OBJECTIVE 3	Minimize the damage to property and loss of life through natural resource protection activities
OBJECTIVE 4	Reduce damage to property and loss of life through the utilization of structural mitigation projects
OBJECTIVE 5	Increase the ability of Habersham County and its citizens to respond to natural and manmade hazards through emergency service measures
OBJECTIVE 6	Increase public education and awareness of natural hazards
OBJECTIVE 7	Minimize the impacts on local citizens, industry, and infrastructure of a dam breach
OBJECTIVE 8	Implement additional protective measures and capabilities in response to manmade incidents
OBJECTIVE 9	Increase public awareness of local manmade hazards and proper response to those hazards

Identification and Analysis of Mitigation Techniques

Requirement §201.6(c)(3)(iv)

Requirement §201.6(c)(3)(iii)

In updating Habersham County's mitigation strategy, a wide range of activities were considered to help achieve the mitigation goals and objectives. This includes the following activities as by the Emergency Management Accreditation Program (EMAP):

1) The use of applicable building construction standards;

2) Hazard avoidance through appropriate land-use practices;

3) Relocation, retrofitting, or removal of structures at risk;

4) Removal or elimination of the hazard;

5) Reduction or limitation of the amount or size of the hazard;

6) Segregation of the hazard from that which is to be protected;

7) Modification of the basic characteristics of the hazard;

8) Control of the rate of release of the hazard;

9) Provision of protective systems or equipment for both cyber and/or physical risks;

10) Establishment of hazard warning and communication procedures; and

11) Redundancy or duplication of essential personnel, critical systems, equipment, and information materials.

Part of the prioritization includes a general assessment according to the STAPLEE criteria, which stands for Social, Technical, Administrative, Political, Legal, Economic and Environmental. This process led to three designated priorities: High, Medium, and Low. Most items that require grant funding must undergo a full Benefit Cost Analysis to determine the action's actual cost effectiveness prior to funding. This process will be completed as part of the grant opportunity application process.

Strategy Priority	Priority Description	Strategies within this priority
LOW	Low priority strategies are those strategies that will have less direct impact on mitigating Habersham County's hazards, are in the early stages of strategy development, or score poorly on a preliminary cost-benefit analysis	**2.k; 5.c; 5.o; 5.q; 5.u; 5.y; 5.z; 5.aa; 5.hh; 5.ii; 7.c; 8.m; 8.p**
MEDIUM	Medium priority strategies are those strategies that will have a direct impact on mitigation Habersham County's hazards but will not have as large of an anticipated impact as High Priority strategies or may be focused on hazards that are not as potentially impactful or prevalent for Habersham County. These strategies may be in the earlier stages of development or score mediocre on a preliminary cost-benefit analysis	**1.i; 1.k; 1.m; 2.b; 2.c; 3.a; 4.e; 4.f; 5.a; 5.d; 5.e; 5.f; 5.g; 5.h; 5;i. 5;j. 5;k. 5.l; 5.p; 5.r; 5.s; 5.v; 5.cc; 5.dd; 5.ee; 5.ff; 5.gg; 5.kk; 5.ll; 5.mm; 5.nn; 6.b; 6.d; 6.e; 6.g; 7.a; 8.c; 8.e; 8.j; 8.l; 8.o**
HIGH	High priority strategies are those strategies that would have a direct, large impact on mitigation Habersham County's hazards. These strategies are oftentimes well-established needs of Habersham County and have score high on a preliminary cost-benefit analysis	**1.a; 1.b; 1.c; 1d; 1.e; 1.f; 1.g; 1.h; 1.j; 1.l; 2.a; 2.d; 2.e; 2.f; 2.g; 2.h; 2.i; 2.j; 4.a; 4.b; 4.c; 4.d; 4.g; 5.b; 5.m; 5.n; 5.t; 5.w; 5.x; 5.bb; 5.jj; 6.a; 6.c; 6.f; 6.h; 7.b; 8.a; 8.b; 8.d; 8.f; 8.g; 8.h; 8.i; 8.n; 8.q; 9.a; 9.b**

The lead agency listed in the Mitigation Strategy charts 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 Habersham 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.

The Habersham County Hazard Mitigation Planning Committee also attempted to identify potential funding sources outside of Habersham County budgets for the mitigation strategies that were identified. This is particularly helpful for future grant planning and for items with significant costs that are beyond the capabilities of Habersham County to procure without grant assistance.

Grant Name	Grant Description	Strategies that could be potentially funded
Hazard Mitigation Grant Program	The purpose of the HMGP is to provide funds to State agencies and local governments in the aftermath of a disaster for projects that reduce or eliminate long-term risk to human life and property	2.a; 2.d; 2.e; 2.f; 2.g; 2.h; 2.i; 2.j; 2.k; 4.e; 5.d;
Flood Mitigation Assistance Program	The FMA program provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP.	4.c; 4.g; 5.a;
Building Resilient Infrastructure and Communities (BRIC) Program	The BRIC program provides funds to states, territories, tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects before a disaster event occurs to reduce the overall risks to populations and structures while also reducing the reliance on funding from actual disaster declarations.	2.a; 2.d; 2.f; 2.g; 2.h; 2.i; 2.j; 4.c; 4.f; 4.g
Community Development Block Grant	Provides communities with resources to address a wide range of unique community development needs	2.g; 2.h; 5.y;
Assistance to Firefighters Grant	This program provides funding to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical service organizations	5.f; 5.l; 5.p; 5.s; 5.v;

The following Mitigation Charts meet:
Requirement §201.6(c)(3)(ii)
Requirement §201.6(d)(3)

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
OBJECTIVE ONE: Reduce damage to property and loss of life through the utilization of preventative activities															
1.a	Maintain NFIP Compliance	Habersham County Board of Commissioners	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.a**
1.b	Maintain NFIP Compliance	Clarkesville City Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.b**
1.c	Maintain NFIP Compliance	Cornelia City Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.c**
1.d	Maintain NFIP Compliance	Demorest City Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.d**
1.e	Maintain NFIP Compliance	Mt. Airy Town Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.e**
1.f	Maintain NFIP Compliance	Alto Town Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.f**
1.g	Maintain NFIP Compliance	Tallulah Falls Town Council	✓								Local budgets	Staff time	12 months	**In place; Continue**	**1.g**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
1.h	Obtain NFIP Compliance	Baldwin City Council	✓								Local budgets	Staff time	12 months	**Research ongoing for ordinance adoption**	**1.h**
1.i	Update floodplain mapping in GIS	Habersham County GIS	✓				✓				Local budgets	Staff time	30 months	**Updated in January 2018**	**1.i**
1.j	Increase culvert size requirements for better flood and stormwater management	Habersham County Road Department and Planning and Development	✓		✓		✓				Local budgets	Staff time	24 months	**Research ongoing to identify best requirement**	**1.p**
1.k	Encourage builders to exceed established and adopted International Building Code requirements in new construction and renovation	Habersham County Planning and Development	✓	✓	✓	✓	✓		✓	✓	Local budgets	Staff time	24 months	**2018 IBC adopted**	**2.b (mod)**
1.l	Continue to enforce State of Georgia recommended water use ordinance and restrictions	Habersham County and municipal Code Enforcement						✓		✓	Local budgets	Staff time	12 months	**Baldwin and Demorest are reauthorizing ordinance**	**5.a**
1.m	Recommend safe room construction in any new commercial, industrial, public, or private structures or sites that will be frequented by large numbers of people	Habersham County Planning and Development, Municipal planning and development departments			✓	✓	✓				Local budgets	Staff time	24 months	**None; Other projects have taken priority**	**2.c**
OBJECTIVE TWO: Minimize the damage to property and loss of life through property protection measures															

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
2.a	Build safe rooms at all fire stations in Habersham County	EMA and Fire Departments			✓	✓	✓				Public and private grants and/or local budgets	$1.8 million	60 months	**None; Other projects have taken priority**	**2.a**
2.b	Install signs in county and city-owned buildings to designate safe sheltering locations for severe weather	EMA and Habersham and municipal building operators			✓	✓					Local budgets	$3,000	36 months	**None; Other projects have taken priority**	**4.c**
2.c	Purchase additional lightning detectors for recreation areas, pool areas, and large gatherings	EMA			✓		✓				Public and private grants and/or local budgets	$25,000	36 months	**Researching best deployment strategy**	**6.n**
2.d	Update and expand the Emergency Operations Center equipment and capabilities	EMA	✓	✓	✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	$50,000	30 months	**EOC Established in 2018; Equipment needed**	**6.s**
2.e	Purchase additional generators for Town of Tallulah Falls pump houses	Tallulah Falls Town Council	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$50,000	30 months	**County provide one for them**	**7.b (mod)**
2.f	Purchase generator for Recreation Center and Aquatic Center	EMA	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$300,000	30 months	**None; Other facilities have taken priority**	**7.c**
2.g	Purchase generators for lift stations in Demorest, Baldwin, Cornelia, and Clarkesville	EMA and Baldwin, Demorest, Clarkesville, and Cornelia water departments	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$1 million total	60 months	**Needs being identified**	**7.d**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
2.h	Purchase backup generators for identified shelters	EMA	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$200,000	48 months	**Needs being researched**	**7.g**
2.i	Purchase a generator and transfer switches for the Mt. Airy and Baldwin Water utilities	Baldwin and Mt. Airy Water Departments	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$250,000	48 months	**NEW**	**NEW**
2.j	Purchase generator for Cornelia fire department	EMA and Cornelia Fire Department	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$50,000	48 months	**NEW**	**NEW**
2.k	Purchase solar panels for all public critical facilities	EMA	✓	✓					✓		Public and private grants and/or local budgets	$2 million	60 months	**NEW**	**NEW**
2.l	Purchase and install a new generator for the Habersham County Health Department	Georgia DPH		✓	✓	✓	✓		✓		Public and private grants and/or local budgets	$100,000	48 months	**NEW**	**NEW**
OBJECTIVE THREE: Minimize the damage to property and loss of life through natural resource protection activities															
3.a	Maintain vegetation around power lines countywide	Local utility companies		✓	✓	✓	✓			✓	Private budgets	$2 million	18 months	**Spray and cutback annually**	**2.d**
OBJECTIVE FOUR: Reduce damage to property and loss of life through the utilization of structural mitigation projects															

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
4.a	Continue implementation of 5-year plan for culvert repair and maintenance	Habersham County Road Department	✓		✓		✓				Public and private grants and/or local budgets	$1.5 million	24 months	**Multiple replacement projects completed countywide and in municipalities**	**1.j**
4.b	Replace culvert at Camp Creek Road (1237)	Habersham County Road Department	✓		✓		✓				Local budgets	$100,000	36 months	**None; Other replacements have taken priority**	**1.k**
4.c	Assess culverts that need replacing and replace, as able	Habersham County Road Department	✓		✓		✓				Public and private grants and/or local budgets	$10 million	60+ months	**Continuous Process**	**1.m**
4.d	Replace culvert at Wilson Road	Habersham County Road Department	✓		✓		✓				Local budgets	$100,000	36 months	**None; Other replacements have taken priority**	**1.o**
4.e	Build tornado shelters for vulnerable populations	EMA				✓					Public and private grants and/or local budgets	$1 million	60 months	**Research for SV population**	**2.e**
4.f	Build a reservoir for the City of Baldwin	Baldwin Water Department						✓			Public and private grants and/or local budgets	$30 million	60+ months	**NEW**	**NEW**
4.g	Replace box culvert at Hoyt Street	Cornelia Public Utilities Department	✓		✓		✓				Public and private grants and/or local budgets	$300,000	36 months	**NEW**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
OBJECTIVE FIVE: Increase the ability of Habersham County and the citizens to respond to natural and manmade hazards through emergency services measures															
5.a	Inventory all culverts in Habersham County and municipalities and determine life cycle replacement plan	Habersham County Road Department and municipal Public Works Departments	✓		✓		✓				Public and private grants and/or local budgets	$30 million total	60+ months	**Baldwin 70% complete on inventory; Habersham County hiring position to do this**	**1.n (mod)**
5.b	Maintain mass notification system, expand utilization, and utilize IPAWS, as needed	EMA	✓	✓	✓	✓	✓			✓	Public and private grants and/or local budgets	$100,000	36 months	**Purchased Code Red in 2019**	**3.a (mod)**
5.c	Review NOAA Weather radio locations and ensure they are properly maintained and programmed	EMA	✓	✓	✓	✓	✓				Local budgets	Staff time	24 months	**No new stations added since implementation of Code Red**	**3.b**
5.d	Add Outdoor Emergency Warning sirens at all fire stations and schools	EMA				✓					Public and private grants and/or local budgets	$300,000	48 months	**Sirens at all county fire stations, HS, aquatic center, and in all munis**	**3.d**
5.e	Identify areas of refuge in all government buildings	EMA			✓	✓	✓				Local budgets	Staff time	30 months	**NEW**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.f	Purchase four portable electronic signs	EMA	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$150,000	30 months	**Sheriff's Dept purchased 1; Cornelia purchased 2**	6.b
5.g	Purchase dump truck for debris removal	Road Department	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$250,000	36 months	**None; Other projects have taken priority**	6.c
5.h	Purchase additional skid steer and grapple	Habersham County Road Department		✓	✓	✓	✓		✓		Public and private grant and/or local budgets	$150,000	48 months	**One purchased**	6.d (mod)
5.i	Purchase a chipper and grinder for Habersham County and a replacement for the City of Cornelia	Habersham County Road Department and Cornelia Public Works			✓	✓					Public and private grants and/or local budgets	$150,000 each	36 months	**One purchased for Cornelia**	6.e (mod)
5.j	Purchase additional tree removal equipment	Habersham County Road Department			✓	✓	✓				Public and private grants and/or local budgets	$300,000	60 months	**None; Other projects have taken priority**	6.f
5.k	Create chainsaw response team and equip with chainsaws and safety equipment	Habersham County Road Department and public safety agencies			✓	✓	✓		✓		Public and private grants and/or local budgets	$30,000	30 months	**None; Other projects have taken priority**	6.g

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.l	Purchase portable outdoor lighting for countywide operations (4 lights)	EMA	✓	✓	✓	✓	✓		✓		Public and private grants and/or local budgets	$30,000	24 months	**Sheriff's Department purchased 2; Cornelia purchased 1**	**6.h**
5.m	Create a resource list for Habersham County and all municipalities to distribute among all departments	EMA and public safety agencies	✓	✓	✓	✓	✓	✓	✓	✓	Local budgets	Staff time	24 months	**In place for many departments but not all**	**6.i**
5.n	Assess needed resources based on list from 5.m and purchase additional resources, as needed	Habersham County and municipal departments	✓	✓	✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	Cost determined by 5.m	36 months	**None; Other projects have taken priority**	**6.j**
5.o	Purchase rubber-tracked skid steer with bush hog	Habersham county Road Department		✓	✓	✓	✓		✓		Public and private grants and/or local budgets	$150,000	36 months	**Cornelia Water Dept purchased in last 5 yrs (removed from strategy)**	**6.l (mod)**
5.p	Create a swift water rescue team and purchase equipment and provide training	Habersham County Emergency Services	✓				✓				Public and private grants and/or local budgets	$150,000	48 months	**None; Other projects have taken priority**	**6.o**
5.q	Purchase water buffaloes for water storage	EMA	✓		✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	$100,000	60 months	**None; other projects have taken priority**	**6.p**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.r	Purchase Mobile Command Vehicle (MCV)	EMA	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$600,000	60 months	**Submitted for grant, denied**	**6.q**
5.s	Purchase additional mobile light units/lighting system	Habersham County Emergency Services	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$100,000	60 months	**None; other projects have taken priority**	**6.r**
5.t	Update and expand the Emergency Operations Center equipment and capabilities	EMA	✓	✓	✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	$250,000	48 months	**EOC created in 2018**	**6.s**
5.u	Develop a large-scale emergency evacuation plan	EMA	✓			✓	✓		✓	✓	Local budgets	Staff time	60 months	**Plans in place for individual buildings, but not large-scale**	**6.f**
5.v	Purchase needed resources for search and rescue team	Habersham EMA and Emergency Services	✓	✓	✓	✓	✓		✓		Public and private grants and/or local budgets	$250,000	60 months	**NEW**	**NEW**
5.w	Provide advanced rescue training (trench, swift water, high angle, technical rescue, etc.)	Habersham County Emergency Services	✓		✓	✓	✓		✓		Local and state budgets	Staff time	36 months	**Hosted high angle and technical rescue in 2022-2023**	**6.u**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.x	Continue to train local damage assessment teams	EMA and Tax Commissioners Office	✓	✓	✓	✓	✓		✓	✓	Local budgets	Staff time	24 months	**Training and team expanded in 2022**	**6.v (mod)**
5.y	Create an emergency preparedness section in the local library	Habersham County Library	✓	✓	✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	$3,000	60 months	**None; other projects have taken priority**	**6.w**
5.z	Purchase pop-up radio antennas to ensure continued radio communication capabilities	EMA		✓	✓	✓	✓		✓		Public and private grants and/or local budgets	$300,000	60 months	**None; other projects have taken priority**	**7.f**
5.aa	Purchase backup communications equipment for 911 Center	Habersham County E-911	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$500,000	48 months	**None; other projects have taken priority**	**7.e**
5.bb	Perform an assessment of generator needs and prioritization	EMA	✓	✓	✓	✓	✓				Local budgets	Staff time	20 months	**New buildings coming into county need assessment**	**7.h**
5.cc	Purchase additional snow plows and spreader for Baldwin, Tallulah Falls, and Habersham County	Habersham County Road Department and Tallulah Falls and Baldwin Public Works departments		✓							Public and private grants and/or local budgets	$400,000	48 months	**County purchased snow plow and spreader body in 2022**	**8.a**
5.dd	Purchase a brine truck for the City of Baldwin, City of Cornelia, and Habersham County	Habersham County Road Department and Baldwin and Cornelia public works departments		✓							Public and private grants and/or local budgets	$500,000	48 months	**None; other purchases have taken priority**	**8.b**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.ee	Purchase additional sanding/salting/scraping equipment for winter weather	Habersham County Road Department		✓							Public and private grants and/or local budgets	$300,000	48 months	**County purchased scraping equipment in 2022**	**8.c**
5.ff	Purchase dump truck for debris removal for City of Baldwin	Baldwin Public Works	✓		✓	✓	✓		✓		Public and private grants and/or local budgets	$200,000	60 months	**NEW**	**NEW**
5.gg	Purchase skid steer and grapple for City of Baldwin and Mt. Airy	Baldwin and Mt Airy public works departments			✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$250,000	48 months	**NEW**	**NEW**
5.hh	Purchase radios for local hospital for interoperable communications with public safety and health dept	Northeast Georgia Medical Center - Habersham	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or private budgets	$150,000	60 months	**NEW**	**NEW**
5.ii	Purchase fuel storage capabilities for the City of Baldwin	Baldwin Public Works		✓			✓		✓		Public and private grants and/or local budgets	$350,000	60 months	**NEW**	**NEW**
5.jj	Develop a comprehensive safety plan and have it adopted by Habersham County	EMA	✓	✓	✓	✓	✓	✓	✓	✓	Local budgets	Staff time	48 months	**NEW**	**NEW**
5.kk	Purchase a cache of 2-way radios for use by outside agencies that assist with response and recovery	EMA	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$500,000	60 months	**NEW**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
5.ll	Purchase cradlepoints and similar equipment	Habersham County IT Department	✓	✓	✓	✓	✓	✓	✓	✓	Public and private grants and/or local budgets	$300,000	60 months	**NEW**	**NEW**
5.mm	Purchase a four-wheel drive truck for Mt Airy	Mt Airy Town Council	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$75,000	60 months	**NEW**	**NEW**
5.nn	Purchase a drone for damage assessment and/or search and rescue operations	Habersham County Emergency Services and Baldwin	✓	✓	✓	✓	✓		✓	✓	Public and private grants and/or local budgets	$25,000	24 months	**NEW**	**NEW**
OBJECTIVE SIX: Increase public education and awareness of natural disasters															
6.a	Continue to provide educational and awareness programs regarding natural hazards	EMA	✓	✓	✓	✓	✓	✓	✓	✓	Local budgets	Staff time	12 months	**Done via social media and at FunFest; PIO press releases**	**4.a**
6.b	Advertise Code Red sign-up at local health department	EMA and Habersham County Health Department	✓	✓	✓	✓	✓			✓	Local budgets	Staff time	12 months	**NEW**	**NEW**
6.c	Encourage citizens to sign up for Code Red	EMA	✓	✓	✓	✓	✓			✓	Local budgets	Staff time	12 months	**Done via social media & at Fun Fest; Baldwin shared via utility bills**	**4.b**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought/Ex Temp	Equake/Landslide	Wildfire	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
6.d	Continue a Water Issues Group that meets quarterly to discuss the economic and drought contingencies	Habersham County BOC and municipal councils						✓			Local budgets	Staff time	12 months	**Currently meets quarterly**	**5.b (mod)**
6.e	Increase public awareness of wildfires through FireWise	Habersham County Emergency Services and Georgia Forestry Commission								✓	Local and state budges	$7,500	24 months	**Public awareness shared, but not via FireWise program**	**5.c**
6.f	Continue to encourage emergency preparedness through schools	EMA and Habersham County School	✓	✓	✓	✓	✓	✓	✓	✓	Local budgets	Staff time	12 months	**Annual meeting with schools; EMA working with Schools to integrate plans into WebEOC**	**6.x (mod)**
6.g	Increase mass notification system participation by placing information in local utility bills	Local utility providers	✓	✓	✓	✓	✓			✓	Local and private budgets	Staff time	14 months	**Done by City of Baldwin**	**6.y**
6.h	Promote signing up for Code Red via Social Media	EMA	✓	✓	✓	✓	✓			✓	Local budgets	Staff time	12 months	**NEW**	**NEW**

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials / Rad	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
OBJECTIVE SEVEN: Minimize the impact of a dam breach on local citizens, industry, and infrastructure													
7.a	Create a local dam inspection program in conjunction with EPD	Habersham County	✓				✓		Local budgets	Staff time	18 months	**NEW**	**NEW**
7.b	Update Emergency Action Plan for all dams in Habersham County by the end of 2024	EMA and dam owners	✓						Local and private budgets	Staff time	12 months	**Done annually with Ga Power, complete for Cornelia**	**9.e (mod)**
7.c	Install Dam Watch Program and purchase cameras and electronic warning system at local dams to improve off-site monitoring capabilities	Habersham County BOC	✓				✓		Public and private grants and/or local budgets	$100,000	60 months	**In place for Georgia Power dams**	**9.g**
OBJECTIVE EIGHT: Implement additional protective measures and capabilities in response to manmade incidents													
8.a	Perform a pre-planning walk through of all Tier II facilities with all fire departments and potential response agencies	Habersham County Emergency Services and municipal fire departments		✓	✓				Local and private budgets	Staff time	12 months	**Done by fire departments ; others needed**	9.a
8.b	Maintain generators at Point of Dispensing site	Habersham County Health Department					✓	✓	State budgets	$10,000	18 months	**Generator purchased 2016**	9.b (mod)

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials / Rad	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
8.c	Purchase a generator for the alternate Point of Dispensing site	EMA and Habersham County Health Department					✓	✓	Public and private grants and/or local budgets	$75,000	48 months	**NEW**	NEW
8.d	Updated HazMat Response plan	Habersham County Emergency Services		✓	✓	✓		✓	Local budgets	Staff time	18 months	**Plans provided by local industry to Baldwin and Habersham**	9.d
8.e	Create a HazMat Team and purchase equipment for HazMat Response	Habersham County Emergency Services		✓	✓	✓		✓	Public and private grants and/or local budgets	$250,000	60 months	**None; other projects have taken priority**	9.h
8.f	Provide awareness and HazMat Ops training to all fire responders	EMA and Habersham County Emergency Services		✓	✓	✓		✓	Local and state budgets	Staff time	24 months	**Provided to some in basic training**	9.j (mod)
8.g	Provide HazMat Technician training for HazMat Team members	EMA and Habersham County Emergency Services		✓	✓	✓		✓	Local and state budgets	Staff time	36 months	**Some training completed**	9.k
8.h	Hold multi-jurisdictional mass casualty/active shooter/terrorism exercise	EMA, public safety agencies, schools			✓				Local budgets	Staff time	30 months	**EMA did one with North GA Tech in 2023**	9.l
8.i	Assess vulnerability to cyberattacks and mitigate IT systems accordingly	Habersham County IT Department			✓	✓			Local budgets	Staff time	12 months	**Ongoing process; continuous**	9.n

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials / Rad	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
8.j	Purchase separate servers and backups, as identified	Habersham County IT Department			✓		✓		Public and private grants and/or local budgets	$150,000	60 months	**NEW**	NEW
8.k	Update servers at city hall and in local government departments	Cornelia City Council			✓		✓		Public and private grants and/or local budgets	$75,000	60 months	**NEW**	NEW
8.l	Purchase firefighting apparatus, as needed, for Baldwin and Habersham County	Habersham County Emergency Services and Baldwin Fire Department		✓		✓			Public and private grants and/or local budgets	$3 million	60 months	**NEW**	NEW
8.m	Purchase mass-quantity foam trailer	Habersham County Emergency Services		✓	✓	✓			Public and private grants and/or local budgets	$750,000	60 months	**NEW**	NEW
8.n	Perform a study to determine appropriate infrastructure for fire operations based upon anticipated population growth	Habersham County Emergency Services		✓	✓		✓		Public and private grants and/or local budgets	$75,000	36 months	**NEW**	NEW
8.o	Increase training for K9 units	Baldwin Police Department			✓				Local budgets	$35,000	48 months	**NEW**	NEW

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials / Rad	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Previous Strategy #
8.p	Purchase a tow truck for Habersham County	Habersham County Road Department			✓	✓			Public and private grants and/or local budgets	$250,000	60 months	**NEW**	NEW
8.q	Develop a life cycle replacement plan for personal protective equipment	Habersham County Emergency Services and municipal fire departments		✓					Local budgets	Staff time	12 months	**NEW**	NEW
OBJECTIVE NINE: Increase public awareness of local manmade hazards and proper response to those hazards													
9.a	Start/maintain Local Emergency Planning Committee (LEPC)	EMA and county and municipal stakeholders		✓	✓	✓	✓		Local budgets	Staff time	24 months	**Ongoing**	9.m
9.b	Maintain and expand the HC3 Group	EMA		✓	✓				Local budgets	Staff time	24 months	**NEW**	NEW

Completed Mitigation Strategies

Previous Strategy #	Strategy Description	Status
1.l	Replace culvert at Stapleton Road	COMPLETE; Completed in 2021
6.a	Acquire a Southern Linc system as a backup system for county and city response agencies	COMPLETE
6.m	Inventory Search and Rescue Team resources and fill in gaps, where needed	COMPLETE; Completed in 2023
8.d	Perform an assessment to identify potential warming station locations for vulnerable populations	COMPLETE
6.v	Train local damage assessment teams	COMPLETE; Modified to continue

Deleted Mitigation Strategies

Previous Strategy #	Strategy Description
3.c	Renew partnership with Sunshine Rotary to give out more NOAA Weather Radios to the public
6.k	Purchase 24 radios for local hospital for communication within hospital and with public safety
7.a and 9.c	Purchase HAM radio for command center at Habersham County Medical Center
9.f	Integrate City of Cornelia dam monitoring software into SCADA
9.i	Perform pre-planning for industrial sites

CHAPTER FIVE – MAINTENANCE AND IMPLEMENTATION

Summary of Updates for Chapter Five

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Habersham County Hazard Mitigation Plan 2018.

Chapter 5 Section	Updates
Maintenance	• Content Revised
Plan Distribution	• Content Revised
Implementation	• Content Revised
Evaluation	• Content Revised
Peer Review	• Content Revised
Plan Update	• Content Revised
Conclusion	• Content Revised

Maintenance

Requirement §201.6(c)(4)(iii)

To adhere to best practices, state and federal guidelines, and lessons learned, the Habersham 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 2018 Habersham County Hazard Mitigation Plan was followed, to the best abilities of Habersham County and its municipalities. This most importantly included an increased attempt for public participation and inclusion in the planning process. The Habersham County Hazard Mitigation Plan Update Committee will reconvene annually in February to monitor and evaluate the progress of the mitigation strategies in the Plan. Habersham County's Homeland Security and Emergency Management Director, Lynn Smith, 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 Habersham 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 jurisdictions, 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?

Habersham County's Emergency Management Director will send the minutes from this annual meeting to the Habersham County Board of Commissioners for review.

If there are any updates or modifications to the Habersham 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 Habersham 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.

Maintenance Log

Revision Date	Revised Section	Reason for Revision	Revised By
2023	**Five Year Hazard Mitigation Plan Update**	**FEMA Requirement**	**Habersham County Hazard Mitigation Planning Committee with assistance from Lux Mitigation and Planning**

Plan Distribution

This Plan will be distributed, but not limited, to the following departments and organizations within Habersham County:

Habersham County Board of Commissioners
Habersham County Emergency Management Agency
Habersham County Sheriff's Office
Habersham County Road Department
Habersham County Planning and Development
Habersham County Emergency Services
City of Baldwin
City of Clarkesville
City of Cornelia
City of Demorest
Town of Alto
Town of Mt Airy
Town of Tallulah Falls

A printed copy of the approved Plan will be available for viewing at Habersham County Emergency Management Agency.

Implementation

Requirement §201.6(c)(4)(ii)

Each jurisdiction participating in the Habersham County Hazard Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in this plan. In the Mitigation Strategies section, every proposed strategy is assigned to a specific local department or agency 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 to assess whether identified mitigation strategies are being implemented in a timely fashion.

Habersham 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 each participating jurisdiction to determine additional implementation procedures beyond those listed within the Habersham County Hazard Mitigation Plan.

This plan, as a joint within Habersham County 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 Habersham 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 Habersham County Comprehensive Plan during the next planning cycle.

Identified hazards and mitigation strategies of the 2018 Habersham County Hazard Mitigation plan were integrated into the Local Emergency Operations Plan, multiple County and City SOPs and SOGs, and future planning and zoning plans. Habersham County and the municipalities of Alto, Baldwin, Clarkesville, Cornelia, Demorest, Mt Airy, and Tallulah Falls will integrate mitigation strategies identified in this plan into the Habersham 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 Habersham County and all municipalities. Once this plan is approved, it will be used by the consultants and planning committees responsible for the update process for the County and City Comprehensive Plans, Short-Term Work Programs, and all other plans that could incorporate the requirements of this plan. To facilitate the inclusion of this Plan, the Habersham County Board of Commissioners and the Municipalities of Alto, Baldwin, Clarkesville, Cornelia, Demorest, Mt Airy, and Tallulah Falls will provide a copy to the persons and/or committees responsible for writing and updating plans. 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. All jurisdictions have the authority to adopt locally binding ordinances and policies to enhance the mitigation strategies in their jurisdiction.

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.

Regulatory Tools/Plans	Regulatory Type: Ordinance, Resolution, Codes, Plans, Etc.	Local Authority	State Prohibited	Higher Authority
Building Codes	Habersham County Code; Baldwin, Clarkesville, Cornelia, Demorest, Alto, Mount Airy, and Tallulah Falls codes and ordinances	Yes	No	No
Capital Improvements Plan		Yes	No	No
Comprehensive Plan	Habersham County Multi-Jurisdictional Comprehensive Plan (includes Alto, Demorest, Clarkesville, and Mt. Airy); Rabun County Comprehensive Plan (Tallulah Falls); City of Cornelia Comprehensive Plan; City of Baldwin Comprehensive Plan	Yes	No	No
Economic Development Plan	Habersham County Multi-Jurisdictional Comprehensive Plan (includes Alto, Demorest, Clarkesville, and Mt. Airy); Rabun County Comprehensive Plan (Tallulah Falls); City of Cornelia Comprehensive Plan; City of Baldwin Comprehensive Plan	Yes	No	Yes
Emergency Management Accreditation Program		No	No	Yes
Emergency Response Plan	Habersham County Local Emergency Operations Plan (LEOP)	Yes	No	Yes
Flood Management Plan		Yes	No	No
Historic Preservation		Yes	No	No
National Flood Insurance Program Participation		Yes	No	Yes
Continuity of Government/ Operations Plan		No	No	No
Post-Disaster Ordinance		Yes	No	No
Zoning Ordinances	Habersham County Code; Baldwin, Clarkesville, Cornelia, Demorest, Alto, Mount Airy, and Tallulah Falls codes and ordinances	Yes	No	No

Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Habersham County Hazard Mitigation Planning Committee to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

Evaluation

Requirement §201.6(c)(4)(i)

Periodic revisions and updates of the Habersham County Hazard Mitigation Plan may be required to ensure that the goals of this plan are kept current with federal, state, and local regulations. These revisions should also consider any potential changes in the hazard vulnerability and mitigation priorities of Habersham County.

The Habersham County Hazard Mitigation Plan Update Committee will meet annually to review the Habersham County Hazard Mitigation Plan. During this annual review, mitigation strategies will be reviewed to evaluate the progress that has occurred for each identified mitigation strategy. The Habersham County Hazard Mitigation Plan Update Committee will also meet following any disaster event to review the identified mitigation strategies for that hazard and determine if timelines should be adjusted or additional mitigation strategies should be identified and added to the plan. These steps will ensure that the Habersham County Hazard Mitigation Plan is continuously updated to allow for changes in hazard vulnerabilities and identified mitigation strategies.

The Habersham County Hazard Mitigation Plan Update Committee will complete all evaluations of the Habersham County Hazard Mitigation Plan.

Peer Review

State Requirement Element F1

To maintain standards of quality, improve performance, and provide credibility to the Habersham County Hazard Mitigation Plan Update, representatives of local emergency management agencies bordering Habersham 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 man-made hazards.

The Habersham County Hazard Mitigation Plan Update was peer reviewed by:

_____

Marty Roberts Date
Director
Towns County Emergency Management Agency

_____

Don Strength Date
Director
White County Emergency Management Agency

_____

Steve Nichols Date
Director
Banks County Emergency Management Agency

_____

Brian Panell Date
Director
Rabun County Emergency Management Agency

_____

Zachary Brackett Date
Director
Hall County Emergency Management Agency

Plan Update

Requirement §201.6(c)(4)(i)

The Federal Disaster Mitigation Act of 2000 requires that the Hazard Mitigation Plan be updated at least once every five years. The Habersham County Emergency Management Agency is the department responsible with ensuring this requirement is met. The Habersham County Hazard Mitigation Plan Update Committee will be involved in this future process and will aid the Habersham County Emergency Management Agency in ensuring that all jurisdictions provide input into the planning process. The public will be invited to participate in the planning process through public hearings to be held whenever major updates to this plan are needed and during annual review meetings. This plan will expire in the third quarter of 2027; therefore, the approval and adoption of the next plan update must be completed before that time.

In the first quarter of 2027, Habersham County plans to begin the Hazard Mitigation Plan Update process for the fourth time. This planning process will include bi-monthly meetings to accomplish the identified goals of the Habersham County Hazard Mitigation Plan Update. This process will be headed up by the Habersham County Emergency Management Agency. The Habersham County Hazard Mitigation Planning 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 first quarter of 2028 to meet all identified planning deadlines.

Conclusion

As a result of the hazard mitigation planning process Habersham County, as well as additional participating organizations have gained significant information and knowledge regarding Habersham County's disaster history, natural and technological hazards, vulnerabilities, and potential strategies to lessen the impacts of the identified hazards.

One consistent theme identified by the Habersham County Hazard Mitigation Planning Committee was the inability to consistently identify geographic locations that were more vulnerable to most hazards due to the widespread potential effects and random impact areas of each hazard. This was exceedingly true for most natural hazards. Recognizing this challenge, the Habersham County Hazard Mitigation Plan Update Committee determined it was best to identify many mitigation goals, objectives, and strategies that were both general and specific in nature. These strategies allow the Habersham County Hazard Mitigation Plan Update Committee to adopt strategies that will have the greatest positive effect on the greatest amount of the population.

The Habersham County Hazard Mitigation Planning Committee adopted strategies in all six of the major mitigation categories: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Education and Awareness. Preventative Measures and Emergency Services comprised the greatest number (54%) of the mitigation strategies identified by Habersham County.

Appendix A – Habersham County Hazard Mitigation Planning Committee Sign In Sheets

Habersham County Hazard Mitigation Plan Update
Committee Meeting #1

Sign-In Sheet

Tuesday, July 18, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Melanie Bellinger - Assistant Director	Melanie Bellinger	mbellinger@habershamga.com	Habersham County EMA/E911
Lynn Smith - Director	Lynn Smith	lsmith@habershamga.com	Habersham County EMA/E911
Tonya Elrod	[signature]	telrod@tallulahfallsga.gov	Tallulah Falls Police Dept.
Sharon Roach - Operations Manager	Sharon Roach	sroach@habershamga.com	Habersham Road Dept
Stephanie Almagno	SAlmagno	salmagno@cityofbaldwin.org	City of Baldwin
Tracy Williamson, IT Director	Tracy Williamson	twilliamson@habershamga.com	Habersham County
Beth Hammond / HR Director	Beth H	beth.hammond@northgatech.edu	NGTC
Jamie Bowden	[signature]	[illegible]	Mount Airy Police Dept
Emily Woodmaster	[signature]	ewoodmaster@cityofbaldwin.org	City of Baldwin
Chad Smith	Chad Smith	csmith@cornelia.city	City of Cornelia
Lauren Long	Lauren Long	llong@habershamga.com	Habersham County Finance
Bruce Palmer Commission	[signature]	bpalmer@habershamga.com	Habersham County Commission

Habersham County Hazard Mitigation Plan Update
Committee Meeting #1

Sign-In Sheet

Tuesday, July 18, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Kevin Mall Road Supervisor		KMall@HabershamGa.com	Road Dept
Keith Ethridge		kethridge@cornelia.city	Utilities
Clif McEntyre Public Works Director		cmcentyre@cornelia.city	City of Cornelia
Mark Fitzpatrick		Mark.Fitzpatrick@NorthGATech.edu	North GA Tech
Cindy McGrew, Contract Service Eng		cmcgrew@habershamga.com	Public Works
Jerry Baggett/PW Director		jbaggett@habershamga.com	Public Works
MIKE BRAMLETT/Fac Dir		mbramlett@habershamga.com	Fac
Alicia Vaughn		avaughn@habershamga.com	Habersham BOC

Habersham County Hazard Mitigation Plan Update
Committee Meeting #1

Sign-In Sheet

Tuesday, July 18, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Dennis Clouatre / Asst. Chief	D. Clouatre	dclouatre@clarkesvillega.com	Clarkesville Police
Stuart Delugach / Director of Security	S. Delugach	stuart.delugach@tallulahfalls.org	Tallulah Falls School

Habersham County Hazard Mitigation Plan Update
Committee Meeting #2

Sign-In Sheet

Tuesday, August 15, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Samara Key	Samara Key	skey@clarkesvillega.com	Clarkesville PD.
Justin Ferguson		jferguson@cityofbaldwin.org	Baldwin PD
Stephanie Almagno	Almagno	salmagno@city.baldwin.org	Baldwin City Council
Tracy Williamson/Director IT	Tracy Williamson	twilliamson habershamga.com	Habersham County
Jason Davey		jadavey@habershamga.com	HCES
Beth Hammond / HR Director		beth.hammond@nwtgaedu	NGTC
Clif McEntyre / Public Works Director		cmcentyre@cornelia.city	City of Cornelia
Steven Patrick CEC		steve@uga.edu	UGA Extension
Bryce Palmer		bpalmer@habershamga.com	Habersham County
Chris Smith		csmith@cornelia.city	Cornelia
Jami Bolman		jami.bolman@dph.ga.gov	HCHD
Tamera Owens		tamera.owens@dph.ga.gov	HCHD

Habersham County Hazard Mitigation Plan Update
Committee Meeting #2

Sign-In Sheet

Tuesday, August 15, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Melanie Bellinger	Melanie Bellinger	mbellinger@habershamga.com	Habersham Co. EMA
Lynn Smith	Lynn Smith	lsmith@habershamga.com	Habersham Co. EMA
Tom PRIDDY		tpriddy@habershamga.com	Habersham Co.
Jason Poole		jmpoole@clarkesvillega.com	Clarkesville Fire
Floyd Camp		fcamp@habershamgaroa	Habersham S.O.
Will Regan		wregan@habershamga.com	Habersham BOC
MIKE BENNETT		mbennett@habershamgs.c	Habersham CO
Ryan Ledford		Rledford@Clarkesvillega.com	Clarkesville PD
Stuart Delugach		stuart.delugach@tallulahfalls.org	Tallulah Falls School
Keith Ethridge		Kethridge@cornelia.city	Cornelia
Scott Barnhart		SBarnhart@CityofBaldwin.org	Baldwin
Emily Workmaster		eworkmaster@cityofbaldwin.org	Baldwin

Habersham County Hazard Mitigation Plan Update
Committee Meeting #2

Sign-In Sheet

Tuesday, August 15, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Jamie Bowden		Chief@townofmtairy.com	Mt. Airy Police Dept.

Habersham County Hazard Mitigation Plan Update
Committee Meeting #2

Sign-In Sheet

Tuesday, August 15, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Cindy McGrew	Cindy McGrew	cmcgrew@habershamga.com	Habersham Public Works
Sharon Loach / Operations Manager	Sharon Loach	Sloach@habershamga.com	Habersham Public Works
Jerry Baggett		jbaggett@habershamga.com	Public Works / Capital Projects

Habersham County Hazard Mitigation Plan Update
Meeting #3

Sign-In Sheet

Tuesday, September 19, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Jonathan Knight, Fire Chief		jknight@cityofdemorest.org	Demorest Fire
Chad Smith, Director		csmith@cornelia.city	City Cornelia
Melanie Bellinger	Melanie Bellinger	mbellinger@habershamga.com	Habersham County EMA
Lynn Smith	Lynn Smith	lsmith@habershamga.com	Habersham County EMA
Tom Priddy		tpriddy@habershamga.com	Habersham County EMA
Bruce Palmer		bpalmer@habershamga.com	Hab County Commission
Diana Gallegos	Diana Gallegos	dgallegos@habershamga.com	Hab. Co. IT
Joseph Roy		JRoy@cityofbaldwin.org	City of Baldwin
Karen Roy	Karen Roy	altopdcourtclerk@gmail.com	Alto PD.
Cilia Jarrell		cjarrell.altopd@windstream.net	Alto PD
Will Regan		wjregan@habershamga.com	Hab Co BOE
Jason Davey		jadavey@habershamga.com	HCES

Habersham County Hazard Mitigation Plan Update
Meeting #3

Sign-In Sheet

Tuesday, September 19, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Sharon Loach / Operations Manager	Sharon Loach	Sloach@habershamga.com	Public Works/Roads
Stephanie Almagno / city council	Salmagno	Salmagno@citygbaldwin	City of Baldwin
Lauren Long	Lauren Long	llong@habershamga.com	Habersham County BOC / Finance
Jami Bolman		jami.bolman@dph.ga.gov	Hab. Co. Health Department
Tamera Owens	Tamera Owens	tamera.owens@dph.ga.gov	" " " "
Floyd Camp		fcamp@habershamga.com	Habersham S.O.
Keith Ethridge		Kethridge@cornelia.city	Cornelia
Jerry Baggett		jbaggett@habershamga.com	Habersham.

Habersham County Hazard Mitigation Plan Update
Meeting #3

Sign-In Sheet

Tuesday, September 19, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
MIKE BRAMLETT / Fmc Dir		mbramlett@habershamga.com	Habersham Co
Clif McEntyre / Public Works Director		cmcentyre@cornelia.City	City of Cornelia
Bill Ireland / HCACC		BIreland@Habershamga.com	HCACC

Habersham County Hazard Mitigation Plan Update
Meeting #3

Sign-In Sheet

Tuesday, September 19, 2023

Name/Title	Signature	E-mail Address	Agency/Organization
Emily Woodmaster CAD	Emily Woodmaster	ewoodmaster@cityofbaldwin.org	City of Baldwin
Jamie Bowden Chief	Jamie Bowden	ChiefJBowden@Mt.Airy.com	Mt. Airy P.D

Appendix B – Natural Hazard Data Tables

Thunderstorms

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	5	1.328M	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/19/1974	13:15	Hail	1.50 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	03/07/1975	15:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/31/1975	13:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1977	18:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/23/1977	17:10	Hail	1.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/30/1977	14:45	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	03/23/1979	17:15	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	09/30/1979	16:50	Hail	1.50 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/10/1982	12:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/03/1984	14:35	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/07/1984	19:50	Hail	0.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/07/1984	20:04	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/26/1984	11:50	Hail	0.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/05/1985	19:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/07/1985	15:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/15/1986	16:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/21/1986	13:50	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/22/1986	13:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/15/1987	02:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/06/1987	13:15	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/09/1988	15:58	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1989	14:45	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

HABERSHAM CO.	HABERSHAM CO.	GA	06/05/1989	14:45	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/15/1989	01:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	11/15/1989	19:05	Hail	1.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	02/10/1990	05:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	02/10/1990	05:45	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/28/1990	15:10	Hail	1.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/21/1990	17:20	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/28/1991	15:50	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/29/1991	14:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/17/1992	15:55	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/27/1992	18:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Habersham	HABERSHAM CO.	GA	02/21/1993	21:35	Thunderstorm Wind	0 kts.	0	3	0.00K	0.00K
Clarksville	HABERSHAM CO.	GA	04/15/1993	21:20	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Cornelia	HABERSHAM CO.	GA	06/28/1994	18:45	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	01/19/1995	16:30	Thunderstorm Wind	0 kts.	0	0	0.10K	0.00K
Batesville	HABERSHAM CO.	GA	07/16/1995	14:45	Thunderstorm Wind	0 kts.	0	0	7.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/15/1996	13:35	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	03/16/1996	18:00	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/06/1996	12:15	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/06/1996	12:15	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/26/1996	16:30	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/28/1997	16:35	Hail	0.75 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	06/14/1997	17:45	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/21/1997	16:00	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	07/04/1997	19:30	Hail	0.75 in.	0	0	0.00K	0.00K

COUNTYWIDE	HABERSHAM CO.	GA	07/04/1997	19:30	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	07/28/1997	16:30	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	07/28/1997	16:30	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	09/10/1997	16:14	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/17/1998	01:30	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/17/1998	01:30	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/03/1998	19:15	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/07/1998	08:45	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/07/1998	09:00	Hail	1.50 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	05/07/1998	15:53	Hail	2.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/19/1998	11:33	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/22/1998	20:00	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/24/1998	18:40	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/20/1998	14:15	Thunderstorm Wind	50 kts.	0	2	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/11/1999	12:40	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	02/13/2000	23:50	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	04/03/2000	03:00	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	08/24/2000	17:30	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	08/24/2000	17:30	Lightning		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/24/2000	18:00	Lightning		0	0	1.000M	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	09/21/2000	01:25	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/04/2001	21:55	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/14/2001	13:41	Thunderstorm Wind	60 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/14/2001	13:41	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/31/2001	14:47	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	05/02/2002	23:00	Hail	0.75 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/04/2002	20:05	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/04/2002	20:05	Hail	1.00 in.	0	0	0.00K	0.00K

CLARKESVILLE	HABERSHAM CO.	GA	06/04/2002	21:00	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/01/2002	14:55	Thunderstorm Wind	55 kts. E	0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/06/2002	16:30	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	07/06/2002	16:30	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/10/2002	16:40	Thunderstorm Wind	50 kts. E	0	0	1.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	09/14/2002	16:30	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	09/14/2002	16:30	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	10/06/2002	23:30	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	11/11/2002	02:50	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/06/2003	01:45	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	04/29/2003	16:13	Hail	0.75 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	04/29/2003	16:30	Hail	0.88 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	04/29/2003	16:51	Hail	1.50 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	04/29/2003	17:15	Hail	1.25 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	04/30/2003	17:30	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/02/2003	13:20	Hail	1.75 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/02/2003	14:00	Hail	0.75 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/12/2003	17:40	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/13/2003	13:42	Hail	1.00 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	07/22/2003	13:40	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	08/17/2003	16:50	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	09/22/2003	15:55	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	05/09/2004	16:30	Hail	1.25 in.	0	0	1.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/22/2004	14:20	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/20/2004	20:15	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	11/24/2004	11:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	02/21/2005	17:49	Hail	0.75 in.	0	0	0.00K	0.00K

COUNTYWIDE	HABERSHAM CO.	GA	06/06/2005	19:25	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	Lightning		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	Hail	1.75 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	Thunderstorm Wind	70 kts. EG	0	0	100.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	08/17/2005	16:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	08/17/2005	16:15	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/17/2005	19:29	Thunderstorm Wind	70 kts. EG	0	0	50.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	08/29/2005	18:59	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/03/2006	14:37	Hail	0.88 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	04/22/2006	00:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/13/2006	20:49	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/14/2006	03:32	Hail	0.88 in.	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	05/25/2006	12:30	Hail	0.88 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	05/26/2006	15:43	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	05/26/2006	15:43	Hail	0.88 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	07/01/2006	16:55	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	07/01/2006	16:55	Hail	0.75 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	01/05/2007	12:53	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/04/2007	01:01	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/04/2007	01:01	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/12/2007	17:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/18/2007	14:18	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/18/2007	14:18	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/25/2007	15:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/10/2007	14:53	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	08/24/2007	13:30	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/04/2008	15:30	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K

DEMOREST	HABERSHAM CO.	GA	07/29/2008	01:30	Lightning		0	0	100.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	08/02/2008	16:19	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	08/07/2008	15:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	04/10/2009	17:00	Hail	1.50 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	04/23/2009	18:30	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	05/03/2009	19:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/17/2009	23:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/28/2010	20:40	Hail	0.88 in.	0	0	0.00K	0.00K
TALLULAH LODGE	HABERSHAM CO.	GA	05/15/2010	15:55	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/15/2010	19:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/19/2010	17:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/25/2010	12:25	Hail	1.00 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	06/29/2010	13:56	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/05/2010	18:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	09/27/2010	18:00	Hail	0.75 in.	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	10/26/2010	16:27	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TAGULA CAMP	HABERSHAM CO.	GA	11/30/2010	17:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	03/19/2011	18:36	Hail	0.75 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	04/27/2011	23:32	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	05/11/2011	18:20	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	06/01/2011	16:25	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/02/2011	16:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	06/03/2011	16:05	Hail	1.75 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	06/03/2011	16:27	Hail	0.88 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/03/2011	16:35	Hail	1.25 in.	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	06/08/2011	15:25	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	06/08/2011	16:13	Hail	1.00 in.	0	0	0.00K	0.00K

HARVEST	HABERSHAM CO.	GA	06/18/2011	16:48	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
TALLULAH LODGE	HABERSHAM CO.	GA	07/31/2011	14:12	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/08/2011	14:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/22/2012	15:06	Hail	0.88 in.	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	07/01/2012	21:50	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	07/03/2012	15:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	07/03/2012	15:25	Hail	1.25 in.	0	0	0.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	07/16/2012	14:07	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	06/13/2013	17:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/28/2013	17:16	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/17/2013	16:47	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/17/2013	16:47	Hail	0.88 in.	0	0	0.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	01/11/2014	08:41	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	05/14/2014	19:19	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:24	Hail	0.88 in.	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	05/25/2014	15:30	Hail	1.00 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:35	Hail	1.25 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	10/09/2014	13:50	Hail	0.88 in.	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	06/03/2015	16:35	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	06/18/2015	16:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/24/2015	15:18	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	06/30/2015	11:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/03/2015	07:30	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	07/14/2015	17:34	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	08/10/2015	16:25	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K

CLARKESVILLE	HABERSHAM CO.	GA	02/24/2016	09:05	Thunderstorm Wind	40 kts. EG	0	0	20.00K	0.00K
HABERSHAM	HABERSHAM CO.	GA	05/11/2016	13:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
VIEW	HABERSHAM CO.	GA	11/30/2016	14:48	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	03/01/2017	17:18	Hail	1.00 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	17:52	Hail	1.50 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	20:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	04/27/2017	16:38	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/15/2017	15:53	Hail	1.00 in.	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	03/17/2018	20:53	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	04/19/2019	04:57	Thunderstorm Wind	65 kts. EG	0	0	5.00K	0.00K
RAOUL	HABERSHAM CO.	GA	06/22/2019	00:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	05/05/2020	00:34	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/30/2020	17:53	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	03/26/2021	00:30	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	04/08/2021	20:41	Hail	0.75 in.	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	04/24/2021	19:08	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	04/24/2021	19:12	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/05/2023	16:35	Hail	1.00 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	06/05/2023	16:52	Hail	1.00 in.	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/05/2023	17:00	Hail	0.75 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	07/02/2023	18:26	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	08/07/2023	15:26	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	08/24/2023	14:24	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Flooding

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	1.077M	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/27/1996	01:00	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/07/1996	09:00	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/1996	11:20	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	12/01/1996	11:20	Flash Flood		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	10/26/1997	08:00	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	01/07/1998	14:00	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	02/03/1998	12:00	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	02/04/1998	07:00	Flash Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/15/2002	11:15	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2003	21:30	Flood		0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	07/17/2003	23:15	Flash Flood		0	0	0.00K	0.00K
EAST PORTION	HABERSHAM CO.	GA	09/22/2003	15:30	Flash Flood		0	0	20.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/25/2004	18:25	Flash Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/07/2004	15:30	Flood		0	0	100.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	09/16/2004	17:30	Flash Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/16/2004	20:00	Flood		0	0	720.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/04/2005	15:30	Flash Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/07/2005	14:00	Flash Flood		0	0	10.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/07/2005	16:00	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/08/2005	11:45	Flood		0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	08/25/2008	07:30	Flash Flood		0	0	0.00K	0.00K
HABERSHAM	HABERSHAM CO.	GA	08/26/2008	17:00	Flash Flood		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/08/2009	12:05	Flash Flood		0	0	0.00K	0.00K
TAGULA CAMP	HABERSHAM CO.	GA	09/20/2009	12:54	Flood		0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/06/2011	08:15	Flash Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/06/2011	10:00	Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/09/2011	15:20	Flash Flood		0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	08/08/2013	14:30	Flash Flood		0	0	0.00K	0.00K

NEW SWITZERLAND	HABERSHAM CO.	GA	12/22/2013	22:54	Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	11/12/2018	21:00	Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	12/28/2018	07:30	Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/19/2019	12:00	Flash Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/19/2019	16:00	Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	02/06/2020	10:00	Flash Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	02/06/2020	17:00	Flood		0	0	0.50K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	10/11/2020	00:55	Flash Flood		0	0	200.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	10/11/2020	06:00	Flood		0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/26/2021	00:00	Flood		0	0	1.00K	0.00K
RAOUL	HABERSHAM CO.	GA	08/17/2021	12:00	Flash Flood		0	0	2.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/17/2021	16:00	Flood		0	0	1.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	10/07/2021	07:00	Flood		0	0	0.50K	0.00K

Winter Weather

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	600.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/06/1996	21:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/11/1996	18:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/03/1996	18:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/18/1996	16:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/09/1997	00:00	Ice Storm		0	0	50.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/10/1997	21:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/13/1997	06:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/08/1997	11:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/29/1997	05:30	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/30/1997	17:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/11/1998	16:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/23/1998	09:00	Sleet		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/02/1999	15:00	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/31/1999	12:00	Sleet		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/1999	00:00	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/24/1999	00:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/09/1999	03:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/26/1999	08:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/23/2000	03:00	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2000	21:00	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/19/2000	06:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/03/2000	02:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/13/2000	13:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/17/2000	06:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/19/2000	02:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/21/2000	14:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/20/2001	05:00	Sleet		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/03/2002	00:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2002	04:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/04/2002	15:00	Ice Storm		0	0	500.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2003	18:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2003	16:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/03/2003	22:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/25/2004	18:00	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/02/2004	05:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/26/2004	04:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/13/2004	21:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/19/2004	18:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2005	02:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2005	10:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2005	00:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2005	06:00	Ice Storm		0	0	50.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2007	03:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2008	22:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2008	18:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/19/2008	11:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/17/2009	22:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2009	14:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/30/2009	21:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2010	18:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/04/2010	17:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/12/2010	15:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/02/2010	05:00	Heavy Snow		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2010	21:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/25/2010	15:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/10/2011	00:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/09/2011	21:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/25/2013	06:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/28/2014	13:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	00:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	23:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/16/2015	13:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/20/2015	19:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/25/2015	17:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/22/2016	04:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/03/2016	14:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/06/2017	21:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/08/2017	10:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/17/2018	05:00	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/08/2020	09:00	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2021	15:00	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2022	00:00	Heavy Snow		0	0	0.00K	0.00K

Drought

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/1998	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/15/1999	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/1999	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/1999	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/1999	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2000	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2000	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2000	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2000	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2001	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2002	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2004	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	06/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2007	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	06/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2008	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2016	00:00	Drought		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2016	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2016	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2017	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2017	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2017	00:00	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/01/2017	00:00	Drought		0	0	0.00K	0.00K

Tornadoes

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	15	11.472M	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/14/1976	21:15	CST	Tornado	F2	0	0	250.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	03/23/1979	17:20	CST	Tornado	F1	0	1	250.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	09/13/1979	17:00	CST	Tornado	F0	0	0	25.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/18/1983	15:00	CST	Tornado	F0	0	0	25.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/24/1983	16:00	CST	Tornado	F1	0	0	25.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	10/12/1983	22:30	CST	Tornado	F1	0	6	250.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1989	14:30	EST	Tornado	F1	0	0	25.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1989	14:30	EST	Tornado	F2	0	3	2.500M	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	11/15/1989	18:30	CST	Tornado	F3	0	3	2.500M	0.00K
Clarksville to 4W Toc	HABERSHAM CO.	GA	06/26/1994	22:26	EST	Tornado	F1	0	2	5.000M	0.00K
Cornelia	HABERSHAM CO.	GA	06/27/1994	01:15	EST	Tornado	F1	0	0	500.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	02/21/1997	15:00	EST	Tornado	F1	0	0	100.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	09/16/2004	19:30	EST	Tornado	F1	0	0	2.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	04/27/2011	21:52	EST-5	Tornado	EF2	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	04/13/2020	01:50	EST-5	Tornado	EF1	0	0	20.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	04/13/2020	02:01	EST-5	Tornado	EF0	0	0	0.00K	0.00K

Appendix C – Worksheet 3As

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Habersham County

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	14,257	14,257	100.000%	2,741,427,017	2,741,427,017	100.000%	46,031	46,031	100%
Commercial	832	832	100.000%	300,395,460	300,395,460	100.000%	0	0	#DIV/0!
Industrial	24	24	100.000%	61,643,330	61,643,330	100.000%	0	0	#DIV/0!
Agricultural	1,346	1,346	100.000%	296,248,130	296,248,130	100.000%	0	0	#DIV/0!
Religious/ Non-profit	174	174	100.000%	51,776,160	51,776,160	100.000%	0	0	#DIV/0!
Government	275	275	100.000%	267,041,860	267,041,860	100.000%	0	0	#DIV/0!
Education	76	76	100.000%	116,935,060	116,935,060	100.000%	0	0	#DIV/0!
Utilities	54	54	100.000%	182,065,598	182,065,598	100.000%	0	0	#DIV/0!
Total	17,038	17,038	100.000%	4,017,532,615	4,017,532,615	100.000%	46,031	46,031	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Habersham County

Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	14,257	14,041	98.485%	2,741,427,017	2,699,893,157	98.485%	46,031	45,334	98%
Commercial	832	801	96.274%	300,395,460	289,202,841	96.274%	0	0	#DIV/0!
Industrial	24	17	70.833%	61,643,330	43,664,025	70.833%	0	0	#DIV/0!
Agricultural	1,346	1,329	98.737%	296,248,130	292,506,512	98.737%	0	0	#DIV/0!
Religious / Non-profit	174	168	96.552%	51,776,160	49,990,775	96.552%	0	0	#DIV/0!
Government	275	247	89.818%	267,041,860	239,852,143	89.818%	0	0	#DIV/0!
Education	76	71	93.421%	116,935,060	109,241,964	93.421%	0	0	#DIV/0!
Utilities	54	49	90.741%	182,065,598	165,207,672	90.741%	0	0	#DIV/0!
Total	17,038	16,723	98.151%	4,017,532,615	3,889,559,090	96.815%	46,031	45,334	98%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Habersham County

Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	14,041	139	0.990%	2,741,427,017	11,375,977	0.415%	46,031	456	1%
Commercial	832	5	0.601%	300,395,460	68,379	0.023%	0	0	#DIV/0!
Industrial	24	0	0.000%	61,643,330	0	0.000%	0	0	#DIV/0!
Agricultural	1,346	0	0.000%	296,248,130	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	174	0	0.000%	51,776,160	0	0.000%	0	0	#DIV/0!
Government	275	1	0.364%	267,041,860	316,619	0.119%	0	0	#DIV/0!
Education	76	0	0.000%	116,935,060	0	0.000%	0	0	#DIV/0!
Utilities	54	0	0.000%	182,065,598	0	0.000%	0	0	#DIV/0!
Total	16,822	145	0.862%	4,017,532,615	11,760,975	0.293%	46,031	456	1%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Alto (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	188	188	100.000%	24,666,030	24,666,030	100.000%	970	970	100%
Commercial	3	3	100.000%	331,900	331,900	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	4	4	100.000%	495,760	495,760	100.000%	0	0	#DIV/0!
Religious/ Non-profit	1	1	100.000%	411,580	411,580	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	834,910	834,910	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	5	100.000%	950,665	950,665	100.000%	0	0	#DIV/0!
Total	214	214	100.000%	27,690,845	#DIV/0!	#DIV/0!	970	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Alto (Habersham County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	188	188	100.000%	24,666,030	24,666,030	100.000%	970	970	100%
Commercial	3	3	100.000%	331,900	331,900	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	4	4	100.000%	495,760	495,760	100.000%	0	0	#DIV/0!
Religious/ Non-profit	1	1	100.000%	411,580	411,580	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	834,910	834,910	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	5	100.000%	950,665	950,665	100.000%	0	0	#DIV/0!
Total	214	214	100.000%	27,690,845	#DIV/0!	#DIV/0!	970	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Alto (Habersham County)
Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	186	0	0.000%	24,666,030	0	0.000%	970	0	0%
Commercial	3	0	0.000%	331,900	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	4	0	0.000%	495,760	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	1	0	0.000%	411,580	0	0.000%	0	0	#DIV/0!
Government	13	0	0.000%	834,910	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	0	0.000%	950,665	0	0.000%	0	0	#DIV/0!
Total	214	0	0.000%	27,690,845	#DIV/0!	#DIV/0!	970	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Baldwin (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	579	579	100.000%	105,399,470	105,399,470	100.000%	3,629	3,629	100%
Commercial	90	90	100.000%	42,656,000	42,656,000	100.000%	0	0	#DIV/0!
Industrial	7	7	100.000%	15,309,020	15,309,020	100.000%	0	0	#DIV/0!
Agricultural	4	4	100.000%	827,290	827,290	100.000%	0	0	#DIV/0!
Religious/ Non-profit	4	4	100.000%	2,543,360	2,543,360	100.000%	0	0	#DIV/0!
Government	28	28	100.000%	5,381,460	5,381,460	100.000%	0	0	#DIV/0!
Education	1	1	100.000%	1,961,400	1,961,400	100.000%	0	0	#DIV/0!
Utilities	8	8	100.000%	3,915,565	3,915,565	100.000%	0	0	#DIV/0!
Total	721	721	100.000%	178,013,565	178,013,565	100.000%	3,629	3,629	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Baldwin (Habersham County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	579	563	97.237%	105,399,470	102,486,877	97.237%	3,629	3,529	97%
Commercial	90	28	31.111%	42,656,000	13,270,756	31.111%	0	0	#DIV/0!
Industrial	7	5	71.429%	15,309,020	10,935,014	71.429%	0	0	#DIV/0!
Agricultural	4	4	100.000%	827,290	827,290	100.000%	0	0	#DIV/0!
Religious / Non-profit	4	4	100.000%	2,543,380	2,543,380	100.000%	0	0	#DIV/0!
Government	28	25	89.286%	5,381,460	4,804,875	89.286%	0	0	#DIV/0!
Education	1	1	100.000%	1,981,400	1,981,400	100.000%	0	0	#DIV/0!
Utilities	8	7	87.500%	3,915,565	3,426,119	87.500%	0	0	#DIV/0!
Total	721	637	88.350%	178,013,565	140,275,691	78.801%	3,629	3,529	97%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Baldwin (Habersham County)
Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	579	1	0.173%	105,399,470	38,589	0.037%	3,629	6	0%
Commercial	90	0	0.000%	42,656,000	0	0.000%	0	0	#DIV/0!
Industrial	7	0	0.000%	15,309,020	0	0.000%	0	0	#DIV/0!
Agricultural	4	0	0.000%	827,290	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	4	0	0.000%	2,543,380	0	0.000%	0	0	#DIV/0!
Government	26	0	0.000%	5,381,460	0	0.000%	0	0	#DIV/0!
Education	1	0	0.000%	1,981,400	0	0.000%	0	0	#DIV/0!
Utilities	8	0	0.000%	3,915,565	0	0.000%	0	0	#DIV/0!
Total	721	1	0.139%	178,013,565	38,589	0.022%	3,629	6	0%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Clarkesville (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	642	642	100.000%	140,135,830	140,135,830	100.000%	1,911	1,911	100%
Commercial	144	144	100.000%	49,848,650	49,848,650	100.000%	0	0	#DIV/0!
Industrial	5	5	100.000%	7,402,370	7,402,370	100.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	1,777,420	1,777,420	100.000%	0	0	#DIV/0!
Religious/ Non-profit	16	16	100.000%	9,084,240	9,084,240	100.000%	0	0	#DIV/0!
Government	38	38	100.000%	25,539,840	25,539,840	100.000%	0	0	#DIV/0!
Education	6	6	100.000%	8,195,630	8,195,630	100.000%	0	0	#DIV/0!
Utilities	6	6	100.000%	3,983,518	3,983,518	100.000%	0	0	#DIV/0!
Total	863	863	100.000%	245,967,496	245,967,498	100.000%	1,911	1,911	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Clarkesville (Habersham County)

Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	642	628	97.819%	140,135,830	137,079,908	97.819%	1,911	1,869	98%
Commercial	144	142	98.611%	49,848,650	49,156,308	98.611%	0	0	#DIV/0!
Industrial	5	4	80.000%	7,402,370	5,921,896	80.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	1,777,420	1,777,420	100.000%	0	0	#DIV/0!
Religious / Non-profit	16	16	100.000%	9,084,240	9,084,240	100.000%	0	0	#DIV/0!
Government	38	35	92.105%	25,539,840	23,523,537	92.105%	0	0	#DIV/0!
Education	6	6	100.000%	8,195,630	8,195,630	100.000%	0	0	#DIV/0!
Utilities	6	5	83.333%	3,983,518	3,319,598	83.333%	0	0	#DIV/0!
Total	863	842	97.567%	245,967,496	238,058,537	96.785%	1,911	1,869	98%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Clarkesville (Habersham County)
Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	642	5	0.779%	140,135,830	202,073	0.144%	1,911	15	1%
Commercial	144	0	0.000%	49,848,650	0	0.000%	0	0	#DIV/0!
Industrial	5	0	0.000%	7,402,370	0	0.000%	0	0	#DIV/0!
Agricultural	6	0	0.000%	1,777,420	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	16	0	0.000%	9,084,240	0	0.000%	0	0	#DIV/0!
Government	38	0	0.000%	25,539,840	0	0.000%	0	0	#DIV/0!
Education	6	0	0.000%	8,195,830	0	0.000%	0	0	#DIV/0!
Utilities	6	0	0.000%	3,963,518	0	0.000%	0	0	#DIV/0!
Total	863	5	0.579%	245,967,498	202,073	0.082%	1,911	15	1%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Cornelia (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,273	1,273	100.000%	200,042,840	200,042,840	100.000%	4,503	4,503	100%
Commercial	252	252	100.000%	108,780,910	108,780,910	100.000%	0	0	#DIV/0!
Industrial	6	6	100.000%	21,461,540	21,461,540	100.000%	0	0	#DIV/0!
Agricultural	2	2	100.000%	683,770	683,770	100.000%	0	0	#DIV/0!
Religious/ Non-profit	30	30	100.000%	16,284,960	16,284,960	100.000%	0	0	#DIV/0!
Government	58	58	100.000%	30,227,140	30,227,140	100.000%	0	0	#DIV/0!
Education	2	2	100.000%	1,269,940	1,269,940	100.000%	0	0	#DIV/0!
Utilities	8	8	100.000%	15,756,618	15,756,618	100.000%	0	0	#DIV/0!
Total	1,631	1,631	100.000%	394,507,718	394,507,718	100.000%	4,503	4,503	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Cornelia (Habersham County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,273	1,143	89.788%	200,042,840	179,614,270	89.788%	4,503	4,043	90%
Commercial	252	216	85.714%	108,780,910	93,240,780	85.714%	0	0	#DIV/0!
Industrial	6	4	66.667%	21,461,540	14,307,693	66.667%	0	0	#DIV/0!
Agricultural	2	2	100.000%	683,770	683,770	100.000%	0	0	#DIV/0!
Religious / Non-profit	30	25	83.333%	16,284,960	13,570,800	83.333%	0	0	#DIV/0!
Government	58	47	81.034%	30,227,140	24,494,407	81.034%	0	0	#DIV/0!
Education	2	2	100.000%	1,289,940	1,289,940	100.000%	0	0	#DIV/0!
Utilities	8	6	75.000%	15,756,618	11,817,464	75.000%	0	0	#DIV/0!
Total	1,631	1,445	88.596%	394,507,718	338,999,124	85.930%	4,503	4,043	90%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Cornelia (Habersham County)
Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,273	15	1.178%	200,042,840	942,239	0.471%	4,503	53	1%
Commercial	252	3	1.190%	108,780,910	63,360	0.058%	0	0	#DIV/0!
Industrial	6	0	0.000%	21,461,540	0	0.000%	0	0	#DIV/0!
Agricultural	2	0	0.000%	683,770	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	30	0	0.000%	16,284,960	0	0.000%	0	0	#DIV/0!
Government	58	0	0.000%	30,227,140	0	0.000%	0	0	#DIV/0!
Education	2	0	0.000%	1,269,940	0	0.000%	0	0	#DIV/0!
Utilities	8	0	0.000%	15,756,618	0	0.000%	0	0	#DIV/0!
Total	1,631	18	1.104%	394,507,718	1,005,599	0.255%	4,503	53	1%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Demorest (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	529	529	100.000%	96,241,770	96,241,770	100.000%	2,022	2,022	100%
Commercial	28	28	100.000%	7,208,020	7,208,020	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	6	6	100.000%	1,541,380	1,541,380	100.000%	0	0	#DIV/0!
Religious/ Non-profit	7	7	100.000%	3,469,660	3,469,660	100.000%	0	0	#DIV/0!
Government	22	22	100.000%	53,527,300	53,527,300	100.000%	0	0	#DIV/0!
Education	48	48	100.000%	42,171,490	42,171,490	100.000%	0	0	#DIV/0!
Utilities	5	5	100.000%	3,508,610	3,508,610	100.000%	0	0	#DIV/0!
Total	645	645	100.000%	207,668,230	#DIV/0!	#DIV/0!	2,022	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Demorest (Habersham County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	529	527	99.622%	96,241,770	95,877,907	99.622%	2,022	2,014	100%
Commercial	26	26	92.857%	7,206,020	6,693,161	92.857%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	6	6	100.000%	1,541,380	1,541,380	100.000%	0	0	#DIV/0!
Religious / Non-profit	7	7	100.000%	3,469,660	3,469,660	100.000%	0	0	#DIV/0!
Government	22	22	100.000%	53,527,300	53,527,300	100.000%	0	0	#DIV/0!
Education	48	48	100.000%	42,171,490	42,171,490	100.000%	0	0	#DIV/0!
Utilities	5	5	100.000%	3,508,610	3,508,610	100.000%	0	0	#DIV/0!
Total	645	641	99.380%	207,668,230	#DIV/0!	#DIV/0!	2,022	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Demorest (Habersham County)

Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	529	6	1.134%	96,241,770	513,583	0.534%	2,022	23	1%
Commercial	28	0	0.000%	7,208,020	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	6	0	0.000%	1,541,380	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	7	0	0.000%	3,489,680	0	0.000%	0	0	#DIV/0!
Government	22	0	0.000%	53,527,300	0	0.000%	0	0	#DIV/0!
Education	48	1	2.083%	42,171,490	1,543,193	3.659%	0	0	#DIV/0!
Utilities	5	0	0.000%	3,508,610	0	0.000%	0	0	#DIV/0!
Total	645	7	1.085%	207,688,230	#DIV/0!	#DIV/0!	2,022	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	**N**
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Mt Airy (Habersham County)

Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	452	452	100.000%	85,670,130	85,670,130	100.000%	1,391	1,391	100%
Commercial	15	15	100.000%	2,797,890	2,797,890	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	7	7	100.000%	1,817,640	1,817,640	100.000%	0	0	#DIV/0!
Religious/ Non-profit	6	6	100.000%	3,052,780	3,052,780	100.000%	0	0	#DIV/0!
Government	16	16	100.000%	1,654,600	1,654,600	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	5	100.000%	1,464,320	1,464,320	100.000%	0	0	#DIV/0!
Total	501	501	100.000%	98,457,340	#DIV/0!	#DIV/0!	1,391	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Mt Airy (Habersham County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	452	452	100.000%	85,670,130	85,670,130	100.000%	1,391	1,391	100%
Commercial	15	15	100.000%	2,797,890	2,797,890	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	7	7	100.000%	1,817,640	1,817,640	100.000%	0	0	#DIV/0!
Religious/ Non-profit	6	6	100.000%	3,052,780	3,052,780	100.000%	0	0	#DIV/0!
Government	16	16	100.000%	1,654,600	1,654,600	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	5	100.000%	1,484,320	1,484,320	100.000%	0	0	#DIV/0!
Total	501	501	100.000%	96,457,340	#DIV/0!	#DIV/0!	1,391	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Mt Airy (Habersham County)
Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	452	0	0.000%	85,670,130	0	0.000%	1,391	0	0%
Commercial	15	0	0.000%	2,797,890	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	7	0	0.000%	1,817,640	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	6	0	0.000%	3,052,760	0	0.000%	0	0	#DIV/0!
Government	16	0	0.000%	1,654,600	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	5	0	0.000%	1,464,320	0	0.000%	0	0	#DIV/0!
Total	501	0	0.000%	96,457,340	#DIV/0!	#DIV/0!	1,391	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Tallulah Falls (Habersham County)
Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	21	21	100.000%	5,733,650	5,733,650	100.000%	199	199	100%
Commercial	3	3	100.000%	673,000	673,000	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	3	3	100.000%	761,850	761,850	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	367,380	367,380	100.000%	0	0	#DIV/0!
Government	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Education	1	1	100.000%	23,973,790	23,973,790	100.000%	0	0	#DIV/0!
Utilities	4	4	100.000%	34,571,633	34,571,633	100.000%	0	0	#DIV/0!
Total	34	34	100.000%	66,081,303	#DIV/0!	#DIV/0!	199	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Tallulah Falls (Habersham County)

Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	21	21	100.000%	5,733,650	5,733,650	100.000%	199	199	100%
Commercial	3	3	100.000%	673,000	673,000	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	3	3	100.000%	761,850	761,850	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	367,380	367,380	100.000%	0	0	#DIV/0!
Government	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Education	1	1	100.000%	23,973,790	23,973,790	100.000%	0	0	#DIV/0!
Utilities	4	4	100.000%	34,571,633	34,571,633	100.000%	0	0	#DIV/0!
Total	34	34	100.000%	66,081,303	#DIV/0!	#DIV/0!	199	#DIV/0!	#DIV/0!

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Tallulah Falls (Habersham County)

Hazard: Flood Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	21	0	0.000%	5,733,650	0	0.000%	199	0	0%
Commercial	3	0	0.000%	673,000	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	3	0	0.000%	761,850	0	0.000%	0	0	#DIV/0!
Religious / Non-profit	2	0	0.000%	367,380	0	0.000%	0	0	#DIV/0!
Government	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Education	1	0	0.000%	23,973,790	0	0.000%	0	0	#DIV/0!
Utilities	4	0	0.000%	34,571,633	0	0.000%	0	0	#DIV/0!
Total	34	0	0.000%	66,081,303	#DIV/0!	#DIV/0!	199	#DIV/0!	#DIV/0!

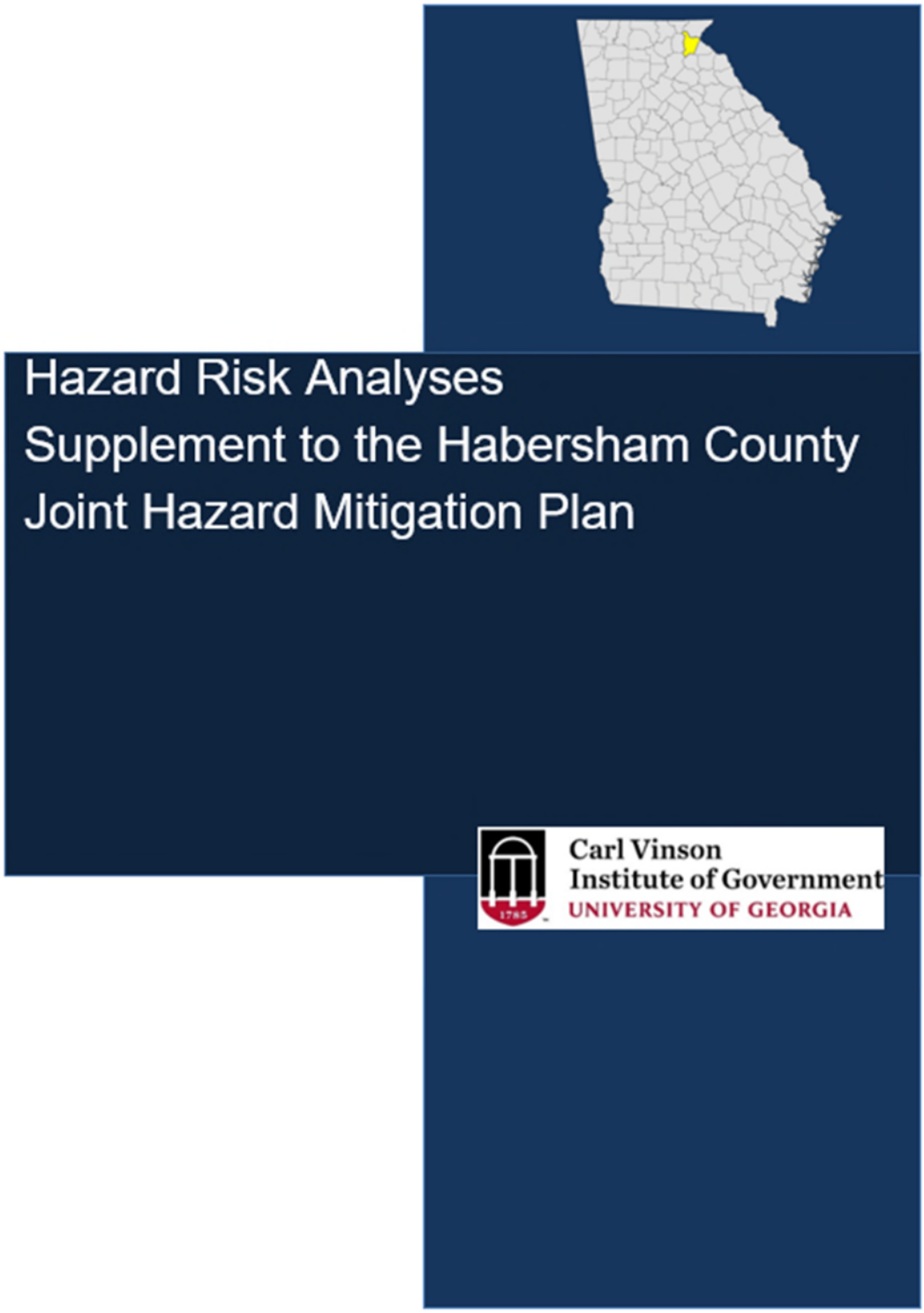
Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

Appendix D – Documentation of Peer Review

Banks County

Appendix E – Habersham County HAZUS Report



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Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2023, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining hurricane, riverine flood, and tornado risks in Habersham County, Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Habersham County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Habersham County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Habersham County were replaced with data derived from parcel and property assessment data obtained from Habersham County. The county provided property assessment data was current as of July 2023 and the parcel data current as of July 2023. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Habersham County is 83.18%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class*

General Occupancy	Default Hazus-MH Count	Updated Count	Default Hazus-MH Exposure	Updated Exposure
Agricultural	0	0	$0	$0
Commercial	1,213	731	$329,482,000	$148,489,000
Education	89	22	$95,937,000	$168,278,000
Government	116	37	$72,197,000	$33,280,000
Industrial	301	156	$280,483,000	$127,729,000
Religious	186	83	$78,956,000	$22,694,000
Residential	17,046	14,535	$2,108,240,000	$2,566,094,000
Total	**18,951**	**15,564**	**$2,965,295,000**	**$3,066,564,000**

*The exposure values represent the total number and replacement cost for all Habersham County Buildings

For Habersham County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility

(UDF)[1], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

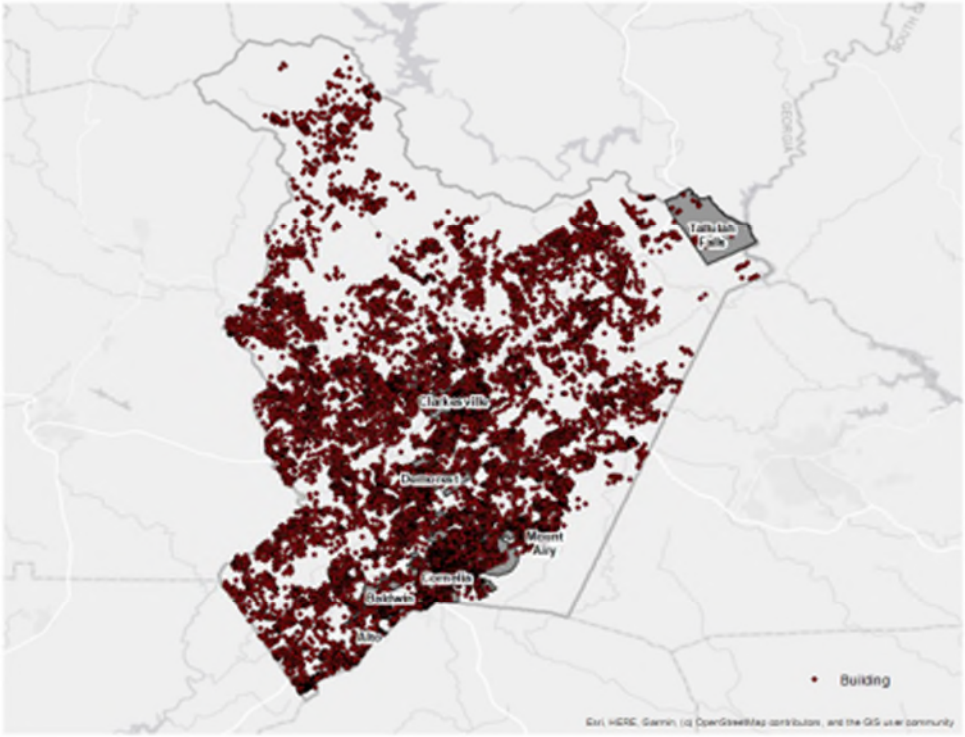

Figure 1: Habersham County Overview

Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS) as of July 2023. For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data.

Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

[1] The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Alto		
EOC	0	$0
Care	0	$0
Fire	0	$0
Police	1	$180,000
School	0	$0
Total	**1**	**$180,000**
Baldwin		
EOC	0	$0
Care	0	$0
Fire	1	$303,000
Police	1	$177,000
School	1	$385,000
Total	**3**	**$865,000**
Clarkesville		
EOC	0	$0
Care	0	$0
Fire	1	$146,000
Police	4	$8,315,000
School	1	$4,983,000
Total	**6**	**$13,444,000**
Cornelia		
EOC	0	$0
Care	0	$0
Fire	1	$96,000
Police	1	$300,000
School	2	$7,113,000
Total	**4**	**$7,509,000**

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Classification	Updated Count	Updated Exposure
Demorest		
EOC	0	$0
Care	0	$0
Fire	1	$320,000
Police	1	$320,000
School	3	$30,747,000
Total	**5**	**$31,387,000**
Mount Airy		
EOC	1	$335,000
Care	0	$0
Fire	0	$0
Police	1	$266,000
School	0	$0
Total	**2**	**$601,000**
Tallulah Falls		
EOC	0	$0
Care	0	$0
Fire	0	$0
Police	0	$0
School	0	$0
Total	**0**	**$0**
Unincorporated Areas of Habersham County		
EOC	0	$0
Care	1	$23,292,000
Fire	12	$4,406,000
Police	1	$20,000,000
School	9	$41,523,000
Total	**23**	**$89,221,000**

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Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Habersham County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- Georgia statute requires that the Assessor's Office assign a code to all of the buildings on a parcel based on the buildings primary use. If there is a residential or a commercial structure on a parcel and there are also agricultural buildings on the same parcel Hazus-MH looks at the residential and commercial "primary" structures first and then combines the value of all secondary structures on that parcel with the value of the primary structure. The values and building counts are still accurate but secondary structures are accounted for under the same classification as the primary structure. Because of this workflow, the only time that a parcel would show a value for an agricultural building is when there are no residential or commercial structures on the parcel thus making the agricultural building the primary structure. This is the reason that agricultural building counts and total values seem low or are nonexistent.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
  - Foundation Type was set from Occupancy Class
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment.
- Flood assessment based on the 1% annual chance event that includes riverine assessments.
- Tornado assessment based on GIS modeling.

Hurricane Risk Assessment

Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[2]. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 - 95	Very dangerous winds will produce some damage
2	96 - 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

The National Oceanic and Atmospheric Administration's National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Habersham County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Habersham County but impacted the county. Note that the storms listed contain the peak sustained winds, maximum pressure and maximum attained storm strength for the entire storm duration. Since 1902, Habersham County has had 10 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Habersham County[3]

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1902	October 03-13	UNNAMED	104	970	H2

[2] National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2012-23-02.

[3] Atlantic Oceanic and Meteorological Laboratory (2012). "Data Center." National Oceanic and Atmospheric Administration. http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. Retrieved 7-20-2015.

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1907	September 18-23	UNNAMED	46	0	TS
1911	August 23-31	UNNAMED	98	972	H2
1913	August 30 - September 04	UNNAMED	86	976	H1
1959	October 06-09	IRENE	46	1003	TS
1977	September 03-09	BABE	75	1012	H1
1994	August 14-19	BERYL	58	1013	TS
1997	July 16-27	DANNY	81	1013	H1
2004	August 25 - September 10	FRANCES	144	1009	H4
2005	July 03-11	CINDY	75	1011	H1

Category Definitions:

TS – Tropical storm

TD – Tropical depression

H1 – Category 1 (same format for H2, H3, and H4)

E – Extra-tropical cyclone

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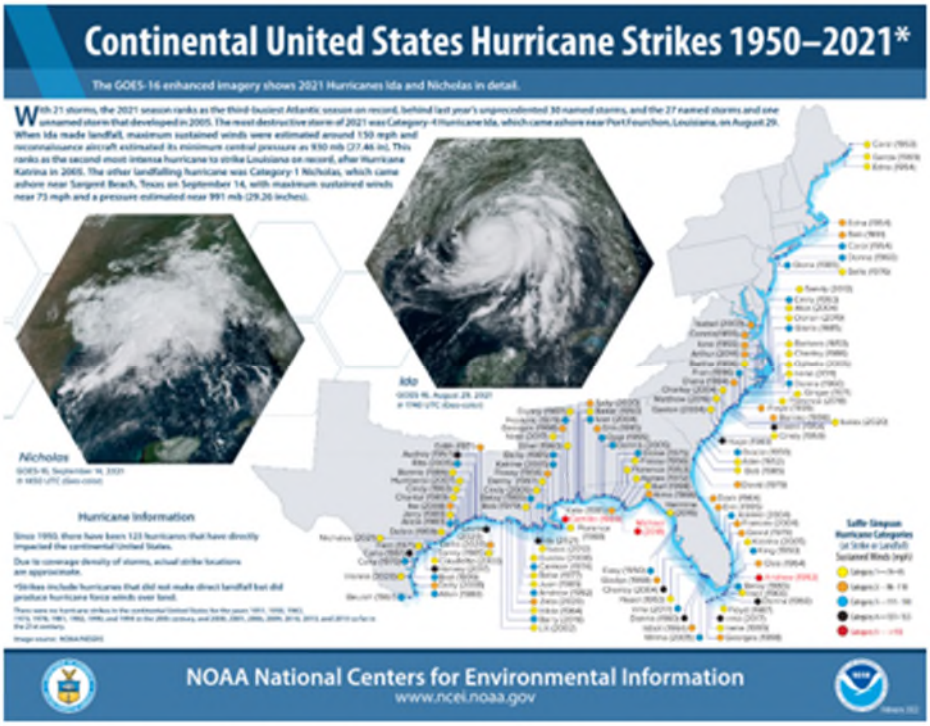

Figure 2: Continental United States Hurricane Strikes: 1950 to 2021[4]

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Tropical Storm with maximum winds of 63 mph.

Wind Damage Assessment

Separate analyses were performed to determine wind and hurricane storm surge related flood losses. This section describes the wind-based losses to Habersham County. Wind losses were determined from probabilistic models run for the Tropical Storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled Tropical Storm.

[4] Source: NOAA National Centers for Environmental Information

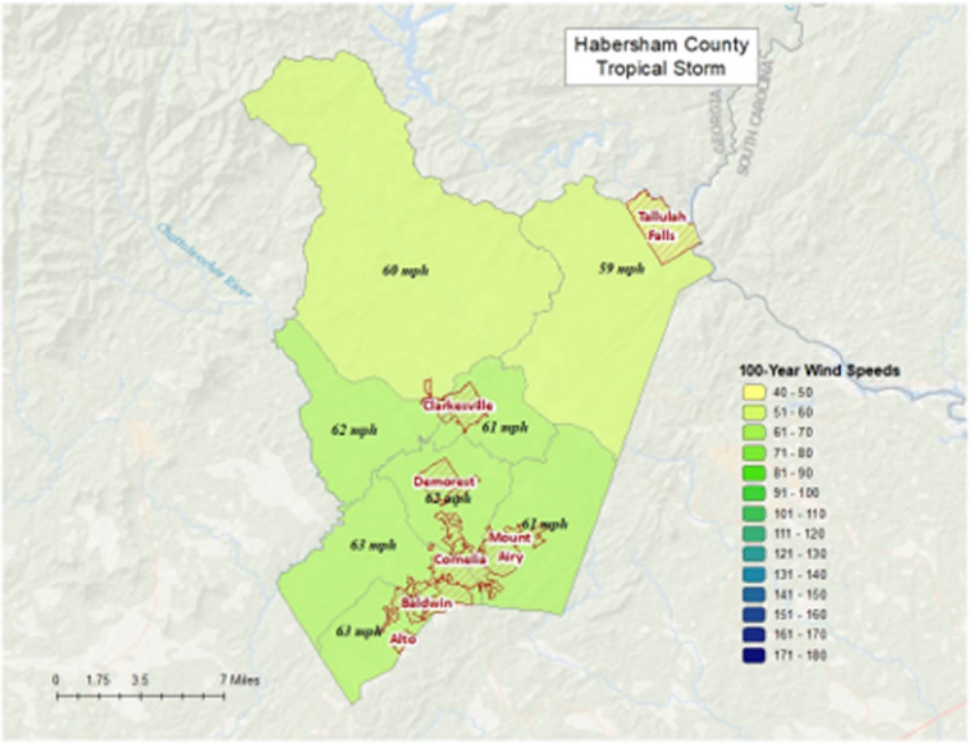

Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Habersham 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 Habersham 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. Figure 4 illustrates the building loss ratios of the modeled Tropical Storm.

Table 5: Hurricane Wind Building Damage

Classification	Number of Buildings Damaged	Total Building Damage	Total Economic Loss[5]	Loss Ratio
Tropical Storm	5	$532,170	$532,470	0.02%

[5] Includes property damage (infrastructure, contents, and inventory) as well as business interruption losses.

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Note that wind damaged buildings are not reported by jurisdiction. This is due to the fact that census tract boundaries – upon which hurricane building losses are based – do not closely coincide with jurisdiction boundaries.

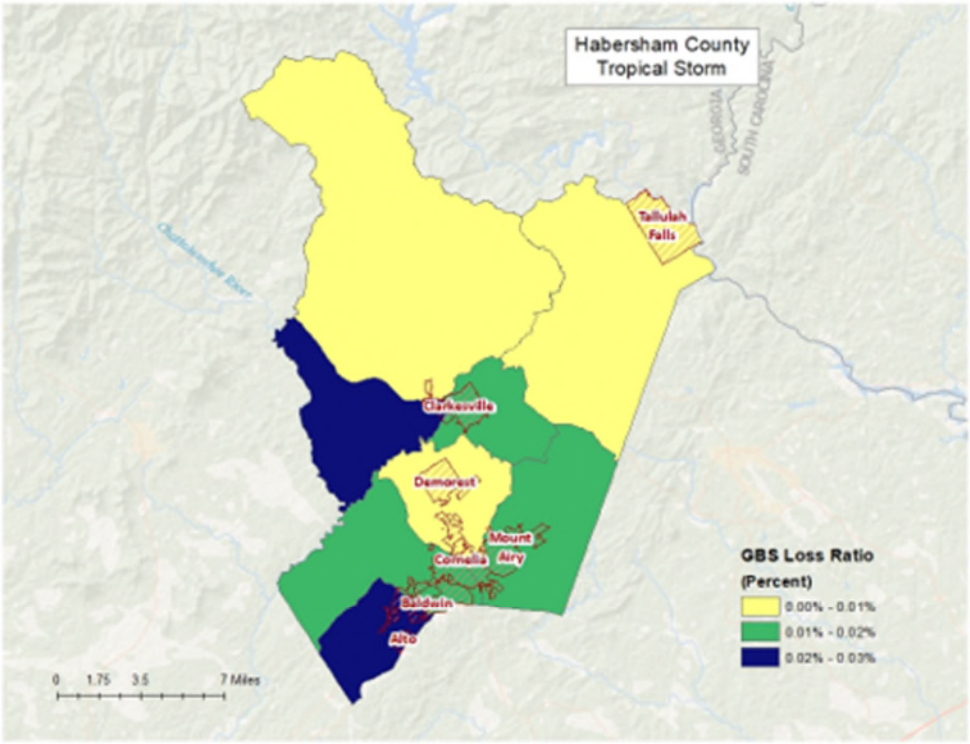

Figure 4: Hurricane Wind Building Loss Ratios

Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 44 essential facilities in Habersham County.

Classification	Number
EOCs	1
Fire Stations	16
Care Facilities	1
Police Stations	10
Schools	16

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Table 6: Wind-Damaged Essential Facility Losses

Classification	Facilities At Least Moderately Damaged > 50%	Facilities Completely Damaged > 50%	Facilities with Expected Loss of Use (< 1 day)
Tropical Storm	0	0	44

Shelter Requirements

Hazus-MH 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. Since the 1% chance storm event for Habersham County is a Tropical Storm, the resulting damage is not enough to displace Households or require temporary shelters as shown in the results listed in Table 7.

Table 7: Displaced Households and People

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

Debris Generated from Hurricane Wind

Hazus-MH 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 Table 8. 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 8: Wind-Related Debris Weight (Tons)

Classification	Brick, Wood, and Other	Reinforced Concrete and Steel	Eligible Tree Debris	Other Tree Debris	Total
Tropical Storm	20	0	0	0	20

Figure 5 shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 5 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.

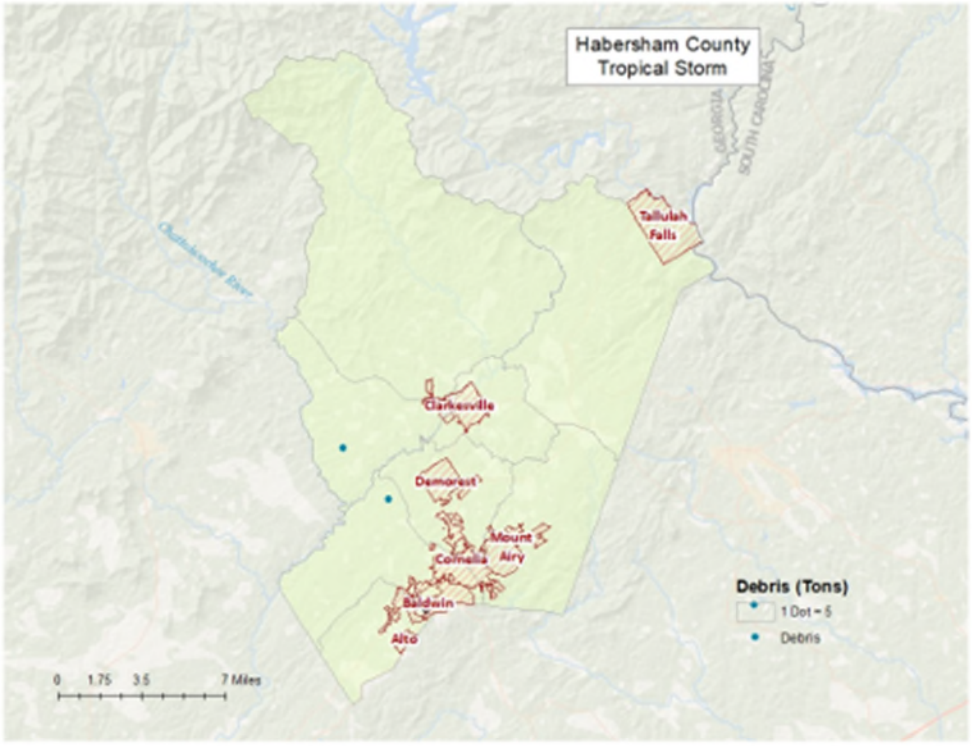

Figure 5: Wind-Related Debris Weight (Tons)

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Flood Risk Assessment

Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Habersham County flood risk assessment analyzed at risk structures in the SFHA.

> The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event (100-Year Flood) and a 1% annual chance coastal flood.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in July 2023. 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-MH to calculate the riverine flood loss estimates. Figure 6 illustrates the riverine inundation boundary associated with the 1% annual chance.

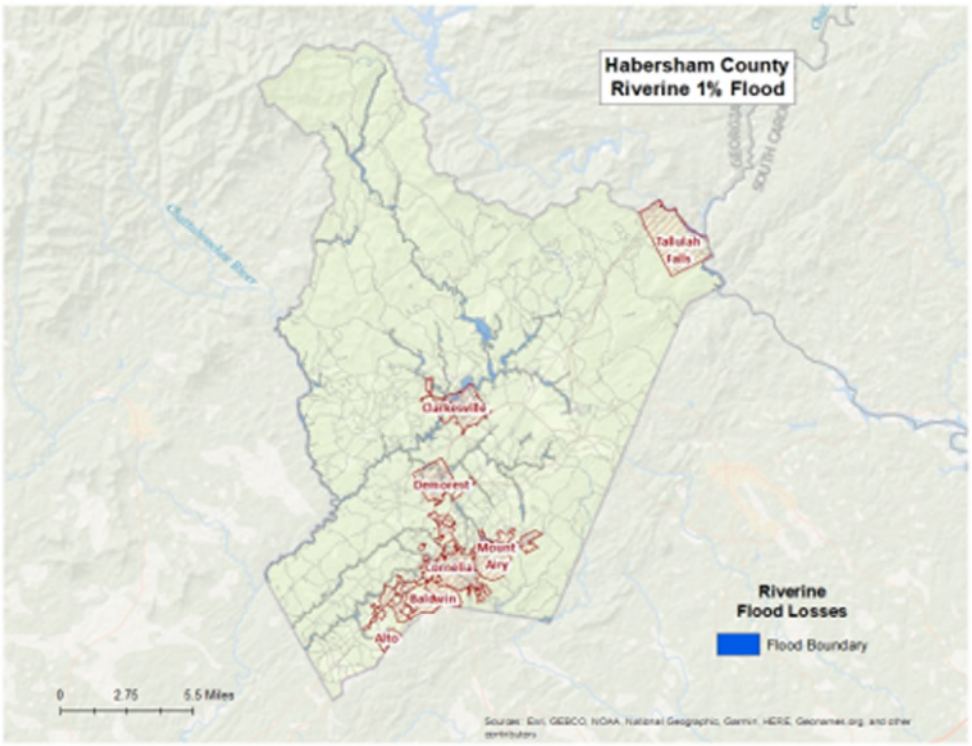

Figure 6: Riverine 1% Flood Inundation

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Riverine 1% Flood Building Damages

Buildings in Habersham 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. Table 9 provides a summary of the potential flood-related building damage in Habersham County by jurisdiction that might be experienced from the 1% flood. Figure 7 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 8 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Habersham County Riverine 1% Building Losses

Occupancy	Total Buildings in the Jurisdiction	Total Buildings Damaged in the Jurisdiction	Total Building Exposure in the Jurisdiction	Total Losses to Buildings in the Jurisdiction	Loss Ratio of Exposed Buildings to Damaged Buildings in the Jurisdiction
Baldwin					
Residential	455	1	$72,959,909	$38,589	0.05%
Clarkesville					
Residential	600	5	$99,530,091	$202,073	0.20%
Cornelia					
Residential	1,068	15	$189,684,342	$942,239	0.50%
Commercial	222	3	$42,048,295	$63,360	0.15%
Demorest					
Residential	496	6	$75,376,674	$513,583	0.68%
Education	7	1	$55,018,480	$1,543,193	2.80%
Unincorporated					
Commercial	250	2	$74,260,644	$5,019	0.01%
Government	16	1	$24,143,134	$316,619	1.31%
Residential	11,283	112	$2,032,090,845	$9,679,493	0.48%
County Total					
	14,397	**146**	**$2,665,112,413**	**$13,304,168**	

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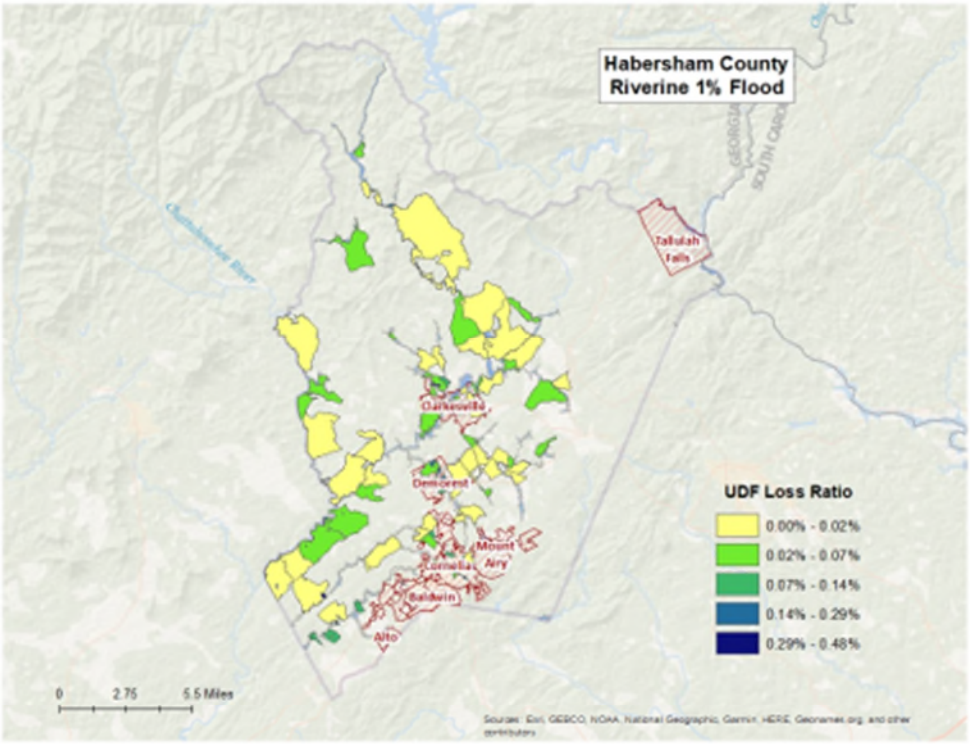

Figure 7: Habersham County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

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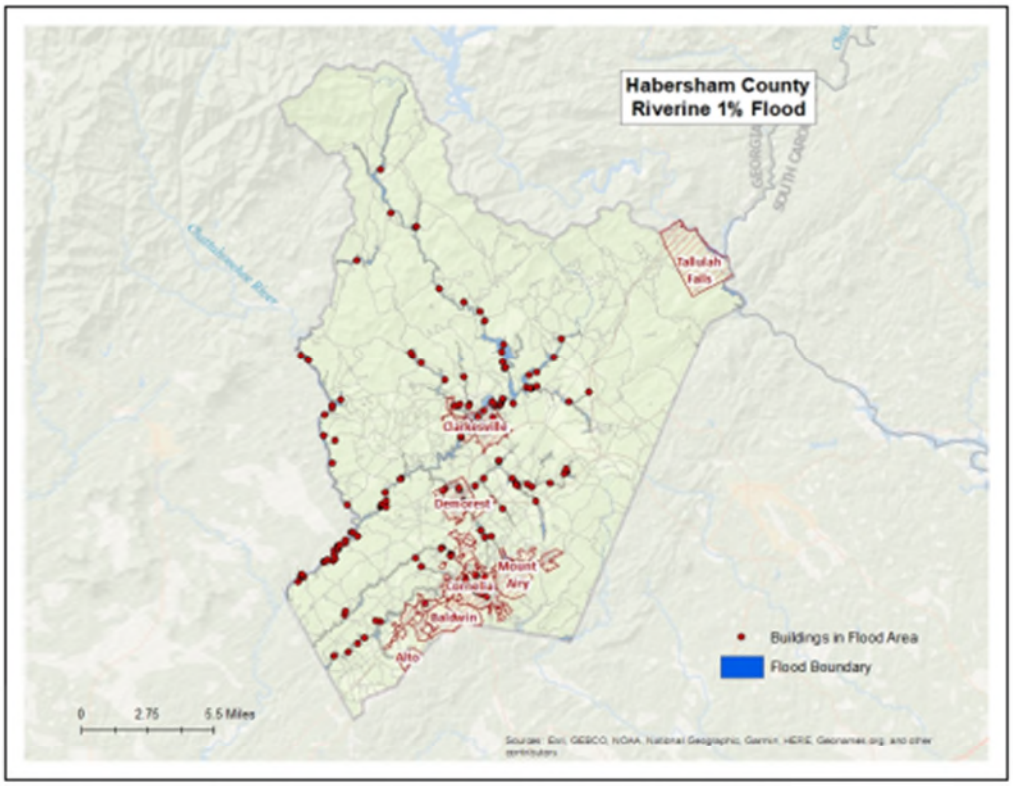

Figure 8: Habersham County Damaged Buildings in Riverine Floodplain (1% Flood)

Riverine 1% Flood Essential Facility Losses

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 analysis identified no essential facility that were subject to damage in the Habersham County riverine 1% probability floodplain.

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Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that 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 416 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 1,247 individuals, of which 315 may require short term publicly provided shelter. The results are mapped in Figure 9.

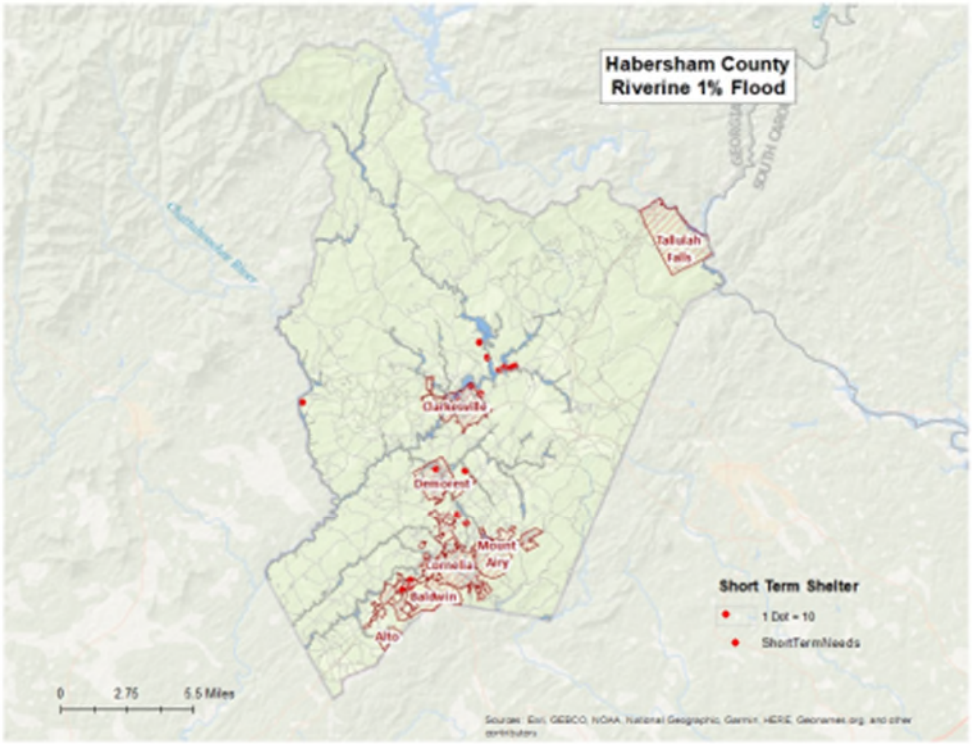

Figure 9: Riverine 1% Estimated Flood Shelter Requirements

Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. 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-MH are unique to the Hazus-MH 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 13,312 tons of debris might be generated: 1) Finishes- 3,459 tons; 2) Structural – 4,954 tons; and 3) Foundations- 4,899 tons. The results are mapped in Figure 10.

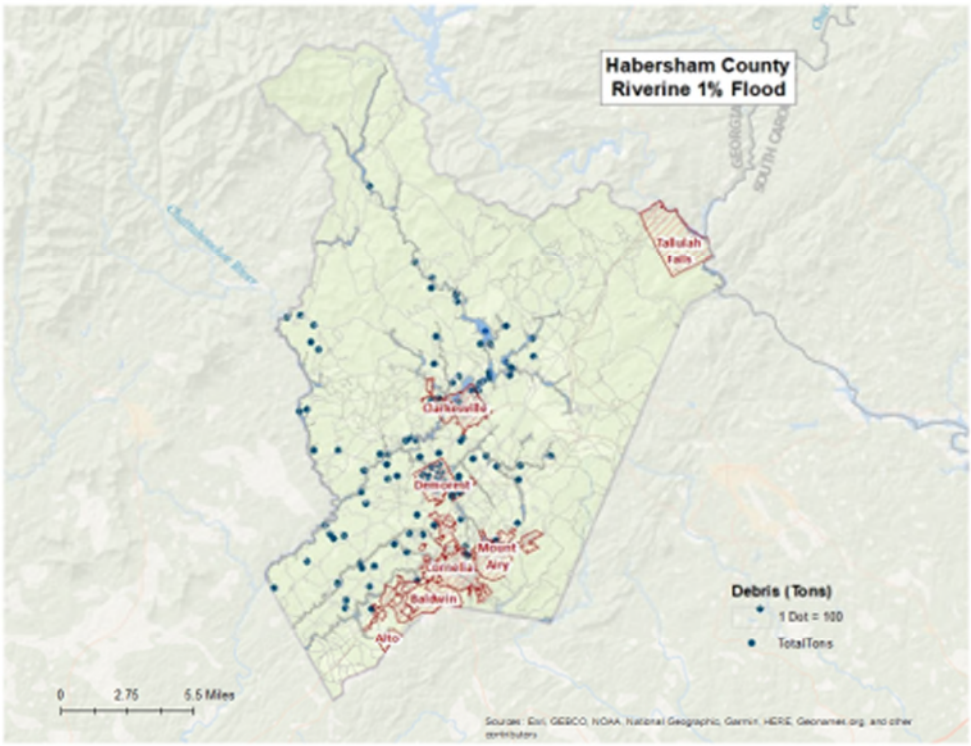

Figure 10: Riverine 1% Flood Debris Weight (Tons)

Tornado Risk Assessment

Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 10.

Table 10: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 *Gale*	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 Moderate	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 Significant	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 Severe	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 Devastating	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 Incredible	> 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: http://www.srh.noaa.gov

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Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel through Cornelia. 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. Table 11 depicts tornado path widths and expected damage.

Table 11: Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF-5	2,400	100%
EF-4	1,800	100%
EF-3	1,200	80%
EF-2	600	50%
EF-1	300	10%
EF-0	300	0%

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. Figure 11 describes the zone analysis.

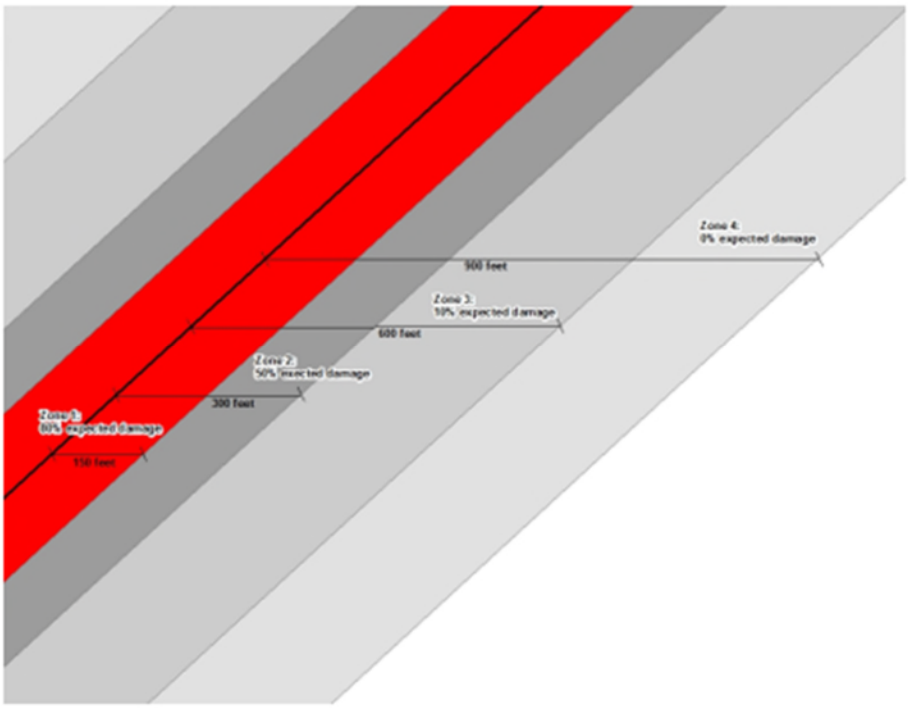

Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 12. 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. The selected hypothetical tornado path is depicted in Figure 12 and the damage curve buffer zones are shown in Figure 13.

Table 12: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

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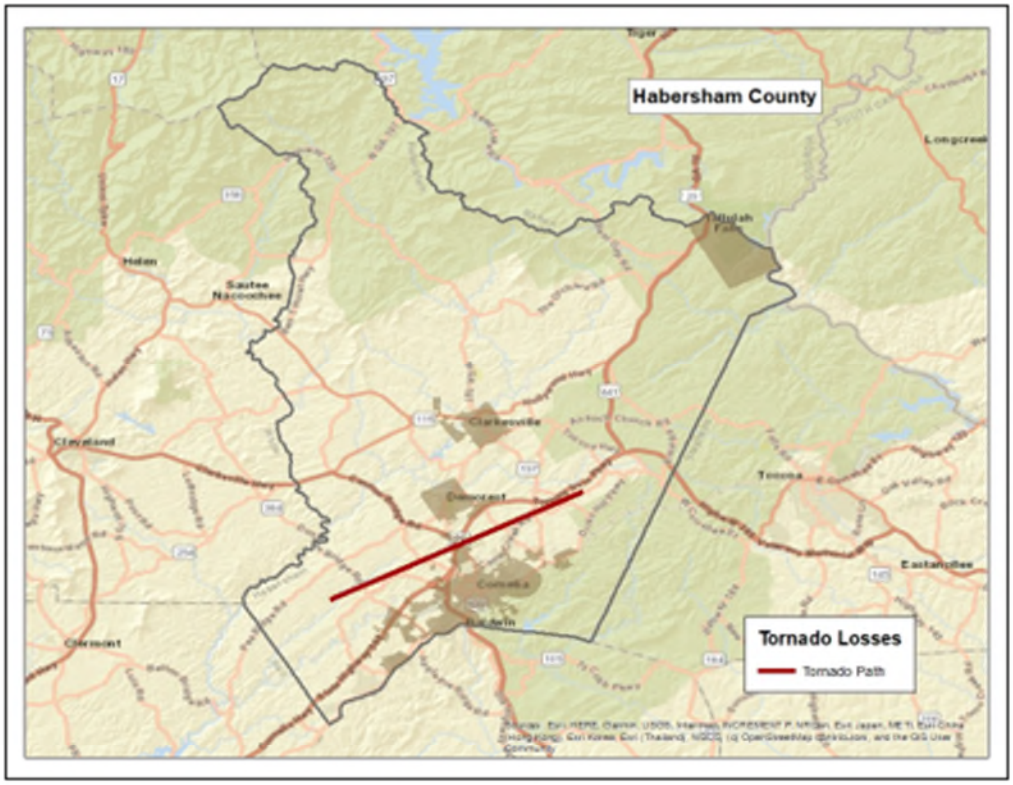

Figure 12: Hypothetical EF3 Tornado Path in Habersham County

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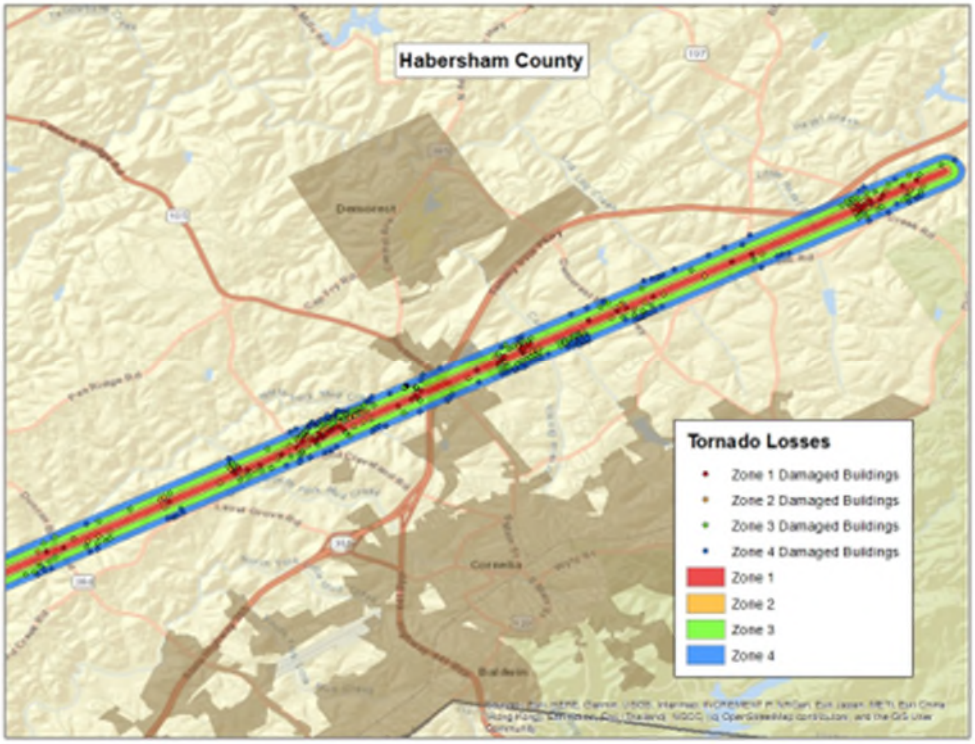

Figure 13: Modeled EF3 Tornado Damage Buffers in Habersham County

EF3 Tornado Building Damages

The analysis estimated that approximately 410 buildings could be damaged, with estimated building losses of $29 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 Habersham 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 Table 13.

Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Residential	388	$17,064,820
Commercial	10	$84,820
Industrial	5	$30,986
Religious	4	$386,715
Education	3	$11,728,417
Total	**410**	**$29,295,758**

EF3 Tornado Essential Facility Damage

There was one essential facility located in the tornado path – one school. Table 14 outlines the specific facility and the amount of damage under the scenario.

Table 14: Estimated Essential Facilities Damaged

Facility	Amount of Damage
South Habersham Middle School	Minor Damage

According to the Georgia Department of Education, South Habersham Middle School's enrollment was approximately 475 students as of March 2023. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location.

The location of the damaged Essential Facility is mapped in Figure 14.

Figure 14: Modeled Essential Facility Damage in Habersham County

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Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Habersham County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow named PDM_GA_Workflow.doc.

Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Habersham County.

Updates to the Critical Facility data used in GMIS were provided by Habersham County in July 2023. These updates were applied by The Carl Vinson Institute of Government at the University of Georgia. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Habersham County.

Table 15: Essential Facility Updates

Site Class	Feature Class	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
EF	Care	$23,292,000	1	$23,292,000	1
EF	EOC	$277,000	1	$335,000	1
EF	Fire	$7,909,000	17	$5,271,000	16
EF	Police	$9,112,000	7	$29,558,000	10
EF	School	$101,366,000	15	$84,751,000	16

County Inventory Changes

The GBS records for Habersham County were replaced with data derived from parcel and property assessment data obtained from Habersham County. The county provided property assessment data was current as of July 2023 and the parcel data current as of July 2023.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Habersham County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

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The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Habersham County was 83.18%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Habersham County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	4	0%
Construction Unknown	0	0%
Condition Unknown	2	0%
Foundation Unknown	0	0%
Year Built Unknown	0	0%
Total Buildings	**18,712**	**0%**

Approximately 0% of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing Year Built values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Habersham County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means ($/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

User Defined Facilities

Building Inventory was used to create Hazus-MH User Defined Facility (UDF) inventory for flood modeling. Hazus-MH flood loss estimates are based upon the UDF point data. Buildings within the flood boundary were imported into Hazus-MH as User Defined Facilities and modeled as points.

Table 17: User Defined Facility Exposure

Class	Hazus-MH Feature	Counts	Exposure
BI	Building Exposure	15,564	$3,066,620,793
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	161	$41,277,001

Assumptions

- Flood analysis was performed on Building Inventory. Building Inventory within the flood boundary was imported as User Defined Facilities. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Building Cost

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