HABERSHAM COUNTY HAZARD MITIGATION PLAN UPDATE 2018 - 2023

Habersham County Emergency Management Agency

Lux Mitigation and Planning Corp.

Habersham County, Georgia

Hazard Mitigation Plan Update

2018 – 2023

Prepared for the Habersham County Board of Commissioners

555 Monroe Street, Unit 20

Clarkesville, Georgia 30523

706.839.0200

www.habershamga.com

Habersham County's
Hazard Mitigation Plan Update 2018

This document was funded in part by the Hazard Mitigation Planning Grant awarded to the Habersham County Emergency Management Agency by the Georgia Emergency Management Agency (GEMA) to fulfill the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Habersham County's Hazard Mitigation Plan 2014 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.

Director Lynn Smith
Habersham County Emergency Management Agency
175 EOC Drive
Mt. Airy, Georgia 30563
lsmith@habershamga.com
706.778.9500

Resolution – Habersham County

RESOLUTION – HABERSHAM COUNTY, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN UPDATE 2018-2023

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 Update 2018 - 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 and the Mayors and Councils of the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy each meeting in respective session, that:

1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 Habersham County Board of Commissioners, in regular session, this 18th **day of** February**, 2019.**

Chairman

Lindsay D. Underwood

County Clerk

Resolution – Habersham County Municipalities

Requirement §201.6(c)(5)

RESOLUTION – CLARKESVILLE, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 City Council of Clarkesville in regular session this _____ day of _____, 2019.

_____ _____

Mayor City Clerk

RESOLUTION – BALDWIN, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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 Update 2018 - 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 and the Mayors and Councils of the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy each meeting in respective session, that:

1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 City Council of Baldwin in regular session this _____ day of _____, 2019.

_____ _____

Mayor City Clerk

RESOLUTION – CORNELIA, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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WHEREAS, the Plan will be updated every five years;

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1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 2023; and

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PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Cornelia in regular session this _____ day of _____, 2019.

_____ _____

Mayor City Clerk

RESOLUTION – DEMOREST, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Demorest in regular session this _____ day of _____, 2019.

_____ _____

Mayor City Clerk

RESOLUTION – MT. AIRY, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 Town Council of Mt. Airy in regular session this _____ day of _____, 2019.

_____ _____

Mayor Town Clerk

RESOLUTION – ALTO, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 Town Council of Alto in regular session this _____ day of _____, 2019.

_____ _____

Mayor Town Clerk

RESOLUTION – TALLULAH FALLS, GEORGIA

HABERSHAM COUNTY HAZARD MITIGATION PLAN 2018-2023

WHEREAS, Habersham County and its municipalities recognize that it is threatened by a number of 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

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1) Habersham County, Georgia, the Cities of Clarkesville, Baldwin, Cornelia, and Demorest and the Towns of Alto, Tallulah Falls, and Mt. Airy have adopted the Habersham County Hazard Mitigation Plan Update 2018 - 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 Town Council of Tallulah Falls in regular session this _____ day of _____, 2019.

_____ _____

Mayor Town Clerk

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. In an effort 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 Clarkesville
City of Cornelia
City of Demorest
Town of Alto
Town of Mt. Airy
Town of Tallulah Falls

Table of Contents

CHAPTER THREE – HAZARD PROFILES (CONTINUED)

APPENDICIES

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 2014.

Chapter 1 Section	Updates
Introduction	• Identification of Mitigation Goals
Authority	• New Section – Not in 2014 Mitigation Plan
Funding	• New Section – Not in 2014 Mitigation Plan
Scope	• New Section – Not in 2014 Mitigation Plan
Purpose	• Updated from 2014 Mitigation plan
Consistency with Federal Guidelines	• New Section – Not in 2014 Mitigation Plan
Plan Review	• New Section – Not in 2014 Mitigation Plan
Hazard Mitigation Plan Update Committee	• Updated committee list to match the 2018 planning participants
Public Participation	• New Section – Not in 2014 Mitigation Plan
Multi-Jurisdictional Considerations	• Updated with requirement descriptions
Incorporation of Existing Plans, Studies, and Resources	• Updated information from existing plans, studies, and resources

Introduction

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 in an effort 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 Protect the public health and safety

GOAL 2 Reduce and eliminate (to the extent possible) community exposure to natural and technological hazard events

GOAL 3 Reduce loss and damage to private property and public infrastructure resulting from natural or technological hazards

GOAL 4 Maintain continuity of public and private sector operations during and after hazard events

GOAL 5 Respond promptly, appropriately, and efficiently in the event of natural or technological hazards

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

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.

Funding

Habersham County was awarded a $32,000 Hazard Mitigation Planning Grant by FEMA through GEMA for the update of Habersham County's 2014 Hazard Mitigation Plan. FEMA contributed 75% of the total cost of the Plan Update. The Hazard Mitigation Planning Grant required a 25% 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.

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).

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.

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 build safer, more disaster resistant communities;
- Develop strategies for long-term community sustainability during community disasters; and,
- Develop governmental and business continuity plans that will continue essential private sector and governmental activities during disasters.

FEMA publishes several guidance documents for local governments on mitigating natural disasters. The updated 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.

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

- Develop mitigation incentives with insurance agencies and lending institutions;

- Encourage the creation of a business continuity plan for the continuance of commerce during and following a disaster; and,

- Partner with local businesses to educate customers about potential hazards in the community and possible mitigation ideas.

Individual 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.

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 2014 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 2014 Plan was reviewed. Hazard vulnerability and risk assessment data was updated, as was critical infrastructure information.

Special attention and consideration was given to the review and edit of mitigation strategies listed in the 2014 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 2018 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.

Habersham County Hazard Mitigation Plan Update Meeting Dates:

Tuesday, September 26, 2017	Kick-Off Meeting
Wednesday, October 25, 2017	Hazard Identification and Prioritization; Risk Assessment Analysis
Wednesday, January 24, 2018	Analysis of Hazard Profile Research; Review and Edit of Current Hazard Mitigation Strategies
Wednesday, February 28, 2018	Identification of New Hazard Mitigation Strategies
Tuesday, March 27, 2018	Update of Critical Facilities; Presentation of Habersham County Hazard Mitigation Plan Rough Draft
Tuesday, April 25, 2018	Review and Edit of Habersham County Hazard Mitigation Plan Final Draft (Public Meeting #1)

A second pubic meeting will be held prior to the Board of Commissioner's Meeting to approve the Habersham County Hazard Mitigation Plan Update 2018-2023

Each section of Habersham County's 2014 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. Major plan changes include the following:

- Addition of Tropical Cyclone to Natural Hazards
- Addition of Terrorism to Technological Hazards
- Addition of Transportation Incident to Technological Hazards
- Addition of Communications Failure to Technological Hazards
- Addition of Emergent Infectious Diseases to Technological Hazards

Hazard Mitigation Plan Update Committee

Requirement §201.6(b)(2)

The following members, representing various jurisdictions, city and county departments, and community organizations and businesses, participated in the update of Habersham County's 2014 Hazard Mitigation Plan.

Habersham County Hazard Mitigation Plan Update Committee – 45 Members

Shane Adams
Sergeant
City of Cornelia Police Department

Melanie Allen
Terminal Agency Coordinator
City of Alto Police Department

Victor Anderson
County Commissioner
Habersham County Board of Commissioners

Brad Barrett
Chief of Police
City of Clarkesville Police Department

Melanie Bellinger
Assistant Director
Habersham County E911/Emergency Management Agency

Chad Black
Director
Habersham County Emergency Services

Michael Bramlett
Director
Habersham County Facilities Maintenance

Jeffery Cain
Fire Chief
Habersham County Emergency Services

Floyd Canup
Captain
Habersham County Sheriff's Office

Derick Canupp
Director
Habersham County Public Works

Casey Chastain
Assistant Chief
City of Demorest Police Department

Kurt Cooper
Director
Habersham County Parks & Recreation

Chad Dyer
Fire Chief
City of Cornelia Fire Department

Keith Ethridge
Utilities Director
City of Cornelia

Caleb Gaines
Zoning Administrator
City of Clarkesville

William Goatcher
Chief of Police
City of Tallulah Falls Police Department

Wayne Green
Lieutenant
City of Cornelia Police Department

Stacy Hall
County Commissioner
Habersham County Board of Commissioners

Andrea Harper
County Commissioner
Habersham County Board of Commissioners

Josh Hazle
Fire Marshal
City of Cornelia Fire Department

Heidi Hook
Director
Habersham County Finance

James C. Irby, Jr.
Mayor
City of Cornelia

Josh Ivey
Chief of Police
City of Alto Police Department

Tim Jarrell
Chief of Police
City of Mt. Airy Police Department

Billy Joe Jenkins, Jr.
Assistant Fire Chief
City of Cornelia Fire Department

Clinton Jones
Police Officer
City of Demorest Police Department

Robin Krockum
Chief of Police
City of Demorest Police Department

Stan Lovell
Chief of Police
North Georgia Technical College

Matthew Nall
Police Officer
City of Tallulah Falls Police Department

Kayla Neal
Terminal Agency Coordinator
City of Alto Police Department

Ed Nichols
County Commissioner
Habersham County Board of Commissioners

Angela Palmer
GCIC Operator
City of Alto Police Department

Jason Poole
Fire Chief
City of Clarkesville Fire Department

Bill Ramsey
Paramedic
Habersham County Emergency Medical Services

Kenneth Ranalli
Fire Chief
City of Demorest Fire Department

Jonathan Roberts
Assistant Chief of Police
City of Cornelia Police Department

Joseph Roy
Fire Chief
City of Baldwin Fire Department

Shannon Lee Schenck
Director
City of Alto Police Department

Kristi Shead
City Manager
City of Demorest

Lynn Smith
Director
Habersham County E911/Emergency Management Agency

John H. Stamey
Superintendent
Habersham County Roads Department

Phil Sutton
County Manager
Habersham County, County Manager's Office

Marie G. Taylor
Chief of Police
Piedmont College Campus Police Department

Lindsay Underwood
County Clerk
Habersham County Board of Commissioners

Tracy Williamson
Director
Habersham County Information Technology

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 that may have a role in the implementation of mitigation actions and/or policies. These efforts included sending invitations via email to attend the Kick-off Meeting, sending reminder emails before each upcoming meeting, emailing pertinent information throughout the process, and requesting the review and critique of each chapter in the updated Plan.

In addition to the Habersham County Hazard Mitigation Plan Update Committee, all surrounding counties – Banks, Hall, Rabun, Stephens, Towns, White, Oconee

(South Carolina) – will be provided a copy of this FEMA approved plan for their review. This plan will be provided to each County EMA office. For the next Plan Update, it was decided that the EMA Directors from surrounding counties should be asked to attend the Plan Update Committee meetings, in hopes they will 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 2014 Mitigation Plan: North Georgia Technical College and Piedmont College

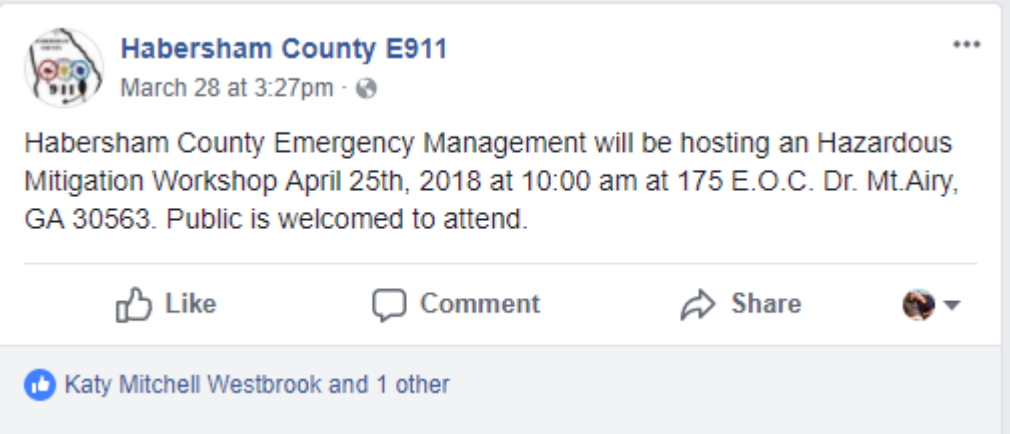
The Plan Update Committee took it upon themselves to ensure the processes undertaken for the development, implementation, and maintenance of the 2018 Hazard Mitigation Plan adequately considered public needs and viewpoints.

A list of public outreach initiatives can be found below:

- Emails were sent to all Habersham County Hazard Mitigation Plan Update Committee members and other stakeholders prior to every meeting. Recipients were encouraged to share the meeting invitation with others in their and other organizations who would benefit and benefit from the Habersham County Hazard Mitigation Plan update. Additionally, committee members were encouraged to invite others within the Habersham County community who would benefit from participation in the Hazard Mitigation Plan process.
- A Public Meeting was held on April 25, 2018. This meeting was advertised through multiple mediums, including through Social Media. The public was encouraged to attend this meeting to provide feedback and insight on the 2018-2023 Habersham County Hazard Mitigation Plan Update. No members of the public accepted the invitation to participate and no public feedback was provided.
-

Documentation of Public Meeting Notice

Habersham County E911 Facebook Post for April 25, 2018 Meeting

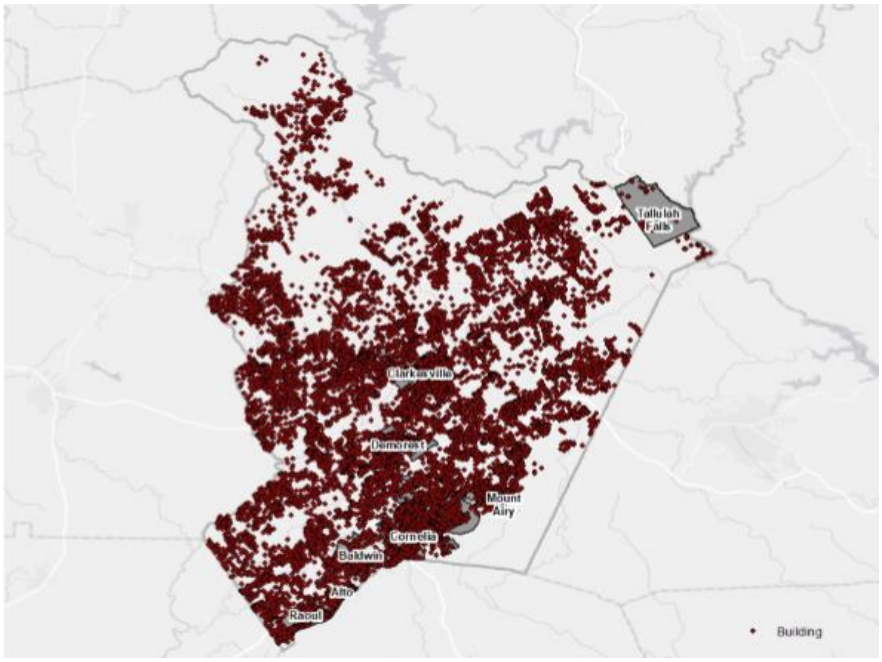


Multi-Jurisdictional Considerations

FEMA does not require cities and towns to adopt a local Hazard Mitigation Plan. However, the Federal DMA 2000 requires that all municipalities, wishing to be eligible to receive Hazard Mitigation Grants through FEMA, must adopt a local multi-hazard mitigation plan and must update that plan every five years. Habersham County's Hazard Mitigation Plan was approved by FEMA in 2014, and the 2018 Plan Update provides the first five-year update. This approved Hazard Mitigation Plan makes Habersham County and its municipalities 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, the Municipalities of Clarkesville, Cornelia, Baldwin, Demorest, Mt. Airy, Tallulah Falls, and Alto. During the creation and update of this Plan, Habersham County Emergency Management Agency solicited and received participation from the following Habersham County municipalities: Clarkesville, Cornelia, Baldwin, Demorest, Mt. Airy, Tallulah Falls, and Alto. Therefore, the result is a truly multi-jurisdictional plan. A few mitigation action steps identified in this plan update may apply to selected jurisdictions. These steps are identified in the appropriate sections. Unless specifically noted otherwise, most steps apply equally to all jurisdictions.

Location of Buildings in Habersham County



Source: 2018 Habersham County HAZUS Report

Incorporation of Existing Plans, Studies, and Resources

Requirement §201.6(b)(3)

State Requirement Element F3

Existing Plans

2014 Habersham County Pre-Disaster Hazard Mitigation Plan
2014 State of Georgia Hazard Mitigation Plan
Habersham County Local Emergency Operations Plan
Georgia Forestry Commission's Habersham County Community Wildfire Protection Plan (CWPP)
2029 Habersham County Joint Comprehensive Plan
2018 Habersham County HAZUS Report

Studies

2012 United States Department of Agriculture Ag Census
2010 United States Census and 2017 US Census Estimates
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
NOAA Office of Coastal Management
Habersham County Tax Assessor's Data
Habersham County Website – www.habershamga.org
GMIS Database
City University of New York
Colorado State University
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 Environmental Protection Division – Watershed Protection Branch

Application of Existing Plans and Studies

Existing Planning Mechanism	Reviewed? Yes/No	Incorporation Into Mitigation Plan
2014 Habersham County Hazard Mitigation Plan	Yes	Baseline for the 2018 Plan; updated mitigation strategies; updated hazards; updated Habersham County information
2014 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
2012 USDA Agriculture Census	Yes	Agricultural data regarding potential losses for drought and wildfire
2010 United State 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
2029 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
2018 Habersham County HAZUS Report	Yes	To assist with risk and vulnerability assessment; Identify potential hazard impacts and damages
Habersham County Flood Mitigation Assistance Plan	No	No such plan exists

CHAPTER TWO
–
HABERSHAM 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 2014.

Chapter 2 Section	Updates
Past Hazards	• New Section – Not in 2014 Mitigation Plan. 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	• New Section – Not in 2014 Mitigation Plan. Some of these events were listed in the hazard profiles in the previous plan.
Demographics	• Updated data to the 2010 Census and 2015 Census Estimate information
Economy	• New Section – Not in 2014 Mitigation Plan
Government	• New Section – Not in 2014 Mitigation Plan
Municipalities	• New Section – Not in 2014 Mitigation Plan
Transportation	• New Section – Not in 2014 Mitigation Plan
Climate	• New Section – Not in 2014 Mitigation Plan
Utilities	• New Section – Not in 2014 Mitigation Plan
NFIP Compliance	• New Section – Not in 2014 Mitigation Plan as a standalone section

Past Hazards

Habersham County has faced many hazards in its long history. Severe Thunderstorms have been, perhaps, the most prevalent of these hazards. In the last 50 years, Habersham County has been subjected to 155 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 in Habersham County, although with much less frequency. There have been 13 documented tornadoes in the last fifty years in Habersham County.

Because of heavy rainfall either within or upstream from Habersham County, flooding has occurred in the past as well. Documentation of 25 flooding events exist within the National Climactic Data Center of the National Weather Service for Habersham County.

Winter storms and heavy snowfall have affected Habersham County infrequently in the last 50 years. These events are not a yearly occurrence and typically do not have the pre-planning in place when compared to Northern and Western states who see this type of weather phenomena regularly. The NCDC record 64 documented winter storm or heavy snow events for Habersham County with 9 of those having occurred in the last 5 years.

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

Habersham County has had 12 FEMA Federal Disaster Declaration, most recently in 2017 (Hurricane Irma)

History

Habersham County, in the foothills of the Blue Ridge Mountains of northeast Georgia, is the state's forty-sixth county. Created in 1818 from land formerly held by Cherokee Indians, it was named after Joseph Habersham, an army officer during the Revolutionary War (1775-83) and a U.S. postmaster general.

Habersham County was enlarged in 1828 and 1829 when more Cherokee lands were added to it. At one time it encompassed 713 square miles, but through the years parts of it were taken to help form Banks, Cherokee, Lumpkin, Rabun, Stephens, and White counties, decreasing Habersham County to 278 square miles.

The first white inhabitants, enticed by free land distributions, came after the Indian cessions of 1818 and 1819. They settled along the banks of the county's four major rivers, the Chattahoochee, Soque, Tallulah, and Tugaloo. The white population increased slowly until gold was discovered in northeast Georgia; the ensuing gold rush brought sudden growth, eventually resulting in the removal of the Cherokees from the area in 1838. Soon thereafter wealthy slave-owning planters established themselves in parts of the county that have since been annexed by other counties.

Early industries included leather tanning, iron mining, and the processing and mining of such other minerals as asbestos, cynanite, and tourmaline. During the Civil War (1861-65) the Habersham Iron Works and Manufacturing Company produced arms for the Confederacy.

Nearly 1,000 men from Habersham fought for the Confederacy. On October 12, 1864, Confederate troops defeated Union troops at the Battle of Narrows (also called the Battle of Currahee), which was fought at a mountain pass in the county. The Confederate victory is said to have saved Habersham County from pillage by the Union troops.

Between 1870 and 1900 the county's economy was enhanced by the arrival of railroads, the planting of apple orchards and vineyards, and the founding of Piedmont College. When rail travel through the Blue Ridge brought tourists to the Tallulah Gorge beginning in 1882, Habersham County shared a tourist-based economic boost with neighboring Rabun County. Immigrants from Europe (primarily from Germany and Switzerland) arrived in the 1880s to plant vineyards and set up wineries, but the state of Georgia adopted a strict prohibition law before their labor could yield profits, and many of them returned to Europe.

Clarkesville was incorporated as a village and designated the county seat in 1823. The current courthouse, the fourth, was built in 1963. During the nineteenth century Clarkesville, with its temperate summers, attracted well-to-do families hoping to escape the heat of south Georgia. For a time there were county residents who

strongly wished to relocate the county seat to Toccoa (then in Habersham County), leading to such a feud that when the Clarkesville courthouse was blown up in 1898, those advocating the move to Toccoa were blamed. The feud was ultimately resolved by the creation of Stephens County in 1905 with Toccoa as its seat.

Other incorporated communities in the county are Alto, Baldwin, Cornelia, Demorest, Mount Airy, and Tallulah Falls. In the 1870s the high point (the "altus") of the railroad line through the area was located at Alto, and the town took its name from this railroad term. There the Northeastern Railroad connected the Richmond-Danville Air Line Railroad. Baldwin was incorporated in 1896, taking its name from Joseph A. Baldwin, an Atlanta-Charlotte Air Line Railroad official. Demorest was founded in 1889 as a planned community advocating temperance. Its original settlers were from the Midwest and New England, and the town's architecture reflects their influence.

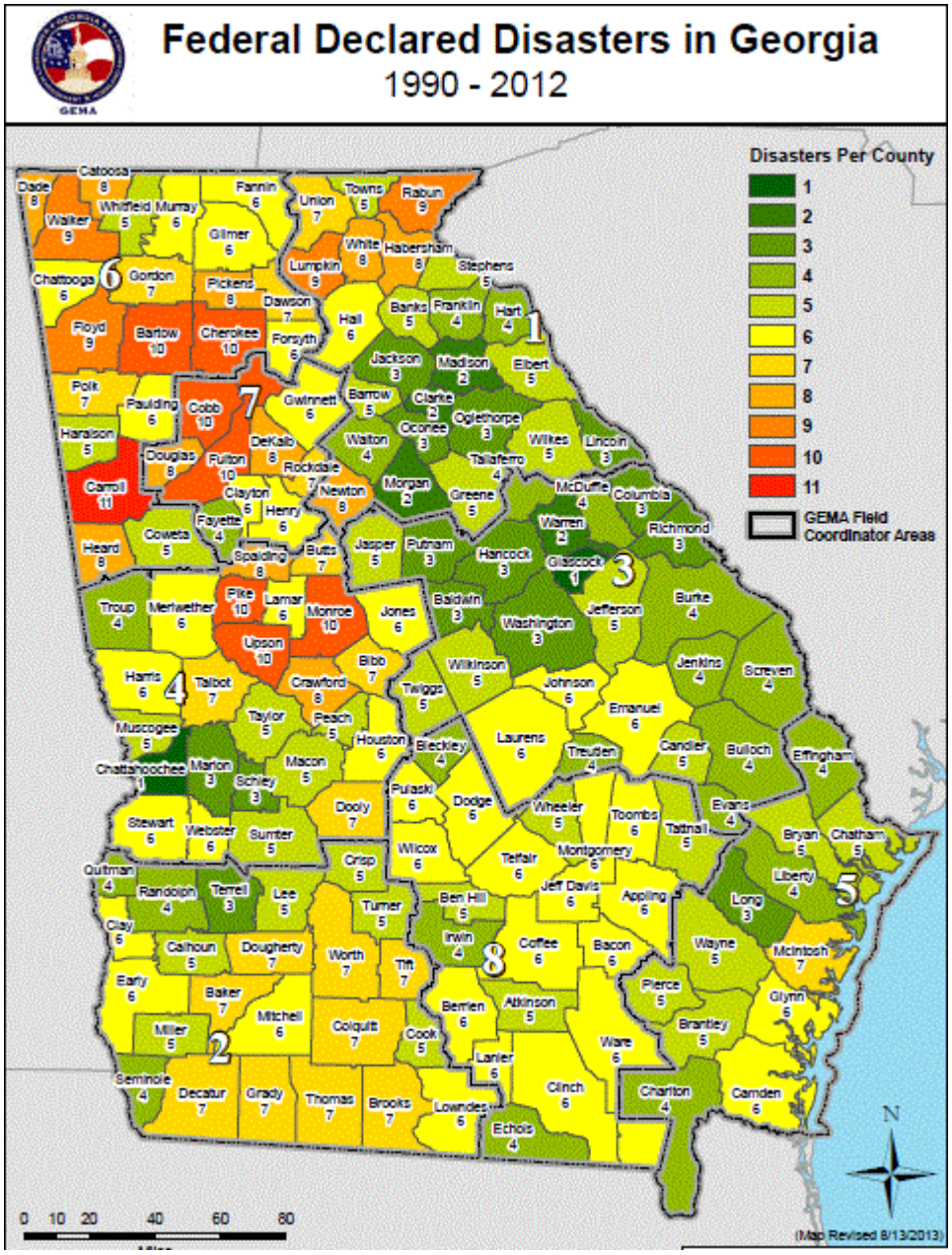
Notable agricultural products from this county are apples and poultry. The county has capitalized on the market for retirement and summer/weekend homes by encouraging such development. Homesites along the shores of Lake Russell and many other smaller lakes have increased the property tax base, resulting in a solid financial status for the county.

Several museums are located in Habersham County: the Cornelia Railroad Depot Museum; the Johnny Mize Museum; the Loudermilk Boarding House Museum, which is listed on the National Register of Historic Places and home of the Panoramic Encyclopedia of Everything Elvis; and the Mauldin House Visitors Center. The 100-acre Lake Russell, which is part of the Chattahoochee National Forest, and Panther Creek Park and Falls are popular sites for outdoor activities. Notable residents include baseball player Johnny Mize.

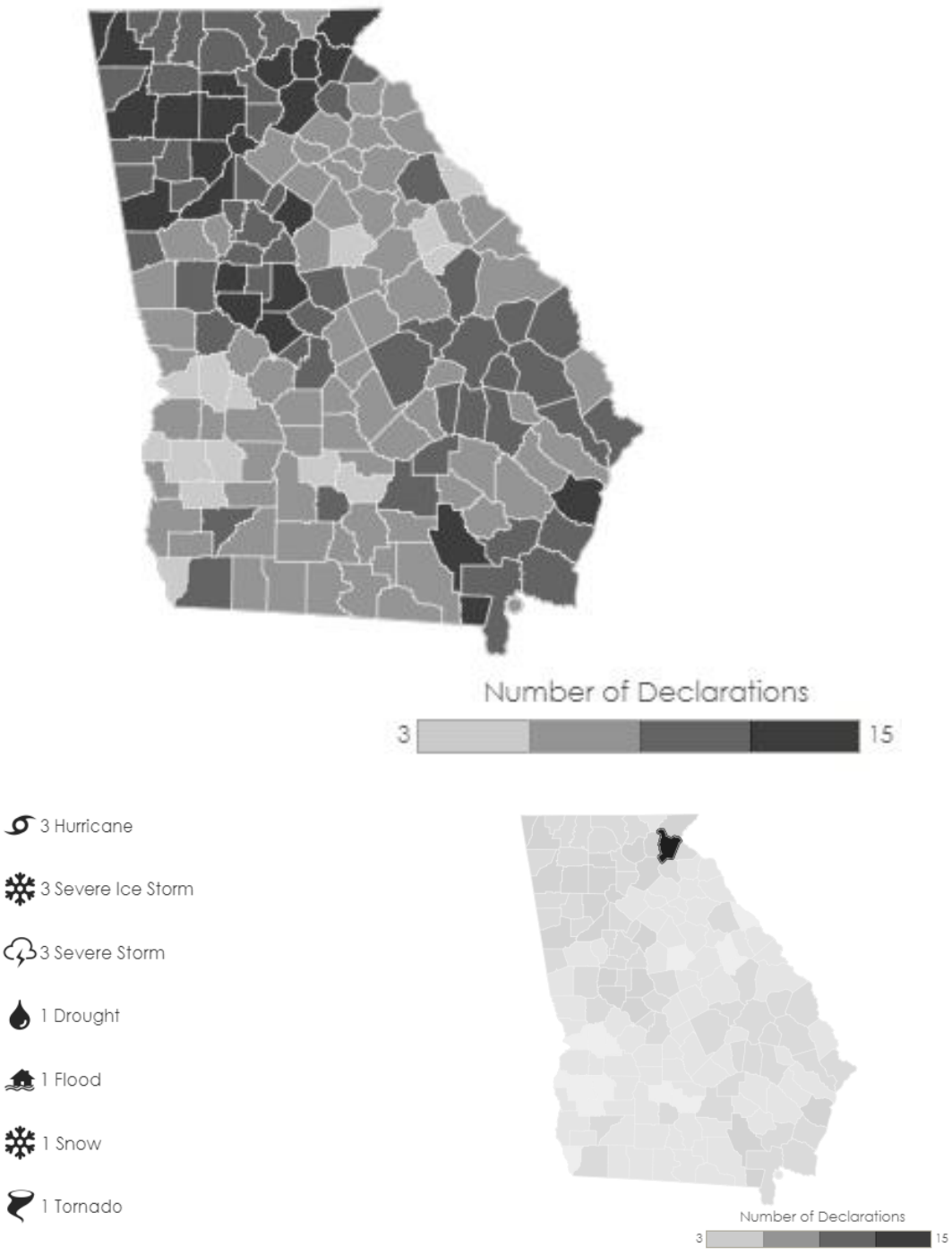
The county is home to two institutions of higher learning. Piedmont College is located in Demorest, and North Georgia Technical College is located in Clarkesville.

Past Events

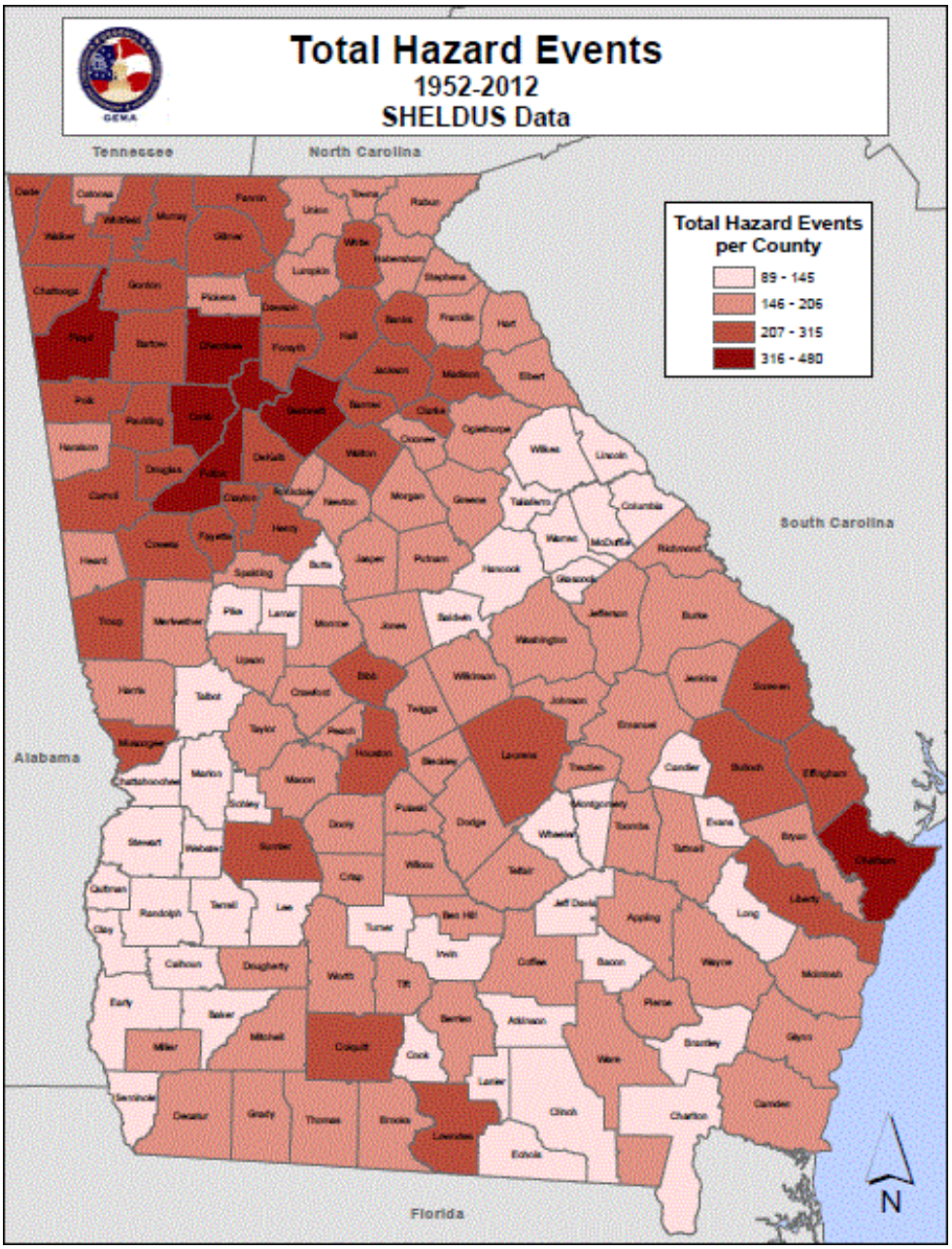
- **2017, Hurricane Irma (Federal Declaration)**
- **2015, Winter Storm (Federal Declaration)**
- **2014, Winter Storm (Federal Declaration)**
- **2011, Tornado (EF2) (Federal Declaration)**
- 2005, Thunderstorm Wind Event
- 2005, Ice Storm
- 2004, Flood (Tropical Storm Frances)
- **2004, Flood (Hurricane Ivan) (Federal Declaration)**
- 2002, Ice Storm
- **2000, Winter Storm (Federal Declaration)**
- **1998, Severe Storms/Flooding (Federal Declaration)**
- 1997, Tornado (F1)
- 1997, Ice Storm
- **1995, Hurricane Opal (Federal Declaration)**
- 1994, Tornado (F1)
- **1994, Tornado (F1) (Federal Declaration)**
- **1993, Blizzard (Federal Declaration)**
- 1989, Tornado (F3)
- 1989, Tornado (F2)
- 1983, Tornado (F1)
- 1979, Tornado (F1)
- **1977, Drought (Federal Declaration)**
- 1976, Tornado (F2)
- **1976, Severe Storms/Flooding (Federal Declaration)**



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



Source: FEMA Disaster Declarations for State and Counties Data Visualization



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

Demographics

	2010 Census	2015 Estimation
Population	43,041	43,527
White	85.7%	87.8%
African-American	3.9%	3.8%
Hispanic/Latino	12.4%	13.5%
Asian	2.6%	2.2%
American Indian	1.1%	0.2%
Two or More Races	1.8%	1.5%
Median Age	38.6	38.8
Median Household Income	$40,907	----
Person Below Poverty Line	17.8%	----
Homeowners	74.9%	----

	2010 Census	2015 Estimation
Clarkesville	1,733	1,937
Baldwin	3,297	3,467
Cornelia	4,160	4,199
Demorest	1,823	1,842
Alto	1,172	1,165
Mt. Airy	1,284	1,233
Tallulah Falls	168	90

Economy

Habersham County's economy is primarily agricultural with some light industry. Habersham County's cost of living is 12.2% below the national average. The unemployment rate in Habersham County is 5.1%, which is identical to the State average of 5.1% and slightly above the National average of 4.5%. Habersham County has a median household income of $40,907, which is well below the national average of $51,914. Recent economic problems in Georgia and nationwide have affected these figures.

The ten largest private employers in Habersham County are:

Company	Product/Service
Etcon Employment Solutions	Employment Services
Ethicon, Inc.	Medical Supplies and Solutions
Georgia Department of Corrections	Correctional Facility
Ingles Markets, Inc.	Grocery
Mt. Vernon Mills, Inc.	Manufacturing
Poultry Country and Farm Supplies	Specialized Retail Store
Piedmont College	Private Institute of Higher Education
Walmart	Retail Department Store
Windstream Georgia, LLC	Telecommunications
Zaxbys	Food Services

The above list is in alphabetical order, not in order of company size. This data is according to the Georgia Department of Labor, 2016.

Government

Habersham County's governing authority is the Habersham County Board of Commissioners.

Habersham County is divided into five districts; and the five members of the Board of Commissioners are elected at-large for staggered, four-year terms. The chairman and vice-chairman of the Board of Commissioners are elected by the Board annually at their January meeting.

The general duties of the Commissioners are:

- To enact resolutions and ordinances for the general health, safety and welfare of the residents of Habersham County
- To levy taxation when necessary to finance the operation of county government
- To plan for future public service needs
- To provide necessary services to safeguard the well-being and safety of county residents

County Commissioners have authority over the construction and maintenance of county roads, election facilities and equipment, the airport, and parks and recreational facilities. The Commission's taxing power allows the County to have law enforcement personnel, patrol cars, courthouses and jails.

County Commissioners affect the lives of residents more directly - and more often - than the governor, state senators and representatives, judges, the mayor, or the sheriff. County Commissioners have taxing and spending power over the departments that record your birth, your marriage, your vote, your death, your burial, your purchase or sale of real estate and the legal uses of property, the disposal of property, both real and personal. Commissioner's have a role in the establishment, and often in the operations of hospitals, emergency medical service, and rescue units. County Commissioners even oversee the collection of school tax through the Tax Commissioner's office.

Commissioners may administer any function for which they are allowed to tax, and the Georgia Constitution enumerates those purposes. They include care for indigents, establishment and maintenance of libraries, 911 centers, fairgrounds, civic centers, senior centers, and child daycare.

As populations and the need for services have increased over the past 50 years, counties are offering even more services. Landfills, fire and police protection, water and sewer departments, animal control, economic development and land-use planning have been added to the Commissioners' oversight. Since the nuclear scares

of the early 1950s triggered the creation of the Civil Defense, counties have become responsible for what is now known as Emergency Management to cope with storms, floods or terrorist attacks.

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 population growth.

Freight rail services owned and operated by Norfolk Southern Railroad traverse the southeast corner of Habersham County, including the municipalities of Mt. Airy, Baldwin, and Cornelia.

Habersham County Airport, located two miles southwest of the center of Cornelia, is the lone airport serving Habersham County. It has a single asphalt runway measuring 5, 506 feet.

Climate

Habersham County, like much of Georgia, enjoys a temperate climate. As a result, Habersham County has four well-defined seasons: warm to hot summers; brisk fall temperatures; relatively brief, cool winters; and a warm spring season. As a result, there exists a long growing season in Georgia, perfect for ornamental and economic-boosting agricultural plants. Habersham County's proximity to the Appalachian Mountains can lead to cooler summers and colder winters than other parts of the State of Georgia.

AVERARE MONTHLY TEMPERATURES IN GEORGIA (FAHRENHEIT)

Month	Georgia Average Temperature	Habersham County Average Temperature
January	46	44
February	49	45
March	56	53
April	63	61
May	70	68
June	77	76
July	80	77
August	79	79
September	74	72
October	64	61
November	56	52
December	48	45

Utilities

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

Electrical power to Habersham County is provided by Habersham EMC and Georgia Power.

Propane and natural gas is the primary source of heating and cooking fuel for Habersham County's residents. This fuel is delivered to residents and businesses by tank truck on an ongoing basis, especially during peak winter months. Many gas marketers do provide limited natural gas service in Habersham County. There are many propane distributors with large quantities of propane stored on site.

National Flood Insurance Program (NFIP) Compliance

Jurisdiction	Participating?	Participation Date
Habersham County	yes	4/2/1991
Clarkesville	Yes	2/17/1988
Baldwin	No	----------
Cornelia	yes	8/1/1986
Demorest	Yes	11/15/2010
Alto	Yes	10/3/2006
Mt. Airy	Yes	6/2/2009
Tallulah Falls	Yes	8/13/1982

CHAPTER THREE
–
HAZARD PROFILES

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 2014.

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 Thunderstorms	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Winter Storms	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Flooding	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • 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 hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Drought	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Content revised

Natural Hazard Wildfire	• Updated hazard description to match information in the Georgia State Hazard Mitigation Plan • Updated and consolidated hazard profile data • Content revised
Natural Hazard Earthquake	• Updated hazard description to match information in the Georgia State Hazard Mitigation Plan • Updated and consolidated hazard profile data • Content revised
Natural Hazard Tropical Cyclone	• New Section – Not in 2014 Plan
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	• New Section – Not in 2014 Plan
Technological Hazard Terrorism	• New Section – Not in 2014 Plan
Technological Hazard Communications Failure	• New Section – Not in 2014 Plan
Technological Hazard Emergent Infectious Diseases	• New Section – Not in 2014 Plan

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 six technological hazards for this Hazard Mitigation Plan. This is an increase of one natural hazard and four technological hazards from the previous iteration of the plan. Each hazard was identified by the use of 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 Habersham 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 the populations most vulnerable to each hazard, although many have potential countywide impacts.

5. Estimated Potential Losses: Using critical facility and past history data, an estimation of potential losses due to a particular hazard event were determined.

6. Land Use and Development Trends: Land use trends were considered when determining the potential future impacts of each hazard. This is of particular importance in regards to flooding and dam failure events.

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

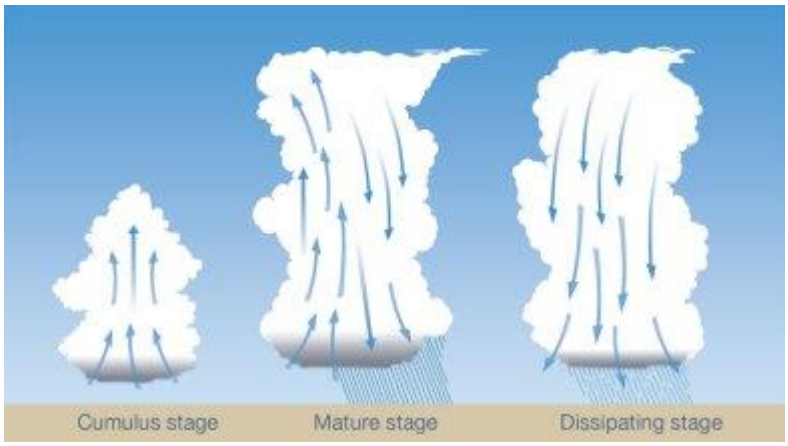
Natural Hazard: **Thunderstorms**

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 has the ability to 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.

Natural Hazard: **Thunderstorms**

(Hazard Description Continued)

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.

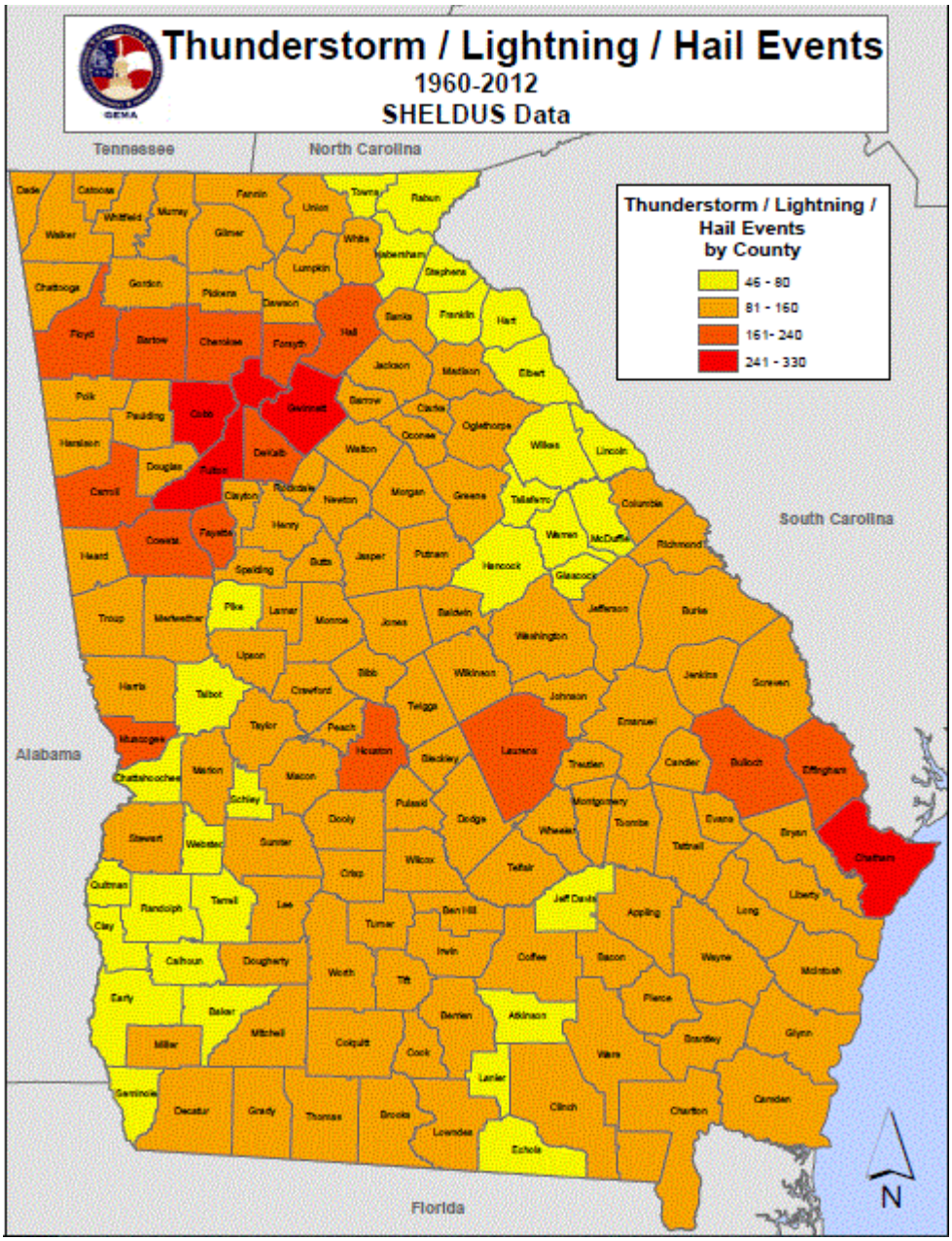
Natural Hazard: **Thunderstorms**

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

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 1998. Thunderstorm winds of 70 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 28 thunderstorm events were recorded between 1967 and 1990, likely a vast underestimation of actual events.

Natural Hazard: **Thunderstorms**



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

Natural Hazard: **Thunderstorms**

(Hazard Profile Continued)

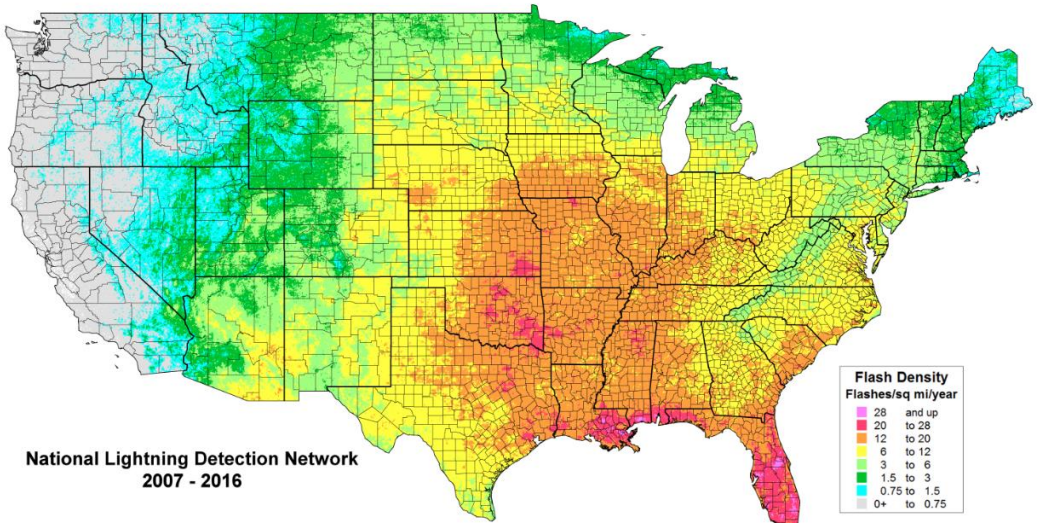
Most of the available information relating to severe thunderstorm events in Habersham County fails to describe damage estimates in any detail. With each thunderstorm event, there are likely unreported costs related to infrastructure costs, public safety response costs, utility repair costs, and personal 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, 155 thunderstorm events were recorded in Habersham County, with 123 of those occurring in the last 25 years. This number includes 66 hail events and only 3 lightning reports. According to these records, Habersham County has a 1.3% chance daily of a thunderstorm event based upon data from the last 25 years. Over the last 10 years, Habersham County has averaged 6.0 thunderstorm events per year (60 events). This includes 2.8 hail events per year over the last 16 years. 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. For additional historical data, please see Appendix D.

As indicated by the below graphics, Habersham County averages between 6 and 12 flashes of cloud to ground lightning per square mile per year. That equals a 1.6% to 3.3% 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.

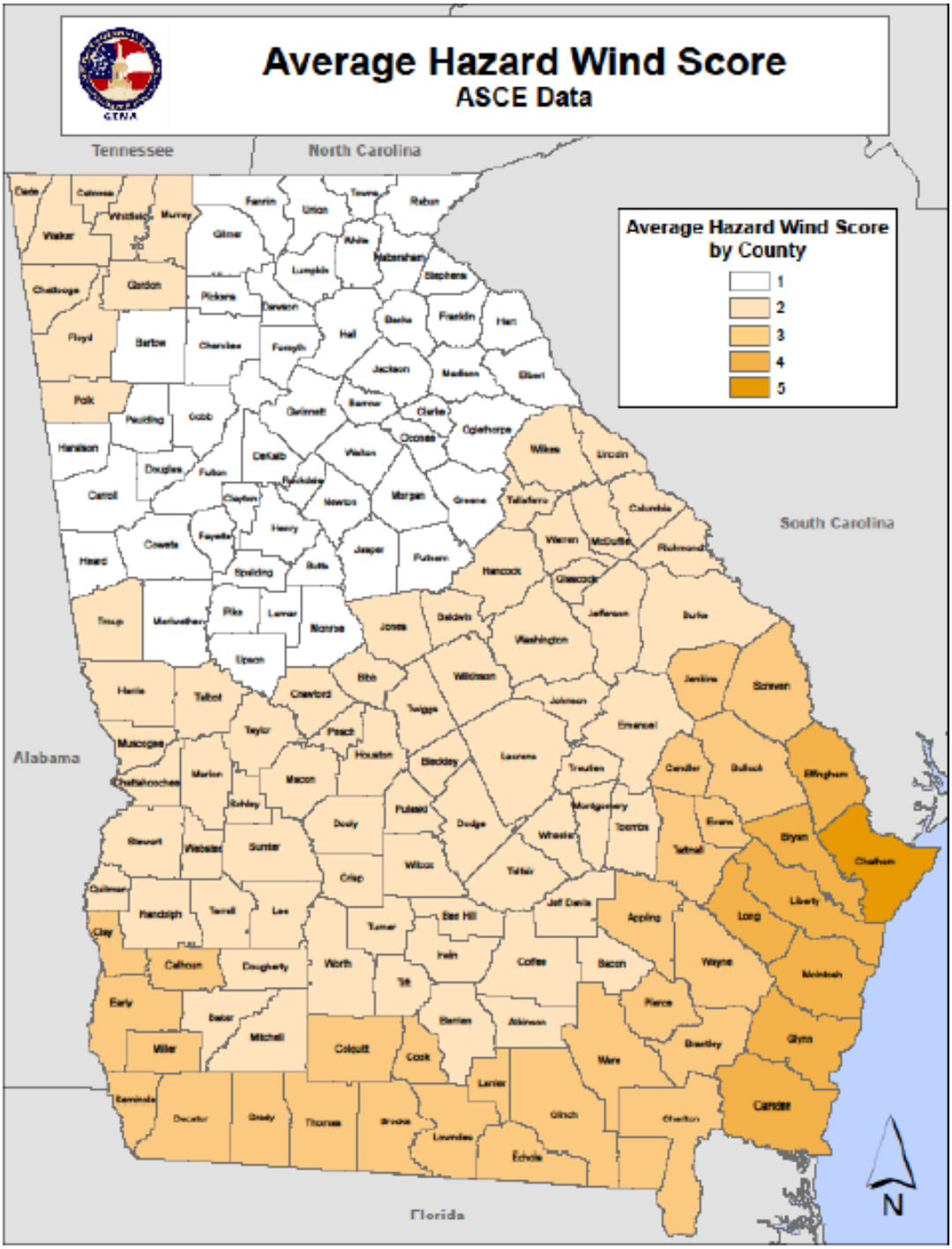
Natural Hazard: **Thunderstorms**



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 effected Habersham County. These winds can exceed 100 mph and cause damage comparable to weak tornadoes. Below are two maps that identify the wind risk and the hazard wind score for the State of Georgia, including Habersham County. The Hazard Wind Score maps uses the following scale:

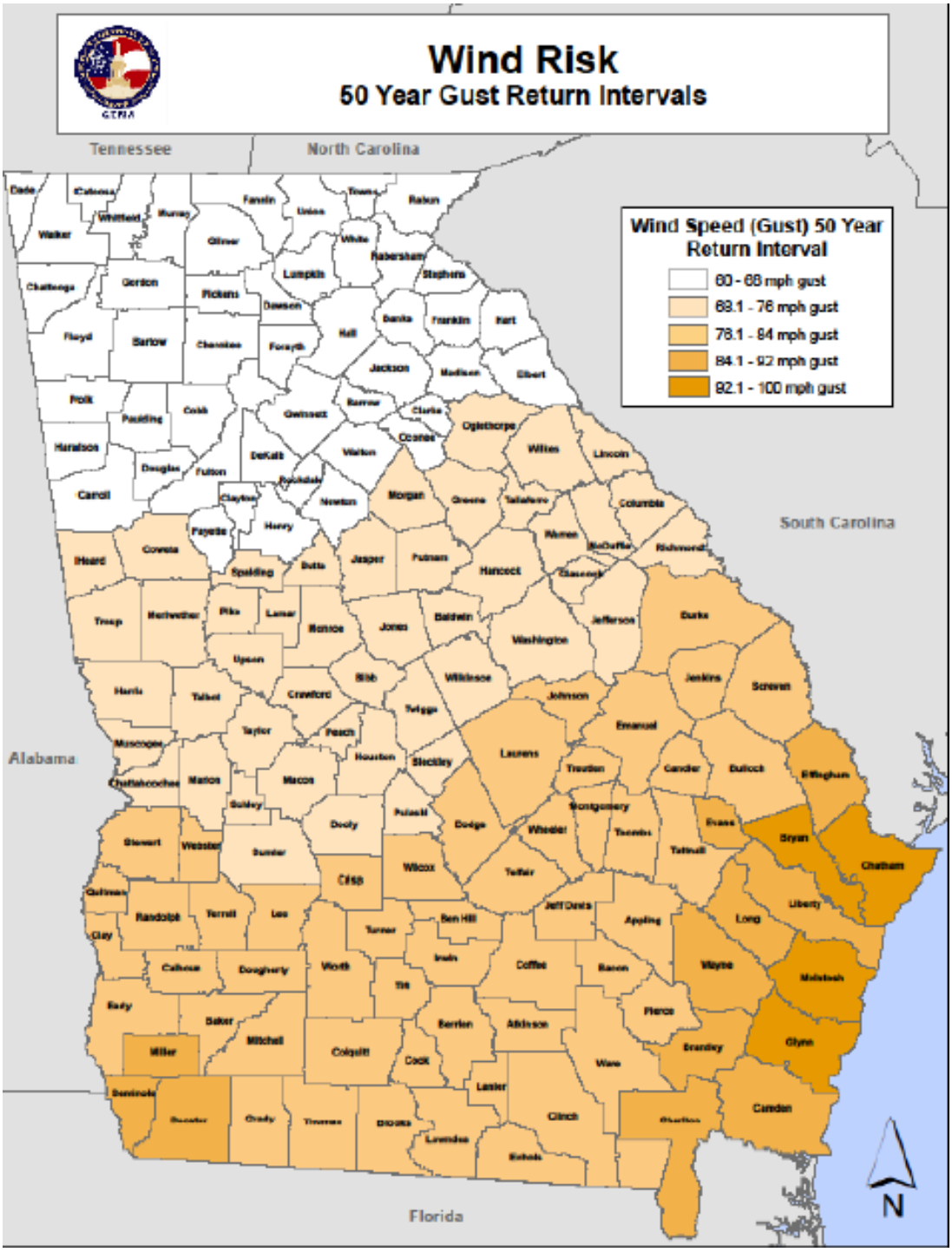
Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust

Natural Hazard: **Thunderstorms**



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

Natural Hazard: **Thunderstorms**



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

Natural Hazard: **Thunderstorms**

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 $26,260 annually. These numbers are thought to be a gross underestimation of actual past damages.

Land Use & Development Trends

Habersham County currently has no land use trends related to Thunderstorms beyond continued population growth.

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.

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.

Natural Hazard: **Thunderstorms**

Thunderstorm Events Since 2014 in Habersham County

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	35.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	01/11/2014	08:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	05/14/2014	19:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:24	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	05/25/2014	15:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:35	EST-5	Hail	1.25 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	10/09/2014	13:50	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	06/03/2015	16:35	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	06/18/2015	16:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/24/2015	15:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	06/30/2015	11:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/03/2015	07:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	07/14/2015	17:34	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K

HARVEST	HABERSHAM CO.	GA	08/10/2015	16:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	02/24/2016	09:05	EST-5	Thunderstorm Wind	40 kts. EG	0	0	20.00K	0.00K
HABERSHAM	HABERSHAM CO.	GA	05/11/2016	13:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
VIEW	HABERSHAM CO.	GA	11/30/2016	14:48	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	03/01/2017	17:18	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	17:52	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	20:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	04/27/2017	16:38	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/15/2017	15:53	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	03/17/2018	20:53	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Natural Hazard: **Winter Storms**

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 sufficient depths to pose some threat to motorists and pedestrians.

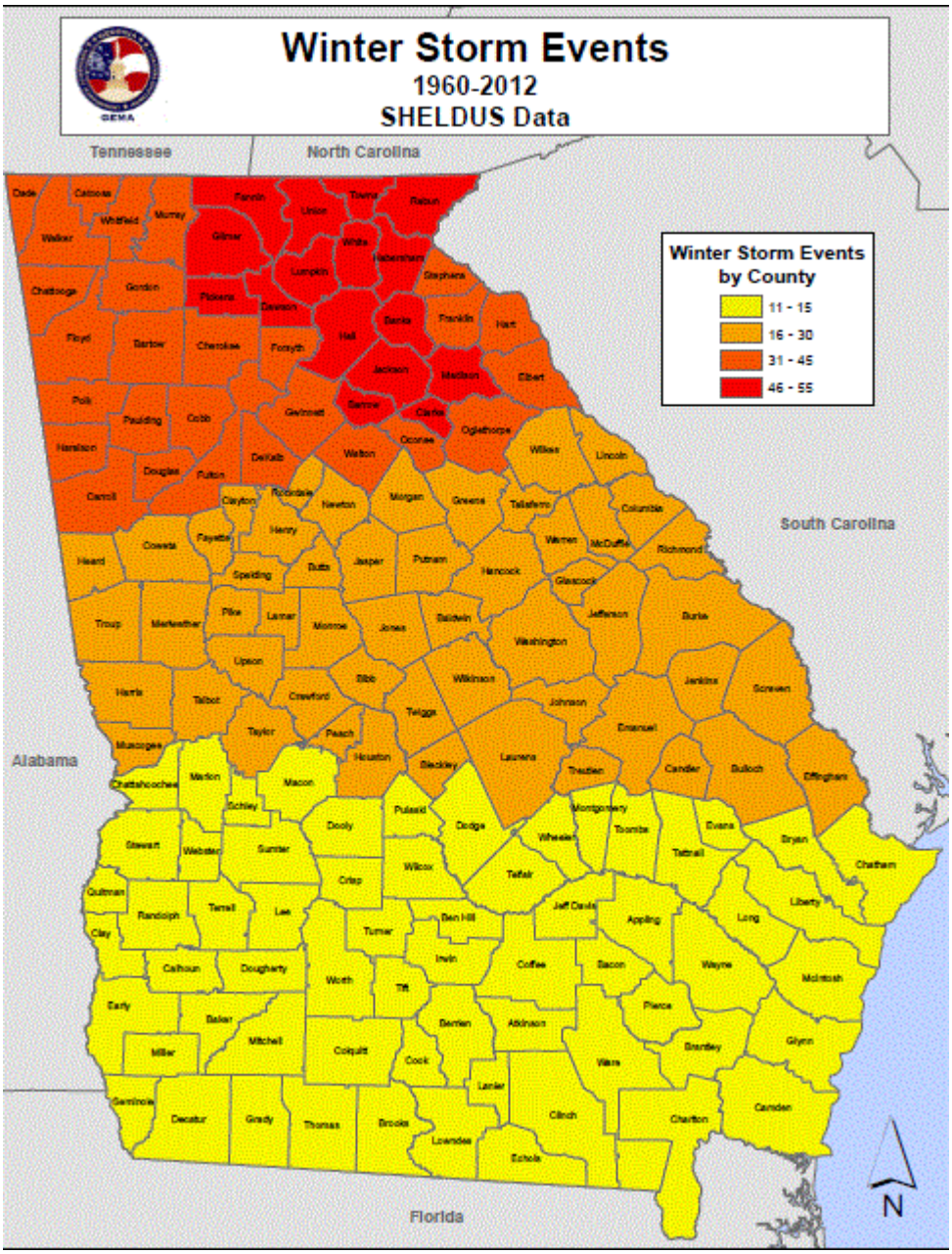
A heavy accumulation of ice, which is often accompanied by high winds, has the ability to devastate infrastructure and vegetation. Destructiveness in the southern states is often amplified due to the lack of preparedness and response measures. Also, the infrastructure was not designed to withstand certain 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.

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. They also can cause damage to private property, businesses, and trees throughout the county. Due to the county's elevation changes, many highways have steep grades that can become dangerous during icy conditions. 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.

Natural Hazard: **Winter Storms**



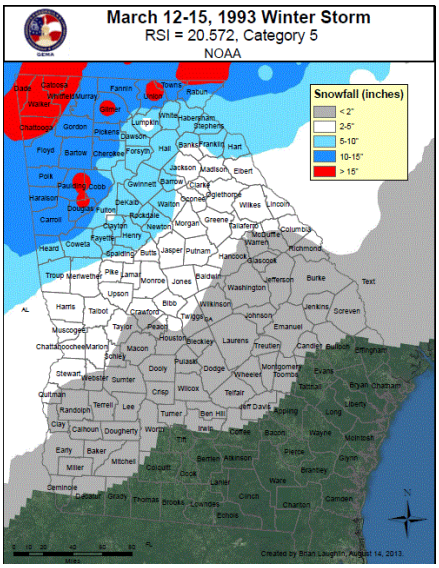
Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Natural Hazard: **Winter Storms**

(Hazard Profile Continued)

During the past twenty-two years, documentation exists for 64 winter storm events in Habersham County. No data can be located prior to this timeframe. On average, a winter storm has occurred in Habersham County on a nearly annual basis. A 100% chance exists of a winter storm occurring in any given year in Habersham County. Due to improved record keeping techniques, the HMPC believes that looking at the record for the last 20-year period provides a more accurate representation of the threat of winter storms for Habersham County. 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.

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. Other factors, such as wind, can influence the strength of these events, as happened with wind-blown snow during the March 1993 Winter Storm event. During this event, over a foot of snow was reported in multiple areas across Habersham County and most areas received at least 6 inches of snow.



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

Natural Hazard: **Winter Storms**

Assets Exposed to the Hazard

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

Estimated Potential Losses

Total estimated losses for winter storm events of the last 50 years indicate a total of over $600,000 in losses. Extrapolated over 50 years, this averages out to $12,000 per year. However, nearly all of the documented winter storms with loss information have occurred over the last 20 years. As such, the average loss per year for the last 20 years is $27,273 per year. It is estimated that these numbers are a gross underestimation of the impact of past winter storms and caution is expressed when using these figures to make loss determinations for winter storms in Habersham County.

Land Use & Development Trends

Habersham County currently has no land use trends related to Winter Storms.

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.

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.

Natural Hazard: **Winter Storms**

Winter Storm Events since 2014 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	01/28/2014	13:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	00:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	23:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/16/2015	13:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/20/2015	19:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/25/2015	17:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/22/2016	04:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/03/2016	14:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/06/2017	21:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/08/2017	10:00	EST-5	Winter Storm		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

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 sufficient 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

Natural Hazard: **Flooding**

(Hazard Profile Continued)

significant damage on many occasions over the last 20 years. One significant flooding event that affected Habersham County occurred in September of 2004. The flash flood event led to several families being trapped by flood waters and in need of rescue in Clarkesville. This event caused over $700,000 in reported damages. While data was collected for the entire 50-year timeframe, little information was available regarding flood events over that period, possibly due to poor record keeping. All flood data was gathered on a countywide basis.

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. Relatively little information is available regarding flooding damage estimates. However, 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 as a result of flood waters. All flooding hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

The Soque River gauge near Clarkesville provides adequate data to show how a flood near that area would impact the jurisdiction. When the Soque River reaches 12 feet, approximately 1 foot of water will inundate most areas of Pitts City Park. Streets begin to flood when the Soque River reached 16 feet and houses become surrounded by water at 20 feet. This particular river gauge has a high mark of 16.52 in September of 2009. However, this gauge only has reportable data since 2007.

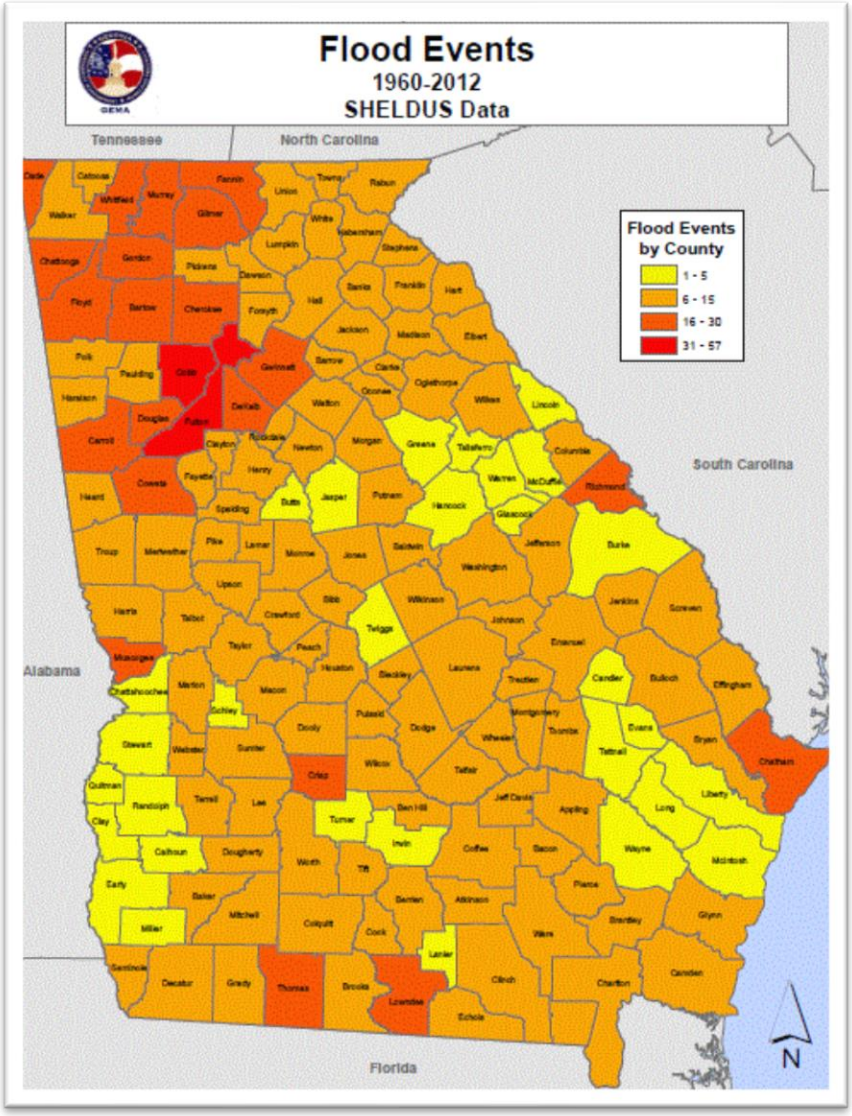
There are 25 documented flood events over the last 50 years. Based on the 50-year record, it can be inferred that such an event is likely to occur every 2 years in Habersham County. This relates to a 50% chance of a flood event occurring in a given year.

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.

Natural Hazard: **Flooding**



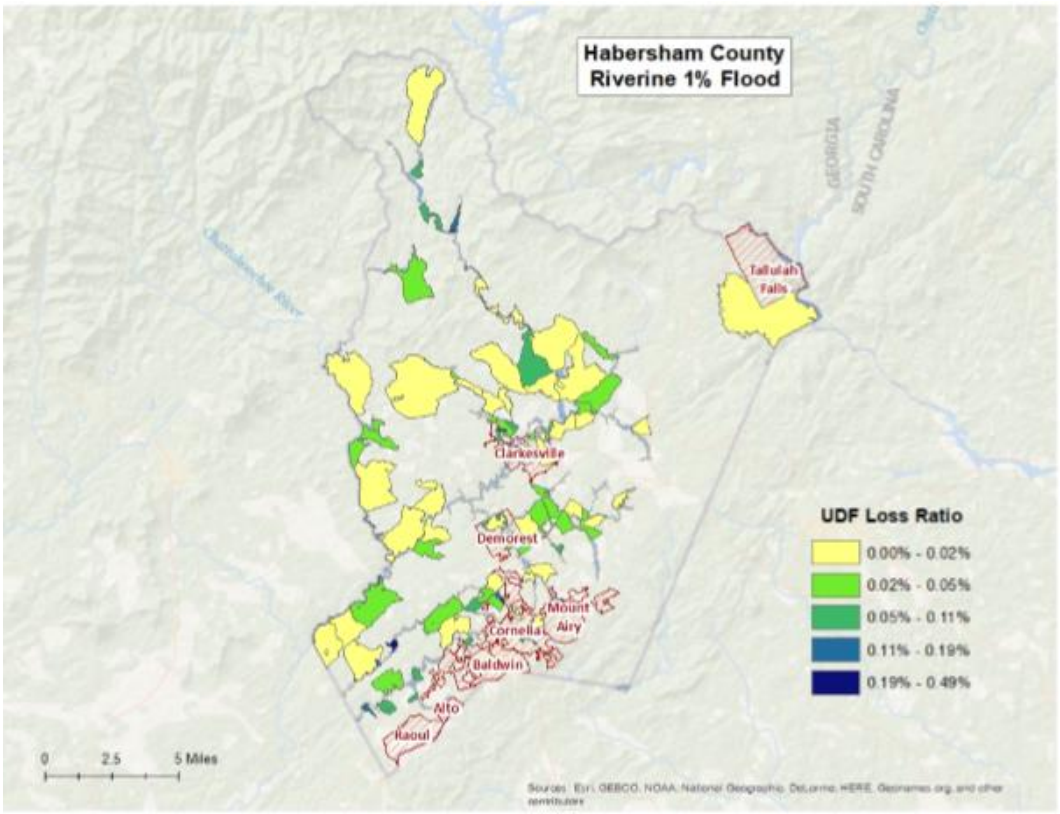
Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Estimated Potential Losses

The flooding events in Habersham County over the last 50 years have led to over $860,000 in damages. Extrapolated over 50 years, this results in an annual average of $17,200 per year. However, all reported damages have occurred in the last 15 years. As a result, the average over the last 15 years is $57,333 annually. These estimations are believed to be a gross underestimation of both prior and potential damages from flood events.

Natural Hazard: **Flooding**

Based upon the 2018 Habersham County HAZUS report, a flood equivalent to the 1% riverine flood levels could result in losses in excess of $9.5 million. However, it is possible that some areas may not experience total losses while others may be inundated with flood water who are not designated in the 1% riverine flood areas. Additionally, there are no critical facilities located in the 1% riverine flood areas.



Source: 2018 Habersham County HAZUS Report

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. The County (CID No. 130458) 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. Currently, the Habersham County municipalities of Clarkesville, Cornelia, Demorest, Alto, 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 exploring the appropriate ordinances to obtain NFIP compliance.

There are no repetitive loss properties identified in Habersham County.

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. All of Habersham County, including all municipalities, could potentially be impacted.

Hazard Summary

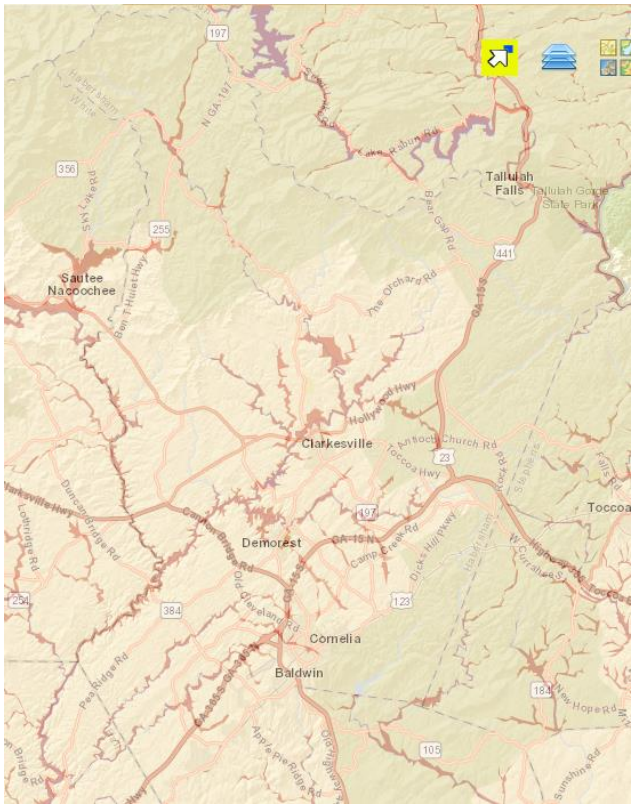
Flooding has the potential to inflict significant damage within Habersham County, particularly along the Chattahoochee River and its tributaries and distributaries. Mitigation of flood damage requires the community to be aware of flood-prone areas, including roads, bridges, and critical facilities. The 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. These maps were updated since the previous plan.

There are no repetitive loss properties identified in Habersham County.

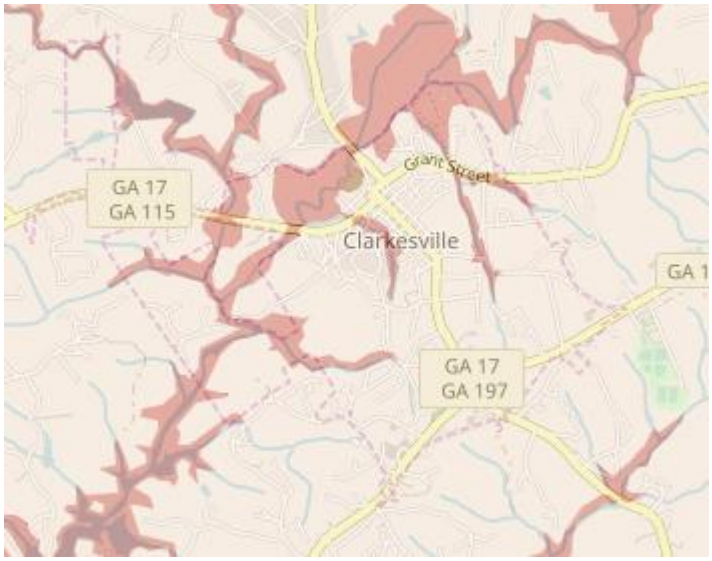
There have been no flood events in Habersham County since the adoption of the 2014 Habersham County Hazard Mitigation Plan.

Natural Hazard: **Flooding**

Habersham County

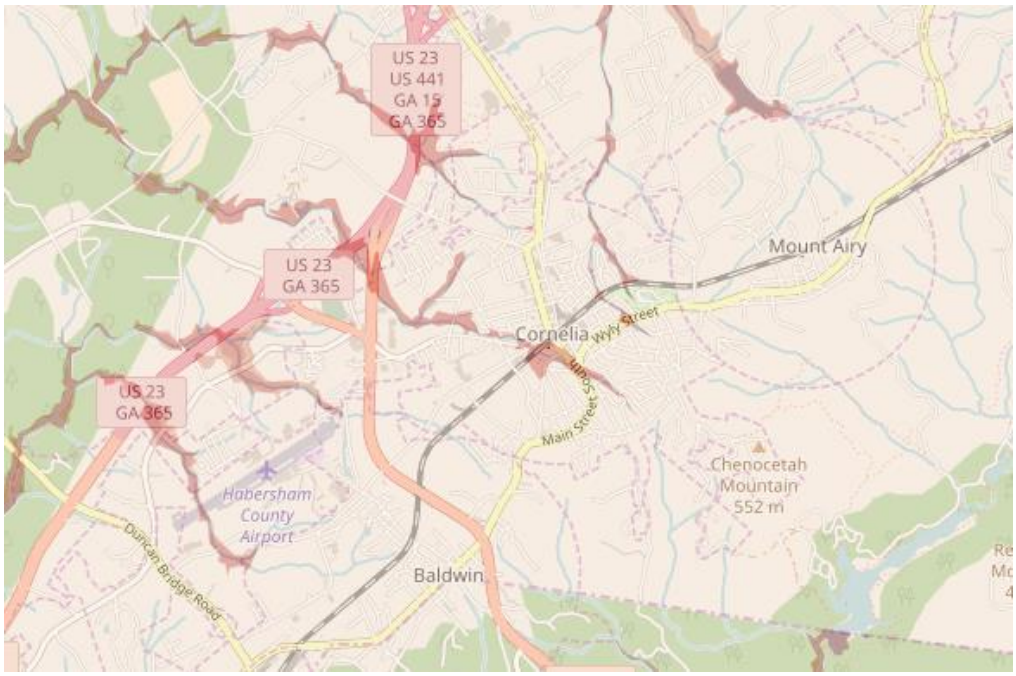


Clarkesville



Natural Hazard: **Flooding**

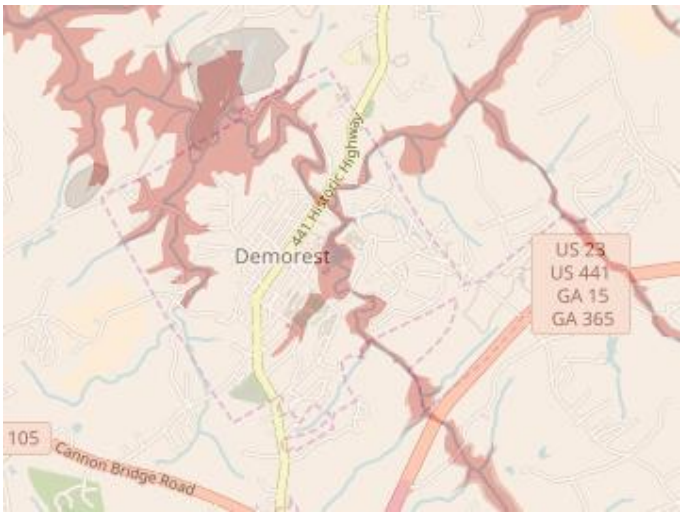
Baldwin, Cornelia, and Mt. Airy



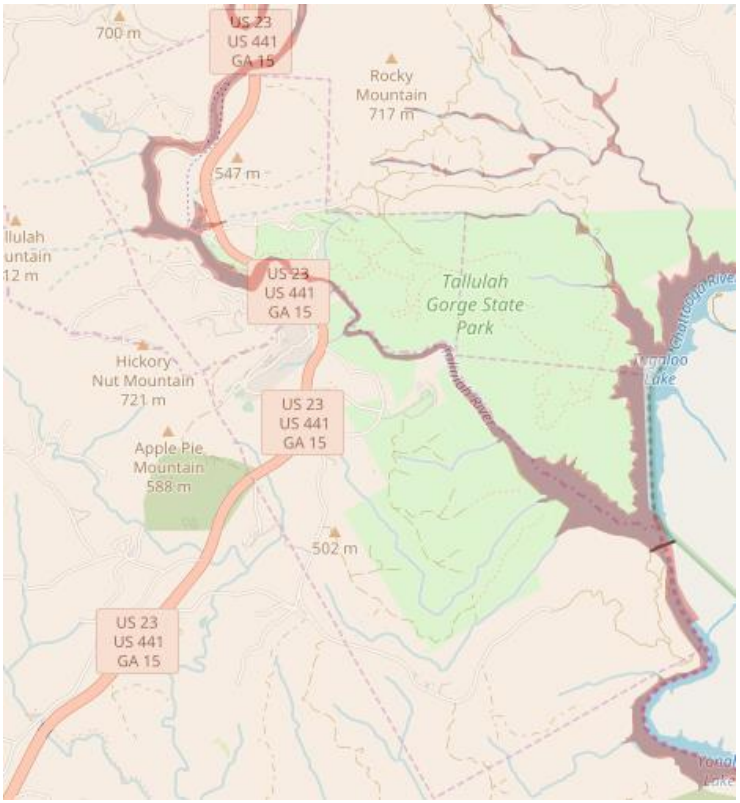
Alto

Natural Hazard: **Flooding**

Demorest



Tallulah Falls



Note: All "red" shaded areas indicate the extent of the 100-year (or 1% annual) flood risk

All Flood Maps are from the GEMA Georgia Mitigation Information System (GMIS)

Natural Hazard: Flooding

Chattahoochee River near Cornelia

Flood Categories (in feet)

Major Flood Stage:	21
Moderate Flood Stage:	18
Flood Stage:	14
Action Stage:	11
Low Stage (in feet):	0

Historic Crests
(1) 20.55 ft on 03/12/1963
(2) 20.30 ft on 05/28/1973
(3) 18.83 ft on 08/23/1967
(4) 17.95 ft on 05/29/1976
(5) 16.68 ft on 01/27/1996

(P): Preliminary values subject to further review.

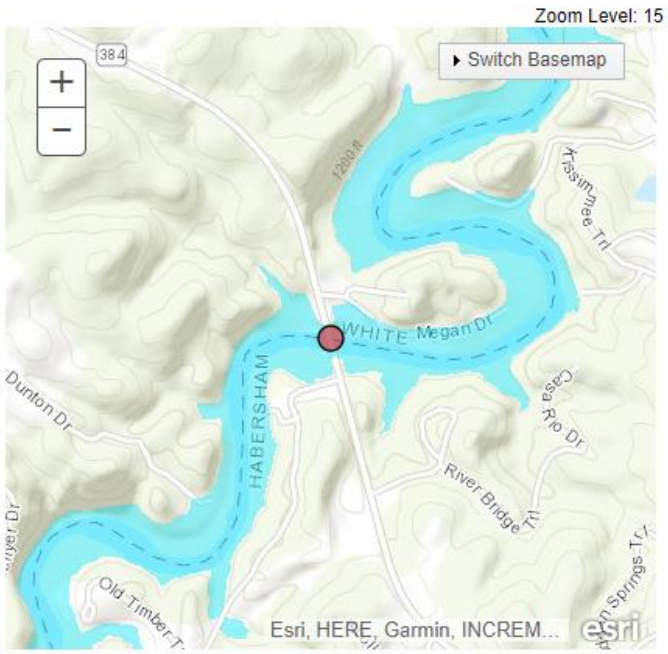
Recent Crests
(1) 16.68 ft on 01/27/1996
(2) 17.95 ft on 05/29/1976
(3) 20.30 ft on 05/28/1973
(4) 18.83 ft on 08/23/1967
(5) 20.55 ft on 03/12/1963

(P): Preliminary values subject to further review.

Low Water Records
(1) -0.36 ft on 09/29/2007
(2) -0.25 ft on 08/24/2008

FEMA

For more information on your flood risk go to www.floodsmart.gov.



Legend

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

Natural Hazard: Flooding

Soque River near Clarkesville (SR 197)

Flood Categories (in feet)

Major Flood Stage:	25
Moderate Flood Stage:	19
Flood Stage:	13
Action Stage:	11

Historic Crests
(1) 16.52 ft on 09/20/2009
(2) 14.73 ft on 08/26/2008
(3) 13.82 ft on 03/02/2007
(4) 13.54 ft on 03/10/2011
(5) 12.71 ft on 09/22/2009
Show More Historic Crests

(P): Preliminary values subject to further review.

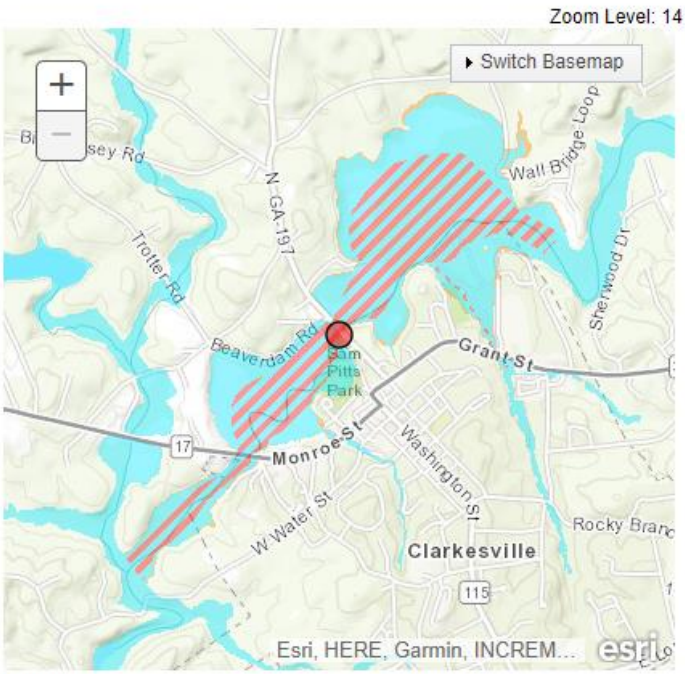
Recent Crests
(1) 7.84 ft on 04/23/2017
(2) 11.02 ft on 12/29/2015
(3) 8.78 ft on 11/02/2015
(4) 0.00 ft on 01/04/2015
(5) 9.93 ft on 04/07/2014
Show More Recent Crests

(P): Preliminary values subject to further review.

Low Water Records
(1) 2.73 ft on 08/22/2008
(2) 2.93 ft on 09/03/2011
(3) 2.96 ft on 10/07/2016

FEMA

For more information on your flood risk go to www.floodsmart.gov.



Legend

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

FEMA Layer

Natural Hazard: **Tornado**

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.

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 range 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.

Natural Hazard: **Tornado**

The Enhanced Fujita Scale	
EF Rating	3 second gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	over 200

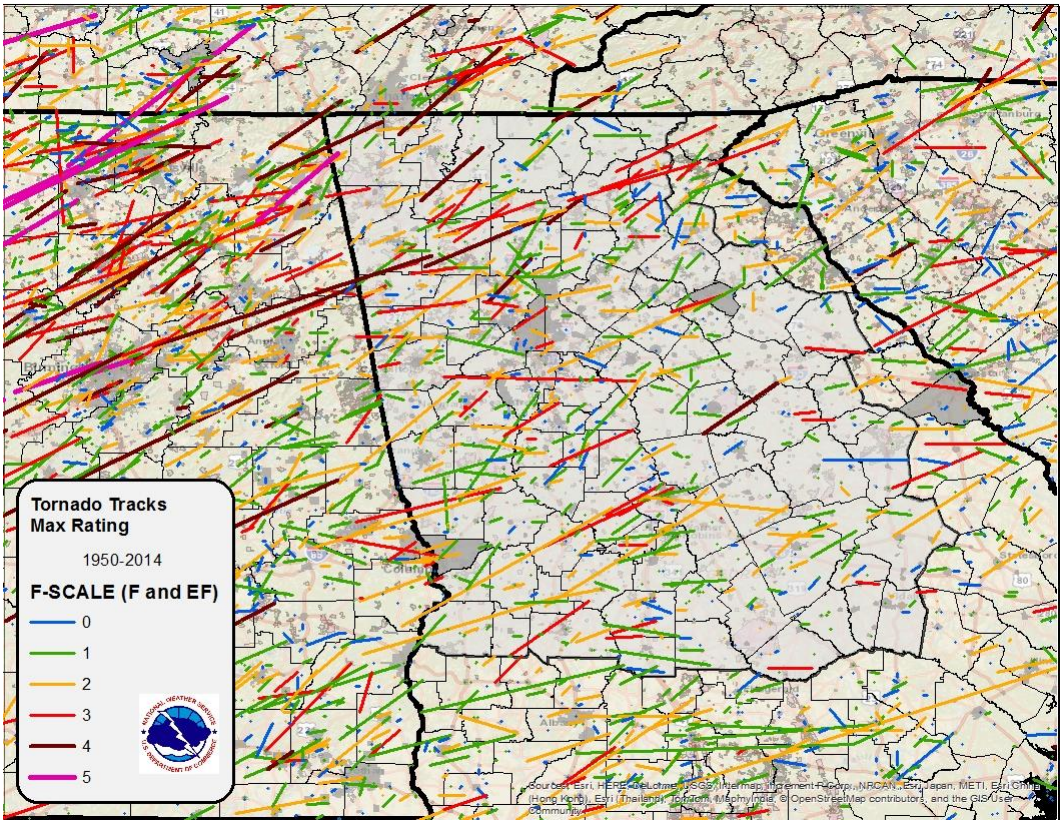
Hazard Profile

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 has been 13 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 50 years. On an annual basis, Habersham County has a 26% 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 tornado since 1997).

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 an F3 in 1989. This storm traveled 8 miles through Northern Habersham County, destroyed six homes, and injured three people. The costliest tornado in Habersham County's history was an F1 in 1994 that was on the ground for 18 miles. This storm caused over $5 million in damages. For additional historical data, please see Appendix D. All tornado hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

Natural Hazard: **Tornado**



Assets Exposed to the Hazard

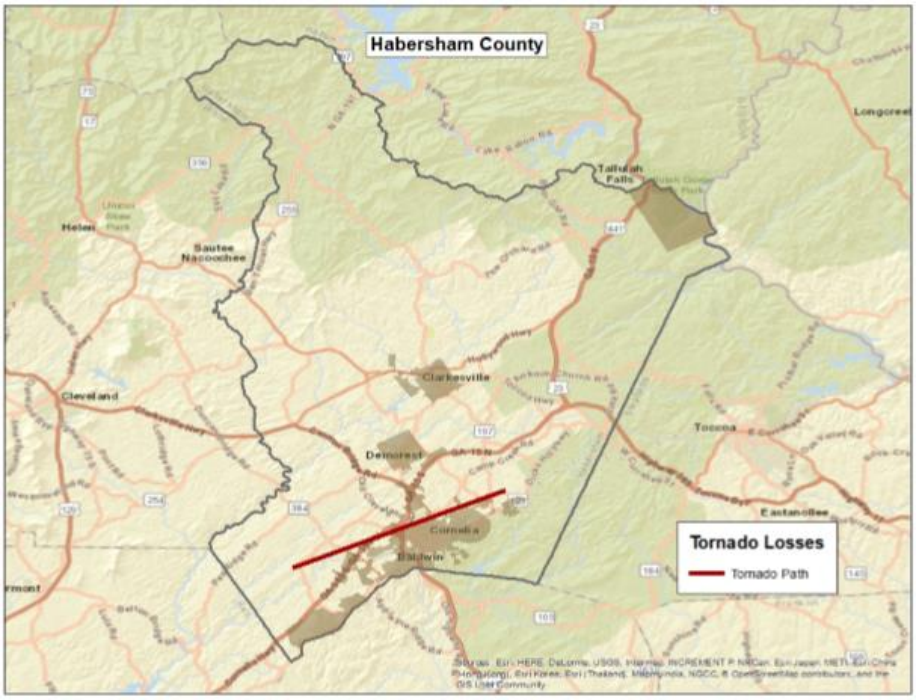
In evaluating assets that are susceptible to tornadoes, the Habersham County HMPC determined that all public and private property is threatened by tornadoes, including all critical facilities. This is due to the lack of spatial prejudice of tornadoes.

Estimated Potential Losses

Estimates of damage for the past events of the last 50 years are $11.5 million, or $229,040 annually.

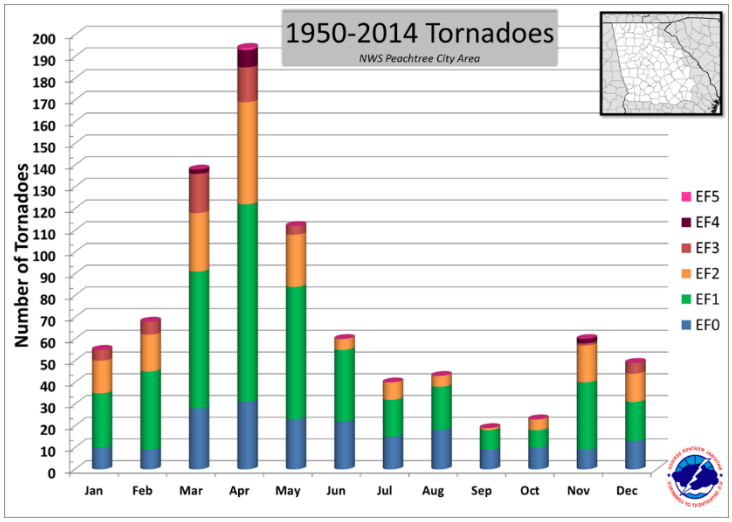
Within the 2018 Habersham County HAZUS report, a theoretical tornado path for an EF3 was identified that would inflict maximum damage. HAZUS estimated that this theoretical tornado would cause damage to approximately 700 buildings and result in losses in excess of $21 million with Cornelia and Mt. Airy suffering the greatest economic impacts.

Natural Hazard: **Tornado**



Land Use & Development Trends

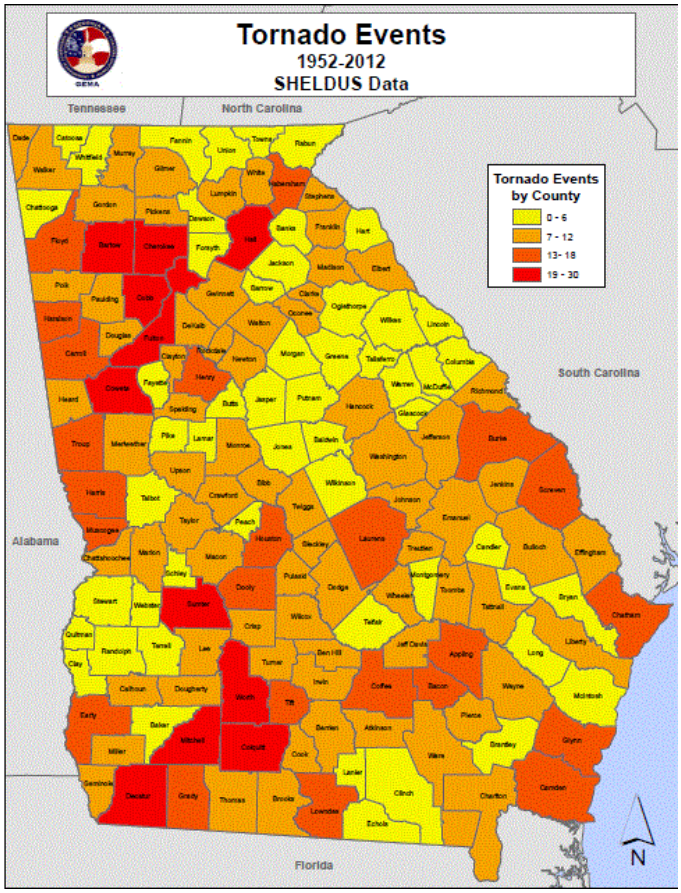
Habersham County currently has no land use trends related to Tornadoes.



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.

Natural Hazard: **Tornado**



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

Hazard Summary

Habersham County remains at risk to potential damage from tornadoes, especially considering the average of one tornado every 50 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.

There have been no tornado events since the adoption of the 2014 Habersham County Hazard Mitigation Plan.

Natural Hazard: **Drought**

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 in undetermined due to the fact that 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

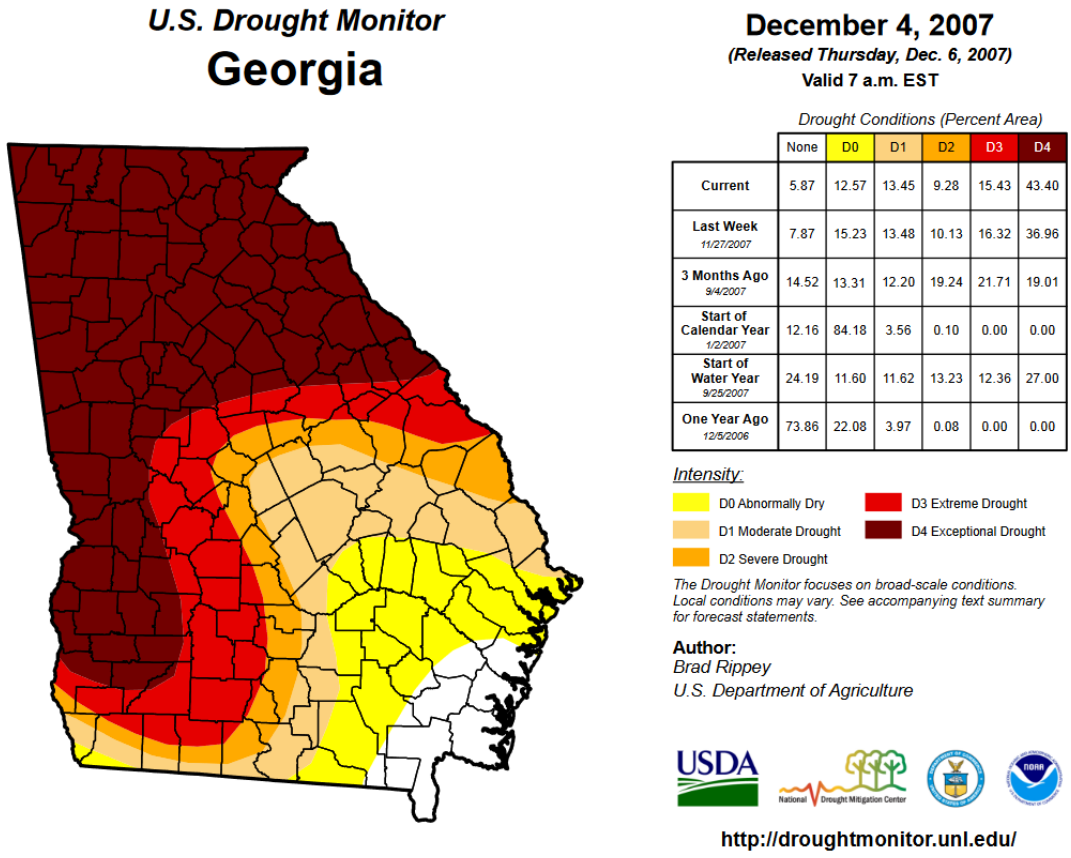
The Habersham County HMPC reviewed data for the last 50 years regarding drought conditions. Historically, agricultural losses have accounted for the vast amount of losses related to drought conditions.

Natural Hazard: **Drought**

(Hazard Profile Continued)

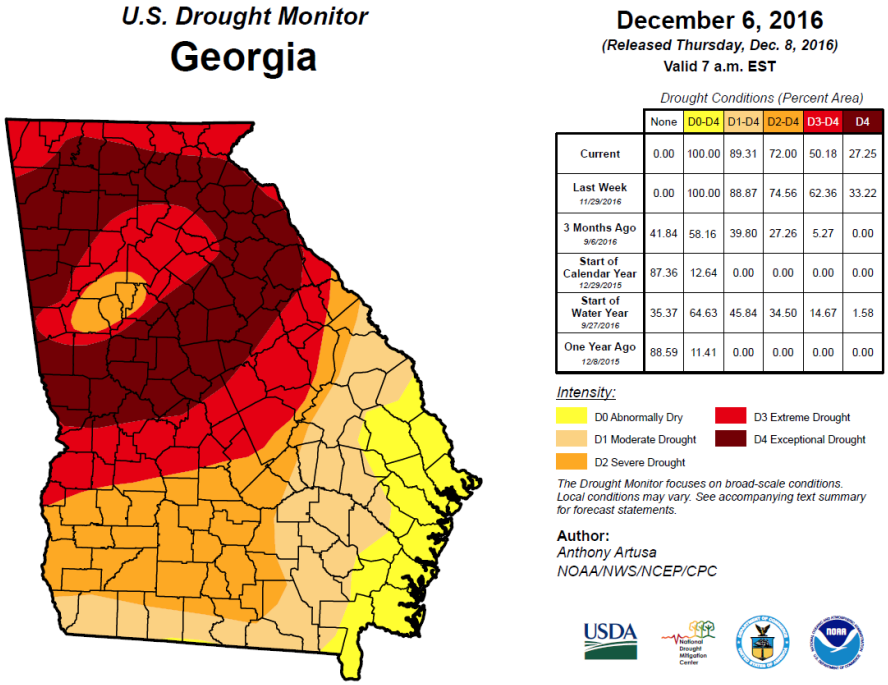
Due to poor record keeping and the unpredictable nature of drought conditions, reliability of historical data for the last 50 years is low. Habersham County has been impacted by 7 drought events in the last 20 years, according to data from the National Climatic Data Center. This amounts to a 35% chance of a drought for a given year over the last 20 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 2007 and 2016. Both of these 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

Natural Hazard: **Drought**



Source: USDA Drought Monitor – University of Nebraska-Lincoln

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

Assets Exposed to the Hazard

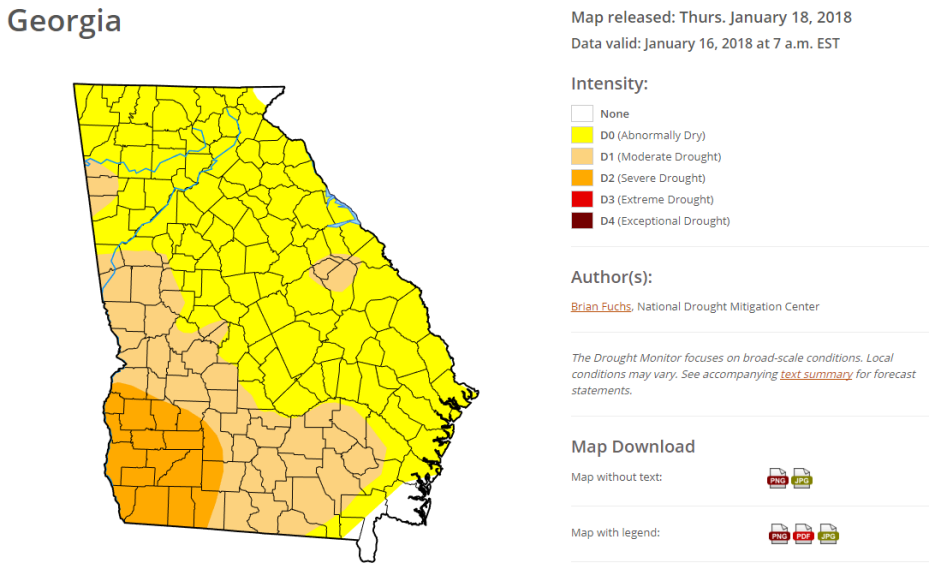
While drought conditions do not typically pose a direct threat to structures, secondary hazards from drought such as increased wildfire threat, does pose a significant threat to all public and private property in Habersham County, including all critical facilities. Water resources could also become scarce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

Estimated Potential Losses

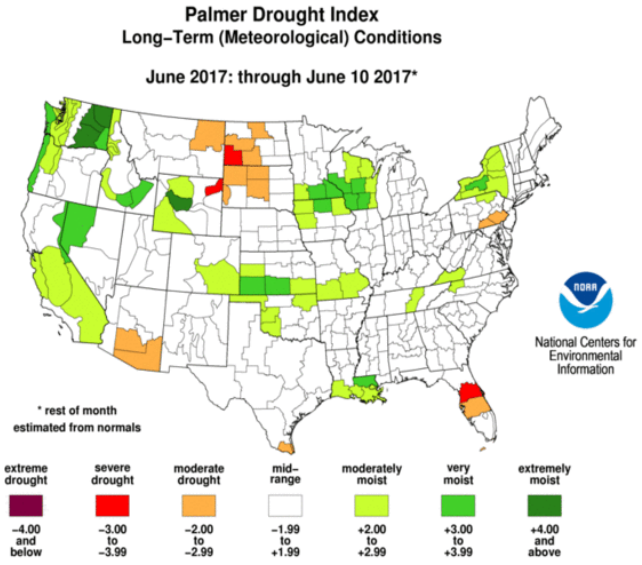
No damage to structures or critical facilities is expected as a direct result of drought conditions. However, crop damage and subsequent losses can be expected to occur as a result of drought conditions. The degree of losses would depend on the duration of the drought, severity of the drought, temperatures 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.

Natural Hazard: **Drought**

According to the 2012 Agriculture Census data, Habersham County's market value of products sold was $166,344,000. $3,451,000 of that total represented crop sales, accounting for 2.1% of the total. Livestock sales accounted for 97.9%, or $162,893,000, of the total value.



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



Source: National Integrated Drought Information System

Natural Hazard: **Drought**

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.

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.

Drought Events since 2014 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	10/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K

Natural Hazard: **Wildfire**

Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires have the ability to consume large areas, including infrastructure, property, and resources. When massive fires, 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.

Natural Hazard: **Wildfire**

(Hazard Description Continued)

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.

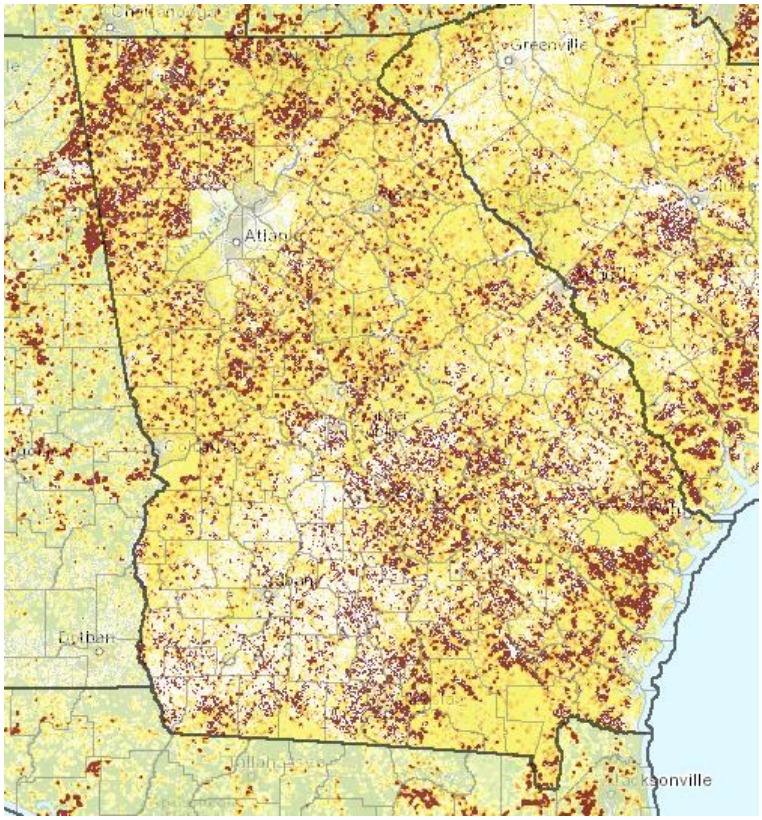
Hazard Profile

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. 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% 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. According to the 2017 Habersham County Community Wildfire Protection Plan (CWPP) produced by the Georgia Forestry Commission, Habersham County had 11 wildfires in 2016 that consumed a total of 31.84 acres. Over the last five years, Habersham County has average 12.2 wildfires per year and these fires consume an average of 70.48 acres per year. This equates to a 3.3% daily chance of a wildfire occurring in Habersham County. An April 2016 wildfire at Oakey Mountain in Habersham County burned a total of 32 acres –13 acres of which was privately owned property – before being contained by USFS personnel, Georgia Forestry Service personnel, and Habersham Fire Department personnel.

Natural Hazard: **Wildfire**

Georgia Wildfire Ignition Density



Source: Southern Group of State Foresters Wildfire Risk Assessment Portal

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. Of the 55 community areas reviewed in the CWPP, 24 communities were classified as having a moderate risk to wildfire and the other 31 were classified as having a low risk.

Estimated Potential Losses

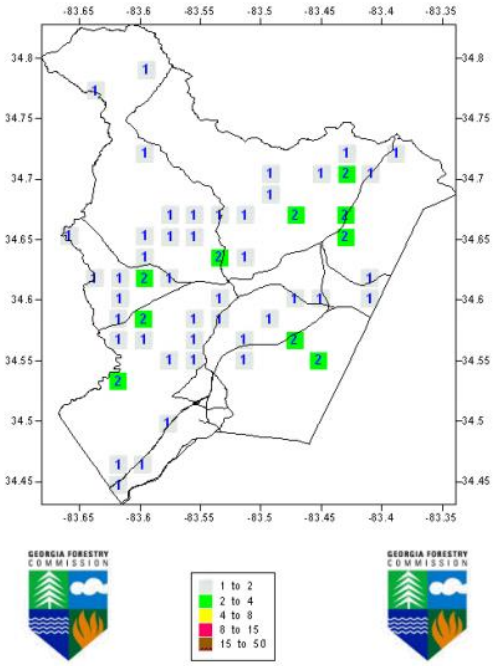
Little information is available regarding damages, in terms of dollars, for wildfire losses in Habersham County. According to the 2012 Ag Census by the USDA, Habersham County has $626,000 in annual crop sales. These areas would potentially be impacted by a wildfire event.

Natural Hazard: **Wildfire**

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.

Fire Occurrence Map for
Habersham County for Fiscal Year 2011-2015



Source: 2017 Habersham County Community Wildfire Protection Plan (CWPP)

Multi-Jurisdictional Considerations

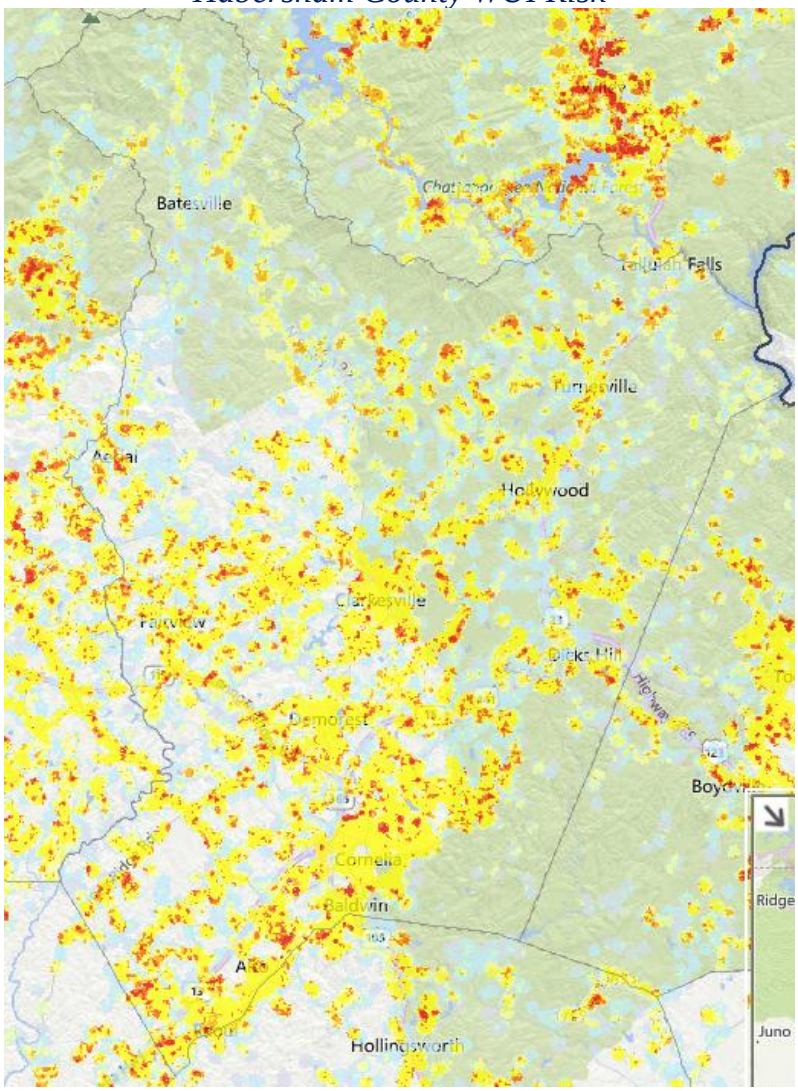
All portions of Habersham County, including all municipalities, could potentially be impacted by a wildfire due to the large amount of Wildland-Urban Interface, but the less developed areas of the county are more vulnerable. Therefore, all mitigation actions identified regarding wildfires should be pursued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

Natural Hazard: **Wildfire**

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% 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.

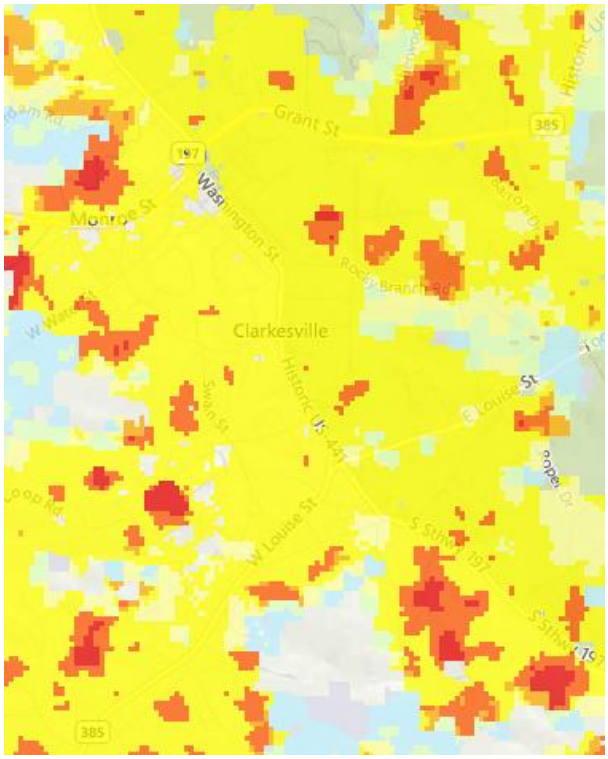
Habersham County WUI Risk



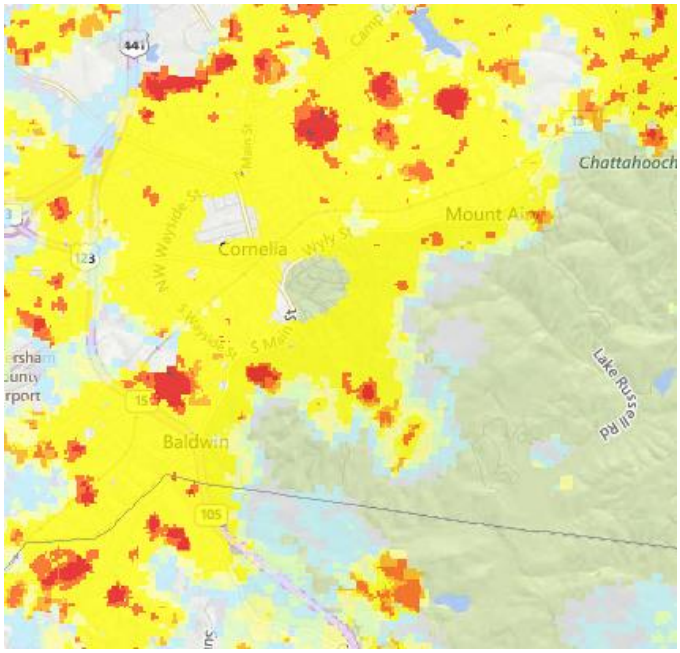
Major Impact----------Moderate Impact----------Minor Impact

Natural Hazard: **Wildfire**

Clarkesville WUI Risk

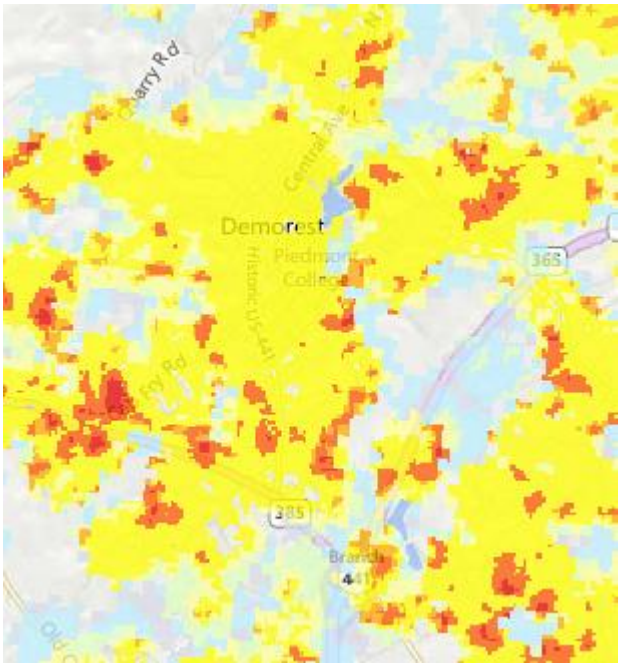


Baldwin, Cornelia, and Mt. Airy

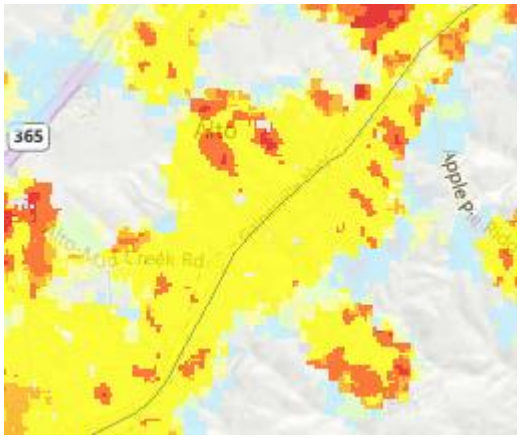


Natural Hazard: **Wildfire**

Demorest

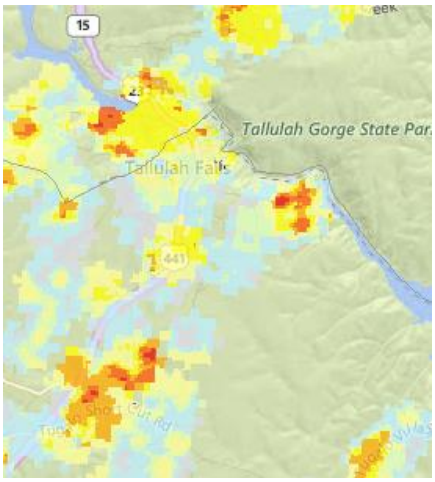


Alto

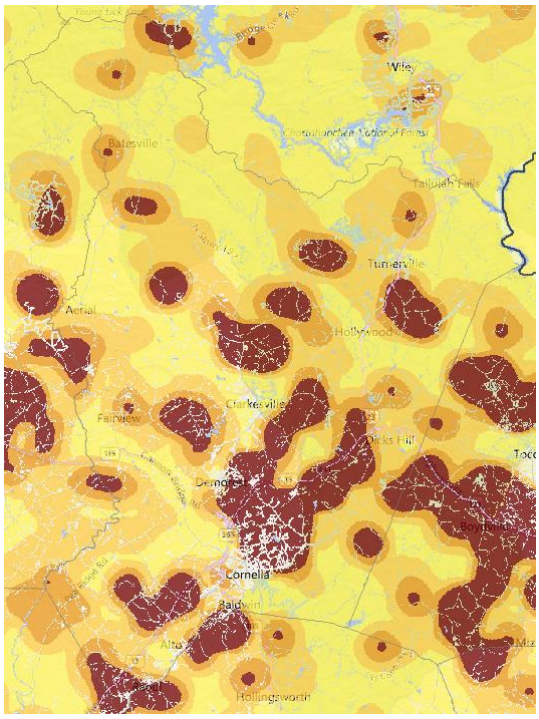


Natural Hazard: **Wildfire**

Tallulah Falls



Habersham County Wildfire Ignition Density



Very Low----------Low----------Moderate----------High----------Very High

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

Natural Hazard: Earthquakes

Hazard Description

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

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

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

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

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

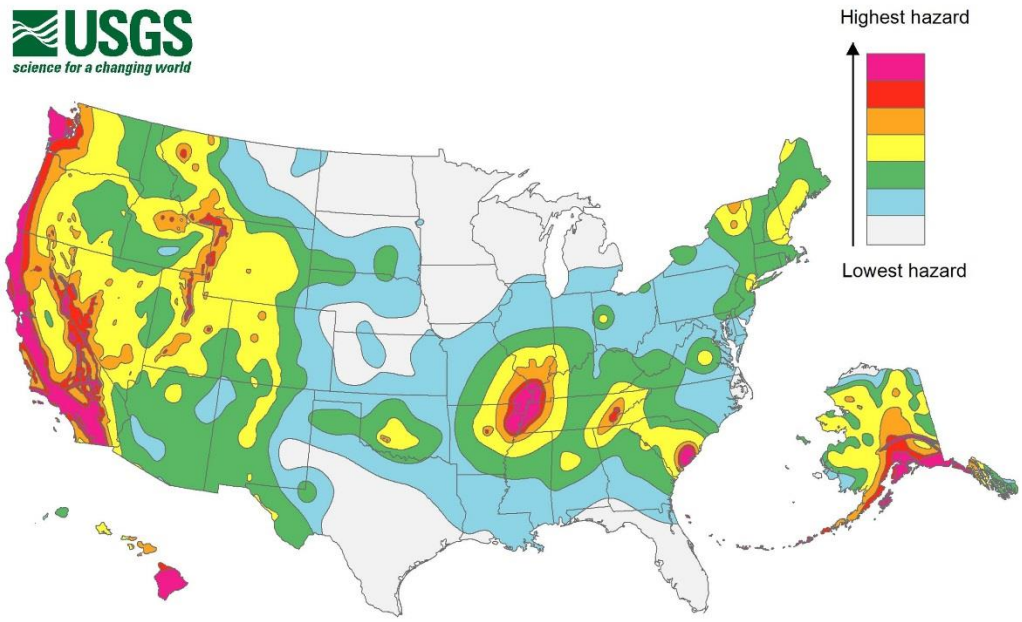
Natural Hazard: **Earthquakes**

(Hazard Description Continued)

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.



Source: United States Geological Survey (USGS)

Natural Hazard: **Earthquakes**

Hazard Profile

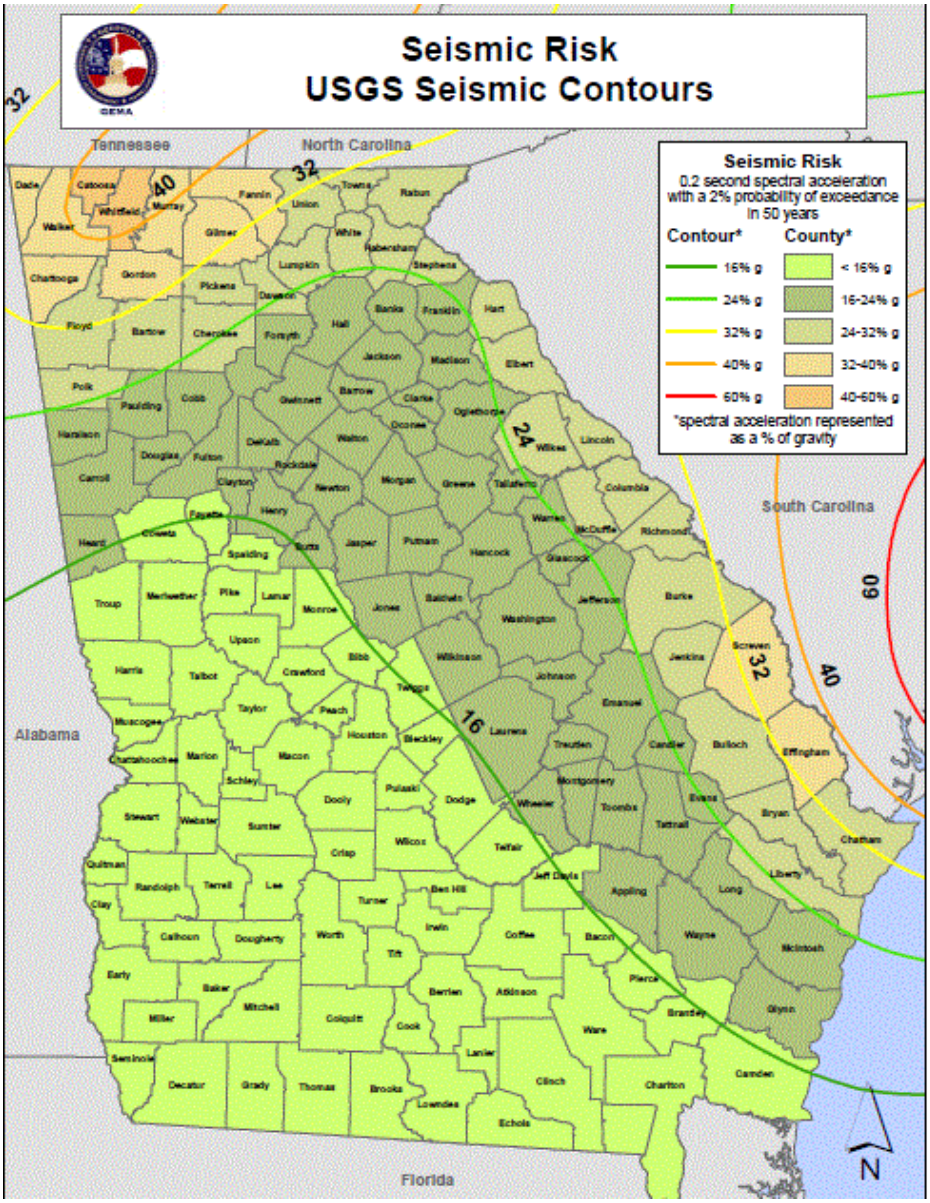
Habersham County is not one of the 37 Georgia counties with the highest earthquake risk, according to GEMA and Georgia Tech School of Earth and Atmospheric Sciences. In reviewing data of the last 50 years, no earthquakes have originated from within Habersham County. However, earthquakes with a magnitude of 2.0 or greater have occurred as close as Hiawassee, GA. 15 earthquakes have originated within 50 miles of Clarkesville, GA in the last 50 years. The strongest earthquake to occur within this radius was a 3.7 that occurred near Lake Jocassee in South Carolina. This equates to a 30% chance of an earthquake occurring within 50 miles of Clarkesville, GA in any given year. 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

Natural Hazard: **Earthquakes**

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 earthquake due to the lower building codes with regards to earthquakes when compared to other parts of the country. This includes all municipalities.



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

Natural Hazard: **Earthquakes**

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for earthquake losses in Habersham County.

Land Use and Development Trends

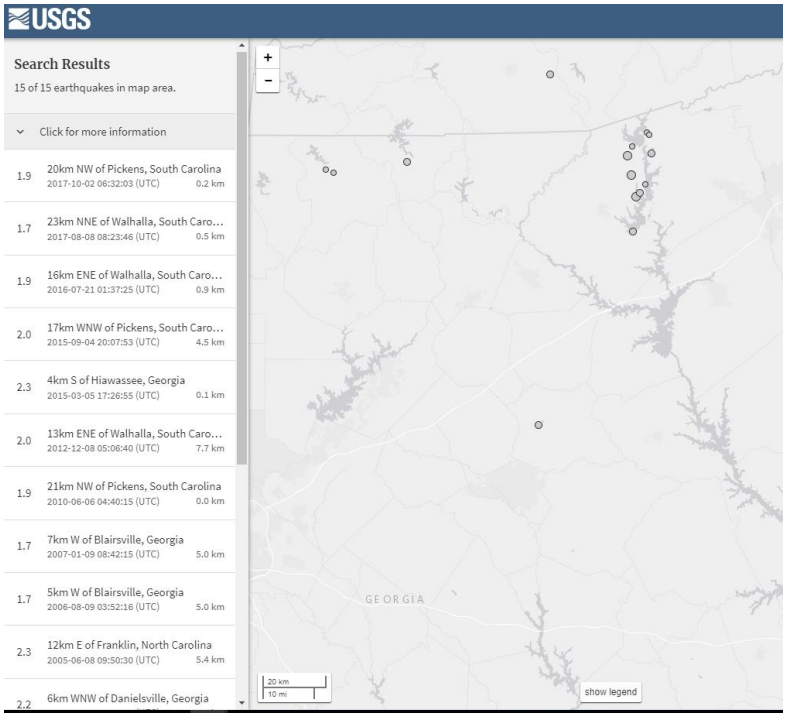
Habersham County currently has no land use trends related to Earthquakes.

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.

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. 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.



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

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			

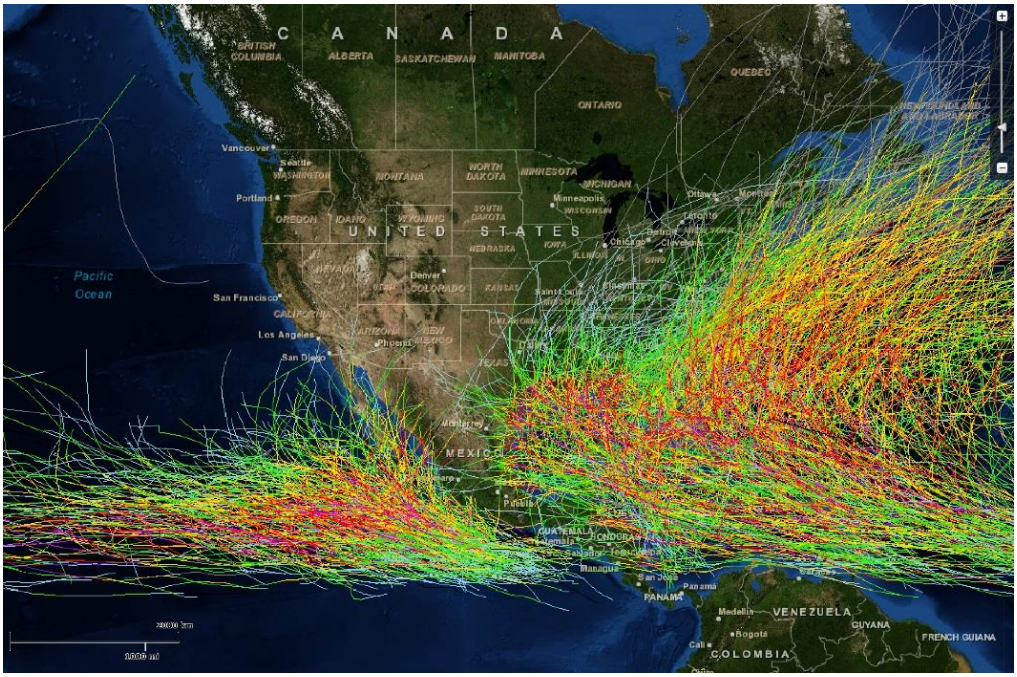
Natural Hazard: **Tropical Cyclone**

(Hazard Description Continued)

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. There

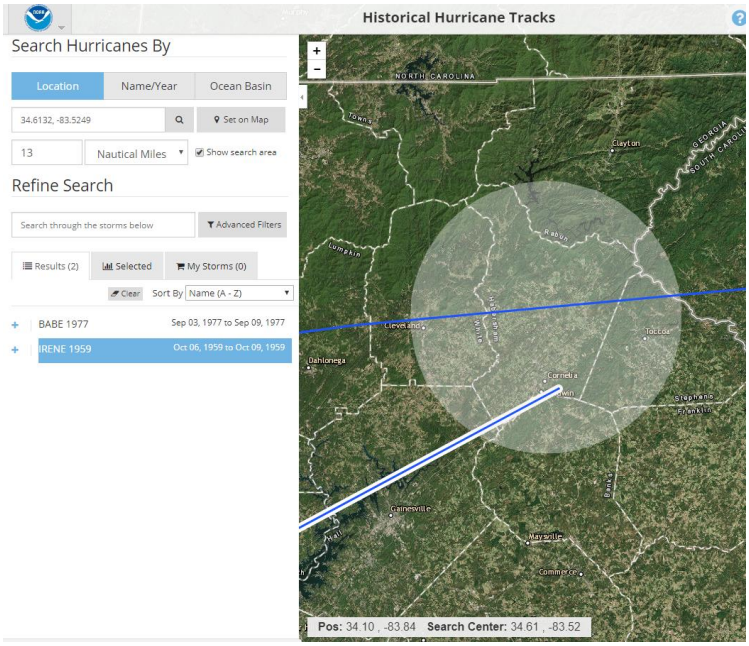
Natural Hazard: **Tropical Cyclone**

(Hazard Profile Continued)

have been four documented impacts from Topical Cyclones in Habersham County. This equates to a 8% chance of a tropical cyclone impacting Habersham County in any given year. The Habersham County Hazard Mitigation Update Committee believes this percentage is more representative of the potential impact.

Only one tropical cyclone – Hurricane Babe in– had a track that directly dissected Habersham County in the last 50 years. This storm was below Tropical Storm strength at the time it entered Habersham County. Hurricane Babe brought strong winds across north Georgia with sustained speeds of 25 mph in the Habersham County area. All tropical cyclone hazard data included for Habersham County is limited to countywide data and is not broken down by jurisdiction.

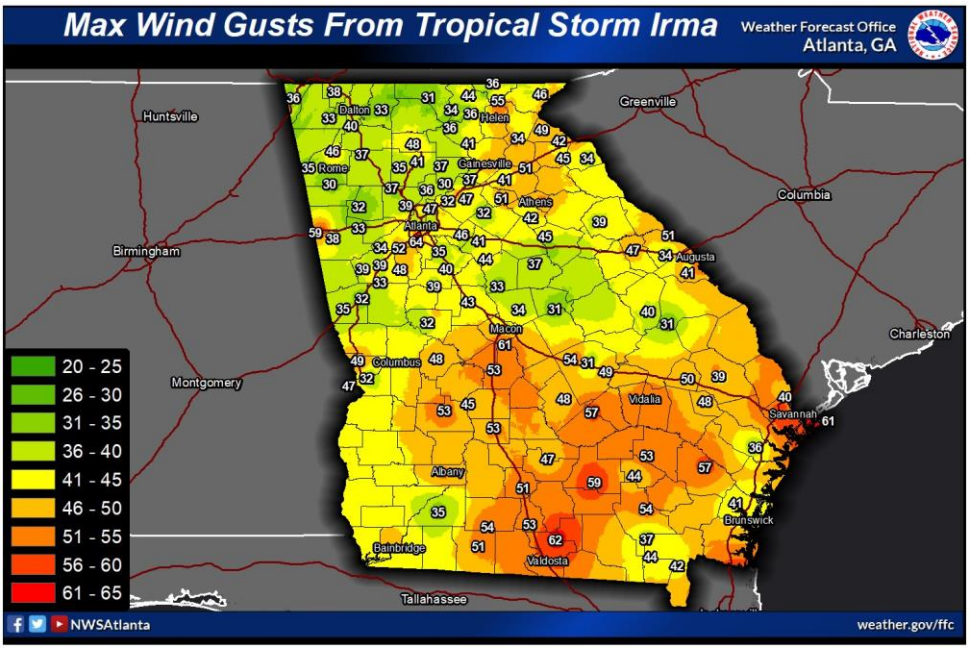
Even with the infrequent occurrences, the impacts that would result from hurricane or tropical storm forces on the citizens, infrastructure, and critical facilities of Habersham County could be potentially catastrophic in nature.



Source: Office of Coastal Management (NOAA)

According to the 2018 Habersham County HAZUS, Habersham County has been impacted by four additional tropical cyclones in the last 50 years – Tropical Storm Beryl in 1994, Hurricane Danny in 1997, Hurricane Frances in 2004, and Tropical Storm Cindy in 2005. Additionally, Habersham County was impacted by Hurricane Irma in 2017.

Natural Hazard: **Tropical Cyclone**



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.

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. However, the 2018 Habersham County HAZUS Report projected a loss ratio of 0.01% and a total loss of $442,850 (7 buildings) for a 100-year (1% annual risk) Tropical Cyclone Event.

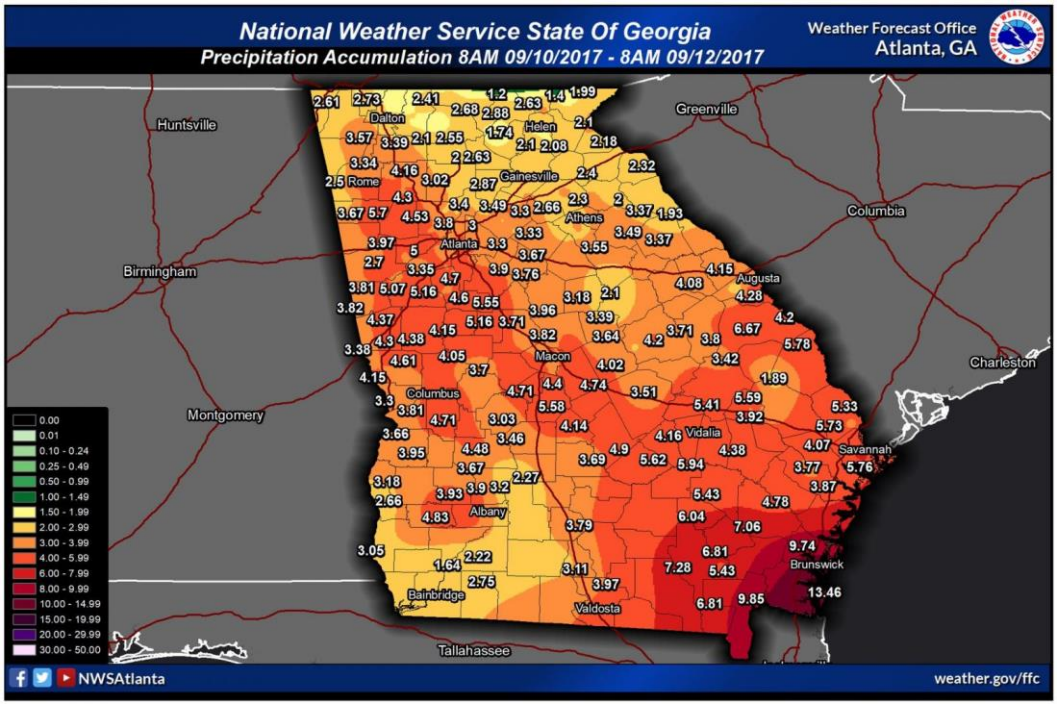
Land Use and Development Trends

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.

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. Habersham County's proximity to the Atlantic coast increases the likelihood of a tropical cyclone impacting the area. 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 three Federally Declared Disaster related to Tropical Cyclones, most recently in 2017 (Hurricane Irma).

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 United States Coast Guard National Response Center was reviewed regarding hazardous materials spill history in Habersham County. Data is available from 1982 to 2016 and all available data was reviewed. There were 47 NRC reported hazardous materials spills or releases in Habersham County over a 25 year period. It is anticipated that many more hazardous materials incidents have occurred over the last 25 years, but have not been reported. According to the NRC data, Habersham County averages 1.9 hazardous materials incidents of a reportable amount in any given year. 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 corridor that runs through the center of the county.

Hazardous materials releases can also be the result of railway or fixed facility incidents. Fixed facilities continue to be an increasing concern due to Habersham County's growing industrial footprint. 51.1% of reported hazardous materials incidents have occurred at fixed facilities.

Technological Hazard: **Hazardous Materials**

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 particular 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.

Estimated Potential Losses

Estimation of potential losses is difficult with regard to 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.

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 corridor, including Baldwin and Tallulah Falls, are at the greatest risk.

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 transported via highways, with US Highway 441 being of greatest concern. Water contamination as a result 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 38 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.

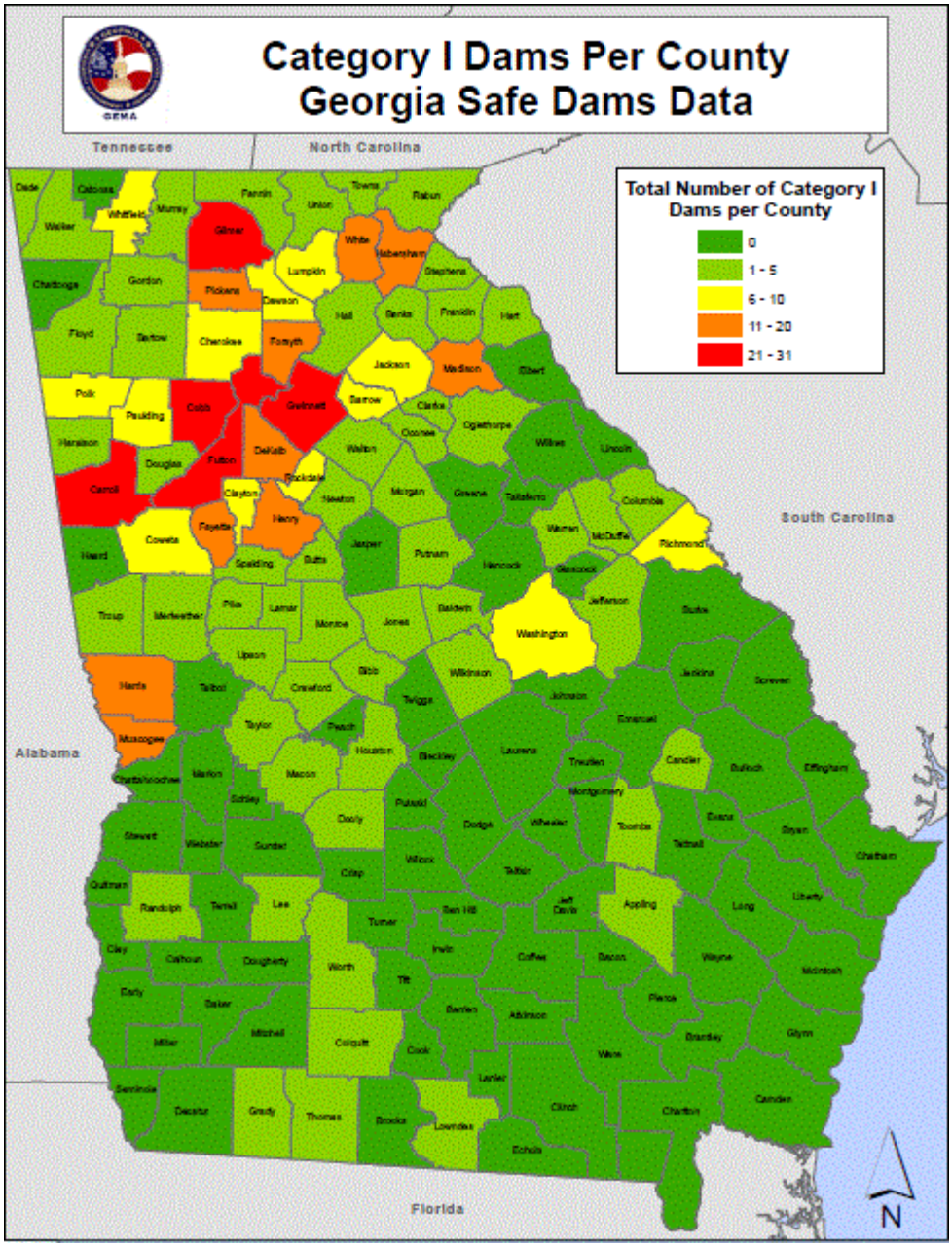
Assets Exposed to Hazard

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 category I 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.

Technological Hazard: **Dam Failure**



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

Technological Hazard: **Dam Failure**

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. The County (CID No. 130458) 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. Currently, the Habersham County municipalities of Clarkesville, Cornelia, Demorest, Alto, Mt. Airy, and Tallulah Falls also participate in NFIP. The City of Baldwin is in the process of exploring the appropriate ordinances and regulations to obtain NFIP compliance.

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.

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 12 Category I dams located in Habersham County. As a result, mitigation efforts for dam failure should be focused in this potentially affected area.

Technological Hazard: **Transportation Incident**

Hazard Description

There are many secondary hazards that could be associated with transportation incidents. Injuries or deaths can occur as a result of the impact of a transportation accident, by a hazardous materials release as a result of a transportation incident, or by other related transportations hazards. Transportation can occur via roadways, highways, interstates, railways, air or navigable waterways. Each transportation type poses their own unique hazard issues and consequences.

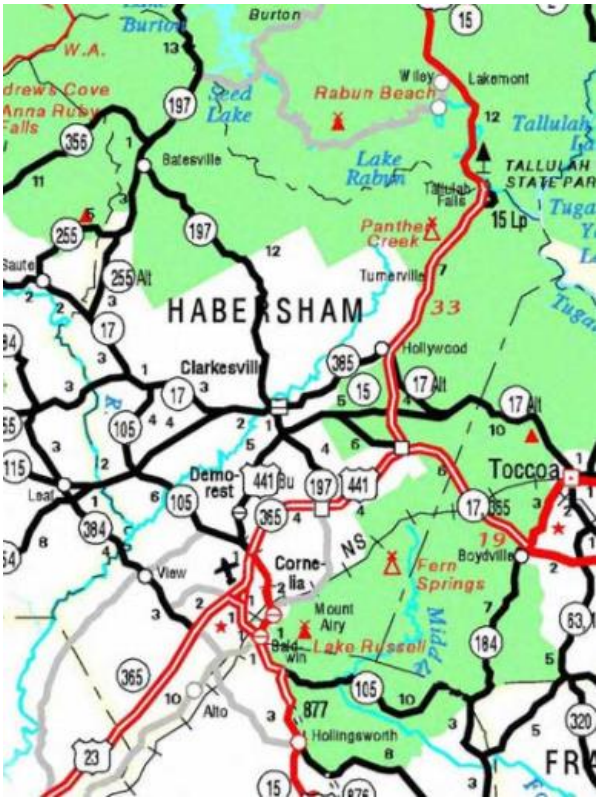
Roadway hazards are most likely to be caused by a motor vehicle accident involving one or more cars, trucks, vans, or transport vehicles. These incidents can have injuries as a result of the impact of the MVA or a hazardous materials release into the local environment, including waterways. Railway incidents 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, and441, and Georgia Highways 15, 17, 105, 115, 197, 255, 356, 365, 384, and 385.

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.

Technological Hazard: **Transportation Incident**

Multi-Jurisdictional Considerations

Habersham County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along US Highway 441 are the greatest at risk, including 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 seen as 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 $160 million in annual agriculture-related sales) of agriculture in Habersham County, agro-terrorism could be of particular concern. Additionally, a terrorist contamination of Habersham County's water supply is also of particular concern.

Technological Hazard: **Terrorism**

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. Because of these considerations, the Habersham County HMPC has developed mitigation actions with terrorism in mind.

Technological Hazard: **Communications Failure**

Hazard Description

Communications infrastructures are particularly vulnerable to both natural and technological hazards. While a communications failure would most likely be a secondary hazard of one of the other hazards identified in this plan, a communications failure could be a solo incident itself.

A lack of communication 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 communications infrastructure, general communication difficulties would be exacerbated for both emergency responders and for the general 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.

Assets Exposed to Hazard

All assets and critical facilities within Habersham County could potentially be impacted by a transportation incident.

Estimated Potential Losses

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

Land Use and Development Trends

Habersham County currently has no land use trends related to communications failures.

Multi-Jurisdictional Considerations

Habersham County as well as all municipalities could potentially be impacted by a communications failure. However, the municipalities of Demorest, Baldwin, Clarkesville, and Cornelia are particularly vulnerable due to population density and higher reliability on technological communications.

Hazard Summary

The Habersham County HMPC has determined that communications 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 communications 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 have the ability to 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 one infectious diseases – seasonal influenza and pneumonia – ranks 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 of these.

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.

Technological Hazard: **Emergent Infectious Diseases**

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

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	Marbug Hemorrhagic Fever
Measles	Meningitis
Monkeypox	MRSA
Nipha Virus Infection	Norovirus Infection
Pertussis	Plague
Polio	Rabies
Rift Valley Fever	Rotavirus Infection
Salmonellosis	SARS
Shigellosis	Smallpox
Sleeping Sickness (Trypanosomiasis)	Tuberculosis
Tularemia	Valley Fever (Coccidioidomycosis)
VISA/VRSA	Staphylococcus Aureus
West Nile Virus Infection	Yellow Fever

Technological Hazard: **Emergent Infectious Diseases**

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 $50 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. The majority of 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.

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)
- 2014 Measles (Nationwide – 334 cases from January to May, 2014 – most in 20 years)
- 2015 H5N2 Avian Flu Outbreak (Midwest – over 25 million chickens and turkeys destroyed as a precautionary measure at 83 locations)

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.

Technological Hazard: **Emergent Infectious Diseases**

Land Use and Development Trends

Habersham County currently 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 with large, concentrated populations, 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. Of particular concern to the Habersham County HMPC is impacts to Habersham County's large agricultural business population (over $160 million in annual sales). 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 2014.

Chapter 4 Section	Updates
Goals and Objectives	• Updated goals to match the needs of Habersham County and its municipalities
Identification and Analysis of Mitigation Techniques	• The beginning of this section includes new information regarding rating the mitigation strategies based upon the EMAP Standard Hazard Mitigation Section • The Mitigation Strategies have been updated, reorganized by objective, and new strategies have been added • A chart of completed Mitigation Strategies has been added
Multi-Jurisdictional Considerations	• Revised • Multi-Jurisdictional considerations listed for each identified hazard

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. County and municipal 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 Habersham County have changed slightly in the last five years (since 2014) due to specific threat events, such as the snow and ice storms of 2014 and Hurricane Irma in 2017. The 2014 Ice Storms, in particular, led to changes at the State and local levels regarding the importance of winter weather preparedness, both for the general public and the response ability of local jurisdictions, including Habersham County. 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 and all municipalities – has limited ability to fully implement the mitigation actions described in this plan. These jurisdictions are severely hampered by their small population and tax base when attempting to raise sufficient revenue to pursue many of these actions. All jurisdictions lack the needed financial strength and staffing to implement all of the actions described in this plan. Many of the actions will be pursued through grant programs and by partnering with public and private organizations who can supplement the needed resources to accomplish the goals outlined in this plan. For actions where grant funding or partnerships are not available, Habersham County or municipality revenue streams may be supplemented through Special Purpose Local Option Sales Tax (SPLOST) funds, which are voted on by the electorate.

Habersham County has implemented several mitigation strategies since the adoption of the 2014 Habersham County Hazard Mitigation Plan Update. Habersham County has implemented a community awareness and preparedness program, installed NOAA Weather Radios in the Senior Centers and Habersham County Medical Center, and provided a financial incentive to owners of manufactured homes to provide proper anchoring of those homes. Habersham County has also installed multiple outdoor emergency sirens throughout the county, increased their road maintenance capabilities, implemented roof load design

guidelines, and implemented an ordinance on water usage during times of drought. Additionally, flood ordinances and resolutions have been reviewed and updated, flood maps have been updated, and power line maintenance has been implemented throughout Habersham County.

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.

OBJECTIVE1	Reduce damage to property and loss of life from flooding
OBJECTIVE 2	Minimize the damage to property and loss of life resulting from high wind events
OBJECTIVE 3	Provide advanced severe weather warning
OBJECTIVE 4	Provide educational awareness to citizens regarding the dangers of natural hazards
OBJECTIVE 5	Implement initiatives for water conservation and wildfire protection
OBJECTIVE 6	Increase the ability of Habersham County, its municipalities, and its citizens to respond to natural and technological hazards
OBJECTIVE 7	Maintain continuity of critical operations during and after hazard events

OBJECTIVE 8	Minimize damage to property and loss of life resulting from winter storm events
OBJECTIVE 9	Increase Habersham County's knowledge of and ability to respond to technological hazard events

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 in order 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 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. All estimations listed in the plan are just that – estimations. Actual costs associated with the project will be determined prior to implementation and will subjected to a full Benefit-Cost Analysis to ensure the most appropriate use of local tax monies.

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	**7.a; 9.c**
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	**2.a; 2.b; 2.c; 2.d; 3.c; 3.d; 4.c; 6.c; 6.d; 6.e; 6.f; 6.h; 6.j; 6.k; 7.d; 8.a; 8.b**
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/or its municipalities and have score high on a preliminary cost-benefit analysis	**1.a; 1.b; 1.c; 1.d; 1.e; 1.f; 1.g; 1.h; 1.i; 1.j; 1.k; 1.l; 1.m; 1.n; 1.o; 3.a; 3.b; 4.a; 4.b; 5.a; 5.b; 6.a; 6.b; 6.g; 6.i; 7.b; 7.c; 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.

All mitigation strategies considered by the Habersham County Hazard Mitigation Plan Update Committee can be classified under one of the following six (6) broad categories of mitigation techniques:

Prevention

Requirement §201.6(c)(3)(ii)

Preventative activities are intended to keep hazard problems from getting worse and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	5.a; 5.b
Earthquake	2.b
Flood	1.a; 1.b; 1.c; 1.d; 1.e; 1.f; 1.g; 1.h; 1.i; 2.b
Thunderstorms	1.i; 2.b; 2.c
Tornadoes	2.b; 2.c
Tropical Cyclones	1.i; 2.b; 2.c
Wildfire	5.a; 5.b
Winter Storms	2.b
Technological Hazards	**Mitigation Strategies**
Communications Failure	
Dam Failure	
Emergent Infectious Disease	
Hazardous Materials	
Terrorism	
Transportation	

Property Protection

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or involve the removal of the structures from hazardous locations. Examples of property protection in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	
Earthquake	7.b; 7.c; 7.d
Flood	7.b; 7.c; 7.d
Thunderstorms	2.a; 7.b; 7.c; 7.d
Tornadoes	2.a; 7.b; 7.c; 7.d
Tropical Cyclones	2.a; 7.b; 7.c; 7.d
Wildfire	7.b; 7.c; 7.d
Winter Storms	7.b; 7.c; 7.d
Technological Hazards	**Mitigation Strategies**
Communications Failure	
Dam Failure	
Emergent Infectious Disease	9.b
Hazardous Materials	9.b
Terrorism	9.b
Transportation	

Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas (ex: floodplains, wetlands, steep slopes, sand dunes) and their protective functions. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples of natural resource protection in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	
Earthquake	2.d
Flood	
Thunderstorms	2.d
Tornadoes	2.d
Tropical Cyclones	2.d
Wildfire	2.d
Winter Storms	2.d
Technological Hazards	**Mitigation Strategies**
Communications Failure	
Dam Failure	
Emergent Infectious Disease	
Hazardous Materials	
Terrorism	
Transportation	

Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples of structural projects in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	
Earthquake	
Flood	1.j; 1.k; 1.l; 1.m; 1.n; 1.o
Thunderstorms	1.j; 1.k; 1.l; 1.m; 1.n; 1.o
Tornadoes	
Tropical Cyclones	1.j; 1.k; 1.l; 1.m; 1.n; 1.o
Wildfire	
Winter Storms	
Technological Hazards	**Mitigation Strategies**
Communications Failure	
Dam Failure	
Emergent Infectious Disease	
Hazardous Materials	
Terrorism	
Transportation	

Emergency Services

Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples of emergency services in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	3.a; 6.i; 6.j
Earthquake	3.a; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 7.a
Flood	3.a; 3.b; 3.c; 6.a; 6.b; 6.h; 6.i; 6.j
Thunderstorms	3.a; 3.b; 3.c; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 7.a
Tornadoes	3.a; 3.b; 3.c; 3.d; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 7.a
Tropical Cyclones	3.a; 3.b; 3.c; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 7.a
Wildfire	3.a; 6.a; 6.b; 6.i; 6.j; 6.k; 7.a
Winter Storms	3.a; 3.b; 3.c; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 7.a; 8.a; 8.b
Technological Hazards	**Mitigation Strategies**
Communications Failure	9.c
Dam Failure	9.c
Emergent Infectious Disease	
Hazardous Materials	9.a; 9.c
Terrorism	9.a; 9.c
Transportation	9.a; 9.c

Public Education and Awareness

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques that they can use to protect themselves and their property. Examples of public education and awareness strategies in this updated plan are listed in the following table:

Natural Hazards	Mitigation Strategies
Drought	4.a
Earthquake	4.a
Flood	4.a; 4.b
Thunderstorms	4.a; 4.b; 4.c
Tornadoes	4.a; 4.b; 4.c
Tropical Cyclones	4.a; 4.b; 4.c
Wildfire	4.a
Winter Storms	4.a; 4.b
Technological Hazards	**Mitigation Strategies**
Communications Failure	
Dam Failure	
Emergent Infectious Disease	
Hazardous Materials	
Terrorism	
Transportation	

Overall

Mitigation Technique	Percentage
Prevention	28.6%
Property Protection	10.2%
Natural Resource Protection	2.0%
Structural Projects	12.2%
Emergency Services	40.8%
Public Education and Awareness	6.1%

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

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
OBJECTIVE ONE: Reduce damage to property and loss of life from flooding																	
1.a	Maintain NFIP Compliance	Habersham County *Habersham County and all municipalities*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (a)**
1.b	Maintain NFIP Compliance	City of Clarkesville *City of Clarkesville*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (b)**
1.c	Maintain NFIP Compliance	City of Cornelia *City of Cornelia*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (c)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.d	Maintain NFIP Compliance	City of Demorest *City of Demorest*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (d)**
1.e	Maintain NFIP Compliance	Town of Mt. Airy *Town of Mt. Airy*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (e)**
1.f	Maintain NFIP Compliance	Town of Alto *Town of Alto*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (f)**
1.g	Maintain NFIP Compliance	Town of Tallulah Falls *Town of Tallulah Falls*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (g)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.h	Obtain NFIP Compliance	City of Baldwin *City of Baldwin*	**X**								Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**14 (h)**
1.i	Update floodplain Mapping in GIS	Habersham County GIS *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	Staff time	18 months	**Ongoing**	**High**	**2014 Plan**	**15 (mod)**
1.j	Continue implementation of 5-year plan for culvert repair and maintenance	Habersham County Road Department *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	$1 million	60 months	**Ongoing**	**High**	**2014 Plan**	**16 (mod)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.k	Replace culvert at Camp Creek Road (1237)	Habersham County Road Department *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	$100,000	24 months	**NEW**	**High**	**NEW**	**NEW**
1.l	Replace culvert at Stapleton Road	Habersham County Road Department *Habersham County and City of Baldwin*	**X**		**X**		**X**				Public and private grants and/or local budgets	$100,000	24 months	**NEW**	**High**	**NEW**	**NEW**
1. m	Assess culverts that need replacing and replace, as able	Habersham County Road Department *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	$750,000	60 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.n	Inventory all culverts in municipalities and determine life cycle replacement plan	All Habersham County municipalities *Habersham County and all municipalities*	**X**		**X**		**X**				Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**	**NEW**
1.o	Replace culvert at Wilson Road	Habersham County Road Department *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	$100,000	24 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.p	Increase culvert size requirements for better flood and stormwater management	Habersham County Road Department and Planning and Development *Habersham County and all municipalities*	**X**		**X**		**X**				Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**	**NEW**
OBJECTIVE TWO: Minimize the damage to property and loss of life resulting from high wind events																	
2.a	Build safe rooms at all fire stations in Habersham County	Habersham County EMA and fire departments *Habersham County and all municipalities*			**X**	**X**	**X**				Public and private grants and/or local budgets	$1.3 million	36 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.b	Encourage structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles on all structures built in Habersham County	Habersham County Planning and Development *Habersham County and all municipalities*		**X**	**X**	**X**	**X**			**X**	Local budgets	Staff time	18 months	**Modified from 2014 plan; IBC codes adopted**	**Med**	**2014 Plan**	**7 (a) (mod)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.c	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 *Habersham County and all municipalities*			**X**	**X**	**X**				Local budgets	Staff Time	24 months	**Modified from 2014 Plan; IBC codes adopted**	**Med**	**2014 Plan**	**7 (b) (mod)**
2.d	Maintain vegetation around power lines countywide	Local utility companies *Habersham County and all municipalities*		**X**	**X**	**X**	X		**X**	**X**	Private budgets	$2 million	30 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.e	Build tornado shelters for vulnerable populations	Habersham County EMA *Habersham County and all municipalities*				**X**	X				Public and private grants and/or local budgets	$125,000	36 months	**NEW**	**High**	**NEW**	**NEW**
OBJECTIVE THREE: Provide adequate advanced severe weather warning																	
3.a	Maintain mass notification system and expand utilization, as needed	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$75,000	18 months	**Nixle in place**	**High**	**2014 Plan**	**2 (mod)**
3.b	Review NOAA Weather Radio locations and ensure they are properly maintained and programmed	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**				Local budgets	Staff time	24 months	**Radios installed in schools, hospital, senior centers**	**High**	**2014 Plan**	**6 (mod)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.c	Renew partnership with Sunshine Rotary to give out more NOAA Weather Radios to the public	Sunshine Rotary and Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**				Local budgets	$5,000	24 months	**NEW**	**Med**	**NEW**	**NEW**
3.d	Add Outdoor Emergency Warning Sirens at all fire stations, schools, at the hospital, and at the airport	Habersham County EMA *Habersham County and all municipalities*				**X**					Public and private grants and/or local budgets	$300,000	36 months	**NEW**	**Med**	**NEW**	**NEW**
OBJECTIVE FOUR: Provide educational awareness to citizens regarding the dangers of natural hazards																	

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
4.a	Continue to provide educational and awareness programs regarding natural hazards	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$7,500	24 months	**Currently held annually**	**High**	**2014 Plan**	**4 (mod)**
4.b	Encourage citizens to sign up for Nixle alerts	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**				Local budgets	$5,000	12 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
4.c	Install signs in county and city-owned buildings to designate safe sheltering locations for severe weather	Habersham County EMA and Habersham County and municipal building operators *Habersham County and all municipalities*			**X**	**X**	**X**				Local budgets	$2,000	18 months	**NEW**	**Med**	**NEW**	**NEW**
OBJECTIVE FIVE: Implement initiatives for water conservation and wildfire protection																	
5.a	Continue to enforce State of Georgia recommended water use ordinance and restrictions	Habersham County Code Enforcement *Habersham County and all municipalities*						**X**	**X**		Local budgets	Staff time	12 months	**Ongoing**	**High**	**2014 Plan**	**20 (mod)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
5.b	Continue a Water Issue Group that meets monthly to discuss the economic and drought contingencies	Habersham County and municipal governments *Habersham County and all municipalities*						X	X		Local budgets	Staff time	12 months	**Ongoing**	**High**	**NEW**	**NEW**
5.c	Increase public awareness of wildfires through FireWise	Habersham County Emergency Services *Habersham County and all municipalities*							X		Public and private grants and/or local budgets	$7,500	18 months	**NEW**	**High**	**NEW**	**NEW**
OBJECTIVE SIX: Increase the ability of Habersham County, its municipalities, and its citizens to respond to natural hazards																	

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.a	Acquire a Southern Linc system as a backup system for county and city response agencies	Habersham County EMA and public safety agencies *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$50,000	30 months	**NEW**	**High**	**NEW**	**NEW**
6.b	Purchase 4 portable electronic signs	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$120,000	36 months	**Needs study conducted**	**High**	**2014 Plan**	**5**
6.c	Purchase dump truck for debris removal	Habersham County Road Department *Habersham County and all municipalities*		**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$150,000	48 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.d	Purchase skid steer and grapple	Habersham County Road Department *Habersham County and all municipalities*		**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$30,000	24 months	**NEW**	**Med**	**NEW**	**NEW**
6.e	Purchase a chipper and grinder for City of Cornelia and Habersham County	Habersham County Road Department and City of Cornelia Public Works *Habersham County and City of Cornelia*		**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$40,000	36 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.f	Purchase additional tree removal equipment	Habersham County Road Department *Habersham County and all municipalities*		**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$300,000	42 months	**NEW**	**Med**	**NEW**	**NEW**
6.g	Create a chainsaw response team and equip team with chainsaws and safety equipment	Habersham County Road Department and public safety agencies *Habersham County and all municipalities*		**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$25,000	36 months	**NEW**	**High**	**NEW**	**NEW**
6.h	Purchase portable outdoor lighting for county wide operations (4 lights)	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$30,000	30 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.i	Create a resource list for Habersham County and all municipalities to distribute amongst all departments	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**	**NEW**
6.j	Assess needed resources based on list from 6.i and purchase additional resources, as needed	Habersham County and municipal departments *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	Staff time (cost of additional resources dependent on identified needs)	36 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.k	Purchase 24 radios for local hospital for communication within hospital and with public safety	Habersham County Medical Center *Habersham County and all municipalities*		**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$20,000	30 months	**NEW**	**Med**	**NEW**	**NEW**
6.l	Purchase rubber-tracked skid steer with bush hog	Habersham County and Cornelia Water Authorities *Habersham County and all municipalities*	**X**		**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$20,000	48 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.m	Inventory Search and Rescue Team resources and fill in gaps, where needed	Habersham County EMA and Emergency Services *Habersham County and all municipalities*	**X**	**X**		**X**	**X**			**X**	Public and private grants and/or local budgets	Staff time (for inventory); other costs dependent on inventory results	48 months	**NEW**	**Med**	**NEW**	**NEW**
6.n	Purchase additional lightning detectors for recreation areas and large gatherings	Habersham County EMA *Habersham County and all municipalities*			**X**	**X**	**X**				Public and private grants and/or local budgets	$15,000	36 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.o	Create a Swift Water Rescue Team and purchase equipment and provide training	Habersham County Emergency Services *Habersham County and all municipalities*	**X**		**X**		**X**				Public and private grants and/or local budgets	$150,000	60 months	**NEW**	**Med**	**NEW**	**NEW**
6.p	Purchase Water Buffaloes for water storage	Habersham County EMA *Habersham County and all municipalities*	**X**		**X**	**X**	**X**	**X**		**X**	Public and private grants and/or local budgets	$80,000	48 months	**NEW**	**Low**	**NEW**	**NEW**
6.q	Purchase a Mobile Command Vehicle (MCV)	Habersham County EMA *Habersham County and all municipalities*			**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$300,000	60 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.r	Purchase additional mobile light units/ lighting systems	Habersham County Emergency Services *Habersham County and all municipalities*	**X**		**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$30,000	30 months	**NEW**	**Med**	**NEW**	**NEW**
6.s	Update and expand the Emergency Operations Center equipment and capabilities	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$250,000	60 months	**NEW**	**High**	**NEW**	**NEW**
6.t	Develop a large-scale emergency evacuation plan	Habersham County EMA *Habersham County and all municipalities*	**X**			**X**	**X**		**X**		Local budgets	Staff time	42 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.u	Provide advanced rescue training (trench, swift water, high angle, technical rescue, etc.)	Habersham County Emergency Services *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$50,000	48 months	**NEW**	**Low**	**NEW**	**NEW**
6.v	Train local damage assessment teams	Habersham County EMA and Tax Commissioners Office *Habersham County and all municipalities*	**X**		**X**	**X**	**X**			**X**	Local budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.w	Create an emergency preparedness section in the local library	Habersham County Library *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$2,500	42 months	**NEW**	**Low**	**NEW**	**NEW**
6.x	Encourage emergency preparedness through the local schools	EMA and Habersham Schools *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local budgets	Staff time	18 months	**NEW**	**Med**	**NEW**	**NEW**
6.y	Increase mass notification system participation by placing information in local utility bills	Local utility providers and EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**				Local budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
6.z	Perform an assessment of outdoor warning siren coverage	Habersham County EMA				**X**					Local budgets	Staff time	18 months	**NEW**	**Med**	**NEW**	**NEW**
OBJECTIVE SEVEN: Maintain continuity of critical operations during and after hazard events																	
7.a	Purchase HAM radio for command center at Habersham County Medical Center	Habersham County Medical Center *Habersham County and all municipalities*		**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$8,000	18 months	**NEW**	**Low**	**NEW**	**NEW**
7.b	Purchase generators for 3 pump houses in the Town of Tallulah Falls	Town of Tallulah Falls *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$125,000	30 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
7.c	Purchase generator for Recreation Center and Aquatic Center	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$90,000	30 months	**NEW**	**High**	**NEW**	**NEW**
7.d	Purchase generators for lift stations	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$200,000	36 months	**NEW**	**Med**	**NEW**	**NEW**
7.e	Purchase backup communications equipment for 911 Center	Habersham County E911 *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$150,000	60 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
7.f	Purchase pop-up radio antennas to ensure continued radio communication capabilities	Habersham County EMA *Habersham County and all municipalities*	**X**		**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local budgets	$250,000	60 months	**NEW**	**Low**	**NEW**	**NEW**
7.g	Purchase backup generators for identified shelters	Habersham County EMA and American Red Cross *Habersham County and all municipalities*	**X**		**X**	**X**	**X**			**X**	Public and private grants and/or local budgets	$200,000	60 months	**NEW**	**High**	**NEW**	**NEW**
7.h	Perform an assessment of generator needs and prioritization	Habersham County EMA *Habersham County and all municipalities*	**X**	**X**	**X**	**X**	**X**			**X**	Local budgets	Staff time	36 months	**NEW**	**Med**	**NEW**	**NEW**
OBJECTIVE EIGHT: Minimize damage to property and loss of life resulting from winter storm events																	

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
8.a	Purchase snow plows and spreader for Tallulah Falls and Habersham County	Habersham County Road Department and Tallulah Falls *Habersham County and Town of Tallulah Falls*		**X**							Public and private grants and/or local budgets	$75,000	24 months	**NEW**	**Med**	**NEW**	**NEW**
8.b	Purchase a brine truck for City of Cornelia and Habersham County	Habersham County and municipal Road Departments *Habersham County and City of Cornelia*		**X**							Public and private grants and/or local budgets	$60,000	24 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
8.c	Purchase additional sanding/salting/ scraping equipment for winter weather	Habersham County Road Department *Habersham County and all municipalities*		**X**							Public and private grants and/or local budgets	$100,000	30 months	**NEW**	**Med**	**NEW**	**NEW**
8.d	Perform an assessment to identify potential warming station locations for vulnerable populations	Habersham County EMA *Habersham County and all municipalities*		**X**							Local budgets	Staff time	24 months	**NEW**	**Low**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
OBJECTIVE TEN: Increase Habersham County's knowledge of and ability to respond to technological hazard events															
9.a	Perform a pre-panning walk thru of each Tier Two companies with all fire departments and potentially involved agencies	Habersham County EMA and Habersham and municipal fire departments *Habersham County and all municipalities*			**X**	**X**		**X**	Local budgets	Staff Time	18 months	**NEW**	**High**	**NEW**	**NEW**
9.b	Install generator at Point of Dispensing site	Habersham County EMA and Public Health		**X**	**X**	**X**			Public and private grants and/or local budgets	$75,000	30 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
		Habersham County and all municipalities													
9.c	Purchase HAM radio for command center at Habersham County Medical Center	Habersham County Medical Center *Habersham County and all municipalities*	**X**		**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$8,000	18 months	**NEW**	**Low**	**NEW**	**NEW**
9.d	Update HazMat Response Plan	Habersham County Emergency Services *Habersham County and all municipalities*			**X**	**X**		**X**	Local budgets	Staff time	18 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
9.e	Complete Emergency Action Plan for all dams in Habersham County by the end of 2019	Habersham County EMA and dam owners *Habersham County and all municipalities*				**X**	**X**		Public and private grants and/or local budgets	$25,000	24 months	**NEW**	**High**	**NEW**	**NEW**
9.f	Integrate City of Cornelia dam monitoring software into SCATA	City of Cornelia Water Authority *Habersham County and City of Cornelia*				**X**	**X**		Local budgets	Staff time	24 months	**NEW**	**Med**	**NEW**	**NEW**
9.g	Install Dam Watch Program and purchase cameras and electronic warning system	City of Cornelia and Habersham County				**X**	**X**		Public and private grants and/or local budgets	$75,000	36 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
	at local dams to improve off-site monitoring capabilities	*Habersham County and City of Cornelia*													
9.h	Create a HazMat Team and purchase equipment for HazMat Response	Habersham County Emergency Services *Habersham County and all municipalities*		**X**	**X**	**X**		**X**	Public and private grants and/or local budgets	$100,000	60 months	**NEW**	**Med**	**NEW**	**NEW**
9.i	Perform pre-planning for industrial sites	Habersham County Emergency Services *Habersham County and all municipalities*			**X**	**X**		**X**	Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
9.j	Provide HazMat training for all first responders	Habersham County EMA and Emergency Services *Habersham County and all municipalities*			**X**	**X**		**X**	Public and private grants and/or local budgets	$10,000	30 months	**NEW**	**Med**	**NEW**	**NEW**
9.k	Provide advanced training for HazMat Team members	Habersham County EMA and Emergency Services *Habersham County and all municipalities*			**X**	**X**		**X**	Public and private grants and/or local budgets	$10,000	30 months	**NEW**	**Med**	**NEW**	**NEW**
9.l	Hold multi-jurisdictional mass casualty/active shooter/	Habersham County EMA *Habersham County and all municipalities*		**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$10,000	48 months	**NEW**	**Med**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Communications	Infectious Diseases	Hazardous Materials	Terrorism	Dam Failure	Transportation	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
	terrorism exercises														
9.m	Start/Maintain Local Emergency Planning Committee (LEPC)	Habersham County EMA *Habersham County and all municipalities*			**X**	**X**		**X**	Public and private grants and/or local budgets	$5,000	24 months	**NEW**	**High**	**NEW**	**NEW**
9.n	Assess vulnerability to cyberattacks and mitigate IT systems accordingly	Habersham County IT *Habersham County and all municipalities*	**X**			**X**			Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**	**NEW**

Completed Mitigation Strategies

Previous Strategy #	Mitigation Strategy	Status
4	Institute a community awareness and preparedness focused on major hazards	COMPLETE
6	Purchase weather radios for the Habersham County Medical Center and local senior centers and convalescent homes	COMPLETE
9	Install outdoor emergency warning sirens throughout Habersham County	COMPLETE
10	Identify all owners of inadequately installed manufactured homes within the County and offer a financial incentive to retrofit them with an appropriate level of anchoring	COMPLETE
11	Improve existing road maintenance capabilities	COMPLETE
12	Implement a proper roof load design standard for construction in Habersham County	COMPLETE
13	Review and update ordinances and resolutions related to flooding periodically	COMPLETE
15	Update flood-prone mapping for Habersham County	COMPLETE
19	Perform power line maintenance	COMPLETE
20	Adopt ordinances to prioritize and limit outdoor water use	COMPLETE

Multi-Jurisdictional Considerations

Thunderstorms

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.

Winter Storms

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 include all cities and town located within Habersham County.

Flooding

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. All of Habersham County and its municipalities could potentially be impacted.

Tornado

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 include all cities and town located within Habersham County.

Drought

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 cities and town located within Habersham County.

Wildfire

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 cities and town located within Habersham County.

Earthquakes

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 cities and towns located within Habersham County.

Tropical Cyclones

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

Hazardous Materials Incidents

All of Habersham County, including all municipalities, are vulnerable to both fixed facility and transportation-related hazardous materials releases

Dam Failure

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

Transportation Incidents

Habersham County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along Interstate 20 are the greatest at risk.

Terrorism

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.

Communications Failure

Habersham County as well as all municipalities could potentially be impacted by a communications failure incident.

Emergent Infectious Disease

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 with large, concentrated populations, such as schools.

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 2014.

Chapter 5 Section	Updates
Maintenance	• Content Revised
Plan Distribution	• New Section – Not in 2014 Plan
Implementation	• Content expanded and revised from 2014 Plan
Evaluation	• Content Revised from Monitoring, Evaluating, and Updating the Mitigation Plan Section
Peer Review	• New Section – Not in 2014 Plan
Plan Update	• Content Revised
Conclusion	• Content Revised

Maintenance

Requirement §201.6(c)(4)(iii)

In order 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 2014 Habersham County Hazard Mitigation Plan was followed, to the best abilities of Habersham County. 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 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 the County?
- Has the nature or magnitude of risks changed?
- Does the risk assessment portion of the Plan need to be updated or modified?
- Are the goals and objectives meeting changes in state and federal policy?
- Are the current resources appropriate for implementing the Plan?
- Are there local implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- 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 Habersham County Commissioners and City Councils 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

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

A printed copy of the approved Plan will be available for viewing at the Habersham County Emergency Management Agency located at 175 EOC Drive, Mt. Airy, GA 30563. A printed copy of the approved Plan will also be available for viewing at the Clarkesville Library located at 178 East Green Street in Clarkesville. The existence and location of these copies will be publicized in the County's local newspaper, the Northeast Georgian.

All comments, questions, concerns, and opinions about the Plan will be directed to Director Lynn Smith of the Habersham County Emergency Management Agency for follow-up.

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 in order to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the designation of a local lead department or agency, some strategies have secondary or assisting department or agencies listed as well. This allows for a sharing of responsibility and coordination of effort for some of the identified strategies that cross lines of departmental responsibility. The completion date has been assigned in order to assess whether identified mitigation strategies are being implemented in a timely fashion.

Habersham County and its municipalities 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 effort between Habersham County and all municipalities therein, 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, as well as all municipality plans in the future. Incorporation of these strategies will occur, as necessary, throughout this planning cycle covered by this Hazard Mitigation Plan Update. In particular, 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 2014 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 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 therein. 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	County/Municipal Code	Yes	No	No
Capital Improvements Plan	Report (SPLOST)	Yes	No	No
Comprehensive Plan	2009-2029 Joint Comprehensive Plan	Yes	No	No
Economic Development Plan	2009-2029 Joint 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	Article XVI – Flood Damage Prevention	Yes	No	No
Historic Preservation	Article XVI – Flood Damage Prevention	Yes	No	No
National Flood Insurance Program Participation	Article XVI – Flood Damage Prevention	Yes	No	Yes
Continuity of Government/		No	No	No

Operations Plan				
Post-Disaster Ordinance	Chapter 22, Article V, Divisions 3 and 4	Yes	No	No
Zoning Ordinances	County and Municipal Codes	Yes	No	No

The Town of Alto only has a few administrative and technical capabilities. City departments include: Administrative, Police Department, and Public Works/Water Department.

The City of Baldwin only has a few administrative and technical capabilities. City departments include: Administrative, Sanitation, Utilities, Licensing and Permits, Public Works, Police Department, and Fire Department.

The City of Clarkesville only has a few administrative and technical capabilities. City departments include: Administrative, Police Department, Fire Department, Planning and Zoning, Utilities, Public Works, and Waste Water Treatment.

The City of Cornelia only has a few administrative and technical capabilities. City departments include: Administrative, Building and Zoning, Economic Development, Fire Department, Police Department, Utilities, and Public Works.

The City of Demorest offers many administrative and technical services to the community. City departments include: Administrative, Water Department, Waste Water Department, Police Department, and Fire Department.

The Town of Mt. Airy offers many administrative and technical services to the community. City departments include: Administrative, Police department, and Utilities.

The Town of Tallulah Falls offers many administrative and technical services to the community. City departments include: Administrative, Police, and Fire departments.

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 take into account 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

In order 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.

Habersham County Hazard Mitigation Plan Update was peer reviewed by:

_____

David Murphy Date
Director
White County Emergency Management Agency

_____

Danielle Rhodes Date
Director
Stephens County Emergency Management Agency

_____

Deidra Moore Date
Director
Banks County Emergency Management Agency

_____

Scott Krein Date
Director
Oconee County (SC) Emergency Management Agency

Michael Mazarky Date
Director
Rabun County Emergency Management Agency

Rickey Mathis Date
Director
Towns County Emergency Management Agency

Casey Ramsey Date
Interim Director
Hall County Emergency Management Agency

Plan Update

Requirement §201.6(c)(4)(i)

The Federal DMA 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 2022; therefore, the approval and adoption of the next plan update must be completed before that time.

In the fourth quarter of 2021, Habersham County plans to begin the Hazard Mitigation Plan Update process for the third 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 second quarter of 2022 to meet all identified planning deadlines.

Conclusion

As a result of the hazard mitigation planning process, Habersham County, and the Municipalities of Alto, Baldwin, Clarkesville, Cornelia, Demorest, Mt. Airy, and Tallulah Falls, as well as additional participating organizations have obtained a great deal of 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 each hazard could have. 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. Prevention and Emergency Services comprised the greatest number (over 69%) of the mitigation strategies identified by Habersham County.

Appendix A – Habersham County Dams Information

Habersham County Category I Dams

Name	Latitude	Longitude	Height (feet)	Storage (acres)
Bare Lake Dam	34.681110	-83.618870	40.00	720.00
City of Cornelia Raw Water Reservoir Dam #2	34.536111	-83.512222	32.00	261.60
Clark Apple Orchard #3	34.571950	-83.604210	32.00	69.00
Habersham Mills Lake Dam	34.590890	-83.556540	40.00	1280.00
Hazel Creek Watershed Structure #12	34.580950	-83.467090	34.00	463.00
Hazel Creek Watershed Structure #19	34.588270	-83.483320	31.00	296.00
Hazel Creek Watershed Structure # 7	34.533070	-83.510330	36.00	633.00
Soque Creek Watershed Structure #44	34.609183	-83.446936	28.00	854.00
Soque River Watershed Structure #29	34.665310	-83.477860	54.20	838.00
Soque River Watershed Structure #34	34.673650	-83.460180	59.00	1350.00
Soque River Watershed Structure #36	34.669444	-83.448333	37.60	923.00
Soque River Watershed Structure # 13	34.654160	-83.579720	53.00	412.00

Habersham County Category II Dams

Name	Latitude	Longitude	Height (feet)	Storage (acres)
Apple Orchard	34.706417	-83.449861	45.00	140.00
Baldwin Lake Dam	34.705972	-83.470972	28.00	44.00
Batson Lake Dam	34.554722	-83.593889	0.00	0.00
Blue Ridge Lake Dam	34.704278	-83.463500	26.00	121.00
Camp Echoee Lake	34.642250	-83.587056	30.00	48.00
Caron Lake Dam	34.616000	-83.625083	34.00	86.00
Chambers Dam	34.649139	-83.611750	28.00	151.00
Country Cove Lake Dam	34.650833	-83.645556	32.00	68.00
Craver Lake Dam (Upper)	34.674444	-83.612500	32.00	42.00
Deer Trail Lake Dam	34.697861	-83.548361	33.00	173.00
Granny Lake Dam	34.703333	-83.461944	35.00	45.00

Habersham Mill (Lower Dam)	34.582694	-83.568806	14.00	103.00
Haynie Lake Dam	34.478167	-83.646111	37.00	112.00
Hazel Creek Watershed Structure #21	34.552790	-83.481750	24.00	564.00
Hidden Valley Lake Dam (Upper)	34.613333	-83.635833	49.00	190.00
High Meadows Lake Dam	34.699583	-83.546194	18.00	237.00
High Valley Boys Club Lake Dam	34.810306	-83.626333	31.00	60.00
Lake Serenity-Hodnett Dam	34.620750	-83.544000	18.00	182.00
Lakeview Orchard Dam	34.636722	-83.470250	27.00	93.00
Lawson Lake Dam	34.629917	-83.427528	32.00	314.00
Lovanna Farms Lake Dam (West)	34.672028	-83.504528	44.00	150.00
Lower Taylor Lake Dam No. 2	34.614667	-83.640528	27.00	60.00
Middle Fork Broad River Structure 44	34.483472	-83.460306	76.00	4490.00
Nalls Lake Dam	34.559056	-83.515417	28.00	84.00
Nancy Town Lake Dam	34.498333	-83.483333	0.00	906.00
Orchard Lake Dam	34.700000	-83.449167	28.00	82.00
Ormond Knight Lake Dam	34.696583	-83.476333	25.00	75.00
Pippen Lake Dam	34.708583	-83.451889	40.00	57.00
Sautee Creek Watershed Structure # 18	34.707306	-83.614778	35.00	434.00
Soque River Watershed Structure 42	34.633167	-83.575361	34.00	290.00
Sportsman Club Dam	34.797861	-83.582139	30.00	31.00
Todd Dam	34.623861	-83.409806	31.00	137.00
Turkey Crest Dam	34.678278	-83.417917	34.00	125.00
Turnerville Springs Dam	34.682917	-83.451694	27.00	207.00
Yates Lake Dam	34.708333	-83.465944	33.00	58.00

Appendix B – Habersham County Hazard Mitigation Plan Update Committee Sign-In Sheets

Habersham County Hazard Mitigation Plan Update - Committee Meeting

Sign-In Sheet

Wednesday, February 28, 2018

Name/Title	Signature	E-mail Address	Agency/Organization
Keith Ethridge	[illegible]	Kethridge@corneliageorgia.org	City of Cornelia
J C Irby	[illegible]	JJFLE@WINDSTREAM.NET	CITY OF CORNELIA
Josh Hazle	[illegible]	jhazle@corneliageorgia.org	City of Cornelia
Jason Poole	[illegible]	jmpoole@clarkesvillega.com	City of Clarkesville
MIKE BRAMLETT	[illegible]	mbramlett@habershamga.com	Hab Co
Melanie Bellinger	Melanie Bellinger	mbellinger@habershamga.com	Hab EMA / E911
Floyd Camp Capt.	[illegible]	fcamp@habershamga.com	Habersham S.O.
Bill Ramsey	[illegible]	MedicB.1128@HotMail.com	EMS
Marie G. Taylor	[illegible]	mgtaylor@piedmont.edu	Piedmont College PD
Bill Goutcher	[illegible]	tfallspd@windstream.net	Tallulah Falls
Phil Sutton	[illegible]	psutton@habershamga.com	Habersham

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Habersham County Hazard Mitigation Plan Update - Committee Meeting

Sign-In Sheet

Wednesday, February 28, 2018

Name/Title	Signature	E-mail Address	Agency/Organization
Lynn Smith, Director	Lynn Smith	lsmith@habershamga.com	Habersham EMA

Habersham County Hazard Mitigation Plan Update - Committee Meeting

Sign-In Sheet

Tuesday, March 27, 2018

Name/Title	Signature	E-mail Address	Agency/Organization
Josh Ivey chief	J. Ivey	jivey@altopolice.com	Alto PD
Angela Palmer/GCIC	Angela Palmer	angpalmer03@gmail.com	Alto PD
Melanie Bellinger	Melanie Bellinger	mbellinger@habershamga.com	Hab EMA/911
Lynn Smith	Lynn Smith	lsmith@habershamga.com	Hab EMA/911
Jeff Cain		jcain@habershamga.com	Hab FD
Casey Chastain		CChastain@City of Demorest.org	Demorest PD
Tim Jarrell		chief@townofMtAiry.com	MT. Airy P.D.
Floyd Canup		fcanup@habershamga.com	Habersham S.O.
Keith Ethridge		kethridge@cornelliagcolgia.org	Cornelia
Derick Canupp/Director		dcanupp@habershamga.com	Hab Co.

Habersham County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, April 25, 2018

Name/Title	Signature	E-mail Address	Agency/Organization
Andrew Harper Comm.	Andrew Harper		
Marie G. Taylor, Piedmont College Police Chief	mgt	mgtaylor@piedmont.edu	Piedmont College
William Goatcher	Wm	tfallspd@windstream.net	Tallulah Falls PD
Derian Carupp	DCarupp	dcarupp@habershamga.com	HAB County
Phil Sutton	Phil Sutton	psutton@habershamga.com	Habersham
Lynn Smith	Lynn Smith		
Jeff Cain	Jeff Cain	jcain@habershamga.com	Habersham
CHPD BLACK	CBlack	CBLACK@habershamga.com	HABERSHAM
Billy Jenkins	Billy Jenkins	bjenkins@cornelia.georgia.org	Cornelia Fire

Habersham County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, April 25, 2018

Name/Title	Signature	E-mail Address	Agency/Organization
Josh Ivey chief	[signature]	jivey@altopolice.com	Alto PD
Kayla Neal TAC	[signature]	kneal.altopd@windstream.net	Alto PD
Mike Bramlett	[signature]	mbramlett@habershamga.com	Hab Co
Tracy Williamson	[signature]	twilliamson@habershamga.com	Hab Co
Jason Poole Chief	[signature]	jmpoole@clarkesvillega.com	Clarkesville Fire
Heidi Hook Finance Director	[signature]	hhook@habershamga.com	Hab Co
Josh Hazle	[signature]	jhazle@corneliageorgia.org	Cornelia
Floyd Canup	[signature]	fcanup@habershamga.com	Habersham S.O.
Tim Jarrell	[signature]	chief@townofmtairy.com	Mt. Airy P.D.
Melanie Bellinger	[signature]	mbellinger@habershamga.com	Hab 911/EMA
Ken Ranalli	[signature]	~~kranalli@cityofdemorestga.org~~ kranalli@cityofdemorest.org	Demorest Fire

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Appendix C – Habersham County Critical Facilities Information

Name	Jurisdiction	Facility Types
Habersham County Ninth Grade Academy	*Habersham County*	Education, K - 12
Habersham County Ninth Grade Academy	*Habersham County*	Education, K - 12
Habersham County EOC	*Mount Airy town*	Emergency Services, EMA
Hillard Wilbanks Middle School	*Demorest city*	Education, K - 12
Habersham Co Fire Dept Station 17	*Habersham County*	Emergency Services, Fire Fighters
Habersham County Courthouse	*Clarkesville city*	Law Enforcement, Court House
Baldwin Police Department	*Baldwin city*	Law Enforcement, Police
Cornelia Police Department	*Cornelia city*	Law Enforcement, Police
Arrendale State Prison	*Habersham County*	Law Enforcement, Prisons
Clarkesville Police Department	*Clarkesville city*	Law Enforcement, Police
Demorest Fire Department	*Demorest city*	Emergency Services, Fire Fighters
Habersham County Medical Center	*Habersham County*	Medical, EMS
Habersham County Airport	*Habersham County*	NGO, Transportation
Piedmont College	*Habersham County*	Education, Private
Habersham Central High	*Habersham County*	Education, K - 12
North Georgia Tech	*Clarkesville city*	Education, VoTech
Clarkesville City Hall	*Clarkesville city*	Government, Private
Demorest City Hall	*Demorest city*	Government, Private
Mt Airy City Hall	*Mount Airy town*	Government, Private
Alto City Hall	*Alto city*	Government, Private

Cornelia City Hall	*Cornelia city*	Government, Private
City of Clarkesville	*Clarkesville city*	Government, Water/Sewer
City of Demorest -lift station	*Demorest city*	Government, Water/Sewer
City of Cornelia	*Cornelia city*	Government, Water/Sewer
Baldwin WPCP	*Baldwin city*	Government, Water/Sewer
Clarkesville WPCP	*Clarkesville city*	Government, Water/Sewer
Demorest WPCP	*Demorest city*	Government, Water/Sewer
Cornelia WPCP	*Cornelia city*	Government, Water/Sewer
Habersham County Courthouse	*Clarkesville city*	Law Enforcement, Court House
Habersham Co Fire Department Batesville Station	*Habersham County*	Emergency Services, Fire Fighters
Habersham County Fire Department Station 11	*Habersham County*	Emergency Services, Fire Fighters
GA Dept of Corrections Fire Station 1	*Habersham County*	Emergency Services, Fire Fighters
Habersham County Fire Department Station 15	*Habersham County*	Emergency Services, Fire Fighters
Habersham Co Fire Department Deep Creek Station	*Habersham County*	Emergency Services, Fire Fighters
Clarkesville Fire Department Station 3	*Habersham County*	Emergency Services, Fire Fighters
Habersham Co Fire Dept Station 13	*Habersham County*	Emergency Services, Fire Fighters
Demorest Volunteer Fire Department	*Demorest city*	Emergency Services, Fire Fighters
Habersham County Fire Department Station 12	*Habersham County*	Emergency Services, Fire Fighters
Habersham County Fire Department Station 14	*Habersham County*	Emergency Services, Fire Fighters
Cornelia Fire Department Station 2	*Cornelia City*	Emergency Services, Fire Fighters
Faith Christian Academy	*Habersham County*	Education, Private
HABERSHAM CO Sanitary Landfill	*Habersham County*	Government, Water/Sewer

Cornelia-Habersham County Library	*Cornelia city*	Education, Library
Clarkesville-Habersham County Public Library	*Clarkesville city*	Education, Library
Demorest Elementary School	*Demorest city*	Education, K - 12
Woodville Elementary School	*Habersham County*	Education, K - 12
North Habersham Middle School	*Habersham County*	Education, K - 12
Fairview Elementary School	*Habersham County*	Education, K - 12
South Habersham Middle School	*Habersham County*	Education, K - 12
Hazel Grove Elementary School	*Habersham County*	Education, K - 12
City of Baldwin City Hall	*Baldwin city*	Government, Private
City of Baldwin Wastewater Treatment Plant	*Baldwin city*	Government, Water/Sewer
Habersham Co EMS North Station	*Demorest city*	Government, Water/Sewer
habersham co ems base station	*Demorest city*	Government, Water/Sewer
habersham co ems base station	*Clarkesville city*	Government, Water/Sewer
Water Tank-Chase RD	*Cornelia city*	Government, Water/Sewer
Shop City of Cornelia	*Cornelia city*	Government, Water/Sewer
Cornelia Water Plant	*Cornelia city*	Government, Water/Sewer
Baldwin Elememtary School	*Baldwin city*	Education, K - 12
Clarkesville Elementary School	*Habersham County*	Education, K - 12
Cornelia Elementary	*Cornelia city*	Education, K - 12
Level Grove Elementary School	*Habersham County*	Education, K - 12
VIEW TANK	*Demorest city*	Government, Water/Sewer
DICK'S HILL WATER TANK	*Demorest city*	Government, Water/Sewer
Demorest Police Department	*Demorest city*	Law Enforcement, Jails

Habersham County Sheriff's Office	*Clarkesville city*	Law Enforcement, Jails
CITY OF BALDWIN FIRE DEPT	*Baldwin city*	Emergency Services, Fire Fighters
Sewage Pumping Station-Hayes	*Baldwin city*	Government, Water/Sewer
Sewage Pumping Station-Hayes	*Baldwin city*	Government, Water/Sewer
City of Baldwin Street Department	*Baldwin city*	Education, Government Offices
City of Baldwin Water Department	*Baldwin city*	Government, Water/Sewer
Baldwin Fire Department	*Baldwin city*	Emergency Services, Fire Fighters
Habersham Detention Center	*Clarkesville city*	Law Enforcement, Jails
Habersham County Fire Department Station 16	*Habersham County*	Emergency Services, Fire Fighters

Appendix D – Natural Hazard Data Tables

Thunderstorms

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	5	1.313M	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/09/1971	16:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/19/1974	13:15	CST	Hail	1.50 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	03/07/1975	15:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	08/31/1975	13:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1977	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/23/1977	17:10	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/30/1977	14:45	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	03/23/1979	17:15	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	09/30/1979	16:50	CST	Hail	1.50 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/10/1982	12:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/03/1984	14:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	05/07/1984	19:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K

HABERSHAM CO.	HABERSHAM CO.	GA	05/07/1984	20:04	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/26/1984	11:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/05/1985	19:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/07/1985	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/15/1986	16:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/21/1986	13:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/22/1986	13:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/15/1987	02:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/06/1987	13:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	07/09/1988	15:58	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	04/04/1989	14:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/05/1989	14:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	06/15/1989	01:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	11/15/1989	19:05	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HABERSHAM CO.	HABERSHAM CO.	GA	02/10/1990	05:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

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

CLARKESVILLE	HABERSHAM CO.	GA	05/06/1996	12:15	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/26/1996	16:30	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/28/1997	16:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	06/14/1997	17:45	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/21/1997	16:00	EST	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	07/04/1997	19:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	07/04/1997	19:30	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	07/28/1997	16:30	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	07/28/1997	16:30	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	09/10/1997	16:14	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/17/1998	01:30	EST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/17/1998	01:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/03/1998	19:15	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/07/1998	08:45	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/07/1998	09:00	EST	Hail	1.50 in.	0	0	0.00K	0.00K

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

CLARKESVILLE	HABERSHAM CO.	GA	06/14/2001	13:41	EST	Thunderstorm Wind	60 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/14/2001	13:41	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/31/2001	14:47	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	05/02/2002	23:00	EST	Hail	0.75 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/04/2002	20:05	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/04/2002	20:05	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/04/2002	21:00	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/01/2002	14:55	EST	Thunderstorm Wind	55 kts. E	0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/06/2002	16:30	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	07/06/2002	16:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/10/2002	16:40	EST	Thunderstorm Wind	50 kts. E	0	0	1.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	09/14/2002	16:30	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K

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

BALDWIN	HABERSHAM CO.	GA	07/22/2003	13:40	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	08/17/2003	16:50	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	09/22/2003	15:55	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	05/09/2004	16:30	EST	Hail	1.25 in.	0	0	1.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/22/2004	14:20	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/20/2004	20:15	EST	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	11/24/2004	11:40	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	02/21/2005	17:49	EST	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	06/06/2005	19:25	EST	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	EST	Lightning		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	EST	Hail	1.75 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/02/2005	15:30	EST	Thunderstorm Wind	70 kts. EG	0	0	100.00K	0.00K

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

CORNELIA	HABERSHAM CO.	GA	01/05/2007	12:53	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/04/2007	01:01	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	04/04/2007	01:01	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/12/2007	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/18/2007	14:18	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/18/2007	14:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/25/2007	15:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/10/2007	14:53	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	08/24/2007	13:30	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/04/2008	15:30	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	07/29/2008	01:30	EST-5	Lightning		0	0	100.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	08/02/2008	16:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

MT AIRY	HABERSHAM CO.	GA	08/07/2008	15:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	04/10/2009	17:00	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	04/23/2009	18:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	05/03/2009	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	06/17/2009	23:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/28/2010	20:40	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
TALLULAH LODGE	HABERSHAM CO.	GA	05/15/2010	15:55	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/15/2010	19:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/19/2010	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/25/2010	12:25	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	06/29/2010	13:56	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/05/2010	18:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

CORNELIA	HABERSHAM CO.	GA	09/27/2010	18:00	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	10/26/2010	16:27	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TAGULA CAMP	HABERSHAM CO.	GA	11/30/2010	17:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	03/19/2011	18:36	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	04/27/2011	23:32	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	05/11/2011	18:20	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	06/01/2011	16:25	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/02/2011	16:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	06/03/2011	16:05	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
DEMOREST	HABERSHAM CO.	GA	06/03/2011	16:27	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/03/2011	16:35	EST-5	Hail	1.25 in.	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	06/08/2011	15:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	06/08/2011	16:13	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K

HARVEST	HABERSHAM CO.	GA	06/18/2011	16:48	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
TALLULAH LODGE	HABERSHAM CO.	GA	07/31/2011	14:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	08/08/2011	14:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	05/22/2012	15:06	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	07/01/2012	21:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	07/03/2012	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	07/03/2012	15:25	EST-5	Hail	1.25 in.	0	0	0.00K	0.00K
CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	07/16/2012	14:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
TALLULAH FALLS	HABERSHAM CO.	GA	06/13/2013	17:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	06/28/2013	17:16	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/17/2013	16:47	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/17/2013	16:47	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K

CORNLIA HBRSHAM ARPT	HABERSHAM CO.	GA	01/11/2014	08:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	05/14/2014	19:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:24	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	05/25/2014	15:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	05/25/2014	15:35	EST-5	Hail	1.25 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	10/09/2014	13:50	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
HARVEST	HABERSHAM CO.	GA	06/03/2015	16:35	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	06/18/2015	16:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	06/24/2015	15:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW SWITZERLAND	HABERSHAM CO.	GA	06/30/2015	11:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/03/2015	07:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
BATESVILLE	HABERSHAM CO.	GA	07/14/2015	17:34	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K

HARVEST	HABERSHAM CO.	GA	08/10/2015	16:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	02/24/2016	09:05	EST-5	Thunderstorm Wind	40 kts. EG	0	0	20.00K	0.00K
HABERSHAM	HABERSHAM CO.	GA	05/11/2016	13:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
VIEW	HABERSHAM CO.	GA	11/30/2016	14:48	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	03/01/2017	17:18	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	17:52	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
BALDWIN	HABERSHAM CO.	GA	03/21/2017	20:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	04/27/2017	16:38	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLYWOOD	HABERSHAM CO.	GA	06/15/2017	15:53	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
HILLS	HABERSHAM CO.	GA	03/17/2018	20:53	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Winter Storms

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

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/31/1999	12:00	EST	Sleet		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/1999	00:00	EST	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/24/1999	00:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/09/1999	03:00	EST	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/26/1999	08:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/23/2000	03:00	EST	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2000	21:00	EST	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/19/2000	06:00	EST	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/03/2000	02:00	EST	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/13/2000	13:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/17/2000	06:00	EST	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/19/2000	02:00	EST	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/21/2000	14:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/20/2001	05:00	EST	Sleet		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/03/2002	00:00	EST	Heavy Snow		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2002	04:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/04/2002	15:00	EST	Ice Storm		0	0	500.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2003	18:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/06/2003	16:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/03/2003	22:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/25/2004	18:00	EST	Ice Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/02/2004	05:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/26/2004	04:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/13/2004	21:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/19/2004	18:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2005	02:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2005	10:00	EST	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2005	00:00	EST	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2005	06:00	EST	Ice Storm		0	0	50.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2007	03:00	EST-5	Heavy Snow		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2008	22:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/16/2008	18:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/19/2008	11:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/17/2009	22:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2009	14:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/30/2009	21:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/29/2010	18:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/04/2010	17:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/12/2010	15:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/02/2010	05:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/15/2010	21:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/25/2010	15:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/10/2011	00:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/09/2011	21:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/25/2013	06:00	EST-5	Winter Weather		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/28/2014	13:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	00:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/11/2014	23:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/16/2015	13:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/20/2015	19:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/25/2015	17:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/22/2016	04:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/03/2016	14:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/06/2017	21:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/08/2017	10:00	EST-5	Winter Storm		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

Flood

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	860.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/27/1996	01:00	EST	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/07/1996	09:00	EST	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/1996	11:20	EST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	12/01/1996	11:20	EST	Flash Flood		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	10/26/1997	08:00	EST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	01/07/1998	14:00	EST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	02/03/1998	12:00	EST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	HABERSHAM CO.	GA	02/04/1998	07:00	EST	Flash Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/15/2002	11:15	EST	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2003	21:30	EST	Flood		0	0	0.00K	0.00K
MT AIRY	HABERSHAM CO.	GA	07/17/2003	23:15	EST	Flash Flood		0	0	0.00K	0.00K
EAST PORTION	HABERSHAM CO.	GA	09/22/2003	15:30	EST	Flash Flood		0	0	20.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	06/25/2004	18:25	EST	Flash Flood		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/07/2004	15:30	EST	Flood		0	0	100.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	09/16/2004	17:30	EST	Flash Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/16/2004	20:00	EST	Flood		0	0	720.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	07/04/2005	15:30	EST	Flash Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	08/07/2005	14:00	EST	Flash Flood		0	0	10.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/07/2005	16:00	EST	Flood		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/08/2005	11:45	EST	Flood		0	0	0.00K	0.00K
TURNERVILLE	HABERSHAM CO.	GA	08/25/2008	07:30	EST-5	Flash Flood		0	0	0.00K	0.00K
HABERSHAM	HABERSHAM CO.	GA	08/26/2008	17:00	EST-5	Flash Flood		0	0	0.00K	0.00K
CORNELIA	HABERSHAM CO.	GA	07/08/2009	12:05	EST-5	Flash Flood		0	0	0.00K	0.00K
TAGULA CAMP	HABERSHAM CO.	GA	09/20/2009	12:54	EST-5	Flood		0	0	10.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/06/2011	08:15	EST-5	Flash Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/06/2011	10:00	EST-5	Flood		0	0	0.00K	0.00K
CLARKESVILLE	HABERSHAM CO.	GA	03/09/2011	15:20	EST-5	Flash Flood		0	0	0.00K	0.00K
RAOUL	HABERSHAM CO.	GA	08/08/2013	14:30	EST-5	Flash Flood		0	0	0.00K	0.00K

NEW SWITZERLAND	HABERSHAM CO.	GA	12/22/2013	22:54	EST-5	Flood		0	0	0.00K	0.00K

Tornadoes

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	15	11.452M	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

Drought

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	07/01/1998	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/15/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2004	00:00	EST	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	05/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	06/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	06/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K

HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	07/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	08/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	09/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2008	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	10/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	11/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	12/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	01/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	02/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	03/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HABERSHAM (ZONE)	HABERSHAM (ZONE)	GA	04/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K

Appendix E – Habersham County 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.

	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	13,299	13,299	100.000%	1,350,084,807	1,350,084,807	100.000%	43,527	43,527	100%
Commercial	779	779	100.000%	171,985,990	171,985,990	100.000%	0	0	#DIV/0!
Industrial	19	19	100.000%	33,456,780	33,456,780	100.000%	0	0	#DIV/0!
Agricultural	1,261	1,261	100.000%	146,318,890	146,318,890	100.000%	0	0	#DIV/0!
Religious/ Non-profit	156	156	100.000%	65,414,060	65,414,060	100.000%	0	0	#DIV/0!
Government	276	276	100.000%	159,834,630	159,834,630	100.000%	0	0	#DIV/0!
Education	69	69	100.000%	57,828,950	57,828,950	100.000%	0	0	#DIV/0!
Utilities	63	63	100.000%	141,015,963	141,015,963	100.000%	0	0	#DIV/0!
Total	15,922	15,922	100.000%	2,125,940,070	2,125,940,070	100.000%	43,527	43,527	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.

	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	13,299	11,864	89.210%	1,350,084,807	1,204,406,809	89.210%	43,527	38,830	89%
Commercial	779	657	84.339%	171,985,990	145,051,085	84.339%	0	0	#DIV/0!
Industrial	19	19	100.000%	33,456,780	33,456,780	100.000%	0	0	#DIV/0!
Agricultural	1,261	1,087	86.201%	146,318,890	126,128,972	86.201%	0	0	#DIV/0!
Religious/ Non-profit	156	134	85.897%	65,414,060	56,189,000	85.897%	0	0	#DIV/0!
Government	276	265	96.014%	159,834,630	153,464,409	96.014%	0	0	#DIV/0!
Education	69	63	91.304%	57,828,950	52,800,346	91.304%	0	0	#DIV/0!
Utilities	63	58	92.063%	141,015,963	129,824,220	92.063%	0	0	#DIV/0!
Total	15,922	14,147	88.852%	2,125,940,070	1,901,321,621	89.434%	43,527	38,830	89%

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: 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	13,299	163	1.226%	1,350,084,807	16,547,396	1.226%	43,527	533	1%
Commercial	779	6	0.770%	171,985,990	1,324,667	0.770%	0	0	#DIV/0!
Industrial	19	0	0.000%	33,456,780	0	0.000%	0	0	#DIV/0!
Agricultural	1,261	0	0.000%	146,318,890	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	156	1	0.641%	65,414,060	419,321	0.641%	0	0	#DIV/0!
Government	276	1	0.362%	159,834,630	579,111	0.362%	0	0	#DIV/0!
Education	69	0	0.000%	57,828,950	0	0.000%	0	0	#DIV/0!
Utilities	63	0	0.000%	141,015,963	0	0.000%	0	0	#DIV/0!
Total	15,922	171	1.074%	2,125,940,070	18,870,496	0.888%	43,527	533	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?	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: 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.

	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	602	602	100.000%	58,943,390	58,943,390	100.000%	1,937	1,937	100%
Commercial	132	132	100.000%	27,132,830	27,132,830	100.000%	0	0	#DIV/0!
Industrial	4	4	100.000%	4,657,790	4,657,790	100.000%	0	0	#DIV/0!
Agricultural	4	4	100.000%	504,210	504,210	100.000%	0	0	#DIV/0!
Religious/ Non-profit	17	17	100.000%	5,317,800	5,317,800	100.000%	0	0	#DIV/0!
Government	44	44	100.000%	18,048,820	18,048,820	100.000%	0	0	#DIV/0!
Education	6	6	100.000%	5,286,860	5,286,860	100.000%	0	0	#DIV/0!
Utilities	7	7	100.000%	3,933,178	3,933,178	100.000%	0	0	#DIV/0!
Total	816	816	100.000%	123,824,878	123,824,878	100.000%	1,937	1,937	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.

	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	602	576	95.681%	58,943,390	56,397,662	95.681%	1,937	1,853	96%
Commercial	132	125	94.697%	27,132,830	25,693,968	94.697%	0	0	#DIV/0!
Industrial	4	4	100.000%	4,657,790	4,657,790	100.000%	0	0	#DIV/0!
Agricultural	4	4	100.000%	504,210	504,210	100.000%	0	0	#DIV/0!
Religious/ Non-profit	17	15	88.235%	5,317,800	4,692,176	88.235%	0	0	#DIV/0!
Government	44	42	95.455%	18,048,820	17,228,419	95.455%	0	0	#DIV/0!
Education	6	6	100.000%	5,286,860	5,286,860	100.000%	0	0	#DIV/0!
Utilities	7	7	100.000%	3,933,178	3,933,178	100.000%	0	0	#DIV/0!
Total	816	779	95.466%	123,824,878	118,394,264	95.614%	1,937	1,853	96%

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: 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.

	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	602	5	0.831%	58,943,390	489,563	0.831%	1,937	16	1%
Commercial	132	0	0.000%	27,132,830	0	0.000%	0	0	#DIV/0!
Industrial	4	0	0.000%	4,657,790	0	0.000%	0	0	#DIV/0!
Agricultural	4	0	0.000%	504,210	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	17	0	0.000%	5,317,800	0	0.000%	0	0	#DIV/0!
Government	44	0	0.000%	18,048,820	0	0.000%	0	0	#DIV/0!
Education	6	0	0.000%	5,286,860	0	0.000%	0	0	#DIV/0!
Utilities	7	0	0.000%	3,933,178	0	0.000%	0	0	#DIV/0!
Total	816	5	0.613%	123,824,878	489,563	0.395%	1,937	16	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: 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.

	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	439	439	100.000%	39,403,690	39,403,690	100.000%	3,467	3,467	100%
Commercial	80	80	100.000%	19,871,412	19,871,412	100.000%	0	0	#DIV/0!
Industrial	5	5	100.000%	8,702,990	8,702,990	100.000%	0	0	#DIV/0!
Agricultural	4	4	100.000%	390,030	390,030	100.000%	0	0	#DIV/0!
Religious/ Non-profit	4	4	100.000%	1,640,460	1,640,460	100.000%	0	0	#DIV/0!
Government	28	28	100.000%	4,711,280	4,711,280	100.000%	0	0	#DIV/0!
Education	1	1	100.000%	1,435,620	1,435,620	100.000%	0	0	#DIV/0!
Utilities	9	9	100.000%	3,810,400	3,810,400	100.000%	0	0	#DIV/0!
Total	570	570	100.000%	79,965,882	79,965,882	100.000%	3,467	3,467	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.

	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	439	409	93.166%	39,403,690	36,710,955	93.166%	3,467	3,230	93%
Commercial	80	76	95.000%	19,871,412	18,877,841	95.000%	0	0	#DIV/0!
Industrial	5	5	100.000%	8,702,990	8,702,990	100.000%	0	0	#DIV/0!
Agricultural	4	4	100.000%	390,030	390,030	100.000%	0	0	#DIV/0!
Religious/ Non-profit	4	4	100.000%	1,640,460	1,640,460	100.000%	0	0	#DIV/0!
Government	28	24	85.714%	4,711,260	4,038,223	85.714%	0	0	#DIV/0!
Education	1	1	100.000%	1,435,620	1,435,620	100.000%	0	0	#DIV/0!
Utilities	9	9	100.000%	3,810,400	3,810,400	100.000%	0	0	#DIV/0!
Total	570	532	93.333%	79,965,862	75,606,519	94.548%	3,467	3,230	93%

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: 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.

	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	439	1	0.228%	39,403,690	89,758	0.228%	3,467	8	0%
Commercial	80	0	0.000%	19,871,412	0	0.000%	0	0	#DIV/0!
Industrial	5	0	0.000%	8,702,990	0	0.000%	0	0	#DIV/0!
Agricultural	4	0	0.000%	390,030	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	4	0	0.000%	1,640,460	0	0.000%	0	0	#DIV/0!
Government	28	0	0.000%	4,711,260	0	0.000%	0	0	#DIV/0!
Education	1	0	0.000%	1,435,620	0	0.000%	0	0	#DIV/0!
Utilities	9	0	0.000%	3,810,400	0	0.000%	0	0	#DIV/0!
Total	570	1	0.175%	79,985,862	89,758	0.112%	3,467	8	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: 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.

	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	1,186	1,186	100.000%	101,343,890	101,343,890	100.000%	4,199	4,199	100%
Commercial	245	245	100.000%	67,140,250	67,140,250	100.000%	0	0	#DIV/0!
Industrial	5	5	100.000%	4,655,720	4,655,720	100.000%	0	0	#DIV/0!
Agricultural	2	2	100.000%	438,900	438,900	100.000%	0	0	#DIV/0!
Religious/ Non-profit	27	27	100.000%	9,422,130	9,422,130	100.000%	0	0	#DIV/0!
Government	55	55	100.000%	17,582,140	17,582,140	100.000%	0	0	#DIV/0!
Education	4	4	100.000%	1,450,210	1,450,210	100.000%	0	0	#DIV/0!
Utilities	10	10	100.000%	15,996,993	15,996,993	100.000%	0	0	#DIV/0!
Total	1,534	1,534	100.000%	218,030,233	218,030,233	100.000%	4,199	4,199	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.

	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	1,186	954	80.438%	101,343,890	81,519,453	80.438%	4,199	3,378	80%
Commercial	245	212	86.531%	67,140,250	58,096,869	86.531%	0	0	#DIV/0!
Industrial	5	4	80.000%	4,855,720	3,724,576	80.000%	0	0	#DIV/0!
Agricultural	2	2	100.000%	438,900	438,900	100.000%	0	0	#DIV/0!
Religious/ Non-profit	27	23	85.185%	9,422,130	8,026,259	85.185%	0	0	#DIV/0!
Government	55	51	92.727%	17,582,140	16,303,439	92.727%	0	0	#DIV/0!
Education	4	4	100.000%	1,450,210	1,450,210	100.000%	0	0	#DIV/0!
Utilities	10	8	80.000%	15,996,998	12,797,594	80.000%	0	0	#DIV/0!
Total	1,534	1,258	82.008%	218,030,233	182,357,300	83.639%	4,199	3,378	80%

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: 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	1,186	20	1.686%	101,343,890	1,709,003	1.686%	4,199	71	2%
Commercial	245	3	1.224%	67,140,250	822,126	1.224%	0	0	#DIV/0!
Industrial	5	0	0.000%	4,855,720	0	0.000%	0	0	#DIV/0!
Agricultural	2	0	0.000%	438,900	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	27	1	3.704%	9,422,130	348,968	3.704%	0	0	#DIV/0!
Government	55	0	0.000%	17,582,140	0	0.000%	0	0	#DIV/0!
Education	4	0	0.000%	1,450,210	0	0.000%	0	0	#DIV/0!
Utilities	10	0	0.000%	15,996,993	0	0.000%	0	0	#DIV/0!
Total	1,534	24	1.565%	218,030,233	2,880,096	1.321%	4,199	71	2%

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.

	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	513	513	100.000%	48,746,718	48,746,718	100.000%	1,842	1,842	100%
Commercial	28	28	100.000%	6,040,720	6,040,720	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%	253,980	253,980	100.000%	0	0	#DIV/0!
Religious/ Non-profit	5	5	100.000%	2,042,820	2,042,820	100.000%	0	0	#DIV/0!
Government	19	19	100.000%	31,020,430	31,020,430	100.000%	0	0	#DIV/0!
Education	41	41	100.000%	9,597,150	9,597,150	100.000%	0	0	#DIV/0!
Utilities	5	5	100.000%	2,891,883	2,891,883	100.000%	0	0	#DIV/0!
Total	614	614	100.000%	100,593,701	#DIV/0!	#DIV/0!	1,842	#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?	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: 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.

	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	513	501	97.661%	48,746,718	47,606,444	97.661%	1,842	1,799	98%
Commercial	28	27	96.429%	6,040,720	5,824,980	96.429%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	3	3	100.000%	253,980	253,980	100.000%	0	0	#DIV/0!
Religious/ Non-profit	5	5	100.000%	2,042,820	2,042,820	100.000%	0	0	#DIV/0!
Government	19	19	100.000%	31,020,430	31,020,430	100.000%	0	0	#DIV/0!
Education	41	39	95.122%	9,597,150	9,128,996	95.122%	0	0	#DIV/0!
Utilities	5	5	100.000%	2,891,883	2,891,883	100.000%	0	0	#DIV/0!
Total	614	599	97.557%	100,593,701	#DIV/0!	#DIV/0!	1,842	#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: 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.

	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	513	7	1.365%	48,746,718	665,160	1.365%	1,842	25	1%
Commercial	28	0	0.000%	6,040,720	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%	253,980	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	5	0	0.000%	2,042,820	0	0.000%	0	0	#DIV/0!
Government	19	0	0.000%	31,020,430	0	0.000%	0	0	#DIV/0!
Education	41	0	0.000%	9,597,150	0	0.000%	0	0	#DIV/0!
Utilities	5	0	0.000%	2,891,883	0	0.000%	0	0	#DIV/0!
Total	614	7	1.140%	100,593,701	#DIV/0!	#DIV/0!	1,842	#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: 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.

	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	186	186	100.000%	13,129,000	13,129,000	100.000%	1,165	1,165	100%
Commercial	2	2	100.000%	145,780	145,780	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	5	5	100.000%	318,550	318,550	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	472,280	472,280	100.000%	0	0	#DIV/0!
Government	10	10	100.000%	130,760	130,760	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	6	6	100.000%	1,088,790	1,088,790	100.000%	0	0	#DIV/0!
Total	211	211	100.000%	15,285,160	#DIV/0!	#DIV/0!	1,165	#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.

	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	186	186	100.000%	13,129,000	13,129,000	100.000%	1,165	1,165	100%
Commercial	2	2	100.000%	145,780	145,780	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	5	5	100.000%	318,550	318,550	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	472,280	472,280	100.000%	0	0	#DIV/0!
Government	10	10	100.000%	130,760	130,760	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	6	6	100.000%	1,088,790	1,088,790	100.000%	0	0	#DIV/0!
Total	211	211	100.000%	15,285,160	#DIV/0!	#DIV/0!	1,165	#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: 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.

	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	188	0	0.000%	13,129,000	0	0.000%	1,165	0	0%
Commercial	2	0	0.000%	145,780	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	5	0	0.000%	318,550	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	2	0	0.000%	472,280	0	0.000%	0	0	#DIV/0!
Government	10	0	0.000%	130,760	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	6	0	0.000%	1,088,790	0	0.000%	0	0	#DIV/0!
Total	211	0	0.000%	15,285,160	#DIV/0!	#DIV/0!	1,165	#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.

	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	422	422	100.000%	39,475,253	39,475,253	100.000%	1,233	1,233	100%
Commercial	15	15	100.000%	1,718,670	1,718,670	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%	1,124,970	1,124,970	100.000%	0	0	#DIV/0!
Religious/ Non-profit	5	5	100.000%	1,633,740	1,633,740	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	1,063,310	1,063,310	100.000%	0	0	#DIV/0!
Education	1	1	100.000%	491,990	491,990	100.000%	0	0	#DIV/0!
Utilities	7	7	100.000%	2,158,025	2,158,025	100.000%	0	0	#DIV/0!
Total	470	470	100.000%	47,665,958	#DIV/0!	#DIV/0!	1,233	#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.

	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	422	413	97.867%	39,475,253	38,633,364	97.867%	1,233	1,207	98%
Commercial	15	15	100.000%	1,718,670	1,718,670	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%	1,124,970	1,124,970	100.000%	0	0	#DIV/0!
Religious/ Non-profit	5	5	100.000%	1,633,740	1,633,740	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	1,063,310	1,063,310	100.000%	0	0	#DIV/0!
Education	1	1	100.000%	491,990	491,990	100.000%	0	0	#DIV/0!
Utilities	7	7	100.000%	2,158,025	2,158,025	100.000%	0	0	#DIV/0!
Total	470	461	98.085%	47,665,958	#DIV/0!	#DIV/0!	1,233	#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: 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	422	0	0.000%	39,475,253	0	0.000%	1,233	0	0%
Commercial	15	0	0.000%	1,718,670	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%	1,124,970	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	5	0	0.000%	1,633,740	0	0.000%	0	0	#DIV/0!
Government	13	0	0.000%	1,063,310	0	0.000%	0	0	#DIV/0!
Education	1	0	0.000%	491,990	0	0.000%	0	0	#DIV/0!
Utilities	7	0	0.000%	2,158,025	0	0.000%	0	0	#DIV/0!
Total	470	0	0.000%	47,665,958	#DIV/0!	#DIV/0!	1,233	#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: 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.

	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	20	20	100.000%	2,898,060	2,898,060	100.000%	90	90	100%
Commercial	3	3	100.000%	418,610	418,610	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%	384,490	384,490	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	229,670	229,670	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%	14,721,020	14,721,020	100.000%	0	0	#DIV/0!
Utilities	4	4	100.000%	10,921,963	10,921,963	100.000%	0	0	#DIV/0!
Total	33	33	100.000%	29,573,813	#DIV/0!	#DIV/0!	90	#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.

	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	20	20	100.000%	2,898,060	2,898,060	100.000%	90	90	100%
Commercial	3	3	100.000%	418,610	418,610	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%	384,490	384,490	100.000%	0	0	#DIV/0!
Religious/ Non-profit	2	2	100.000%	229,670	229,670	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%	14,721,020	14,721,020	100.000%	0	0	#DIV/0!
Utilities	4	4	100.000%	10,921,963	10,921,963	100.000%	0	0	#DIV/0!
Total	33	33	100.000%	29,573,813	#DIV/0!	#DIV/0!	90	#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: 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.

	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	20	0	0.000%	2,898,060	0	0.000%	90	0	0%
Commercial	3	0	0.000%	418,610	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%	384,490	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	2	0	0.000%	229,670	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%	14,721,020	0	0.000%	0	0	#DIV/0!
Utilities	4	0	0.000%	10,921,963	0	0.000%	0	0	#DIV/0!
Total	33	0	0.000%	29,573,813	#DIV/0!	#DIV/0!	90	#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	

Appendix F – Documentation of Peer Review

Banks County, GA

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

Katy Westbrook <lux.planning@att.net>
To: Deidra Moore
Nov 19 at 1:47 PM

Good Afternoon, Miss Deidra,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Banks County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx

Habersham County - Final Draft 11.19.18 Revised.docx
Shared with Dropbox

If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

Hall County, GA

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

Katy Westbrook <lux.planning@att.net>
To: cramsey@hallcounty.org

Nov 19 at 1:48 PM

Good Afternoon, Director Ramsey,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Hall County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

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If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

Rabun County, GA

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

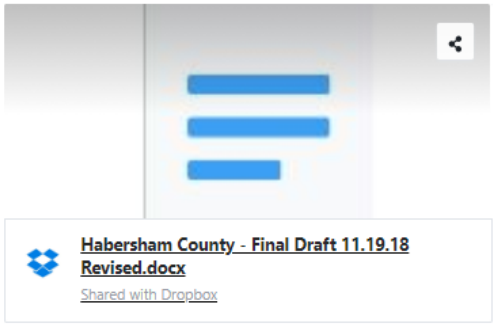
Katy Westbrook <lux.planning@att.net>
To: Michael Mazarky

Nov 19 at 1:49 PM

Good Afternoon, Michael,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Rabun County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx



Habersham County - Final Draft 11.19.18 Revised.docx
Shared with Dropbox

If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

Towns County, GA

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

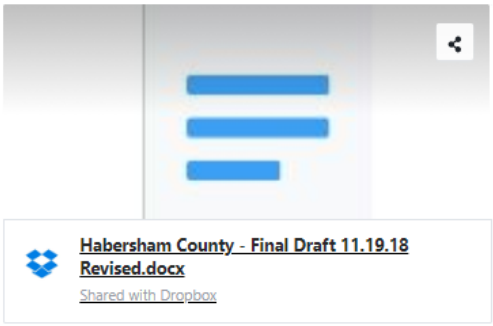
Katy Westbrook <lux.planning@att.net>
To: Rickey Mathis

Nov 19 at 1:49 PM

Good Afternoon, Mr. Rickey,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Towns County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx



Habersham County - Final Draft 11.19.18 Revised.docx
Shared with Dropbox

If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

Stephens County, GA

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

Katy Westbrook <lux.planning@att.net>
To: Danielle Rhodes

Nov 19 at 1:50 PM

Good Afternoon, Director Rhodes,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Stephens County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx

Habersham County - Final Draft 11.19.18 Revised.docx
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If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

White County, GA

Habersham County 2018 Hazard Mitigation Plan — Yahoo/Sent

Katy Westbrook <lux.planning@att.net>
To: dmurphy@whitecounty.net
Nov 19 at 1:52 PM

Good Afternoon, Director Murphy,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since White County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx

Habersham County - Final Draft 11.19.18 Revised.docx
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If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

David Murphy <dmurphy@whitecounty.net>
To: 'Katy Westbrook'
Nov 19 at 3:30 PM

We have reviewed the final draft of the Habersham County Plan and find approval with no comment.

David L. Murphy, Jr. GA-ACEM
Director of Public Safety
White County Government
1241 Helen Hwy Ste 100
Cleveland, GA 30528

706-865-9500

Oconee County, SC

Habersham County 2018 Hazard Mitigation Plan Yahoo/Sent

Katy Westbrook <lux.planning@att.net>
To: Scott Krein

Nov 19 at 1:53 PM

Good Afternoon, Director Krein,

Lux Mitigation and Planning Corp. was contracted by Habersham County Emergency Management Agency to complete the Habersham County Hazard Mitigation Plan Update. As part of FEMA's requirements, surrounding jurisdictions are to be provided an opportunity to review the Hazard Mitigation Plan Update to provide any comments, suggestions, or recommendations. Since Oconee County borders Habersham County, I am providing you with a copy of the Habersham County Hazard Mitigation Plan Update for your review.

You can find a copy of the plan at this web address: Habersham County - Final Draft 11.19.18 Revised.docx

Habersham County - Final Draft 11.19.18 Revised.docx
Shared with Dropbox

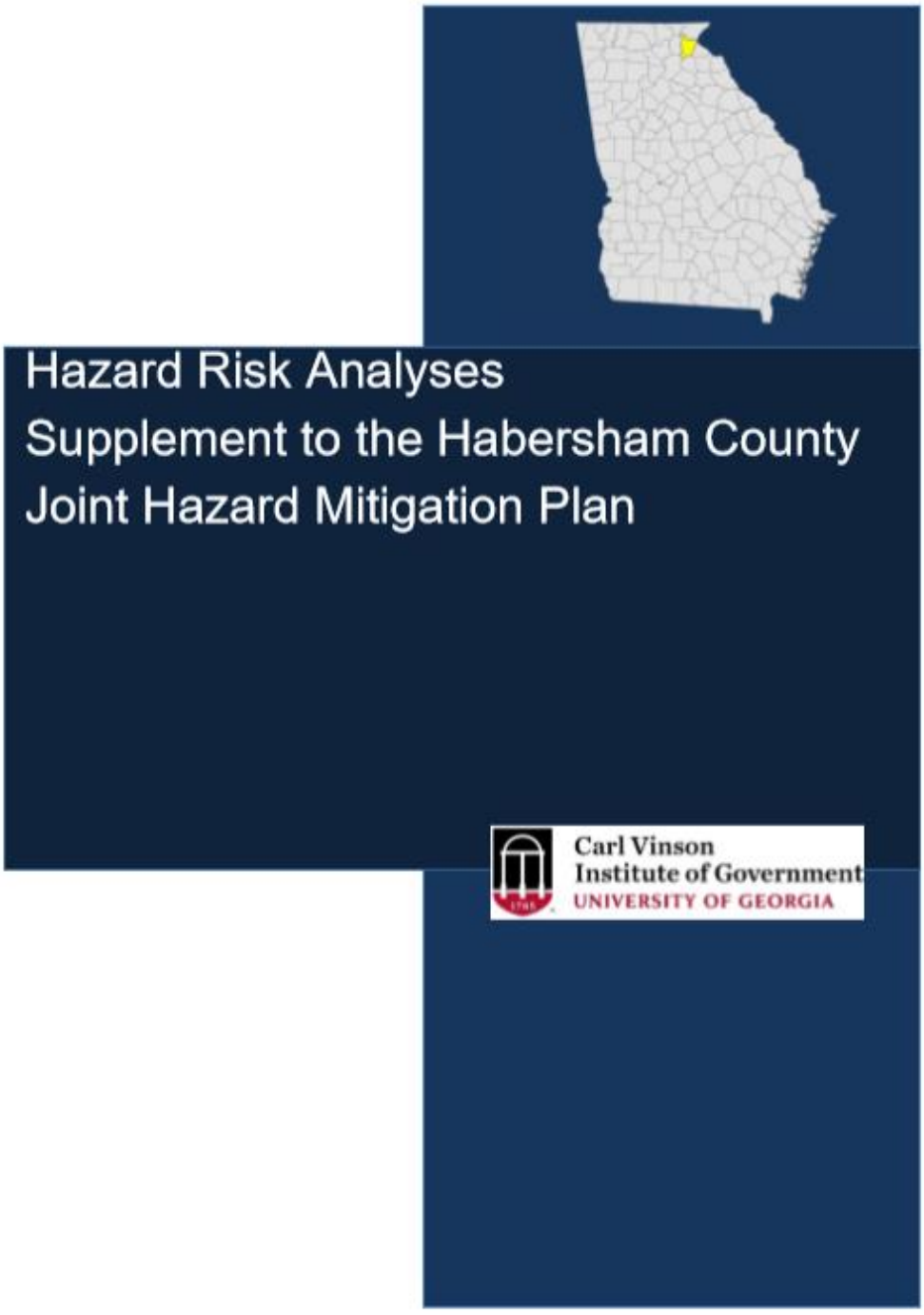
If you have any questions, comments, or concerns, please feel free to let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corp
954.288.8364
lux.planning@att.net

Appendix G – Habersham County 2018 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 2018, 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 June 2015 and the parcel data current as of June 2015. 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 99.5%. 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	70	0	$13,536,000	$0
Commercial	951	1,213	$524,003,000	$329,482,000
Education	32	89	$37,131,000	$95,937,000
Government	38	116	$23,142,000	$72,197,000
Industrial	311	301	$188,755,000	$280,483,000
Religious	104	186	$68,351,000	$78,956,000
Residential	17,185	17,046	$3,156,252,000	$2,108,240,000
Total	18,691	18,951	$4,011,170,000	$2,965,295,000

*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

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

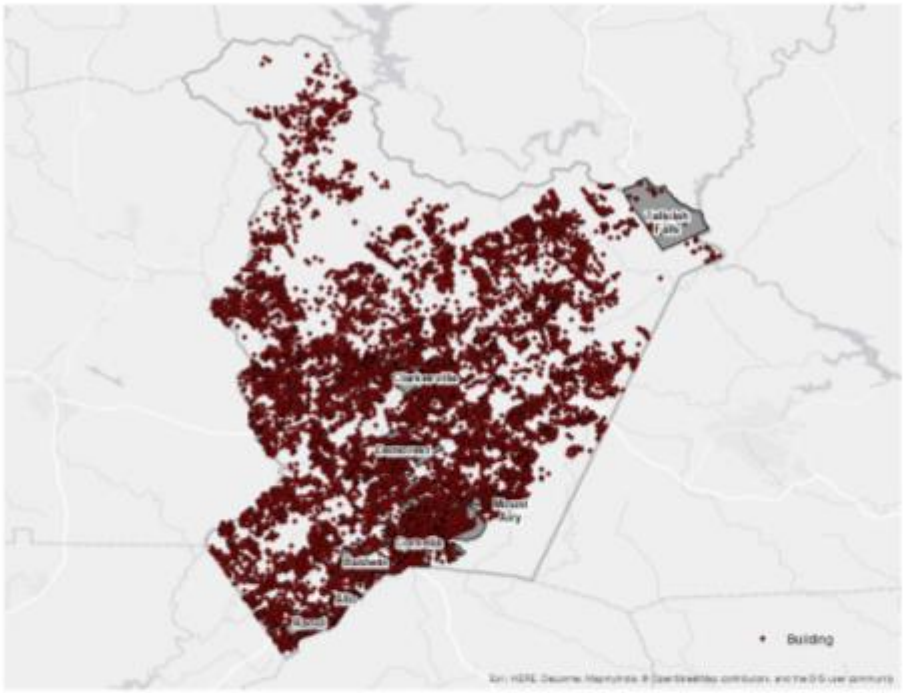

Figure 1: Habersham County Overview

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 August 2018. 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	0	$0
School	0	$0
Total	0	$0
	Baldwin	
EOC	0	$0
Care	0	$0
Fire	2	$503,000
Police	1	$177,000
School	0	$0
Total	3	$680,000
	Clarkesville	
EOC	0	$0
Care	0	$0
Fire	2	$2,707,000
Police	4	$8,315,000
School	1	$4,983,000
Total	7	$16,005,000
	Cornelia	
EOC	0	$0
Care	0	$0
Fire	1	$96,000
Police	1	$300,000
School	1	$7,049,000
Total	3	$7,445,000

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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	$30,748,000
Total	5	$31,388,000
Mount Airy		
EOC	1	$277,000
Care	0	$0
Fire	0	$0
Police	0	$0
School	0	$0
Total	1	$277,000
Raoul		
EOC	0	$0
Care	0	$0
Fire	1	$2,561,000
Police	0	$0
School	0	$0
Total	1	$2,561,000
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	10	$1,722,000
Police	0	$0
School	10	$58,586,000
Total	21	$83,600,000

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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	90	970	H1

[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	40	0	TD
1911	August 23-31	UNNAMED	85	972	H1
1913	August 30 - September 04	UNNAMED	75	976	H1
1959	October 06-09	IRENE	40	1003	TD
1977	September 03-09	BABE	65	1012	TD
1994	August 14-19	BERYL	50	1013	TD
1997	July 16-27	DANNY	70	1013	TD
2004	August 25 - September 10	FRANCES	125	1009	H3
2005	July 03-11	CINDY	65	1011	TD

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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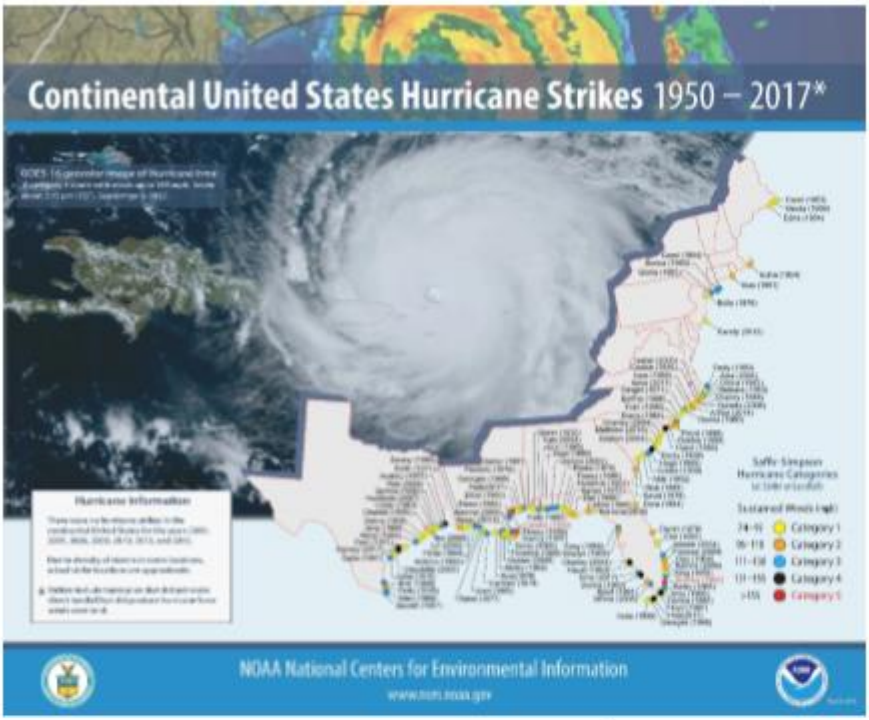

Figure 2: Continental United States Hurricane Strikes: 1950 to 2017[4]

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

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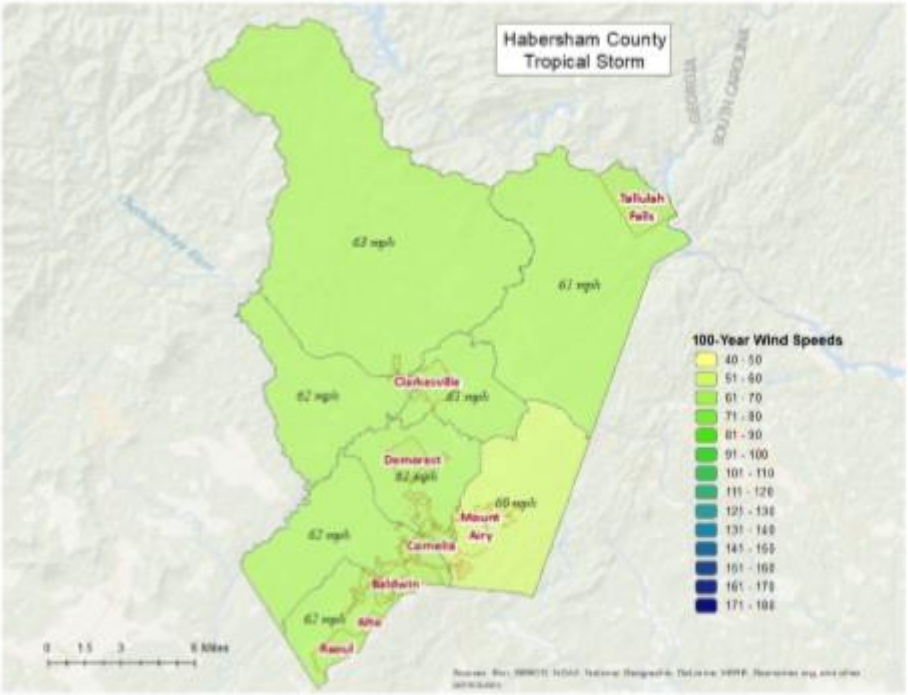

Figure 3: Wind Speeds by Storm Category

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	7	$442,850	$443,310	0.01%

[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.

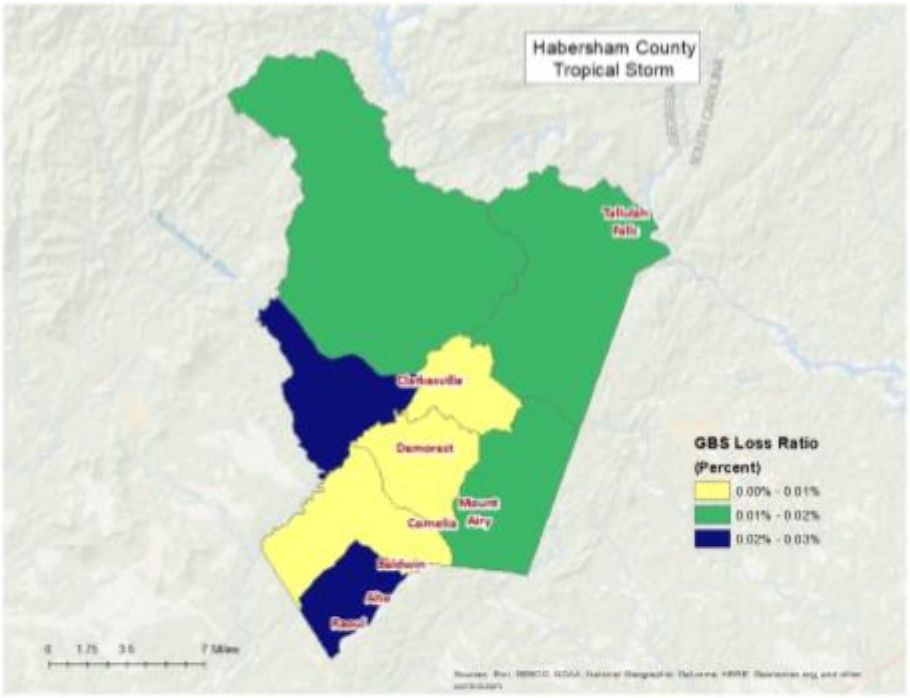

Figure 4: Hurricane Wind Building Loss Ratios

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 41 essential facilities in Habersham County.

Classification	Number
EOCs	1
Fire Stations	17
Care Facilities	1
Police Stations	7
Schools	15

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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	40

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	21	0	0	0	21

Figure 5 shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 1 ton 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.

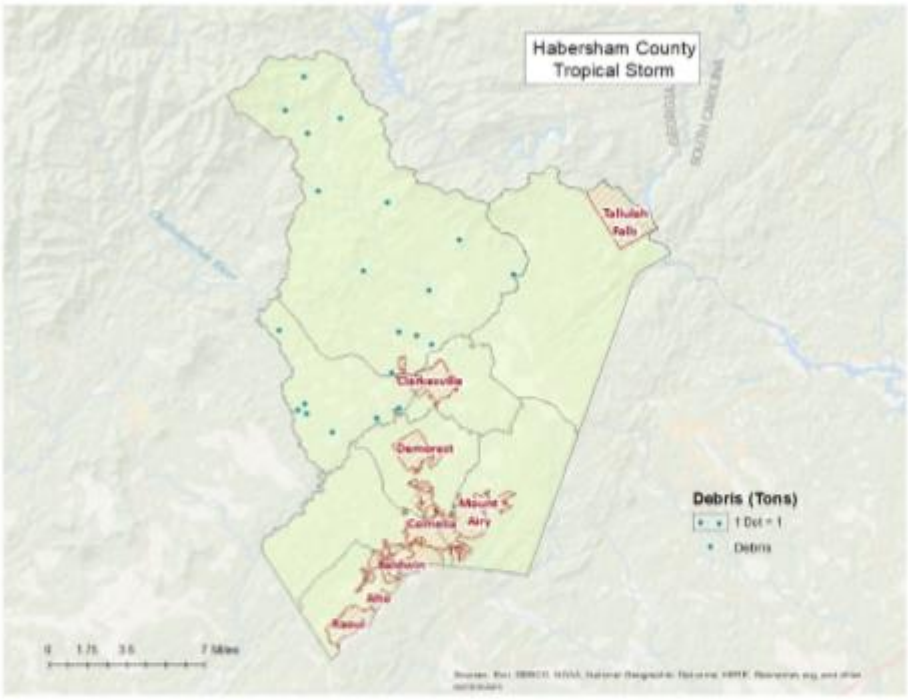

Figure 5: Wind-Related Debris Weight (Tons)

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 September 2018. 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.

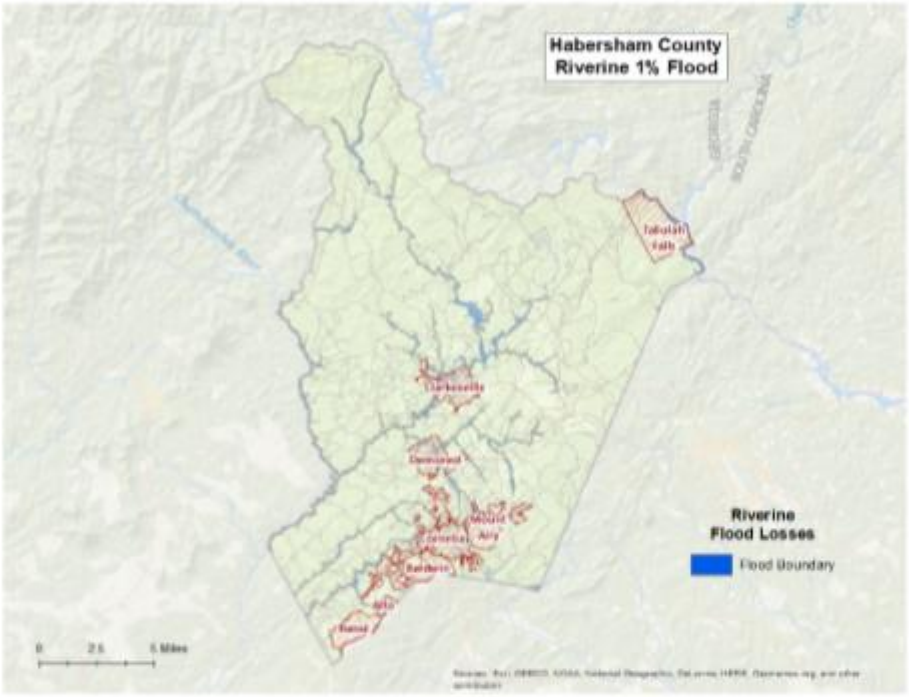

Figure 6: Riverine 1% Flood Inundation

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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	663	1	$71,292,649	$27,879	0.04%
Clarkesville					
Residential	619	5	$77,331,248	$252,869	0.33%
Cornelia					
Religious	21	1	$11,761,190	$28,318	0.24%
Commercial	380	3	$127,835,903	$108,571	0.08%
Residential	1,480	20	$170,997,557	$735,924	0.43%
Demorest					
Residential	591	7	$63,930,644	$318,732	0.50%
Unincorporated					
Residential	12,596	130	$1,628,895,579	$8,263,005	0.51%
Commercial	488	3	$106,903,554	$37,835	0.04%
Government	20	1	$4,998,504	$3,988	0.08%
County Total					
	16,858	**171**	**$2,263,946,828**	**$9,777,121**	

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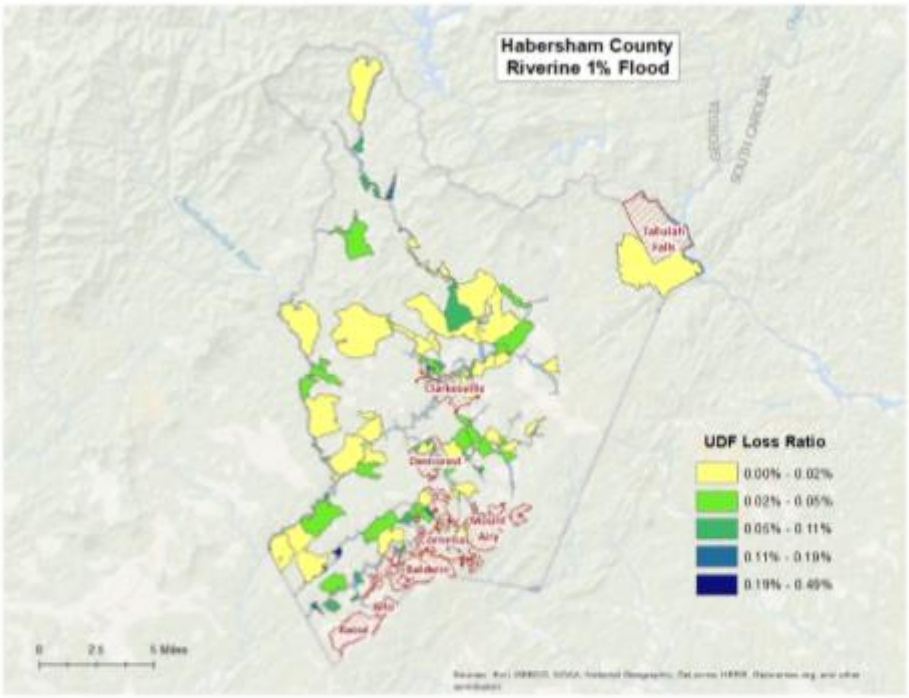

Figure 7: Habersham County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

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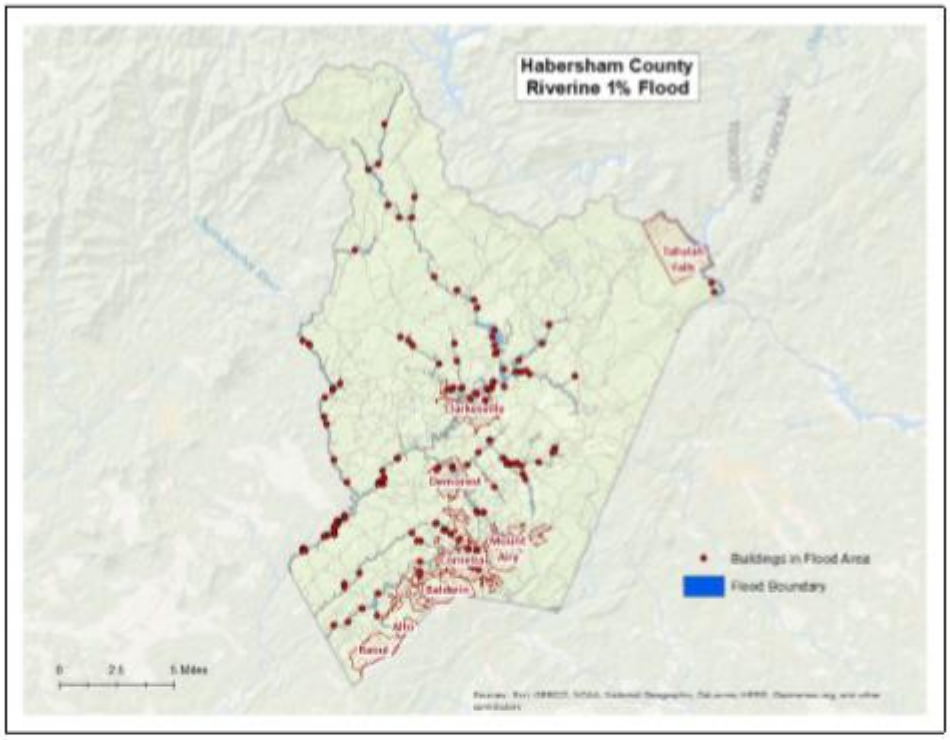

Figure 8: Habersham County Damaged Buildings in Riverine Floodplain (1% Flood)

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.

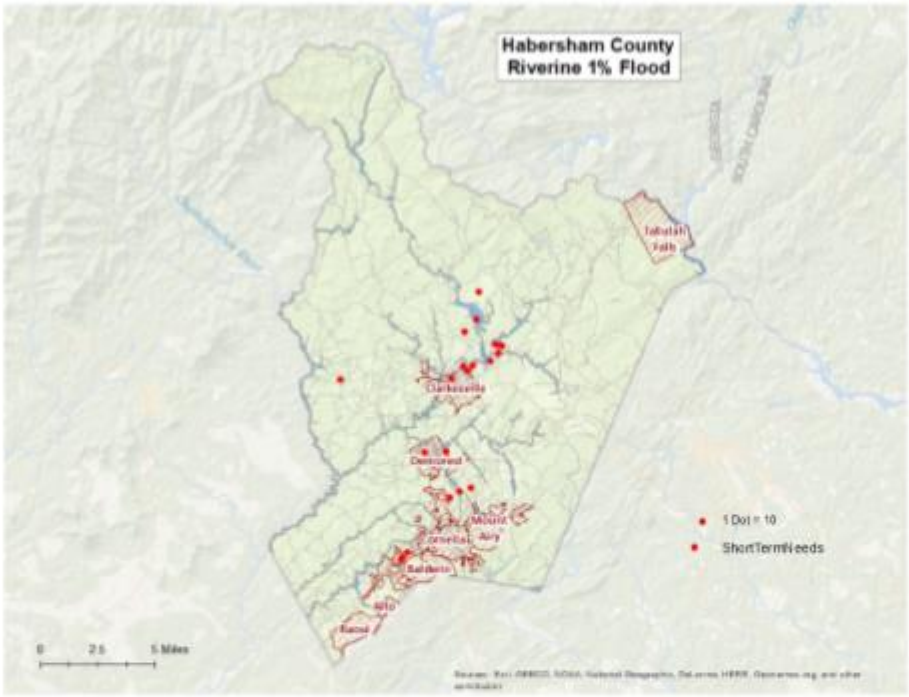

Figure 9: Riverine 1% Estimated Flood Shelter Requirements

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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 25,498 tons of debris might be generated: 1) Finishes- 4,855 tons; 2) Structural – 11,124 tons; and 3) Foundations- 9,519 tons. The results are mapped in Figure 10.

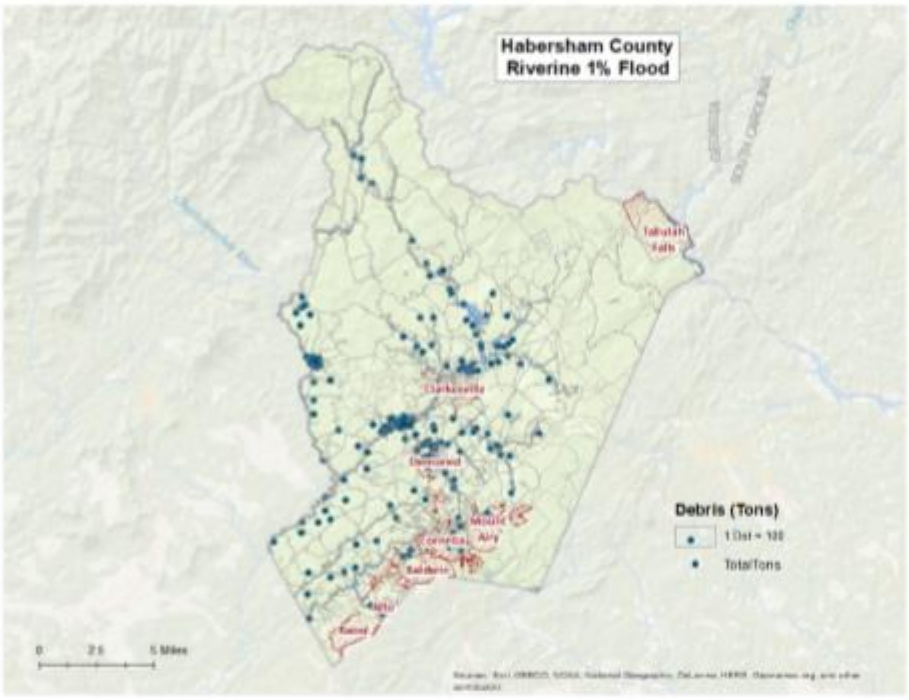

Figure 10: Riverine 1% Flood Debris Weight (Tons)

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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 and Mt Airy. 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.

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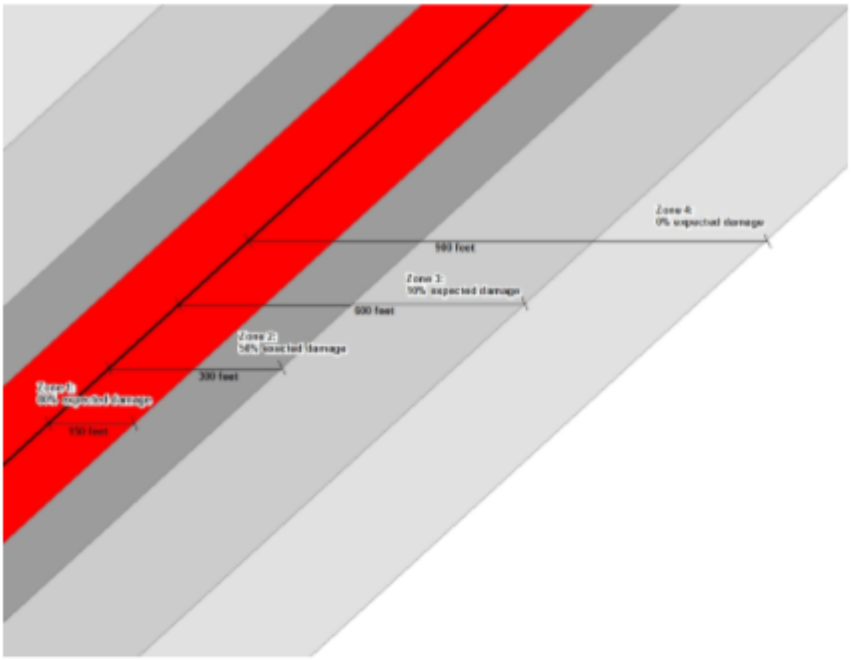

Figure 11: EF Scale Tornado Zones

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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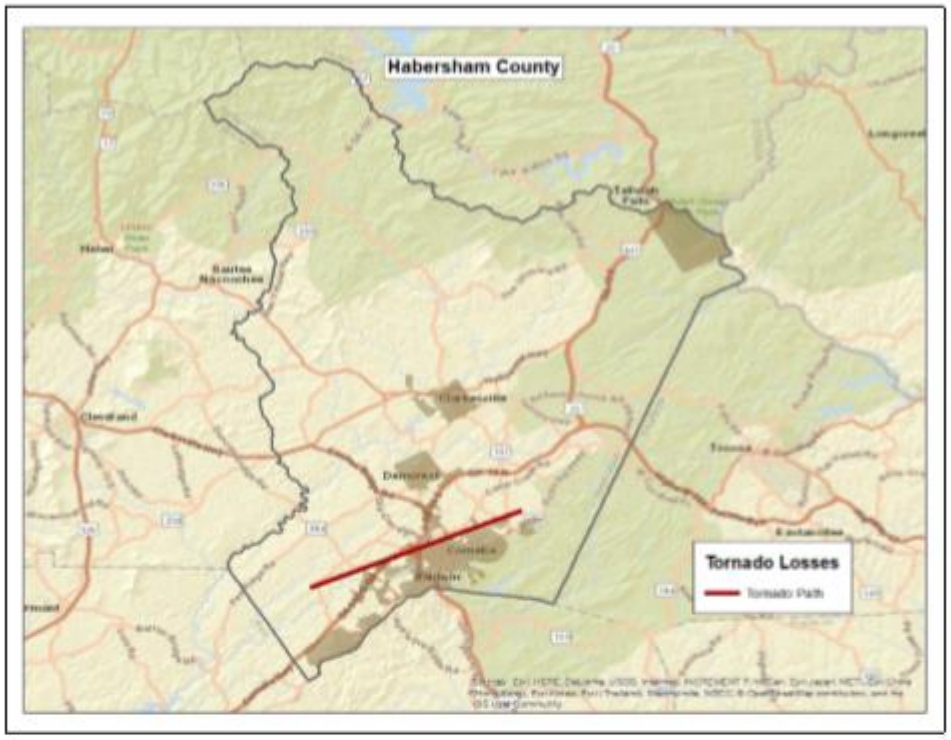

Figure 12: Hypothetical EF3 Tornado Path in Habersham County

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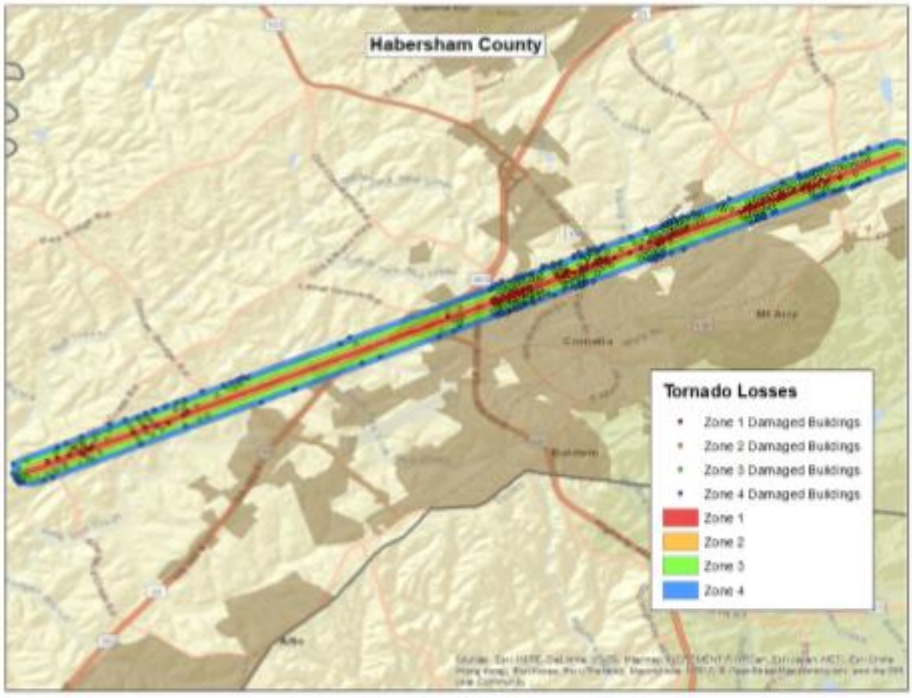

Figure 13: Modeled EF3 Tornado Damage Buffers in Habersham County

EF3 Tornado Building Damages

The analysis estimated that approximately 701 buildings could be damaged, with estimated building losses of $21 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.

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Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Residential	640	$17,903,159
Commercial	39	$1,863,023
Industrial	15	$705,975
Religious	6	$388,563
Government	1	$0
Total	701	$20,860,720

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
Cornelia Elementary School	Major Damage

According to the Georgia Department of Education, Cornelia Elementary School's enrollment was approximately 623 students as of March 2018. 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.

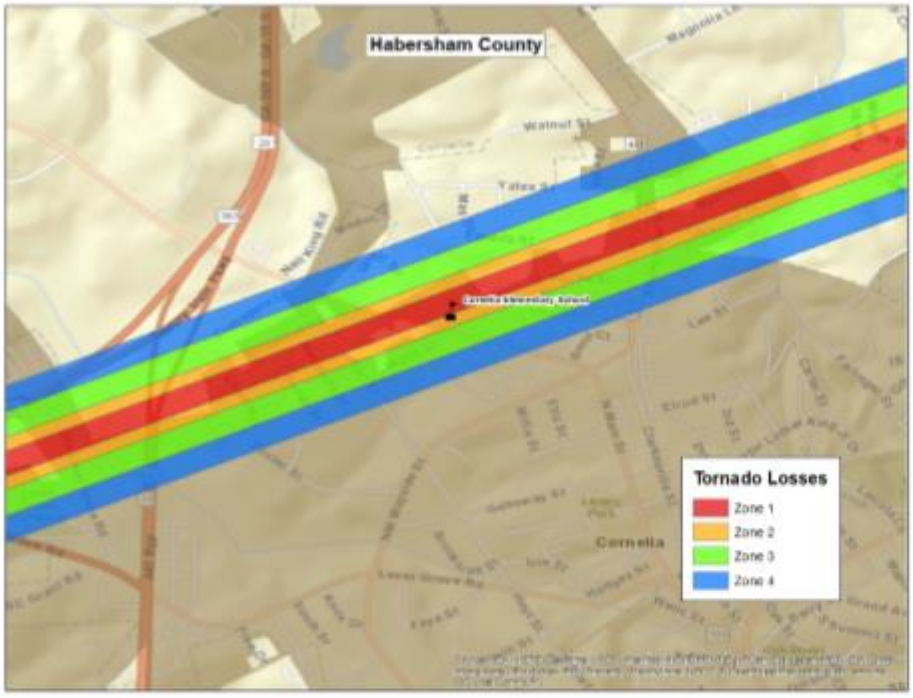

Figure 14: Modeled Essential Facility Damage in Habersham County

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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 June 2018. 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	$46,584,000	2	$23,292,000	1
EF	EOC	$880,000	1	$277,000	1
EF	Fire	$3,600,000	17	$7,909,000	17
EF	Police	$5,954,000	4	$9,112,000	7
EF	School	$10,001,618,000	14	$101,366,000	15

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 June 2015 and the parcel data current as of June 2015.

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.

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 99.5%.

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	25	0%
Construction Unknown	0	0%
Condition Unknown	0	0%
Foundation Unknown	0	0%
Year Built Unknown	0	0%
Total Buildings	18,956	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 YearBuilt 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.

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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	18,951	$2,965,345,429
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	191	$33,508,217

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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Appendix H – Documentation of Plan Adoption