

HALL COUNTY HAZARD MITIGATION PLAN UPDATE 2022 - 2027

Hall County Emergency Management Agency

Lux Mitigation and Planning Corp.

Hall County, Georgia Hazard Mitigation Plan Update 2022 – 2027



Prepared for the Hall County Board of Commissioners
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Hall County's Hazard Mitigation Plan Update 2022

This document was funded in part by the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Planning Grant awarded to Hall County, Georgia, through the Georgia Emergency Management Agency (GEMA) to fulfill the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Hall County's 2017 Hazard Mitigation Plan was updated by the Hall County Hazard Mitigation Plan Update Committee and was prepared by Lux Mitigation and Planning Corp. For additional information, please contact Hall County Emergency Management Agency.

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Adoption Resolution – Hall County**RESOLUTION – HALL COUNTY, GEORGIA****HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 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 Hall County, Georgia, that:

1) Hall County, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Board of Commissioners of Hall County,

Georgia, in regular session this _____ day of _____, 2022.

Chairperson

County Clerk

Adoption Resolution – Hall County Municipalities

Requirement §201.6(c)(5)

RESOLUTION – CITY OF BRASELTON, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Braselton, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

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

Braselton, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF BUFORD, GEORGIA
HALL COUNTY HAZARD MITIGATION PLAN 2022

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Buford, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Buford, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF FLOWERY BRANCH, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Flowery Branch, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

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

Flowery Branch, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF GAINESVILLE, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Gainesville, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Gainesville, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF GILLSVILLE, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Gillsville, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

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

Gillsville, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF LULA, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

- 1) The City of Lula, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of
Lula, Georgia, in regular session this _____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – CITY OF OAKWOOD, GEORGIA
HALL COUNTY HAZARD MITIGATION PLAN 2022

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

1) The City of Oakwood, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the City of Oakwood, Georgia, in regular session this ____ day of _____, 2022.

Mayor

City Clerk

RESOLUTION – TOWN OF CLERMONT, GEORGIA**HALL COUNTY HAZARD MITIGATION PLAN 2022**

WHEREAS, Hall 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 Hall County Hazard Mitigation Plan 2022 has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

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

1) The Town of Clermont, Georgia, has adopted the Hall County Hazard Mitigation Plan 2022; 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 Hall County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Council of the Town of Clermont, Georgia, in regular session this ____ day of _____, 2022.

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. 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.

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

Hall County
City of Braselton
City of Buford
City of Flowery Branch
City of Gainesville
City of Gillsville
City of Lula
City of Oakwood
Town of Clermont

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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 Hall County Hazard Mitigation Plan 2017.

Chapter 1 Section	Updates
Introduction	• Identification of Mitigation Goals
Authority	• Verbiage updated
Funding	• New Section – Not a standalone section in 2017 Plan
Scope	• New Section – Not a standalone section in 2017 Plan
Purpose	• Verbiage updated
Consistency with Federal Guidelines	• Verbiage updated
Plan Review	• Verbiage updated • Updated mitigation meeting dates for 2021-2022 planning process
Hazard Mitigation Plan Update Committee	• Updated committee list with the 2021-2022 planning participants • Updated to meet Federal guidelines
Public Participation	• Updated to match the 2021-2022 planning process
Multi-Jurisdictional Considerations	• Updated with requirement descriptions
Incorporation of Existing Plans, Studies, and Resources	• Updated with new plan, study, and resource incorporations

Introduction

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

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

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

This plan complies with all requirements and scope of work as described in Hall 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, Hall County's Updated Hazard Mitigation Plan will be brought forth to each participating jurisdiction in Hall 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.

Scope

The scope of the Hall County Hazard Mitigation Plan Update encompasses all areas of Hall County, including municipalities. The Plan identifies natural and technological hazards that could threaten life and property in Hall 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 Hall 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 CFR 201.4(c)(2). Additionally, Chapter Three identifies and analyzes potential technological hazards faced by Hall County.

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

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

Funding

Hall County was awarded a \$32,000 Hazard Mitigation Planning Grant by FEMA through GEMA for the update of Hall County's 2017 Hazard Mitigation Plan. FEMA contributed 75% toward the total cost of the Plan Update. The Hazard Mitigation Planning Grant required a 25% match by Hall 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.

Purpose

The purpose of the Hall 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 Hall 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 Hall County Hazard Mitigation Plan recognizes, adopts, incorporates, and endorses the following principles:

- Develop a strategic mitigation plan for Hall 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 Hall 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 Hall County's Plan Update. The approved 2017 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 2017 Plan was reviewed. Hazard vulnerability and risk assessment data was updated, as was critical infrastructure information.

Special attention and consideration were given to the review and edit of mitigation strategies listed in the 2017 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 Hall County's needs and was included in the 2022 Plan. The contractor sent the Committee, including sporadically attending participants, regular emails which contained a Dropbox link to the most updated version of the Plan and encouraged the Committee to thoroughly critique each version.

Hazard Mitigation Plan Update Committee Meeting Dates

Tuesday, October 19, 2021	Hazard Mitigation Introduction; Hazard Identification and Prioritization
Wednesday, November 3, 2021	Update Critical Facilities Information; Community Risk Assessment Analysis; Review and Edit 2017 Mitigation Strategies;
Thursday, December 2, 2021 (Morning Session)	Continue to Review and Edit 2017 Mitigation Strategies; Identify New Mitigation Strategies
Thursday, December 2, 2021 (Afternoon Session)	Continue to Review and Edit 2017 Mitigation Strategies; Identify New Mitigation Strategies
Wednesday, December 8, 2021	Review and Discuss 2022 Hazard Mitigation Plan - Draft; Update Plan Distribution List; Discuss Available Hazard Mitigation Grants

Each section of Hall County's 2017 Hazard Mitigation Plan has been revised in some manner. Therefore, a summary of those changes will be listed in the first section of each chapter. Significant additions/modifications to this Plan include the following:

- Addition of Earthquakes to Natural Hazards
- Addition of Tropical Cyclones to Natural Hazards
- Addition of Landslide/Sinkhole to Natural Hazards
- Addition of Transportation Incidents to Technological Hazards
- Addition of Terrorism to Technological Hazards
- Addition of Infrastructure Failure to Technological Hazards
- Addition of Emergent Infectious Disease to Technological Hazards

Hazard Mitigation Plan Update Participants

Requirement §201.6(b)(2)

The following 69 participants contributed to the update of Hall County's 2017 Hazard Mitigation Plan: *(in alphabetical order)*

Chris Armstrong
Fire Chief
Hall County Fire Department

Glennis Barnes
Area Manager
Georgia Power Company

Todd Beebe
Deputy Director
City of Gainesville - Public Services

Dennis Bergin
City Manager
City of Lula

Andy Betancourt
Safety and Security Assistant
Hall County Schools

Stoney Bowles
Deputy Chief of Operations
Hall County Fire Department

Zachary Brackett
Operations and Special Projects Manager
Hall County Emergency Management and Homeland Security

Daniel O. Branch
Director/Chief
City of Buford - Department of Public Safety

Kevin R. Buecker
Field Supervisor
Hall County Animal Control

Donna Sue Campbell*Healthcare Coalition Facilitator*

Georgia Department of Public Health, District 2

Stephen Carey*Police Officer*

Lanier Technical College Police Department

Todd Casper*Lieutenant; Special Operations; Traffic Unit*

Hall County Sheriff's Office

Sheri Chapman*Police Officer; Emergency Preparedness Coordinator*

University of North Georgia - Department of Public Safety

Katie Crumley*Public Information Officer*

Hall County Government

Matthew Crumpton*Emergency Preparedness Manager*

Northeast Georgia Health System

Mallory Danner*Emergency Management Specialist Planner*

Hall County Emergency Management and Homeland Security

Cassandra Davidson*Environment of Care Coordinator*

North Georgia Health System

Walt Davis*Warden/Director of Maintenance*

Hall County Corrections and Maintenance

John Dawson*Sergeant*

Hall County Sheriff's Office

Donald "Don" E. Dye*Assistant Director*

City of Gainesville – Department of Water Resources

Tim Drake*Battalion Captain*

Hall County Fire Services

Latisha Flesher*Director*

Hall County Department of Family and Children Services

Andrea Gaines*Nurse Manager*

Hall County Health Department

Trey Garcia*Supervisor*

Hall County Animal Services

Jorge Gomez*Assistant County Engineer*

Hall County Public Works and Utilities

Kelly Hairston*County Manager*

Hall County Environmental Health

Timothy P. Hatch*Chief of Police*

City of Oakwood - Police Department

Sandra Helton*City Clerk*

City of Gillsville

Jimmy Hightower*Superintendent*

Hall County Road Maintenance

Kevin Holbrook*Lieutenant*

City of Gainesville - Police Department

Christopher Hulsey*Chief*

City of Flowery Branch – Police Department

Shane Kinsey
Battalion Chief
Hall County Fire Services

Bryan Lackey
City Manager
City of Gainesville

Amanda Letson
Director
Hall County 911

Michael Little
Director
Hall County Parks and Community Services

Anabel Lopez-Ortiz
Secretary
Hall County Road Maintenance

Michael Martin
Captain
City of Gainesville - Police Department

Sarah McQuade
Director
Hall County Planning and Development

Franklin “Frank” P. Miller, P.E.
Engineer
Hall County Engineering Division

Khip Miller
Marshal
Hall County Marshal’s Office

Angela Moore
Operations Manager
Hall County 911

Bill Nash
Assistant Director
Hall County Public Works and Utilities

James E. Nix*Mayor*

Town of Clermont

Mark Palen*Director of Emergency Preparedness*

Georgia Department of Public Health – District 2

Tal Parden*Captain*

City of Oakwood - Police Department

Jay Parrish*Chief of Police*

City of Gainesville – Police Department

Chad Payne*Fire Marshal*

City of Gainesville - Fire Department

Jeremy Pickett*Emergency Management Specialist*

Hall County Emergency Management and Homeland Security

Casey Ramsey*Director*

Hall County Emergency Management and Homeland Security

Tommy Rogers*Superintendent*

City of Clermont - Maintenance Department

Chris Rotalsky*Director*

City of Gainesville Public Works

Douglas Shadburn*Assistant Superintendent*

Hall County Road Maintenance

Nicholas “Nick” Shirley*Computer Aided Dispatch (CAD) Manager*

Hall County 911

Doug Smith*District Engineering Supervisor*

Jackson Electric Membership Cooperative

Kathryn Smith*Interim Associate Director, Emergency Preparedness*

University of North Georgia

Ladette Smith*Administrative Secretary*

Hall County Road Maintenance

Nathan Smith*Operations Supervisor*

Hall County Landfill

Jason Spencer*Director*

City of Oakwood – Public Works

Brian Stewart*Digital Media Specialist*

Hall County Government

Eric Stover*Training Chief*

City of Gainesville – Fire Department

Johnnie Vickers*Director of Solid Waste*

Hall County Public Works and Utilities

Gentry Wade*Safety Officer and Emergency Management*

City of Buford – Department of Public Safety

Steve Watson*Director*

Hall County Tax Assessors Office

Sandy Weinell*Town Engineer*

Town of Braselton

Adam Welker*Senior PC Technician*

Hall County Management Information Systems

Bill Whidden*Director*

City of Flowery Branch – Public Works

Rod Wilson*Battalion Chief*

Hall County Fire Services

Tim Woodward*Deputy Chief of Preparedness*

Hall County Fire Services

Srikanth Yamala*Director*

Hall County Public Works and Utilities

Kevin York*Senior Network Administrator*

Hall County Management Information Systems

Natasha Young*Public Information Officer*

Georgia Department of Public Health - District 2

The Plan Update Committee relied on their consultant to guide them through the update process. During meetings, the participants had productive discussions, expanded their professional networks, asked thoughtful questions, made important decisions, and provided critical input during key stages in the update process.

Efforts were made to involve all county and municipal departments, as well as community organizations and local businesses, which may have a role in the implementation of mitigation actions and/or policies. These efforts included sending invitations via email to attend the Kick-off Meeting, sending reminder emails before each upcoming meeting, emailing pertinent information throughout the process, and requesting the review and critique of each chapter in the updated Plan.

The municipalities of Braselton and Gillsville did not have direct representation who attended meetings of the Hall County Hazard Mitigation Planning Committee. Both municipalities were included in all communication regarding the planning process,

invitation emails, and drafts sent by both Lux Mitigation and Planning and Hall County Emergency Management Agency.

In September 2022, Braselton and Gillsville were provided a “City/Town Worksheet” and a copy of the updated Hall County Hazard Mitigation Plan to ensure their participation in the process and their review of the document. Upon completion, information provided by the municipalities, including capabilities and services, notable past hazard events, and any new municipal-specific strategies were added to the 2022 Hall County Hazard Mitigation Plan. Sandy Weinel, the Braselton Town Engineer, and Sandra Helton, the City Clerk of Gillsville, completed this participation document on behalf of their municipalities. This incorporation process was completed in October 2022.

All neighboring counties – Banks, Barrow, Dawson, Forsyth, Gwinnett, Habersham, Jackson, Lumpkin, and White – were invited to meetings of the Hall County Hazard Mitigation Plan Update committee and asked to peer review the 2022 Mitigation Plan draft. The Plan was sent to each County EMA office. Hall County had significant support and contribution to the Hazard Mitigation Plan Update process from surrounding jurisdictions.

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 Hall County's 2017 Mitigation Plan: Georgia Power, Jackson EMC, Lanier Technical College, Northeast Georgia Health System, and the University of North Georgia

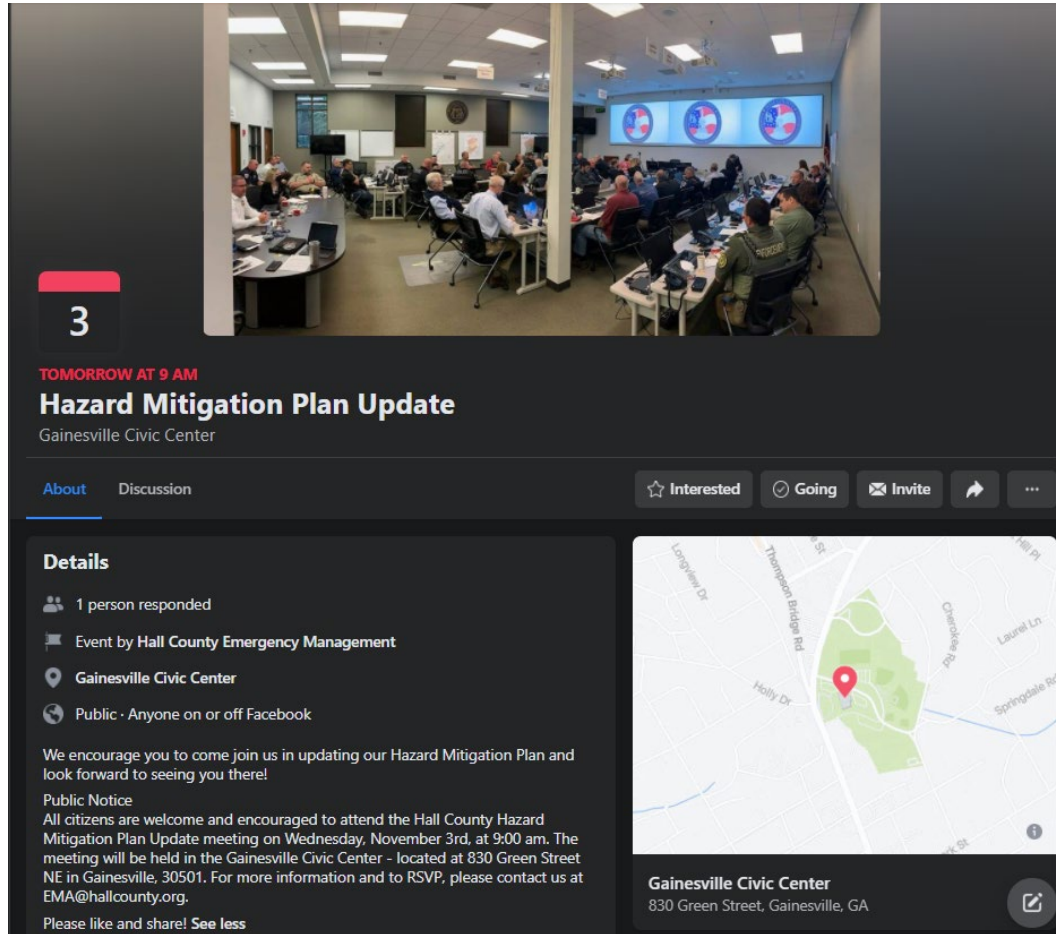
The Plan Update Committee took it upon themselves to ensure the processes undertaken for the development, implementation, and maintenance of the 2022 Hazard Mitigation Plan adequately considered public needs and viewpoints.

A list of public outreach initiatives can be found below:

- Email reminders were sent to all Plan Update Committee members, as well as other stakeholders, prior to every meeting. Recipients were encouraged to share the meeting invitation with anyone they thought would be an asset to the Plan Update process or anyone who may want to learn more about what a Hazard Mitigation Plan is.
- A Public Meeting was held on November 3, 2021 in conjunction with the regularly scheduled meeting of the Hall County Hazard Mitigation Plan Update Committee. This meeting was advertised through multiple medium, including on the Hall County Emergency Management Facebook page. No members of the public attended and no public feedback was provided.
- A Public Meeting was held on December 8, 2021 in conjunction with the regularly scheduled meeting of the Hall County Hazard Mitigation Plan Update Committee. This meeting was advertised through multiple medium, including on the Hall County Emergency Management Facebook page.

Documentation of Public Meeting Notice

Public Meeting Notice (Hall County EMA Facebook Page – November 3, 2021 Meeting)



Public Meeting Notice (Hall County EMA Facebook Page – December 8, 2021 Meeting)

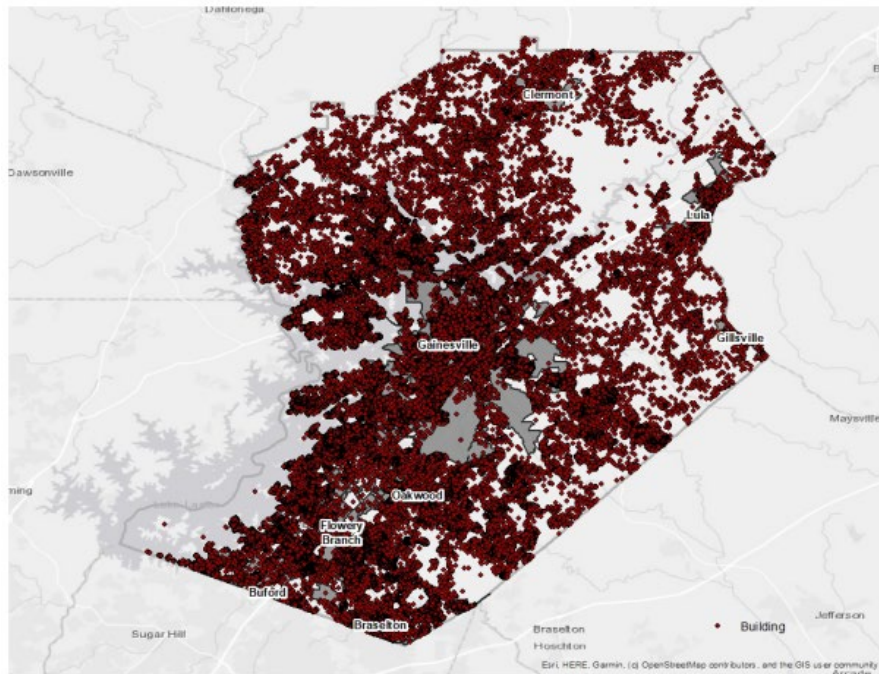


Multi-Jurisdictional Considerations

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. Hall County's most recent Hazard Mitigation Plan was approved by FEMA in December 2018. The 2022 Mitigation Plan is the third five-year update. This FEMA-approved 2022 Hazard Mitigation Plan makes Hall County, the City of Braselton, the City of Buford, the City of Flowery Branch, the City of Gainesville, the City of Gillsville, the City of Lula, the City of Oakwood, and the Town of Clermont 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. Hall County is dedicated to work in the best interests of the County, as well as its municipalities. A few mitigation strategies in Hall County's 2022 Mitigation Plan apply to a specific municipality. Unless noted otherwise, mitigation strategies apply equally to all jurisdictions. During the creation and update of this Plan, Hall County Emergency Management Agency solicited and received participation from the following Hall County municipalities: Braselton, Buford, Flowery Branch, Gainesville, Gillsville, Lula, Oakwood, and Clermont.

Distribution of Buildings in Hall County



Source: 2022 Hall County HAZUS Report

Incorporation of Existing Plans, Studies, and Resources

Requirement §201.6(b)(3)

State Requirement Element F3

Existing Plans

2017 Hall County Pre-Disaster Hazard Mitigation Plan
2019 State of Georgia Hazard Mitigation Plan
2014 State of Georgia Hazard Mitigation Plan
Hall County Local Emergency Operations Plan
Georgia Forestry Commission's Hall Co. Community Wildfire Protection Plan
Hall County Joint Comprehensive Plan
Hall County Growth Management Plan

Studies

2022 Hazard Risk Analyses (HAZUS Report)
2017 United States Department of Agriculture Ag Census
2010 United States Census
2020 United States Census
2009 Hall 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
Hall County Tax Assessor's Data
Hall County Website
Georgia Mitigation Information System Database
Colorado State University (Hurricane mapping)
United States Geological Survey
FEMA Flood Insurance Rate Maps
National Flood Insurance Program
United States Coast Guard National Response Center Data
Georgia Department of Transportation
Georgia Safe Dams Program
Southern Group of State Foresters Wildfire Risk Assessment

Application of Existing Plans and Studies

Existing Planning Mechanism	Reviewed? Yes/No	Incorporation into 2021 Mitigation Plan
2017 Hall County Hazard Mitigation Plan	Yes	Baseline for the 2022 Plan; updated mitigation strategies; updated hazards; updated Hall County information
2019 State of Georgia Hazard Mitigation Plan	Yes	Hazard descriptions; potential hazards; mapping mechanisms; potential mitigation strategies that could be adopted on a local level
Hall County Local Emergency Operations Plan (LEOP)	Yes	Identification of current resources; identification of current capabilities
Georgia Forestry's Hall County Community Wildfire Protection Plan (CWPP)	Yes	Mitigation strategies for wildfire and drought; historical data
2017 USDA Agriculture Census	Yes	Agricultural data regarding potential losses for drought and wildfire
2020 United States Census	Yes	To update Hall County's profile information
2009 Hall County Flood Insurance Study	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
Hall 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
Hall County Growth Management Plan	Yes	To identify future development trends; identify mitigation strategies to curb trends in a direction that considers the area's hazards
Hall County Flood Mitigation Assistance Plan	No	No such plan exists
2022 Hall County HAZUS Report	Yes	Hazard Analysis

CHAPTER TWO

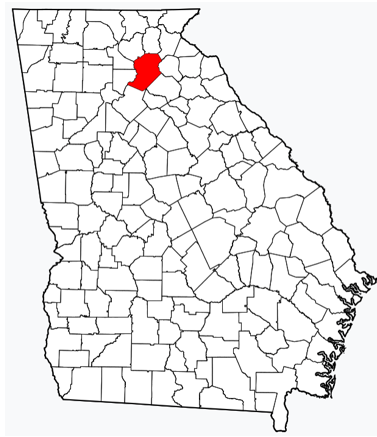
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HALL COUNTY PROFILE

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 Hall County Hazard Mitigation Plan 2017.

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



Past Hazards

Hall County, Georgia, has faced many natural hazards in its history. Severe thunderstorms have been the most prevalent of these hazards. In the last 50 years, Hall County has been subjected to 310 documented severe thunderstorm events. These events include torrential rainfall, hail, thunderstorm-force winds, and lightning.

Tornadoes, which can sometimes spawn from severe thunderstorms, have also occurred, although with much less frequency. In Hall County, there have been 25 documented tornadoes in the last 50 years.

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

Winter storms and heavy snowfall have affected Hall County 47 times over the last 50 years, according to the NCDC record. Because these natural events are barely an annual occurrence, the pre-planning and preparedness component of emergency management is not as robust as northern or western states that routinely see this type of weather.

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

Hall County has had 16 Presidential Disaster Declarations (FEMA-declared major disasters) – two of which have occurred since the adoption of the 2017 Hazard Mitigation Plan (both related to COVID-19 in 2020).

History

Hall County was founded in 1818 and was created from Indian lands. The county was named for Lyman Hall. Mr. Hall was a signer of the Declaration of Independence and served as Governor of Georgia from 1783 to 1784. Hall County was the 45th county in Georgia. When gold was discovered in neighboring Lumpkin County and White County in 1829, Hall County quickly grew to the trading and supply center for North America's first gold rush. The City of Gainesville became the hub of the region as the area grew.

According to the 2020 U.S. census, Hall County's population was 203,136. This is an increase from 179,684 in 2010 and an increase from the 2000 population of 139,277.

Further growth was brought to the area in 1871 when the Atlanta and Charlotte Air Line Railroad opened. Hall County developed as a mountain summer resort due to local springs touted for health-giving qualities. As the area grew, Hall County became the location of the region's first hospital, college, and military academy. The first large industries, cotton mills, began to arrive in 1900. Hall County also became a major shipping point for lumber harvested and milled in the mountain region to the north. As with most areas, Hall County's economy suffered during the Great Depression. The boll weevil hampered cotton production, Chestnut blight led to a decline in lumber, and the area was struck by a deadly tornado in 1936. Many of the historic homes and buildings were destroyed during this violent storm. Following World War II, Hall County's economy began to recover. Cotton was replaced by poultry. The change to poultry spurred job growth as new industries emerged to support the production and processing of chickens and eggs.

Lake Lanier was created in the 1950s when the U.S. Army Corps of Engineers built Buford Dam. The creation of the lake has brought more industry and diversification to Hall County. Millions of visitors enjoy the recreational water sports provided by Lake Lanier.

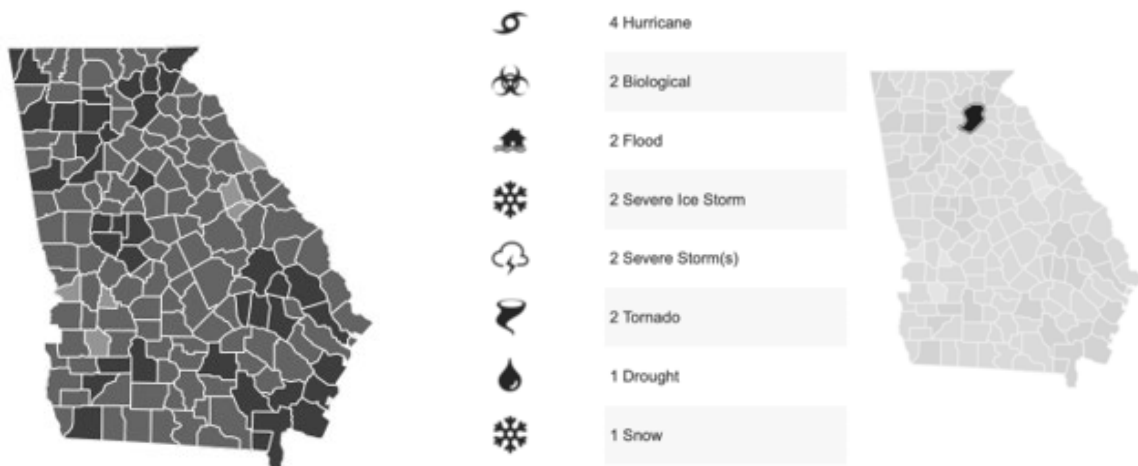
Hall County continues to build upon its historic base as the primary center of Northeast Georgia. Today it is home to three colleges, the headquarters of the Atlanta Falcons, Olympic rowing and canoe/kayak facilities, championship golf courses, and a wealth of art and cultural organizations.

Notable Past Events

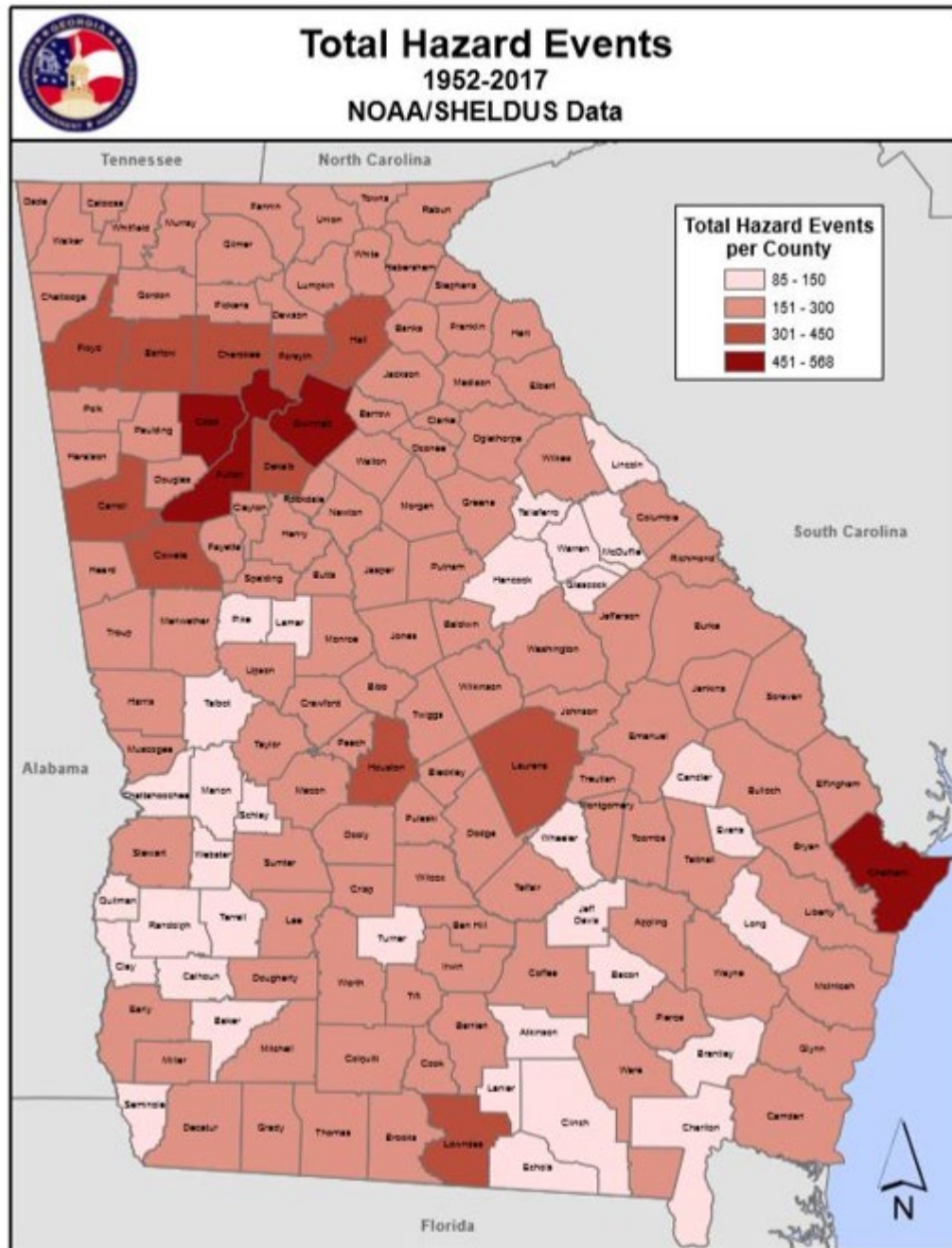
- 2021, Hail
- **2020, COVID-19 Pandemic (Federal Declaration x2)**
- 2020, Thunderstorm Wind
- 2020, Thunderstorm Wind
- 2020, Tornado (EF0)
- 2019, Tornado (EF1)
- **2017, Hurricane Irma (Federal Declaration x2)**
- 2017, Hail
- 2016, Thunderstorm Wind
- **2015, Severe Winter Storm (Federal Declaration)**
- **2014, Severe Winter Storm (Federal Declaration)**
- 2013, Tornado (EF1)
- 2013, Flash Flood
- 2011, Hail
- 2009, Hail
- 2008, Hail
- 2008, Thunderstorm Wind
- 2008, Hail
- 2008, Thunderstorm Wind
- 2008, Hail
- 2008, Tornado (EF1)
- 2008, Tornado (EF1)
- 2007, Thunderstorm Wind
- 2005, Tornado (F0)
- 2005, Ice Storm
- 2005, Winter Storm
- 2004, Thunderstorm Wind
- 2002, Thunderstorm Wind
- 2001, Flash Flood
- **2000, Severe Winter Storm (Federal Declaration)**
- 2000, Tornado (F1)
- 2000, Tornado (F1)
- 2000, Ice Storm
- 1999, Thunderstorm Wind
- **1998, Severe Storms and Flooding (Federal Declaration)**
- 1998, Tornado (F3)
- 1997, Thunderstorm Wind

- 1996, Tornado (F1)
- **1995, Hurricane Opal (Federal Declaration)**
- 1994, Thunderstorm Wind
- 1994, Tornado (F0)
- 1994, Tornado (F0)
- 1994, Tornado (F1)
- 1994, Tornado (F0)
- **1993, Severe Snowfall, Winter Storm (Federal Declaration)**
- **1993, Tornado (F1), High Winds, Heavy Rains (Federal Declaration)**
- 1989, Tornado (F1)
- 1989, Tornado (F2)
- 1989, Tornado (F2)
- 1989, Tornado (F2)
- 1980, Tornado (F1)
- 1980, Tornado (F1)
- 1979, Tornado (F1)
- **1977, Drought (Federal Declaration)**
- **1976, Severe Storms, Flooding (Federal Declaration)**
- **1974, Tornado (F1), (Federal Declaration)**
- 1973, Tornado (F3)
- **1966, Flooding, (Federal Declaration)**

Federal Disaster Declarations



Source: Federal Emergency Management Agency (FEMA)



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

Demographics

County

	2000 Census	2010 Census	2020 Census
Population	139,277	179,684	203,136
White	80.8%	74.1%	64.4%
African American	7.3%	7.4%	7.2%
Hispanic/Latino	19.6%	26.1%	28.1%
Asian	1.3%	1.8%	2.1%
American Indian	0.3%	0.5%	0.9%
Two or More Races	1.4%	2.2%	11.0%
Median Age	32.2	34.5	36.7
Median Household Income	\$45,091	\$49,324	\$62,984
Persons in Poverty	10.5%	17.8%	13.5%
Homeowners	66.0%	67.9%	69.5%

Municipalities - Population

	2000 Census	2010 Census	2020 Census
Braselton	1,206	7,511	13,403
Buford	10,668	12,225	17,144
Flowery Branch	1,806	5,679	9,391
Gainesville	25,578	33,804	42,296
Gillsville	195	235	240
Lula	1,438	2,758	2,961
Oakwood	2,689	3,970	4,156
Clermont	429	875	1,039

Economy

Hall County's economy is primarily agricultural with some light industry. Hall County's cost of living is 7.8% below the national average. The unemployment rate in Hall County is 2.2%, which is slightly below the State average of 3.5% and below the National average of 4.8%. Hall County has a median household income of \$62,984 which is below the national average of \$67,521.

The ten largest private employers in Hall County are:

Company	Product/Service
Cottrell, Inc.	Equipment Manufacturing
Fieldale Farms Corporation	Poultry
Foundation Food Group Services	Poultry
Kubota Manufacturing of America Corporation	Equipment Manufacturing
Mar-Jac Poultry	Poultry
Northeast Georgia Medical Center, Inc.	Hospital
Northeast Georgia Physicians Group	Medical Services
Pilgrim's Pride Corporation	Poultry
Walmart	Retail
Wrigley Manufacturing Co, LLC	Food Manufacturing

*The above list is in alphabetical order, not in order of company size.
This data is according to the Georgia Department of Labor, 2021.*

Transportation

Hall County's transportation system consists primarily of state highways and county-maintained roads. I-985, US Highways 23 and 129, as well as Georgia State highways 11, 13, 51, 52, 53, 60, 82, 115, 136, 211, 254, 283, 284, 323, 332, 347, 365, 369, and 419 are major transportation routes that carry the majority of passenger and commercial traffic in and out of Hall County. Congestion in these transportation corridors create traffic problems, primarily because of population growth.

Freight rail lines operated by CSX and Norfolk Southern traverse Hall County.

Government

The form of government specified in the County Charter is known as Commissioner form of government, which provides for an elected body of Commissioners. There are a total of five commissioners. Four of the commissioners are elected by district. One for each of the four districts. The fifth commissioner is elected from the county at large. This fifth commissioner serves as the chairperson. The commissioners are elected in staggered four-year terms. The Board of Commissioners appoints a County Administrator who serves as the chief executive officer for the county.

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

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

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

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

Climate

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

AVERAGE MONTHLY TEMPERATURES IN GEORGIA (FAHRENHEIT)

Month	Average Georgia Temperature	Average Hall County Temperature
January	46	42
February	49	44
March	56	54
April	63	62
May	70	69
June	77	77
July	80	78
August	79	78
September	74	72
October	64	62
November	56	52
December	48	46

Utilities

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

Natural gas distributors in Hall County include the following: Atlanta Gas Light, Liberty, City of Buford, and other Certified Natural Gas Marketers.

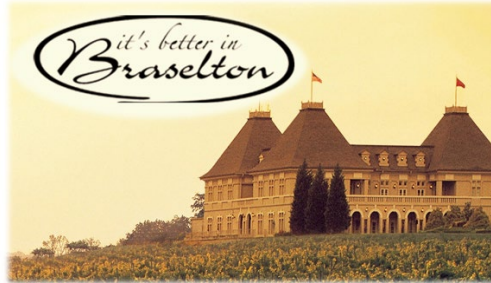
National Flood Insurance Program Compliance

JURISDICTION	PARTICIPATING?	PARTICIPATION DATE
HALL COUNTY	YES	1/31/84
BRASELTON	YES	9/29/06
BUFORD	YES	5/22/95
FLOWERY BRANCH	YES	4/15/86
GAINESVILLE	YES	7/5/83
GILLSVILLE	NO	-----
LULA	YES	10/30/06
OAKWOOD	YES	7/23/82
CLERMONT	YES	10/30/06

**City of Gillsville is in the process of researching and reviewing the required ordinances to obtain NFIP Compliance.*

Municipalities

Town of Braselton



William Harrison Braselton, who the city is named after, came to the area in the 1800s purchasing approximately 800 acres of land. By 1876, a town had quickly grown and was becoming a center for farming and commerce in Jackson County. The Town of Braselton was incorporated in 1916. William Braselton's eldest son served as the first mayor. Descendants of the family have continued to serve as members of the city government. Today, Braselton covers 34 square miles and spans into four counties.

In 1887, another of William Braselton's sons constructed a six-by-six-foot store in the yard of the family home. The young John Oliver Braselton had ambition to sell items to the farmhands. Eventually two of the older brothers joined him and together the small store turned into a thriving business along the railroad tracks. By 1904, the store included a brick warehouse along with the selling of groceries, dry goods, notions, shoes, millinery, and clothing. In 1911, Braselton's first bank opened within the store. Sadly, the original store was destroyed by a tornado in 1919.

During the early 1980s, Donald and Nancy Panoz established the 3,500-acre Chateau Elan Resort and Winery in Braselton which quickly became a major attraction in the area. Since the opening of the resort and winery, Braselton has continued to expand its boundaries and attract major companies. The once small town has turned into a booming residential and manufacturing area.

The Town of Braselton also has many parks and rural spaces. One of the most prominent of these areas is the Thompson Mills Forest which is Georgia's official state arboretum. The arboretum includes 330 acres of native trees and plant species from the Appalachian region and the world. Within the Hall County area of Braselton is the Mulberry Riverwalk, which is a 2-mile natural path along the Mulberry River.

The Town of Braselton is governed by a Mayor/City Council form of government. Councilmembers are elected to four-year staggered terms and represent one of the four geographic districts. Braselton provides the following services to its citizens: law enforcement, street/road construction and maintenance, parks and recreation, water utilities, planning and zoning, code enforcement, library, and public transportation.

City of Buford

The City of Buford was incorporated in 1872. The city was named for Algernon Sidney Buford who served as President of the Atlanta and Richmond Air-Line Railroad. Even during its early years, the City of Buford has never been considered a “sleepy little village.” Instead, the City of Buford was called the “city of many factories.” In 1902, a news article in the News-Herald referred to the city as the “New York of Gwinnett” which was a tribute to the industry and activity of the area.

Early on, leather tanning became an important part of the city’s industry. The first leather business in the area was started by R.H. Allen and featured a harness shop and tannery. After the Civil War, R.H. Allen’s brother, Bona, moved to Buford and joined his brother in the leather business. By 1873 the business was called Bona Allen. During the 1930s, the company moved to the manufacturing of shoes. Eventually the shoe factory was shut down but reopened during World War II to repair shoes for the military. By the 1950s the company had earned a worldwide reputation in leather products, especially saddles. Many of the early Western movie stars sat upon Bona Allen saddles including Roy Rogers. Roy Rogers brought his horse on a train to Buford to be custom fitted for a saddle by a Bona Allen craftsman. In 1968, the company was purchased by Tandy, Inc. The company operated until 1981.

Today many people flock to the City of Buford to enjoy the many recreational activities provided by Lake Lanier.

The City of Buford is governed by a Commission/City Manager form of government.

City of Flowery Branch



The City of Flowery Branch was established in 1874 as a stop along the rail line connecting Charlotte to Atlanta. The area had been inhabited since the early 19th century by farmers and was known as Anaguluskee which is Cherokee for “flowers of the branch.”

Due to the railroad, Flowery Branch became the primary transportation artery for the area. One of the main commodities transported was cotton. The city became known as the town where “Cotton was King” due to the vast amounts of cotton brought into the city to be ginned, sold, and shipped by rail. Once the cotton market began to decline in the 1920s, the City of Flowery Branch also began to decline.

Wrigley, the chewing-gum manufacturer, built a plant in the 1970s. Today this plant still is a major industry in the area. In 2004, the Atlanta Falcons announced that it would move its training facility to Flowery Branch. The training campus was completed in 2005. Many of the historic buildings, including the train depot, have been revitalized and repurposed to increase economic growth in the area.

Flowery Branch is one of a few Georgia historic downtowns located on a lake. This proximity to Lake Lanier and its location within the Northeast Georgia Mountain region places Flowery Branch in a unique position to draw many outdoor enthusiasts. The city has plans to continue revitalizing downtown and to create a regional destination that is pedestrian friendly.

The City of Flowery Branch is governed by a Mayor/City Council form of government.

City of Gainesville



The City of Gainesville was founded in 1821 as the county seat for Hall County. Originally called “Mule Camp Springs,” the city was located near the crossing of two Indian trails. After becoming chartered, the city was given the name “Gainesville” in honor of General Edmund P. Gaines who was a hero of the War of 1812 and a noted military surveyor and road builder.

The discovery of gold in neighboring Lumpkin County brought a business boom to Gainesville. American’s first private mint for gold coins was established in the city in 1830. Once the gold fever began to wane, agriculture industry began to grow in the area. This led to further growth for the City of Gainesville. In 1871 a rail line was completed which connected Gainesville to Athens and other nearby communities. The railroad established Gainesville as a prominent city in the region and a hub of transportation. In the 1930s, Jesse Jewell launched what would become the largest industry in the region: poultry. By the end of World War II, the City of Gainesville was known as the “Poultry Capital of the World.”

Shortly following the explosion of the poultry industry, the City of Gainesville also received a recreational revolution. In 1953 Buford Dam was completed creating the 38,000-acre Lake Lanier. Within a few years the city was reaping the benefits of a hugely popular recreational site. Lake Lanier quickly was established as one of the largest economic forces in the region.

Today, the City of Gainesville is a growing hub for northeast Georgia. The city is home to multiple higher education institutions, art centers, museums, and nature centers. The proximity to the Blue Ridge Mountains, Lake Lanier, and Atlanta have made Gainesville one of Georgia’s most favorably situated communities.

The City of Gainesville is governed by a City Manager/City Council form of government.

City of Gillsville



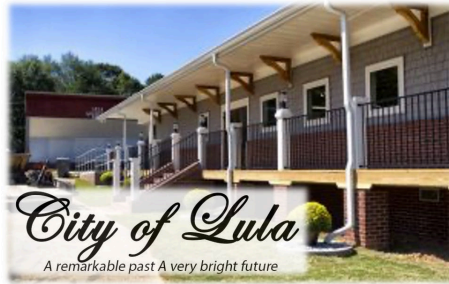
The City of Gillsville was chartered in 1901. The city was originally named Stonethrow and is the oldest town in Hall County. The first known settlement in what is now Gillsville was established in 1784.

Pottery has been the sustaining industry for the City of Gillsville for more than a century. The earliest known potter was Clemmonds Chandler in 1860. The Hewell family, which still carries on the family pottery tradition today, has been making pottery since the 1880s. Today, if you drive through the City of Gillsville, folk face jugs, pitchers, crocks, and other clay creations greet visitors from the many pottery shops.

The City of Gillsville is governed by a Mayor/City Council form of government. The city is governed by a mayor and five councilmembers who are elected to four-year staggered terms. The councilmembers represent one of the five geographic districts. However, elections are citywide. Gillsville provides the following services to its citizens: parks and recreation, gas utility services, street lighting, library, and code development. Code enforcement is left to Hall County. Gillsville also has intergovernmental agreements with Hall County for law enforcement and fire protection services.

The railroad operated by Norfolk Southern that traverses Gillsville is of particular concern. An incident on this railroad would essentially cut off parts of Gillsville from the rest of Hall County, which would impeded public safety response.

City of Lula



The City of Lula has a unique history that revolves around the railroad and Belton. Belton, named for Major John Bell, was an area which was settled near the banks of the Chattahoochee River. Mining activities in the area began to attract financial investors to Belton. In 1873, the Richmond and Danville Railroad was established which caused the rapid growth for the town. A year later the town of Belton was chartered. In 1876, one mile south of Belton, the town of Lula was officially established. The creation of a town with such proximity to the established town of Belton was a direct result of the railroad expansion and economic competition of the region. Like its close neighbor, the economy of Lula was based on mining and agriculture. In 1955 the two towns voted to consolidate into one town retaining the name of Lula.

Today, the City of Lula spans across Hall County and Banks County. The city is well known for its annual Railroad Days.

The City of Lula is governed by a Mayor/City Council form of government.

City of Oakwood

The City of Oakwood originated when the railroad first ran between Charlotte and Atlanta. The city was originally called Odell's Crossing. The name was changed to Oakwood due to the location being the regular stop for wood-burning locomotives picking up oak wood for fuel.

Over time the city blossomed into a thriving railroad center. The railroad attracted industries to the area including a brick-making shop and a bottle-making plant. In addition to attracting industry, the area also began to attract educational establishments. At one time the City of Oakwood was home to one of the finest historical institutes of higher learning in North Georgia: the Oakwood Academy. The academy drew students from across North Georgia during the early 20th century.

The City of Oakwood is governed by a Mayor/City Council form of government.

Town of Clermont

The Town of Clermont began in the 1880s as a small community known as Dip. The name was changed to Clermont in 1905.

As with most towns in the area, the Town of Clermont began with the establishment of a railroad track. The rail line that established the town ran from Gainesville to Helen. Timber and cotton were the main products transported by the rail line.

Education was of great importance to those who settled the area, so The Chattahoochee School was established in 1901. The Chattahoochee School was much sought-after educational institution due to the high acceptance of graduates into Mercer University.

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

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 Hall County Hazard Mitigation Plan 2017.

Chapter 3 Section	Updates
Risk Assessment	- Expanded the explanation of the Risk Assessment - Added an explanation of each part of the Hazard Information
Natural Hazard Severe Thunderstorm	- Updated and consolidated hazard profile with new data - Content revised
Natural Hazard Winter Storm	- Updated and consolidated hazard profile with new data - Content revised
Natural Hazard Flooding	- Updated and consolidated hazard profile with new data - Land Use and Development trends updated to include municipal NFIP information - Content revised
Natural Hazard Tornado	- Updated and consolidated hazard profile with new data - Content revised
Natural Hazard Drought	- Updated and consolidated hazard profile with new data - Content revised
Natural Hazard Wildfire	- Updated and consolidated hazard profile with new data - Content revised
Natural Hazard Earthquake	New Section – Not in 2017 Plan
Natural Hazard Tropical Cyclone	New Section – Not in 2017 Plan
Natural Hazard Landslide and Sinkholes	New Section – Not in 2017 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 Incident	• New Section – Not in 2017 Plan
Technological Hazard Terrorism	• New Section – Not in 2017 Plan
Technological Hazard Infrastructure Failure	• New Section – Not in 2017 Plan
Technological Hazard Emergent Infectious Diseases	• New Section – Not in 2017 Plan

Risk Assessment

Requirement §201.6(c)(2)(i and ii)

Requirement §201.6(d)(3)

The Hall County Hazard Mitigation Planning Committee conducted a comprehensive Threat and Hazard Identification and Risk Assessment (THIRA) for Hall 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 Hall County Hazard Mitigation Planning Committee identified nine natural hazards and six technological hazards for this Hazard Mitigation Plan. This is an increase of three natural hazards and three technological hazards from the previous iteration of the plan. Each hazard was identified using statistical data and records from a variety of sources. The list of hazards is based upon frequency, severity of impact, probability, potential losses, and vulnerability.
2. *Hazard Description:* Each hazard was described in detail. Many hazard descriptions came from the Georgia Hazard Mitigation Plan since many of the hazards that could impact the state could also potentially impact Hall County.
3. *Profile of Hazards:* Each hazard was profiled as to how it could potentially impact Hall 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 importance regarding flooding and dam failure events.
7. *Multi-Jurisdictional Concerns:* Each jurisdiction was considered when determining the potential hazard impact.

At the second meeting of the Hall County Hazard Mitigation Plan Update Committee, the attendees participated in a risk assessment of hazard for Hall County. This risk assessment was based upon two primary factors: 1. How likely is a hazard to occur; 2. How prepared the committee meeting participants felt the community was for each hazard. This risk assessment relied on the committee meeting attendees to identify the hazards and then rank

them by those two factors. As a result, the risk assessment could be skewed by the meeting participants, recency bias, and/or how the hazard would directly impact the organizations represented at this meeting. After additional discussion with the Hall County Hazard Mitigation Plan Update committee at future meetings, the hazards in this chapter were the agreed upon list. Several of the hazards identified by the committee members were consolidated into expanded hazard descriptions. Those incorporations are notated in the below hazard ranking.

Hazard	Likelihood Score	Preparedness Score	Total Score
Severe Winter Weather	97	11	108
Severe Thunderstorm	75	13	88
Flooding	65	3	68
Terrorism	6	50	56
Tropical Cyclone	35	21	56
Tornado	55	0	55
Earthquake	3	42	42
Hazardous Materials Incident	4	36	40
Utility Failure**	7	27	34
Infrastructure Failure**	0	31	31
Civil Unrest*	0	29	29
Industrial Accident***	0	25	25
Transportation Incident	12	12	24
Dam Failure	11	12	23
Wildfire	4	11	15
Drought	5	6	11
Water Contamination***	0	8	8
Sinkhole/Landslide	2	3	5
Pandemic	0	4	4

* Civil Unrest is incorporated into Terrorism

** Utility Failure and Infrastructure Failure are combined into a single hazard under the name Infrastructure Failure

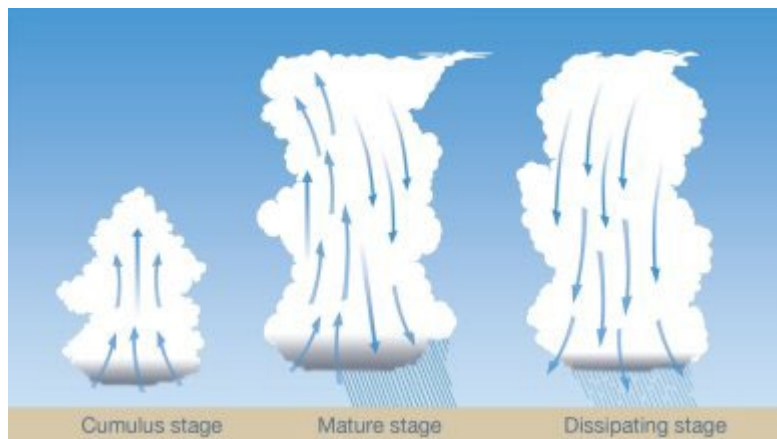
*** Industrial Accident and Water Contamination are covered under Hazardous Materials Incident

Natural Hazard: Severe Thunderstorm*Hazard Description*

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

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

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



Each thunderstorm cell can extend several miles across its base and to reach 40,000 feet in altitude. Thunderstorm cells may compound and move abreast to form a squall line of cells, extending farther than any individual cell's potential.

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

Natural Hazard: Severe Thunderstorm

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

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

Lightning

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

Hail

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

Hazard Profile

Severe thunderstorms, including high winds, hail, and lightning, are a serious threat to the residents and infrastructure of Hall County. Severe thunderstorms are the most frequently occurring natural hazard in Hall County. Many of these storms include high winds, lightning, and hail. Hail up to 2.75 inches was recorded in Hall County on several occasions, most recently in 2001. Thunderstorm winds of 80 mph have been reported on many occasions in Hall County, with the most recent occurring in 2016. While there have been dozens of documented thunderstorm events affecting Hall 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 49 thunderstorm events were recorded between 1971 and 1990, likely a vast underestimation of actual events.

Most of the available information relating to severe thunderstorm events in Hall 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 Hall County.

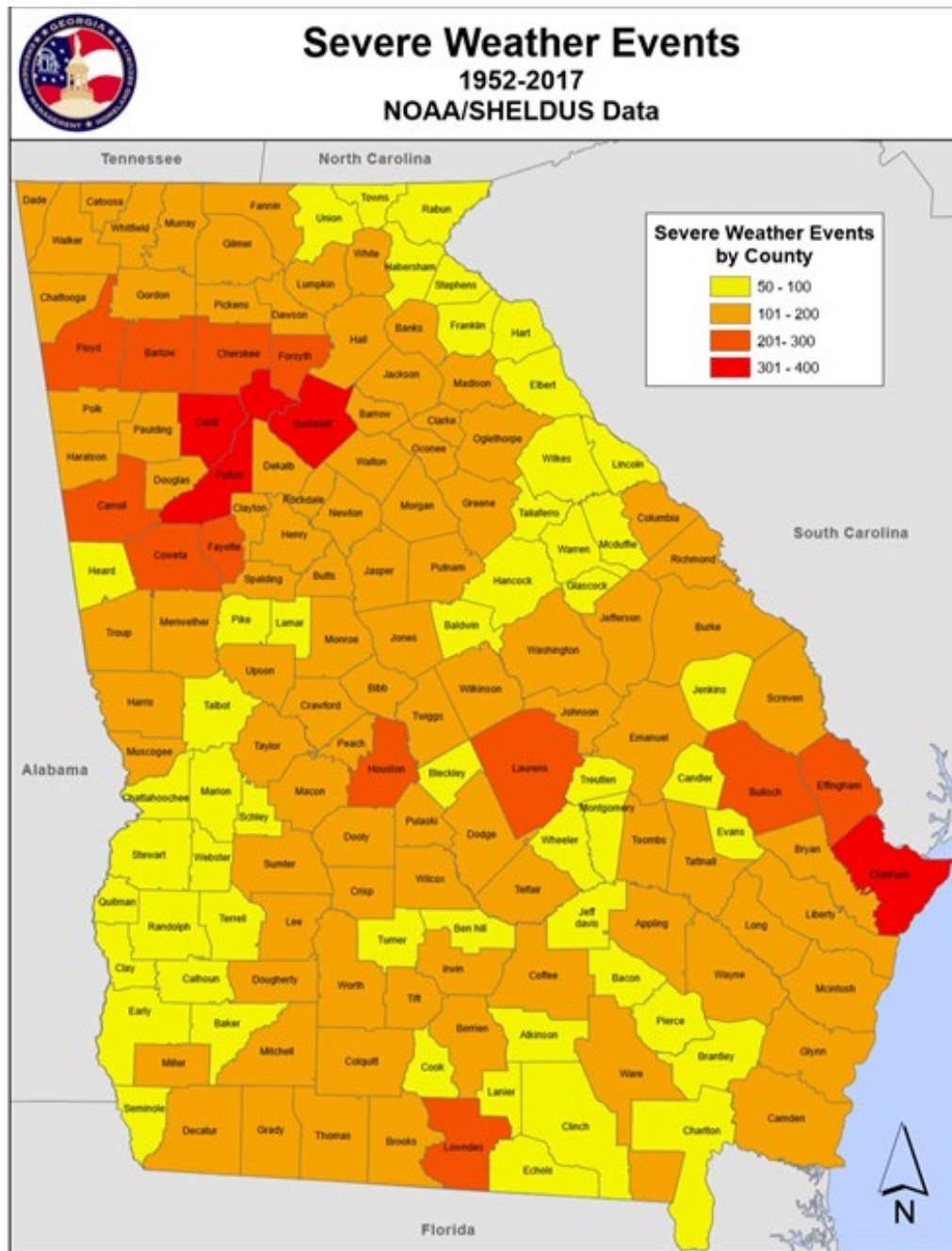
Natural Hazard: Severe Thunderstorm

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

The Hall 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 Hall 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 Hall County is limited to countywide data and is not broken down by jurisdiction.

During the last 50 years, 234 thunderstorm events were recorded in Hall County, with 185 of those occurring in the last 30 years. This number includes 106 hail events and only 13 lightning reports. According to these records, Hall County has a 1.7% daily chance of a thunderstorm event based upon data from the last 30 years. Over the last 10 years, Hall County has averaged 4.7 thunderstorm events per year (47 events). Due to improved record keeping protocols, the Hall County Hazard Mitigation Plan Update Committee believes the data from the last thirty years provides a more accurate representation of the thunderstorm threat to the county. The Hall 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.

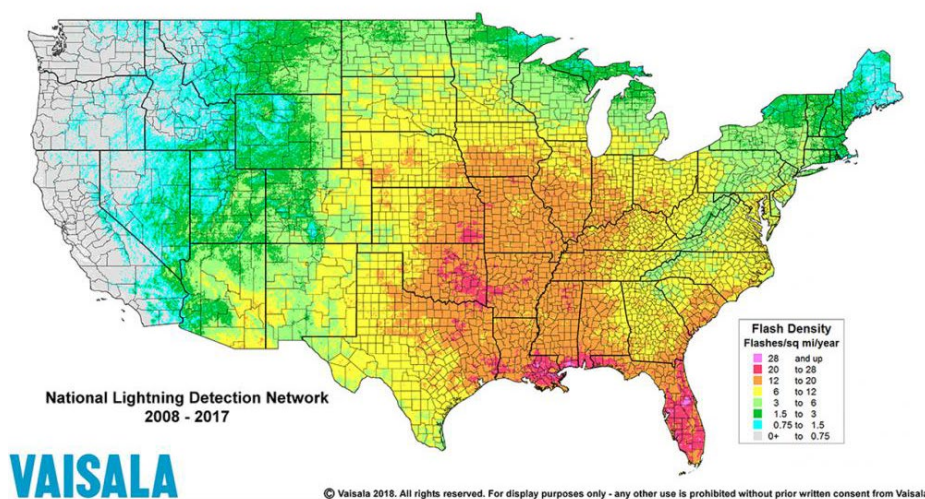
Natural Hazard: Severe Thunderstorm



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

Natural Hazard: Severe Thunderstorm

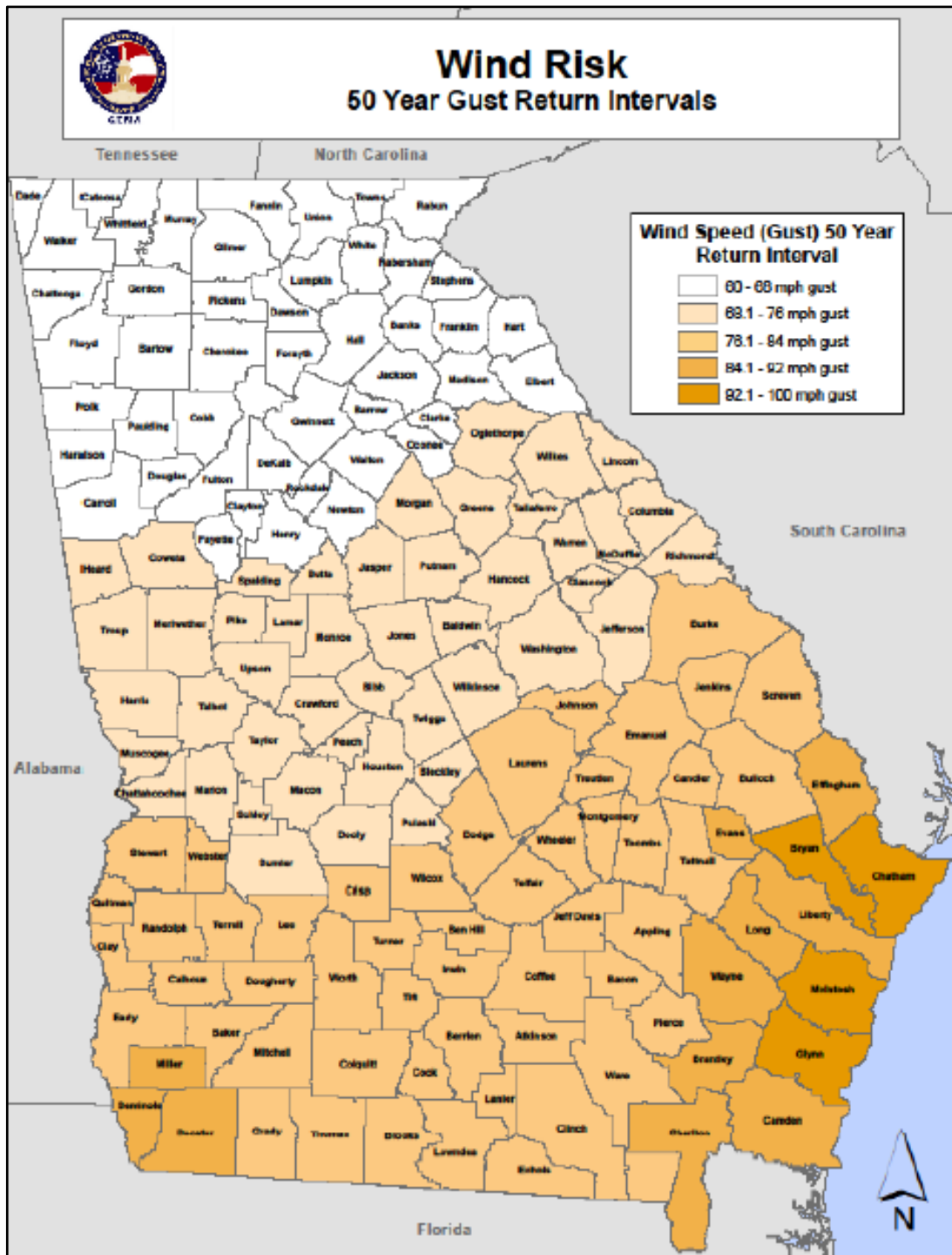
As indicated by the below graphics, Hall County averages between 6 and 12 flashes of cloud to ground lightning per square mile per year. That equals a 1.7% to 3.3% chance of a cloud-to-ground lightning strike on any given day. This shows a much higher indication of lightning occurrences than has been reported to the National Weather Service and the National Climatic Data Center. It is the determination of the Hall 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 Hall County.



Severe thunderstorm winds, which are defined as winds of at least 58 mph in conjunction with a convective event, have occurred with many thunderstorms that have affected Hall 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 Hall County. The Hazard Wind Score maps use the following scale:

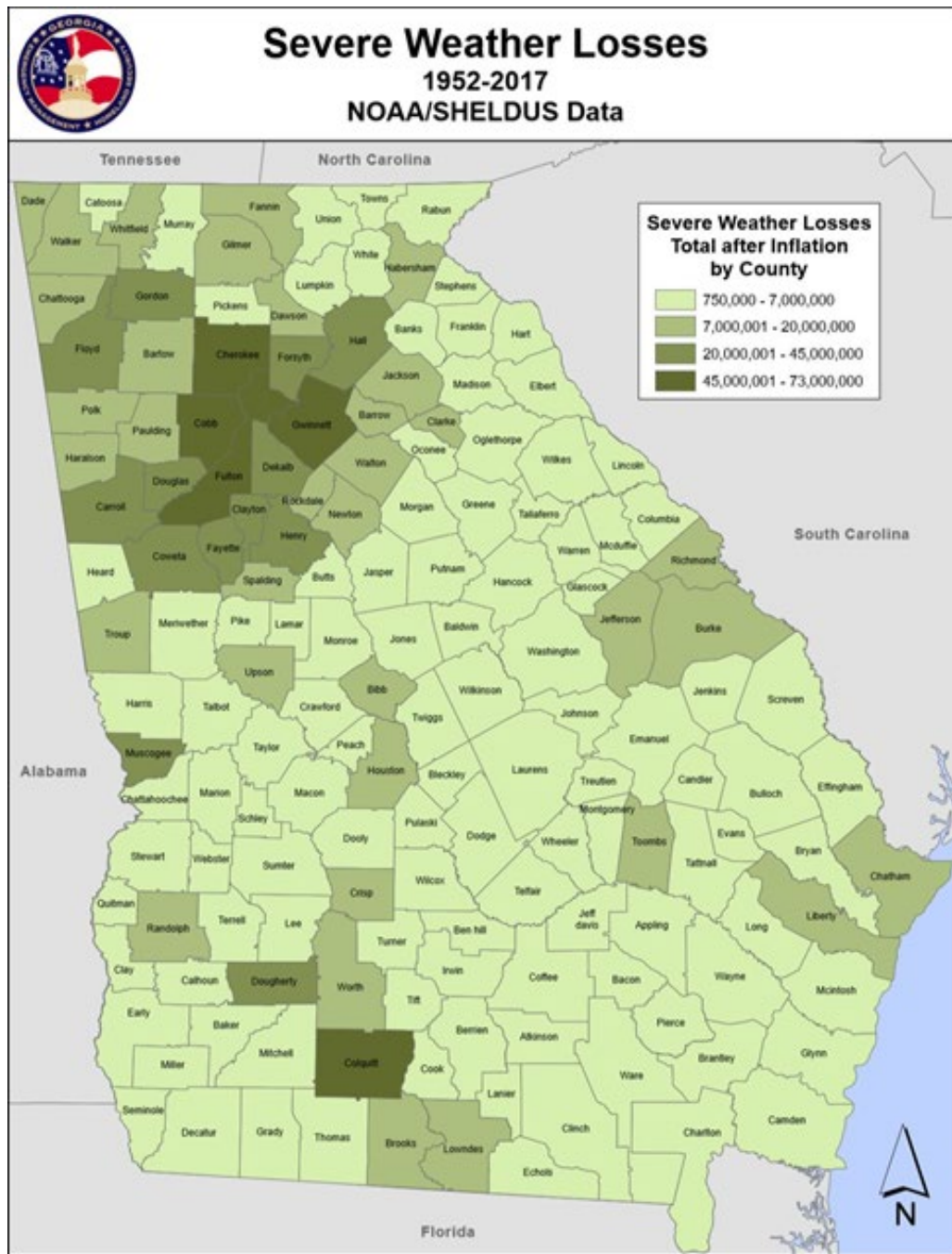
Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust

Natural Hazard: Severe Thunderstorm



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

Natural Hazard: Severe Thunderstorm



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

Natural Hazard: **Severe Thunderstorm**

<i>Municipality</i>	<i># of Thunderstorms</i>	<i>Annual Risk</i>
BRASELTON*	11	44%
BUFORD**	31	100%
CLERMONT	13	52%
FLOWERY BRANCH	32	100%
GAINESVILLE	54	100%
GILLSVILLE	3	12%
LULA	12	48%
OAKWOOD	12	48%

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

** Utilizing Jackson County data*

*** Utilizing Gwinnett County data*

Assets Exposed to the Hazard

In evaluating assets that are susceptible to severe thunderstorms, the Hall 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 \$17.4 million, or \$348,180 annually. However, all estimated damages reported have occurred over the last 27 years. When extrapolated over 27 years, the annual average nearly doubles to \$644,708. These numbers are thought to be a gross underestimation of actual past damages.

Land Use & Development Trends

Hall County currently has no land use trends related to Thunderstorms beyond continued population growth – particularly around the City of Gainesville, in areas near the Gwinnett County line, and around Lake Lanier.

Multi-Jurisdictional Considerations

Thunderstorm events have occurred across all areas of Hall 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 Hall County.

Natural Hazard: Severe Thunderstorm

Hazard Summary

Thunderstorm events pose one of the greatest threats of property damage, injuries, and loss of life in Hall County. Thunderstorm events are the most frequently occurring weather event that threatens Hall County. As a result, the Hall 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 Hall County.

Thunderstorm Events Since 2017 in Hall County

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	2.621M	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	07/05/2017	16:45	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
(GVL)GAINESVILLE MEM	HALL CO.	GA	07/06/2017	13:24	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/28/2018	21:10	Thunderstorm Wind	40 kts. EG	0	0	1.00K	0.00K
OAKWOOD	HALL CO.	GA	06/01/2018	15:10	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	06/01/2018	15:25	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/10/2018	18:12	Thunderstorm Wind	60 kts. EG	0	0	30.00K	0.00K
CANDLER	HALL CO.	GA	06/11/2018	13:08	Lightning		0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/11/2018	14:30	Lightning		0	0	2.00K	0.00K
LULA	HALL CO.	GA	06/25/2018	16:15	Thunderstorm Wind	45 kts. EG	0	0	2.00K	0.00K
NEW HOLLAND	HALL CO.	GA	07/21/2018	04:45	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
LAKE SIDNEY LANIER	HALL CO.	GA	08/12/2018	13:45	Thunderstorm Wind	60 kts. EG	0	0	50.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	03/01/2019	16:04	Thunderstorm Wind	60 kts. EG	0	0	25.00K	0.00K
NEW HOLLAND	HALL CO.	GA	04/14/2019	12:35	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
YONAH	HALL CO.	GA	04/19/2019	04:54	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/22/2019	00:40	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	08/14/2019	15:00	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
NEW HOLLAND	HALL CO.	GA	10/31/2019	12:27	Thunderstorm Wind	45 kts. EG	0	0	50.00K	0.00K
BLACKSHEAR PLACE	HALL CO.	GA	01/11/2020	05:50	Thunderstorm Wind	55 kts. EG	0	0	300.00K	0.00K

BROOKTON	HALL CO.	GA	04/13/2020	01:30	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/05/2020	17:56	Hail	1.00 in.	0	0	0.00K	0.00K
CHESTNUT MOUNTAIN	HALL CO.	GA	05/22/2020	12:22	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/22/2020	18:05	Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
CANDLER	HALL CO.	GA	07/27/2020	17:45	Lightning		0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	08/03/2020	13:30	Thunderstorm Wind	62 kts. EG	0	0	200.00K	0.00K
MURRAYVILLE	HALL CO.	GA	04/24/2021	18:25	Hail	1.75 in.	0	0	1.800M	0.00K
CLERMONT	HALL CO.	GA	04/24/2021	18:42	Hail	1.00 in.	0	0	0.00K	0.00K
BELLTON	HALL CO.	GA	05/04/2021	12:53	Thunderstorm Wind	55 kts. EG	0	0	15.00K	0.00K

Natural Hazard: Winter Storm*Hazard Description*

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

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

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

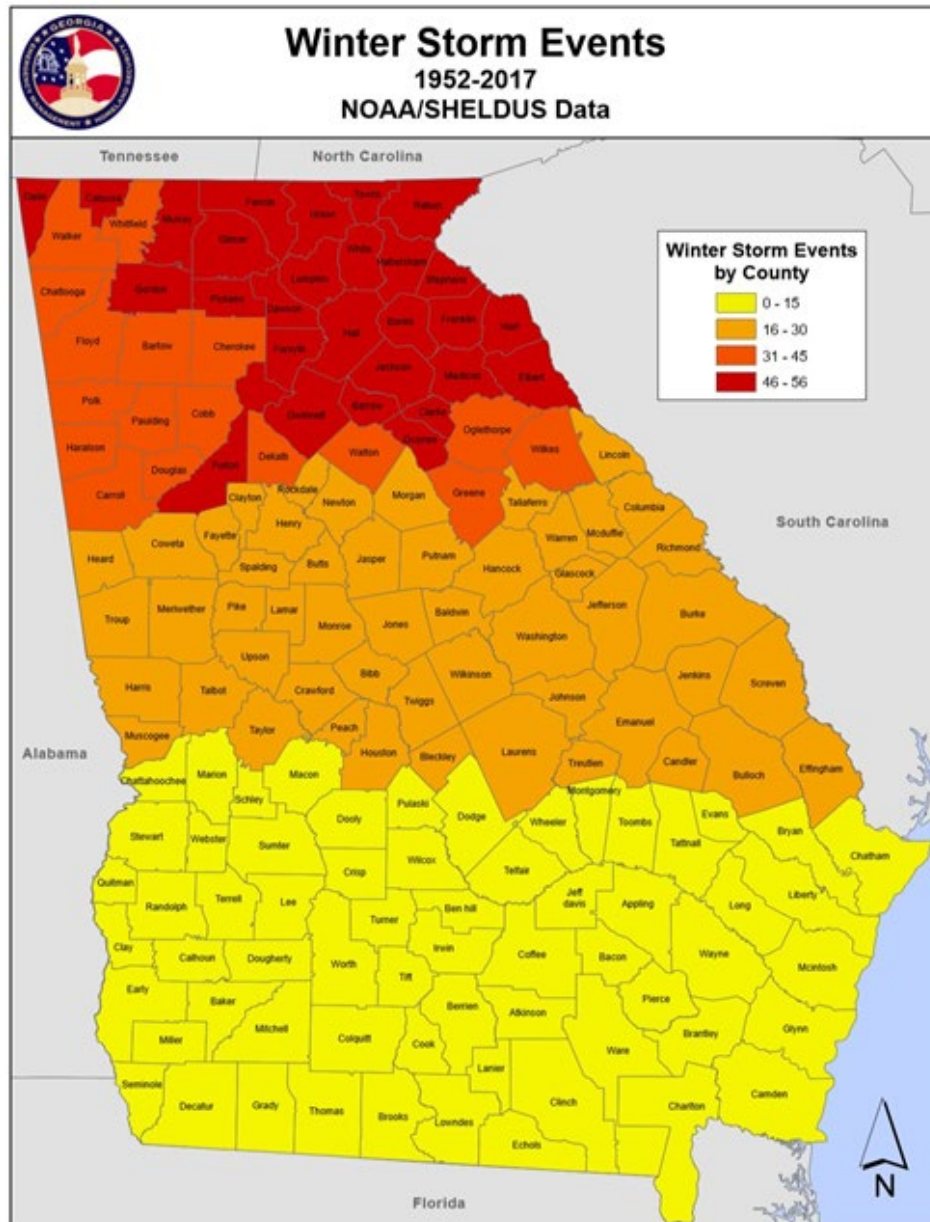
Severe winter weather exhibits seasonal qualities in that most occur within the months of January to March, with the highest probability of occurrence in February. The rate of onset and duration varies from storm to storm, depending on the weather system driving the storm. Severe winter weather rarely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

Hazard Profile

While winter storms are not as frequent of an occurrence in Hall 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 Hall County typically cause drastic damage to infrastructure, such as roads, power lines, and bridges.

Natural Hazard: Winter Storm

They also can cause damage to private property, businesses, and trees throughout the county. Due to the county's elevation changes, some highways have steep grades that can become dangerous during icy conditions. The large number of trees in Hall 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.

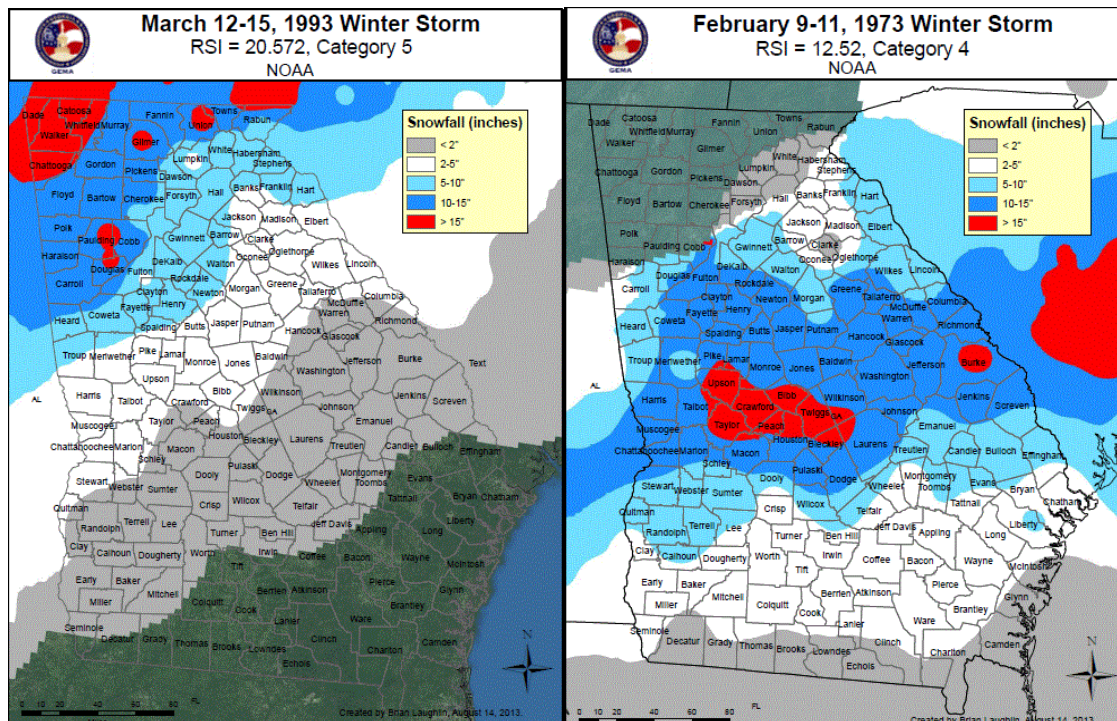


Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: Winter Storm

During the past twenty-five years, documentation exists for 47 winter storm events in Hall County. No consolidated data can be located prior to this timeframe. On average, Hall County has averaged 1.88 winter storms a year. 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 Hall 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, $\frac{1}{4}$ 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 10 inches of snow was reported in some areas of Hall County. All areas received at least 5 inches of snow.

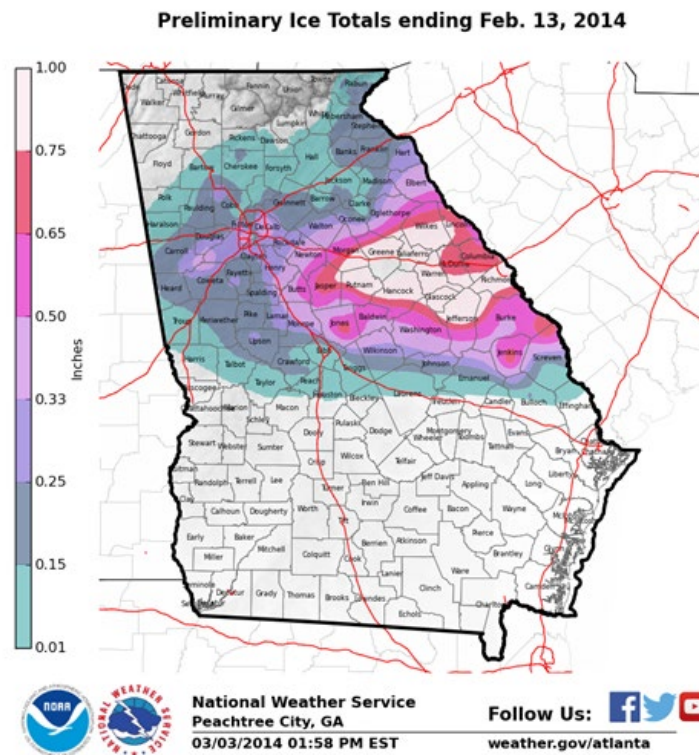


Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Ice events are another type of winter storm that has impacted Hall County in the past. These types of winter storms can be particularly crippling due to the increased threat of tree falls related to the weight of accumulated ice and subsequent

Natural Hazard: Winter Storm

utility infrastructure failure. The 2014 Ice Storm produced significant ice accumulations over much of North Central Georgia, including Hall County. While areas farther east, such as Augusta, saw the greatest impacts, Hall County had ice accumulations between 0.01 and 0.15 inches. This storm led to widespread power outages with some residents without power for over two days.



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

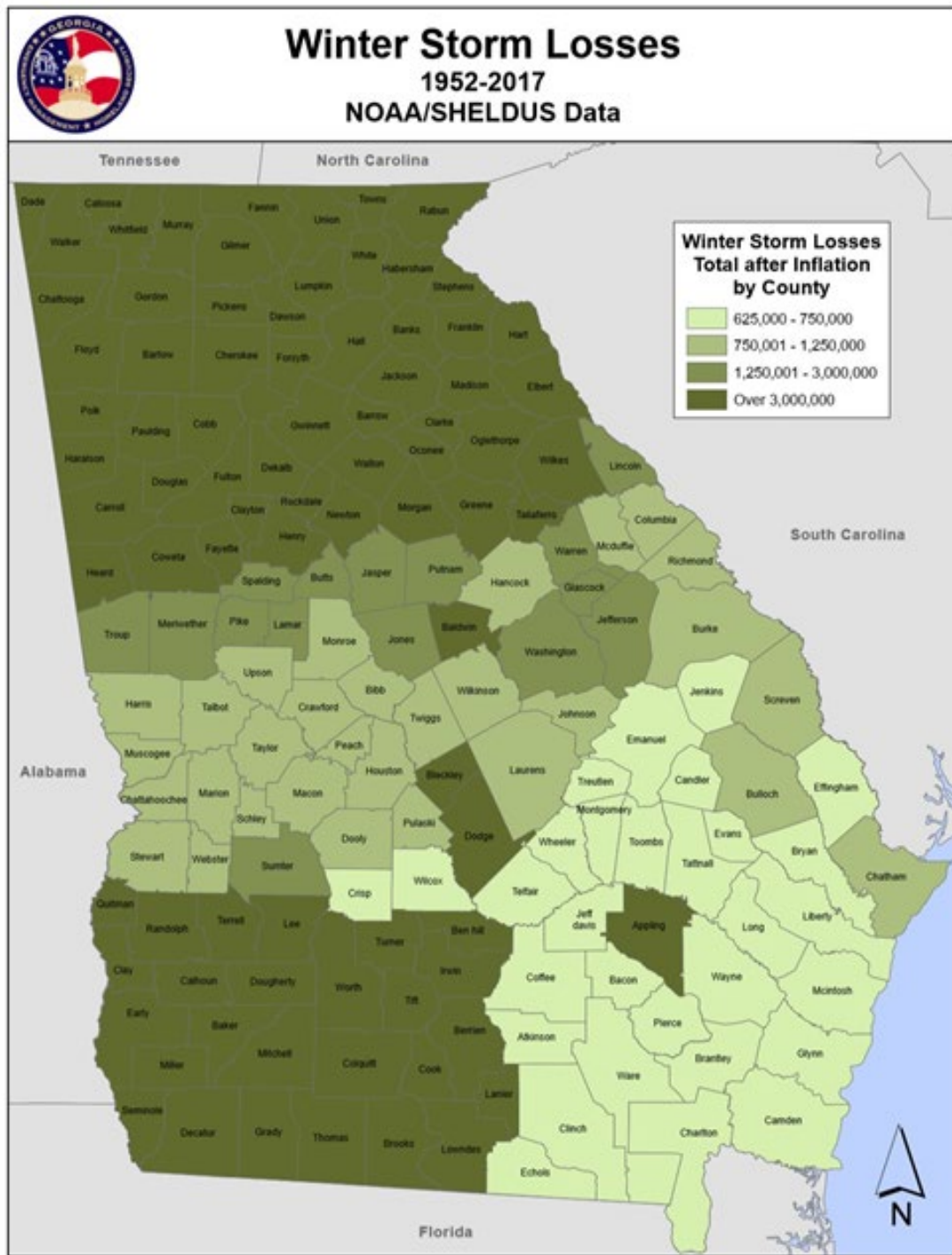
Assets Exposed to the Hazard

Since winter storms are indiscriminate regarding location, the Hall 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 \$1.5 million in losses. Extrapolated over 50 years, this averages out to \$30,420 per year. However, all the documented winter storms with loss information have occurred over the last 24 years. As such, the average loss per year for the last 24 years is \$63,375 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 Hall County.

Natural Hazard: Winter Storm



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

Natural Hazard: Winter Storm

Land Use & Development Trends

Hall County currently has no land use trends related to Winter Storms beyond continued population growth – particularly around the City of Gainesville, in areas near the Gwinnett County line, and around Lake Lanier.

Multi-Jurisdictional Considerations

All portions of Hall 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 Hall County HMPC recognizes the potential threats winter storms could have on the community and have identified specific mitigation actions as a result.

Winter Storm Events since 2017 in Hall County

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/08/2017	16:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/16/2018	18:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/04/2018	04:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/08/2020	09:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/06/2021	16:00	EST-5	Winter Storm		0	0	0.00K	0.00K

Natural Hazard: Flooding

Requirement §201.6(c)(2)(ii)

Requirement §201.6(c)(3)(ii)

Hazard Description

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

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

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

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

Hazard Profile

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

One significant flooding event that affected Hall County occurred in 2013. This event caused over \$1 million in reported damages according to the National Climatic Data

Natural Hazard: Flooding

Center. Trudy Drive was completely washed out for 50-75 feet by a drainage branch that flows into Lake Lanier. Several other roads were closed and/or damaged by flood waters, including Atlanta Highway, McEver Road, Stephens Road, Flowery Way, Spring Street, and Cove Creek Road. The Flowery Branch area was the most impacted area from this event.

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. There are 16 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 3.1 years in Hall County. This relates to a 32% chance of a flood event occurring in a given year. However, all identified flood events have occurred over the last 24 years. When extrapolated over 24 years, Hall County has averaged a flood every 1.5 and has a 66.7% annual chance of a flood event occurring.

<i>Municipality</i>	<i># of Flood Events</i>	<i>Annual Risk</i>
<i>BRASELTON*</i>	0	0%
<i>BUFORD**</i>	1	4%
<i>FLOWERY BRANCH</i>	6	24%
<i>GAINESVILLE</i>	5	20%
<i>GILLSVILLE</i>	3	12%
<i>LULA</i>	3	12%
<i>OAKWOOD</i>	2	8%
<i>CLERMONT</i>	3	12%
<i>UNINCORPORATED/ COUNTYWIDE</i>	7	28%

The above information is for the last 25 years

** Utilized data from Barrow and Jackson Counties*

***Utilized data from Gwinnett County*

Flood events within Hall County are typically associated with areas of special flood hazard as identified on the Flood Insurance Rate 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 Hall County's history appears to be related to roads and culverts washing out because of flood waters. All flooding hazard data included for Hall County is limited to countywide data and is not broken down by jurisdiction.

Natural Hazard: Flooding

There are no active flood gages in Hall County.

The City of Gainesville has several areas that could see direct flood impacts during a 100-year flood event. Most of these areas are near waterways that flow into Lake Lanier. Homes and businesses on Norton Road, Kenwood Drive, Pearl Nix Parkway (near Dorsey Street), Davis Street, Industrial Blvd, Atlanta Highway, (near McConnell Drive), Highland Terrace, Allied Drive, and Hilton could see up to 6 inches of water in a 100-year flood event. The most devastating effect of a 100-year flood event on Gainesville would be the potential for the city to be cut off from areas to the West due to rising waters on and around Lake Lanier.

For the Hall County portions of the City of Braselton, most flooding is limited to periphery areas of the jurisdiction near Sherwood Creek. Four homes on Democracy Drive could see up to four inches of water during a 100-year (1% annual risk) flood event. Four homes on Mayors Way could be inundated with up to 18 inches of water in a 100-year (1% annual risk) flood event. Mulberry Creek could also impact homes in Braselton during a 100-year (1% annual risk) flood event. This includes approximately 30 homes in the area of Stonebridge Cover, Brookshire Court, and Lexington Way. These homes could be inundated with up to 2 feet of water with Stonebridge Cover the most at risk.

For the Hall County portions of the City of Buford, little direct impact is expected from a 100-year (1% annual risk) flood event. No homes or businesses in this area are in the flood plain. The most impacted area would be subdivisions off of Frazer Road, which could be cut off by Big Creek blocking Frazer Road near Gainesville Highway.

In the City of Flowery Branch, several areas could see direct impacts from a 100-year (1% annual risk) flood event. One of the most impacted areas would be a mobile home park on Lights Ferry Road. This mobile home park could see approximate 15 homes inundated with flood waters originating from overflow areas of Lake Lanier. These homes could be inundated with up to 1 foot of water. This area is also at significantly higher risk of impact due to larger portion of vulnerable populations living in this area. Other areas of Flowery Branch that could see impacts include homes on Mulberry Street and East Main Street, which could see homes inundated with up to 18 inches of water from the city's namesake – Flowery Branch.

In the City of Gillsville, little to no direct impacts from flooding are expected beyond the potential flooding of low-lying areas in a flash flood event. Candler Creek, however, would cut the City of Gillsville off from the rest of Hall County at Highway 52 near the Highway 323 intersection.

The City of Lula also does not anticipate any direct impacts from a flooding event beyond the potential flooding of low-lying areas in a flash flood event.

Natural Hazard: Flooding

The Town of Clermont would also likely see no direct impacts from a flooding event beyond the potential flooding of low-lying areas. However, it would likely be cut off from the City of Gainesville by the flooding of Georgia Highway 11/US Highway 129 at the East Fork of the Little River near Green Circle.

The City of Oakwood could potentially see the flooding of homes and businesses on Oakwood Road, Old Flowery Branch Road, and Creekside Place from Balus Creek and its tributaries. Apartments on Balus Creek Road could be inundated by up to 4 inches of water in a 100-year (1% annual risk) flood event. Balus Creek also poses a threat to several buildings on Facilities Drive at Gainesville Campus of the University of North Georgia. Buildings on Facilities Drive could be inundated by up to 18 inches of water in a 100-year (1% annual risk) flood event.

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 Hall County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. There are approximately 569 buildings identified in the flood plain.

Estimated Potential Losses

The flooding events in Hall County over the last 50 years have led to over \$185,000 in damages. Extrapolated over 50 years, this results in an annual average of \$3,750 per year. However, all reported damages have occurred in the last 20 years. As a result, the average over the last 20 years is \$9,263 annually. These estimations are believed to be a gross underestimation of both prior and potential damages from flood events. Based upon the estimations from the Worksheet 3As located in Appendix E, a flood equivalent to the 1% riverine flood levels could result in estimated losses of more than \$34 million (569 buildings). 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.

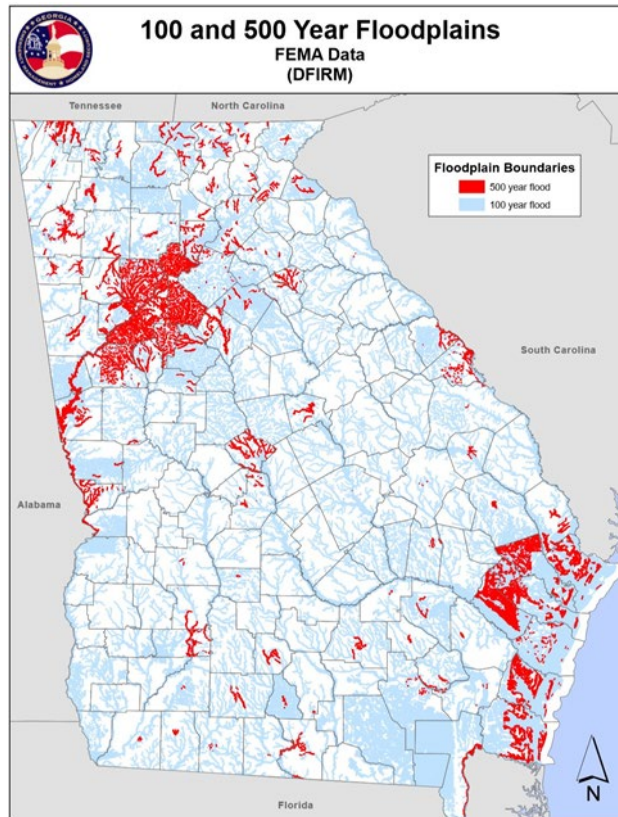
Land Use & Development Trends

Hall 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. 130466) first entered the NFIP on January 31, 1984. 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

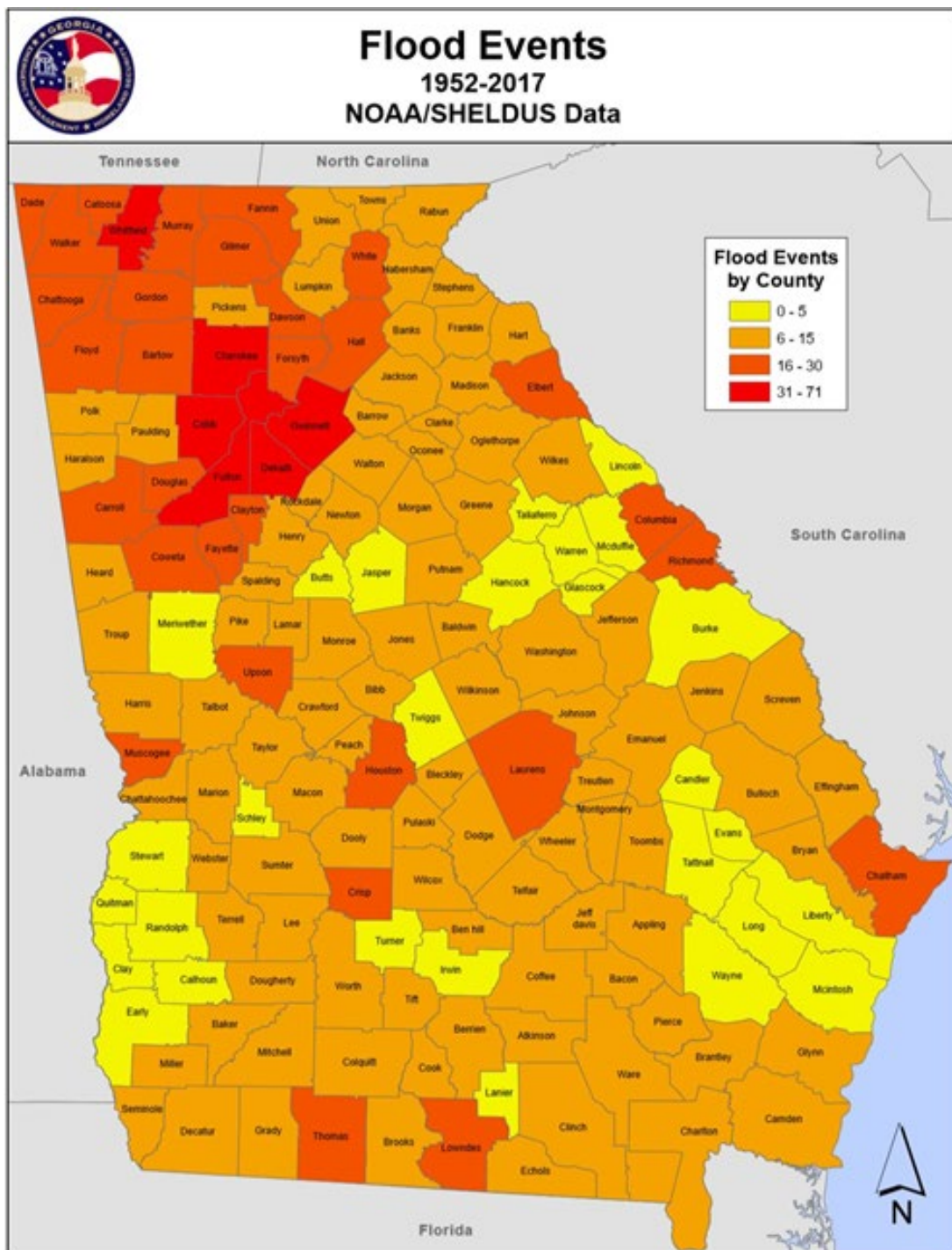
Natural Hazard: Flooding

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 Hall County municipalities of Braselton (CID No. 130343), Buford (130323), Clermont (130332), Flowery Branch (130333), Gainesville (130263), Lula (130562), and Oakwood (130334) also participate in NFIP through the application of appropriate NFIP-compliant ordinances and regulations. The City of Gillsville (130561) currently does not participate in NFIP, but is in the process of researching NFIP requirements in order to gain compliance in the future. There are no structures located within the floodplain in Gillsville. Since all floodplain areas in Gillsville are along Candler Creek and are agricultural fields and timberland, previous Gillsville government administrators have not adopted NFIP related ordinances.

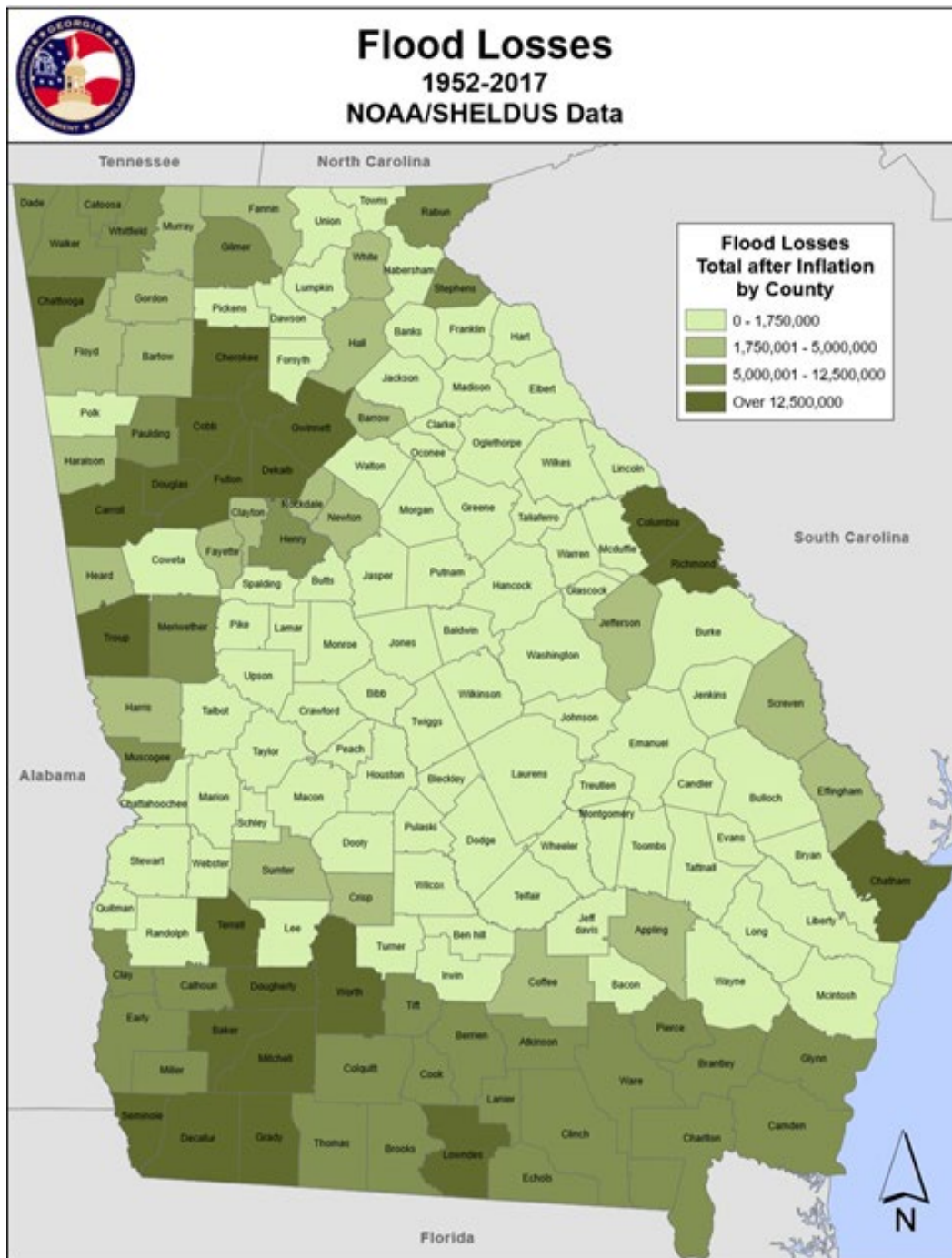
There are three repetitive loss residential properties identified in Hall County. One of these properties is located in the City of Gainesville and has a reported loss total of \$3,651. Two of the repetitive loss residential properties are in unincorporated Hall County and have a reported loss total of \$36,779.



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

Natural Hazard: **Flooding**

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

Natural Hazard: **Flooding**

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

Natural Hazard: **Flooding**

Multi-Jurisdictional Considerations

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

Hazard Summary

Flooding has the potential to inflict significant damage within Hall County, particularly those areas near Lake Lanier 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 Hall County HMPC identified flooding as a hazard requiring mitigation measures and identified specific goals, objectives, and action items they deemed necessary to lessen the impact of flooding for their communities.

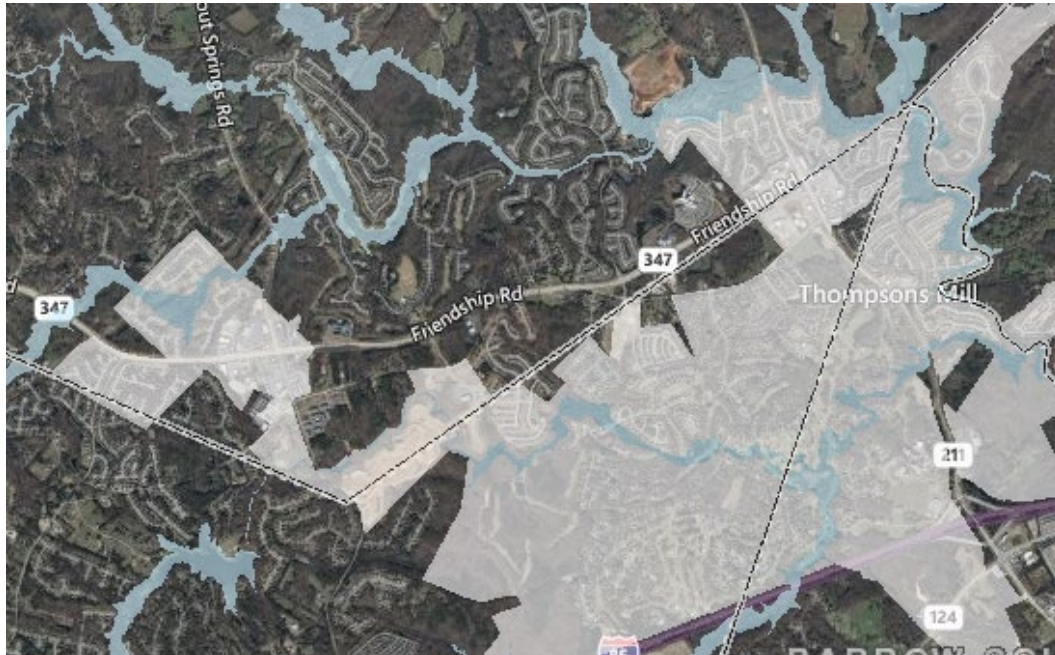
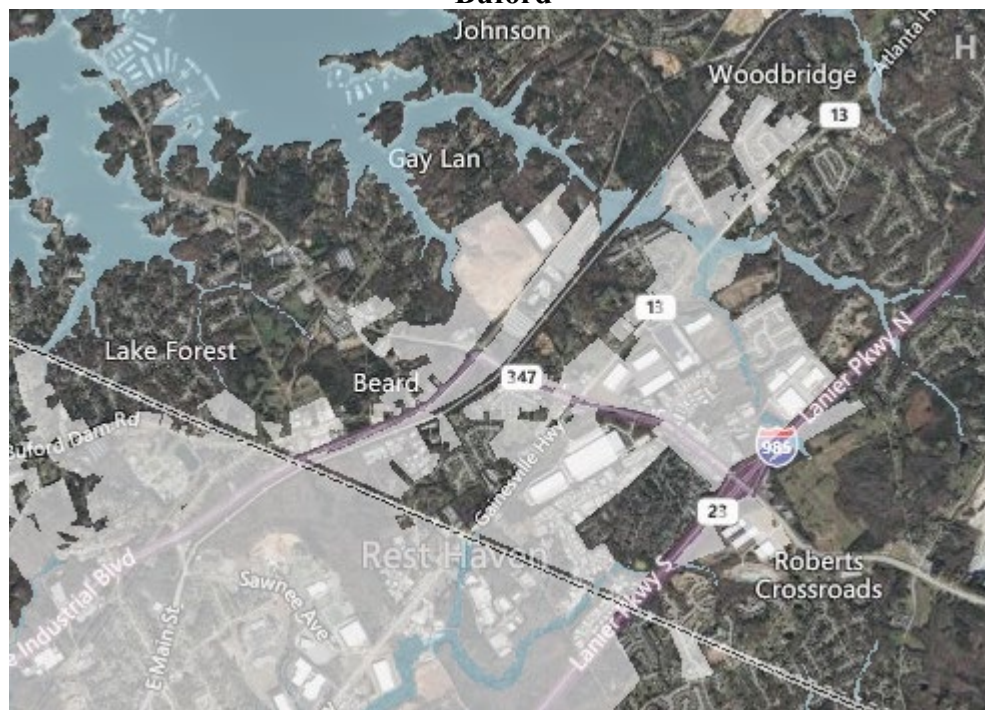
Flood Events in Hall County since 2017

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	65.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/01/2018	00:25	EST-5	Flash Flood		0	0	10.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	10/10/2020	23:10	EST-5	Flash Flood		0	0	10.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:15	EST-5	Flash Flood		0	0	15.00K	0.00K
LULA	HALL CO.	GA	10/10/2020	23:15	EST-5	Flash Flood		0	0	10.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	0.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	0.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	10.00K	0.00K
GILLSVILLE	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	10.00K	0.00K

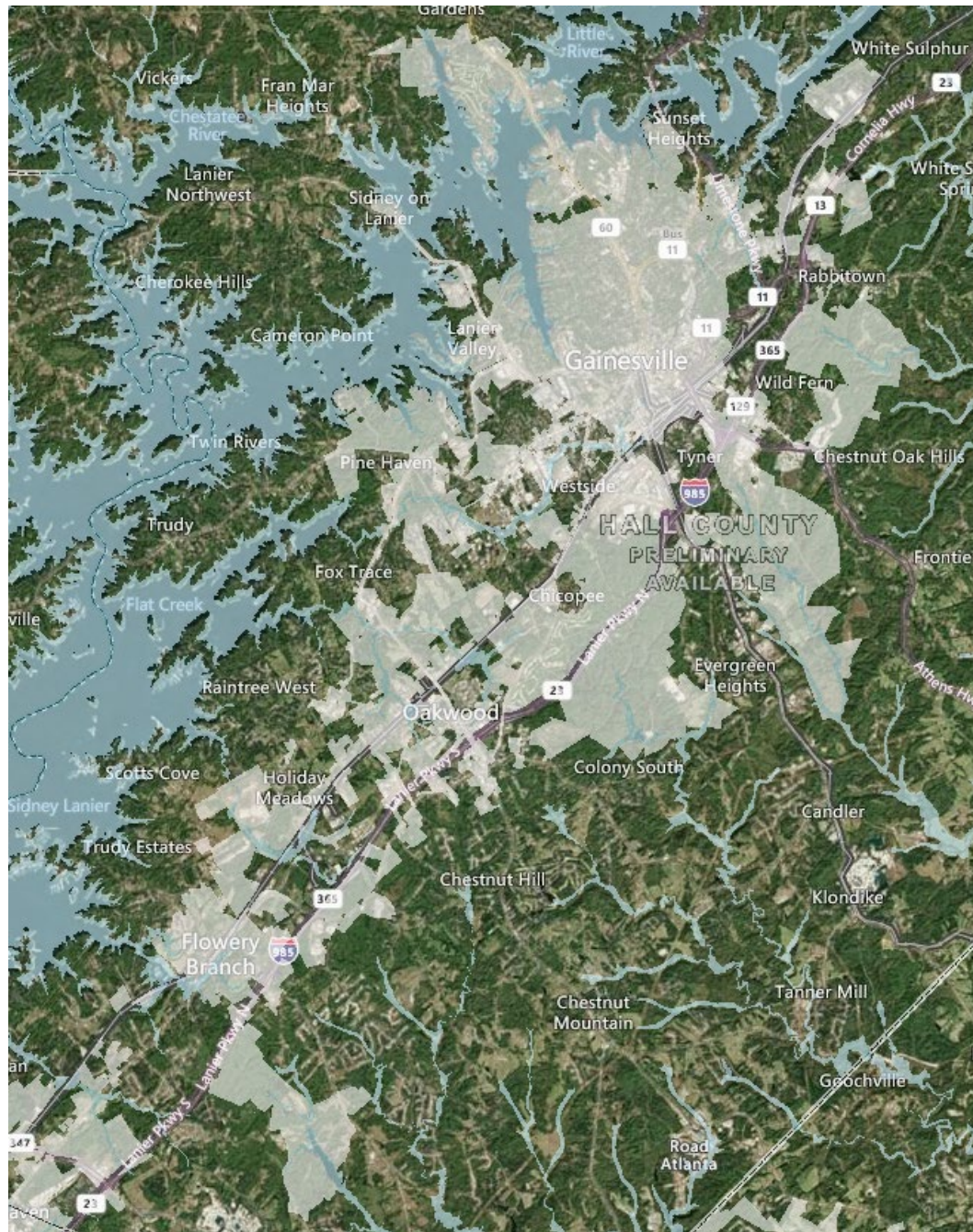
Natural Hazard: **Flooding**

Hall County



Natural Hazard: **Flooding****Braselton****Buford**

Natural Hazard: Flooding**Clermont****Gillsville**

Natural Hazard: Flooding**Flowery Branch, Gainesville, and Oakwood**

Natural Hazard: Flooding**Lula**

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

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

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

Hazard Profile

All areas within Hall County are vulnerable to the threat of a tornado. Due to the indiscriminate and unpredictable nature of tornadoes, there is no reliable method to determine where or when a tornado will strike. There have been 18 documented tornadoes in the last 50 years in Hall County.

Natural Hazard: **Tornado**

Based on the 50-year information available for Hall County, a tornado occurs every 2.8 years. On an annual basis, Hall County has a 36% chance of being impacted from a tornado event. When only the last twenty years are considered, the likelihood of a tornado affecting Hall County decreases to 25% (5 tornadoes since 2001).

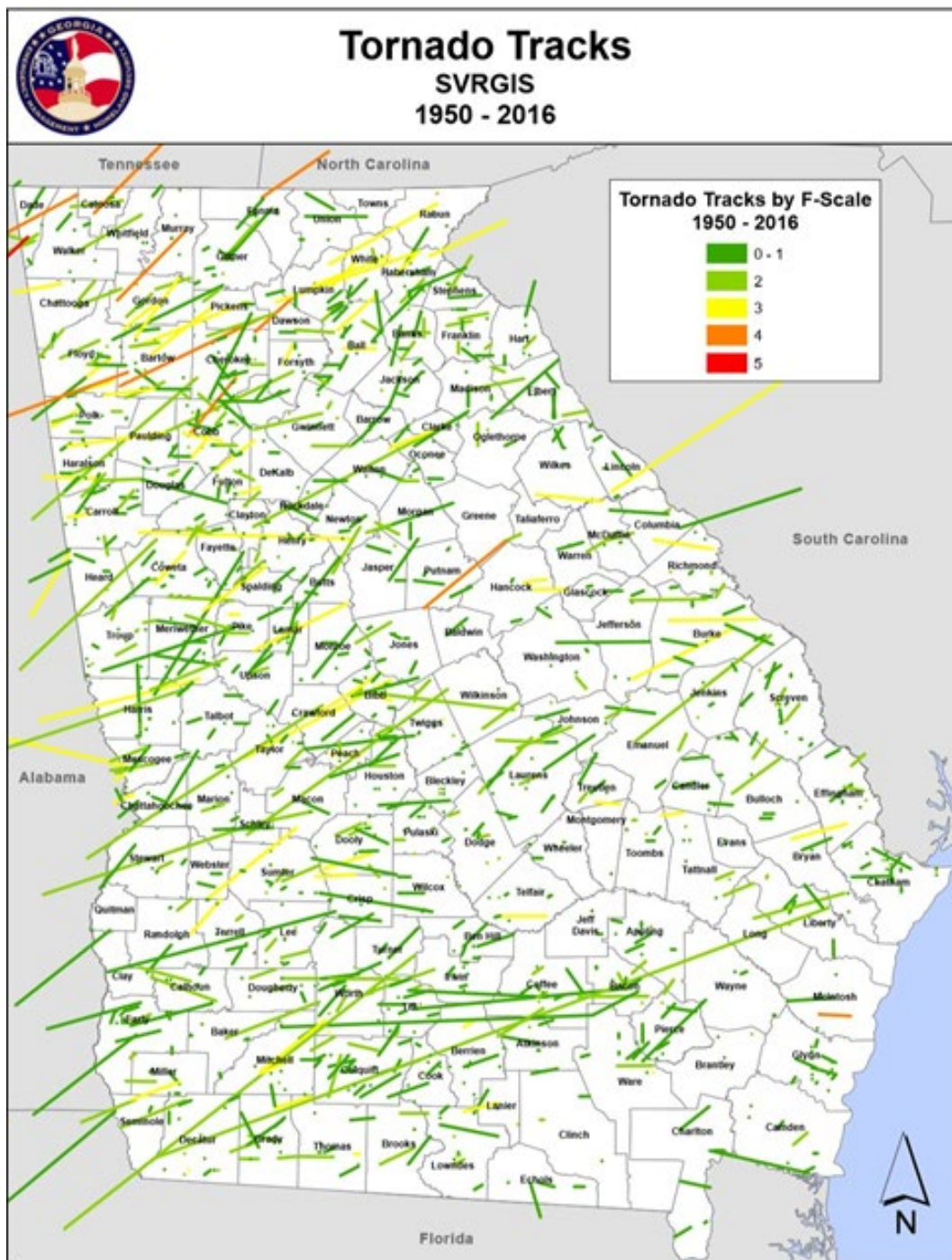
Enhanced Fujita Scale for Tornadoes

The Enhanced Fujita Scale (EF), introduced in 2007, provides estimates of tornado strength based on damage surveys. The original scale was developed by Dr. Theodore Fujita and implemented in 1971.

Wind Speed	EF Scale	Typical Damage
65-85 mph	0	Peels surface off some roofs, some damage to gutters or siding
86-110 mph	1	Roof severely stripped, mobile homes overturned or badly damaged, loss of exterior doors, windows and other glass broken
111-135 mph	2	Roofs torn off well-constructed homes; foundations of frame homes shifted; mobile homes completely destroyed
136-165 mph	3	Entire stories of well-constructed homes destroyed; severe damage to large buildings such as shopping malls
166-200 mph	4	Well-constructed houses and whole-frame homes completely leveled
200+ mph	5	Strong frame houses leveled off foundations and swept away; high-rise buildings have significant structural deformation

Source: International Code Council

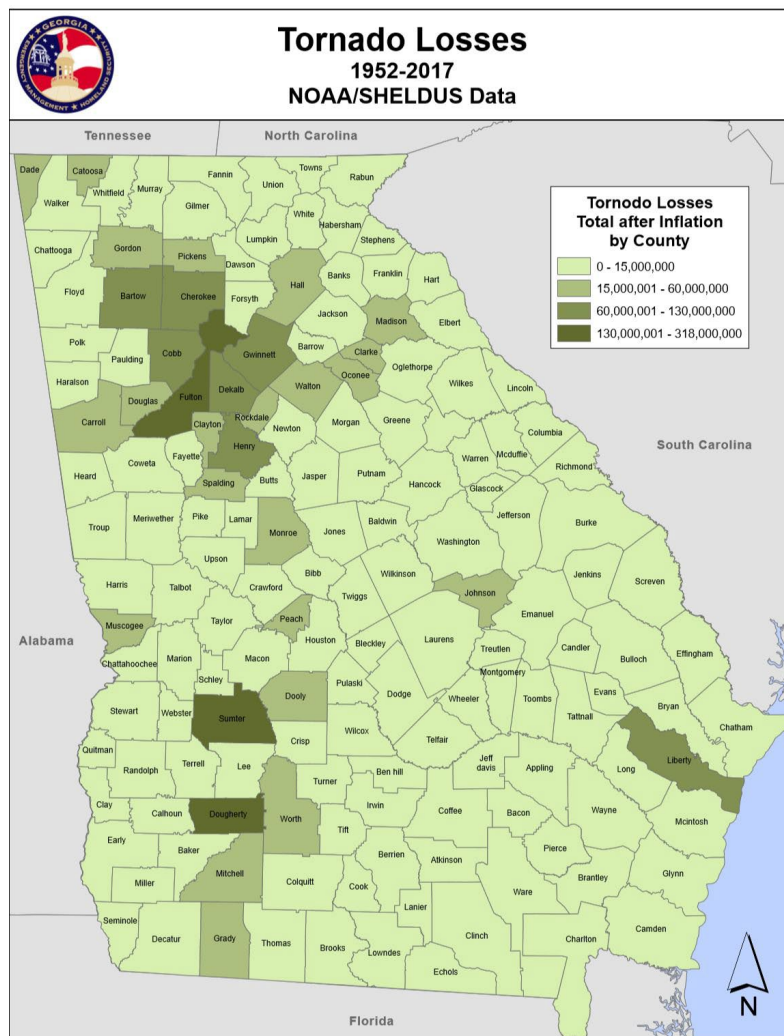
Natural Hazard: Tornado



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

Natural Hazard: Tornado

Individual tornado events can cause extreme damage to an area. This holds true for Hall County, as well. The strongest and costliest documented tornado to impact Hall County was an F3 in 1998. This devastating storm caused damage in northern Hall County and into White County which totaled over \$20 million in damages. The storm was on the ground for 9 miles in Hall County. It caused significant damage to two schools – Lanier Elementary and North Hall High School. This storm killed 10 people and injured an additional 96 people. Hall County is historically home to one of the deadliest tornadoes in US History. In 1936, a large tornado killed 203 people, injured 1,600, and destroyed over 750 homes in the City of Gainesville. For additional historical data, please see Appendix D. All tornado hazard data included for Hall County is limited to countywide data and is not broken down by jurisdiction.



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

Natural Hazard: **Tornado**

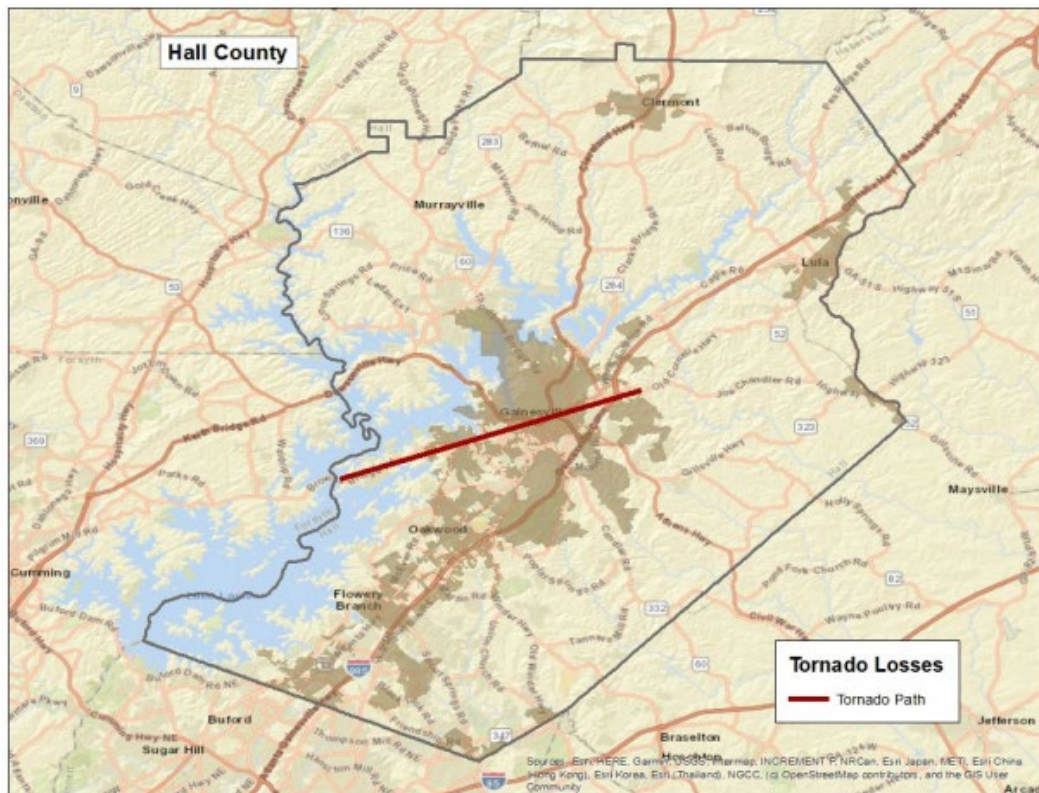
Assets Exposed to the Hazard

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

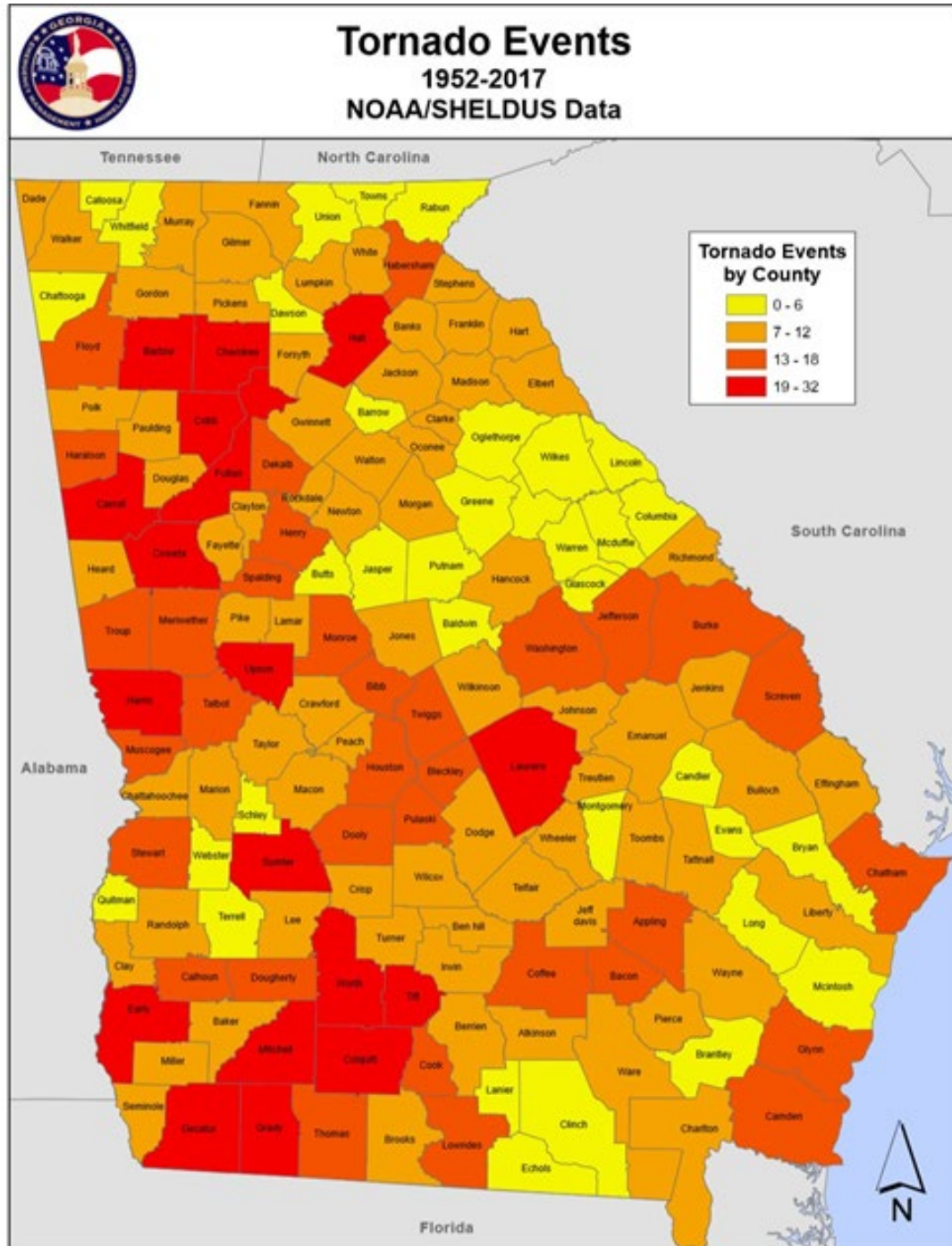
Estimated Potential Losses

Estimates of damage for the past events of the last 50 years are over \$31 million, or \$626,620 annually. However, singular events can cause a significant impact in the amount of losses – such as the \$15 million in damages in Hall County caused by the 1998 tornado. Documented damage estimates for tornado events in Hall County have varied wildly depending on what was damaged.

Within the 2022 Hall 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 2,052 buildings and result in losses more than \$161 million with the City of Gainesville suffering the greatest economic impacts.



Source: 2022 Hall County HAZUS Report

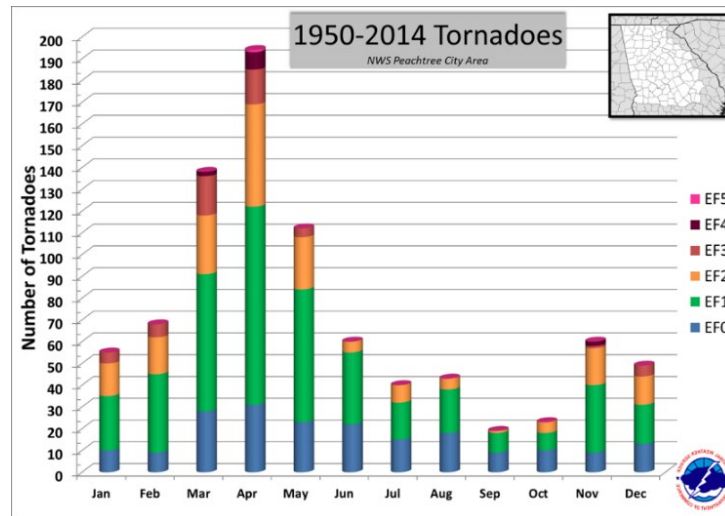
Natural Hazard: **Tornado**

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

Natural Hazard: Tornado

Land Use & Development Trends

Hall County main land use trend related to Tornadoes involves continued population growth – particularly around the City of Gainesville, areas near Gwinnett County, and areas around Lake Lanier.



Multi-Jurisdictional Considerations

All portions of Hall 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.

Hazard Summary

Hall County remains at risk to potential damage from tornadoes, especially considering the average of one tornado every 2.8 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.

Hall County Tornadoes since 2017

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
BROOKTON	HALL CO.	GA	04/19/2019	04:50	EST-5	Tornado	EF1	0	0	75.00K	0.00K
ROBERTS XRDS	HALL CO.	GA	04/13/2020	01:49	EST-5	Tornado	EF0	0	0	10.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	12/30/2021	00:03	EST-5	Tornado	EF0	0	0	0.00K	0.00K

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.

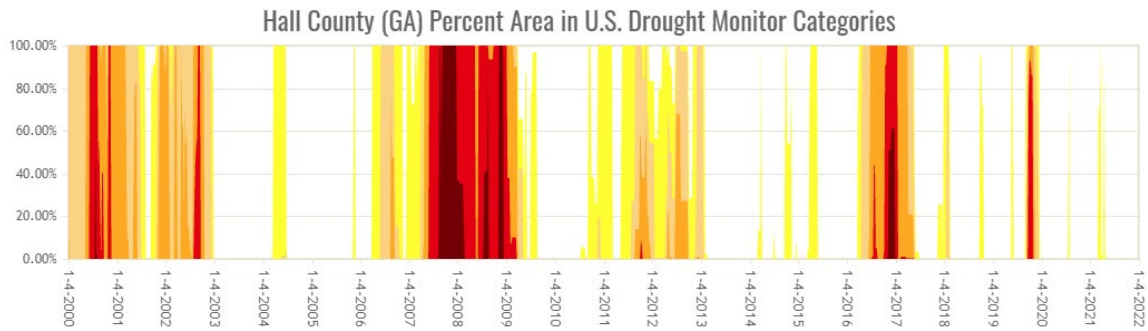
Seasonality has no general impact on droughts in terms of calendar seasons. However, “wet” and “dry” seasons obviously determine the severity of drought conditions. In other words, areas are less susceptible to drought conditions if the area is experiencing a wet season. The frequency of droughts is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

Hazard Profile

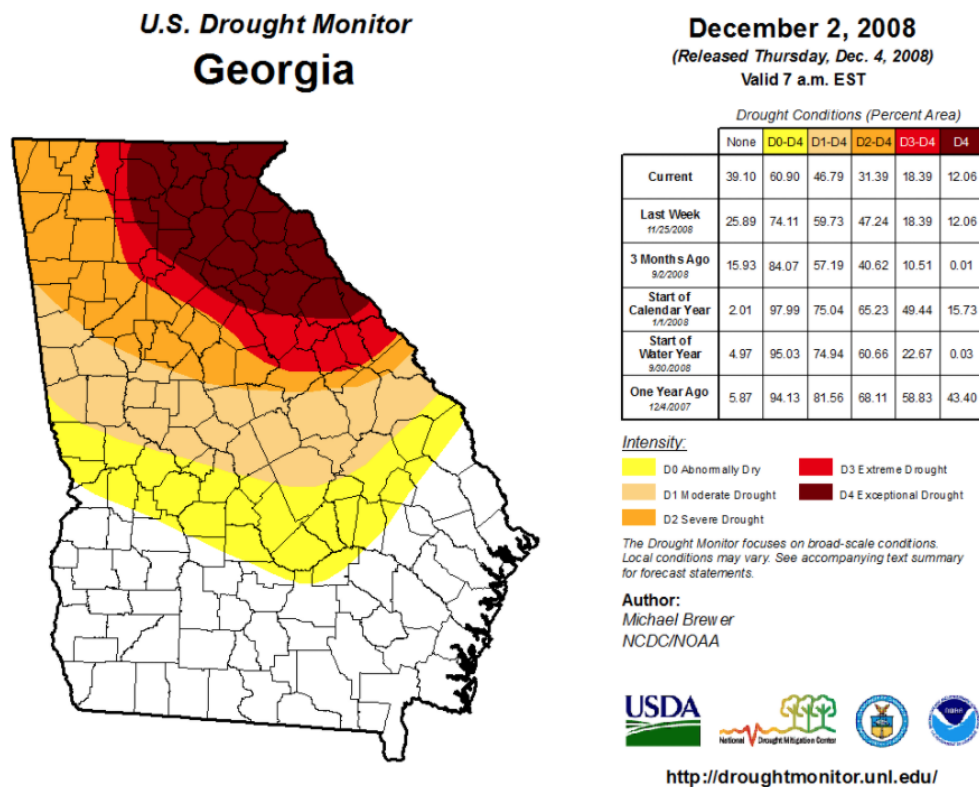
The Hall County HMPC reviewed data for the last 50 years regarding drought conditions. Historically, agricultural losses have accounted for the vast amount of losses related to drought conditions. Due to poor record keeping and the unpredictable nature of drought conditions, reliability of historical data for the last 50 years is low. Hall County has been impacted by 8 drought events in the last 20 years, according to data from the United States Drought Monitor. This amounts to a 40% 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.

Natural Hazard: Drought

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

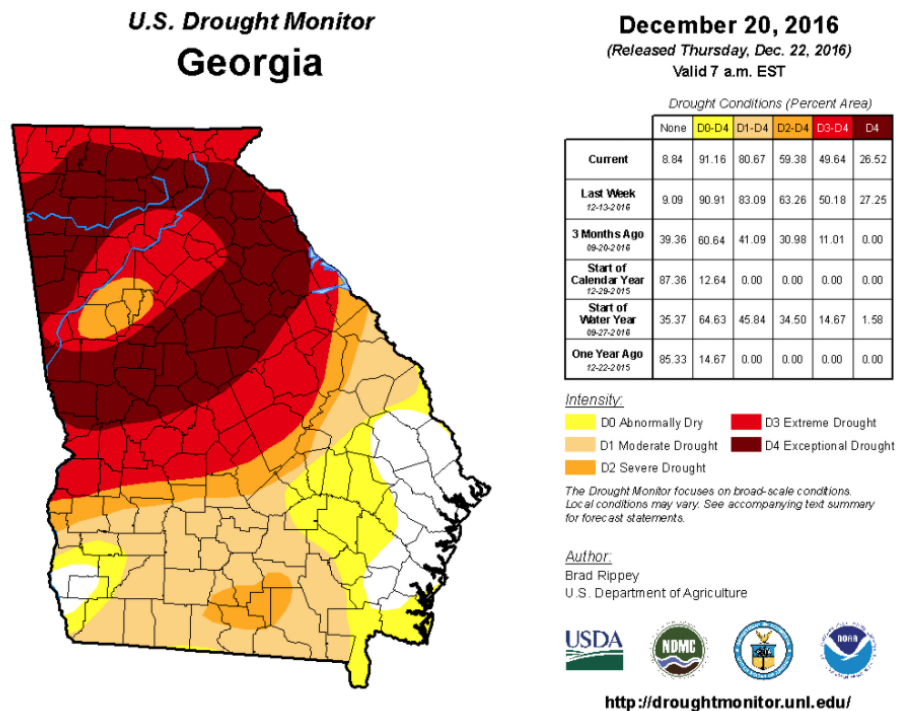


There have been two recent examples of “exceptional” drought events affecting Hall County. These events occurred in 2008 and 2016. Both events reached the D4 (Exceptional Drought) designation, according to data from the United States Drought Monitor. Below are maps of these two events.



Source: USDA Drought Monitor – University of Nebraska-Lincoln

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 Hall County, including all critical facilities. Water resources could also become scarce during a drought, a condition that would potentially affect all Hall County residences and critical facilities.

Estimated Potential Losses

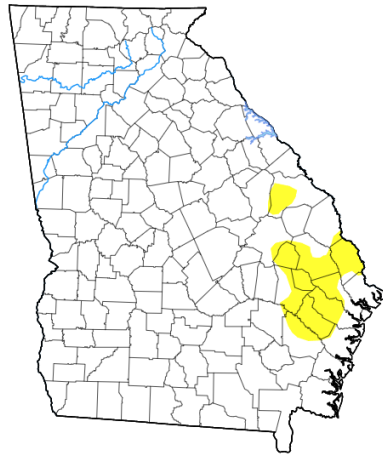
No damage to structures or critical facilities is expected as a direct result of drought conditions. However, crop damage and subsequent losses can be expected to occur because of drought conditions. The degree of losses would depend on the duration of the drought, severity of the drought, temperatures during the drought, season in which the drought occurs, and the specific needs of the involved crops. Water system shortages and need for supply assistance for those systems could also lead to economic losses associated with the drought. The 2001 drought caused \$931,310 in crop losses in Hall County.

Natural Hazard: Drought

According to the 2017 Agriculture Census data, Hall County's market value of products sold was \$128,469,000. The vast majority of these products are tied directly to the poultry industry in Hall County. Poultry and egg products account of over \$121 million – or 94.7% - of the agriculture market value of Hall County.

Georgia

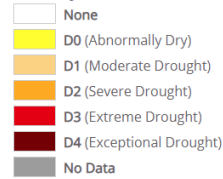
[Home](#) > Georgia



Map released: Thurs. October 21, 2021

Data valid: October 19, 2021 at 8 a.m. EDT

Intensity



Authors

United States and Puerto Rico Author(s):

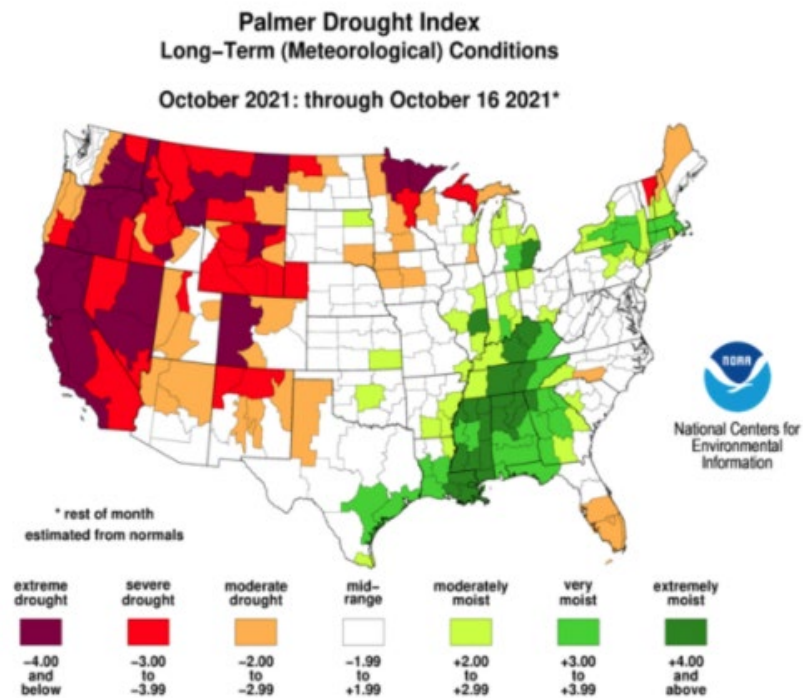
Brad Pugh, NOAA/CPC

Pacific Islands and Virgin Islands Author(s):

Richard Heim, NOAA/NCEI

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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



Source: National Center for Environmental Information

Natural Hazard: Drought*Land Use & Development Trends*

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

Multi-Jurisdictional Considerations

All portions of Hall 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 Hall 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 Hall County HMPC recognizes the potential threats drought conditions could have on the community and have identified specific mitigation actions as a result.

Natural Hazard: Wildfire*Hazard Description*

A wildfire is an uncontained fire that spreads through the environment. Wildfires can consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations could possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of nearby populations.

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

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

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

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

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

Natural Hazard: Wildfire

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 Hall 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 Hall County, which is defined as areas where structures and other human development meets undeveloped wildland properties. 93.6% of Hall County's population lives within the WUI. All wildfire hazard data included for Hall County is limited to countywide data and is not broken down by jurisdiction.

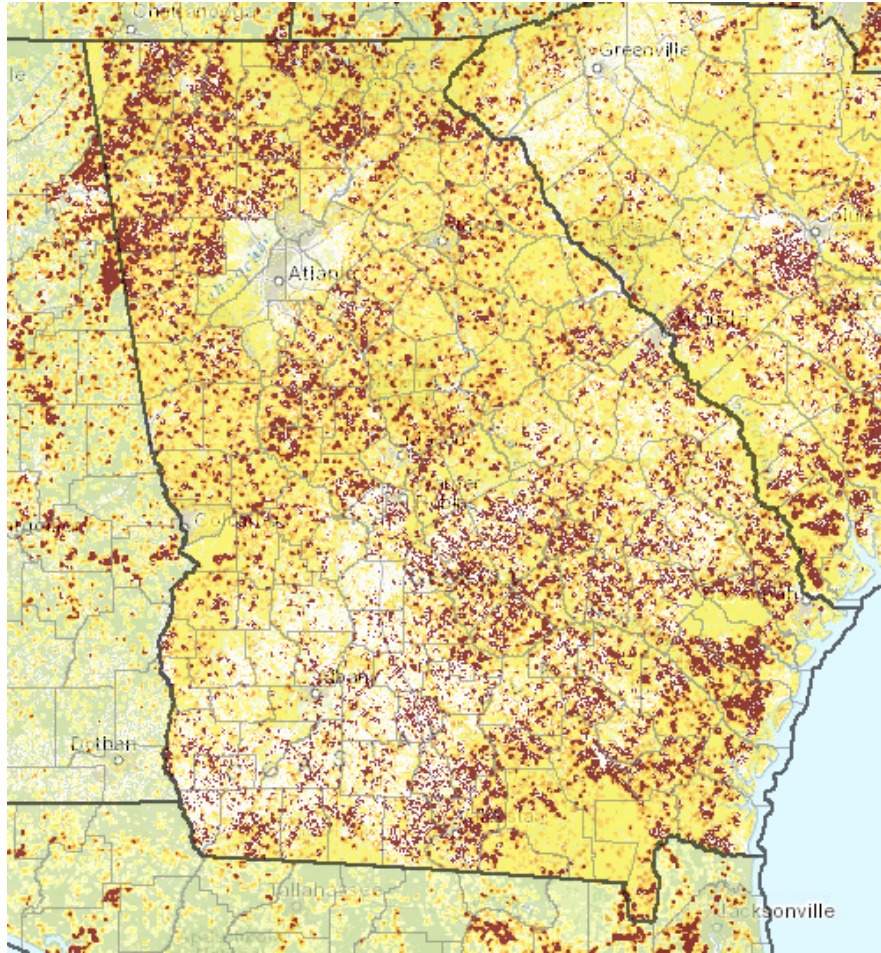
Wildfire statistics were not available for the 50-year timeframe at the time of this profile. According to the 2013 Hall County Community Wildfire Protection Plan, Hall County had 182 wildfires from 2008 to 2012 that consumed a total of 329.62 acres. This equates to an average of 36.4 wildfires per year and these fires consume an average of 65.9 acres per year. Hall County has a 5.1% daily chance of a wildfire. Historically, debris burning and lightning have been the top two reasons for wildfires in Hall County.

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 Hall 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.

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for wildfire losses in Hall County. According to the 2017 Ag Census by the USDA, Hall County has just over \$3 million in annual crop sales. These areas would potentially be impacted by a wildfire event.

Natural Hazard: **Wildfire***Georgia Wildfire Ignition Density*

Source: Southern Group of State Foresters Wildfire Risk Assessment Portal

Jurisdiction	Percentage of Population in WUI
Hall County	95.0%
Braselton	99.4%
Buford	99.4%
Flowery Branch	98.3%
Gainesville	85.7%
Gillsville	96.3%
Lula	99.7%
Oakwood	99.2%
Clermont	94.2%

Natural Hazard: Wildfire*Land Use & Development Trends*

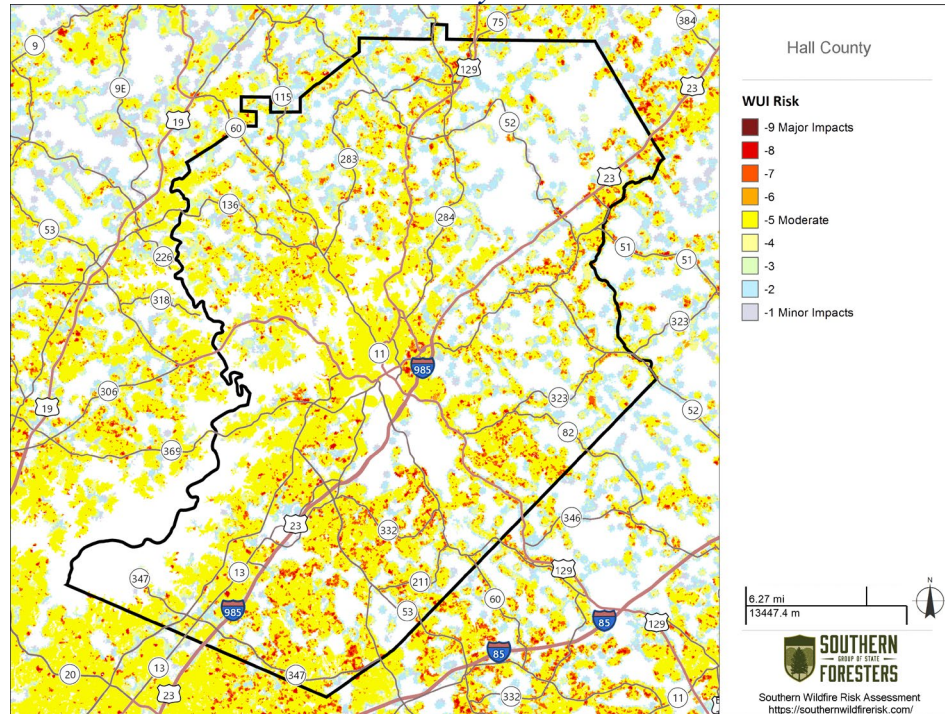
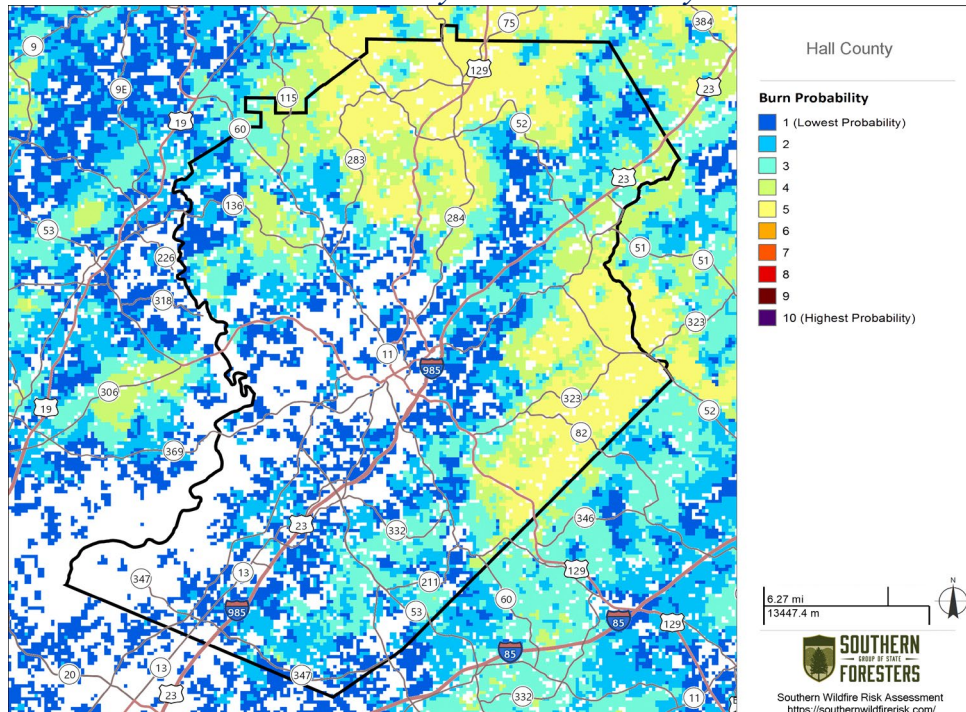
With the continued increase in population, Wildland-Urban Interface (WUI) is increasing in Hall County. The WUI creates areas where fire can easily move from wildland areas into developed areas and threaten structures and human life. The expansion of the WUI in Hall County complicated wildland fire management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

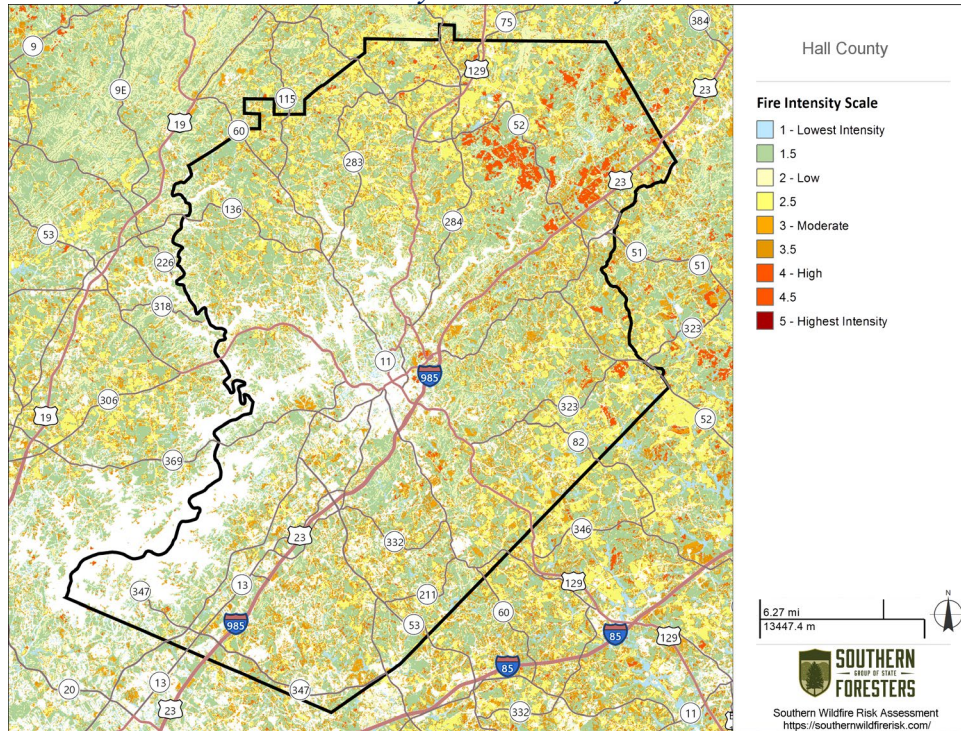
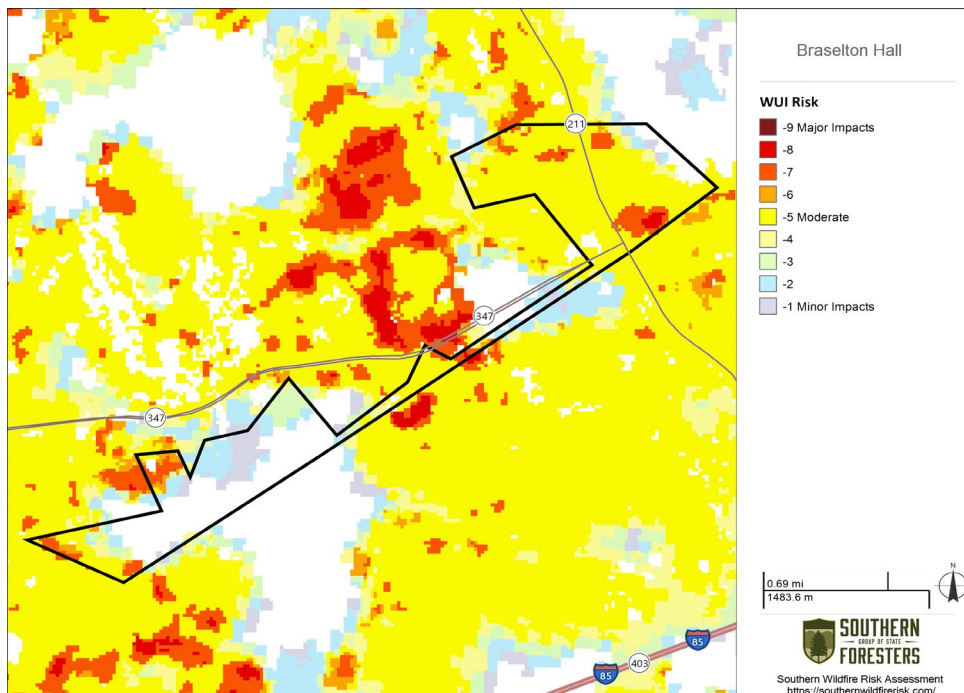
Multi-Jurisdictional Considerations

All portions of Hall 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.

Hazard Summary

Wildfire is a significant threat to Hall 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 99.6% of Hall 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 Hall County.

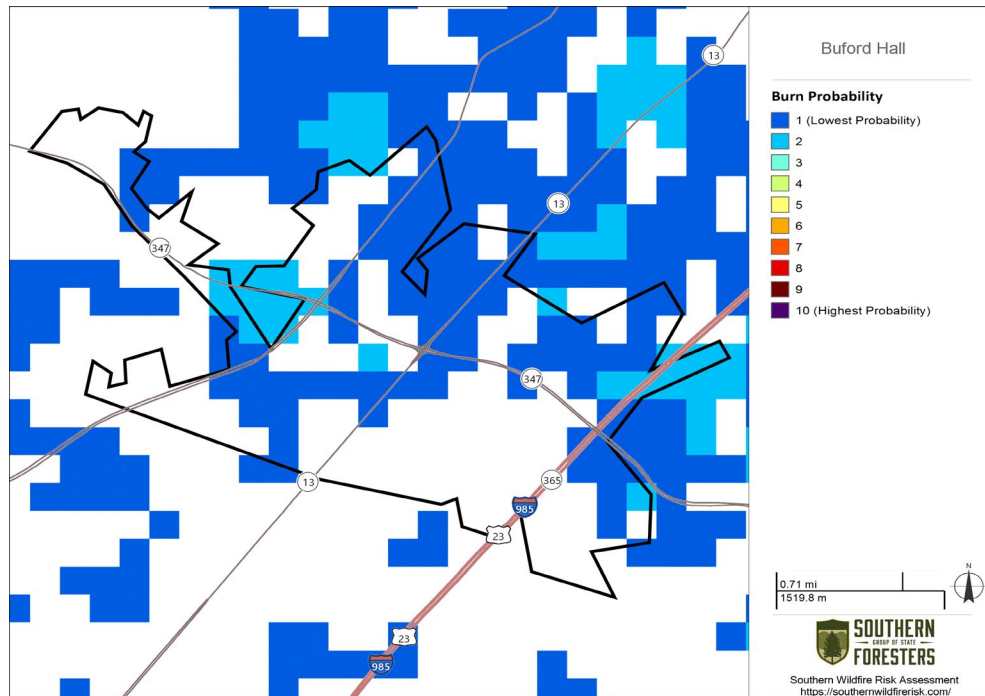
Natural Hazard: **Wildfire***Hall County WUI Risk**Hall County Burn Probability*

Natural Hazard: **Wildfire***Hall County Fire Intensity Scale**Braselton WUI Risk*

Natural Hazard: **Wildfire**

Braselton Burn Probability

Braselton Fire Intensity Scale

Natural Hazard: **Wildfire***Buford WUI Risk**Buford Burn Probability*

Natural Hazard: **Wildfire**

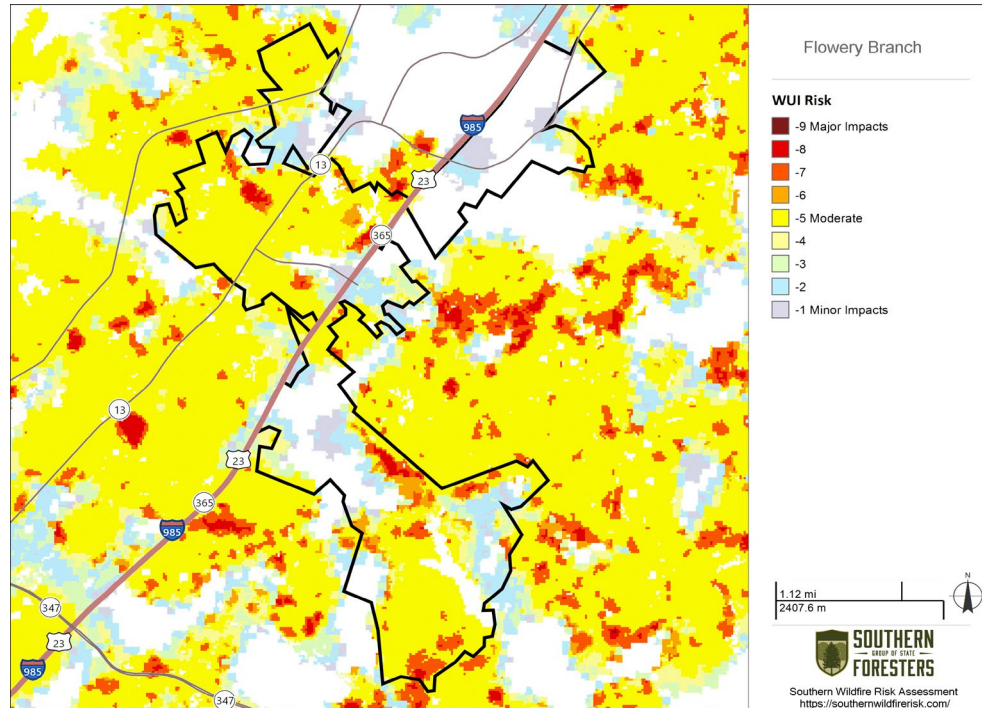
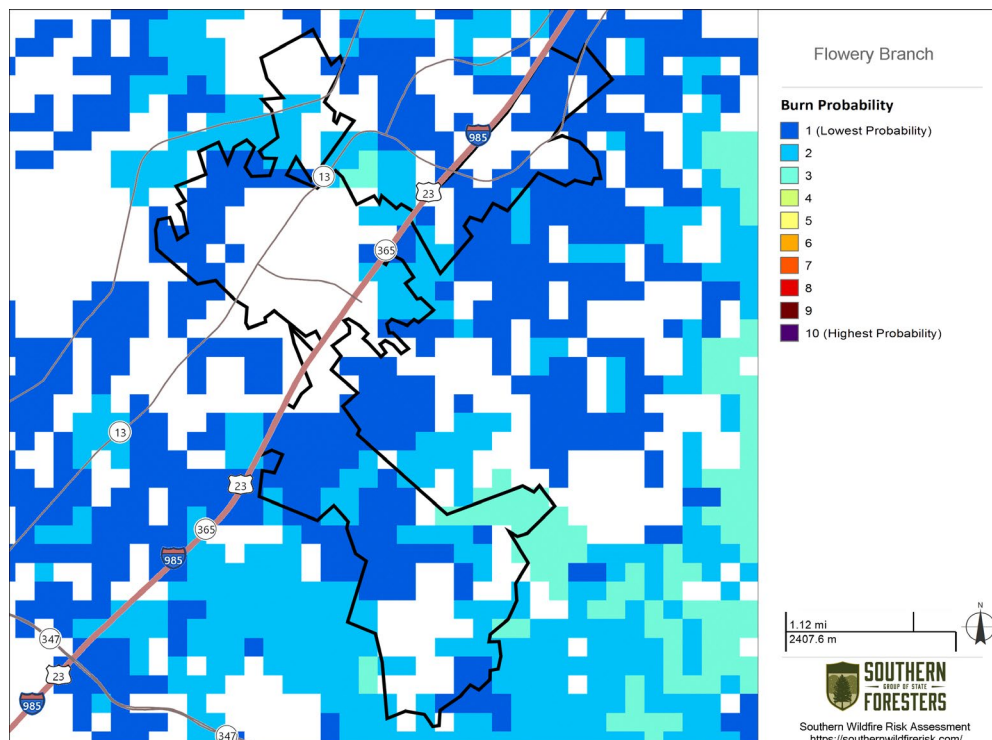
Buford Fire Intensity Scale

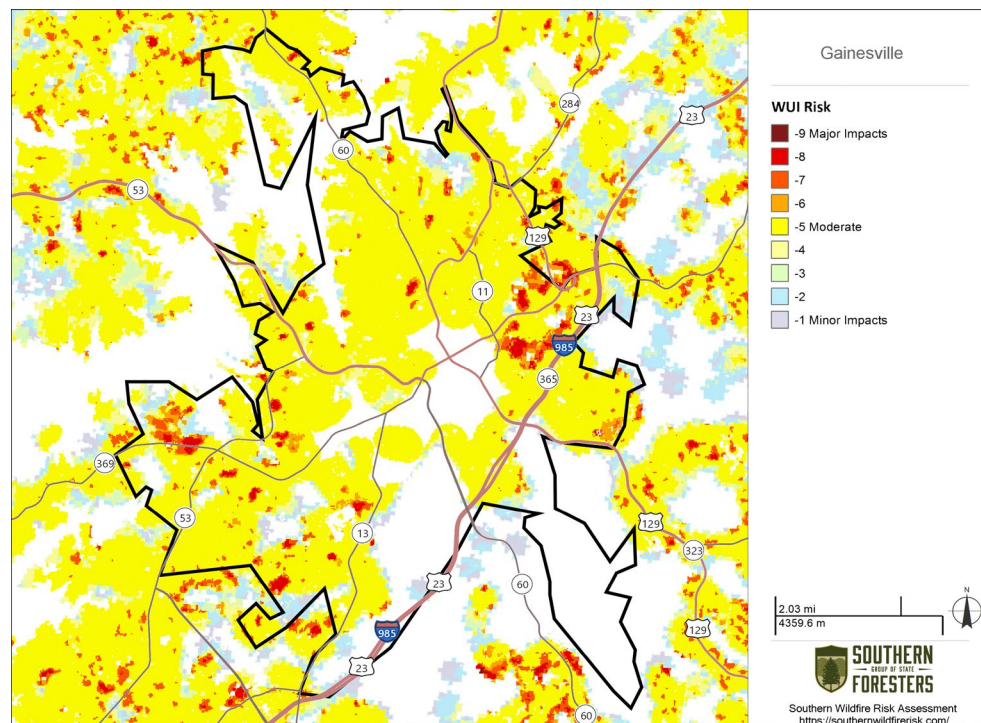
Clermont WUI Risk

Natural Hazard: **Wildfire**

Clermont Burn Probability

Clermont Fire Intensity Scale

Natural Hazard: **Wildfire***Flowery Branch WUI Risk**Flowery Branch Burn Probability*

Natural Hazard: **Wildfire***Flowery Branch Fire Intensity Scale**Gainesville WUI Risk*

Natural Hazard: **Wildfire**

Gainesville Burn Probability

Gainesville Fire Intensity Scale

Natural Hazard: **Wildfire**

Gillsville WUI Risk

Gillsville Burn Probability

Natural Hazard: **Wildfire**

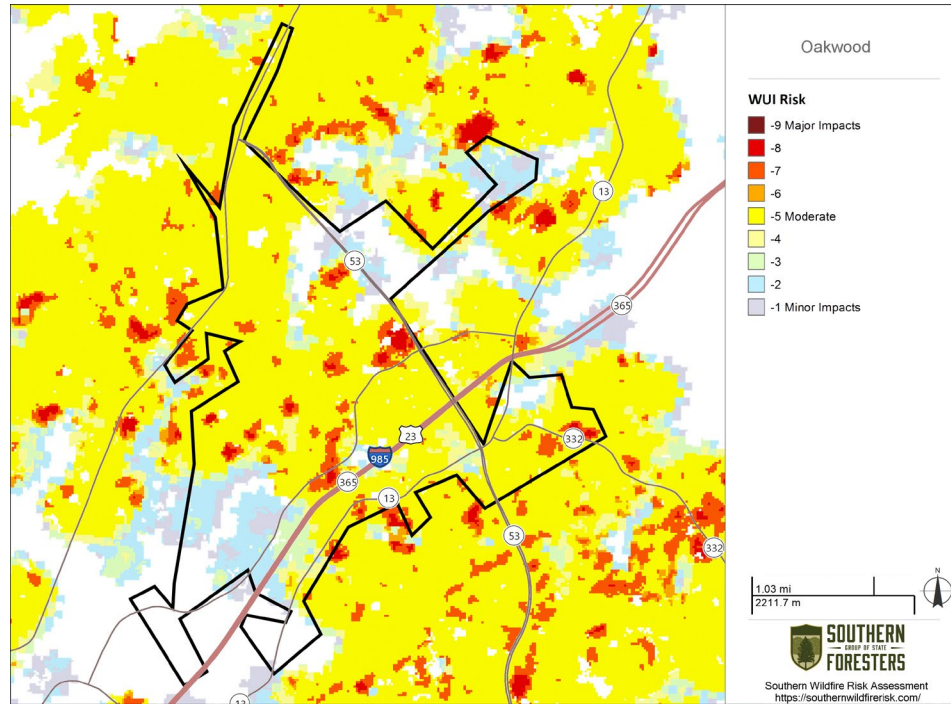
Gillsville Fire Intensity Scale

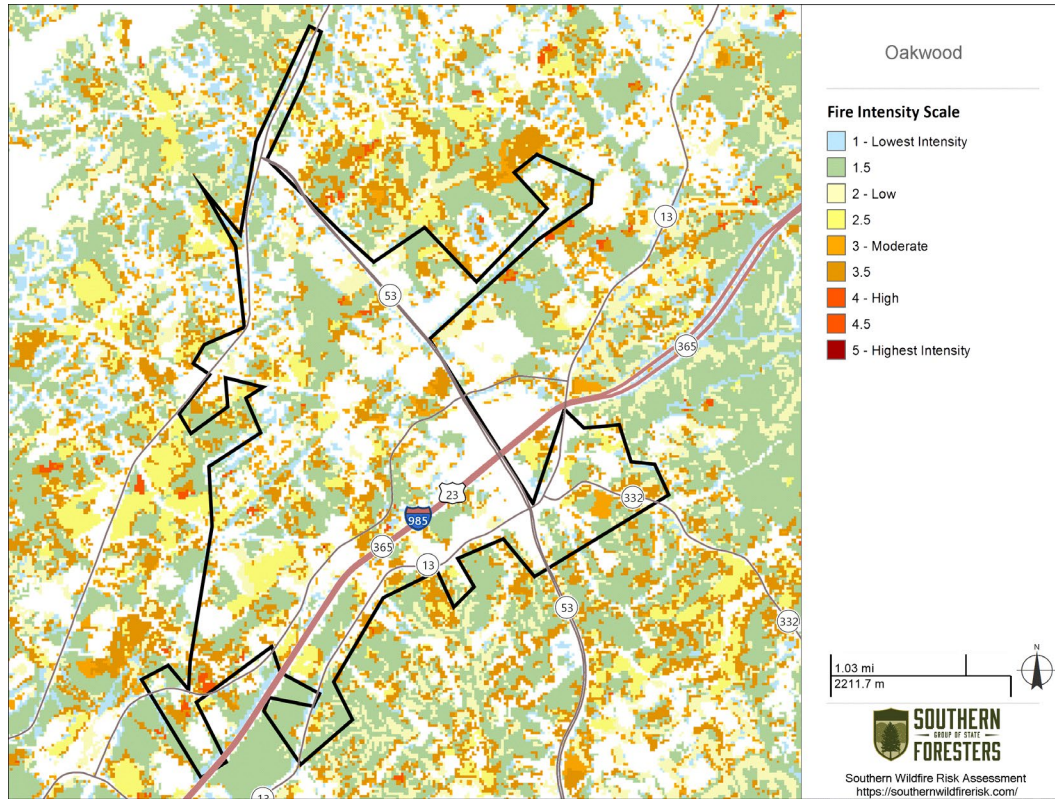
Lula WUI Risk

Natural Hazard: **Wildfire**

Lula Burn Probability

Lula Fire Intensity Scale

Natural Hazard: **Wildfire***Oakwood WUI Risk**Oakwood Burn Probability*

Natural Hazard: **Wildfire***Oakwood Fire Intensity Scale*

*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.

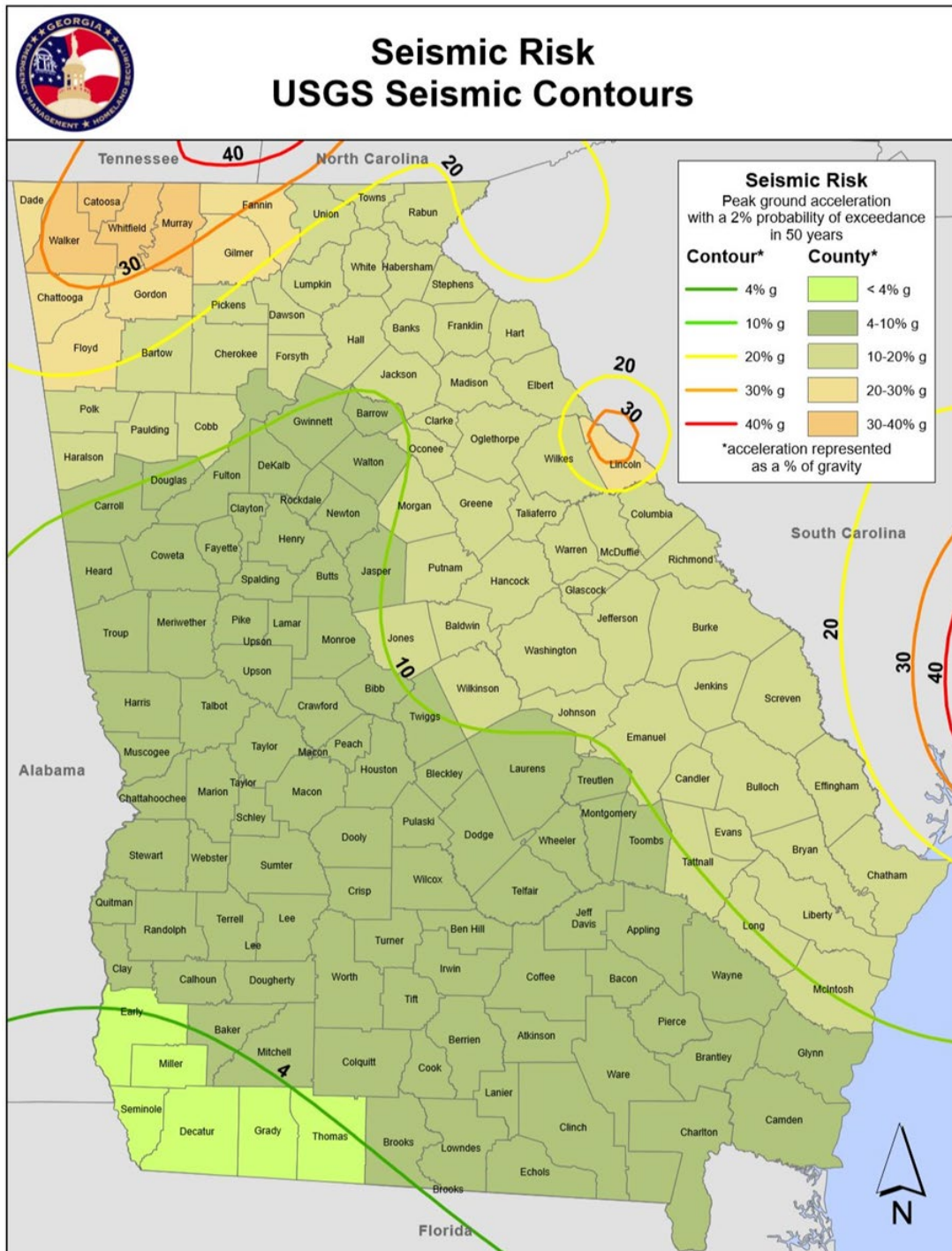
The physical property of earthquakes that causes most of the damage within the United States is ground shaking. The vibrations from the seismic waves that propagate outward from the epicenter may cause failure in structures not adequately designed to withstand earthquakes. Because the seismic waves have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

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

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

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

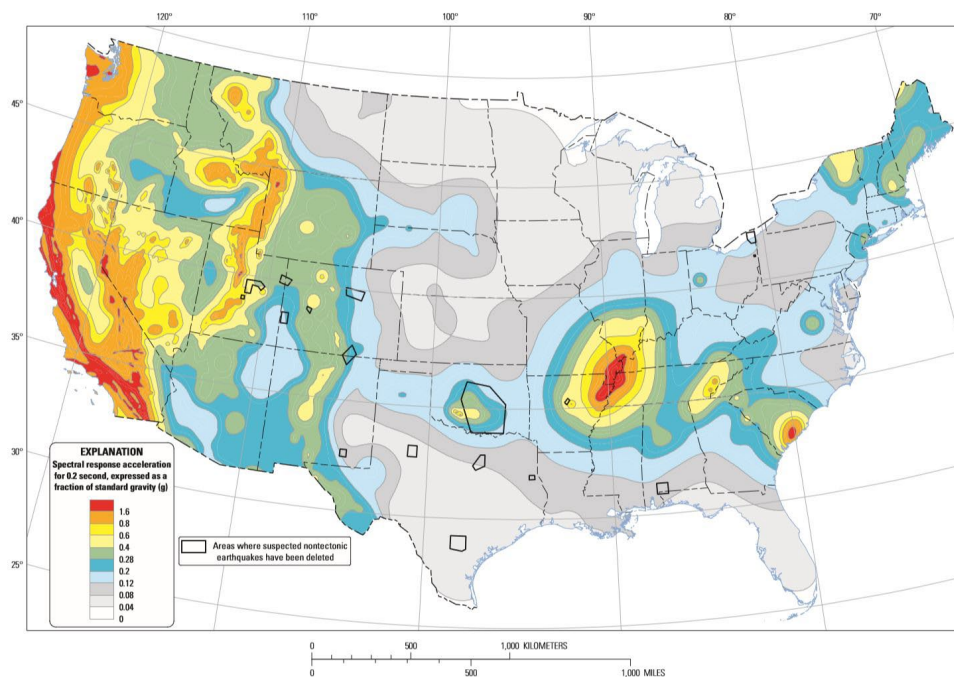
Natural Hazard: Earthquakes

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

Natural Hazard: Earthquakes*(Hazard Description Continued)*

The last of the earthquake-induced phenomena are tsunamis, which are large, gravity-driven waves triggered by the sudden displacement of a large volume of water. The waves produced travel in all directions from the origin at speeds of up to 600 miles per hour. In deep water, tsunamis normally have small wave heights. However, as the waves reach shallower water near land, the wave speed diminishes, and the amplitude drastically increases. Upon impact with a shoreline, the waves can inundate land rapidly, engulfing everything in its path. Successive wave crests follow, typically arriving minutes to hours later, frequently with later arrivals being more dominant. Frequently, the first tsunami waves are downward, causing dramatic exposure of the beach. Because of this, people are often killed trying to collect newly exposed seashells when the positive waves then arrive.

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



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

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

Hazard Profile

Hall 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

Natural Hazard: **Earthquakes**

reviewing data of the last 50 years, no earthquakes have originated from within Hall County. Three earthquakes have originated within 50 kilometers of Gainesville, GA in the last 50 years. The closest earthquake to Hall County was a 2.2 that occurred 9km east-northeast of Cumming, GA in 2020. Hall County has an 6% chance of an earthquake occurring within 50 km of Gainesville, 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 Hall County. Although no historical records exist exhibiting any damages, Hall 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 Hall County, significant damage could occur. Therefore, the Hall County HMPC has determined the threat of earthquakes to be higher than the statistics would indicate. All earthquake hazard data included for Hall County is limited to countywide data and is not broken down by jurisdiction.

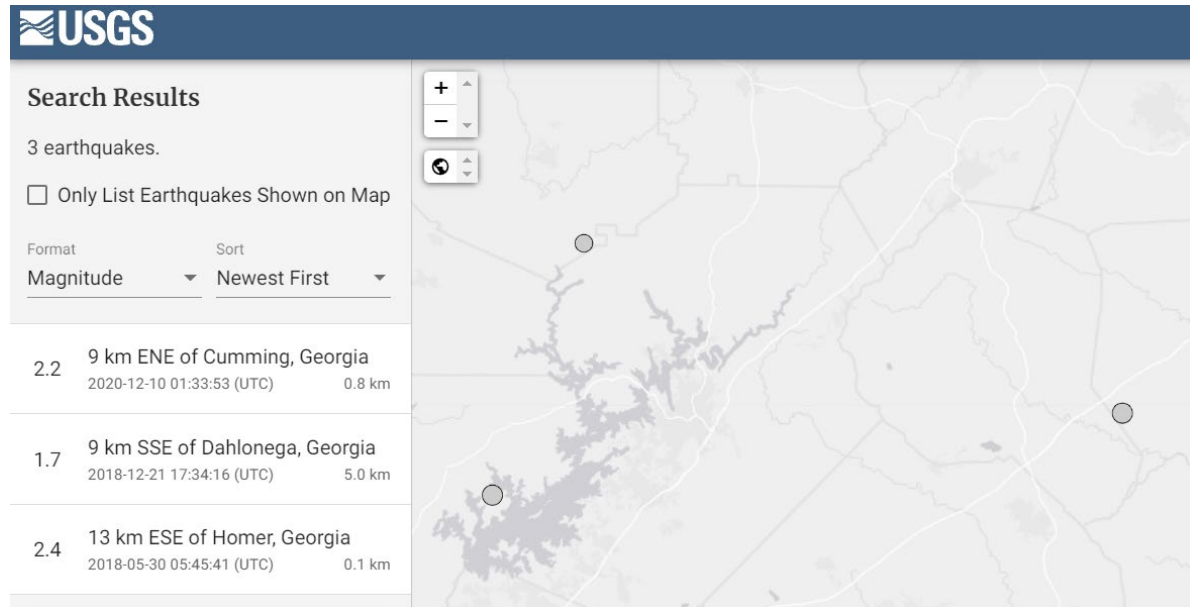
Instrumental Intensity	Acceleration (%g)	Velocity (cm/s)	Perceived Shaking	Potential Damage
I	< 0.17	< 0.1	Not Felt	None
II-III	0.17 - 1.4	0.1 - 1.1	Weak	None
IV	1.4 - 3.9	1.1 - 3.4	Light	None
V	3.9 - 9.2	3.4 - 8.1	Moderate	Very light
VI	9.2 - 18	8.1 - 16	Strong	Light
VII	18 - 34	16 - 31	Very Strong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

Assets Exposed to the Hazard

The Hall County HMPC determined that all critical facilities and all public and private property within Hall County are susceptible to the impacts of an earthquake due to the lower building codes with regards to earthquakes when compared to other parts of the country. This includes all municipalities.

Natural Hazard: **Earthquakes**

Earthquakes within 50 km of Gainesville, GA – last 50 years



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

Estimated Potential Losses

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

Land Use and Development Trends

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

Multi-Jurisdictional Considerations

All of Hall 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 Hall 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 Hall County.

Natural Hazard: Tropical Cyclone

Hazard Description

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

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

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

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

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

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

Tropical cyclones can cause catastrophic damage to coastlines and areas several hundred miles inland. Tropical cyclones can produce sustained high winds and spawn tornadoes and microbursts. Additionally, tropical cyclones can create storm surges along the coast

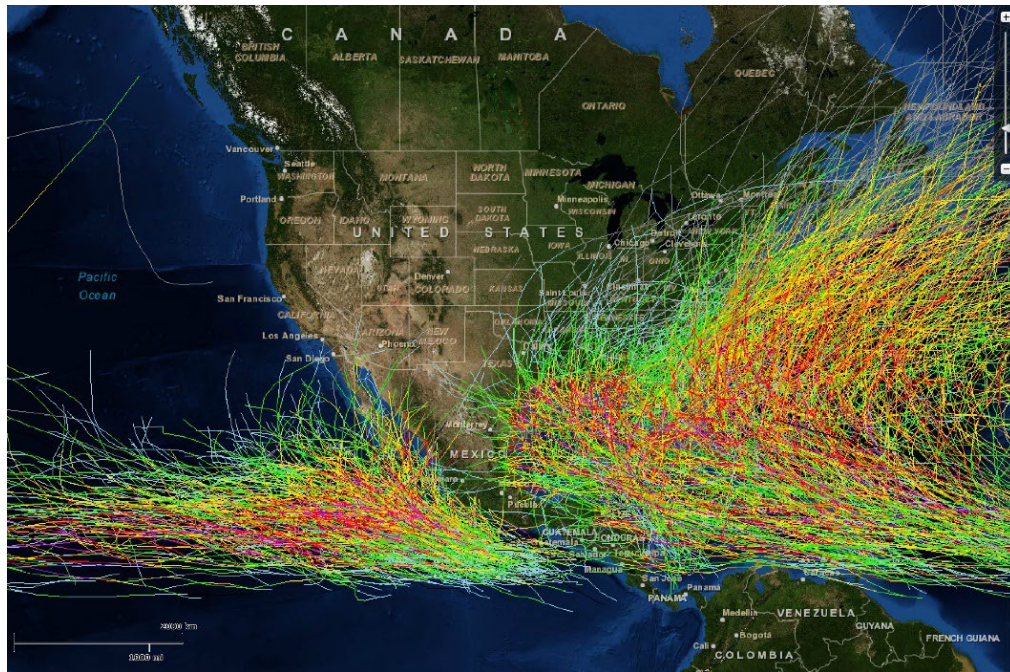
Natural Hazard: Tropical Cyclone

(Hazard Description Continued)

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.



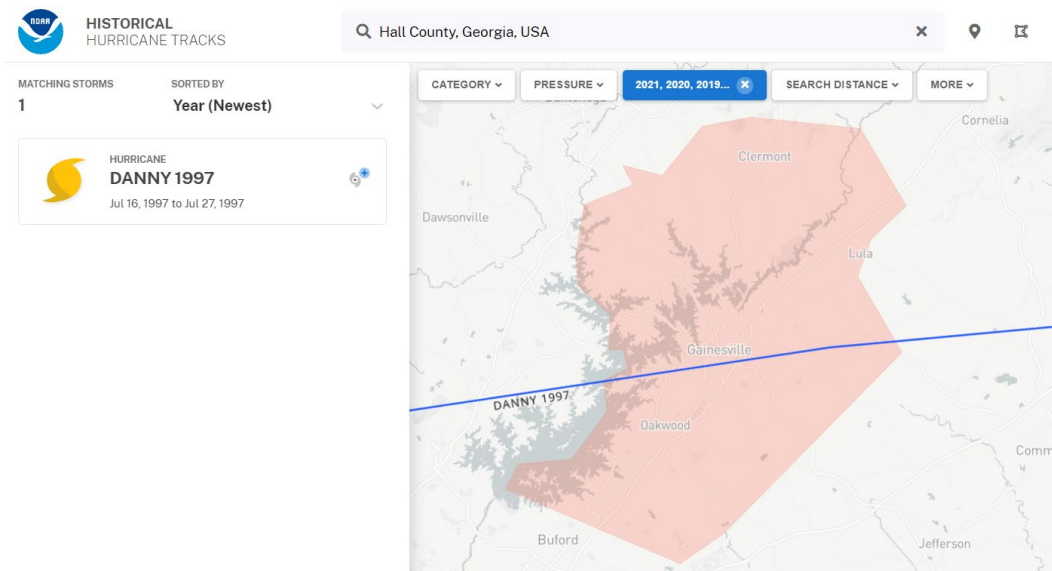
Hazard Profile

Tropical cyclones have directly impacted Hall 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 Hall County is possible. According to the National Centers for Environmental Information, there have been 16 documented impacts from Tropical Cyclones in Hall County over the last 20 years. This equates to a 80% chance of a tropical cyclone impacting Hall County in any given year. The Hall County Hazard Mitigation Update Committee believes this percentage is more representative of the potential impact.

Natural Hazard: Tropical Cyclone

(Hazard Profile Continued)

One tropical cyclone – Hurricane Danny in 1997 – had a track directly dissected Hall County in the last 50 years. All tropical cyclone hazard data included for Hall County is limited to countywide data and is not broken down by jurisdiction. In 2017, Hurricane Irma dropped 2-3 inches of rain on Hall County and wind gusts up to 44 mph (tropical storm-strength) were reported in the county.



Source: NOAA Office for Coastal Management

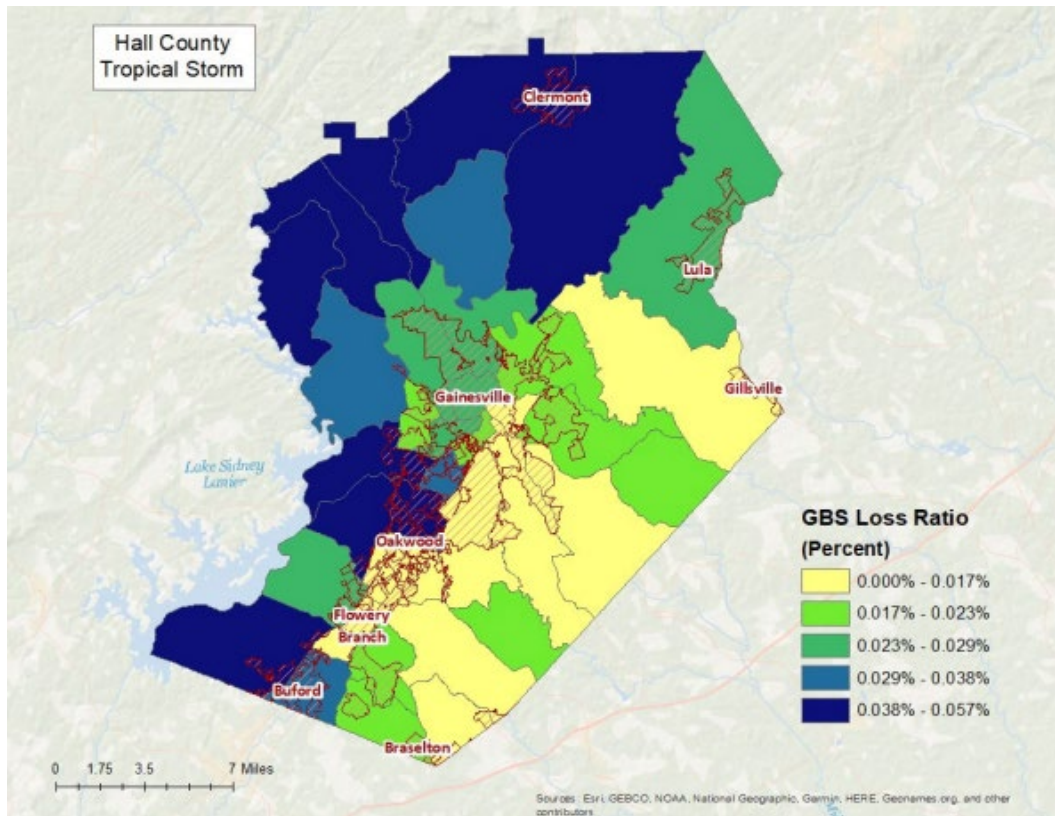
Assets Exposed to the Hazard

The Hall County HMPC determined that all critical facilities and all public and private property within Hall 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, for tropical cyclone losses in Hall County. Most losses for these events have been labeled under other impacts, such as tornadoes and flooding.

According to the 2022 Hall County HAZUS Report, a 1% annual risk tropical cyclone event would produce winds up to 65 mph in Hall County, which would be a Category 1 Hurricane. A storm of this magnitude would create nearly \$5 million in damages, which equates to a 0.03% loss ratio. The greatest loss ratio would be in northwest Hall County. A storm of this magnitude would create nearly 7,000 tons of debris.

Natural Hazard: Tropical Cyclone

Source: 2022 Hall County HAZUS Report

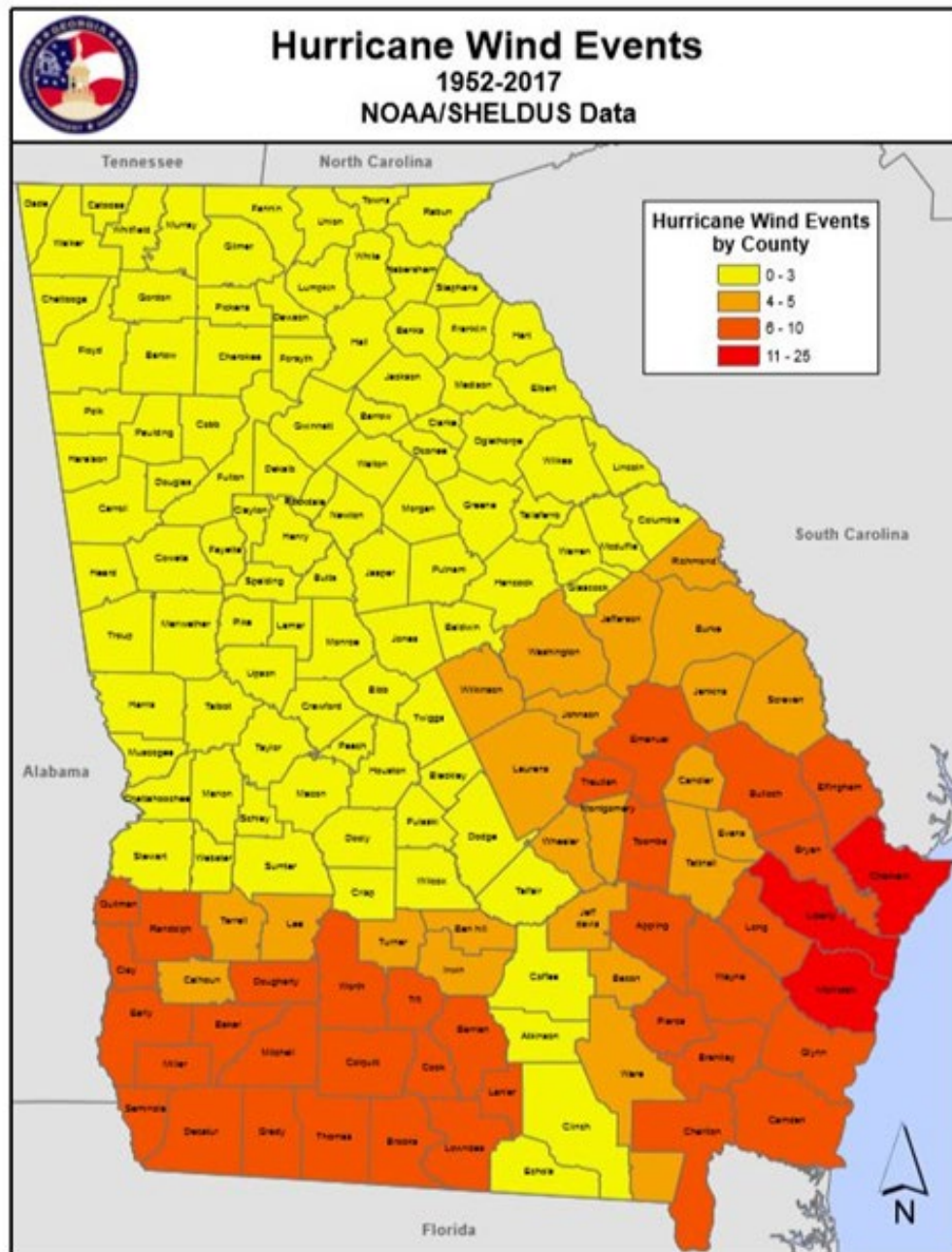
Land Use and Development Trends

Hall County currently has no land use trends related to Tropical Cyclones beyond continued population growth.

Multi-Jurisdictional Considerations

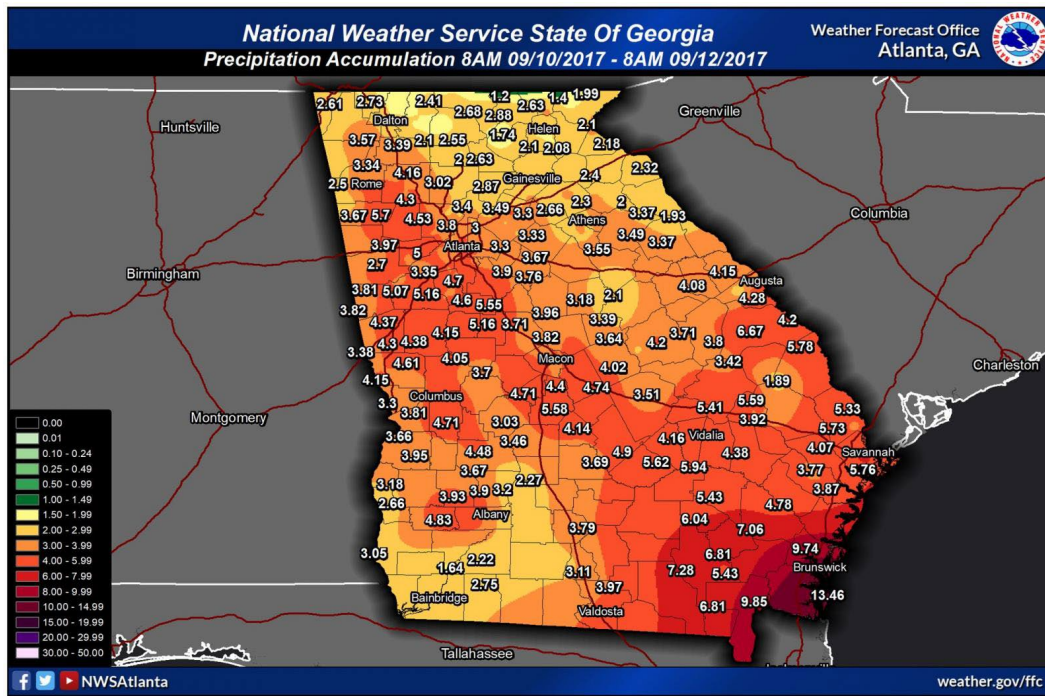
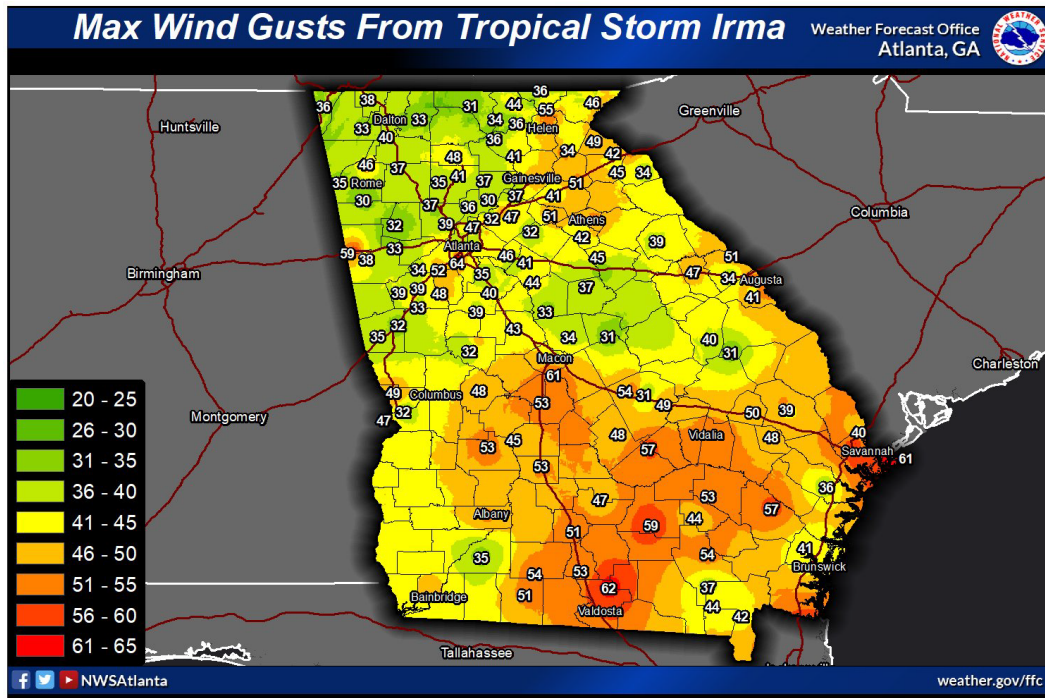
All of Hall County, including all municipalities, could potentially be threatened by tropical cyclones. As such, all tropical cyclone mitigation actions should be pursued on a countywide basis and include all municipalities.

Natural Hazard: Tropical Cyclone

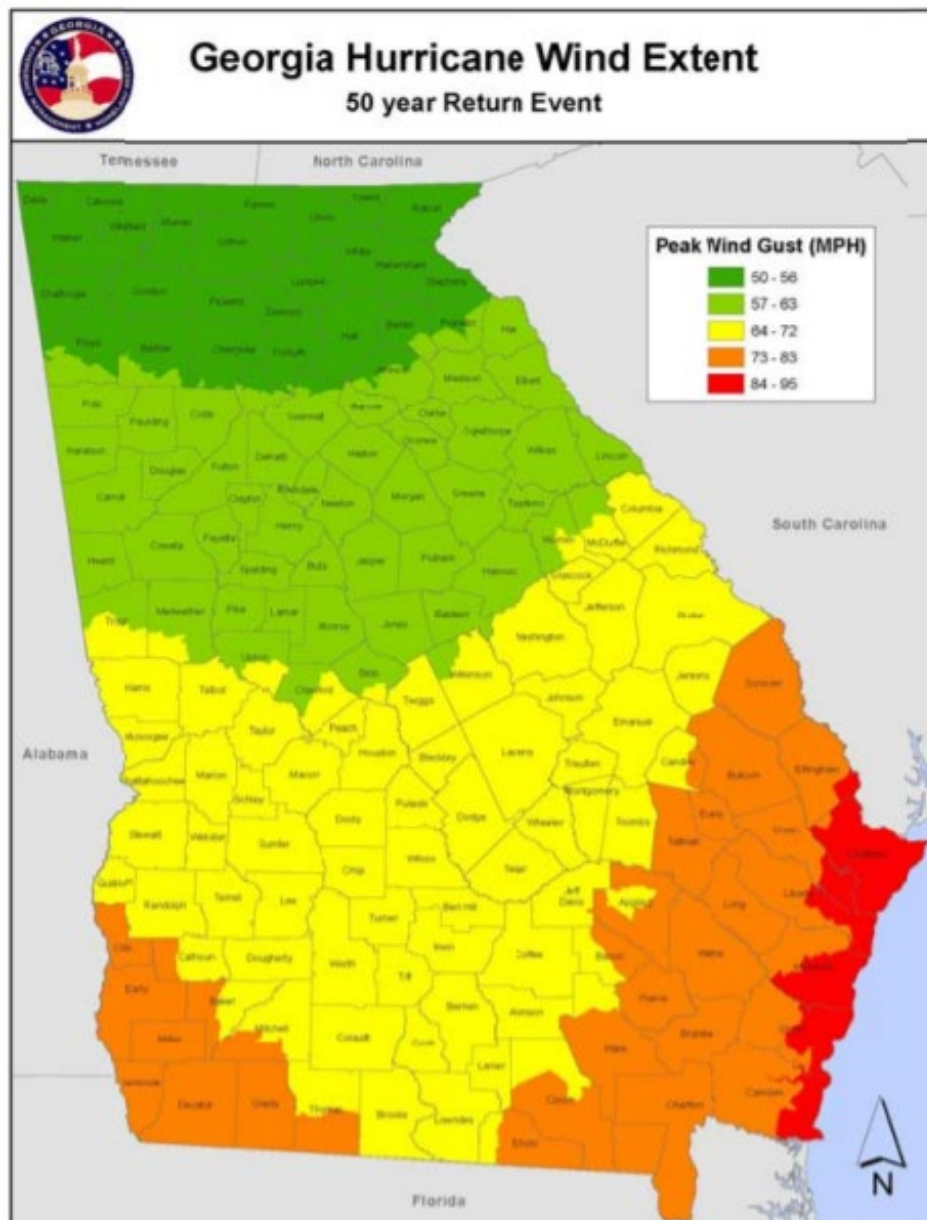


Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan

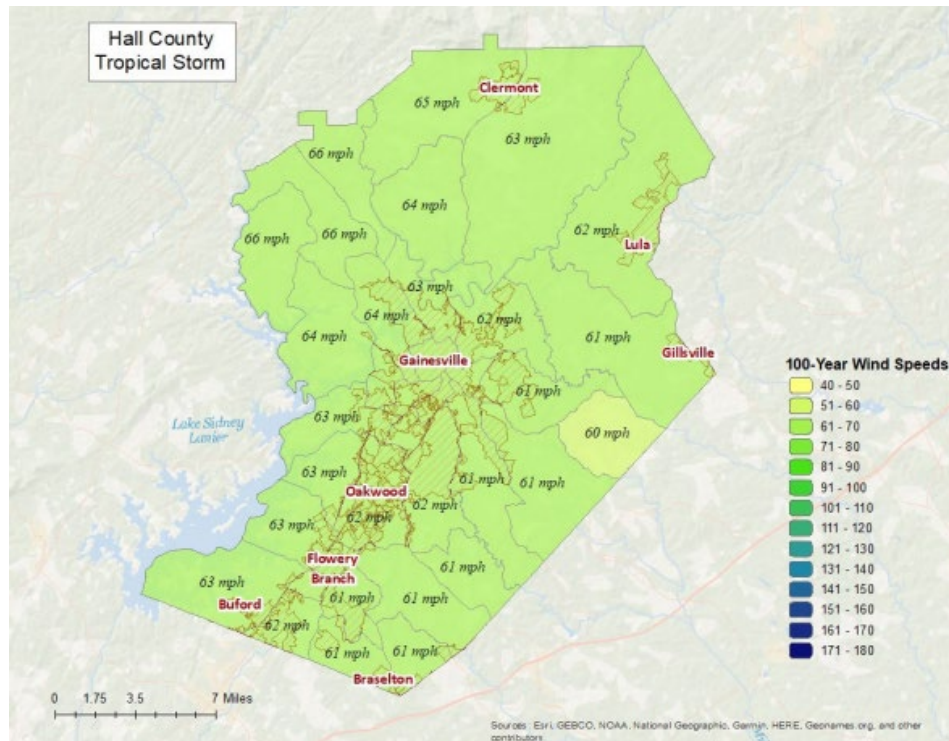
Natural Hazard: Tropical Cyclone



Natural Hazard: Tropical Cyclone



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

Natural Hazard: Tropical Cyclone

Source: 2022 Hall County HAZUS Report

Hazard Summary

Even with the relative infrequency of tropical cyclone impacts in Hall County in the recent past, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of Hall County and all municipalities. Hall 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 Hall County. Hall County has had two Federally Declared Disaster related to Tropical Cyclones, most recently in 2020 (Hurricane Zeta).

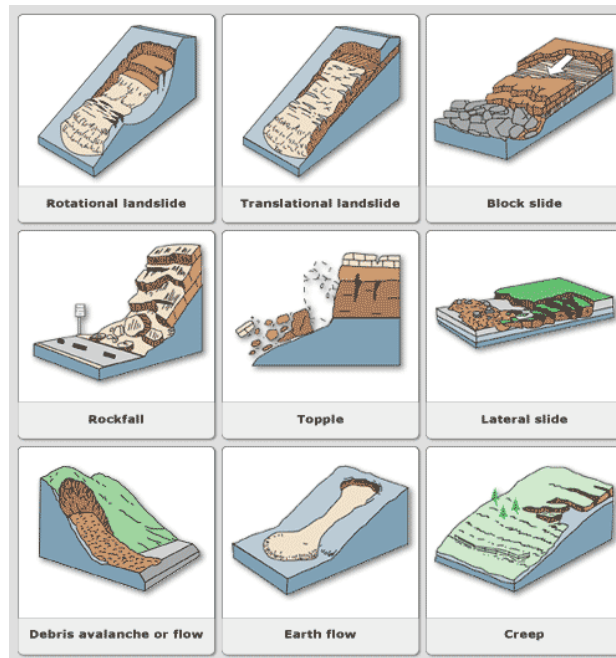
Natural Hazard: Landslide*Hazard Description*

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

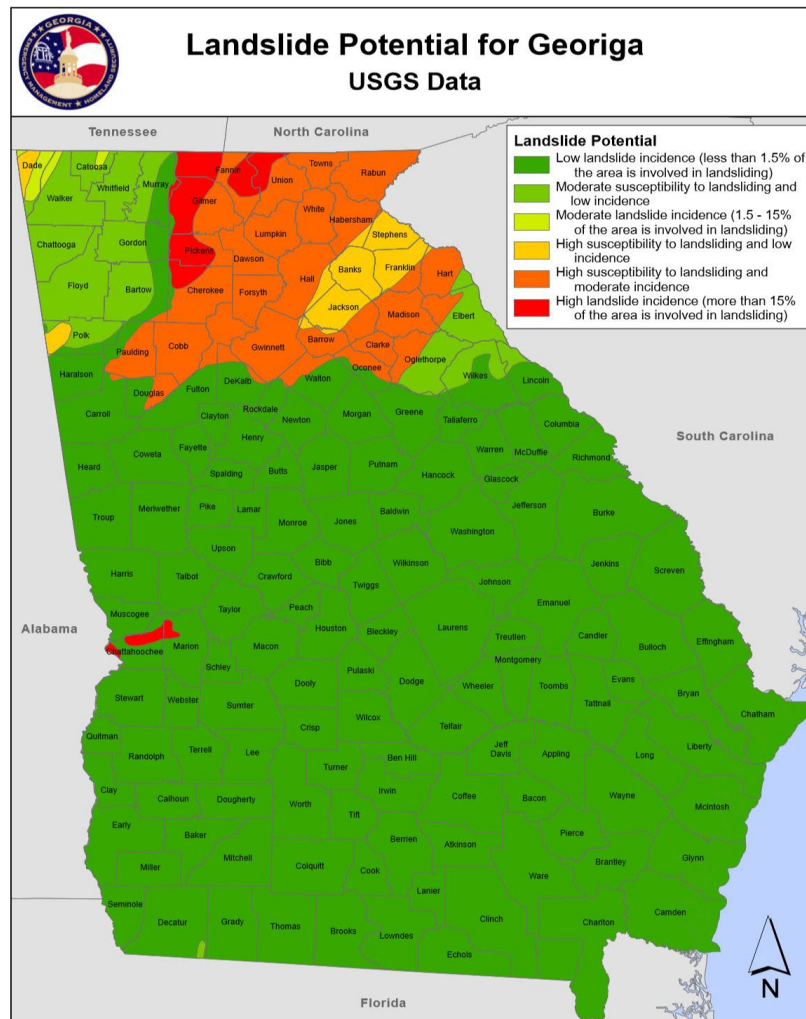
Geology, topography, weather and other disasters, such as earthquakes or floods, contribute to landslides. Determining the probability of landslide events is difficult because so many factors can contribute to the cause of a ground failure. Because there is a history of landslides in unincorporated Hall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

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

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



Natural Hazard: **Landslide**



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

Hazard Profile

Roads along steep slopes are very susceptible to landslides and a slide can happen during milder rainfall conditions than would be expected for a major event. A large slide or sinkhole event closing US Highway 129 or US Highway 23 for a considerable length of time would be expected to have a devastating effect on the County's economy. It would also be a threat to public health due to problems of access to medical services.

Expanded development will increase the possibility of landslides and sinkholes. Landslides because of flooding will extend the spread of debris, increase property damages due to weakened structures, and may seriously restrict provision of emergency services.

Natural Hazard: Landslide*Assets Exposed to the Hazard*

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

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for landslide losses in Hall County. For lost estimation of all critical facilities potentially affected by landslides, please refer to the Critical Facilities information in Appendix C.

Land Use and Development Trends

Hall County currently has no land use trends related to Landslides beyond continued population growth.

Multi-Jurisdictional Considerations

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

Hazard Summary

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

Technological Hazard: Hazardous Materials*Hazard Description*

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

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

Hazard Profile

Data from the United States Coast Guard National Response Center was reviewed regarding hazardous materials spill history in Hall County. Data is available from 1990 to 2020 and all available data was reviewed. There were 204 NRC reported hazardous materials spills or releases in Hall County over a 30-year period. It is anticipated that many more hazardous materials incidents have occurred over the last 30 years but have not been reported. According to the NRC data, Hall County averages 6.8 hazardous materials incidents of a reportable amount each year. This equates to a 1.9% chance of a hazardous materials spill of a reportable amount on any given day. The greatest threat for a hazardous materials spill comes from the transportation of materials through Hall County. This is particularly true for the Interstate 985/US Highway 23 corridor in Hall 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 Hall County's growing industrial footprint. Gainesville has a significant industrial footprint related to the poultry industry. This industry produces over \$121 million in annual market value. Railways owned and operated by Norfolk Southern and CSX traverse Hall County. Hall County is a major thoroughfare for both railways. The Norfolk Southern line connects Atlanta to Charlotte. The CSX railway line connects Gainesville to Athens.

Of concern to the Hall County Hazard Mitigation Committee is the exposure of water sources to potential hazardous materials incidents. This is particularly true for both Lake Lanier and the Cedar Creek Reservoir. A hazardous materials incident at or near drinking water sources could have devastating effects on a large population in Hall County.

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 concern to the Hall County HMPC. Public and private property located near fixed hazardous materials facilities are also a greater risk than the general population of Hall County. Water contamination from a hazardous materials release is of particular concern to the Hall County Hazard Mitigation Planning Committee.

Estimated Potential Losses

Estimation of potential losses is difficult regarding hazardous materials due to the vast array of potential types of hazardous materials that could be involved in the incident and unknown costs regarding environmental damages. No recorded information was found regarding the losses associated with hazardous materials incidents in Hall 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

Hall County currently has no land use trends related to Hazardous Materials beyond continued population growth – particularly in and around the City of Gainesville, around Lake Lanier, and in areas near the Gwinnett County line.

Multi-Jurisdictional Considerations

All of Hall County, including all municipalities, are vulnerable to both fixed facility and transportation-related hazardous materials releases. However, areas along the Interstate 985/US Highway 23 corridor, including the Cities of Buford, Flowery Branch, Oakwood, Gainesville, and Lula, are of particular concern.

Hazard Summary

Hazardous materials incidents pose a significant threat to the citizens, infrastructure, and critical facilities of Hall County. Unknown quantities of hazardous materials are transported daily through Hall County and all municipalities. These materials are often transported via highways. Water contamination because of a hazardous materials spill is of significant concern to the Hall County HMPC. As a result of the threat posed by hazardous materials, the Hall 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 4 category I and 20 category II dams located within Hall 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 Hall County could potentially lead to downstream flooding. This downstream flooding would have many of the same hazards as a flood event, but with the onset of such an event being much quicker than in a typical flood event. The Cedar Creek Reservoir is considered of significant concern due to its size. Cedar Creek Reservoir dam is 97 feet tall and holds 5,100 acre feet of water. Areas most at risk from a breach of this Category I dam are mostly areas in eastern Hall County between Gainesville and Gillsville.

Assets Exposed to Hazard

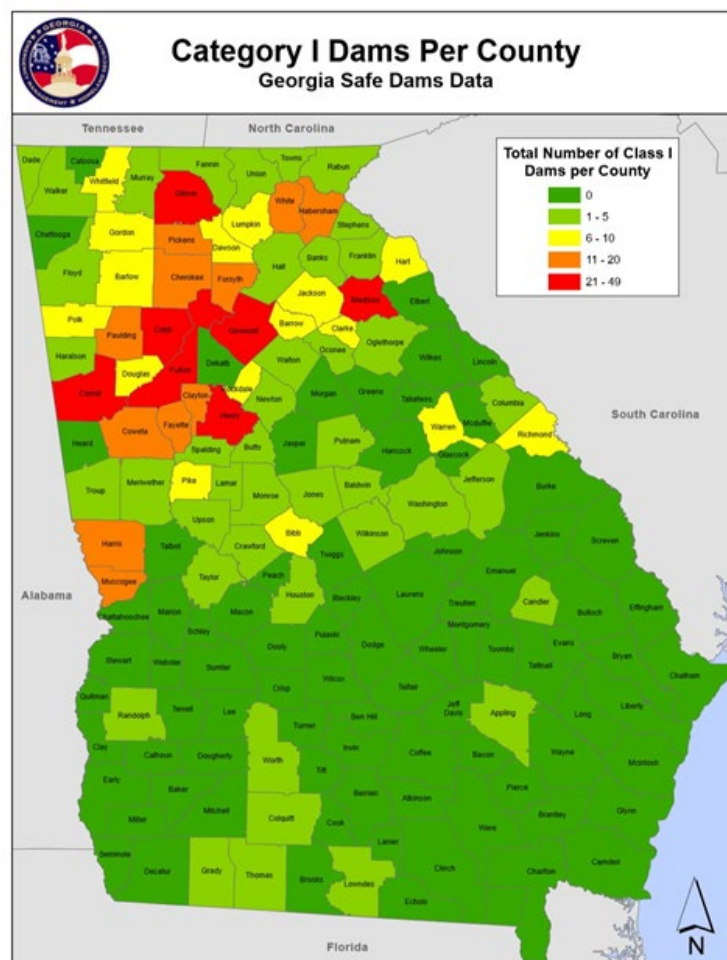
To evaluate the assets that would potentially be impacted by a dam failure, the Hall County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. All municipalities could be exposed to the hazards of other dams or face secondary hazards from the dams.

Estimated Potential Losses

Loss estimations are not applicable since it is not known which dam will fail and how significant of failure will occur. As population continues to increase in Hall County, potential impacts downstream from Category I dams will likely continue to increase.

Technological Hazard: Dam Failure*Land Use and Development Trends*

Hall 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. 130466) first entered the NFIP on January 31, 1984. 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, all Hall County municipalities also participate in NFIP through the application of appropriate NFIP-compliant ordinances and regulations.



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

Technological Hazard: Dam Failure*Multi-Jurisdictional Considerations*

During a dam failure event, many portions of Hall 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. Areas downstream from Hall County's 4 Category I dams are considered to be at the greatest risk.

Hazard Summary

Dam failure poses a threat to Hall County and its citizens, infrastructure, and critical facilities. A dam failure could prove catastrophic for areas downstream of the dam, particularly if the failure were to occur at any of the Category I dams located in Hall 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 because of a transportation incident, or by other related transportations hazards. Transportation can occur via roadways, highways, interstates, railways, air, or navigable waterways. Each transportation type poses their own unique hazard issues and consequences.

Roadway hazards are most likely to be caused by a motor vehicle accident involving one or more cars, trucks, vans, or transport vehicles. These incidents can have injuries because of the impact of the MVA or a hazardous materials release into the local environment, including waterways. Railway incidents pose many of the same dangers as motor vehicle accidents. However, the threat of a hazardous materials release is greatly increased when railway transportation incidents are considered.

Air accidents can include commercial airplanes, private airplanes, hot air balloons, helicopters, or other forms of air travel. Each of these incidents can cause a significant threat to human life as well as posing a hazardous material threat due to the cargo being transported or the fuel being used. Navigable waterway incidents can create formidable incidents for response organizations. Because of the waterway, technical expertise is needed to carry out rescue operations, especially in swift-moving waterways. Also, any incident in a waterway is likely to have environmental impacts.

Hazard Profile

Transportation incidents are of a significant concern in Hall County. Passing through Hall County are Interstate 985, US Highways 23 and 129, and Georgia Highways 11, 13, 51, 52, 53, 60, 82, 115, 136, 211, 254, 283, 284, 323, 332, 347, 365, and 369. Additionally, the railway owned and operated by Norfolk Southern and CSX traverse Hall County. The Norfolk Southern line is a major thoroughfare connecting Atlanta to Charlotte. The CSX line connects Gainesville to Athens.

An additional threat from transportation incidents in Hall County involves the high potential of a boating accident on Lake Lanier. Lake Lanier is a 38,000-acre lake that attracts nearly 12 million visitors annually. It is the most popular Army Corps of Engineers lake in the nation and generates \$5 billion in economic impact for the area.

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 Hall County that are not located along or near a transportation route could still face residual impacts.

Technological Hazard: Transportation Incident*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

Hall County currently has no land use trends related to Transportation Incidents beyond an increase in overall population which, in turn, increases the likelihood and potential impact of a transportation incident. The primary areas of growth have been in and around the City of Gainesville, areas near Lake Lanier, and areas near the Gwinnett County line.

Multi-Jurisdictional Considerations

Hall County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along the Interstate 985/US Highway 23 corridor, the Norfolk Southern and CSX railway corridors, and Lake Lanier are the greatest at risk. This includes the Cities of Buford, Flowery Branch, Oakwood, Gainesville, and Lula.

Hazard Summary

The Hall 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 Hall 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 Hall County, all critical facilities could be potential targets. Terrorism includes a multitude of potential approaches, including agro-terrorism, which is terrorism targeted toward agriculture. Due to the high economic impact (over \$123 million in annual agriculture-related sales) of agriculture in Hall County, agro-terrorism could be of particular concern. Hall County's poultry industry accounts for over 95% of the agriculture-related market value. Additionally, a terrorist contamination of the water sources is of concern to the Hall County Hazard Mitigation Plan Update Committee.

Within Hall County, there are many areas that could be viewed as potential targets for terrorism due to their economic impact on the area. This includes tourist-friendly areas

Technological Hazard: **Terrorism**

throughout Hall County, most notably Lake Lanier. Lake Lanier has nearly 12 million visitors annually and has an economic impact of over \$5 billion for the area. Additionally, Georgia has become a bigger part of the movie-making industry. Hall County is no exception. This includes the Netflix series *Ozark*, which is filmed on and around Lake Lanier.

While active shooter situations and civil unrest are not always classified as terrorism, for this plan, the Hall 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. Hall County is home to several institutes of higher education, as well, including Brenau University, the University of North Georgia's Gainesville Campus, and Lanier Technical College. While active shooter events and other acts of terrorism occur worldwide, they have low probability for Hall County but would have devastating impacts if they were to occur. To help mitigate some of these impacts, Hall County has exercised an active shooter response in the past to better prepare for any such event. Many of the same areas that are susceptible to an active shooter event could also be the scene of a potential civil unrest 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

Hall County currently has no land use trends related to Terrorism beyond continued population growth, continued increase in tourism opportunities in the area, and the continued increase of movie filming in the area.

Multi-Jurisdictional Considerations

All of Hall 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.

Technological Hazard: Terrorism*Hazard Summary*

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

Technological Hazard: Infrastructure Failure*Hazard Description*

Infrastructures are particularly vulnerable to both natural and technological hazards. These include electrical utilities, water utilities, gas pipelines, fuel supplies, and other infrastructures that supply vital supplies and services to the community. While an infrastructure failure would most likely be a secondary hazard of one of the other hazards identified in this plan, an infrastructure failure could be a solo incident itself.

A lack of connection with outside sources could lead to public panic, poor emergency response capabilities, and other domino hazards. These events pose a significant threat to many jurisdictions.

Hazard Profile

In case of any failure of a utility infrastructure, general difficulties would be exacerbated for both emergency responders and for the public. The reliance on wireless communications, particularly for the public safety sector, increases the vulnerability of Hall County's emergency response agencies to a utility failure.

Additionally, a failure of additional physical infrastructure, such as bridges and buildings, are of particular concern to the Hall County Hazard Mitigation Planning Committee. The highways that cross Lake Lanier could be of particular concern for failure because of the economic impact Lake Lanier has on the surrounding area. This would lead to both goods and services being interrupted.

Hall County is home to two gas transmission pipelines. One pipeline travels along Georgia Highway 60 from southeastern Hall County to Gainesville. A second pipeline travels through northeast Hall County from the Gillsville area to an unincorporated community called Murrayville in north Hall County.

Assets Exposed to Hazard

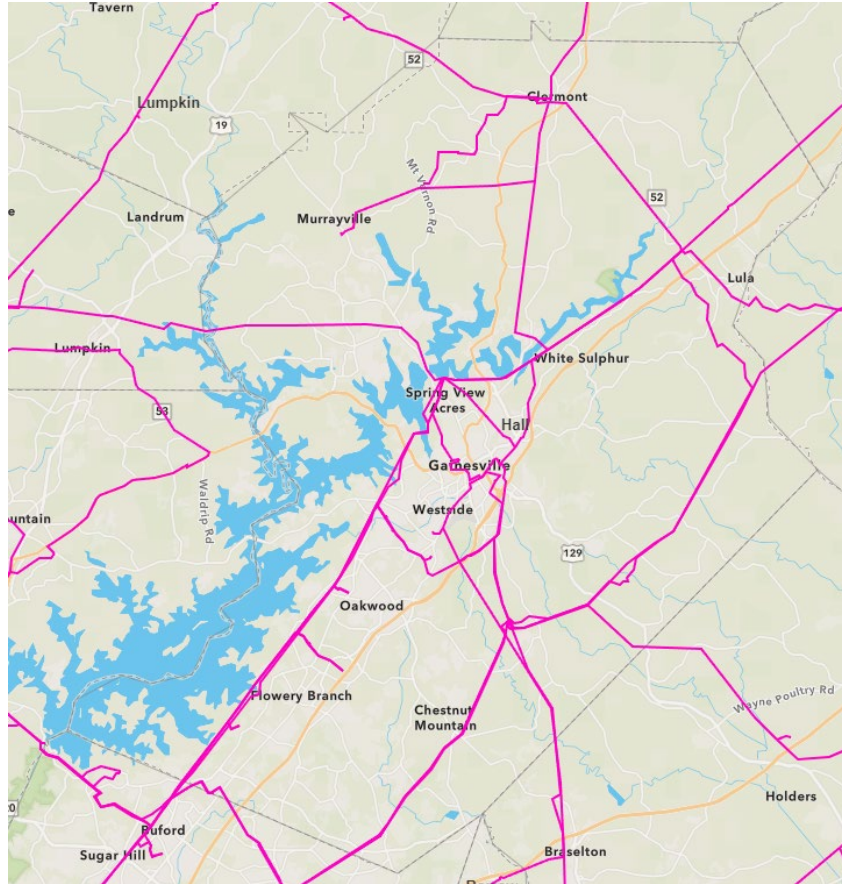
All assets and critical facilities within Hall County could potentially be impacted by an infrastructure failure.

Estimated Potential Losses

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

Land Use and Development Trends

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

Technological Hazard: Infrastructure Failure*Electrical Power Transmission Lines**Multi-Jurisdictional Considerations*

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

Hazard Summary

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

Technological Hazard: Emergent Infectious Diseases*Hazard Description*

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

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

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

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

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:

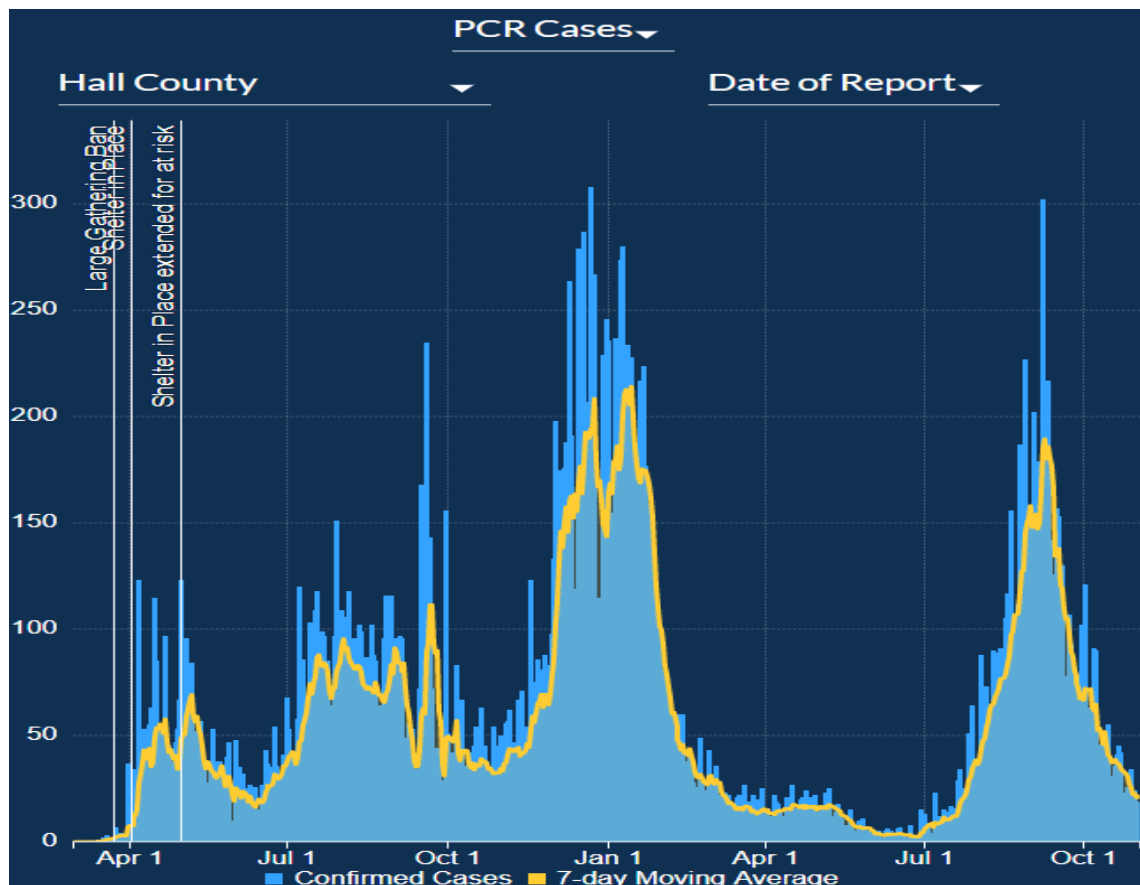
Contributing Factors to Increasing Occurrence of Emergent Diseases	
Agent-Related Factors	
Evolution of pathogenic infectious agents	
Development of resistance to drugs	
Resistance of disease carriers to pesticides	
Host-Related Factors	
Human demographic changes (humans inhabiting new areas)	
Human 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	Marburg Hemorrhagic Fever
Measles	Meningitis
Monkeypox	MRSA
Nipah Virus Infection	Norovirus Infection
Pertussis	Plague
Polio	Rabies
Rift Valley Fever	Rotavirus Infection
Salmonellosis	SARS
Shigellosis	Smallpox
Sleeping Sickness (Trypanosomiasis)	Tuberculosis
Tularemia	Valley Fever (Coccidioidomycosis)
VISA/VRSA	Staphylococcus Aureus
West Nile Virus Infection	Yellow Fever

Technological Hazard: Emergent Infectious Diseases*Hazard Profile*

Emergent Infectious diseases are of significant concern to the Hall County HMPC, particularly those that would have an impact on the human population or animal population of Hall County. Hall County would likely see significant economic impacts from an outbreak involving animal populations, such as an Avian Flu, due to the large economic base agriculture provides (over \$120 million in annual sales). The lack of current vaccines and preparatory activities for these diseases has created a situation where the potential impact to Hall County of a pandemic or epidemic could be catastrophic. The most recent pandemic scare in the North Georgia area was the 2009-2010 H1N1 Swine Flu. There were 1286 cases of H1N1 in Georgia in 2009-2010 and 33 deaths. Most registered cases occurred with people between the ages of 5 and 29. This equates to a mortality rate of just over 2.5% - which is slightly lower than the 3% rate of the 1918-1919 Spanish Flu Pandemic. The 2019-2021 COVID-19 Pandemic, which was caused by SARS-CoV2, spreading worldwide in a matter of weeks. As of October 29, 2021, there were over 246 million cases reported worldwide with over 5 million deaths. In Hall County, there were 34,040 confirmed cases and 607 deaths.



Technological Hazard: Emergent Infectious Diseases

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

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

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.

Land Use and Development Trends

Hall County currently has no land use trends directly related to emergent infectious diseases.

Multi-Jurisdictional Considerations

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

Hazard Summary

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

CHAPTER FOUR

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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 Hall County Hazard Mitigation Plan 2017.

Chapter 4 Section	Updates
Goals and Objectives	• Updated goals to match the needs of Hall County and all municipalities
Identification and Analysis of Mitigation Techniques	• Content Revised • Reviewed mitigation strategies identified in the 2017 plan and made updates • Identified mitigation strategies that were completed • Identified mitigation strategies to be removed

Goals and Objectives

Requirement §201.6(c)(3)

Requirement §201.6(c)(3)(i)

It is important that State and local government, public-private partnerships, and the average citizen can see the results of these mitigation efforts, therefore, the goals and strategies need to be achievable. The mitigation goals and objectives form the basis for the development of specific mitigation actions. 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 Hall County have changed slightly in the last five years (since 2017) due to specific threat events, such as the COVID-19 Pandemic in 2020-2021. 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 Hall County Hazard Mitigation plan update – Hall County and the Municipalities of Braselton, Buford, Flowery Branch, Gainesville, Gillsville, Lula, Oakwood, and Clermont – 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 enough revenue to pursue many of these actions. All jurisdictions lack the needed financial strength and staffing to implement all the actions described in this plan. Many of the actions will be pursued through grant programs and by partnering with public and private organizations who can supplement the needed resources to accomplish the goals outlined in this plan. For actions where grant funding or partnerships are not available, Hall County or municipality revenue streams may be supplemented through Special Purpose Local Option Sales Tax (SPLOST) funds, which are voted on by the electorate.

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

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

OBJECTIVE 1	Reduce damage to property and loss of life through the utilization of preventative activities
OBJECTIVE 2	Minimize the damage to property and loss of life through property protection measures
OBJECTIVE 3	Minimize the damage to property and loss of life through natural resource protection activities
OBJECTIVE 4	Reduce damage to property and loss of life through the utilization of structural mitigation projects
OBJECTIVE 5	Increase the ability of Hall County, its municipalities, and its citizens to respond to natural and manmade hazards through emergency service measures
OBJECTIVE 6	Increase public education and awareness of natural hazards
OBJECTIVE 7	Minimize the impacts on local citizens, industry, and infrastructure of a dam breach
OBJECTIVE 8	Increase public awareness of local manmade hazards and proper response to those hazards
OBJECTIVE 9	Implement additional protective measures and capabilities in response to manmade incidents

Identification and Analysis of Mitigation Techniques

Requirement §201.6(c)(3)(iv)

Requirement §201.6(c)(3)(iii)

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

- 1) The use of applicable building construction standards;
- 2) Hazard avoidance through appropriate land-use practices;
- 3) Relocation, retrofitting, or removal of structures at risk;
- 4) Removal or elimination of the hazard;
- 5) Reduction or limitation of the amount or size of the hazard;
- 6) Segregation of the hazard from that which is to be protected;
- 7) Modification of the basic characteristics of the hazard;
- 8) Control of the rate of release of the hazard;
- 9) Provision of protective systems or equipment for both cyber and/or physical risks;
- 10) Establishment of hazard warning and communication procedures; and
- 11) Redundancy or duplication of essential personnel, critical systems, equipment, and information materials.

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

Strategy Priority	Priority Description	Strategies within this priority
LOW	Low priority strategies are those strategies that will have less direct impact on mitigating Hall County's hazards, are in the early stages of strategy development, or score poorly on a preliminary cost-benefit analysis	
MEDIUM	Medium priority strategies are those strategies that will have a direct impact on mitigation Hall 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 Hall County. These strategies may be in the earlier stages of development or score mediocre on a preliminary cost-benefit analysis	
HIGH	High priority strategies are those strategies that would have a direct, large impact on mitigation Hall County's hazards. These strategies are oftentimes well-established needs of Hall County and/or all municipalities and have score high on a preliminary cost-benefit analysis	

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 Hall County for the event, the all-hazard impact of the mitigation strategy, and a cost-benefit analysis for the mitigation action. For example, mitigation actions that address high-likelihood, high-impact events with a low cost would rate higher than low-likelihood, high-impact events with a high cost.

The following Mitigation Charts meet:

[Requirement §201.6\(c\)\(3\)\(ii\)](#)

[Requirement §201.6\(d\)\(3\)](#)

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 1: Reduce damage to property and loss of life through the utilization of preventative activities																	
1.a	Utilize Planning and Zoning regulations to deter development in the floodplains	Hall County and municipal planning departments <i>Hall County and all municipalities</i>	X									Local budgets	Staff time	12 months	In place; Continue	High	1.a
1.b	Enforce building standards related to flooding	Hall County and municipal planning departments <i>Hall County and all municipalities</i>	X									Local budgets	Staff time	18 months	In process; Ongoing	Medium	1.b
1.c	Participate in NFIP Community Rating System (CRS)	Hall County and municipal planning departments and EMA <i>Hall County and all municipalities</i>	X									Local budgets	Staff time	36 months	Research into process and needs ongoing	Low	1.c

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.d	Maintain NFIP Compliance	Hall County Board of Commissioners and municipal councils <i>Hall County and all municipalities</i>	X									Local budgets	Staff time	12 months	In place; Continue	High	1.h; 1.i; 1.j; 1.k; 1.l; 1.m; 1.n; 1.o; 1.p
1.e	Utilize zoning regulations to discourage building in wildfire hazard areas	Hall County and municipal planning departments <i>Hall County and all municipalities</i>							X			Local budgets	Staff time	36 months	Research ongoing	Low	5.a
1.f	Enforce current water use ordinances	Hall County, Braselton, and Gainesville planning departments <i>Hall County, Braselton, and Gainesville</i>						X	X			Local budgets	Staff time	24 months	In place; Continue	Medium	5.f

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.g	Institute water use ordinances	Municipal planning departments <i>Buford, Flowery Branch, Gillsville, Lula, Oakwood, and Clermont</i>						X	X			Local budgets	Staff time	24 months	Research into ordinances ongoing	Medium	5.e
1.h	Amend construction standards to bury power lines in new developments	Municipal planning departments <i>Buford, Flowery Branch, Gillsville, Lula, Oakwood, and Clermont</i>		X	X	X	X			X		Local budgets	Staff time	24 months	In place in Gainesville and Hall County; Under research	Medium	7.b
1.i	Revise roof construction standards for high wind events	Hall County and municipal planning departments <i>Hall County and all municipalities</i>		X	X	X	X					Local budgets	Staff time	48 months	Review of construction standards ongoing	Low	7.c

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/Status	Priority	Previous Strategy #
1.j	Obtain NFIP Compliance through the application of ordinances and regulations	EMA and Gillsville City Council <i>City of Gillsville</i>	X				X					Local budgets	Staff time	24 months	NEW	High	NEW
OBJECTIVE 2: Minimize the damage to property and loss of life through property protection measures																	
2.a	Provide flood protection for national historic registry sites	Hall County and municipal planning departments <i>Hall County and all municipalities</i>	X				X					Public and private grants and/or local budgets	\$5 million	60 months	Site identification underway	Low	1.c
2.b	Purchase and maintain generators at all critical facilities	Hall County EMA, Public Works, and municipal public works <i>Hall County and all municipalities</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$20 million	60 months	Ongoing project – maintenance in place	High	6.b

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.c	Purchase generator for Oakwood City Hall	Hall County EMA and Oakwood City Council <i>City of Oakwood</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$35,000	60 months	NEW	Medium	NEW
2.d	Purchase generator (mobile) and install transfer switch for Gainesville Traffic Building	Hall County EMA and Gainesville Public Works <i>City of Gainesville</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$500,000	60 months	NEW	High	NEW
2.e	Purchase generator (mobile) and install transfer switch for Altavista Complex	Hall County EMA and Gainesville Public Works <i>City of Gainesville</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$500,000	60 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.f	Purchase generator for City of Buford Water Plant	Buford Water Department and Hall County EMA <i>City of Buford</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$1 million	60 months	NEW	High	NEW
2.g	Purchase generator for Town of Clermont Town Hall	Clermont Town Council and Hall County EMA <i>Town of Clermont</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$35,000	60 months	NEW	Medium	NEW
2.h	Purchase generator for City of Gainesville Riverside Water Plant	Gainesville Water Department and Hall County EMA <i>City of Gainesville</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$1 million	60 months	NEW	High	NEW
2.i	Purchase generator (mobile) and install transfer switch for	Hall County EMA and Gainesville City Council		X	X	X	X			X		Public and private grants and/or	\$100,000	60 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
	Gainesville Administrative Bldg	City of Gainesville										local budgets					
2.j	Purchase generator for Gainesville Solid Waste	Gainesville Solid Waste and Hall County EMA City of Gainesville		X	X	X	X			X		Public and private grants and/or local budgets	\$100,000	60 months	NEW	Medium	NEW
2.k	Build crew quarters for Hall County Public Works complex	Hall County Public Works Hall County										Public and private grants and/or local budgets					
			X	X	X	X	X		X	X	X	Public and private grants and/or local budgets	\$400,000	60 months	NEW	Medium	NEW
2.l	Provide updates and renovations to the Flowery Branch Sewer Plant	Flowery Branch City Council City of Flowery Branch	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$2 million	60 months	NEW	Medium	NEW
OBJECTIVE 3: Minimize the damage to property and loss of life through natural resource protection activities																	

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
3.a	Provide for proper maintenance of power lines, including clearing of trees	Utility companies at behest of Hall County and municipal governments <i>Hall County and all municipalities</i>		X	X	X	X		X	X		Public and private grants and/or private or local budgets	\$5 million	60 months	In place; Ongoing	High	5.c
OBJECTIVE 4: Reduce damage to property and loss of life through the utilization of structural mitigation projects																	
4.a	Improve road construction related to flooding, such as elevating roadways, improving culverts, etc.	Hall County and municipal public works departments <i>Hall County and all municipalities</i>	X				X					Public and private grants and/or local budgets	\$15 million	60 months	Continuous ongoing project	High	1.c
4.b	Construct safe rooms/buildings in subdivisions and mobile home parks	Hall County EMA <i>Hall County and all municipalities</i>				X	X					Public and private grants and/or	\$2.5 million	60 months	Area identification under research	Medium	2.b

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
local budgets																	
4.c	Purchase and install 6 inch water trash pump	City of Gainesville Water Department City of Gainesville	X		X		X					Public and private grants and/or local budgets	???	????	NEW	Medium	NEW
4.d	Provide stormwater upgrades at Balus Creek	City of Gainesville Water Department City of Gainesville and City of Oakwood	X		X		X					Public and private grants and/or local budgets	\$500,000	60 months	NEW	Medium	NEW
4.e	Upgrade stormwater pipes as needed	City of Gainesville Water Department	X		X		X					Public and private grants and/or	Determined by project	60 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
		City of Gainesville and City of Oakwood										local budgets					
4.f	Install box culverts on Main Street and Phil Negro Blvd	Flowery Branch public works department <i>Flowery Branch</i>	X		X		X					Public and private grants and/or local budgets	\$500,000	36 months	NEW	Medium	NEW
OBJECTIVE 5: Increase the ability of Hall County, its municipalities, and its citizens to respond to natural and manmade hazards through emergency service measures																	
5.a	Purchase a portable bridge to provide emergency ingress/egress during flood events	Hall County EMA; Hall County and municipal public works departments <i>Hall County and all municipalities</i>	X		X		X					Public and private grants and/or local budgets	\$150,000	36 months	Research into need and cost ongoing	Medium	1.f
5.b	Create a database of developments with	Hall County and municipal	X		X		X					Local budgets	Staff time	24 months	Ongoing project	Low	1. g

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
	detention/stormwater ponds	planning departments <i>Hall County and all municipalities</i>															
5.c	Provide adequate storm sheltering locations for elderly population	Hall County EMA <i>Hall County and all municipalities</i>				X	X					Public and private grants and/or local budgets	\$250,000	36 months	Location identification ongoing	Medium	2.a
5.d	Maintain existing outdoor warning sirens	Hall County EMA <i>Hall County and all municipalities</i>				X						Public and private grants and/or local budgets	\$250,000	48 months	Some sirens installed, modified to maintain	Medium	3.a (mod)
5.e	Purchase a fire boat	Hall County Fire Department <i>Hall County</i>	X			X	X					Public and private grants and/or local budgets	\$1.5 million	60 months	None due to low priority	Low	5.d

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.f	Update inventory of generators at critical facilities	Hall County EMA and Hall County and municipal Public Works departments <i>Hall County and all municipalities</i>		X	X	X	X			X		Local budgets	Staff time	18 months	Ongoing project	High	6.a
5.g	Locate a storage area for palletized salt/gravel storage for county and municipal use	Hall County and municipal public works departments <i>Hall County and all municipalities</i>		X								Local budgets	Staff time	18 months	Location scouting ongoing	High	7.a
5.h	Purchase and provide training on fully compliant drone	Hall County and municipal first responder agencies (law enforcement, fire, and EMA) <i>Hall County and all municipalities</i>	X		X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$15,000 each	18 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.i	Identify location for a portable fuel storage site	Hall County and municipal public works departments <i>Hall County and all municipalities</i>		X	X	X	X		X	X	X	Local budgets	Staff time	24 months	NEW	Medium	NEW
5.j	Purchase a wheeled excavator	City of Oakwood Council <i>City of Oakwood</i>										Public and private grants and/or local budgets					
			X		X		X					Public and private grants and/or local budgets	\$250,000	36 months	NEW	Medium	NEW
5.k	Purchase 3 grapple trucks for debris removal operations	Hall County Public Works <i>Hall County and all municipalities</i>		X	X	X	X			X	X	Public and private grants and/or local budgets	\$200,000	48 months	NEW	High	NEW
5.l	Purchase portable traffic control devices	Buford public works department <i>City of Buford</i>										Public and private grants and/or					
			X		X	X	X		X	X	X	Public and private grants and/or	\$25,000	48 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
												local budgets					
5.m	Purchase emergency flood lights	Hall County and municipal public works departments <i>Hall County and all municipalities</i>	X		X	X	X			X	X	Public and private grants and/or local budgets	\$50,000	24 months	NEW	High	NEW
5.n	Purchase portable radios for emergency response agency use	Hall County 911 and Hall County and municipal emergency response agencies <i>Hall county and all municipalities</i>	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$2 million	36 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.o	Purchase portable radios for non-emergency response agency use	Hall County 911 and Hall County and municipal non-emergency response agencies <i>Hall county and all municipalities</i>	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$1 million	60 months	NEW	Medium	NEW
5.p	Purchase safety panels, digital message boards, and road closure signage	Hall County and municipal public works departments <i>Hall County and all municipalities</i>	X	X	X	X	X		X	X	X	Public and private grants and/or local budgets	\$125,000	60 months	NEW	Medium	NEW
5.q	Purchase emergency barricades for all municipalities	Municipal public works departments <i>All Hall County municipalities</i>	X	X	X	X	X		X	X	X	Public and private grants and/or local budgets	\$75,000	48 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.r	Purchase temporary storage units for use by response agencies	Hall County Public Works <i>Hall County</i>	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$20,000	42 months	NEW	Low	NEW
5.s	Purchase salting/plowing equipment	Hall County Public Works <i>Hall County</i>		X								Public and private grants and/or local and private budgets	\$250,000	48 months	NEW	High	NEW
5.t	Purchase a snow plow	Hall County Public Works <i>Hall County</i>		X								Public and private grants and/or local budgets	\$25,000	24 months	NEW	High	NEW
5.u	Purchase chippers and grinders for debris	Hall County and municipal public works			X	X	X		X	X		Public and private grants and/or	\$150,000	30 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
Hall County and all municipalities																	
5.v	Purchase/equip 6x12 emergency logistics trailer (folding tables, chairs, canopies, large coolers, four commercial portable fans, 10 radios, 5 laptops w/ mobile internet, 4 printers, 4 electric heaters, 5 large garbage cans)	Hall County Schools <i>Hall County and all municipalities</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$125,000	24 months	NEW	High	NEW
5.w	Purchase 2 portable 9500W generators, 10 5 gallon gas cans, and extension cords for use with generator	Hall County Schools <i>Hall County and all municipalities</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$20,000	30 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.x	Purchase 1 CONEX box and traffic cones	Lanier Technical College <i>Lanier Technical College</i>	X	X	X	X	X		X	X	X	Public and private grants and/or local budgets	\$7,500	18 months	NEW	Medium	NEW
5.y	Purchase a Sewer Vac Truck	Flowery Branch Public Works <i>Flowery Branch</i>	X		X		X				X	Public and private grants and/or local budgets	\$500,000	36 months	NEW	Low	NEW
5.z	Adopt policy that all future vehicles will be capable of 4-wheel drive	Hall County Public Works <i>Hall County</i>	X	X	X	X	X		X	X	X	Local budgets	Staff time	18 months	NEW	High	NEW
5.aa	Purchase and equip Traffic operations Unit (HERO-type unit)	Hall County Public Works <i>Hall County</i>	X		X	X	X			X	X	Public and private grants and/or local budgets	\$200,000	48 months	NEW	Low	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.bb	Purchase specialized equipment for boat/dock recovery	Hall County Public Works <i>Hall County</i>	X						X			Public and private grants and/or local budgets	\$200,000	60 months	NEW	Low	NEW
5.cc	Establish a salt/brining program	Hall County Public Works <i>Hall County</i>		X								Public and private grants and/or local budgets	\$100,000	30 months	NEW	High	NEW
5.dd	Expand current salt/brining program	Gainesville Public Works <i>City of Gainesville</i>		X								Public and private grants and/or local budgets	\$150,000	30 months	NEW	High	NEW
5.ee	Identify a location (land) and purchase equipment for debris management operations	Buford and Oakwood Public Works departments			X	X	X			X		Public and private grants and/or local budgets	\$1 million	60 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
<i>Cities of Buford and Oakwood</i>																	
5.ff	Provide storage location and equipment for the storage of palletized calcium	Hall County and municipal public works departments <i>Hall County and all municipalities</i>		X								Public and private grants and/or local budgets	\$250,000	60 months	NEW	Medium	NEW
5.gg	Purchase additional electronic signage	Hall County Public Works and Engineering <i>Hall County</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$100,000	36 months	NEW	High	NEW
5.hh	Purchase additional electronic signage	Flowery Branch Public Works <i>City of Flowery Branch</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$75,000	36 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.ii	Purchase additional electronic signage	Buford Street Department <i>City of Buford</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$75,000	36 months	NEW	High	NEW
5.jj	Purchase additional electronic signage	Gainesville Public Works <i>City of Gainesville</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$75,000	36 months	NEW	High	NEW
5.kk	Purchase and provide storage for chainsaws and sandbags	Hall County Engineering <i>Hall County and all municipalities</i>	X			X	X			X		Public and private grants and/or local budgets	\$15,000	24 months	NEW	Medium	NEW
5.ii	Develop a purchasing policy regarding contractors to supplement county and municipal response activities	Hall County Board of Commissioners and municipal councils	X	X	X	X	X	X	X	X	X	Local budgets	Staff time	18 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
	during an emergency condition	<i>Hall County and all municipalities</i>															
5.m	Purchase equipment needed to support Next Gen technologies in 911 Center	Hall County 911 <i>Hall County and all municipalities</i>	X	X	X	X	X		X	X	X	Public and private grants and/or local budgets	\$1 million	60 months	NEW	High	NEW
5.nn	Purchase portable bypass pumps for lift stations	Hall County Public Works <i>Hall County</i>	X		X	X	X			X	X	Public and private grants and/or local budgets	\$150,000	60 months	NEW	Medium	NEW
5.oo	Hire training officer for Hall County Public Works to help educate department personnel on disaster response and safety and serve as EMA liaison	Hall County Public Works <i>Hall County</i>	X	X	X	X	X		X	X	X	Local budgets	\$75,000	30 months	NEW	Low	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.pp	Purchase snow plow for Town of Clermont	Town of Clermont public works department <i>Town of Clermont</i>		X								Public and private grants and/or local budgets	\$35,000	30 months	NEW	Medium	NEW
5.qq	Provide fuel storage area and equipment for Flowery Branch police, public works, and sewer departments	Flowery Branch police, public works, and sewer <i>City of Flowery Branch</i>		X	X	X	X			X	X	Public and private grants and/or local budgets	\$100,000	48 months	NEW	Medium	NEW
5.rr	Purchase traffic cones and barricades	Flowery Branch Public Works <i>City of Flowery Branch</i>	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$20,000	42 months	NEW	Medium	NEW
5.ss	Purchase traffic cones and barricades	Town of Clermont public works department	X		X	X	X		X	X	X	Public and private grants and/or local budgets	\$15,000	36 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
<i>Town of Clermont</i>																	
5.tt	Purchase tandem trucks for debris removal and snow/ice operations	Hall County Public Works <i>Hall County</i>		X	X	X	X			X		Public and private grants and/or local budgets	\$250,000	42 months	NEW	Medium	NEW
5.uu	Purchase mass animal care and transport vehicle and trailers	Hall County Animal Control <i>Hall County and all municipalities</i>			X	X	X	X	X	X		Public and private grants and/or local budgets	\$200,000	48 months	NEW	Low	NEW
5.vv	Train all county and municipal department heads in Incident Command (ICS 100, 200, 700, and 800)	Hall County EMA <i>Hall County and all municipalities</i>	X	X	X	X	X	X	X	X	X	Local budgets	Staff time	24 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.w	Create, train, and purchase equipment for a swift water rescue team	Gainesville Fire Department <i>City of Gainesville</i>	X				X					Public and private grants and/or local budgets	\$350,000	36 months	NEW	Medium	NEW
5.xx	Purchase/upgrade mobile command vehicle	Hall County EMA <i>Hall County and all municipalities</i>			X	X	X		X	X	X	Public and private grants and/or local budgets	\$500,000	36 months	NEW	Medium	NEW
5.yy	Purchase the following for City of Gainesville Public Works Traffic: Bucket trucks, emergency portable signage, portable generators, and traffic control infrastructure (mast arms, wire, signals heads)	Gainesville Public Works <i>City of Gainesville</i>	X	X	X	X			X			Public and private grants and/or local budgets	\$500,000	60 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.zz	Purchase the following for Gainesville Public Works Streets: radios, balloon lights, trailer mounted portable generator, barricades	Gainesville Public Works <i>City of Gainesville</i>	X	X	X	X	X			X	X	Public and private grants and/or local budgets	\$250,000	60 months	NEW	Medium	NEW
5.aa a	Purchase Storm Cleanup equipment (chainsaws, skidsteers, chippers, grinders, grapples, tilt trailer, clam shell loader, etc)	Gainesville Public Works <i>City of Gainesville</i>			X	X	X			X		Public and private grants and/or local budgets	\$200,000	60 months	NEW	Medium	NEW
5.bb b	Purchase snow removal equipment (plows, spreaders, chemicals, sand, salt, etc.)	Gainesville Public Works <i>City of Gainesville</i>		X								Public and private grants and/or local budgets	\$150,000	48 months	NEW	Medium	NEW
5.cc c	Purchase trailer mounted trash pump	Gainesville Public Works <i>City of Gainesville</i>			X	X	X					Public and private grants and/or local budgets	\$100,000	60 months	NEW	Medium	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.dd	Purchase drones and acquire training for damage assessment	Gainesville Public Works <i>City of Gainesville</i>			X	X	X			X	X	Public and private grants and/or local budgets	\$20,000	24 months	NEW	Medium	NEW

OBJECTIVE 6: Increase public education and awareness of natural hazards

6.a	Partner with local media for TV/Radio emergency preparedness advertisements and messaging	Hall County EMA <i>Hall County and all municipalities</i>	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$10,000	24 months	NEW	High	NEW
6.b	Create a community outreach program regarding natural hazards, such as winter storms, tornadoes, and severe thunderstorms to inform the public on proper response actions	Hall County EMA <i>Hall County and all municipalities</i>	X	X	X	X	X	X	X	X	X	Public and private grants and/or local budgets	\$10,000	24 months	Ongoing; In place	High	4.a and 4.b

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization <i>Jurisdiction</i>	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Sinkholes/Landslide	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.c	Utilize Firewise Communities program to inform public about the threat of wildfires and encourage planning initiatives	Hall County Fire Rescue <i>Hall County and all municipalities</i>							X			Public grants, State and local budgets	\$25,000	30 months	Identification of communities ongoing	Medium	5.b

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 7: Minimize the impacts on local citizens, industry, and infrastructure of a dam breach														
7.a	Encourage safe dam design and planning	Hall County and municipal planning departments <i>Hall County and all municipalities</i>	X		X		X		Local budgets	Staff time	12 months	In place; Continue	High	8.f
7.b	Continue to do a dam breach analysis ever 2-5 years for all reservoirs in Hall County	Hall County Public Works <i>Hall County and all municipalities</i>	X		X		X		Local budgets	Staff time	12 months	NEW	High	NEW
OBJECTIVE 8: Increase public awareness of local manmade hazards and proper response to those hazards														
8.a	Institute a public awareness campaign regarding technological and manmade hazards	Hall County EMA <i>Hall County and all municipalities</i>	X	X	X	X	X	X	Public and private grants and/or local budgets	\$5,000	24 months	NEW	High	NEW

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 9: Implement additional protective measures and capabilities in response to manmade incidents														
9.a	Provide ALERRT Training for all agencies that would respond to a potential active attack incident	Hall County and municipal Law Enforcement Agencies and EMA <i>Hall County and all municipalities</i>			X				Public and private grants and/or local budgets	\$10,000	18 months	NEW	High	NEW
9.b	Purchase and equip a mobile dispense unit for public health emergencies	Hall County Board of Health <i>Hall County and all municipalities</i>			X			X	Public and private grants and/or local budgets	\$75,000	36 months	NEW	Medium	NEW
9.c	Equip and train a Hazardous Materials Response Team	Hall County and municipal Fire/Rescue Departments <i>Hall County and all municipalities</i>		X	X	X		X	Public and private grants and/or local budgets	\$250,000	48 months	Training in place; some equipment purchased	High	8.c

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
9.d	Purchase perimeter monitoring equipment for HazMat Incidents	Hall County and municipal Fire/Rescue Departments <i>Hall County and all municipalities</i>		X	X	X		X	Public and private grants and/or local budgets	\$50,000	48 months	NEW	Medium	NEW
9.e	Purchase broader spectrum equipment for HazMat Incidents	Hall County and municipal Fire/Rescue Departments <i>Hall County and all municipalities</i>		X	X	X		X	Public and private grants and/or local budgets	\$20,000	48 months	NEW	Medium	NEW
9.f	Continue to train and equip first responders in hazardous materials operations	Hall County EMA; Hall County and municipal fire departments <i>Hall County and all municipalities</i>		X	X	X		X	Public and private grants and/or local budgets	\$15,000	24 months	Training regimen in place	High	8.d

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
9.g	Provide zoning regulations to encourage the buffering of residential/ commercial and industrial sites	Hall County and municipal Planning departments <i>Hall County and all municipalities</i>		X	X	X	X		Local budgets	Staff time	30 months	Research on regulations ongoing	Medium	8.e
9.h	Upgrade gas utility emergency response trailer – the trailer and included equipment	Buford Gas Department <i>City of Buford</i>		X	X				Public and private grants and/or local budgets	\$100,000	30 months	NEW	High	NEW
9.i	Purchase structural collapse trailer and equipment	Gainesville Fire Department <i>City of Gainesville</i>			X		X		Public and private grants and/or local budgets	\$200,000	60 months	NEW	Medium	NEW

Completed Mitigation Strategies

Previous Strategy #	Strategy	Status
8.g	Develop a comprehensive dam inspection, maintenance, and enforcement program	COMPLETE
8.a	Maintain safety procedures/policies/plans in accordance with state and federal regulations	COMPLETE

Deleted Mitigation Strategies

Previous Strategy #	Strategy	Reason for Deletion
8.b	Maintain an active LEPC	No longer a priority; Committee defunct

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 Hall County Hazard Mitigation Plan 2017.

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

Maintenance

Requirement §201.6(c)(4)(iii)

To adhere to best practices, state and federal guidelines, and lessons learned, the Hall 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 2017 Hall County Hazard Mitigation Plan was followed, to the best abilities of Hall County. This most importantly included an increased attempt for public participation and inclusion in the planning process. The Hall County Hazard Mitigation Plan Update Committee will reconvene annually in February to monitor and evaluate the progress of the mitigation strategies in the Plan. Hall County's Emergency Management Director, Casey Ramsey, will be responsible for implementing this meeting. The Committee will discuss the following questions annually:

- Do the goals address current and expected hazards and conditions?
- Are the goals and objectives still relevant to the County?
- Has the nature or magnitude of risks changed?
- Does the risk assessment portion of the Plan need to be updated or modified?
- Are the goals and objectives meeting changes in state and federal policy?
- Are the current resources appropriate for implementing the Plan?
- Are there local implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Did the 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?

Hall County's Emergency Management Director will send the minutes from this annual meeting to Hall County Board of Commissioners and the municipalities of Braselton, Buford, Flowery Branch, Gainesville, Gillsville, Lula, Oakwood, and Clermont for review.

If there are any updates or modifications to the Hall 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 Hall 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
2020-2021	Five Year Hazard Mitigation Plan Update	FEMA Requirement	Hall County Hazard Mitigation Planning Committee with assistance from Lux Mitigation and Planning

Plan Distribution

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

Hall County Board of Commissioners
Hall County Fire Department
Hall County Emergency Management Agency
Hall County Sheriff's Office
Hall County Public Works
Hall County Code Enforcement
Hall County Board of Education
City of Braselton
City of Buford
City of Flowery Branch
City of Gainesville
City of Gillsville
City of Lula
City of Oakwood
Town of Clermont

A printed copy of the approved Plan will be available for viewing at the Hall County Commissioner's Office located at 2875 Browns Bridge Road in Gainesville, Georgia 30504. A printed copy of the approved Plan will also be available for viewing at the Hall County Public Library located at 127 Main Street NW in Gainesville. A copy of the Hall County Hazard Mitigation Plan will also be made available on the Hall County Emergency Management Agency website. The existence and location of these copies will be publicized in the County's local newspaper, The Gainesville Times.

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

Implementation

Requirement §201.6(c)(4)(ii)

Each jurisdiction participating in the Hall County Hazard Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in this plan. In the Mitigation Strategies section, every proposed strategy is assigned to a specific local department or agency to assign responsibility and accountability and increase the likelihood of subsequent implementation.

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

Hall County and all 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 Hall County Hazard Mitigation Plan.

This plan, as a joint effort between Hall County and the Municipalities of Braselton, Buford, Flowery Branch, Gainesville, Gillsville, Lula, Oakwood, and Clermont 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 Hall 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. Aspects of this plan will be integrated into the Hall County Comprehensive Plan during the next planning cycle.

Identified hazards and mitigation strategies of the 2017 Hall 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. Hall County will integrate mitigation strategies identified in this plan into the Hall 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 Hall County and all municipalities. 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		Yes	No	No
Comprehensive Plan	Hall County Comprehensive Plan	Yes	No	No
Economic Development Plan	Hall County Comprehensive Plan	Yes	No	Yes
Emergency Management Accreditation Program		No	No	Yes
Emergency Response Plan	Hall County Local Emergency Operations Plan (LEOP)	Yes	No	Yes
Flood Management Plan		Yes	No	No
Historic Preservation		Yes	No	No
National Flood Insurance Program Participation		Yes	No	Yes
Continuity of Government/Operations Plan		No	No	No
Post-Disaster Ordinance		Yes	No	No
Zoning Ordinances	County and Municipal Codes	Yes	No	No

Opportunities to integrate the requirements of this Plan into other local planning mechanisms

shall continue to be identified. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Hall 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 Hall County Hazard Mitigation Plan may be required to ensure that the goals of this plan are kept current with federal, state, and local regulations. These revisions should also consider any potential changes in the hazard vulnerability and mitigation priorities of Hall County.

The Hall County Hazard Mitigation Plan Update Committee will meet annually to review the Hall 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 Hall 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 Hall County Hazard Mitigation Plan is continuously updated to allow for changes in hazard vulnerabilities and identified mitigation strategies.

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

Peer Review

State Requirement Element F1

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

Hall County Hazard Mitigation Plan Update was peer reviewed by:

Chris Grimes Director Forsyth County Emergency Management Agency	Date
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David Wimpy Director Lumpkin County Emergency Management Agency	Date
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Greg Swanson Director Gwinnett County Emergency Management Agency	Date
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David Murphy Director White County Emergency Management Agency	Date
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Plan Update

Requirement §201.6(c)(4)(i)

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

In the first quarter of 2026, Hall County plans to begin the Hazard Mitigation Plan Update process for the fourth time. This planning process will include bi-monthly meetings to accomplish the identified goals of the Hall County Hazard Mitigation Plan Update. This process will be headed up by the Hall County Emergency Management Agency. The Hall County Hazard Mitigation Planning Committee will follow a similar process as was undertaken during this planning cycle to complete all FEMA and GEMA requirements for the Hazard Mitigation Plan Update. This process will be completed by the first quarter of 2027 to meet all identified planning deadlines.

Conclusion

As a result of the hazard mitigation planning process, Hall County, and all municipalities therein, as well as additional participating organizations have gained significant information and knowledge regarding Hall 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 Hall County Hazard Mitigation Planning Committee was the inability to consistently identify geographic locations that were more vulnerable to most hazards due to the widespread potential effects and random impact areas of each hazard. This was exceedingly true for most natural hazards. Recognizing this challenge, the Hall 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 Hall County Hazard Mitigation Plan Update Committee to adopt strategies that will have the greatest positive effect on the greatest amount of the population.

The Hall 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. Structural Projects and Emergency Services comprised the greatest number (%) of the mitigation strategies identified by Hall County.

Appendix A – Hall County Dams Information*Category I Dams*

Name	Latitude	Longitude	Height (feet)	Storage (acres)
Royal Lakes Dam #1	34.195000	-83.846806	47.10	372.00
Royal Lakes Dam #2	34.193611	-83.849167	43.00	128.00
Sterling on the Lake Dam #1	34.140278	-83.895833	27.00	452.00
Cedar Creek Reservoir Dam	34.324560	-83.723310	97.00	5100.00

Category II Dams

Name	Latitude	Longitude	Height (feet)	Storage (acres)
Alpha Iii Lake Dam	34.231667	-83.693056	32.00	31.00
Brenau Lake Dam	34.318056	-83.811111	30.00	151.00
Chicopee Woods Hole #3 Lake Dam	34.238333	-83.843333	38.00	98.00
Clark Lake Dam	34.378333	-83.795000	34.00	58.00
Gainesville Stone Lake Dam	34.206389	-83.770278	40.00	162.00
Jaemor Farms Irrigation Dam	34.420278	-83.634167	33.00	79.00
Martins Lake Dam	34.413333	-83.838333	37.00	80.00
Middle Oconee- Walnut Creek Structure No 9	34.225000	-83.713333	46.00	448.00
Middle Oconee- Walnut Creek Str No 1	34.225000	-83.825000	47.00	1563.00
Middle Oconee- Walnut Creek Structure No 7	34.255833	-83.789444	47.00	1139.00
Middle Oconee-Walnut Creek Watershed No. 3	34.206389	-83.805556	40.00	347.00
Old Adams Lake Dam	34.325556	-83.756944	27.00	50.00
Ramsey Lake Dam	34.333333	-83.775556	17.00	405.00
Spring Lake Dam	34.177778	-83.956111	53.00	250.00
Sterling on the Lake Upper Dam	34.148333	-83.902222	28.00	457.00
Tara Lake Dam	34.270278	-83.689444	37.00	16.00
Thomas Lake Dam	34.398611	-83.956944	27.00	36.00
Upper Mulberry River Watershed Structure #8	34.132500	-83.818889	62.00	1210.00

Wauka Mountain Lake Dam	34.501944	-83.791667	30.00	128.00
Wow Youth Camp Dam	34.383889	-83.971667	29.00	125.00
Young Lake Dam	34.440833	-83.867778	34.00	39.00

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

Hall County Hazard Mitigation Plan Update
Committee Meeting #1Sign-In Sheet (52)

Tuesday, October 19, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
Kevin Gail / Network administration		kgail@hallcounty.org	MIS
Zach Brinkhoff / Operations and Special Projects		zbrinkhoff@hallcounty.org	EMA
Mallory Danner / Emergency Mgmt Specialist - Planning		mdanner@hallcounty.org	EMA
Shelley Carter / Assistant Supervisor		sdshelley@hallcounty.org	Road Maint.
Jimmy Hightower / Supervisor		jhigh@hallcounty.org	Road Maint.
Eric Stowers / Gainesville Fire		estowers@gainesvillega.gov	Gainesville Fire
Chad Payne / Gainesville Fire		chadpayne@gainesvillega.gov	Gainesville Fire
Frank Milon / Engineer		fmilon@hallcounty.org	ENGINEERING
Chip Miller		kmiller@hallcounty.org	Marsh
Tim Drake / Batt Capt		t Drake@hallcounty.org	Hall Fire
Kelly Hairston / EIT Co. Mgr		khairston@hallcounty.org	Env. Health
John Dawson / Sergeant		jdawson@hallcounty.org	Sheriff's Office

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #1**

Sign-In Sheet

Tuesday, October 19, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Staci Chapman, Public Affairs Officer		staci.chapman@ung.edu	WUG Public Safety
✓ Amanda Letson, 911 Director		aletson@hallcounty.org	Hall 911
✓ Walt Davis		wadavis	Corrections
✓ Johnnie Vickers		johnnie@hallcounty.org	Solid Waste
✓ Stephen Carey		scarey@hallcounty.org	Landfill
✓ Tai Aaron		taaron@hallcounty.org	Landfill
✓ Todd Beebe		tbeebe@hallcounty.org	COB
✓ Kevin Bruecker, Field Supervisor		KBruecker@hallcounty.org	Animal Control
✓ Tim Gause		tgausc@hallcounty.org	Animal Control
✓ Sarah McQuade, Planning Director		SMCQUADE@HALLCOUNTY.ORG	HALL CO
✓ Srikanth Vannala, Public Works		svannala@hallcounty.org	Hall 6
✓ Adam Walker, Senior PC Technician		Awalker@hallcounty.org	MIS

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #1**

Sign-In Sheet

Tuesday, October 19, 2021

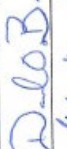
Name/Title	Signature	E-mail Address	Agency/Organization
DENNIS BERGIN <i>CITY MGR</i>	<i>Dennis Bergin</i>	<i>BERGIN@CITYOFHALL.GOV</i>	<i>CITY OF HALL</i>
Tina Hoken	<i>Tina Hoken</i>	<i>thoken@arkwood.net</i>	<i>Arkwood PD</i>
Angela Cox	<i>Angela Cox</i>	<i>acox@hallcounty.org</i>	<i>911</i>
Doug Smith	<i>Doug Smith</i>	<i>dsmithe@jacksonemc.com</i>	<i>Clackson EMC</i>
Kadette Smith	<i>Kadette Smith</i>	<i>lsmith@hallcounty.org</i>	<i>Road Maintenance</i>
Danna She Campbell	<i>DSC Campbell</i>	<i>Danna.She.Campbell@phs.ga.gov</i>	<i>Public Health District 2</i>
Bill Nash	<i>Bill Nash</i>	<i>bnash@hallcounty.org</i>	<i>Public Works</i>
GLENNIS BARNES GPC	<i>Glennis E. Barnes</i>	<i>glennis@csouthwest.com</i>	<i>Georgia Power</i>
CHLIS ROTASKEY	<i>Chlis Rotaskey</i>	<i>chrotaskey@countynetusa.com</i>	<i>Charles County Public Works</i>
Bry-Lady	<i>Bry-Lady</i>		
Melba Camp	<i>Melba Camp</i>	<i>Melba.Camp@nj.net</i>	<i>NJHS</i>
Chasandra Davidson	<i>Chasandra Davidson</i>	<i>chdasandra@comcast.com</i>	<i>NGHS</i>

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #1**

Sign-In Sheet

Tuesday, October 19, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
Jason Spivey		jspivey@chathamcountyga.gov	Chatham
Kimberly Angel		kimberly.angel@gema.ga.gov	GEMA/HCS
Andrea Gaines, HC Health		andrea.gaines@dcph.ga.gov	Health Dept.
Bentley Wade		gwade@cityofbuckhead.com	City of Buckhead
Kris Armstrong			HCS
M.KE LITTLE			HC Beks
Lashae Flesher, Hall Co DCS		lashae.flesher@dcshs.ga.gov	Hall Co DCS
DONEL O. B RANCH		dbranch@cityofbuckhead.com	Buckhead DCS
Mike Martin		mmartin@gwinetownil.com	Gwinetownil.com
Kathie Crumley		Kcrumley@hallcountyga.org	Admin.
Paul Wilson		P.Wilson@hallcountyga.org	HCS
Casey Ramsey		cramsey@hallcountyga.org	Hall Em

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #2**

Sign-In Sheet

Wednesday, November 3, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Nick Shirley / CRM Manager		nshirley@hallcounty.org	Hall County GIS
✓ Chad Payne / ESRG Manager		cpayne@hcsd.us	GA STATE
✓ Tru Grace		trugrace@hcsd.us	Hall Co. AC
✓ Don Ryle / Asst Dir, DWR		dyle@ga.gov	City of Greenville GA
✓ Jay Parzuch / GFD Chief		jparzuch@sa-norfolk.gov	Greenville PD
✓ Mark Papp / FH EDR		mark.papp@aph.ga.gov	District 2, PH
✓ Chris Rzesutsky / GARDEN P.W.		crzesutsky@sa-norfolk.gov	Greenville P.H.
✓ Jorge Gomez / HLI Engineer		jorge.gomez@hollands.org	HLS ERS incoring
✓ GLENN BARNES / Power		g.barnes@southco.com	Georgia Power
✓ Kate Crowley / HLI Co.		katecrowley@hollands.org	Hall Co.
✓ Jason Spence		jasonspence@hcsd.us	GA
✓ Doug Smith / HLI		dsmith@jacksonville.com	Jacksonville

**Hall County Hazard Mitigation Plan Update
Committee Meeting #2**

Sign-In Sheet

Wednesday, November 3, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Michael Todd Casper		MCASPER@hallcounty.org	Hall County Sheriff's Office
✓ Matthew Casper		MCASPER@hallcounty.org	Hall County Sheriff's Office
✓ Mallory Donner		mdonner@hallcounty.org	EMA
✓ Badette Smith		lsmith@hallcounty.org	Hall County Road Maint
✓ Stoney Bowls		SBOWLS@hallcounty.org	Hall Fire
✓ Jimmy Hatcher		slight@hallcounty.org	Hall Co. Rd Maint
✓ Adam Walker		awalker@hallcounty.org	MTS
✓ Angela Moore		amoores@hallcounty.org	Hall 911
✓ Eric Stever		estever@hallcounty.org	Gainesville Fire
✓ Andy Beasly		andy.beasly@hallcounty.org	Hall County Sheriff's Office
✓ Kelly Harvater		kharvater@hallcounty.org	Hall Co. Epr. Health
✓ Donna Sue Campbell		DonnaSue.Campbell@hallcounty.org	Dist. #2 PH

**Hall County Hazard Mitigation Plan Update
Committee Meeting #2**

Sign-In Sheet

Wednesday, November 3, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ <i>Ther Miller</i>	<i>[Signature]</i>	<i>kmiller@hallcounty.org</i>	<i>Preschool</i>
✓ <i>Natasha Young</i>	<i>[Signature]</i>	<i>nataasha.young@hallcounty.org</i>	<i>District 2</i>
✓ <i>Todo Beck</i>	<i>[Signature]</i>	<i>Hebeck@hallcounty.org</i>	<i>CoE</i>
✓ <i>STEPHEN CAREY</i>	<i>[Signature]</i>	<i>scarey@hallcounty.org</i>	<i>University of S.D.</i>
✓ <i>Red Wilser</i>	<i>[Signature]</i>	<i>rwilser@hallcounty.org</i>	<i>Hall Fire</i>
✓ <i>Casey Ramsey</i>	<i>[Signature]</i>	<i>cramsey@hallcounty.org</i>	<i>Hall EMA</i>
✓ <i>Sarah McQuade</i>	<i>[Signature]</i>	<i>smcquade@hallcounty.org</i>	<i>Hall Co.</i>
✓ <i>Kevin Buecher</i>	<i>[Signature]</i>	<i>KBuecher@hallcounty.org</i>	<i>Animal Control</i>
✓ <i>Daniel Broucht</i>	<i>[Signature]</i>	<i>dbroucht@btfed.com</i>	<i>Bureau DRS</i>
✓ <i>Gentry Webb</i>	<i>[Signature]</i>	<i>gwebb@cityofburlington.com</i>	<i>Burlington DPB</i>
✓ <i>Kathryn Smith</i>	<i>[Signature]</i>	<i>Kathryn.smith@ung.edu</i>	<i>UNG</i>
✓ <i>Frank Micon</i>	<i>[Signature]</i>	<i>frankm@hallcounty.org</i>	<i>Hall Co</i>

**Hall County Hazard Mitigation Plan Update
Committee Meeting #2**

Sign-In Sheet

Wednesday, November 3, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Tim Holch, Chief		tholch@co.knowlton.pa.net	Oakwood P.D.
✓ Tim Paerel, Capt		tpaerel@oakwoodpa.net	Oakwood P.D.
✓ Zack Brachett		zbrachett@hallcounty.org	Hall County EMA
✓ Cassandra Davidson		cassandra.davidson@nys.com	NYS
✓ Kevin Yodanis		kyodanis@hallcounty.org	NYS
✓ Douglas Shadburn		dshadburn@hallcounty.org	Rock Mount
✓ Jeremy Pickett		jpickett@hallcounty.org	Hall County EMA
✓ Andrea Gauran		andrea.gauran@ohp.org	KTID
✓ James E. Nix, Mayor		jennix711@gmail.com	Clermont
✓ Tommy Rogers			Clermont Mount
✓ Johnnie Vickers		jvickers@hallcounty.org	Hall County Public Works
✓ Amehela Letson		aletson@hallcounty.org	Hall 911

**Hall County Hazard Mitigation Plan Update
Committee Meeting #3**

Sign-In Sheet

Thursday, December 2, 2021

(36)

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Amanda Letson Director		aletson@hallcounty.org	Hall 911
✓ Shane Kinsley		shane@hallcounty.org	HCFR
✓ Douglas Shalheim		dshalheim@hallcounty.org	Hall County Health Dept.
✓ Christopher Hubsey Chief		christhubsey@floridapublichealth.org	Floridian Branch P.D.
✓ Bill Whidden Director Police Dept		bill@floridapublichealth.org	Floridian Branch P.D.
✓ DENNIS BEREN Hall Co. Enr.		beren@hallcounty.org	CIT of Hall Co. Enr.
✓ Kelly Hairston Health Co. Mgr		khairston@hallcounty.org	Hall Co. Enr. Health
✓ ANGELA MOORE		amoores@hallcounty.org	Hall 911
✓ Amy Lang		amylang@hallcounty.org	Hall EMA
✓ Mallory Denner		mdenner@hallcounty.org	Hall EMA
✓ Mark Pineda		mark.pineda@phg.org	Disaster, PH
✓ Kevin Brecker		kbrecker@hallcounty.org	Animal Services

**Hall County Hazard Mitigation Plan Update
Committee Meeting #3**

Sign-In Sheet

Thursday, December 2, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Andy Detamore		Andy.Detamore@hallcountyga.gov	Hall County
✓ Tommy Rogers			Town of Clermont
✓ James E. Nix			Town of Clermont
✓ Daniel O. Branch		dbranch@cityofbford.com	CITY OF BUFORD
✓ Nathan Smith		NSmith@hallcountyga.gov	Hall County Landfill
✓ Anabel Lopez-Ortiz		alopezortiz@hallcountyga.gov	Hall County Road Maintenance
✓ Laddette Smith		lasmith@hallcountyga.gov	Hall County Road Maintenance
✓ Jeremy Pickett		jpickett@hallcountyga.gov	Hall County EMA
✓ Jason Sparrow		jsparrow@hallcountyga.gov	Oakwood
✓ Todd Beebe		tbbebe@ga.gov	COG
✓ Kathryn Smith		Kathryn.Smith@ung.edu	UNG Public Safety
✓ Eric Stover		estover@ga.gov	Gainesville Fire

**Hall County Hazard Mitigation Plan Update
Committee Meeting #3**

Sign-In Sheet

Thursday, December 2, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Curtis Payne		cpayne@co.hall.ga.us	GA DOT
✓ Kent Helber		KelHelber@hallcounty.ga.us	GA DOT
✓ Mike Gurney		mgurney@hallcounty.org	Hall E911
✓ Don Dye (past dir)		ddye@ga.gov	GA DOT
✓ Glenn Barnes		gbarnes@southemco.com	GA DOT
✓ Steve Watson		swatson@hallcounty.org	GA DOT

**Hall County Hazard Mitigation Plan Update
Committee Meeting #3**

Sign-In Sheet

Thursday, December 2, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ BRIAN STEWART / Digital Media Specialist		BSTEWART@HALLCOUNTY.ORG	HALL COUNTY GOVERNMENT
✓ Jorge Gomez / Assistant County Eng.		Jorge.Gomez@hallcounty.org	HALL COUNTY GOV.
✓ FRANK MILLER / COUNTY ENG.		FMILLER@HALLCOUNTY.ORG	HALL CO
✓ Zach Brackett / Operations / Special Projects		zbrackett@hallcounty.org	HALL COUNTY EMA
✓ NATASHA YOUNG / Public Health PIO		nashya.young@ph.ga.gov	District 2 PH
✓ Jimmy Whitener / Rd Maint		JimmyWhitener@hallcounty.org	HALL COUNTY

**Hall County Hazard Mitigation Plan Update
Committee Meeting #4**

Sign-In Sheet

Wednesday, December 8, 2021

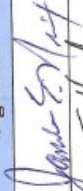
Name/Title	Signature	E-mail Address	Agency/Organization
Tommy Rogers			Town of Clermont
Daniel O. Branch		clbranch@cityofbucford.com	CITY OF BUCFORD DPS
Topo Bede		thebea@ga.gov	COG
Amber Love		alopez@hallcounty.org	Hall County Ed Maint
Cassandra Davidson		cassandra.davidson@ngs.com	NGS
Danna Sue Campbell HCF		Danna.Sue.Campbell@phs.ga.gov	Dist 2 PH
Jason Spencer		jspencer@cityofclermont.org	Oakwood
Kelly Harston, Co. Mgr		kharston@hallcounty.org	Hall Co. Env. Health
Jimmy Hightower		jhigh@hallcounty.org	Hall Co. Rd Maint
Christopher Hulse		chrishulse@flowerbranchpda.org	Flower Branch P.D.
Chris Payne		cpayne@ga.gov	GAINESVILLE FIRE
Eric Staver		estaver@ga.gov	GAINESVILLE FIRE

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #4**

Sign-In Sheet

Wednesday, December 8, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
James E. Nix			Town of Clement
Tim Holen		thatch@bakertown.net	Dakewood PD
Gentry Cude		gude@cityofbakertown.net	Bakertown DPS
Ladette Smith		ladette@hallcounty.org	Road Maintenance
Mallory Danner		mdanner@hallcounty.org	EMA
Johnnie Vickers		jvickers@hallcounty.org	Public Works
Jeremy Pickett		jpickett@hallcounty.org	Hall Co EMA
Stoney Bowles			Hall Co Fire Rescue
Don Dye		ddye@geometalloger.com	C.D.G. Fire
Kurt Helber		khelber@geometalloger.com	Geometalloger
Susanne Carey		scarey@hallcounty.org	County Tech P.D.
Christopher Huber/Chief		chub@hallcounty.org	Flowers Branch P.D.

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #4**

Sign-In Sheet

Wednesday, December 8, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
✓ Amanda Letson 911 Director		aletson@hallcounty.org	Hall 911
✓ Angela Moore Ops Mgr		amore@hallcounty.org	Hall 911
✓ Bill Whidden "Director"		671@Farmingdale.com	Public Works
✓ Bill Tai Pardon CAPT		TPardon@hallcounty.org	Fire
✓ Douglas Shadburn		dshadburn@hallcounty.org	Hall County Ad. Mgr.
✓ Amy Betancourt		amy.betancourt@hallco.org	Hall County
✓ Casey Ramsey		cramsey@hallcounty.org	Hall EMA

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**Hall County Hazard Mitigation Plan Update
Committee Meeting #4**

Sign-In Sheet

Wednesday, December 8, 2021

Name/Title	Signature	E-mail Address	Agency/Organization
DENNIS BEREN MGR		BEREN@COUNTYGA.GOV	CITY OF LOCA
THE PETERS / CAPT		THEPETERS@COUNTYGA.GOV	CASEWOOD
Kevin York / network admin		kyork@hallcounty.org	Hall County MIS
BILL NASH		bnash@hallcounty.org	Public Works HC
Kevin Brecher		KBrecher@HallCounty.org	Chimney Services

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Appendix C – Critical Facilities Information

Facility Name	Jurisdiction
Tower Site - Gainesmill	Gainesville city
Tower Site - Friendship	Buford city
Tower Site - Hog Mountain	Flowery Branch town
Tower Site - Skyview	Gainesville city
Tower Site - Bark Camp	Hall County
Tower Site - Skitts Mountain	Hall County
Tower Site - Lula	Hall County
Gainesville Youth Detention Center	Gainesville city
Lanier Christian Academy	Flowery Branch town
Riverside Military Academy	Gainesville city
Lakeview Academy	Gainesville city
Marantha Christian Academy	Oakwood city
Lanier Technical College	Hall County
University of North Georgia - Gainesville Campus	Oakwood city
Brenau University	Gainesville city
Gainesville City School System Office	Gainesville city
Gainesville City Schools - Transportation Dept	Gainesville city
Centennial Arts Academy	Gainesville city
Enota Multiple Intelligences Academy	Gainesville city
Fair Street International Academy	Gainesville city
Gainesville Exploration Academy	Gainesville city
Mundy Mill Arts Academy	Gainesville city
New Holland Leadership Academy	Gainesville city
Gainesville Middle School - East Campus	Gainesville city
Gainesville Middle School - West Campus	Gainesville city
Gainesville High School	Gainesville city
Northeast Georgia Medical Center - Gainesville	Gainesville city
Northeast Georgia Medical Center - Braselton	Braselton town
Hall County Sheriff's Office - Headquarters	Hall County
Hall County Sheriff's Office - North Precinct	Clermont town
Hall County Sheriff's Office - South Precinct	Flowery Branch town
Hall County Sheriff's Office - Lula Precinct	Lula city

Hall County Courthouse	Hall County
Hall County Courthouse Annex	Hall County
Hall County Jail	Hall County
Hall County Correcitonal Institute	Hall County
Hall County Animal Control	Hall County
Hall County Public Works (Road, Fleet, Traffic)	Hall County
Flowery Branch Police Department	Flowery Branch town
Flowery Branch City Hall	Flowery Branch town
Oakwood City Hall and Police Department	Oakwood city
Lula City Hall	Lula city
City of Gillsville Office	Gillsville city
Clermont Town Hall	Clermont town
Gainesville Justice Center	Gainesville city
Gainesville - Fire Station #1	Gainesville city
Gainesville - Fire Station #2	Gainesville city
Gainesville - Fire Station #3	Gainesville city
Gainesville - Fire Station #4	Gainesville city
Alta Vista Building - Gainesville Public Works Facility	Gainesville city
Gainesville Traffic Shop	Gainesville city
Gainesville Fullenwider Shop	Gainesville city
Gainesville Administration Building	Gainesville city
Gainesville Civic Center	Gainesville city
Hall County Fire Rescue - Station #1	Hall County
Hall County Fire Rescue - Station #2	Clermont town
Hall County Fire Rescue - Station #3	Hall County
Hall County Fire Rescue - Station #4	Hall County
Hall County Fire Rescue - Station #5	Flowery Branch town
Hall County Fire Rescue - Station #6	Lula city
Hall County Fire Rescue - Station #7	Hall County
Hall County Fire Rescue - Station #8	Flowery Branch town
Hall County Fire Rescue - Station #9	Hall County
Hall County Fire Rescue - Station #10	Gillsville city
Hall County Fire Rescue - Station #11	Hall County

Hall County Fire Rescue - Station #12	Flowery Branch town
Hall County Fire Rescue - Station #13	Hall County
Hall County Fire Rescue - Station #14	Hoschton city
Hall County Fire Rescue - Station #15	Hall County
Hall County Fire Rescue - Station #16	Hall County
Hall County Fire Rescue - Fire Training Facility	Hall County
Hall County Fire Rescue - Administration	Hall County
Hall County EMA and EOC	Hall County
Hall County Fire Rescue - Fleet Maintenance	Hall County
Chestnut Mountain Elementary	Flowery Branch town
Chicopee Woods Elementary	Hall County
Flowery Branch Elementary	Flowery Branch town
Friendship Elementary	Hall County
Lanier Elementary	Hall County
Lula Elementary	Lula city
Lyman Hall Elementary	Hall County
Martin Technology Academy	Flowery Branch town
McEver Arts Academy	Hall County
Mt. Vernon Elementary	Hall County
Myers Elementary	Hall County
Oakwood Elementary	Hall County
Riverbend Elementary	Hall County
Sardis Enrichment School	Hall County
Spout Springs Elementary	Flowery Branch town
Sugar Hill Elementary	Hall County
Tadmire Elementary	Hall County
Wauka Mountain Multiple Intelligences Academy	Hall County
White Sulphur Elementary	Hall County
World Languages Academy (Elementary)	Flowery Branch town
Academy of Discovery @ South Hall	Hall County
Cherokee Bluff Middle	Flowery Branch town
Chestatee Academy of Inquiry & Talent Development	Hall County

CW Davis Middle	<i>Flowery Branch town</i>
East Hall Middle	<i>Hall County</i>
North Hall Middle	<i>Hall County</i>
West Hall Middle	<i>Oakwood city</i>
World Languages Academy AOD (Middle)	<i>Hall County</i>
Cherokee Bluff High	<i>Flowery Branch town</i>
Chestatee High	<i>Hall County</i>
East Hall High	<i>Hall County</i>
Flowery Branch High	<i>Flowery Branch town</i>
Johnson High	<i>Hall County</i>
Lanier College Career Academy	<i>Hall County</i>
North Hall High	<i>Hall County</i>
West Hall High	<i>Oakwood city</i>
The Foundry (ALC)	<i>Hall County</i>
Hall County Schools Central Office	<i>Hall County</i>
Hall County Schools Central Warehouse	<i>Hall County</i>
Howard E. Ivester Early College	<i>Hall County</i>
Hall County Schools Maintenance Department	<i>Hall County</i>
Hall County Schools Student Services Center	<i>Flowery Branch town</i>
Hall County Schools Technology Information Center	<i>Hall County</i>
Hall County Schools Transportation Department	<i>Hall County</i>
Linwood Water Reclamation Facility	<i>Gainesville city</i>
Riverside Water Treatment Plant	<i>Gainesville city</i>
Flat Creek Water Reclamation Facility	<i>Gainesville city</i>
Lakeside Water Treatment Plant	<i>Flowery Branch town</i>
City of Gainesville Water Department Distribution & Collections	<i>Gainesville city</i>
Gainesville Lift Station #2 - Lakemont	<i>Gainesville city</i>
Gainesville Lift Station #3 - Robson's Crossing	<i>Gainesville city</i>
Gainesville Lift Station #5 - Plant Station	<i>Gainesville city</i>
Gainesville Lift Station #6 - Pine Cove Apartments	<i>Gainesville city</i>
Gainesville Lift Station #7 - Flat Creek	<i>Gainesville city</i>
Gainesville Lift Station #8 - Willow Ridge	<i>Gainesville city</i>
Gainesville Lift Station #9 - McEver Extension	<i>Gainesville city</i>

Gainesville Lift Station #10 - Elan	<i>Gainesville city</i>
Gainesville Lift Station #13 - Springhaven	<i>Gainesville city</i>
Gainesville Lift Station #14 - Dawsonville Highway	<i>Gainesville city</i>
Gainesville Lift Station #15 - Centennial Park	<i>Gainesville city</i>
Gainesville Lift Station #16 - North Bradford	<i>Gainesville city</i>
Gainesville Lift Station #17 - Clarks Bridge Condos	<i>Gainesville city</i>
Gainesville Lift Station #18 - Ramsey Road	<i>Gainesville city</i>
Gainesville Lift Station #19 - The Trail	<i>Gainesville city</i>
Gainesville Lift Station #20 - Clubhouse	<i>Gainesville city</i>
Gainesville Lift Station #21 - White Sulphur	<i>Gainesville city</i>
Gainesville Lift Station #22 - Industrial Park North	<i>Gainesville city</i>
Gainesville Lift Station #23 - Exit #7	<i>Gainesville city</i>
Gainesville Lift Station #25 - Allen Creek	<i>Gainesville city</i>
Gainesville Lift Station #26 - Lakeview	<i>Gainesville city</i>
Gainesville Lift Station #27 - Cry Creek	<i>Gainesville city</i>
Gainesville Lift Station #28 - Chicopee	<i>Gainesville city</i>
Gainesville Lift Station #29 - Burns Drive	<i>Gainesville city</i>
Gainesville Lift Station #30 - McEver Vineyards	<i>Gainesville city</i>
Gainesville Lift Station #32 - Thompson Bridge	<i>Gainesville city</i>
Gainesville Lift Station #33 - Fieldale	<i>Gainesville city</i>
Gainesville Lift Station #34 - Water's Edge #1	<i>Gainesville city</i>
Gainesville Lift Station #35 - Water's Edge #2	<i>Gainesville city</i>
Gainesville Lift Station #36 - Water's Edge #3	<i>Gainesville city</i>
Gainesville Lift Station #37 - Sardis Creek	<i>Gainesville city</i>
Gainesville Lift Station #38 - Ada Creek	<i>Gainesville city</i>
Gainesville Lift Station #39 - Audubon Crest	<i>Oakwood city</i>
Gainesville Lift Station #40 - Windcliff	<i>Gainesville city</i>
Gainesville Lift Station #41 - Caswyck	<i>Gainesville city</i>
Gainesville Lift Station #42 - Lanier Village	<i>Gainesville city</i>
Gainesville Lift Station #43 - South Hall Middle School	<i>Gainesville city</i>
Gainesville Lift Station #44 - Amberleigh 1	<i>Gainesville city</i>
Gainesville Lift Station #45 - Amberleigh 2	<i>Gainesville city</i>
Gainesville Lift Station #46 - Walnut Grove	<i>Gainesville city</i>
Gainesville Lift Station #47 - Carrington Park	<i>Gainesville city</i>
Gainesville Lift Station #48 - Windsor Forest #1	<i>Gainesville city</i>
Gainesville Lift Station #49 - Windsor Forest #2	<i>Gainesville city</i>
Gainesville Lift Station #50 - Windsor Forest #3	<i>Gainesville city</i>
Gainesville Lift Station #51 - Heritage Point #1	<i>Gainesville city</i>

Gainesville Lift Station #52 - Heritage Point #2	<i>Gainesville city</i>
Gainesville Lift Station #53 - Heritage Point #3	<i>Gainesville city</i>
Gainesville Lift Station #54 - Donna Way	<i>Gainesville city</i>
Gainesville Lift Station #55 - Calvary Church	<i>Gainesville city</i>
Gainesville Lift Station #57 - Cresswinds #2	<i>Gainesville city</i>
Gainesville Lift Station #58 - Cresswinds #3	<i>Gainesville city</i>
Gainesville Lift Station #59 - Cresswinds #4	<i>Gainesville city</i>
Gainesville Lift Station #60 - Cresswinds #5	<i>Gainesville city</i>
Gainesville Lift Station #61 - Cresswinds #6	<i>Gainesville city</i>
Gainesville Lift Station #62 - Cresswinds #7	<i>Gainesville city</i>
Gainesville Lift Station #63 - Howard Road	<i>Gainesville city</i>
Gainesville Lift Station #64 - Calvary Creek	<i>Gainesville city</i>
Gainesville Lift Station #65 - Hawthorne	<i>Oakwood city</i>
Gainesville Lift Station #66 - Wallis Road	<i>Flowery Branch town</i>
Gainesville Lift Station #68 - Balus Creek	<i>Oakwood city</i>
Gainesville Lift Station #69 - River Brook	<i>Gainesville city</i>
Gainesville Lift Station #71 - Athens Highway	<i>Gainesville city</i>
Gainesville Lift Station #74 - Cresswinds #8	<i>Gainesville city</i>
Gainesville Lift Station #75 - Stephens RD	<i>Oakwood city</i>
Gainesville Lift Station #Braselton town - Gold Creek	<i>Gainesville city</i>
Gainesville Lift Station #77 - Harrison Square	<i>Gainesville city</i>
Gainesville Lift Station #78 - Lanier Village Cottage	<i>Gainesville city</i>
Gainesville Lift Station #80 - Chattahoochee CC	<i>Gainesville city</i>
Gainesville Lift Station - East Lake (Future)	<i>Gainesville city</i>
Gainesville Lift Station #100 - North Hall Booster	<i>Gainesville city</i>
Gainesville Lift Station #101 - Clermont Booster	<i>Gainesville city</i>
King Street Tank	<i>Clermont town</i>
Bark Camp Tank	<i>Hall County</i>
Athens Highway Tank	<i>Gainesville city</i>
Stringer Avenue Tank	<i>Gainesville city</i>
Hog Mountain Tank	<i>Flowery Branch town</i>
Highway 52 Tank	<i>Lula city</i>
High Street Pump Station/Tank	<i>Gainesville city</i>

Appendix D – Hazard Data Tables

Thunderstorms

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Ini</u>	<u>PrD</u>	<u>CrD</u>
Totals:								2	6	17.409M	0.50K
<u>HALL CO.</u>	HALL CO.	GA	03/02/1972	14:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/11/1973	15:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/23/1973	16:45	CST	Hail	1.50 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/28/1973	13:45	CST	Hail	1.00 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	02/22/1974	00:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	03/21/1974	04:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	01/10/1975	19:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	03/24/1975	07:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/15/1975	12:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/19/1975	16:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/06/1976	21:02	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/11/1977	22:35	CST	Hail	1.75 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	03/23/1979	16:25	CST	Hail	1.00 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/09/1979	02:03	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/08/1980	20:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/06/1981	17:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/07/1981	14:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/26/1982	18:20	CST	Hail	1.50 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/26/1982	18:45	CST	Hail	1.75 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	07/05/1982	17:18	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	07/19/1982	15:30	CST	Thunderstorm Wind	63 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/14/1984	11:55	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/02/1984	17:50	CST	Hail	1.00 in.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/02/1984	17:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	07/02/1984	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	07/03/1984	17:08	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	11/10/1984	18:05	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/05/1985	19:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/07/1985	15:40	CST	Hail	1.00 in.	0	0	0.00K	0.00K

HALL CO.	HALL CO.	GA	08/01/1985	13:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	03/13/1986	06:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	03/19/1986	06:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/07/1986	15:00	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/07/1986	15:15	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/26/1986	23:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/27/1986	13:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	08/16/1986	18:20	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	11/26/1986	05:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/04/1987	11:45	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	06/24/1987	17:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/01/1987	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/02/1987	18:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/06/1987	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/24/1987	17:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/17/1988	14:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/17/1988	15:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	11/05/1988	13:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/03/1989	06:50	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/05/1989	14:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/05/1989	14:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	06/05/1989	13:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	06/15/1989	01:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	07/03/1989	06:50	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	11/15/1989	20:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	02/10/1990	05:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	02/10/1990	05:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	02/16/1990	06:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	02/22/1990	10:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/28/1990	14:05	CST	Hail	0.88 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/12/1990	23:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	05/20/1990	14:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	08/09/1990	21:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	08/21/1990	17:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

HALL CO.	HALL CO.	GA	08/30/1990	15:05	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/09/1991	15:00	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/09/1991	21:15	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/19/1991	12:42	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/28/1991	15:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/29/1991	13:05	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/29/1991	13:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	01/23/1992	14:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	03/10/1992	16:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	03/10/1992	16:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	03/19/1992	13:40	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	08/09/1992	13:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
HALL CO.	HALL CO.	GA	04/15/1993	19:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
Gainesville	HALL CO.	GA	04/15/1993	20:50	EST	Hail	1.50 in.	0	0	0.00K	0.00K
Bellville	HALL CO.	GA	05/15/1994	18:20	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Clermont	HALL CO.	GA	06/26/1994	22:55	EST	Thunderstorm Wind	0 kts.	0	3	500.00K	0.00K
Gainsville	HALL CO.	GA	06/26/1994	23:30	EST	Thunderstorm Wind	0 kts.	0	0	500.00K	0.00K
Cedartown	HALL CO.	GA	06/27/1994	01:00	EST	Hail	1.00 in.	0	0	0.00K	0.00K
Flowery	HALL CO.	GA	08/16/1994	15:32	EST	Hail	0.88 in.	0	0	0.00K	0.00K
Flowery Branch	HALL CO.	GA	08/18/1994	15:30	EST	Hail	0.75 in.	0	0	0.00K	0.50K
Gainesville	HALL CO.	GA	05/01/1995	19:54	EST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gainesville	HALL CO.	GA	06/11/1995	20:18	EST	Thunderstorm Wind	0 kts.	0	0	0.40K	0.00K
Murrayville	HALL CO.	GA	06/17/1995	13:40	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Clermont	HALL CO.	GA	06/24/1995	18:53	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
Gainsville	HALL CO.	GA	09/01/1995	15:08	EST	Thunderstorm Wind	0 kts.	0	0	1.00K	0.00K
OAKWOOD	HALL CO.	GA	05/06/1996	15:15	EST	Hail	1.00 in.	0	0	0.00K	0.00K
COUNTYWIDE	HALL CO.	GA	05/27/1996	21:15	EST	Thunderstorm Wind		0	0	15.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/24/1996	15:55	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/26/1996	20:40	EST	Hail	1.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	09/28/1996	14:00	EST	Thunderstorm Wind		0	0	2.00K	0.00K
MURRAYSVILLE	HALL CO.	GA	02/21/1997	14:45	EST	Thunderstorm Wind		0	0	500.00K	0.00K
MURRAYVILLE	HALL CO.	GA	03/05/1997	18:30	EST	Thunderstorm Wind		0	0	10.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/28/1997	16:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K

GILLSVILLE	HALL CO.	GA	04/28/1997	16:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/14/1997	17:35	EST	Hail	0.90 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/21/1997	15:07	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CHESTNUT MTN	HALL CO.	GA	06/21/1997	15:10	EST	Hail	1.75 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	06/21/1997	15:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	07/04/1997	19:23	EST	Thunderstorm Wind		0	0	2.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/04/1997	19:42	EST	Hail	0.75 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/28/1997	18:00	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	10/25/1997	07:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	02/17/1998	08:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	04/03/1998	10:00	EST	Lightning		0	0	120.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/03/1998	19:15	EST	Hail	1.75 in.	0	0	0.00K	0.00K
CHESNUT MTN	HALL CO.	GA	04/08/1998	18:25	EST	Hail	0.90 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/08/1998	20:35	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/08/1998	22:39	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/17/1998	00:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/17/1998	02:35	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/01/1998	01:43	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/01/1998	02:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/07/1998	15:35	EST	Hail	0.88 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/07/1998	17:35	EST	Thunderstorm Wind		0	0	1.00K	0.00K
CLERMONT	HALL CO.	GA	05/07/1998	17:43	EST	Hail	1.75 in.	0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/07/1998	19:40	EST	Hail	2.75 in.	0	0	5.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/05/1998	19:33	EST	Thunderstorm Wind		0	0	30.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/19/1998	11:05	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/24/1998	20:21	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/19/1998	19:20	EST	Thunderstorm Wind		0	0	50.00K	0.00K
LULA	HALL CO.	GA	07/20/1998	14:05	EST	Thunderstorm Wind		0	0	1.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/20/1998	14:10	EST	Hail	0.75 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/22/1998	13:58	EST	Thunderstorm Wind		0	0	5.00K	0.00K

MURRAYVILLE	HALL CO.	GA	04/27/1999	15:15	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/05/1999	22:49	EST	Hail	1.00 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/13/1999	15:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	05/13/1999	15:15	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GILLSVILLE	HALL CO.	GA	06/24/1999	21:09	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	06/24/1999	21:30	EST	Thunderstorm Wind		0	1	75.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/06/1999	15:30	EST	Lightning		0	0	50.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/06/1999	15:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
LULA	HALL CO.	GA	04/03/2000	03:00	EST	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
GAINESVILLE	HALL CO.	GA	05/25/2000	16:40	EST	Thunderstorm Wind		0	0	3.00K	0.00K
COUNTYWIDE	HALL CO.	GA	06/26/2000	19:50	EST	Thunderstorm Wind		0	0	0.10K	0.00K
MURRAYVILLE	HALL CO.	GA	07/23/2000	13:00	EST	Thunderstorm Wind	60 kts. E	0	0	50.00K	0.00K
MURRAYVILLE	HALL CO.	GA	07/23/2000	13:00	EST	Hail	1.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/30/2000	16:20	EST	Thunderstorm Wind		0	0	1.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/30/2000	16:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	08/10/2000	05:15	EST	Lightning		0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	08/10/2000	22:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/10/2000	23:18	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/10/2000	23:25	EST	Thunderstorm Wind		0	0	20.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/11/2000	00:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/11/2000	00:30	EST	Thunderstorm Wind		0	0	5.00K	0.00K
CLERMONT	HALL CO.	GA	08/24/2000	15:32	EST	Hail	1.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	HALL CO.	GA	02/16/2001	18:47	EST	Thunderstorm Wind		0	0	7.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/03/2001	08:13	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/03/2001	08:35	EST	Lightning		0	0	150.00K	0.00K
CANDLER	HALL CO.	GA	04/03/2001	11:30	EST	Lightning		0	0	0.50K	0.00K
GAINESVILLE	HALL CO.	GA	05/24/2001	18:10	EST	Hail	2.75 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	06/03/2001	14:22	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/04/2001	21:00	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	06/04/2001	21:13	EST	Lightning		0	0	25.00K	0.00K
CLERMONT	HALL CO.	GA	06/04/2001	21:15	EST	Thunderstorm Wind		0	0	0.10K	0.00K

MURRAYVILLE	HALL CO.	GA	06/21/2001	19:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
LULA	HALL CO.	GA	06/27/2001	19:25	EST	Hail	1.25 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/09/2002	16:42	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/09/2002	16:47	EST	Thunderstorm Wind		0	0	0.75K	0.00K
BELMONT	HALL CO.	GA	05/09/2002	17:00	EST	Lightning		0	0	60.00K	0.00K
LULA	HALL CO.	GA	05/10/2002	17:52	EST	Hail	1.00 in.	0	0	3.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/13/2002	14:52	EST	Thunderstorm Wind		0	0	5.00K	0.00K
CLERMONT	HALL CO.	GA	07/01/2002	16:00	EST	Thunderstorm Wind		0	0	3.00K	0.00K
CLERMONT	HALL CO.	GA	07/01/2002	16:05	EST	Hail	0.88 in.	0	0	0.00K	0.00K
LULA	HALL CO.	GA	07/01/2002	16:26	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	07/02/2002	14:20	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/02/2002	18:30	EST	Thunderstorm Wind		0	0	25.00K	0.00K
COUNTYWIDE	HALL CO.	GA	09/14/2002	15:30	EST	Thunderstorm Wind		0	0	15.00K	0.00K
GAINESVILLE	HALL CO.	GA	11/11/2002	03:20	EST	Thunderstorm Wind		0	0	0.00K	0.00K
COUNTYWIDE	HALL CO.	GA	11/11/2002	03:56	EST	Thunderstorm Wind		0	0	90.00K	0.00K
ROBERTS XRDS	HALL CO.	GA	04/30/2003	13:20	EST	Hail	0.75 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/06/2003	12:20	EST	Thunderstorm Wind	55 kts. EG	0	0	30.00K	0.00K
CHESNUT MTN	HALL CO.	GA	05/06/2003	12:30	EST	Hail	1.75 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/07/2003	02:55	EST	Hail	0.88 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/16/2003	22:25	EST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MURRAYVILLE	HALL CO.	GA	07/13/2003	14:35	EST	Thunderstorm Wind	39 kts. EG	0	0	0.25K	0.00K
GAINESVILLE	HALL CO.	GA	07/13/2003	19:24	EST	Hail	1.00 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	07/22/2003	13:25	EST	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
OAKWOOD	HALL CO.	GA	07/22/2003	13:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/04/2003	21:00	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/16/2003	16:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/16/2003	16:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	09/22/2003	15:11	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/12/2004	15:00	EST	Thunderstorm Wind	51 kts. EG	0	0	5.00K	0.00K

COUNTYWIDE	HALL CO.	GA	07/14/2004	17:00	EST	Thunderstorm Wind	52 kts. EG	0	0	7.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	08/20/2004	19:00	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/20/2004	19:25	EST	Thunderstorm Wind	50 kts. EG	0	0	7.00K	0.00K
GAINESVILLE	HALL CO.	GA	11/24/2004	11:00	EST	Thunderstorm Wind	56 kts. EG	0	0	75.00K	0.00K
GAINESVILLE	HALL CO.	GA	12/10/2004	15:52	EST	Hail	1.00 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/07/2005	17:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/07/2005	17:50	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	04/22/2005	12:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LULA	HALL CO.	GA	05/19/2005	22:00	EST	Hail	0.88 in.	0	0	0.00K	0.00K
LULA	HALL CO.	GA	05/20/2005	10:50	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CHESNUT MTN	HALL CO.	GA	06/06/2005	18:20	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/06/2005	18:24	EST	Hail	1.75 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	06/18/2005	16:05	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/01/2005	16:00	EST	Thunderstorm Wind	30 kts. EG	0	0	1.50K	0.00K
GAINESVILLE	HALL CO.	GA	07/28/2005	16:15	EST	Lightning		2	0	750.00K	0.00K
MURRAYVILLE	HALL CO.	GA	07/28/2005	17:00	EST	Thunderstorm Wind	31 kts. EG	0	0	0.50K	0.00K
CLERMONT	HALL CO.	GA	08/22/2005	17:34	EST	Hail	1.00 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	12/04/2005	16:25	EST	Hail	1.25 in.	0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/08/2006	03:30	EST	Thunderstorm Wind	52 kts. EG	0	0	50.00K	0.00K
GAINESVILLE	HALL CO.	GA	04/08/2006	13:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	05/14/2006	03:27	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/25/2006	13:05	EST	Hail	1.00 in.	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/25/2006	15:25	EST	Hail	0.75 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	05/25/2006	15:52	EST	Hail	0.88 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	05/27/2006	16:30	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/27/2006	16:41	EST	Hail	0.75 in.	0	0	0.00K	0.00K

GAINESVILLE	HALL CO.	GA	06/12/2006	15:15	EST	Hail	0.75 in.	0	0	0.00K	0.00K
BELMONT	HALL CO.	GA	06/12/2006	16:08	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
BELMONT	HALL CO.	GA	06/12/2006	16:20	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	01/05/2007	12:24	EST-5	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
LULA	HALL CO.	GA	04/03/2007	17:25	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/04/2007	01:25	EST-5	Thunderstorm Wind	91 kts. EG	0	1	1.000M	0.00K
GAINESVILLE	HALL CO.	GA	06/12/2007	17:40	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CANDLER	HALL CO.	GA	06/25/2007	14:03	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CANDLER	HALL CO.	GA	06/25/2007	14:03	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/25/2007	14:03	EST-5	Lightning		0	0	5.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/01/2007	12:46	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GAINESVILLE	HALL CO.	GA	07/01/2007	13:00	EST-5	Lightning		0	0	1.00K	0.00K
MURRAYVILLE	HALL CO.	GA	08/23/2007	16:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GAINESVILLE	HALL CO.	GA	03/04/2008	15:25	EST-5	Thunderstorm Wind	39 kts. EG	0	0	25.00K	0.00K
MURRAYVILLE	HALL CO.	GA	03/15/2008	12:45	EST-5	Hail	1.75 in.	0	0	1.000M	0.00K
GAINESVILLE	HALL CO.	GA	03/15/2008	12:58	EST-5	Thunderstorm Wind	52 kts. EG	0	0	75.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	03/15/2008	14:00	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	03/15/2008	15:05	EST-5	Hail	1.75 in.	0	0	300.00K	0.00K
MURRAYVILLE	HALL CO.	GA	04/11/2008	19:18	EST-5	Thunderstorm Wind	52 kts. EG	0	0	125.00K	0.00K
LULA	HALL CO.	GA	06/01/2008	07:10	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/22/2008	13:30	EST-5	Hail	1.75 in.	0	0	1.000M	0.00K

LULA	HALL CO.	GA	07/08/2008	20:35	EST-5	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
CHESTNUT MOUNTAIN	HALL CO.	GA	07/22/2008	18:00	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/22/2008	18:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
CHESTNUT MOUNTAIN	HALL CO.	GA	07/22/2008	18:23	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/22/2008	18:48	EST-5	Lightning		0	0	10.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/02/2008	17:05	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
LAKE SIDNEY LANIER	HALL CO.	GA	08/07/2008	14:45	EST-5	Thunderstorm Wind	39 kts. EG	0	0	0.75K	0.00K
FLOWERY BRANCH	HALL CO.	GA	02/11/2009	18:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/10/2009	16:44	EST-5	Hail	1.75 in.	0	0	1.000M	0.00K
MURRAYVILLE	HALL CO.	GA	04/10/2009	17:37	EST-5	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
MURRAYVILLE	HALL CO.	GA	04/10/2009	17:40	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
GAINESVILLE COTTON MIL	HALL CO.	GA	05/03/2009	18:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WESTSIDE	HALL CO.	GA	06/18/2009	00:00	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CANDLER	HALL CO.	GA	06/15/2010	18:40	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	10/26/2010	18:37	EST-5	Thunderstorm Wind	33 kts. EG	0	0	0.50K	0.00K
MURRAYVILLE	HALL CO.	GA	02/28/2011	17:03	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	03/26/2011	21:30	EST-5	Hail	1.75 in.	0	0	1.780M	0.00K
MURRAYVILLE	HALL CO.	GA	04/25/2011	15:59	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/25/2011	16:00	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	05/26/2011	18:19	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K

MURRAYVILLE	HALL CO.	GA	06/18/2011	16:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
MURRAYVILLE	HALL CO.	GA	06/26/2011	14:52	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	06/26/2011	15:20	EST-5	Lightning		0	0	25.00K	0.00K
LULA	HALL CO.	GA	08/09/2011	15:43	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
OAKWOOD	HALL CO.	GA	02/22/2012	23:35	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	03/31/2012	18:47	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
GILLSVILLE	HALL CO.	GA	04/03/2012	15:20	EST-5	Hail	1.00 in.	0	0	5.00K	0.00K
MURRAYVILLE	HALL CO.	GA	07/10/2012	16:00	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	08/08/2012	16:45	EST-5	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	08/24/2012	00:22	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/13/2013	18:03	EST-5	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/28/2013	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
CANDLER	HALL CO.	GA	07/22/2013	20:17	EST-5	Thunderstorm Wind	45 kts. EG	0	0	0.50K	0.00K
FLOWERY BRANCH	HALL CO.	GA	01/11/2014	08:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.50K	0.00K
GAINESVILLE	HALL CO.	GA	01/11/2014	08:35	EST-5	Thunderstorm Wind	55 kts. EG	0	0	4.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/14/2014	19:10	EST-5	Thunderstorm Wind	60 kts. EG	0	0	3.00K	0.00K
OAKWOOD	HALL CO.	GA	08/20/2014	13:15	EST-5	Thunderstorm Wind	55 kts. EG	0	0	6.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	09/03/2014	17:20	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.75K	0.00K
FLOWERY BRANCH	HALL CO.	GA	09/03/2014	17:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/31/2015	13:00	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K

NEW HOLLAND	HALL CO.	GA	06/24/2015	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
MURRAYVILLE	HALL CO.	GA	08/10/2015	16:09	EST-5	Thunderstorm Wind	55 kts. EG	0	0	15.00K	0.00K
OAKWOOD	HALL CO.	GA	04/06/2016	22:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	04/06/2016	23:19	EST-5	Thunderstorm Wind	70 kts. EG	0	0	3.000M	0.00K
BELLTON	HALL CO.	GA	03/21/2017	16:40	EST-5	Hail	1.75 in.	0	0	1.787M	0.00K
WESTSIDE	HALL CO.	GA	03/21/2017	19:46	EST-5	Thunderstorm Wind	50 kts. EG	0	1	20.00K	0.00K
NEW HOLLAND	HALL CO.	GA	04/05/2017	22:08	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ROBERTS XRDS	HALL CO.	GA	05/04/2017	21:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
MURRAYVILLE	HALL CO.	GA	06/22/2017	18:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
OAKWOOD	HALL CO.	GA	06/23/2017	19:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	07/05/2017	16:45	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
(GVL)GAINESVILLE MEM	HALL CO.	GA	07/06/2017	13:24	EST-5	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/28/2018	21:10	EST-5	Thunderstorm Wind	40 kts. EG	0	0	1.00K	0.00K
OAKWOOD	HALL CO.	GA	06/01/2018	15:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GNESVILLE COTTON MIL	HALL CO.	GA	06/01/2018	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/10/2018	18:12	EST-5	Thunderstorm Wind	60 kts. EG	0	0	30.00K	0.00K
CANDLER	HALL CO.	GA	06/11/2018	13:08	EST-5	Lightning		0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/11/2018	14:30	EST-5	Lightning		0	0	2.00K	0.00K
LULA	HALL CO.	GA	06/25/2018	16:15	EST-5	Thunderstorm Wind	45 kts. EG	0	0	2.00K	0.00K
NEW HOLLAND	HALL CO.	GA	07/21/2018	04:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K

LAKE SIDNEY LANIER	HALL CO.	GA	08/12/2018	13:45	EST-5	Thunderstorm Wind	60 kts. EG	0	0	50.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	03/01/2019	16:04	EST-5	Thunderstorm Wind	60 kts. EG	0	0	25.00K	0.00K
NEW HOLLAND	HALL CO.	GA	04/14/2019	12:35	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
YONAH	HALL CO.	GA	04/19/2019	04:54	EST-5	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/22/2019	00:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	08/14/2019	15:00	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
NEW HOLLAND	HALL CO.	GA	10/31/2019	12:27	EST-5	Thunderstorm Wind	45 kts. EG	0	0	50.00K	0.00K
BLACKSHEAR PLACE	HALL CO.	GA	01/11/2020	05:50	EST-5	Thunderstorm Wind	55 kts. EG	0	0	300.00K	0.00K
BROOKTON	HALL CO.	GA	04/13/2020	01:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
MURRAYVILLE	HALL CO.	GA	05/05/2020	17:56	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
CHESTNUT MOUNTAIN	HALL CO.	GA	05/22/2020	12:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	07/22/2020	18:05	EST-5	Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
CANDLER	HALL CO.	GA	07/27/2020	17:45	EST-5	Lightning		0	0	2.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	08/03/2020	13:30	EST-5	Thunderstorm Wind	62 kts. EG	0	0	200.00K	0.00K
MURRAYVILLE	HALL CO.	GA	04/24/2021	18:25	EST-5	Hail	1.75 in.	0	0	1.800M	0.00K
CLERMONT	HALL CO.	GA	04/24/2021	18:42	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BELLTON	HALL CO.	GA	05/04/2021	12:53	EST-5	Thunderstorm Wind	55 kts. EG	0	0	15.00K	0.00K
(GVL)GAINESVILLE MEM	HALL CO.	GA	08/19/2021	14:05	EST-5	Thunderstorm Wind	56 kts. MG	0	0	0.00K	0.00K
Totals:								2	6	17.409M	0.50K

Winter Storms

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Ini</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	1.521M	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/08/1997	19:00	EST	Ice Storm		0	0	5.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/23/1998	13:00	EST	Ice Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/02/1999	19:00	EST	Ice Storm		0	0	3.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/23/1999	11:00	EST	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/22/2000	13:00	EST	Ice Storm		0	0	980.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/28/2000	19:00	EST	Ice Storm		0	0	32.79K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/13/2000	14:30	EST	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/17/2000	07:30	EST	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/21/2000	03:30	EST	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/29/2000	18:30	EST	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/02/2002	06:00	EST	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/04/2002	14:00	EST	Ice Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/16/2003	12:00	EST	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/23/2003	00:00	EST	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/25/2004	05:00	EST	Ice Storm		0	0	25.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/26/2004	00:00	EST	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/19/2004	17:00	EST	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/28/2005	20:00	EST	Winter Storm		0	0	150.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	04/02/2005	10:00	EST	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/15/2005	00:00	EST	Ice Storm		0	0	300.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/06/2006	04:00	EST	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/01/2007	04:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/16/2008	20:15	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/19/2008	12:30	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	03/01/2009	12:00	EST-5	Heavy Snow		0	0	25.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/07/2010	15:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/12/2010	14:30	EST-5	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	03/02/2010	06:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/15/2010	20:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/25/2010	13:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/09/2011	20:00	EST-5	Heavy Snow		0	0	0.00K	0.00K

HALL (ZONE)	HALL (ZONE)	GA	02/09/2011	23:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/25/2013	07:00	EST-5	Ice Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/28/2014	12:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/11/2014	07:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/16/2015	12:00	EST-5	Ice Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/20/2016	08:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/22/2016	00:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/09/2016	02:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/15/2016	02:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	03/03/2016	14:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/06/2017	20:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/08/2017	16:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/16/2018	18:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/04/2018	04:00	EST-5	Winter Weather		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/08/2020	09:00	EST-5	Winter Storm		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/06/2021	16:00	EST-5	Winter Storm		0	0	0.00K	0.00K
Totals:								0	0	1.521M	0.00K

Flooding

.... +36	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Ini	PrD	CrD
Totals:								0	0	1.693M	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/27/1997	22:00	EST	Flood		0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	08/20/1998	07:00	EST	Flood		0	0	5.00K	0.00K
GAINESVILLE	HALL CO.	GA	08/10/2000	23:32	EST	Flood		0	0	0.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/27/2001	18:30	EST	Flash Flood		0	0	500.00K	0.00K
GAINESVILLE	HALL CO.	GA	06/27/2001	19:25	EST	Flood		0	0	0.00K	0.00K
CLERMONT	HALL CO.	GA	07/02/2002	15:30	EST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	HALL CO.	GA	03/06/2003	05:50	EST	Flash Flood		0	0	0.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/07/2003	18:31	EST	Flash Flood		0	0	5.00K	0.00K
WESTSIDE	HALL CO.	GA	03/15/2008	13:00	EST-5	Flood		0	0	10.00K	0.00K
CLERMONT	HALL CO.	GA	08/26/2008	19:00	EST-5	Flood		0	0	0.00K	0.00K
BELMONT	HALL CO.	GA	09/21/2009	05:15	EST-5	Flash Flood		0	0	3.00K	0.00K
LAKE SIDNEY LANIER	HALL CO.	GA	09/21/2009	15:58	EST-5	Flood		0	0	50.00K	0.00K
GAINESVILLE COTTON MIL	HALL CO.	GA	10/01/2012	21:15	EST-5	Flash Flood		0	0	5.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	05/19/2013	06:00	EST-5	Flash Flood		0	0	1.000M	0.00K
NEW HOLLAND	HALL CO.	GA	07/08/2013	20:45	EST-5	Flash Flood		0	0	20.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	07/20/2013	13:00	EST-5	Flash Flood		0	0	15.00K	0.00K
FLOWERY BRANCH	HALL CO.	GA	06/01/2018	00:25	EST-5	Flash Flood		0	0	10.00K	0.00K
WHITE SULPHUR	HALL CO.	GA	10/10/2020	23:10	EST-5	Flash Flood		0	0	10.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:15	EST-5	Flash Flood		0	0	15.00K	0.00K
LULA	HALL CO.	GA	10/10/2020	23:15	EST-5	Flash Flood		0	0	10.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	0.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	0.00K	0.00K
YONAH	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	10.00K	0.00K
GILLSVILLE	HALL CO.	GA	10/10/2020	23:25	EST-5	Flash Flood		0	0	10.00K	0.00K
MURRAYVILLE	HALL CO.	GA	07/20/2021	09:10	EST-5	Flash Flood		0	0	15.00K	0.00K
GAINESVILLE	HALL CO.	GA	10/04/2021	16:10	EST-5	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	1.693M	0.00K

Tornado

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								10	145	31.331M	0.00K
<u>HALL CO.</u>	HALL CO.	GA	12/13/1973	11:20	CST	Tornado	F3	0	21	2.500M	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/08/1974	13:45	CST	Tornado	F1	0	8	250.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	03/23/1979	17:30	EST	Tornado	F1	0	0	250.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/27/1980	01:40	CST	Tornado	F1	0	1	250.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	06/16/1980	19:05	CST	Tornado	F1	0	0	0.25K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/04/1989	14:15	CST	Tornado	F2	0	0	25.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/04/1989	14:20	CST	Tornado	F2	0	0	25.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	04/04/1989	14:20	CST	Tornado	F2	0	0	250.00K	0.00K
<u>HALL CO.</u>	HALL CO.	GA	05/05/1989	14:20	CST	Tornado	F1	0	11	250.00K	0.00K
<u>Oakwood to</u>	HALL CO.	GA	02/21/1993	21:50	EST	Tornado	F1	0	1	5.000M	0.00K
<u>Lula</u>	HALL CO.	GA	06/26/1994	22:20	EST	Tornado	F0	0	0	5.00K	0.00K
<u>Murrayville; 4W</u> <u>Clerm</u>	HALL CO.	GA	06/26/1994	23:02	EST	Tornado	F1	0	7	5.000M	0.00K
<u>Gainesville</u>	HALL CO.	GA	06/27/1994	00:50	EST	Tornado	F0	0	0	5.00K	0.00K
<u>Gainesville</u>	HALL CO.	GA	06/27/1994	01:00	EST	Tornado	F0	0	0	0.50K	0.00K
<u>MURRAYVILLE</u>	HALL CO.	GA	11/07/1996	23:55	EST	Tornado	F1	0	0	300.00K	0.00K
<u>MURRAYVILLE</u>	HALL CO.	GA	03/20/1998	06:25	EST	Tornado	F3	10	96	15.000M	0.00K
<u>MURRAYVILLE</u>	HALL CO.	GA	07/23/2000	13:00	EST	Tornado	F1	0	0	350.00K	0.00K
<u>LULA</u>	HALL CO.	GA	07/23/2000	13:50	EST	Tornado	F1	0	0	125.00K	0.00K
<u>LULA</u>	HALL CO.	GA	08/29/2005	23:10	EST	Tornado	F0	0	0	250.00K	0.00K
<u>GNESVILLE</u> <u>COTTON MIL</u>	HALL CO.	GA	08/26/2008	11:25	EST-5	Tornado	EF1	0	0	550.00K	0.00K
<u>BLACKSHEAR</u> <u>PLACE</u>	HALL CO.	GA	08/26/2008	14:38	EST-5	Tornado	EF1	0	0	750.00K	0.00K
<u>WHITE</u> <u>SULPHUR</u>	HALL CO.	GA	08/26/2008	15:20	EST-5	Tornado	EF1	0	0	100.00K	0.00K
<u>MURRAYVILLE</u>	HALL CO.	GA	04/11/2013	20:24	EST-5	Tornado	EF1	0	0	10.00K	0.00K
<u>BROOKTON</u>	HALL CO.	GA	04/19/2019	04:50	EST-5	Tornado	EF1	0	0	75.00K	0.00K
<u>ROBERTS</u> <u>XRDS</u>	HALL CO.	GA	04/13/2020	01:49	EST-5	Tornado	EF0	0	0	10.00K	0.00K
Totals:								10	145	31.331M	0.00K

Drought

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	0.00K	934.31K
HALL (ZONE)	HALL (ZONE)	GA	09/01/1997	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	05/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	08/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	04/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	05/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	06/01/2000	00:00	EST	Drought		0	0	0.00K	934.31K
HALL (ZONE)	HALL (ZONE)	GA	07/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	10/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	10/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	11/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	04/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	08/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/01/2003	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	03/01/2004	00:00	EST	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	05/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	09/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	10/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	11/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	09/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	06/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	07/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	08/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	09/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	10/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	11/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	12/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	01/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	02/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K

HALL (ZONE)	HALL (ZONE)	GA	03/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	04/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	05/01/2017	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	09/24/2019	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	10/01/2019	00:00	EST-5	Drought		0	0	0.00K	0.00K
HALL (ZONE)	HALL (ZONE)	GA	11/01/2019	00:00	EST-5	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	934.31K

Appendix E – Hall County Worksheet 3As

GEMA Worksheet #3a

Inventory of Assets

Jurisdiction: Hall County

Hazard: Non-Spatially Defined Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	144,320	144,320	100.000%	42,697,340,220	42,697,340,220	100.000%	203,136	203,136	100%
Commercial	10,692	10,692	100.000%	2,136,597,330	2,136,597,330	100.000%	0	0	#DIV/0!
Industrial	3,448	3,448	100.000%	1,046,226,645	1,046,226,645	100.000%	0	0	#DIV/0!
Agricultural	5,167	5,167	100.000%	283,977,180	283,977,180	100.000%	0	0	#DIV/0!
Religious/ Non-profit	1,605	1,605	100.000%	439,453,110	439,453,110	100.000%	0	0	#DIV/0!
Government	1,998	1,998	100.000%	958,291,720	958,291,720	100.000%	0	0	#DIV/0!
Education	381	381	100.000%	425,200,028	425,200,028	100.000%	0	0	#DIV/0!
Utilities	91	91	100.000%	413,717,235	413,717,235	100.000%	0	0	#DIV/0!
Total	167,702	167,702	100.000%	48,400,813,468	48,400,813,468	100.000%	203,136	203,136	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: Hall County

Hazard: Wildfire Hazard

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	144,320	137,110	95.004%	42,687,340,220	40,584,248,320	95.004%	203,138	192,988	95%
Commercial	10,692	8,754	81.874%	2,136,597,330	1,749,324,077	81.874%	0	0	#DIV/0!
Industrial	3,448	3,001	87.036%	1,046,228,645	910,593,434	87.036%	0	0	#DIV/0!
Agricultural	5,167	4,365	96.478%	283,977,180	273,974,500	96.478%	0	0	#DIV/0!
Religious/ Non-profit	1,805	1,477	92.025%	439,483,110	404,415,585	92.025%	0	0	#DIV/0!
Government	1,998	1,815	90.841%	958,291,720	870,520,256	90.841%	0	0	#DIV/0!
Education	381	366	96.063%	425,200,028	408,469,889	96.063%	0	0	#DIV/0!
Utilities	91	80	87.912%	413,717,235	363,707,459	87.912%	0	0	#DIV/0!
Total	167,702	157,568	93.969%	46,400,813,488	45,545,243,501	94.100%	203,138	192,988	95%

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

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

GEMA Worksheet #3a

Inventory of Assets

Jurisdiction: Hall County

Hazard: Flood Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community of State	# in Hazard Area	% in Hazard Area
Residential	144,320	519	0.360%	42,897,340,220	25,708,425	0.060%	203,138	731	0%
Commercial	10,692	21	0.196%	2,136,597,330	1,569,937	0.073%	0	0	#DIV/0!
Industrial	3,448	19	0.551%	1,046,226,845	2,745,557	0.262%	0	0	#DIV/0!
Agricultural	5,167	0	0.000%	283,977,180	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	1,606	0	0.000%	439,463,110	0	0.000%	0	0	#DIV/0!
Government	1,998	0	0.000%	958,291,720	0	0.000%	0	0	#DIV/0!
Education	381	10	2.625%	425,200,028	4,164,404	0.979%	0	0	#DIV/0!
Utilities	91	0	0.000%	413,717,235	0	0.000%	0	0	#DIV/0!
Total	167,702	569	0.339%	48,400,813,468	34,188,323	0.071%	203,138	731	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: Braselton (Hall County)****Hazard: Non-Spatially Defined Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,129	2,129	100.000%	288,785,903	288,785,903	100.000%	13,403	13,403	100%
Commercial	220	220	100.000%	99,821,723	99,821,723	100.000%	0	0	#DIV/0!
Industrial	2	2	100.000%	9,000	9,000	100.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	108,210	108,210	100.000%	0	0	#DIV/0!
Religious/ Non-profit	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Government	9	9	100.000%	2,083,805	2,083,805	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	3	3	100.000%	2,030,535	2,030,535	100.000%	0	0	#DIV/0!
Total	2,389	2,389	100.000%	372,639,178	#DIV/0!	#DIV/0!	13,403	#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: Braselton (Hall County)

Hazard: Wildfire Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,129	2,118	99.483%	268,785,903	267,387,155	99.483%	13,403	13,334	99%
Commercial	220	218	99.091%	99,821,723	98,716,071	99.091%	0	0	#DIV/0!
Industrial	2	2	100.000%	9,000	9,000	100.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	108,210	108,210	100.000%	0	0	#DIV/0!
Religious/ Non-profit	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Government	9	9	100.000%	2,083,805	2,083,805	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	3	3	100.000%	2,030,535	2,030,535	100.000%	0	0	#DIV/0!
Total	2,358	2,358	99.451%	372,639,178	#DIV/0!	#DIV/0!	13,403	#DIV/0!	#DIV/0!

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

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

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

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,129	38	1.891%	268,785,903	1,962,278	0.730%	13,403	227	2%
Commercial	220	0	0.000%	99,621,723	0	0.000%	0	0	#DIV/0!
Industrial	2	0	0.000%	9,000	0	0.000%	0	0	#DIV/0!
Agricultural	8	0	0.000%	108,210	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Government	9	0	0.000%	2,083,805	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	3	0	0.000%	2,030,535	0	0.000%	0	0	#DIV/0!
Total	2,369	38	1.520%	372,639,176	#DIV/0!	#DIV/0!	13,403	#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: Buford (Hall County)****Hazard: Non-Spatially Defined Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,851	1,851	100.000%	278,237,023	278,237,023	100.000%	17,144	17,144	100%
Commercial	354	354	100.000%	58,218,870	58,218,870	100.000%	0	0	#DIV/0!
Industrial	495	495	100.000%	193,683,850	193,683,850	100.000%	0	0	#DIV/0!
Agricultural	12	12	100.000%	1,005,200	1,005,200	100.000%	0	0	#DIV/0!
Religious/ Non-profit	6	6	100.000%	405,200	405,200	100.000%	0	0	#DIV/0!
Government	9	9	100.000%	1,422,245	1,422,245	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!
Utilities	7	7	100.000%	3,682,415	3,682,415	100.000%	0	0	#DIV/0!
Total	2,734	2,734	100.000%	536,654,603	#DIV/0!	#DIV/0!	17,144	#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: Buford (Hall County)****Hazard: Wildfire Hazard**

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,851	1,841	99.460%	278,237,023	276,733,852	99.460%	17,144	17,051	99%
Commercial	354	301	85.028%	58,218,670	49,502,315	85.028%	0	0	#DIV/0!
Industrial	496	417	84.242%	193,883,850	163,183,971	84.242%	0	0	#DIV/0!
Agricultural	12	12	100.000%	1,005,200	1,005,200	100.000%	0	0	#DIV/0!
Religious/ Non-profit	8	8	100.000%	405,200	405,200	100.000%	0	0	#DIV/0!
Government	9	8	88.889%	1,422,245	1,254,218	88.889%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	7	7	100.000%	3,882,415	3,882,415	100.000%	0	0	#DIV/0!
Total	2,734	2,592	94.806%	538,654,603	#DIV/0!	#DIV/0!	17,144	#DIV/0!	#DIV/0!

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

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

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

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,851	0	0.000%	278,237,023	0	0.000%	17,144	0	0%
Commercial	354	0	0.000%	58,218,670	0	0.000%	0	0	#DIV/0!
Industrial	495	0	0.000%	193,883,850	0	0.000%	0	0	#DIV/0!
Agricultural	12	0	0.000%	1,005,200	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	6	0	0.000%	405,200	0	0.000%	0	0	#DIV/0!
Government	9	0	0.000%	1,422,245	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	7	0	0.000%	3,682,415	0	0.000%	0	0	#DIV/0!
Total	2,734	0	0.000%	536,654,603	#DIV/0!	#DIV/0!	17,144	#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: Flowery Branch (Hall County)

Hazard: Non-Spatially Defined Hazard

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	5,715	5,715	100.000%	681,811,533	681,811,533	100.000%	9,391	9,391	100%
Commercial	323	323	100.000%	165,078,353	165,078,353	100.000%	0	0	#DIV/0!
Industrial	90	90	100.000%	30,395,893	30,395,893	100.000%	0	0	#DIV/0!
Agricultural	17	17	100.000%	490,918	490,918	100.000%	0	0	#DIV/0!
Religious / Non-profit	47	47	100.000%	21,298,430	21,298,430	100.000%	0	0	#DIV/0!
Government	77	77	100.000%	9,409,575	9,409,575	100.000%	0	0	#DIV/0!
Education	18	18	100.000%	35,788,873	35,788,873	100.000%	0	0	#DIV/0!
Utilities	10	10	100.000%	11,488,605	11,488,605	100.000%	0	0	#DIV/0!
Total	6,297	6,297	100.000%	955,750,180	955,750,180	100.000%	9,391	9,391	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: Flowery Branch (Hall County)

Hazard: Wildfire Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	5,715	5,621	98.355%	681,811,538	670,597,135	98.355%	9,391	9,237	98%
Commercial	323	302	93.498%	165,078,353	154,345,705	93.498%	0	0	#DIV/0!
Industrial	90	78	86.667%	30,395,899	26,343,107	86.667%	0	0	#DIV/0!
Agricultural	17	16	94.118%	480,918	452,829	94.118%	0	0	#DIV/0!
Religious/ Non-profit	47	44	93.617%	21,298,430	19,938,956	93.617%	0	0	#DIV/0!
Government	77	71	92.208%	9,409,575	8,676,351	92.208%	0	0	#DIV/0!
Education	18	18	100.000%	35,786,873	35,786,873	100.000%	0	0	#DIV/0!
Utilities	10	7	70.000%	11,468,805	8,042,024	70.000%	0	0	#DIV/0!
Total	6,297	6,157	97.777%	955,750,180	924,182,789	96.697%	9,391	9,237	98%

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

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

GEMA Worksheet #3a**Inventory of Assets****Jurisdiction: Flowery Branch (Hall County)****Hazard: Flood Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	5,715	14	0.245%	681,811,533	461,726	0.068%	9,391	23	0%
Commercial	323	4	1.238%	165,078,353	38,326	0.023%	0	0	#DIV/0!
Industrial	90	0	0.000%	30,395,893	0	0.000%	0	0	#DIV/0!
Agricultural	17	0	0.000%	480,918	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	47	0	0.000%	21,298,430	0	0.000%	0	0	#DIV/0!
Government	77	0	0.000%	9,409,575	0	0.000%	0	0	#DIV/0!
Education	18	0	0.000%	35,786,873	0	0.000%	0	0	#DIV/0!
Utilities	10	0	0.000%	11,488,805	0	0.000%	0	0	#DIV/0!
Total	6,297	18	0.286%	955,750,180	500,052	0.052%	9,391	23	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: Gainesville (Hall County)

Hazard: Non-Spatially Defined Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	18,867	18,867	100.000%	4,628,868,575	4,628,868,575	100.000%	42,296	42,296	100%
Commercial	5,175	5,175	100.000%	3,103,617,833	3,103,617,833	100.000%	0	0	#DIV/0!
Industrial	1,157	1,157	100.000%	946,945,233	946,945,233	100.000%	0	0	#DIV/0!
Agricultural	17	17	100.000%	3,359,963	3,359,963	100.000%	0	0	#DIV/0!
Religious/ Non-profit	458	458	100.000%	440,445,513	440,445,513	100.000%	0	0	#DIV/0!
Government	859	859	100.000%	1,319,345,908	1,319,345,908	100.000%	0	0	#DIV/0!
Education	177	177	100.000%	486,586,163	486,586,163	100.000%	0	0	#DIV/0!
Utilities	21	21	100.000%	202,944,663	202,944,663	100.000%	0	0	#DIV/0!
Total	26,731	26,731	100.000%	11,109,913,651	11,109,913,651	100.000%	42,296	42,296	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: Gainesville (Hall County)****Hazard: Wildfire Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	18,887	16,171	85.710%	4,626,668,675	3,955,540,780	85.710%	42,296	38,252	88%
Commercial	5,175	3,752	72.502%	3,103,617,633	2,250,197,751	72.502%	0	0	#DIV/0!
Industrial	1,157	966	82.627%	946,945,233	782,437,029	82.627%	0	0	#DIV/0!
Agricultural	17	15	88.235%	3,359,993	2,964,673	88.235%	0	0	#DIV/0!
Religious/ Non-profit	458	412	89.956%	440,445,513	396,208,627	89.956%	0	0	#DIV/0!
Government	859	741	86.263%	1,319,345,908	1,138,108,635	86.263%	0	0	#DIV/0!
Education	177	148	83.616%	496,586,183	390,139,843	83.616%	0	0	#DIV/0!
Utilities	21	14	66.667%	202,944,663	135,296,442	66.667%	0	0	#DIV/0!
Total	28,731	22,209	83.083%	11,109,913,651	9,060,883,781	81.557%	42,296	38,252	88%

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

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

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

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	18,867	12	0.064%	4,626,668,575	303,384	0.007%	42,298	27	0%
Commercial	5,175	11	0.213%	3,103,617,633	539,302	0.017%	0	0	#DIV/0!
Industrial	1,157	7	0.605%	946,945,233	261,899	0.030%	0	0	#DIV/0!
Agricultural	17	0	0.000%	3,359,963	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	458	0	0.000%	440,445,513	0	0.000%	0	0	#DIV/0!
Government	859	0	0.000%	1,319,345,908	0	0.000%	0	0	#DIV/0!
Education	177	10	5.650%	466,586,163	4,164,404	0.883%	0	0	#DIV/0!
Utilities	21	0	0.000%	202,944,663	0	0.000%	0	0	#DIV/0!
Total	28,731	40	0.150%	11,109,913,651	5,288,989	0.048%	42,298	27	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: Gillsville (Hall County)****Hazard: Non-Spatially Defined Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	191	191	100.000%	7,589,403	7,589,403	100.000%	240	240	100%
Commercial	15	15	100.000%	1,070,020	1,070,020	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	20	20	100.000%	844,880	844,880	100.000%	0	0	#DIV/0!
Religious/ Non-profit	11	11	100.000%	1,207,875	1,207,875	100.000%	0	0	#DIV/0!
Government	25	25	100.000%	623,198	623,198	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	4	4	100.000%	500,573	500,573	100.000%	0	0	#DIV/0!
Total	236	236	100.000%	11,835,949	#DIV/0!	#DIV/0!	240	#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: Gillsville (Hall County)****Hazard: Wildfire Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	191	184	96.335%	7,589,403	7,311,257	96.335%	240	231	96%
Commercial	15	13	86.667%	1,070,020	927,351	86.667%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!
Agricultural	20	20	100.000%	844,880	844,880	100.000%	0	0	#DIV/0!
Religious/ Non-profit	11	11	100.000%	1,207,875	1,207,875	100.000%	0	0	#DIV/0!
Government	25	23	92.000%	623,198	573,342	92.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!
Utilities	4	4	100.000%	500,573	500,573	100.000%	0	0	#DIV/0!
Total	266	255	95.865%	11,835,949	#DIV/0!	#DIV/0!	240	#DIV/0!	#DIV/0!

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

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

GEMA Worksheet #3a

Inventory of Assets

Jurisdiction: Oakwood (Hall County)

Hazard: Flood Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,081	9	0.437%	144,447,568	441,742	0.306%	4,156	18	0%
Commercial	986	0	0.000%	251,251,783	0	0.000%	0	0	#DIV/0!
Industrial	282	1	0.355%	152,889,475	52,113	0.034%	0	0	#DIV/0!
Agricultural	23	0	0.000%	504,180	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	121	0	0.000%	52,155,848	0	0.000%	0	0	#DIV/0!
Government	92	0	0.000%	23,338,503	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	12	0	0.000%	13,910,973	0	0.000%	0	0	#DIV/0!
Total	3,576	10	0.280%	638,498,330	#DIV/0!	#DIV/0!	4,156	#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: Lula (Hall County)****Hazard: Non-Spatially Defined Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,829	1,829	100.000%	95,340,770	95,340,770	100.000%	2,981	2,981	100%
Commercial	115	115	100.000%	3,910,758	3,910,758	100.000%	0	0	#DIV/0!
Industrial	24	24	100.000%	7,118,828	7,118,828	100.000%	0	0	#DIV/0!
Agricultural	36	36	100.000%	1,164,940	1,164,940	100.000%	0	0	#DIV/0!
Religious/ Non-profit	47	47	100.000%	5,068,103	5,068,103	100.000%	0	0	#DIV/0!
Government	37	37	100.000%	4,888,243	4,888,243	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	7	7	100.000%	3,795,025	3,795,025	100.000%	0	0	#DIV/0!
Total	2,135	2,135	100.000%	121,282,657	#DIV/0!	#DIV/0!	2,981	#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: Lula (Hall County)

Hazard: Wildfire Hazard

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,888	1,884	99.732%	\$5,340,770	\$5,085,712	95.732%	2,951	2,953	100%
Commercial	115	101	87.826%	3,910,758	3,434,888	87.826%	0	0	#DIV/0!
Industrial	24	22	91.667%	7,116,828	6,523,759	91.667%	0	0	#DIV/0!
Agricultural	38	38	100.000%	1,184,940	1,184,940	100.000%	0	0	#DIV/0!
Religious/ Non-profit	47	45	95.745%	5,088,103	4,860,524	95.745%	0	0	#DIV/0!
Government	37	35	97.297%	4,868,243	4,736,669	97.297%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!
Utilities	7	7	100.000%	3,795,025	3,795,025	100.000%	0	0	#DIV/0!
Total	2,135	2,111	98.878%	121,262,667	#DIV/0!	#DIV/0!	2,951	#DIV/0!	#DIV/0!

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

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

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

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	1,889	5	0.268%	95,340,770	149,488	0.157%	2,961	8	0%
Commercial	115	0	0.000%	3,910,758	0	0.000%	0	0	#DIV/0!
Industrial	24	0	0.000%	7,116,828	0	0.000%	0	0	#DIV/0!
Agricultural	36	0	0.000%	1,164,940	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	47	0	0.000%	5,066,103	0	0.000%	0	0	#DIV/0!
Government	37	0	0.000%	4,668,243	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	7	0	0.000%	3,795,025	0	0.000%	0	0	#DIV/0!
Total	2,135	5	0.234%	121,282,667	#DIV/0!	#DIV/0!	2,961	#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: Oakwood (Hall County)

Hazard: Non-Spatially Defined Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,061	2,061	100.000%	144,447,568	144,447,568	100.000%	4,156	4,156	100%
Commercial	985	985	100.000%	251,251,783	251,251,783	100.000%	0	0	#DIV/0!
Industrial	282	282	100.000%	152,889,475	152,889,475	100.000%	0	0	#DIV/0!
Agricultural	23	23	100.000%	504,180	504,180	100.000%	0	0	#DIV/0!
Religious/ Non-profit	121	121	100.000%	52,155,848	52,155,848	100.000%	0	0	#DIV/0!
Government	92	92	100.000%	23,338,503	23,338,503	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!
Utilities	12	12	100.000%	13,910,973	13,910,973	100.000%	0	0	#DIV/0!
Total	3,576	3,576	100.000%	638,498,330	#DIV/0!	#DIV/0!	4,156	#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: Oakwood (Hall County)****Hazard: Wildfire Hazard**

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,081	2,045	99.224%	144,447,588	143,326,190	99.224%	4,156	4,124	99%
Commercial	585	964	97.868%	251,251,783	245,895,146	97.868%	0	0	#DIV/0!
Industrial	282	285	94.326%	152,889,475	144,214,895	94.326%	0	0	#DIV/0!
Agricultural	23	23	100.000%	504,180	504,180	100.000%	0	0	#DIV/0!
Religious/ Non-profit	121	118	97.521%	52,155,848	50,882,728	97.521%	0	0	#DIV/0!
Government	90	90	97.826%	23,338,508	22,831,144	97.826%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	12	12	100.000%	13,910,973	13,910,973	100.000%	0	0	#DIV/0!
Total	3,576	3,518	98.376%	638,498,330	#DIV/0!	#DIV/0!	4,156	#DIV/0!	#DIV/0!

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

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

GEMA Worksheet #3a

Inventory of Assets

Jurisdiction: Oakwood (Hall County)

Hazard: Flood Hazard

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

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	2,081	9	0.437%	144,447,568	441,742	0.306%	4,156	18	0%
Commercial	986	0	0.000%	251,251,783	0	0.000%	0	0	#DIV/0!
Industrial	282	1	0.355%	152,889,475	52,113	0.034%	0	0	#DIV/0!
Agricultural	23	0	0.000%	504,180	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	121	0	0.000%	52,155,848	0	0.000%	0	0	#DIV/0!
Government	92	0	0.000%	23,338,503	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	12	0	0.000%	13,910,973	0	0.000%	0	0	#DIV/0!
Total	3,576	10	0.280%	638,498,330	#DIV/0!	#DIV/0!	4,156	#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: Clermont (Hall County)****Hazard: Non-Spatially Defined Hazard**

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	845	845	100.000%	60,464,923	60,464,923	100.000%	1,038	1,038	100%
Commercial	80	80	100.000%	4,719,788	4,719,788	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	54	54	100.000%	2,459,198	2,459,198	100.000%	0	0	#DIV/0!
Religious/ Non-profit	6	6	100.000%	811,278	811,278	100.000%	0	0	#DIV/0!
Government	39	39	100.000%	4,466,948	4,466,948	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	8	8	100.000%	4,581,048	4,581,048	100.000%	0	0	#DIV/0!
Total	1,032	1,032	100.000%	77,503,183	#DIV/0!	#DIV/0!	1,038	#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: Clermont (Hall County)

Hazard: Wildfire Hazard

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

Type of Structure (Occupancy Class)	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	845	796	94.201%	60,464,923	56,368,673	94.201%	1,038	979	94%
Commercial	80	75	93.750%	4,719,788	4,424,801	93.750%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	54	54	100.000%	2,459,198	2,459,198	100.000%	0	0	#DIV/0!
Religious/ Non-profit	6	6	100.000%	811,278	811,278	100.000%	0	0	#DIV/0!
Government	39	38	92.308%	4,466,948	4,123,337	92.308%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	8	7	87.500%	4,581,048	4,008,417	87.500%	0	0	#DIV/0!
Total	1,032	974	94.380%	77,503,183	#DIV/0!	#DIV/0!	1,038	#DIV/0!	#DIV/0!

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

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

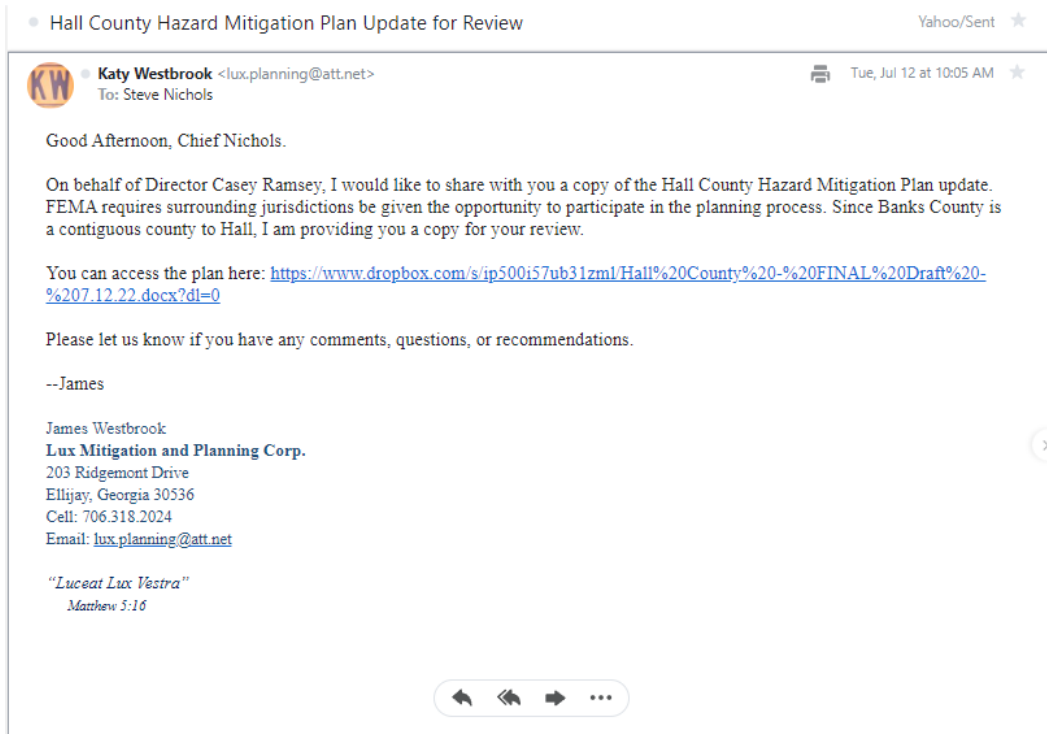
GEMA Worksheet #3a**Inventory of Assets****Jurisdiction: Clermont (Hall County)****Hazard: Flood Hazard**

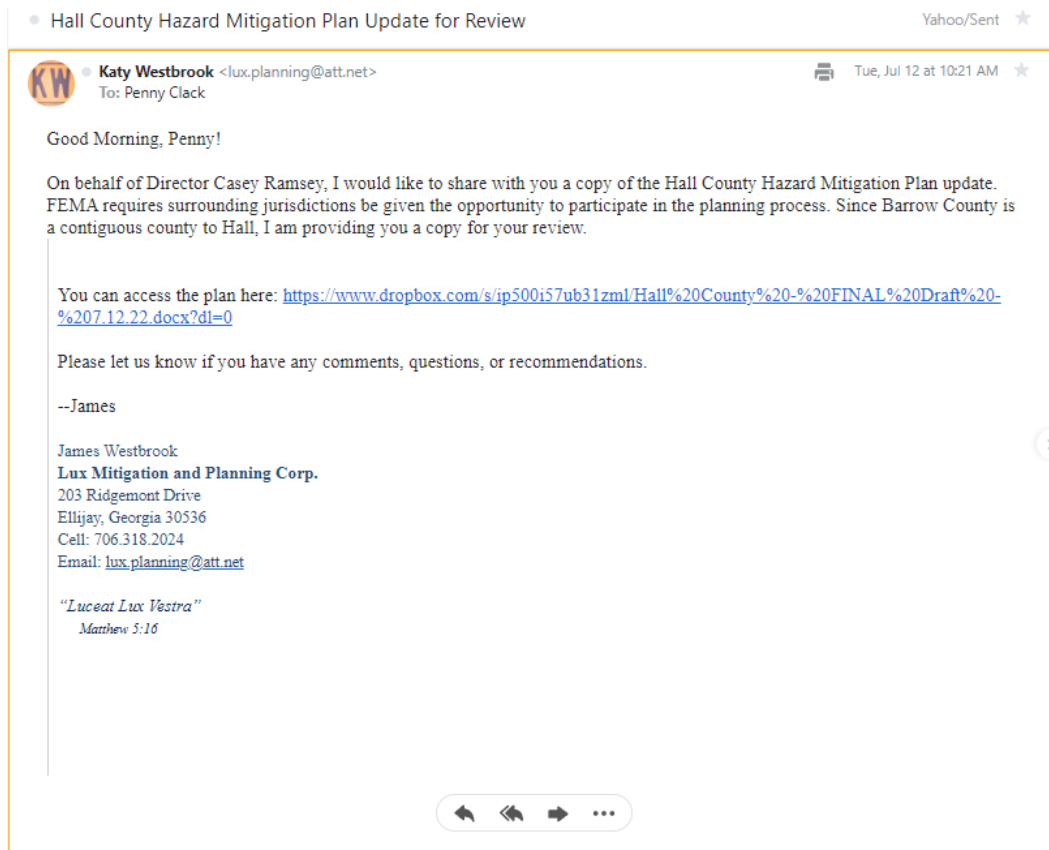
Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

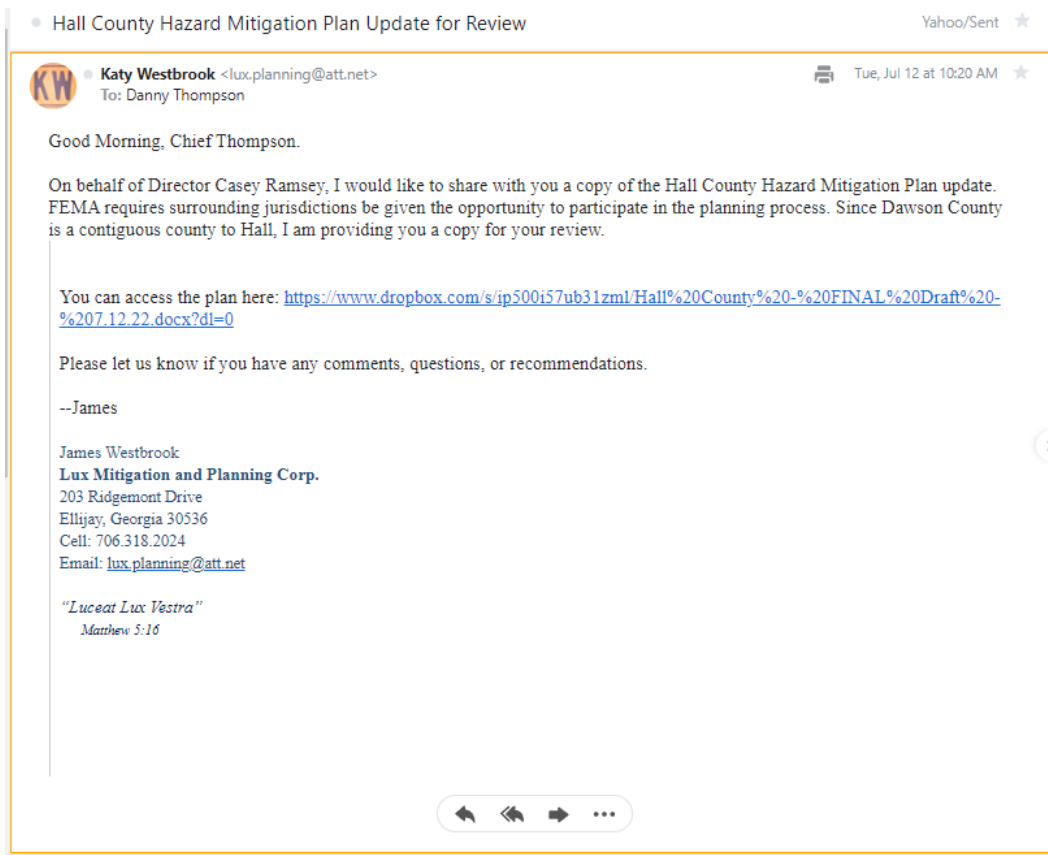
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	845	2	0.237%	80,464,923	155,280	0.257%	1,039	2	0%
Commercial	80	0	0.000%	4,719,788	0	0.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	54	0	0.000%	2,459,198	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	6	0	0.000%	811,278	0	0.000%	0	0	#DIV/0!
Government	39	0	0.000%	4,466,948	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	8	0	0.000%	4,581,048	0	0.000%	0	0	#DIV/0!
Total	1,032	2	0.194%	77,503,183	#DIV/0!	#DIV/0!	1,039	#DIV/0!	#DIV/0!

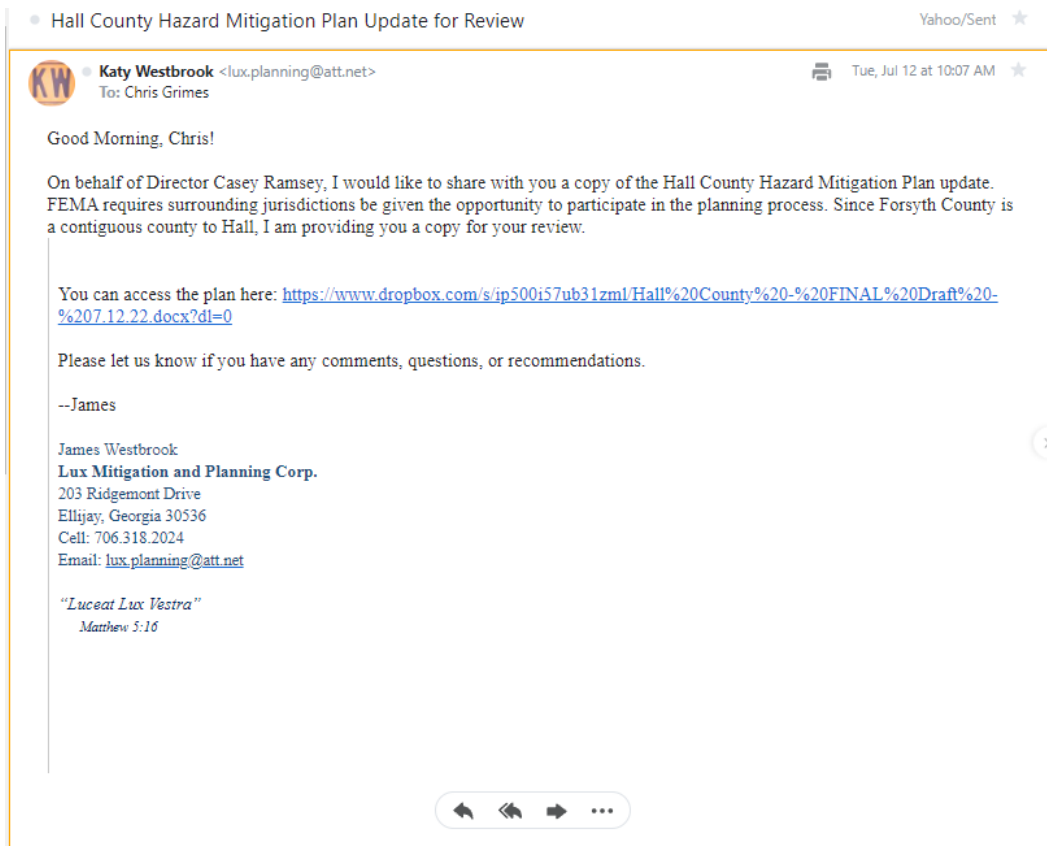
Task B. Determine whether (and where) you want to collect additional inventory data.

- | | | |
|---|----------|----------|
| | 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*

Barrow County

Dawson County

Forsyth County

Gwinnett County

● Hall County Hazard Mitigation Plan Update for Review

Yahoo/Sent ★



● **Katy Westbrook** <lux.planning@att.net>
To: Gregory Swanson



Tue, Jul 12 at 10:07 AM ★

Good Morning, Director Swanson.

On behalf of Director Casey Ramsey, I would like to share with you a copy of the Hall County Hazard Mitigation Plan update. FEMA requires surrounding jurisdictions be given the opportunity to participate in the planning process. Since Gwinnett County is a contiguous county to Hall, I am providing you a copy for your review.

You can access the plan here: <https://www.dropbox.com/s/ip500i57ub31zml/Hall%20County%20-%20FINAL%20Draft%20-%207.12.22.docx?dl=0>

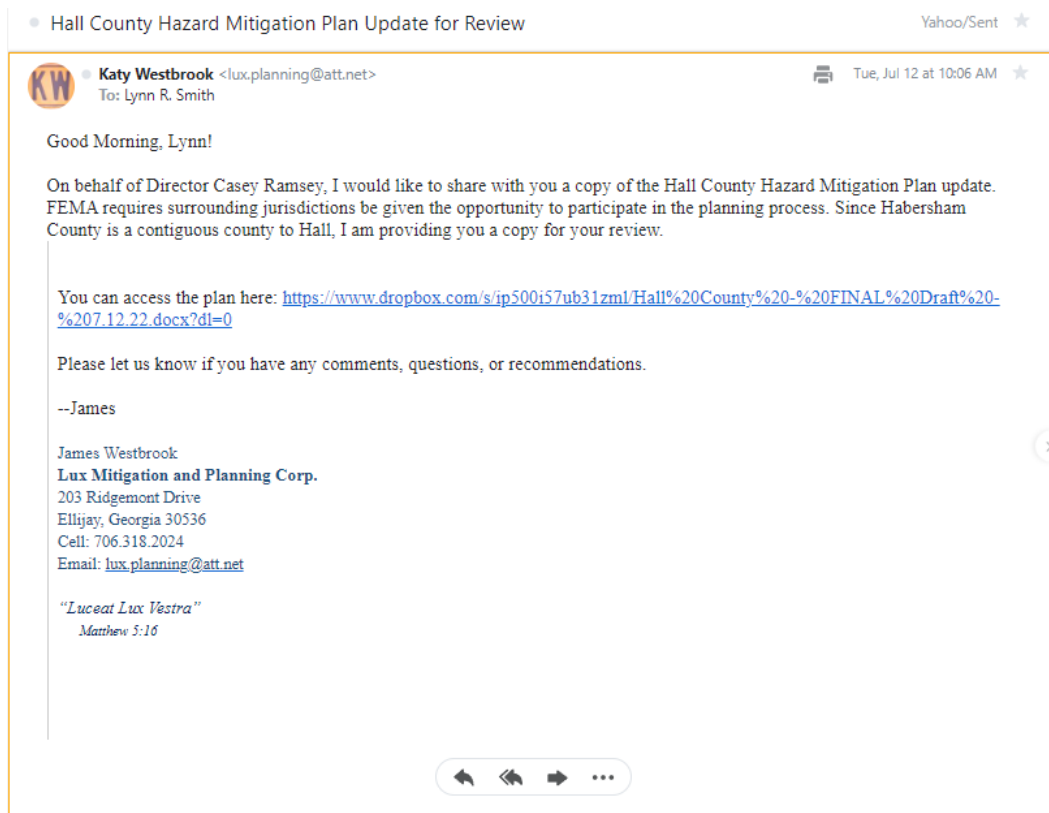
Please let us know if you have any comments, questions, or recommendations.

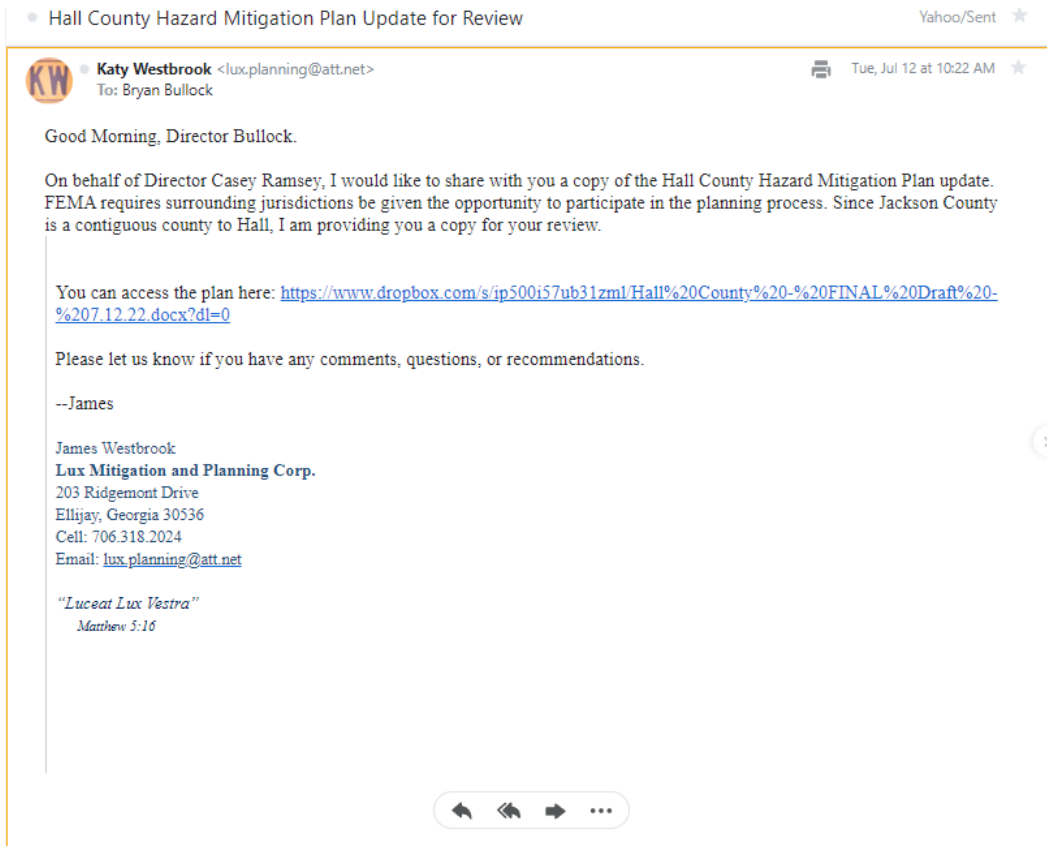
--James

James Westbrook
Lux Mitigation and Planning Corp.
203 Ridgemont Drive
Ellijay, Georgia 30536
Cell: 706.318.2024
Email: lux.planning@att.net

"Luceat Lux Vestra"
Matthew 5:16



Habersham County

Jackson County

Lumpkin County

● Hall County Hazard Mitigation Plan Update for Review

Yahoo/Sent ★



● **Katy Westbrook** <lux.planning@att.net>
To: david.wimpy@lumpkincounty.gov

Tue, Jul 12 at 10:22 AM ★

Good Morning, Director Wimpy.

On behalf of Director Casey Ramsey, I would like to share with you a copy of the Hall County Hazard Mitigation Plan update. FEMA requires surrounding jurisdictions be given the opportunity to participate in the planning process. Since Lumpkin County is a contiguous county to Hall, I am providing you a copy for your review.

You can access the plan here: <https://www.dropbox.com/s/jp500i57ub31zml/Hall%20County%20-%20FINAL%20Draft%20-%207.12.22.docx?dl=0>

Please let us know if you have any comments, questions, or recommendations.

--James

James Westbrook
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Cell: 706.318.2024
Email: lux.planning@att.net

"Luceat Lux Vestra"
Matthew 5:16



White County

Hall County Hazard Mitigation Plan Update for Review Yahoo/Sent ★

 **Katy Westbrook** <lux.planning@att.net>
To: David Murphy Tue, Jul 12 at 10:24 AM ★

Good Morning, Director Murphy.

On behalf of Director Casey Ramsey, I would like to share with you a copy of the Hall County Hazard Mitigation Plan update. FEMA requires surrounding jurisdictions be given the opportunity to participate in the planning process. Since White County is a contiguous county to Hall, I am providing you a copy for your review.

You can access the plan here: <https://www.dropbox.com/s/ip500i57ub31zml/Hall%20County%20-%20FINAL%20Draft%20-%202017.12.22.docx?dl=0>

Please let us know if you have any comments, questions, or recommendations.

--James

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Email: lux.planning@att.net

"Luceat Lux Vestra"
Matthew 5:16

RE: Hall County Hazard Mitigation Plan Update for Review Yahoo/Inbox ★

 **David L. Murphy, Jr. GA-PCEM** <dmurphy@whitecounty.net>
To: Katy Westbrook Tue, Jul 12 at 11:29 AM ★

We have reviewed the Hall County Hazard Mitigation Plan Update and have no recommendations.

This is a very well and thought-out plan for Hall County and its municipalities.

Appendix G – Hall County HAZUS Report



Hazard Risk Analyses
Supplement to the Hall County
Joint Hazard Mitigation Plan



Carl Vinson
Institute of Government
UNIVERSITY OF GEORGIA

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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 2022, 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 Hall 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 Hall 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. Hall 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 Hall County were replaced with data derived from parcel and property assessment data obtained from Hall County. The county provided property assessment data was current as of May 2022 and the parcel data current as of May 2022. 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 Hall County is 99.9%. 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	226	32	\$57,911,000	\$1,801,000
Commercial	3,646	3,698	\$2,458,588,000	\$1,418,631,000
Education	112	119	\$121,706,000	\$280,700,000
Government	89	68	\$66,539,000	\$56,707,000
Industrial	1,219	1,757	\$995,252,000	\$728,486,000
Religious	338	300	\$223,758,000	\$81,257,000
Residential	60,560	69,470	\$14,142,697,000	\$11,968,422,000
Total	66,190	75,444	\$18,066,451,000	\$14,536,004,000

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

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

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Braselton		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	1	\$1,272,000
School	0	\$0
Total	1	\$1,272,000
Buford		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	0	\$0
School	0	\$0
Total	0	\$0
Clermont		
EOC	0	\$0
Care	0	\$0
Fire	1	\$1,300,000
Police	1	\$322,000
School	0	\$0
Total	2	\$1,622,000
Flowery Branch		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	1	\$2,954,000
School	3	\$37,096,000
Total	4	\$40,050,000

Classification	Updated Count	Updated Exposure
Gainesville		
EOC	1	\$6,036,000
Care	1	\$192,698,000
Fire	4	\$13,706,000
Police	3	\$42,170,000
School	16	\$334,664,000
Total	25	\$589,274,000
Gillsville		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	0	\$0
School	0	\$0
Total	0	\$0
Lula		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	1	\$24,000
School	1	\$1,772,000
Total	2	\$1,796,000
Oakwood		
EOC	0	\$0
Care	0	\$0
Fire	0	\$0
Police	1	\$1,276,000
School	2	\$4,761,000
Total	3	\$6,037,000

Classification	Updated Count	Updated Exposure
Unincorporated Areas of Hall County		
EOC	0	\$0
Care	1	\$68,972,000
Fire	17	\$18,857,000
Police	2	\$36,985,000
School	32	\$333,733,000
Total	52	\$458,547,000

Assumptions and Exceptions

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

- The Hall 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 Hall County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Hall 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 1900, Hall County has had 11 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Hall County³

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1900	September 11-15	UNNAMED	52	0	TS

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 National Hurricane Center. National Oceanic and Atmospheric Administration. Hurdatt2 Data Retrieved 2020. <https://www.nhc.noaa.gov/data/#hurdat>

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1902	October 03-13	UNNAMED	104	970	H2
1907	September 18-23	UNNAMED	46	0	TS
1911	August 23-31	UNNAMED	98	972	H2
1913	August 30 - September 04	UNNAMED	86	976	H1
1959	October 06-09	IRENE	46	1003	TS
1977	September 03-09	BABE	75	1012	H1
1994	August 14-19	BERYL	58	1013	TS
1997	July 16-27	DANNY	81	1013	H1
2004	August 25 - September 10	FRANCES	144	1009	H4
2005	July 03-11	CINDY	75	1011	H1

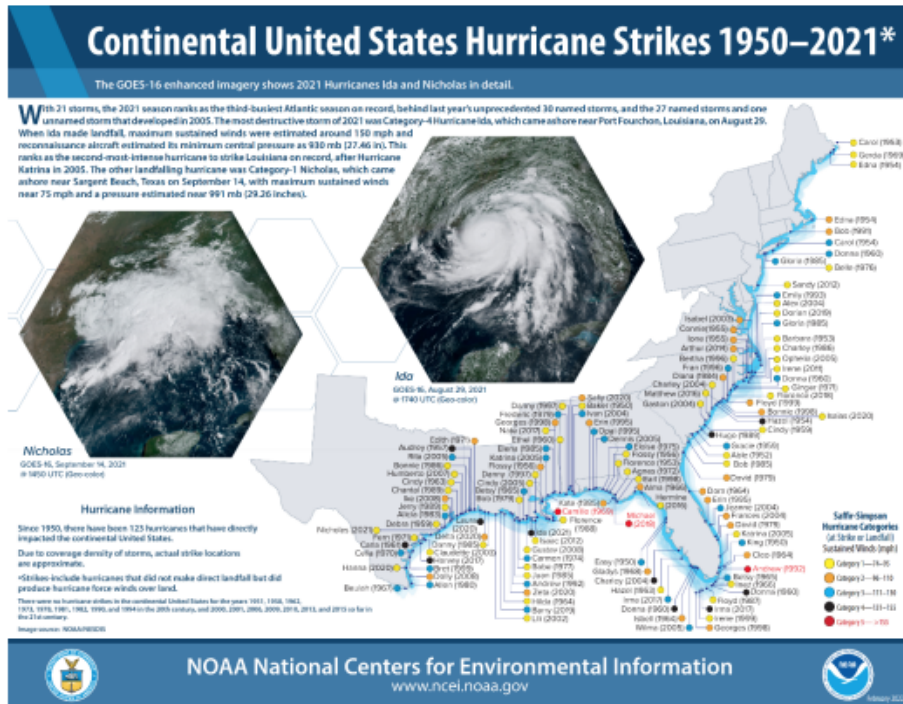
Category Definitions:

TS – Tropical storm

TD – Tropical depression

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

E – Extra-tropical cyclone

Figure 2: Continental United States Hurricane Strikes: 1950 to 2021⁴

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Tropical Storm with maximum winds of 66 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 Hall County. Wind losses were determined from probabilistic models run for the Tropical Storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled Tropical Storm.

⁴ Source: NOAA National Centers for Environmental Information

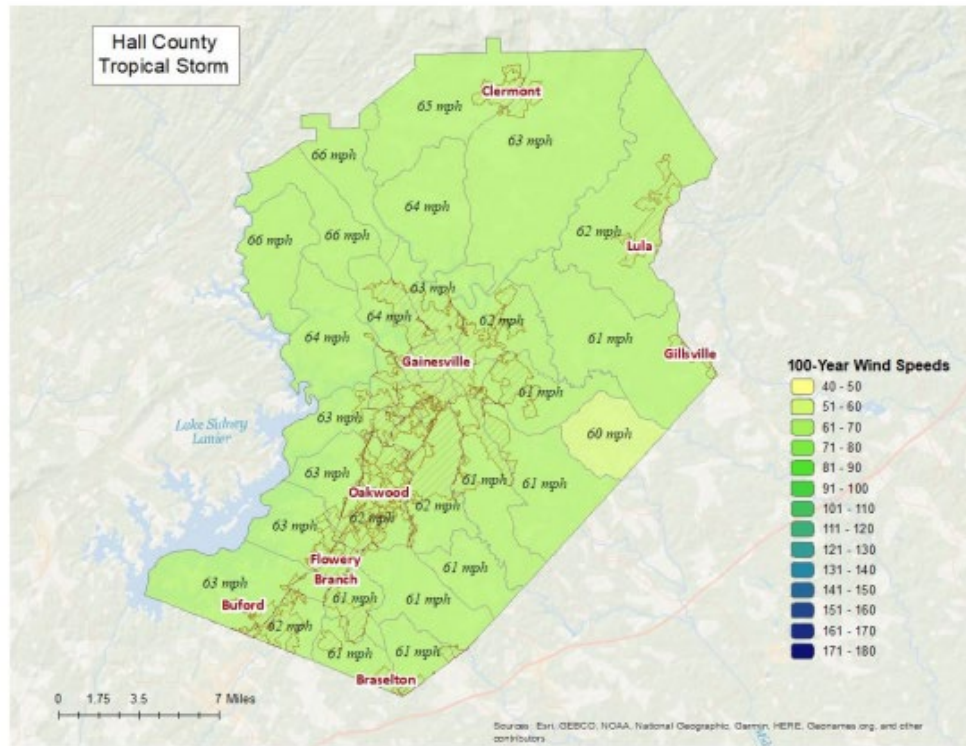


Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Hall 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 Hall 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	174	\$4,113,990	\$4,858,000	0.03%

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

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.

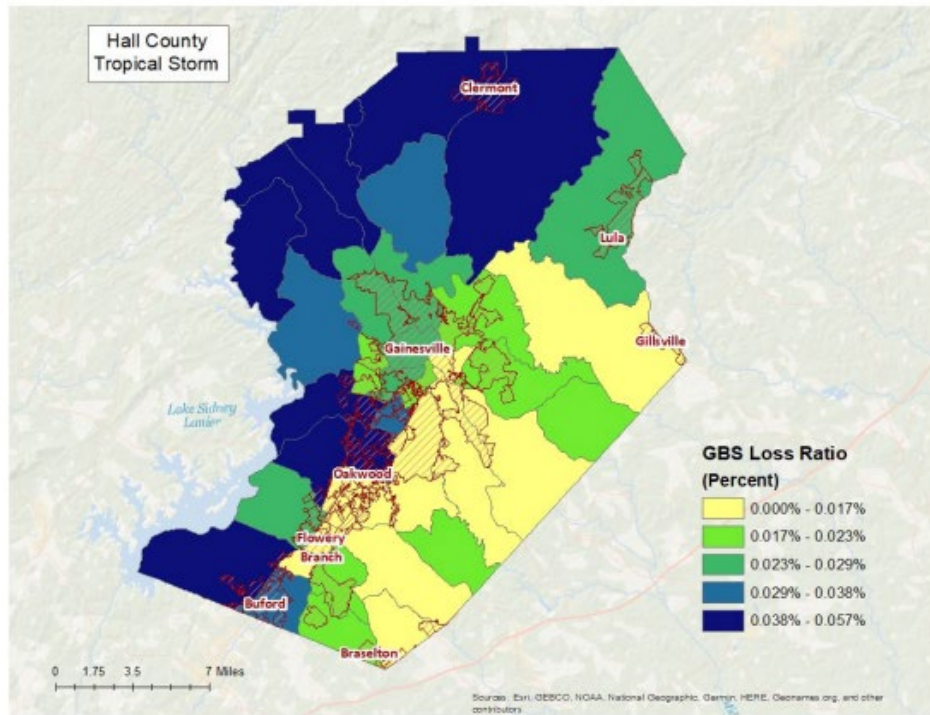


Figure 4: Hurricane Wind Building Loss Ratios

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 89 essential facilities in Hall County.

Classification	Number
EOCs	1
Fire Stations	22
Care Facilities	2
Police Stations	10
Schools	54

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	89

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 Hall 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	361	0	1,421	5,183	6,965

Figure 5 shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

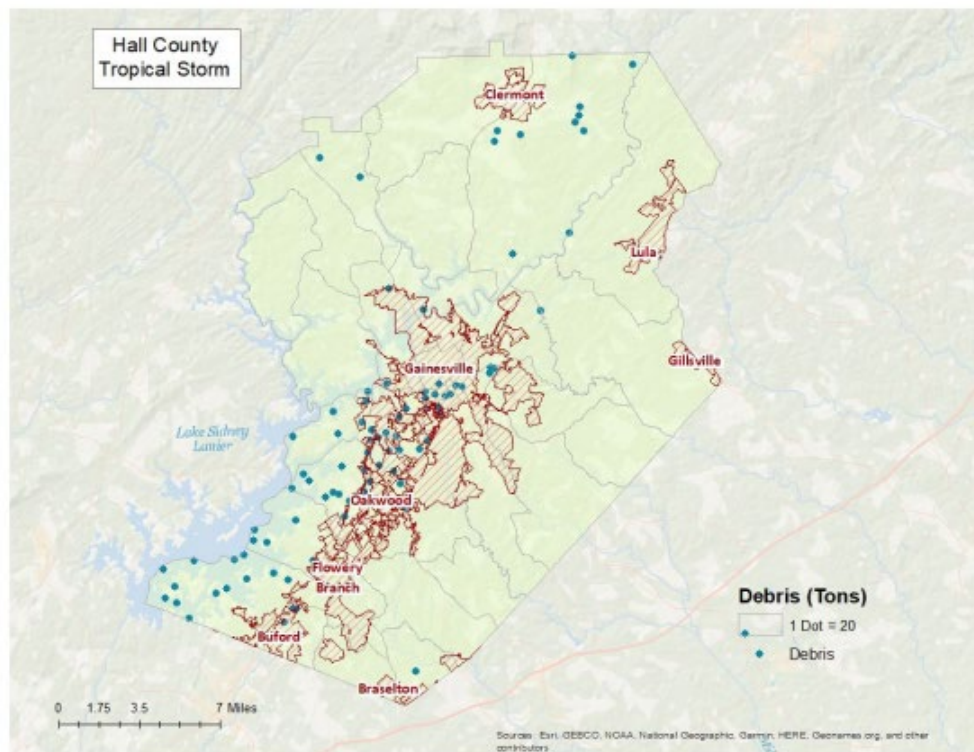


Figure 5: Wind-Related Debris Weight (Tons)

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 Hall County flood risk assessment analyzed at risk structures in the SFHA.

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.

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.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in May 2022. 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.

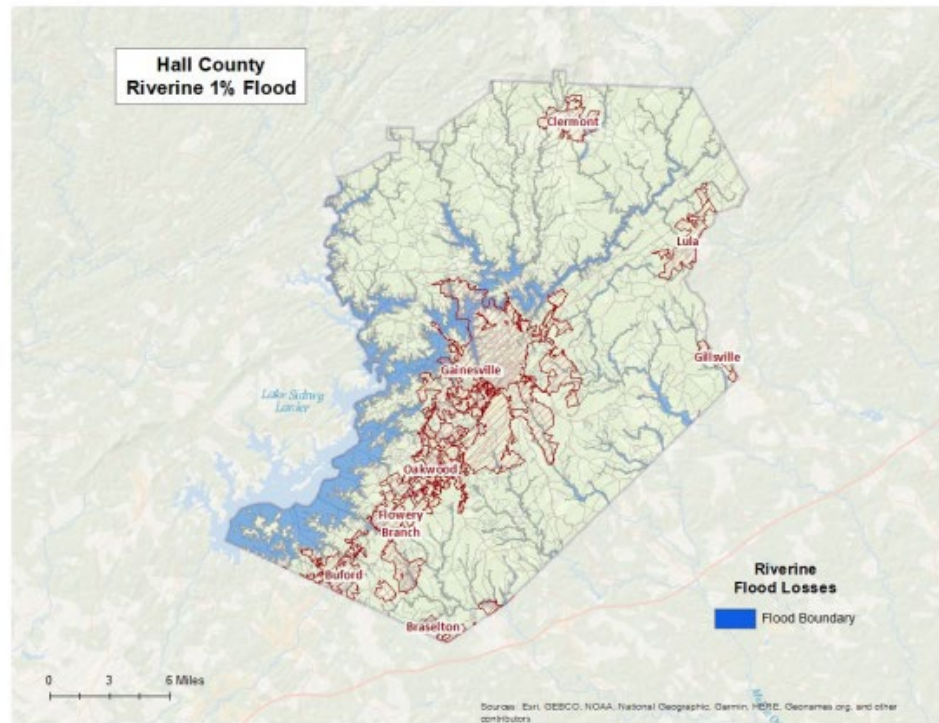


Figure 6: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Hall 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 Hall 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: Hall 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
Braselton					
Residential	1,137	36	\$300,987,020	\$1,962,278	0.65%
Clermont					
Residential	426	2	\$70,954,627	\$155,280	0.22%
Flowery Branch					
Commercial	129	4	\$47,649,377	\$38,326	0.08%
Residential	3,537	14	\$819,256,030	\$461,726	0.06%
Gainesville					
Education	48	10	\$154,283,094	\$4,164,404	2.70%
Residential	9,418	12	\$2,105,359,720	\$303,384	0.01%
Commercial	1,761	11	\$914,665,487	\$539,302	0.06%
Industrial	591	7	\$240,981,312	\$281,899	0.12%
Lula					
Residential	895	5	\$95,706,693	\$149,488	0.16%

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
Oakwood					
Industrial	107	1	\$52,105,067	\$52,113	0.10%
Residential	1,000	9	\$179,395,255	\$441,742	0.25%
Unincorporated					
Residential	52,145	441	\$8,173,020,334	\$22,232,527	0.27%
Commercial	1,205	6	\$319,675,626	\$992,309	0.31%
Industrial	792	11	\$313,608,826	\$2,412,545	0.77%
County Total					
	73,191	569	\$13,787,648,468	\$34,187,323	

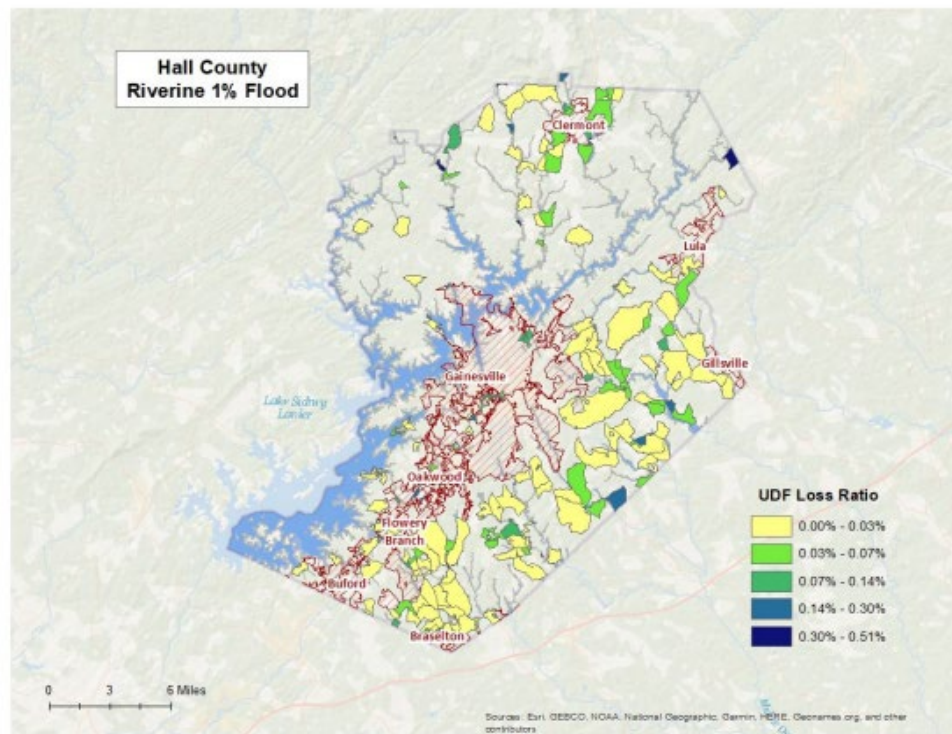


Figure 7: Hall County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

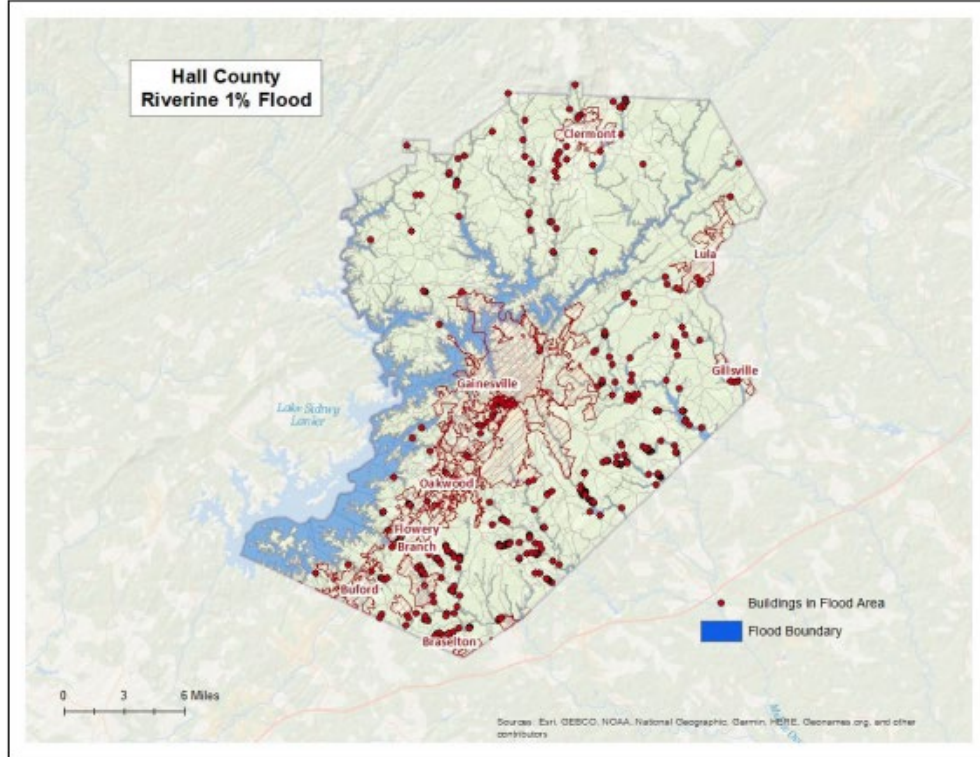


Figure 8: Hall County Damaged Buildings in Riverine Floodplain (1% Flood)

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 was subject to damage in the Hall County riverine 1% probability floodplain.

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 2,676 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 8,028 individuals, of which 4,528 may require short term publicly provided shelter. The results are mapped in Figure 9.

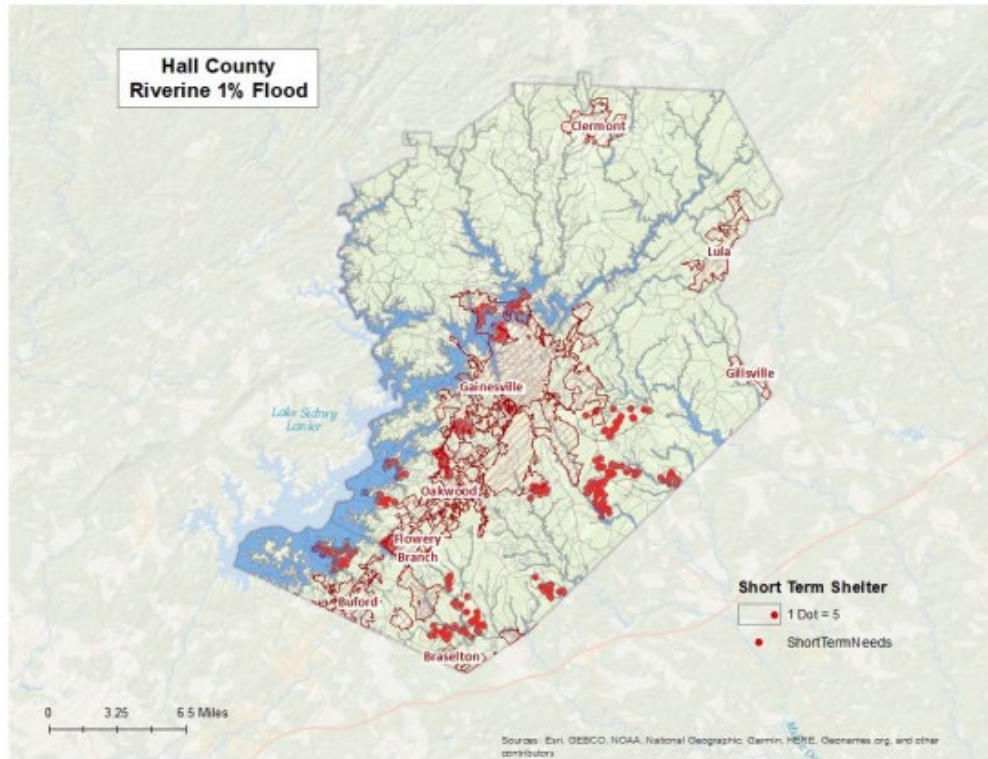


Figure 9: Riverine 1% Estimated Flood Shelter Requirements

Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

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

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

The analysis estimates that an approximate total of 61,152 tons of debris might be generated: 1) Finishes- 13,374 tons; 2) Structural – 23,489 tons; and 3) Foundations- 24,289 tons. The results are mapped in Figure 10.

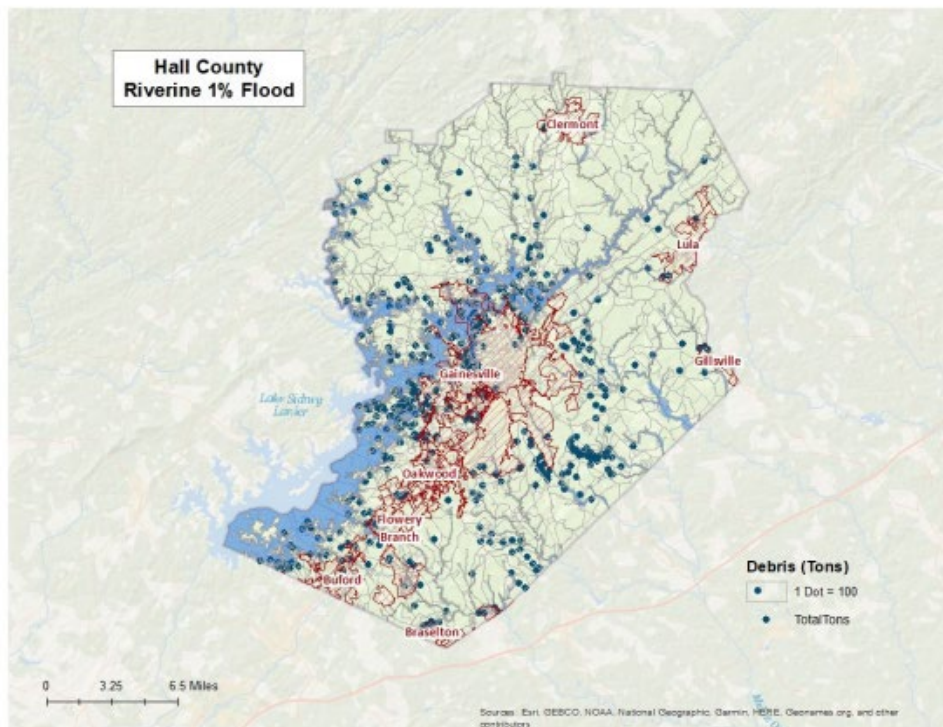


Figure 10: Riverine 1% Flood Debris Weight (Tons)

Tornado Risk Assessment

Hazard Definition

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

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

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

Table 10: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 <i>Gale</i>	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 <i>Moderate</i>	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 <i>Significant</i>	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 <i>Severe</i>	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 <i>Devastating</i>	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 <i>Incredible</i>	> 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>

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 Gainesville. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 11 depicts tornado path widths and expected damage.

Table 11: Tornado Path Widths and Damage Curves

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

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 11 describes the zone analysis.

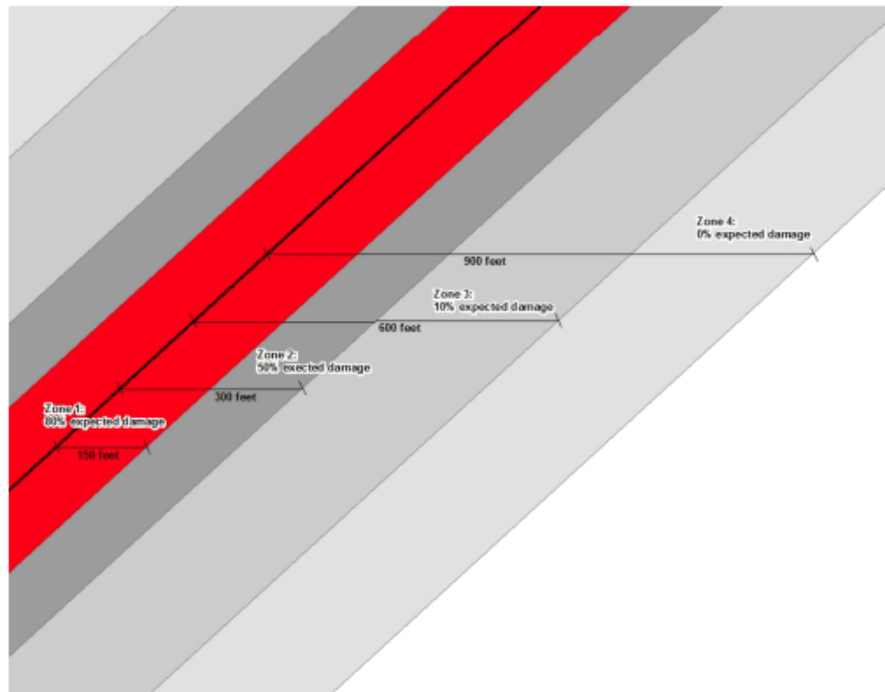


Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 12. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 12 and the damage curve buffer zones are shown in Figure 13.

Table 12: EF3 Tornado Zones and Damage Curves

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

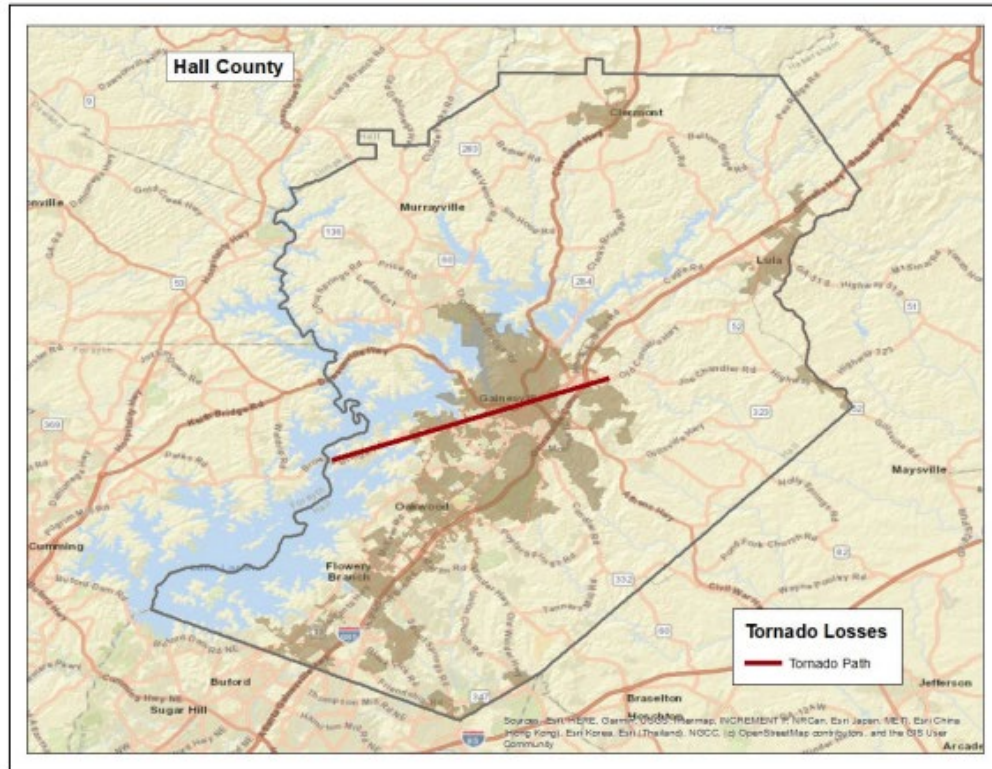


Figure 12: Hypothetical EF3 Tornado Path in Hall County

Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Commercial	393	\$80,168,584
Education	6	\$2,727,853
Government	9	\$4,787,232
Industrial	57	\$13,612,242
Religious	3	\$47,214
Residential	1,584	\$59,309,713
Total	2,052	\$160,652,838

EF3 Tornado Essential Facility Damage

There were four essential facilities located in the tornado path – four schools. Table 14 outlines the specific facility and the amount of damage under the scenario.

Table 14: Estimated Essential Facilities Damaged

Facility	Amount of Damage
Fair Street International Academy	Minor Damage
Gainesville Exploration Academy	Minor Damage
New Holland Leadership Academy	Minor Damage
White Sulphur Elementary School	Minor Damage

According to the Georgia Department of Education, Fair Street International Academy's enrollment was approximately 519 students, Gainesville Exploration Academy's enrollment was approximately 566 students, New Holland Leadership Academy's enrollment was approximately 575 students, and White Sulphur Elementary School's enrollment was approximately 475 students as of March 2022. 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.

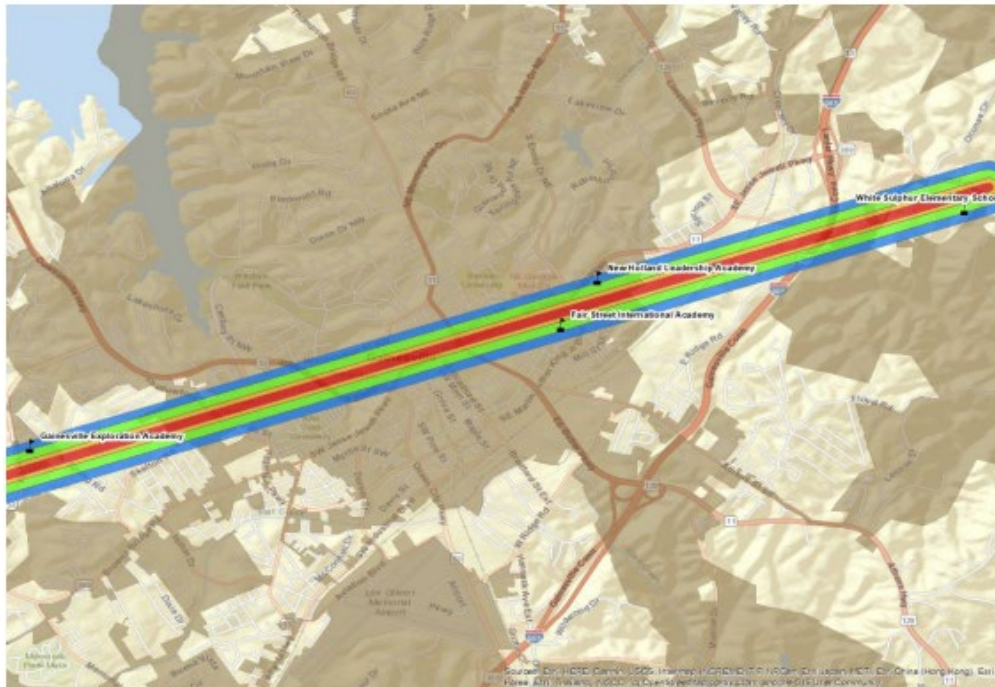


Figure 14: Modeled Essential Facility Damage in Hall County

Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Hall 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 Hall County.

Updates to the Critical Facility data used in GMIS were provided by Hall County in May 2022. 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 Hall County.

Table 15: Essential Facility Updates

Site Class	Feature Class	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
EF	Care	\$80,664,000	2	\$261,670,000	2
EF	EOC	\$1,760,000	2	\$6,036,000	1
EF	Fire	\$0	2	\$33,863,000	22
EF	Police	\$17,248,000	14	\$85,003,000	10
EF	School	\$507,266,000	52	\$712,026,000	54

County Inventory Changes

The GBS records for Hall County were replaced with data derived from parcel and property assessment data obtained from Hall County. The county provided property assessment data was current as of May 2022 and the parcel data current as of May 2022.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Hall 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 Hall County was 99.9%.

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 Hall County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	548	1%
Construction Unknown	12,587	16%
Condition Unknown	67	0%
Foundation Unknown	13,391	17%
Year Built Unknown	2,594	3%
Total Buildings	77,100	8%

Approximately 8% 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 Hall County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means (\$/sqft) values for each Occupancy Class.

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

User Defined Facilities

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

Table 17: User Defined Facility Exposure

Class	Hazus-MH Feature	Counts	Exposure
BI	Building Exposure	75,444	\$14,536,245,885
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	607	\$106,495,015

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

Appendix H – Documentation of Municipal Participation

CITY/TOWN WORKSHEET

Municipality: Town of BraseltonCounty: Hall CountyCompleted by: Sandy Weinel, P.E., Town EngineerDate: October 25, 2022**CAPABILITIES/SERVICES** (CHECK ALL THAT APPLY)

- ☒ LAW ENFORCEMENT
- ☐ FIRE PROTECTION
- ☐ GARBAGE AND SOLID-WASTE COLLECTION AND DISPOSAL
- ☐ PUBLIC HEALTH FACILITIES AND SERVICES
- ☒ STREET AND ROAD CONSTRUCTION AND MAINTENANCE
- ☒ PARKS, RECREATIONAL AREAS, PROGRAMS, AND FACILITIES
- ☒ STORM-WATER AND SEWAGE COLLECTION AND DISPOSAL SYSTEMS
- ☒ DEVELOPMENT, STORAGE, TREATMENT, PURIFICATION, AND DISTRIBUTION OF WATER
- ☐ PUBLIC HOUSING
- ☒ PUBLIC TRANSPORTATION
- ☒ LIBRARIES, ARCHIVES, AND ARTS AND SCIENCES PROGRAMS AND FACILITIES
- ☐ TERMINAL AND DOCK FACILITIES AND PARKING FACILITIES
- ☒ CODES, INCLUDING BUILDING, HOUSING, PLUMBING, AND ELECTRICAL
- ☐ AIR-QUALITY CONTROL
- ☒ THE CREATION, MODIFICATION, AND MAINTENANCE OF RETIREMENT OR PENSION SYSTEMS FOR LOCAL-GOVERNMENT EMPLOYEES
- ☒ PLANNING, ZONING, AND COMMUNITY DEVELOPMENT
- ☐ ELECTRIC OR GAS UTILITY SERVICES
- ☒ STREET LIGHTING

GOVERNMENT STRUCTUREIs this a City or Town: TownNumber of Councilmembers: Four (4) Councilmembers

Are the elections city-wide or is it based on a geographical area (district)?

DistrictsLength of term for Councilmembers (in years): Four (4)-Year TermsAre the terms staggered or at the same time? Staggered

UNIQUE HAZARDS/INDUSTRY (PLEASE LIST/EXPLAIN)

None have been identified at this time.

POINTS OF INTEREST/TOURISM (PLEASE LIST/EXPLAIN)

Mulberry Riverwalk - approximately 1 mile of a 2-mile, natural path along the Mulberry River is located within Hall County

NOTABLE PAST HAZARD EVENTS (PLEASE LIST/EXPLAIN)

None identified at this time

ADDITIONAL NOTES

CITY/TOWN WORKSHEET

Municipality: City of GillsvilleCounty: Hall County and Banks CountyCompleted by: Sandra HeltonDate: 10-26-2022

CAPABILITIES/SERVICES (CHECK ALL THAT APPLY)

- ☒ LAW ENFORCEMENT ☒ FIRE PROTECTION ☒ GARBAGE AND SOLID-WASTE COLLECTION AND DISPOSAL
- ☐ PUBLIC HEALTH FACILITIES AND SERVICES
- ☐ STREET AND ROAD CONSTRUCTION AND MAINTENANCE
- ☒ PARKS, RECREATIONAL AREAS, PROGRAMS, AND FACILITIES
- ☐ STORM-WATER AND SEWAGE COLLECTION AND DISPOSAL SYSTEMS
- ☐ DEVELOPMENT, STORAGE, TREATMENT, PURIFICATION, AND DISTRIBUTION OF WATER
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- ☒ CODES, INCLUDING BUILDING, HOUSING, PLUMBING, AND ELECTRICAL
- ☐ AIR-QUALITY CONTROL
- ☐ THE CREATION, MODIFICATION, AND MAINTENANCE OF RETIREMENT OR PENSION SYSTEMS FOR LOCAL-GOVERNMENT EMPLOYEES
- ☐ PLANNING, ZONING, AND COMMUNITY DEVELOPMENT
- ☒ ELECTRIC OR GAS UTILITY SERVICES
- ☒ STREET LIGHTING
- Intergovernmental agreement*

GOVERNMENT STRUCTURE

Is this a City or Town: CityNumber of Councilmembers: 5 council 1 mayor

Are the elections city-wide or is it based on a geographical area (district)?

districtLength of term for Councilmembers (in years): 4 yrsAre the terms staggered or at the same time? Staggered

UNIQUE HAZARDS/INDUSTRY (PLEASE LIST/EXPLAIN)

Railroad

POINTS OF INTEREST/TOURISM (PLEASE LIST/EXPLAIN)

Pottery

NOTABLE PAST HAZARD EVENTS (PLEASE LIST/EXPLAIN)**ADDITIONAL NOTES**