2016-4347 - CHEROKEE COUNTY - FINAL DRAFT - 12.9.16.DOCX

Cherokee County Emergency Management Agency

Lux Mitigation and Planning Corp.

Cherokee County, Georgia

Hazard Mitigation Plan Update

2016 – 2021

Prepared for the Cherokee County Board of Commissioners

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Canton, Georgia 30114

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Cherokee County's
Hazard Mitigation Plan Update 2016

This document was funded in part by the Hazard Mitigation Planning Grant awarded to the Cherokee County Emergency Management Agency by the Georgia Emergency Management Agency to fulfill the requirements of the Federal Disaster Mitigation Act of 2000. Cherokee County Hazard Mitigation Plan 2010 was updated by the Cherokee County Hazard Mitigation Plan Update Committee and was prepared by Lux Mitigation and Planning Corporation. For additional information, please contact Cherokee County Emergency Management Agency.

Director Renee Cornelison
Cherokee County Emergency Management Agency
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Canton, Georgia 30115
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678.493.4033

Resolution – Cherokee County

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

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

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

WHEREAS, the Cherokee County Hazard Mitigation Plan Update 2016 - 2021 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 Cherokee County, Georgia and the Mayors and City Councils of the Cities of Canton, Woodstock, Ball Ground, Holly Springs, Nelson, and Waleska, each meeting in respective session, that:

1) Cherokee County, Georgia, the Cities of Canton, Woodstock, Ball Ground, Holly Springs, Nelson, and Waleska have adopted the Cherokee County Hazard Mitigation Plan Update 2016 - 2021; 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 Cherokee County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Cherokee County Board of Commissioners in regular session this _____ day of _____, 2017.

_____ _____

Chairperson County Manager

Resolution – Cherokee County Municipalities

Requirement §201.6(c)(5)

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Canton in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Woodstock in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Holly Springs in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Nelson in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Waleska in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

PASSED, APPROVED AND ADOPTED by the Mayor and City Council of Ball Ground in regular session this _____ day of _____, 2017.

_____ _____

Mayor City Clerk

Preface

Mitigation Vision for the Future

Emergency Managers succeed and fail by 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. For the prevention of disasters in communities, emergency management agencies that adopt mitigation practices in an effort to reduce, minimize, or eliminate hazards in their community have found, the vision for the future of emergency management. The Federal Disaster Mitigation Act of 2000 has set the benchmark and outlines the criteria for communities with the vision to implement hazard mitigation practices in their communities.

Cherokee County and its municipalities realize the benefits achieved by the development and implementation of mitigation plans and strategies in our community. Cherokee County elected officials, public safety organizations, planners, and many others have proved that by working together towards the development and implementation of this plan, have the vision to implement mitigation practices therefore reducing the loss of life and property in their communities.

The areas covered by this plan include:

Cherokee County
City of Canton
City of Woodstock
City of Ball Ground
City of Holly Springs
City of Nelson
City of Waleska

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CHAPTER THREE – HAZARD PROFILES (CONTINUED)

APPENDICIES **166**

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 Cherokee County Hazard Mitigation Plan 2010.

Chapter 1 Section	Update
Introduction	• Identification of Mitigation Goals
Authority	• Content Revised
Funding	• Content Revised
Scope	• New Section – Not in 2010 Plan
Purpose	• New Section – Not in 2010 Plan
Consistency with Federal Guidelines	• New Section – Not in 2010 Plan • Modified information from 2010 Plan Section 2-1
Plan Review	• Updated to reflect information from 2010 Cherokee County Hazard Mitigation Plan Update
Hazard Mitigation Plan Update Committee	• Updated committee list to match the 2016 planning participants
Public Participation	• New Section – Not in 2010 Plan • Modified information from 2010 Plan Section 4-2
Multi-Jurisdictional Considerations	• Updated with requirement descriptions
Incorporation of Existing Plans, Studies, and Resources	• New Section – Not in 2010 Plan

Introduction

The Cherokee 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 Disaster Mitigation Act of 2000. The Federal Disaster Mitigation Act of 2000 provides federal assistance to state and local emergency management agencies and other disaster response organizations in an effort to reduce damage from disasters. The Act is administered by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (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. The Cherokee County Hazard Mitigation Plan Update Committee identified the following goals during plan development:

GOAL 1 Protect the public health and safety

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

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

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

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

This plan complies with all requirements and scope of work as described in Cherokee 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 Disaster Mitigation Act of 2000 is the latest legislation to improve the planning aspect of that process. The Act reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The Act establishes a pre-disaster hazard mitigation program and designates new requirements for the national post-disaster Hazard Mitigation Grant Program (HMPG). Section 322 of the Act identifies the new requirements for planning activities and increases the amount of HMPG 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, the Federal Emergency Management Agency (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, Cherokee County's Updated Hazard Mitigation Plan will be brought forth to each participating jurisdiction in Cherokee County to be formally adopted. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules, and legislation:

Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390); and

FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.

Funding

Cherokee County was awarded a $24,000 Hazard Mitigation Planning Grant by the Georgia Emergency Management Agency for the update of Cherokee County's 2010 Hazard Mitigation Plan. The grant requires a 25% match by Cherokee County, which was fulfilled by utilizing "in-kind" services. In-kind service documentation is available upon request.

Scope

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

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

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

Purpose

The purpose of the Cherokee 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 Cherokee County safer places to live, work, and play;
- Qualify for grant funding in both the pre-disaster and post-disaster environments;
- Speed recovery and redevelopment 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 a greater awareness to the public about the need for individual preparedness and about building 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.

The Federal Emergency Management Agency publishes many guidance documents for local governments for mitigating natural disasters. The updated Cherokee County Hazard Mitigation Plan fully recognizes, adopts, incorporates and endorses the following principles:

- Develop a strategic mitigation plan for Cherokee 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 disasters; and,

- Partner with businesses in an effort to communicate with customers about the hazards in our community and possible solutions.

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 in their community 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 Cherokee County Hazard Mitigation Plan supports the following FEMA recommendations regarding individual citizens:

- Become educated on the hazards that you and your community may encounter;

- 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 contracted planner, Lux Mitigation and Planning, had the primary responsibility for collecting updated information and presenting data to the committee. The approved 2010 Hazard Mitigation Plan was provided to each member of the Hazard Mitigation Plan Update Committee. Each chapter was reviewed with updated hazard, risk and vulnerability data; updated critical infrastructure information; and revised mitigation strategies based upon whether the strategy was completed, needed to be modified, is an ongoing strategy, or no longer applies. Irregularly attending participants were kept informed with emails containing the updated version of the plan.

Cherokee County Hazard Mitigation Plan Update Meeting Dates:

May 18, 2015	Kickoff Meeting
June 3, 2015	Hazard Identification
June 24, 2015	Analysis of Hazard Profile Research; Update of Critical Facilities
July 22, 2015	Review and Edit of Current Hazard Mitigation Strategies
August 13, 2015	Meeting with Representative of the City of Canton
August 19, 2015	Identification of New Hazard Mitigation Strategies
September 30, 2015	Review of Cherokee County Hazard Mitigation Plan Rough Draft (Public Meeting #1)
February 2, 2016	Public Meeting #2 to Review Cherokee County Hazard Mitigation Plan Update

Each section of Cherokee County's 2010 Hazard Mitigation Plan has been revised in some manner. Therefore, a summary of those changes will be listed in the first section of each chapter. Major plan changes include the following:

1. Addition of Terrorism to Technological Hazards
2. Addition of Hazardous Materials Incidents to Technological Hazards
3. Addition of Communications Failure to Technological Hazards
4. Addition of Transportation Incidents to Technological Hazards

Hazard Mitigation Plan Update Committee

Requirement §201.6(b)(2)

The following members, representing various jurisdictions, city and county departments, and community organizations and businesses, participated in the update of Cherokee County's 2010 Hazard Mitigation Plan.

In addition to the Cherokee County Hazard Mitigation Plan Update Committee, Kelly Reeves, Hazard Mitigation Planner with the Georgia Emergency Management Agency, participated in the Kickoff Meeting on May 18, 2015. She provided the committee with information regarding the planning process and the importance of the plan.

In total, 75 people participated in the planning process.

Cherokee County Hazard Mitigation Plan Update Committee

Aimee Abernathy
City Clerk/Manager
City of Waleska

Sean Bagby
GIS Analyst
Cherokee County GIS Department

Jay Baker
Lieutenant, Public Information Officer
Cherokee County Sheriff's Office

Matt Baldwin
(title)
Canton Police Department

Curtis Barnhart
Environmental Health Manager
Cherokee County Board of Health

Ben Bixler
Assistant Director of Public Safety
Reinhardt University

Dotty Bonds
Director of Property Management
Lake Arrowhead Yacht and Country Club

Denise Bowman
County Nurse Manager
Cherokee County Health Department

Courtney Bradley
Risk Director
Northside Hospital - Cherokee

Pam Carnes
President and CEO
Cherokee County Chamber of Commerce

Renee Cornelison
Director
Cherokee County Emergency Management Agency

Oliver Cox
Environmental Manager
Pilgrim's Pride Corporation

Bob Crowe
Auxilliary
Nelson Police Department

Michael deCocq
Lieutenant
Woodstock Police Department

Bhaji Dhillon
Director, System Quality and Planning
Cobb EMC

Rod Drake
Area Manager
Georgia Power Company

Walter Dukes II
Engineering Supervisor
Georgia Power Company

Jimmy Eley
Assistant Chief
Woodstock Fire Department

Anthony Steven Evangelista
Assistant Chief of Staff, G2 (Intelligence), Lt. Col
Georgia State Defense Force

Dean Floyd
Fire Chief
Canton Fire Department

Alan Freeman
Director of Operations
Cobb EMC

Victor M. Fuentes, Jr.
(title)
INALFA Roof Systems

Olivia Garrison
Disaster Program Manager
American Red Cross

Jamie Gianfala
Deputy Chief
Cherokee County Marshal's Office

Bart Giesey
(title)
Woodstock Police Department

K. Scott Gordon
Commissioner, District 4
Cherokee County Board of Commissioners

Cliff Harden
Director
Cherokee County Roads and Bridges

Mark Harris
Emergency Management Specialist
Cherokee County Emergency Management Agency

Thomas Harris
Sergeant
Holly Springs Police Department

David Hatabian
City Engineer
City of Canton

Julia Hewgley
Operations Support Manager
Cherokee County Health Department

Preston Homan
Police Sergeant/Traffic Supervisor
Canton Police Department

Scott Hooper
Public Works Department
City of Woodstock

Kendall Jones
Program Director
MUST Ministries

Cassie Kelly
Director
The Salvation Army of Canton/Cherokee County

Damon Kelly
Manager of Safety, Security, and Emergency Preparedness
Northside Hospital - Cherokee

Mark Kissel
Chief
Cherokee County School District Police Department

Vic Knight
Municipal Manager
Waste Management

Jim Koury
Chief
Nelson Police Department

Amy Lawrence
Clerk
Cherokee County Emergency Management Agency

Heath Lee
(title)
CCMWA – City of Canton

Jill Mabley
Medical Director
Cherokee County Fire-Emergency Services

Todd A. Maloney
Emergency Operations Facilitator
Cherokee County School District Police Department

Kevin Martin
Assistant Director of Public Safety/Emergency Management
Reinhardt University

Walter Preston May
Assistant Dean of Students
Reinhardt University

Merrick McClure
Stormwater Manager
City of Canton

Danny Meece
(title)
Inalfa Roof Systems

Mark Mitchell
Chief
Canton Police Department

Benjamin L. Morgan
Stormwater Engineer
Cherokee County Engineering Department

Kelly Morris
Risk Manager/Exec. Assistant to VPFA
Reinhardt University

Joe Perkins
Chief Deputy
Cherokee County Sheriff's Office

Charles Perry
Sergeant
Canton Fire Department

Timothy Prather
Fire Chief
Cherokee County Fire-Emergency Services

Jim Ray
Facility Maintenance Manager
Pilgrim's Pride Corporation

Bryon Reeves
Police Chief
Ball Ground Police Department

Bryan Reynolds
Director
Cherokee Recreation and Parks Agency

G. Alan Rivas
Lieutenant, Special Operations Division
Canton Police Department

Brandon Rogers
Loss Control Specialist
Cobb EMC

Josh Rogers
Stormwter Tech
City of Holly Springs

Richard Rogers
(title)
Atlanta Gas Light Resources

Ryan Allen Sarks
Human Resources/Risk Management/Fleet & Safety Manager
Cherokee County Water and Sewerage Authority

Ana M. Silbernagel
Director
Development Service Center – Cherokee County

Lester Taylor
Quality Control
Cobb EMC

Heath Tippens
Project Manager
Cherokee Office of Economic Development

Tracy Tucker
(title)
Pilgrim's Pride Corporation

Steven Voseka
New Student Programs
Reinhardt University

Doug Watkins
LNG
Atlanta Gas Light Resources

Brett Wehs
GIS Manager
Cherokee County GIS Department

Danny West
EMS Chief
Cherokee County Fire-Emergency Services

Richard E. Wilson
Fleet & Safety Training Coordinator
Cherokee County Water and Sewerage Authority

Joe Worthington
Residential Building Inspector
Cherokee County Building Inspections

In addition to the regular meetings of the Cherokee County Hazard Mitigation Plan Update Committee, a special work session was held with officials from the City of Canton on August 13, 2015. The following individuals participated in this work session:

Dean Floyd
Fire Chief
Canton Fire Department

David Hatabian
City Engineer
City of Canton

Mark Mitchell
Chief of Police
Canton Police Department

Ken Patton
Community Development Director
City of Canton

Billy Peppers
City Manager
City of Canton

Charles Perry
Sergeant
Canton Fire Department

Richard Poag
Director
Canton Public Works

Cherokee County convened the Hazard Mitigation Plan Update Committee comprised of representatives from various participating jurisdictions. The Committee worked with Lux Mitigation and Planning and provided input at key stages of the process. Efforts were made to involve municipal, city, and county departments and community organizations, which might have a role in the implementation of the mitigation actions or policies. These efforts included invitations to attend meetings, e-mail updates, and opportunities for input and comment on all draft deliverables.

In addition to the Cherokee County Hazard Mitigation Plan Update Committee, all surrounding counties – Cobb, Fulton, Bartow, Dawson, Forsyth, and Pickens –

will be provided a copy of this FEMA approved plan for their review. This plan will be provided to each County EMA office.

Public Participation

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

As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the natural hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business, or city safer from the potential effects of natural hazards.

Participation from local organizations and businesses during the update process included Cobb EMC, Pilgrim's Pride Corporation, Georgia Power Company, Reinhardt University, Waste Management, MUST Ministries, Northside Hospital – Cherokee, and Lake Arrowhead Community.

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

A list of public outreach initiatives can be found below; however, it should be noted that the second public outreach meeting will follow the GEMA approval of this Plan in December 2016. This section is considered a work-in-progress and will be completed by formal adoption.

- A list of potential participants was compiled by the Cherokee County Emergency Management Agency prior to the formation of the committee. Each committee member and other identified potential participants were provided meeting reminders prior to each Cherokee County Hazard Mitigation Plan Update Committee meeting.

- A public notice was placed on the Cherokee County Emergency Management Agency web page and the Cherokee County Sheriff's Office Facebook page announcing the public meeting on September 30th to review the Cherokee County Hazard Mitigation Plan Rough Draft.

- A second public meeting will be held for final review of the GEMA approved Cherokee County Hazard Mitigation Plan Update 2016 – 2021. This meeting will be advertised in the County's local newspaper, the Cherokee Tribune.

- A printed copy of the approved Plan will be available for viewing at the

Cherokee County Emergency Management Office located at 150 Chattin Drive, Canton, GA. A printed copy of the approved Plan will also be available for viewing at the R.T. Jones Memorial Library located at 116 Brown Industrial Parkway, Canton, GA. An electronic copy of the approved Plan will also be available on the Cherokee County Emergency Management Agency website at www.cherokeega-ema.org. The existence and location of these copies will be publicized in the County's local newspaper, the Cherokee Tribune.

Documentation of Public Meeting Notice

Cherokee Sheriff's Office - Georgia
10 hrs ·

CHEROKEE COUNTY HAZARD MITIGATION PLAN UPDATE
A public meeting will be held on Wednesday, September 30th, 2015, at 1pm in the Roger D. Garrison Law Enforcement Training Center, located at 516 Chattin Drive, Canton, GA 30115. The purpose of the meeting is to review the rough draft of the Cherokee County Hazard Mitigation Plan Update. All citizens are invited to attend and are encouraged to provide comments on the rough draft. For more information, please contact Director Renee Cornelison of the Cherokee Sheriff's Office Division of Emergency Management via email rcornelison@cherokeega.com or phone 678-493-4033.

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Multi-Jurisdictional Considerations

While cities are not required by FEMA to adopt hazard mitigation plans, the Federal Disaster Mitigation Act of 2000 requires all municipalities that wish to be eligible to receive FEMA hazard mitigation grants to adopt a local multi-hazard mitigation plan and to update the plan every five years. Cherokee County's Hazard Mitigation Plan was approved by FEMA in 2010, and the 2016 Plan Update provides the first five-year update. This approved Hazard Mitigation Plan makes Cherokee County and its municipalities eligible for FEMA's Hazard Mitigation Grant Program, Flood Assistance Mitigation Grants, and Pre-Disaster Mitigation Grants.

As set forth by Georgia House Bill 489, the Emergency Management Agency is the implementing agency for projects pertaining to hazard mitigation. Cherokee County is dedicated to work in the best interests of the County, as well as, the Cities of Canton, Woodstock, Waleska, Nelson, Holly Springs, and Ball Ground. During the creation and update of this Plan, Cherokee County Emergency Management Agency solicited and received participation from the following Cherokee County cities and towns: Canton, Woodstock, Waleska, Nelson, Holly Springs, and Ball Ground. Therefore, the result is a truly multi-jurisdictional plan. A few mitigation action steps identified in this plan update may apply to selected jurisdictions. These steps are identified in the appropriate sections. Unless specifically noted otherwise, most steps apply equally to all jurisdictions.

Incorporation of Existing Plans, Studies, and Resources

Requirement §201.6(b)(3)

State Requirement Element F3

Existing Plans

2010 Cherokee County Pre-Disaster Hazard Mitigation Plan
2014 State of Georgia Hazard Mitigation Plan
Cherokee County Local Emergency Operations Plan
Georgia Forestry Commission's Cherokee Co. Community Wildfire Protection Plan
2008 Cherokee County Joint Comprehensive Plan

Studies

2012 United States Department of Agriculture Ag Census
2010 United States Census
2009 Cherokee 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.
2016 HAZUS Report – Cherokee County

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 Climatic Data Center
National Weather Service
Cherokee County Tax Assessor's Data
Cherokee County Website – www.Cherokeega.com
GMIS Database
City University of New York
Colorado State University
United States Geological Survey
FEMA Flood Insurance Rate Maps
National Flood Insurance Program
United States Coast Guard National Response Center Data
Georgia Department of Transportation
Georgia Safe Dams Program

Application of Existing Plans and Studies

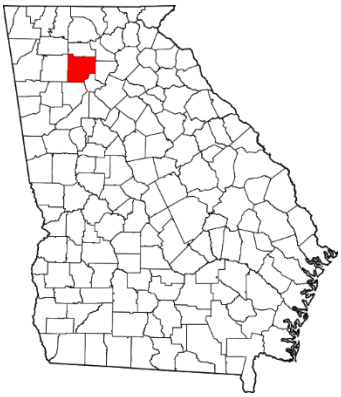
Existing Planning Mechanism	Reviewed? Yes/No	Incorporation Into Mitigation Plan
2010 Cherokee County Hazard Mitigation Plan	Yes	Baseline for the 2016 Plan; updated mitigation strategies; updated hazards; updated Cherokee County information
2014 State of Georgia Hazard Mitigation Plan	Yes	Hazard descriptions; potential hazards; mapping mechanisms; potential mitigation strategies that could be adopted on a local level
Cherokee County Local Emergency Operations Plan (LEOP)	Yes	Identification of current resources; identification of current capabilities
Georgia Forestry's Cherokee County Community Wildfire Protection Plan (CWPP)	Yes	Mitigation strategies for wildfire and drought; historical data
2012 USDA Agriculture Census	Yes	Agricultural data regarding potential losses for drought and wildfire
2010 United States Census	Yes	To update Cherokee County's profile information
2009 Cherokee County Flood Insurance Study	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
2008 Cherokee 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
Cherokee County Flood Mitigation Assistance Plan	No	No such plan exists

CHAPTER TWO
–
CHEROKEE 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 Cherokee County Hazard Mitigation Plan 2010.

Chapter 2 Section	Updates
Past Hazards	• New Section – Not in 2010 Mitigation Plan. This information involved a review of the hazards listed in the previous plan. • Information was updated for the last 50 years
History	• Expanded and updated from previous plan
Past Events	• New Section – Not in 2010 Mitigation Plan. Some of these events were listed in the hazard profiles in the previous plan.
Demographics	• Updated, condensed data to the 2010 Census information
Economy	• New Section – Not in 2010 Mitigation Plan
Government	• New Section – Not in 2010 Mitigation Plan
Municipalities	• New Section – Not in 2010 Mitigation Plan
Transportation	• New Section – Not in 2010 Mitigation Plan
Climate	• Content Revised
Utilities	• New Section – Not in 2010 Mitigation Plan



Past Hazards

Cherokee County has faced many hazards in its long history. Severe Thunderstorms have been, perhaps, the most prevalent of these hazards. In the last 40 years, Cherokee County has been subjected to over 216 documented Severe Thunderstorm events. These events include torrential rainfall, hail, thunderstorm-force winds, and lightning.

Tornadoes, which can sometimes spawn from severe thunderstorms, have also occurred in Cherokee County, although with much less frequency. There have been 21 documented tornadoes in the last fifty years in Cherokee County.

As a result of heavy rainfall either within or upstream from Cherokee County, flooding has occurred in the past as well. Data from the National Climatic Data Center of the National Weather Service shows 23 flood events in the last 20 years affecting Cherokee County. In addition to the data available through the National Climatic Data Center, flood events have been documented in Cherokee County in 1990. The 2009 Flood was one of the worst in Cherokee County's history.

Winter storms and heavy snowfall have affected Cherokee County frequently in the last 20 years. These events are a yearly occurrence and typically do not have the pre-planning in place when compared to Northern and Western states who see this type of weather phenomena regularly. The National Climatic Data Center records indicate 42 documented winter storm or heavy snow events in 20 years for Cherokee County with 15 of those having occurred in the last 5 years.

Cherokee County has been plagued by other less severe or less frequent hazards in the past including, but not limited to, drought, excessive heat, tropical cyclones, earthquakes, and wildfires.

History

Cherokee County, in northwest Georgia, was formed from Cherokee Indian Territory in December 1831, after the discovery of gold in the region in 1828. In December 1832 the area was divided into ten counties—Cass (Bartow), Cherokee, Cobb, Floyd, Forsyth, Gilmer, Lumpkin, Murray, Paulding, and Cherokee—and in 1853 Pickens County was formed from the northern part of Cherokee and the southern part of Gilmer counties. The Cherokee Indians were gathered into such settlements as Fort Buffington, east of Canton, before being driven out on the Trail of Tears to present-day Oklahoma in 1838-39. The removal of the Cherokees opened up the new territory for agricultural uses, especially the cultivation of cotton and corn, the mining of gold and marble, the making of moonshine, the manufacture of cotton and rope, and the construction of both a railroad in 1879 and a highway for shipping goods.

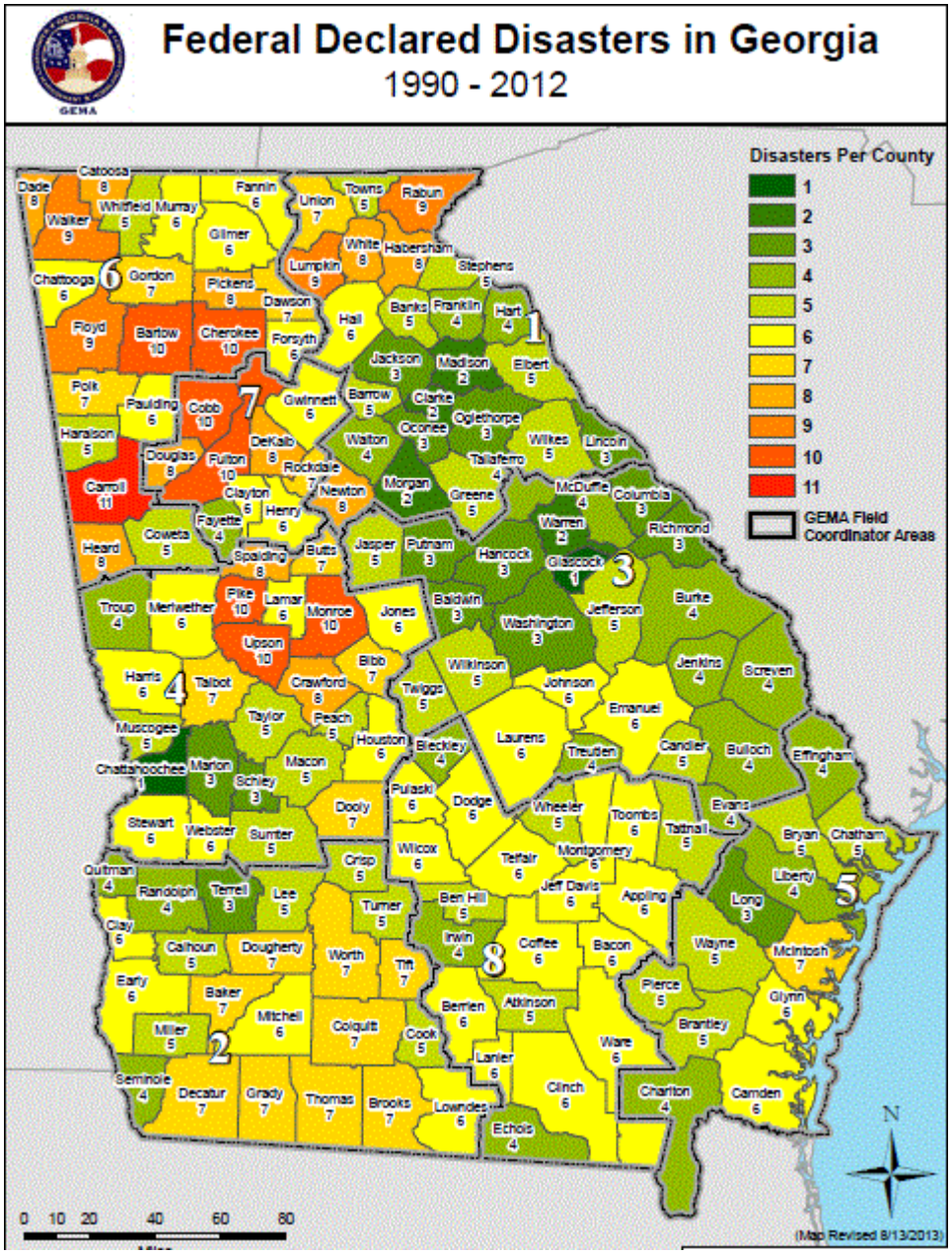
The county seat, Canton—named for the Chinese city during a short-lived attempt by residents to establish a silk industry—was originally called Etowah, for the Etowah River flowing through the town. The county's fourth courthouse, built in 1929 from white Georgia marble, today houses county administration offices. The current courthouse, the Frank C. Mills III Justice Center, was built in 1993. The Canton Cotton Mills, founded by R. T. Jones in 1899, was the county's main industry until the mills closed in 1981. Today the poultry and technology industries, the expansion of metropolitan Atlanta, and the growth of planned communities are the main reasons for the continuing influx of new residents into Canton. The city is also home to Northside Hospital-Cherokee.

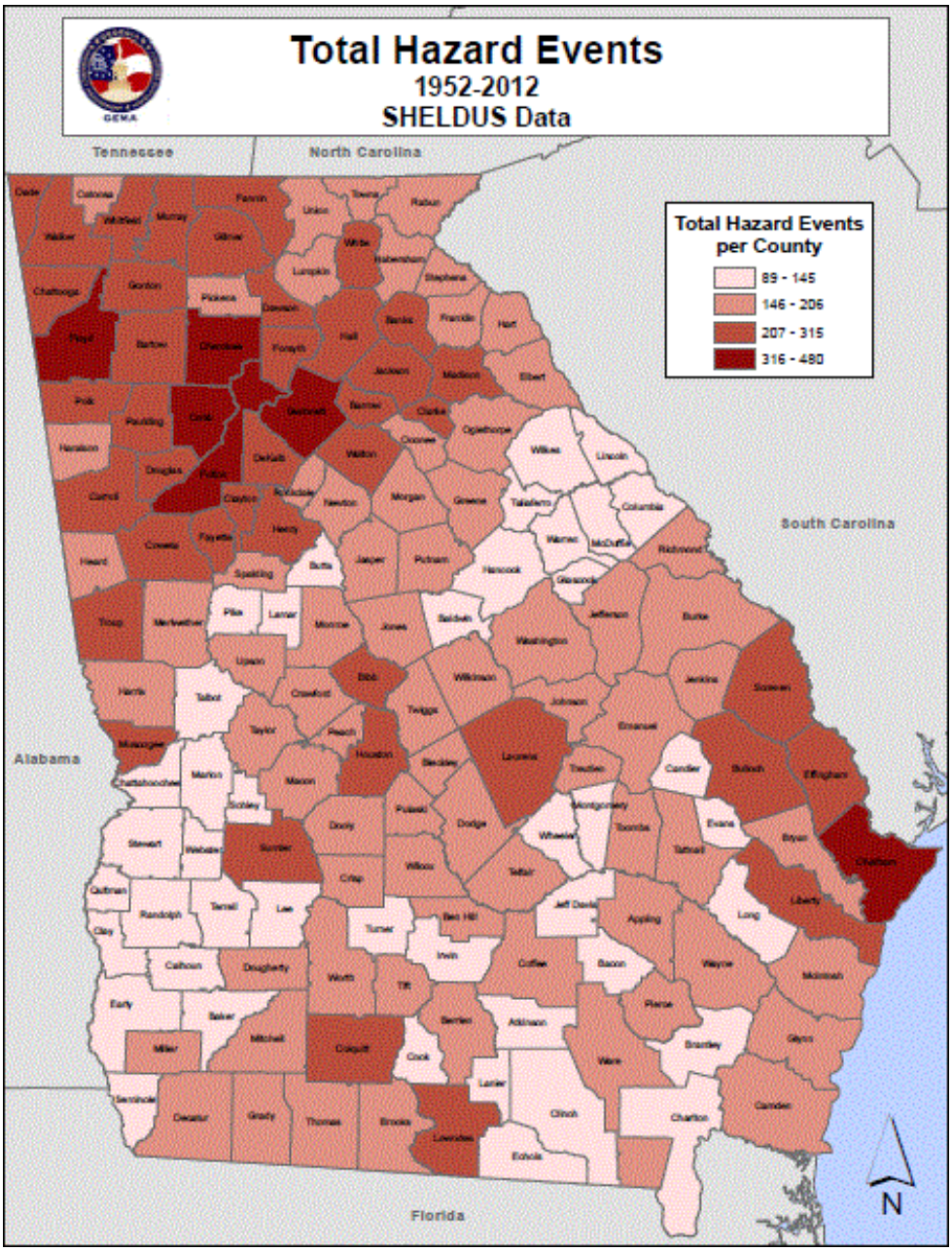
Other communities in the county are Ball Ground, named after a stick ball game played between the Cherokee and Creek Indians; Nelson, shared by neighboring Pickens County in the north; Waleska (the home of Reinhardt University and Funk Heritage Center), named after Warluskee, the daughter of an Indian chief; Holly Springs, south of Canton, named after a spring surrounded by holly trees; and Woodstock, in the southern part of the county. Woodstock has a rich history, a topography of gently rolling hills, fertile soil for agriculture, and accessibility to Atlanta. The Woodstock Depot, Dean's Store, Dixie Speedway, the Kellogg Gold Mine, the Rock Barn, Crescent Farm, Towne Lake, and nearby Lake Allatoona are historical and modern sites of interest.

Cherokee County has been home to two Georgia governors, Joseph E. Brown and his son, Joseph M. Brown; former U.S. secretary of state Dean Rusk; golfer Bobby Jones; and writer Mary Hood.

Past Events

- 2015, Winter Storm
- 2014, Winter Storm
- 2014, Tornado (EF0)
- 2013, Tornadoes (2 EF1s)
- 2011, Winter Storm
- 2011, Tornado (EF1)
- 2009, Tornado (EF1)
- 2009, Flood
- 2008, Tornado (EF1)
- 2004, Hurricane Ivan
- 2000, Ice Storm
- 1995, Hurricane Opal
- 1993, Winter Storm
- 1992, Tornado (F2)


Federal Declared Disasters in Georgia
1990 - 2012
GEMA
Disasters Per County
1
2
3
4
5
6
7
8
9
10
11
GEMA Field Coordinator Areas
Catoosa 8
Dade 8
Whitfield 5
Murray 6
Walker 9
Fannin 6
Union 7
Towns 5
Rabun 9
Gilmer 6
White 8
Habersham 8
Stephens 5
Lumpkin 9
Chattooga 6
Gordon 7
Pickens 8
Dawson 7
Banks 5
Franklin 4
Hart 4
Hall 6
Floyd 9
Bartow 10
Cherokee 10
Forsyth 6
Jackson 3
Madison 2
Elbert 5
Polk 7
Paulding 6
Cobb 10
Gwinnett 6
Barrow 5
Clarke 2
Oglethorpe 3
Haralson 5
DeKalb 8
Walton 4
Oconee 3
Wilkes 5
Lincoln 3
Douglas 8
Fulton 10
Rockdale 7
Taliaferro 4
Carroll 11
Clayton 6
Newton 8
Morgan 2
Greene 5
McDuffie 4
Columbia 3
Henry 6
Fayette 4
Warren 2
Richmond 3
Coweta 5
Heard 8
Spalding 8
Butts 7
Jasper 5
Putnam 3
Hancock 3
Glascock 1
Pike 10
Lamar 6
Monroe 10
Jones 6
Baldwin 3
Jefferson 5
Burke 4
Troup 4
Meriwether 6
Upson 10
Washington 3
Bibb 7
Wilkinson 5
Jenkins 4
Screven 4
Harris 6
Talbot 7
Crawford 8
Twiggs 5
Johnson 6
Emanuel 6
Taylor 5
Peach 5
Houston 6
Bleckley 4
Laurens 6
Treutlen 4
Candler 5
Bulloch 4
Effingham 4
Muscogee 5
Chattahoochee 1
Marion 3
Macon 5
Schley 3
Pulaski 6
Dodge 6
Wheeler 5
Toombs 6
Evans 4
Stewart 6
Webster 6
Sumter 5
Dooly 7
Wilcox 6
Telfair 6
Montgomery 6
Tattnall 5
Bryan 5
Chatham 5
Quitman 4
Randolph 4
Terrell 3
Lee 5
Crisp 5
Turner 5
Ben Hill 5
Jeff Davis 6
Appling 6
Long 3
Liberty 4
Clay 6
Calhoun 5
Dougherty 7
Worth 7
Tift 7
Irwin 4
Coffee 6
Bacon 6
Wayne 5
McIntosh 7
Early 6
Baker 7
Mitchell 6
Berrien 6
Atkinson 5
Pierce 5
Glynn 6
Miller 5
Colquitt 7
Cook 5
Brantley 5
Ware 6
Lanier 6
Seminole 4
Decatur 7
Grady 7
Thomas 7
Brooks 7
Lowndes 6
Clinch 6
Charlton 4
Camden 6
Echols 4
1
2
3
4
5
6
7
8
0 10 20 40 60 80
N
(Map Revised 8/13/2013)


Total Hazard Events
1952-2012
SHELDUS Data
GEMA
Tennessee
North Carolina
South Carolina
Alabama
Florida
Total Hazard Events per County
89 - 145
146 - 206
207 - 315
316 - 480
N

Demographics

	2000 Census	2010 Census
Population	141,903	214,346
White	92.4%	86.6%
African-American	2.5%	5.7%
Hispanic/Latino	5.4%	9.6%
Asian	0.8%	1.7%
American Indian	0.4%	0.4%
Two or More Races	1.3%	2.1%
Median Age	34.0	36.3
Median Household Income	$60,896	$67,261
Person Below Poverty Line	3.5%	9.8%
Homeowners	83.9%	79.5%

	2000 Census	2010 Census
Canton	7,709	22,958
Woodstock	10,050	23,896
Waleska	616	644
Holly Springs	3,195	9,189
Nelson	626	1,314
Ball Ground	730	1,433

Economy

Cherokee County's economy is primarily agricultural with some light industry. Cherokee County's cost of living is 5.1% below the national average. The unemployment rate in Cherokee County is 4.6%, which is below the State average of 5.8% and the National average of 5.3%. Cherokee County has a median household income of $67,261, which is well above the national average of $51,914. Recent economic problems in Georgia and nationwide have affected these figures.

The ten largest private employers in Cherokee County are:

Company	Product/Service
Dollar Tree Distribution, Inc.	Retail Distribution
Expert Personnel Solutions, LLC	Staffing Services
Home Depot	Retail
Northside Hospital	Healthcare Services
Pilgrim's Pride Corporation	Poultry Production
Publix Super Markets, Inc.	Grocery
Reinhardt College	Higher Education
Target	Retail
The Kroger Company	Grocery
Walmart	Retail

The above list is in alphabetical order, not in order of company size. This data is according to the Georgia Department of Labor, 2014.

Government

The form of government specified in the County Charter is known as Commission-Administrator form of government, which provides for an elected body of Commissioners, one from each of four geographic districts and one countywide-elected Chairman, who are elected in staggered cycles for four-year terms and a County Manager who is appointed by the full body of the Commissioners to oversee the day to day management of the County. Although each County Commissioner is elected as a representative from their respective districts, they represent the interests of the entire county and all of its citizens.

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

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

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

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

Transportation

Cherokee County's transportation system consists primarily of state highways and county maintained roads. Interstates 75 and 575 and State highways 5, 20, 92, 108, 140, 369, 372 are major transportation routes that carry the majority of passenger and commercial traffic in and out of Cherokee County. Congestion in these transportation corridors create traffic problems, primarily because of population growth. Cherokee County is served by the Cherokee Area Transportation System (CATS).

Freight rail services owned and operated by Georgia Northeaster Rail Road cross through Cherokee County.

Cherokee County Airport in Canton is the only airport in Cherokee County and has one 5,000 foot runway.

Climate

Cherokee County, like much of Georgia, enjoys a temperate climate. As a result, Cherokee County has four well-defined seasons: warm to hot summers; brisk fall temperatures; relatively brief, cool winters; and a warm spring season. As a result, there exists a long growing season in Georgia, perfect for ornamental and economic-boosting agricultural plants. Cherokee County's proximity to the Atlantic Ocean can affect the overall climate and create milder winters and warmer, wetter summers than other parts of the State of Georgia.

AVERARE MONTHLY TEMPERATURES IN GEORGIA (FAHRENHEIT)

Month	Temperature
January	46
February	49
March	56
April	63
May	70
June	77
July	80
August	79
September	74
October	64
November	56
December	48

Utilities

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

Electrical power to Cherokee County is provided by Georgia Power, Amicalola Electric Membership Corporation (EMC), Cobb EMC, and Sawnee EMC.

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

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 Cherokee County Hazard Mitigation Plan 2010.

Chapter 3 Section	Updates
Risk Assessment	• Expanded the explanation of the Risk Assessment • Added an explanation of each part of the Hazard Information
Natural Hazard Thunderstorms	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Winter Storms	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Flooding	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Land Use and Development trends updated to include municipal NFIP information • Content revised
Natural Hazard Tornado	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Updated and consolidated hazard profile with new data • Content revised
Natural Hazard Drought	• Updated hazard description to match Georgia State Hazard Mitigation Plan information • Content revised

Natural Hazard Wildfire	• Updated hazard description to match information in the Georgia State Hazard Mitigation Plan • Updated and consolidated hazard profile data • Content revised
Natural Hazard Earthquake	• Updated hazard description • Updated and consolidated hazard profile data • Content revised
Technological Hazard Hazardous Materials	• New Section – Not in 2010 Mitigation Plan
Technological Hazard Dam Failure	• Updated hazard description • Updated and consolidated hazard profile data • Content revised
Technological Communications Failure	• New Section – Not in 2010 Mitigation Plan
Technological Hazard Transportation	• New Section – Not in 2010 Mitigation Plan
Technological Hazard Terrorism	• New Section – Not in 2010 Mitigation Plan • Consolidate information from Man-made Hazards section of 2010 Plan

Risk Assessment

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

The Cherokee County Hazard Mitigation Planning Committee conducted a comprehensive Threat and Hazard Identification and Risk Assessment (THIRA) for Cherokee County and its municipalities. This assessment developed the hazard basis for this plan. Additionally, the HAZUS report for Cherokee County was also utilized as a risk assessment tool during the planning process. The assessment includes the following components for each hazard:

1. Hazard Identification: The Cherokee County Hazard Mitigation Planning Committee identified seven natural hazards and four technological hazards for this Hazard Mitigation Plan. This is an increase of one technological hazard from the previous iteration of the plan. Each hazard was identified by the use of statistical data and records from a variety of sources. The list of hazards is based upon frequency, severity of impact, probability, potential losses, and vulnerability.

2. Hazard Description: Each hazard was described in detail. Many hazard descriptions came from the Georgia Hazard Mitigation Plan since many of the hazards that could impact the state could also potentially impact Cherokee County.

3. Profile of Hazards: Each hazard was profiled as to how it could potentially impact Cherokee County.

4. Assets Exposed to the Hazard: The plan considers critical facilities and infrastructure as part of the vulnerability assessment. This assessment determines the vulnerability of the municipalities and attempts to identify the populations most vulnerable to each hazard, although many have potential countywide impacts.

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

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

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

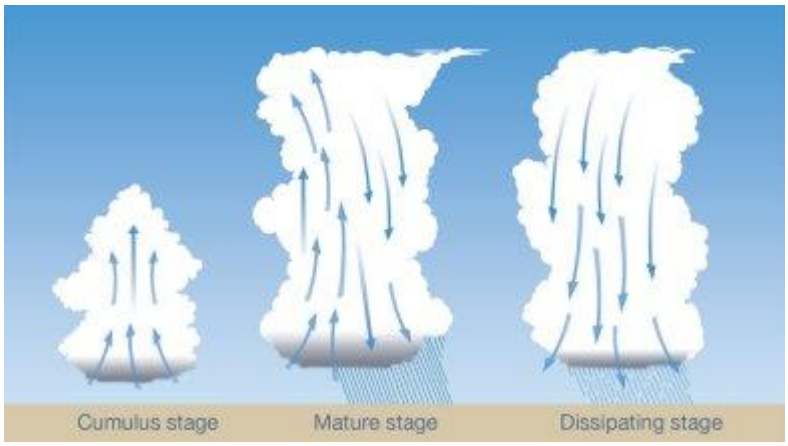
Natural Hazard: **Thunderstorms**

Hazard Description

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

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

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



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

Natural Hazard: **Thunderstorms**

(Hazard Description Continued)

In terms of temporal characteristics, thunderstorms exhibit no true seasonality in that occurrences happen throughout the year. Convectively, driven systems dominate the summer while frontal driven systems dominate during the other seasons. The rate of onset is rapid in that a single cell endures only 20 minutes. However, various cells in different stages of development may form a thunderstorm that lasts up to a few hours as it moves across the surface.

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

Lightning

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

Hail

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

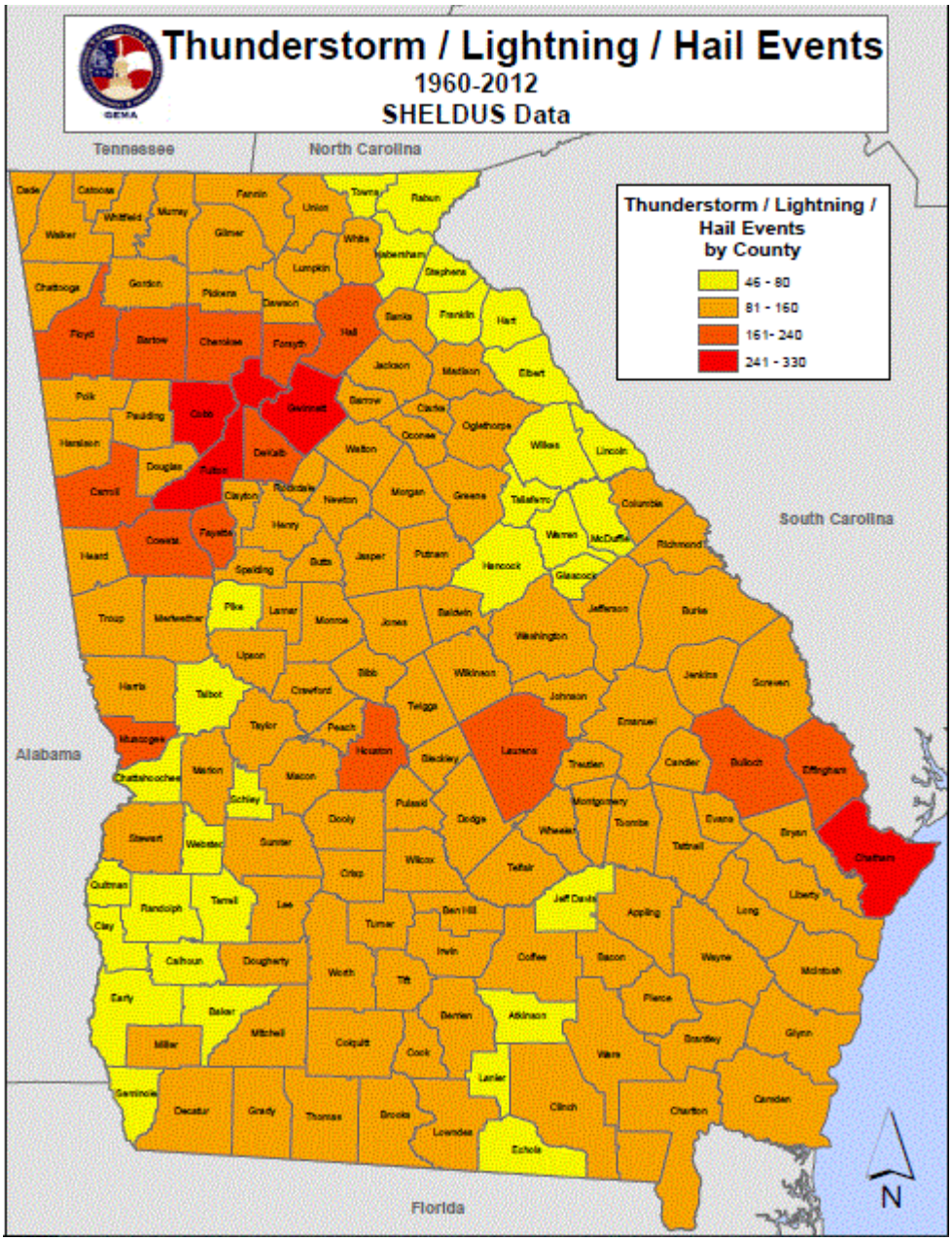
Natural Hazard: **Thunderstorms**

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

Hazard Profile

Severe thunderstorms, including high winds, hail and lightning, are a serious threat to the residents and infrastructure of Cherokee County. Severe thunderstorms are the most frequently occurring natural hazard in Cherokee County. Many of these storms include high winds, lightning, and hail. Hail up to 4 inches was recorded in Cherokee County in 1998. While there have been dozens of documented thunderstorm events affecting Cherokee 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 21 thunderstorm events were recorded between 1964 and 1990, likely a vast underestimation of actual events.

Natural Hazard: **Thunderstorms**



Natural Hazard: **Thunderstorms**

(Hazard Profile Continued)

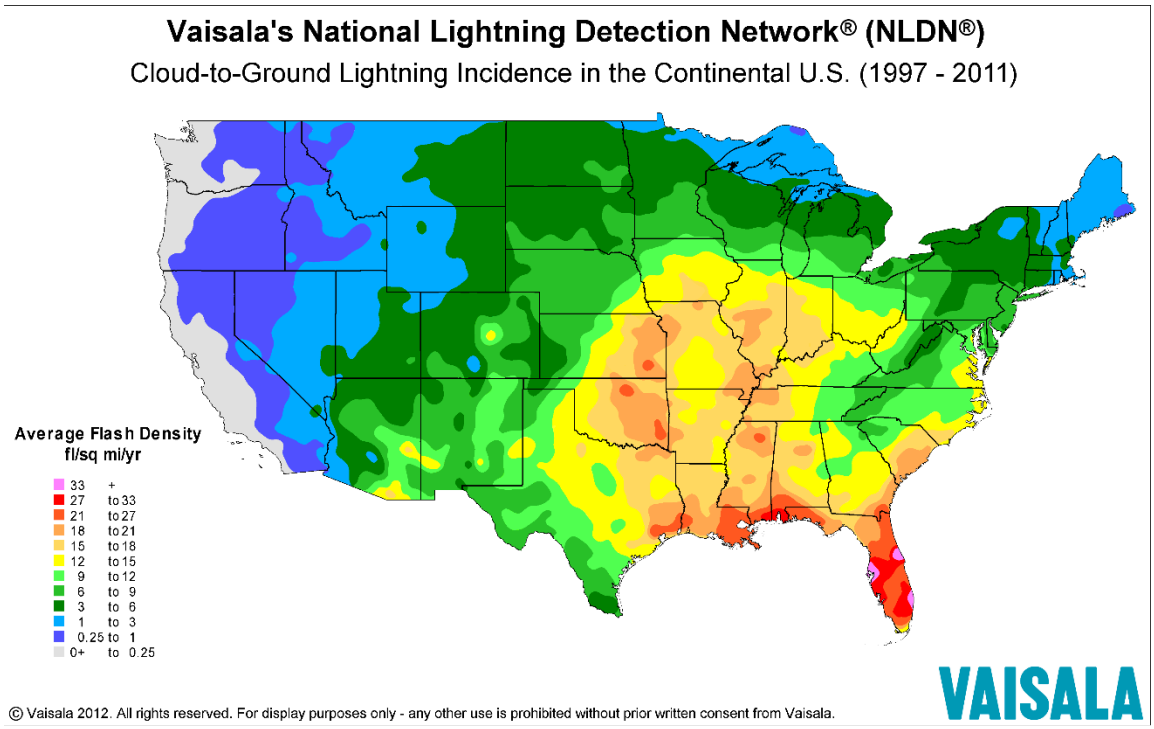
Most of the available information relating to severe thunderstorm events in Cherokee County fails to describe damage estimates in any detail. With each thunderstorm event, there are likely unreported costs related to infrastructure costs, public safety response costs, utility repair costs, and personal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

The Cherokee 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 Cherokee County LEOP in researching severe thunderstorms and their potential impacts on the county.

During the last 50 years, 240 thunderstorm events were recorded in Cherokee County, with 219 of those occurring in the last 25 years. This number includes 142 hail events and 43 lightning reports. According to these records, Cherokee County has a 2.4% chance daily of a thunderstorm event based upon data from the last 25 years. Over the last 10 years, Cherokee County has averaged 10.2 thunderstorm events per year (102 events). This includes 6.1 hail events per year and 2.4 lightning events per year over the last 16 years. Due to improved record keeping protocols, the Cherokee County Hazard Mitigation Plan Update Committee believes the data from the last ten years provides a more accurate representation of the thunderstorm threat to the county. The Cherokee County Hazard Mitigation Plan Update Committee has also determined that the lightning threat is severely under-reported, as shown in the NCDC data numbers. For additional historical data, please see Appendix D.

As indicated by the below graphics, Cherokee County averages between 12 and 15 flashes of cloud to ground lightning per square mile per year. That equals a 3.3% to 4.2% 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 Cherokee 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 Cherokee County.

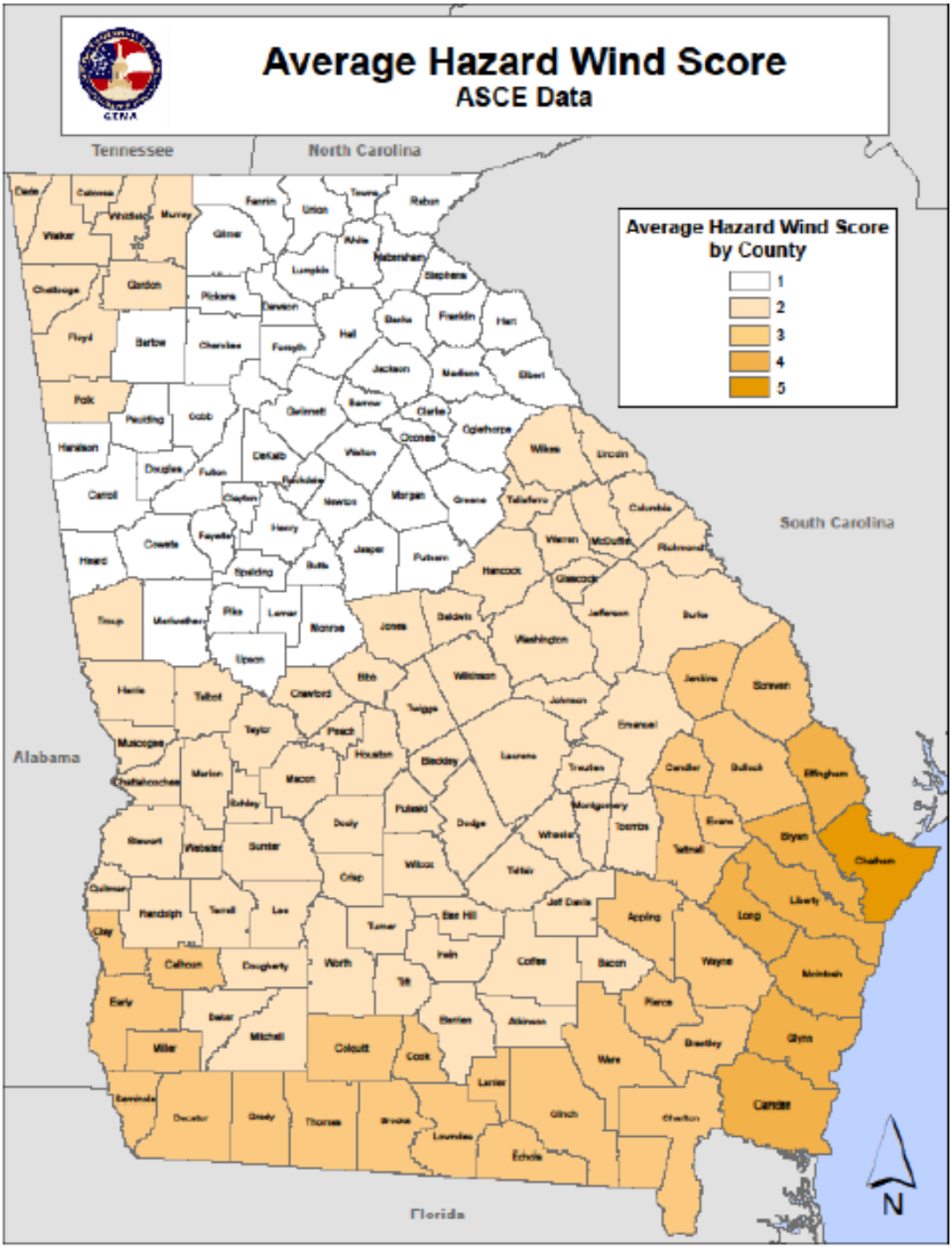
Natural Hazard: **Thunderstorms**



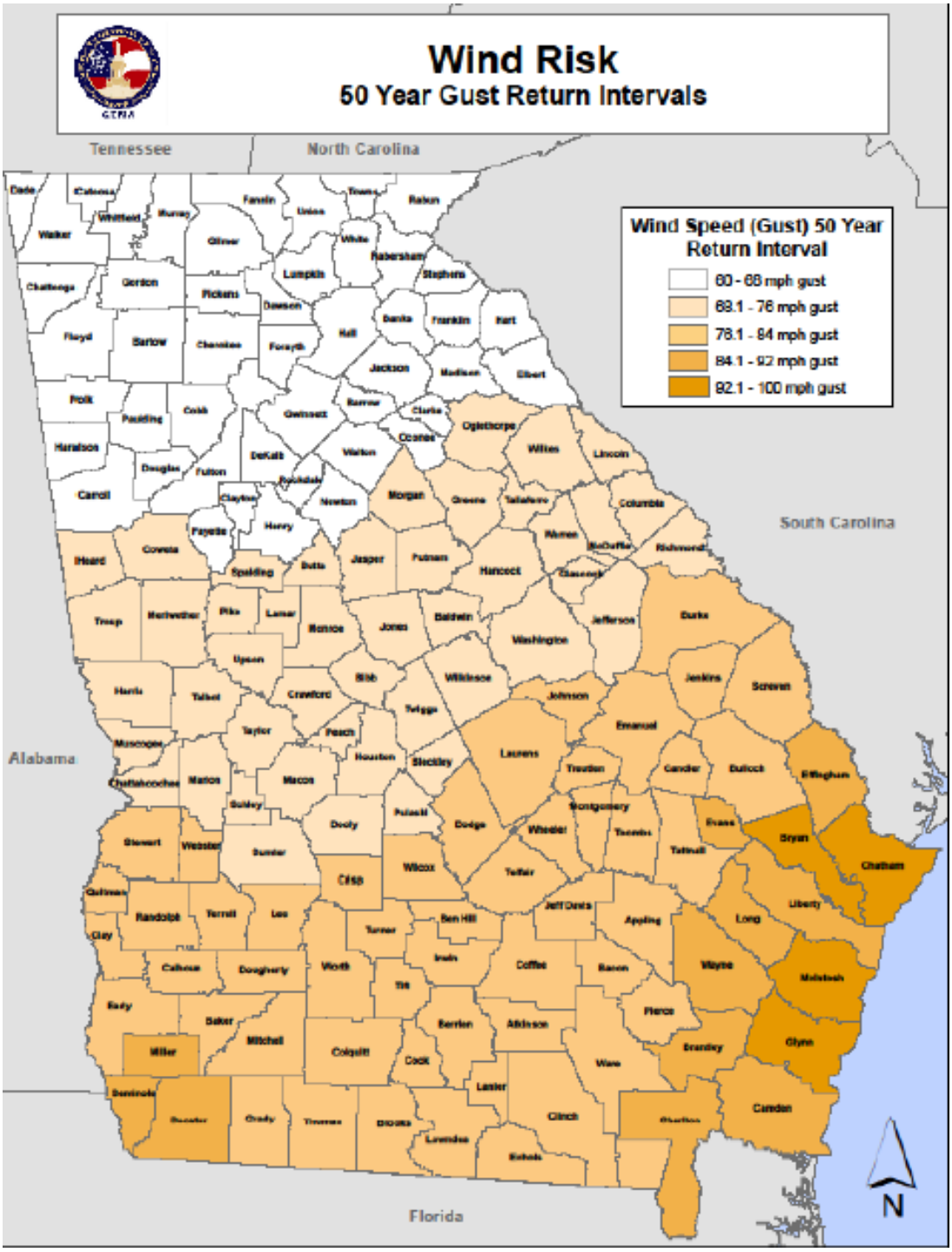
Severe thunderstorm winds, which are defined as winds of at least 58 mph in conjunction with a convective event, have occurred with many thunderstorms that have effected Cherokee County. These winds can exceed 100 mph and cause damage comparable to weak tornadoes. Below are two maps that identify the wind risk and the hazard wind score for the State of Georgia, including Cherokee County. The Hazard Wind Score maps uses the following scale:

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

Natural Hazard: **Thunderstorms**



Natural Hazard: **Thunderstorms**



Natural Hazard: **Thunderstorms**

Assets Exposed to the Hazard

In evaluating assets that are susceptible to severe thunderstorms, the Cherokee 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

For an estimate of potential losses, please refer to the Critical Facilities information located in Appendix C. Estimates of damage for the past events of the last 50 years are over $35 million, or $708,440 annually. When only events of the last 10 years are considered, yearly estimations more than triple to $2.35 million annually.

Land Use & Development Trends

Cherokee County currently has no land use trends related to Thunderstorms.

Multi-Jurisdictional Considerations

Thunderstorm events have occurred across all areas of Cherokee County. Crop damage from thunderstorm events would likely have the greatest impact in the rural areas of Cherokee 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 Cherokee County.

Hazard Summary

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

Natural Hazard: **Winter Storms**

Hazard Description

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

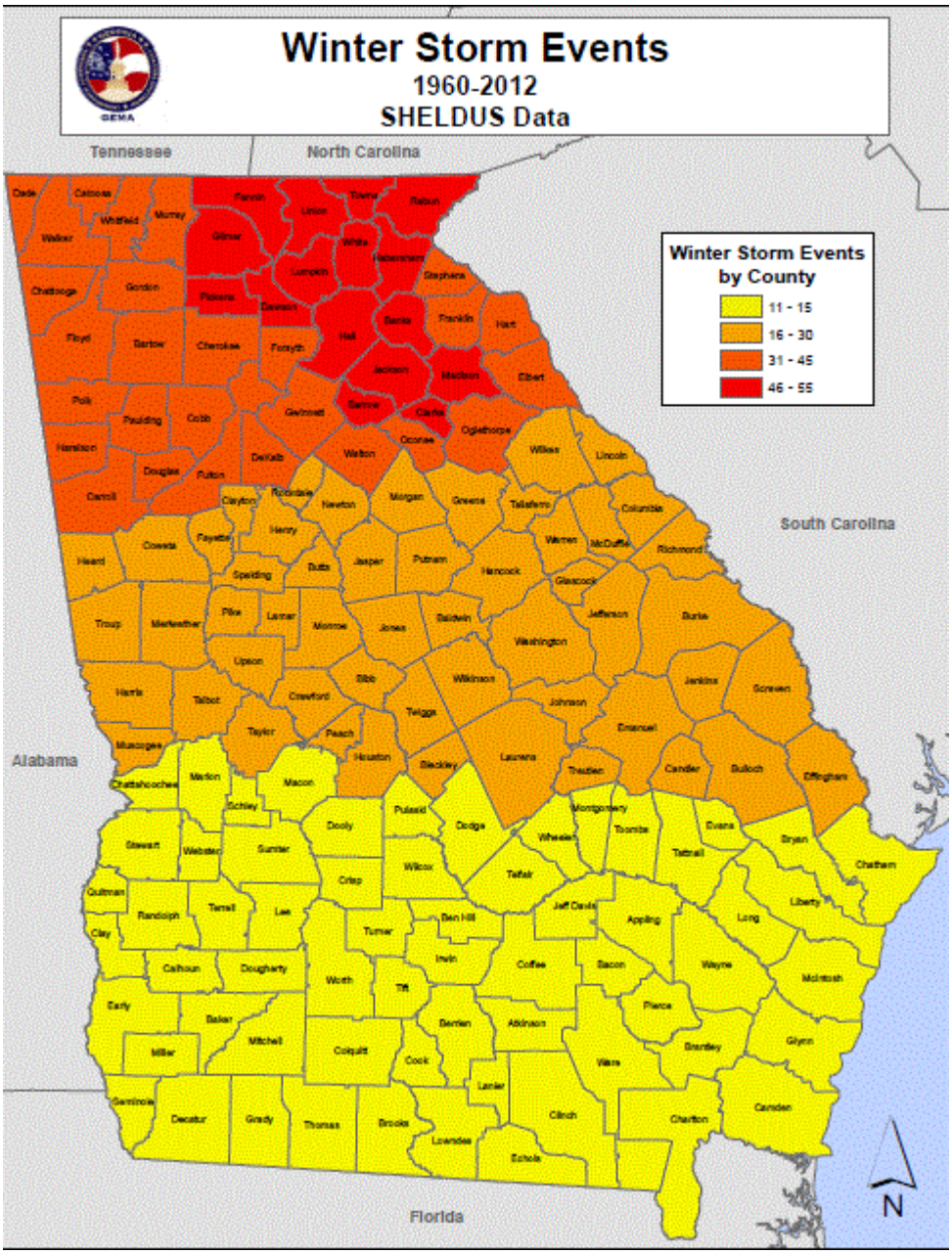
A heavy accumulation of ice, which is often accompanied by high winds, has the ability to devastate infrastructure and vegetation. Destructiveness in the southern states is often amplified due to the lack of preparedness and response measures. Also, the infrastructure was not designed to withstand certain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

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

Hazard Profile

While winter storms are not as frequent of an occurrence in Cherokee 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 Cherokee County typically cause drastic damage to infrastructure, such as roads, power lines, and bridges. They also can cause damage to private property, businesses, and trees throughout the county. Due to the county's elevation changes, many highways have steep grades that can become dangerous during icy conditions. The large number of trees in Cherokee County can also become a hazard when the tree limbs become weighed down with snow and ice and begin to break and fall to the ground, potentially damaging private property, public property, or injuring people and animals.

Natural Hazard: **Winter Storms**

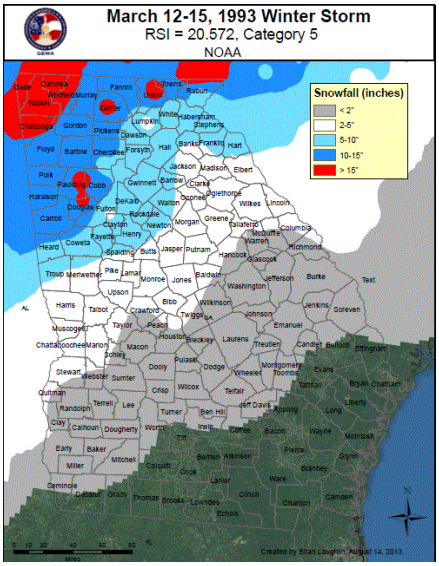


Natural Hazard: **Winter Storms**

(Hazard Profile Continued)

During the past twenty years, documentation exists for 42 winter storm events in Cherokee County. No data can be located prior to this timeframe. On average, a winter storm has occurred in Cherokee County on a nearly annual basis. A 100% chance exists of a winter storm occurring in any given year in Cherokee County. Due to improved record keeping techniques, the HMPC believes that looking at the record for the last 20 year period provides a more accurate representation of the threat of winter storms for Cherokee County. For additional historical data, please see Appendix D.

Individual events of Winter Weather can be drastically different depending on many factors, including the duration of the event, the type of precipitation involved, and the depth of the precipitation. Winter Storm events can be a light dusting of snow, ¼ inch of ice, or over a foot of snow. Other factors, such as wind, can influence the strength of these events, as happened with wind-blown snow during the March 1993 Winter Storm event. During this event, 10-15 inches of snow was reported in multiple areas across Cherokee County.



Assets Exposed to the Hazard

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

Natural Hazard: **Winter Storms**

Estimated Potential Losses

For estimated potential losses, please see the Critical Facilities information in Appendix C. Total estimated losses for winter storm events of the last 50 years indicate a total of over $1,178,000 in losses. Extrapolated over 50 years, this averages out to $23,560 per year. However, all of the documented winter storms with loss information have occurred over the last 20 years. As such, the average loss per year for the last 20 years is $58,900 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 Cherokee County.

Land Use & Development Trends

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

Multi-Jurisdictional Considerations

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

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

Natural Hazard: **Flooding**

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

Hazard Description

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

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

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

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

Hazard Profile

The Cherokee County HMPC researched flooding information for the last fifty years. The main sources of information used by the Cherokee County HMPC came from the National Climatic Data Center, the Cherokee County Emergency Operations Plan, and news media sources. It was determined that

Natural Hazard: **Flooding**

(Hazard Profile Continued)

flooding has caused significant damage on a relatively small number of occasions over the last 20 years. One significant flooding event that affected Cherokee County occurred in September of 2004. This flood, caused by 5-9 inches of rain in a single afternoon/evening, led to $250,000 in damages, washed out three bridges, and led to the rescue of seven people and three animals from their home. 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.

Flood events within Cherokee County are typically associated with areas of special flood hazard as identified on Flood Rate Insurance Maps (FIRMs) published by the Federal Emergency Management Agency. 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 Cherokee County's history appears to be related to roads and culverts washing out as a result of flood waters.

There are 23 documented flood events over the last 50 years. Based on the 50 year record, it can be inferred that such an event is likely to occur every 2.2 years in Cherokee County. This relates to a 46% chance of a flood event occurring in a given year. Flooding is of a significant concern to Cherokee County residents overall, but particularly to those areas along the Etowah River and its distributaries. Flooding in September 2009 caused significant damage throughout Metro Atlanta, including Cherokee County. Damage for this event topped $50 million in Cherokee County, including many homes and businesses throughout the county. Little River reached a historic crest of 20.8 feet during this event, according to information available from the United States Geological Survey (USGS). This is the highest recorded crest for this location and was 3 inches shy of "major flood stage."

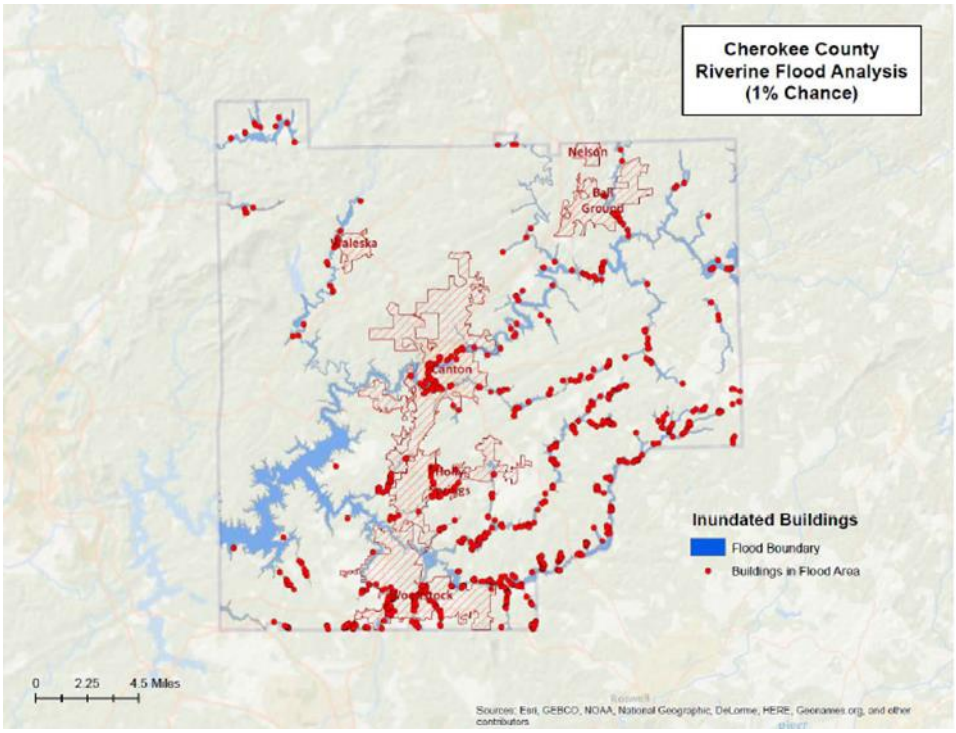
For additional historical data, please see Appendix D.

Assets Exposed to the Hazard

To evaluate the assets that would potentially be impacted by flooding, the Cherokee County HMPC attempted to identify known structures within, or close to, the 100-year floodplain.

Natural Hazard: **Flooding**

The HAZUS models estimate 4,111 households that could potentially be displaced by a 1% Riverine Flood event.



Estimated Potential Losses

HAZUS models estimate a potential economic value of $291,627,942 for structures located within the 100-year floodplain.

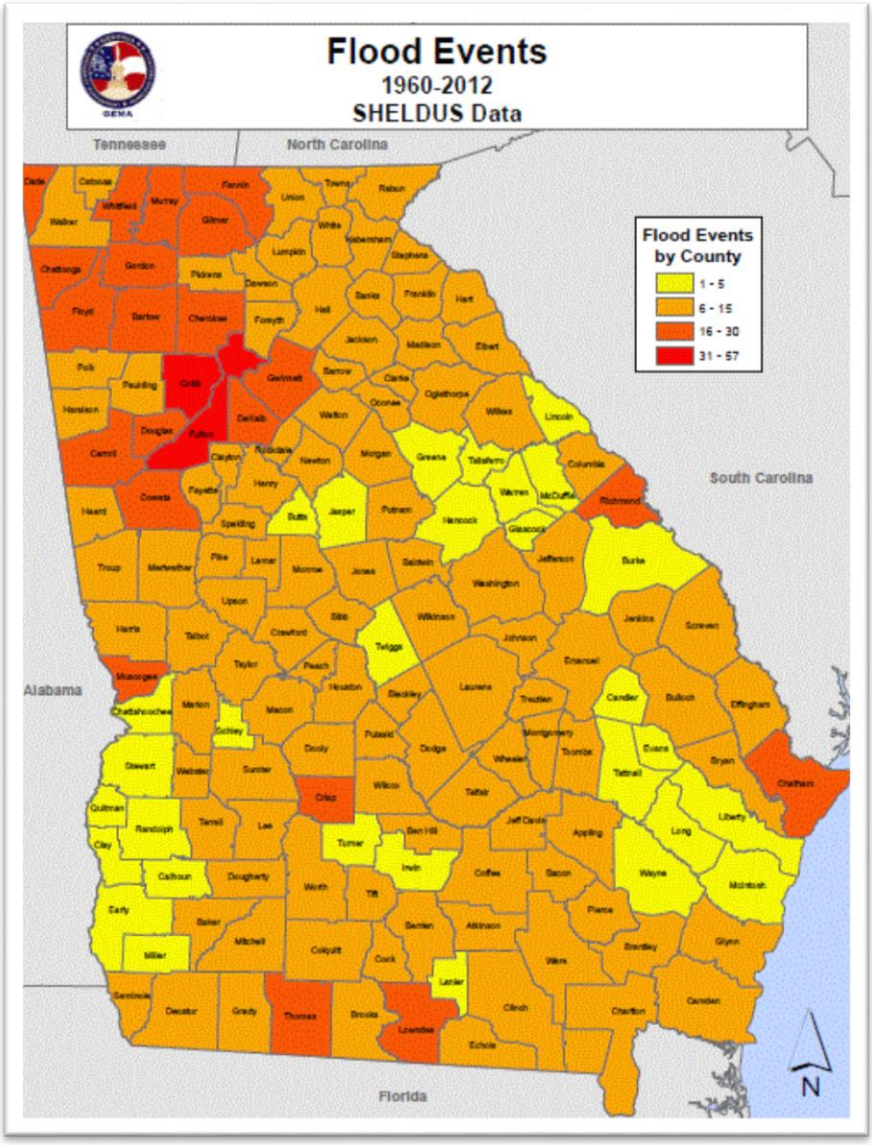
Land Use & Development Trends

Cherokee County continues to have population increases as Metro Atlanta expands to the Northwest through Cobb County and into Cherokee. This continued population growth within Cherokee County has led to a 51% population increase between 2000 and 2010.

Cherokee 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. 130424) first entered the NFIP on July 15, 1988. 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

Natural Hazard: **Flooding**

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 Cherokee County municipalities – Ball Ground, Canton, Holly Springs, Nelson, Waleska, and Woodstock - also participate in NFIP. There are no repetitive loss properties in Cherokee County.



Natural Hazard: **Flooding**

Multi-Jurisdictional Considerations

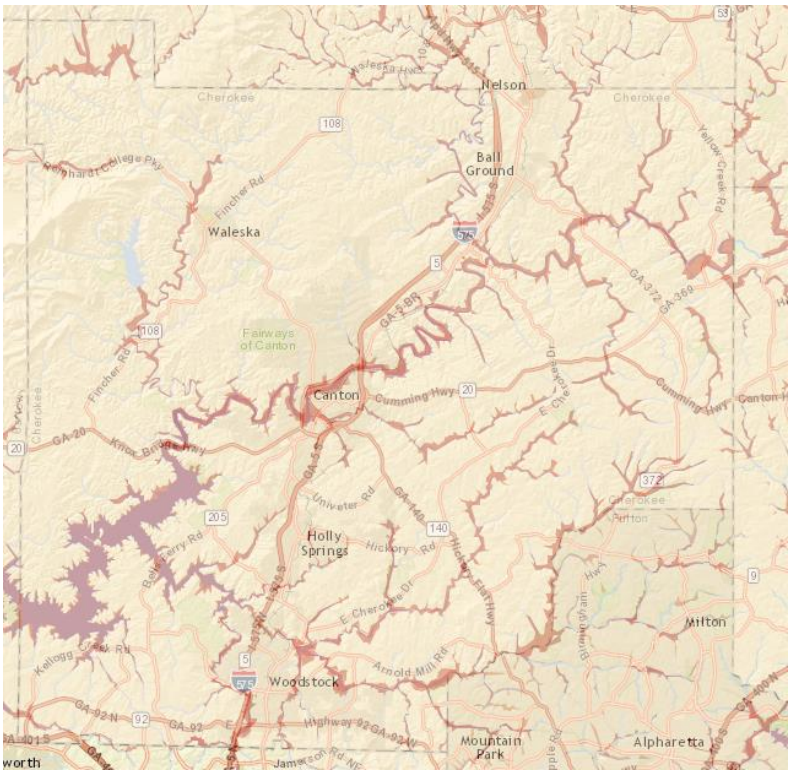
During a large-scale flood event, many portions of Cherokee County would potentially be impacted by flooding. However, the area's most prone to flooding have historically been those areas located within the 100-year floodplain. All of Cherokee County and its municipalities could potentially be impacted.

Hazard Summary

Flooding has the potential to inflict significant damage within Cherokee County, particularly along the Etowah River and its distributaries. Mitigation of flood damage requires the community to be aware of flood-prone areas, including roads, bridges, and critical facilities. The Cherokee County HMPC identified flooding as a hazard requiring mitigation measures and identified specific goals, objectives, and action items they deemed necessary to lessen the impact of flooding for their communities. These maps were updated since the previous plan.

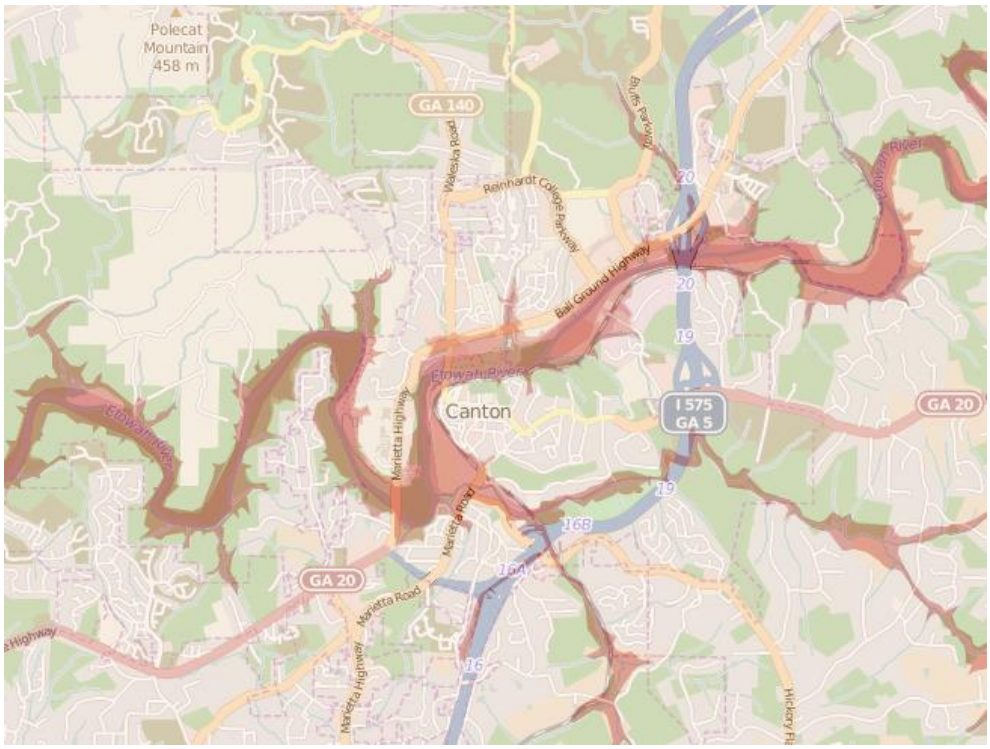
There are no mitigated properties in Cherokee County, although FEMA did approve the acquisition of property in the City of Woodstock in 2012.

Cherokee County

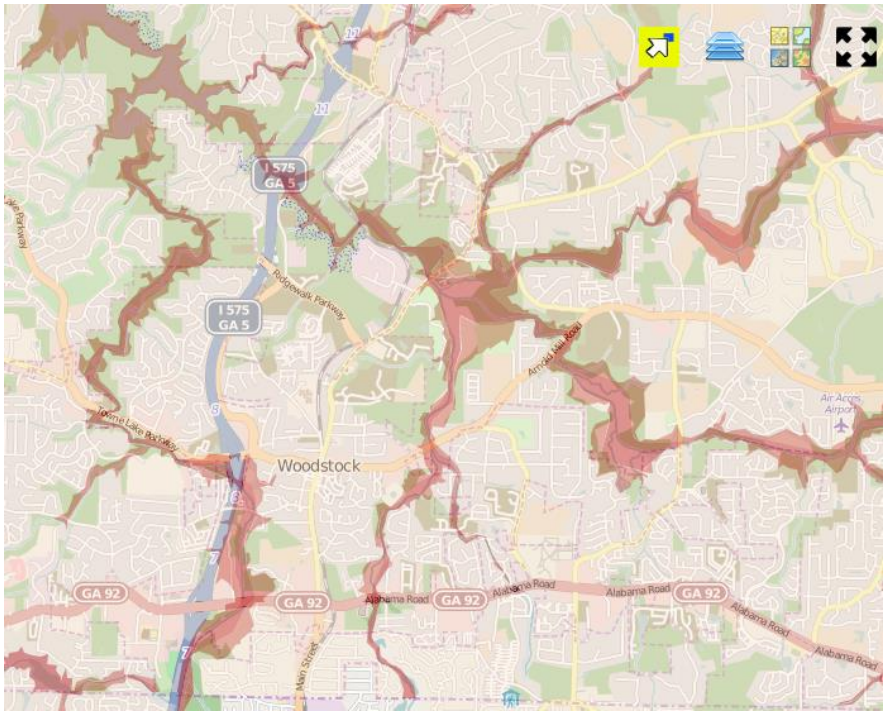


Natural Hazard: **Flooding**

Canton

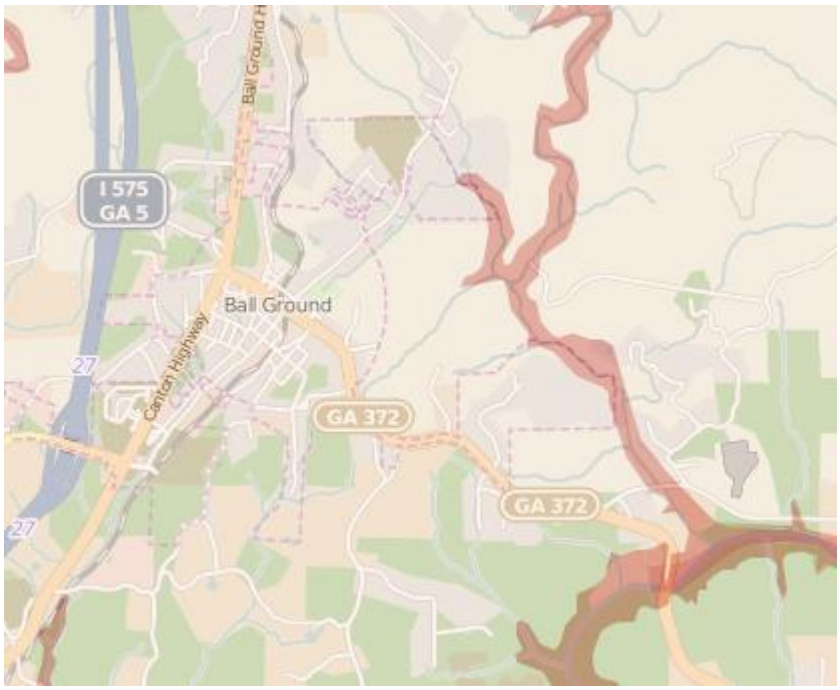


Woodstock

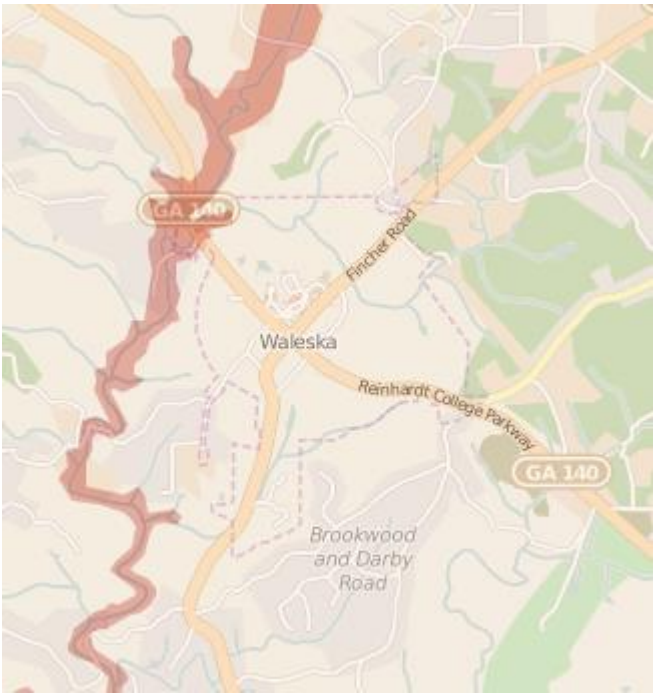


Natural Hazard: **Flooding**

Ball Ground



Waleska



Natural Hazard: **Flooding**

Holly Springs

Nelson

Natural Hazard: **Tornado**

Hazard Description

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

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

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

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

Natural Hazard: **Tornado**

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

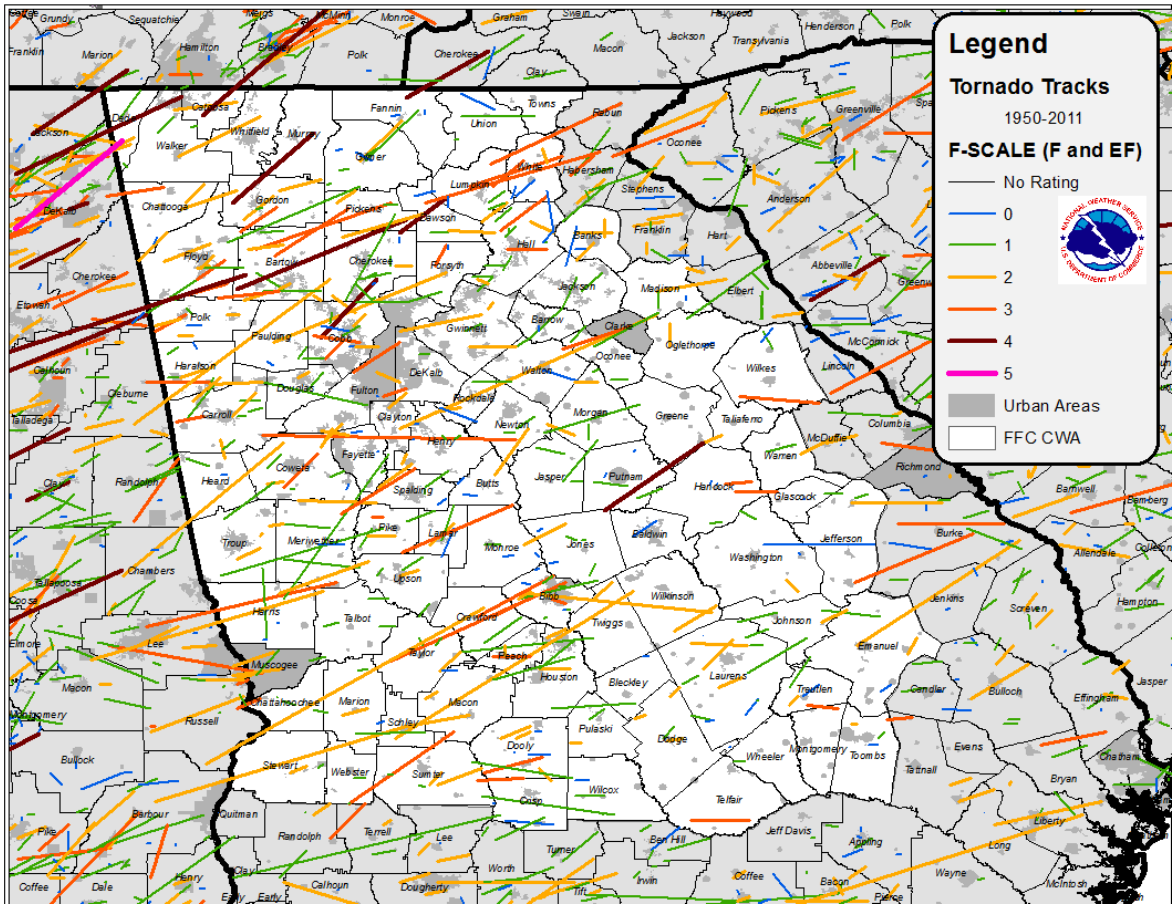
Hazard Profile

All areas within Cherokee 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 21 documented tornadoes in the last 50 years in Cherokee County. It is likely that other tornadoes have occurred within this timeframe, but available records are limited in nature.

Based on the 50-year information available for Cherokee County, a tornado occurs every 2.4 years. On an annual basis, Cherokee County has a 42% chance of being impacted from a tornado event. When only the last twenty years are considered, the likelihood of a tornado affecting Cherokee County increases to 60% (12 tornadoes since 1995). By considering both percentages, the Cherokee County HMPC considers tornadoes to be of a high concern.

Individual tornado events can cause extreme damage to an area. This holds true for Cherokee County, as well. The strongest documented tornado to impact Cherokee County was an F4 in 1992. This storm traveled 20 miles from Powder Springs in Cobb County into Cherokee County. The storm caused $2.5 million in damages and injured 12 people in Cherokee. The most economically impactful tornado in Cherokee County occurred in 2008. This EF1 tornado caused over $46 million in damage during its 6 miles trek through the county. This storm was responsible for one fatality. For additional historical data, please see Appendix D.

Natural Hazard: **Tornado**



Assets Exposed to the Hazard

In evaluating assets that are susceptible to tornadoes, the Cherokee 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.

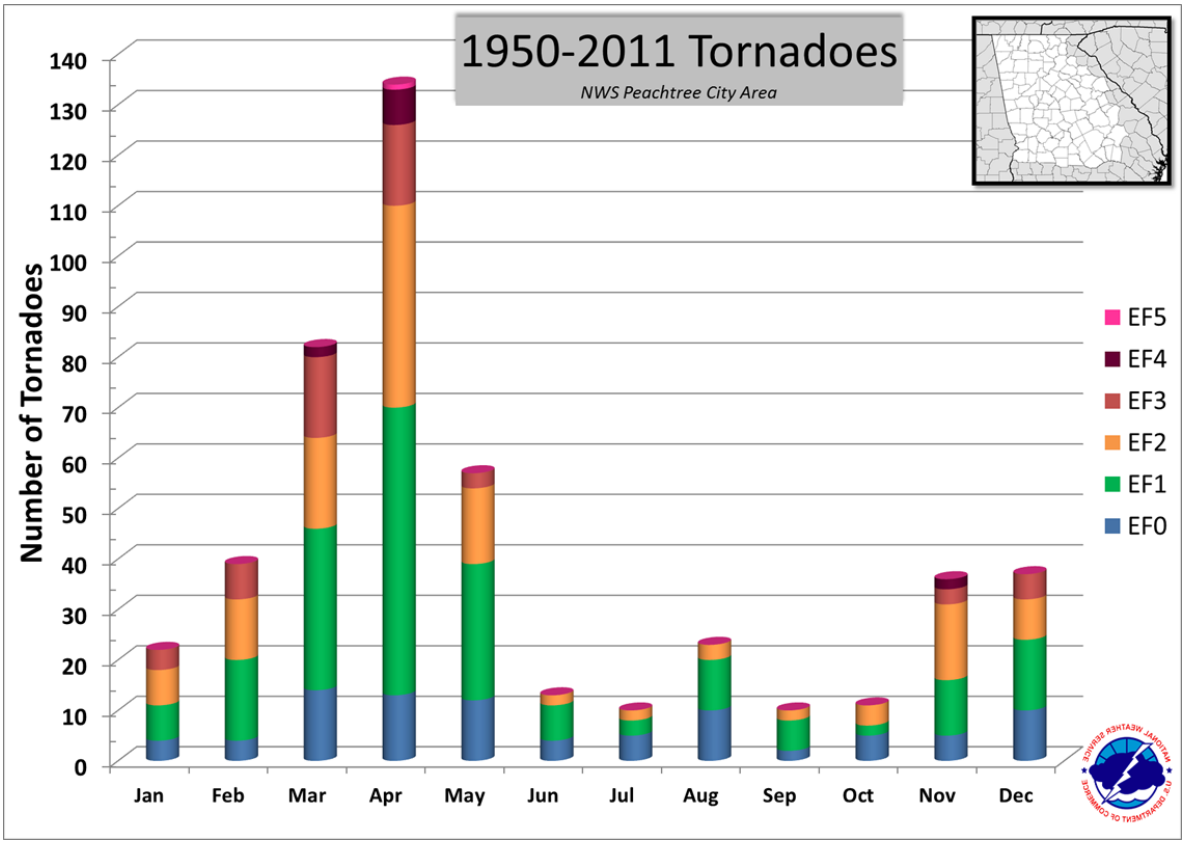
Estimated Potential Losses

For an estimate of potential losses, please refer to the Critical Facilities information located in Appendix C. Estimates of damage for the past events of the last 50 years are just over $80 million, or $1,603,060 annually. When only events of the last 20 years are considered, yearly estimations increases to $3.575 million annually. Within the HAZUS report, a theoretical tornado path for an EF3 was identified near the Interstate 575 corridor. HAZUS estimated that this theoretical tornado would cause damage in excess of $237 million with Canton and Holly Springs suffering the greatest economic impacts.

Natural Hazard: **Tornado**

Land Use & Development Trends

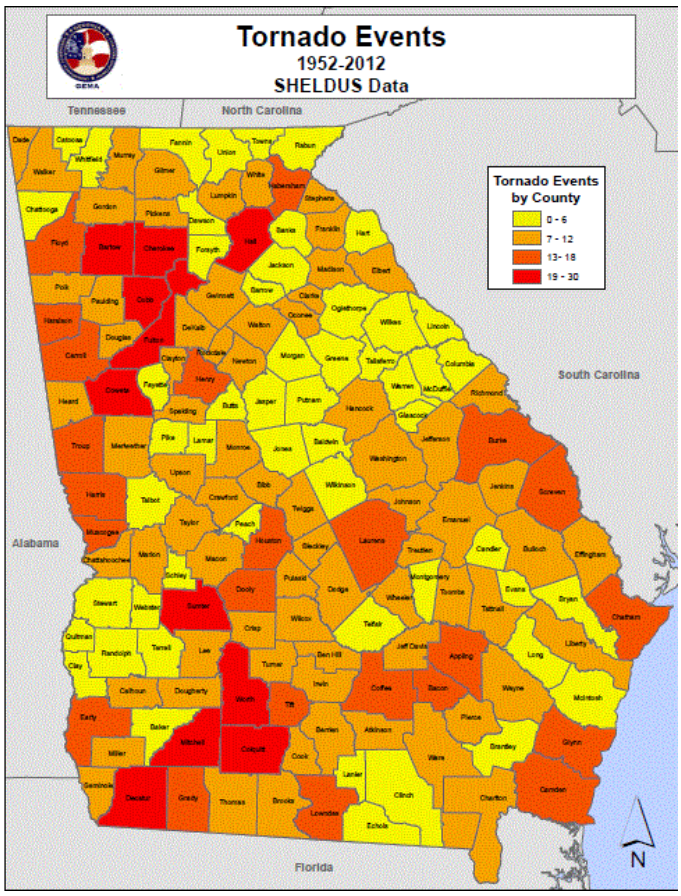
Cherokee County currently has no land use trends related to Tornadoes.



Natural Hazard: **Tornado**

Multi-Jurisdictional Considerations

All portions of Cherokee County could potentially be impacted by a tornado due to the indiscriminate nature of tornadic events. Therefore, all mitigation actions identified regarding tornadoes should be pursued on a countywide basis and include all cities and towns located within Cherokee County.



Hazard Summary

Cherokee County remains at risk to potential damage from tornadoes, especially considering the average of one tornado every 2.4 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.

Natural Hazard: **Drought**

Hazard Description

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

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

Temporal characteristics of droughts are drastically different from other hazards due to the possibility of extremely lengthy durations as well as a sluggish rate of onset. Drought conditions may endure for years or even decades. This factor implicates drought as having a high potential to cause devastation on a given area. The duration characteristic of droughts is so important that droughts are classified in terms of length of impact. Droughts lasting 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 months are long term. With the slow rate of onset, most populations have some inkling that drought conditions are increasingly present. However, barring drastic response measures, most only have to adapt to the changing environment.

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

Hazard Profile

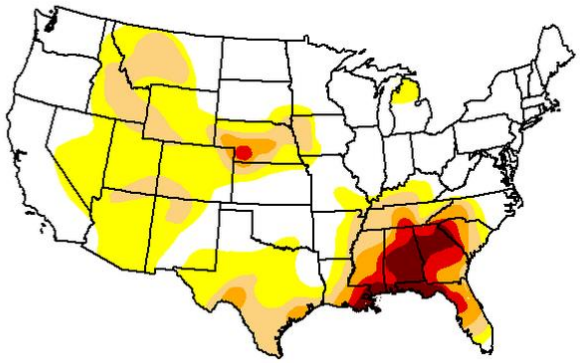
The Cherokee County HMPC reviewed data for the last 50 years regarding drought conditions. Historically, agricultural losses have accounted for the vast amount of losses related to drought conditions.

Natural Hazard: **Drought**

(Hazard Profile Continued)

Due to poor record keeping and the unpredictable nature of drought conditions, reliability of historical data for the last 50 years is low. Cherokee County has been impacted by 13 drought events in the last 20 years, according to data from the National Climatic Data Center. These droughts totaled $921,890 in crop damages. This amounts to a 65% chance of a drought for a given year over the last 20 years and an average impact of $46,095 annually.

There have been two recent examples of "exceptional" drought events affecting Cherokee County. These events occurred in 2000 and 2007. The 2000 event had a documented crop loss of over $900,000. Both of these events reached the D4 (Exceptional Drought) designation, according to data from the United States Drought Monitor. Below are maps of these two events.



July 25, 2000
(Released Thursday, Jul. 27, 2000)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

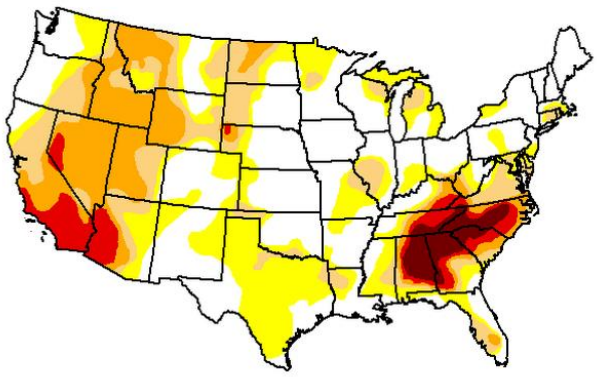
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	50.13	49.87	22.86	9.32	5.19	2.59
Last Week 7/18/2000	50.54	49.46	22.38	8.77	5.43	2.12
3 Months Ago 4/25/2000	56.15	43.85	24.29	13.06	1.48	0.00
Start of Calendar Year 1/4/2000	49.00	51.00	23.35	9.45	0.00	0.00
Start of Water Year	-	-	-	-	-	-
One Year Ago	-	-	-	-	-	-

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author(s):
Staff
National Drought Mitigation Center

Natural Hazard: **Drought**



November 20, 2007
(Released Thursday, Nov. 22, 2007)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	39.57	60.43	36.97	22.42	8.06	2.93
Last Week 11/13/2007	42.20	57.80	36.10	22.52	7.55	2.72
3 Months Ago 8/21/2007	35.36	64.64	48.75	33.29	12.50	2.86
Start of Calendar Year 1/2/2007	50.01	49.99	25.63	12.62	5.93	0.33
Start of Water Year 9/25/2007	41.29	58.71	43.95	30.02	11.81	2.28
One Year Ago 11/21/2006	56.51	43.49	26.09	13.51	6.39	0.17

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author(s):
Richard Heim
NCDC/NOAA

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

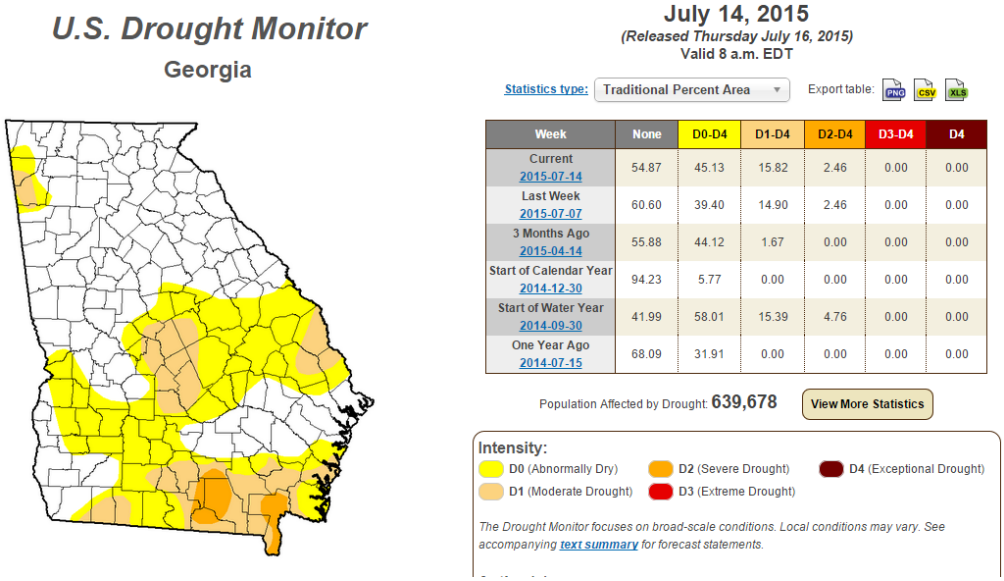
While drought conditions do not typically pose a direct threat to structures, secondary hazards from drought such as increased wildfire threat, does pose a significant threat to all public and private property in Cherokee County, including all critical facilities. Water resources could also become scarce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

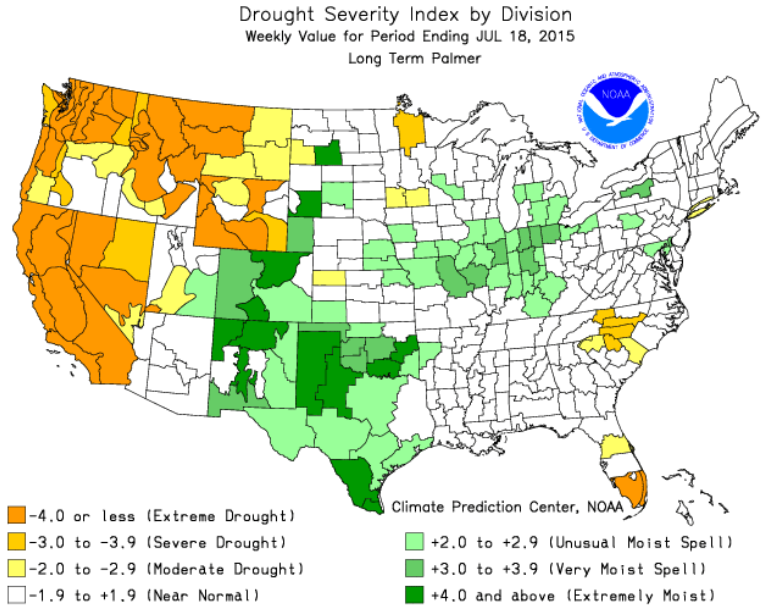
Estimated Potential Losses

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

Natural Hazard: **Drought**

According to the 2012 Agriculture Census data, Cherokee County's market value of products sold was $44,043,000. $6,421,000 of that total represented crop sales, accounting for 14.6% of the total. Livestock sales accounted for 86.4%, or $37,622,000, of the total value.





Natural Hazard: **Drought**

Land Use & Development Trends

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

Multi-Jurisdictional Considerations

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

Hazard Summary

Drought conditions can cause significant economic stress on the agriculture and forestry interests of Cherokee 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 Cherokee 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 have the ability to consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations could possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of nearby populations.

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

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

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

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

Natural Hazard: **Wildfire**

(Hazard Description Continued)

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

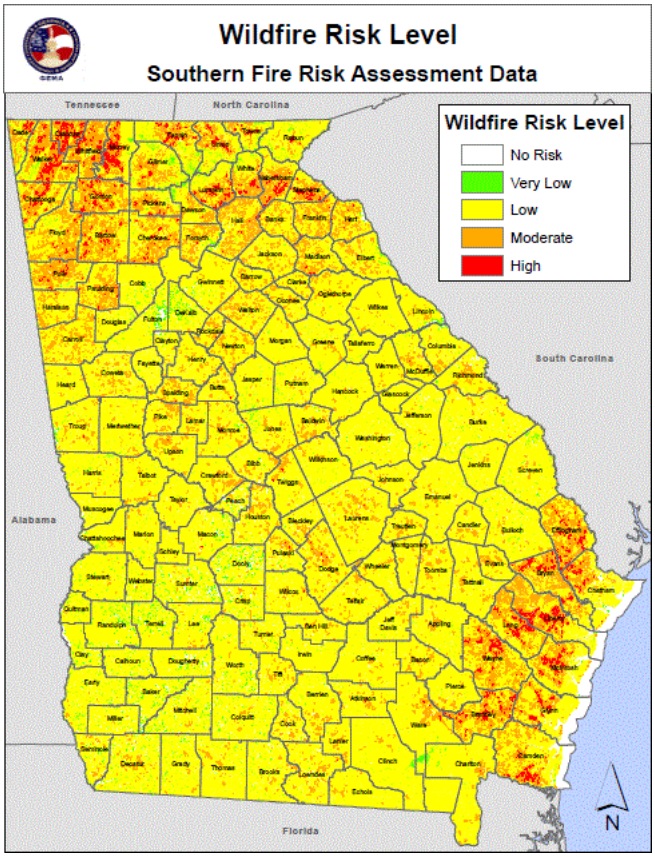
Three classes of fires include understory, crown, and ground fires. Naturally-induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal and self-extinguish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

Hazard Profile

Wildfires pose a serious threat to Cherokee 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 Cherokee County, which is defined as areas where structures and other human development meets undeveloped wildland properties. 98% of Cherokee County's population lives within the WUI.

Wildfire statistics were not available for the 50 year timeframe at the time of this profile. The Community Wildfire Protection Plan (CWPP) for Cherokee County is currently under review and update by the Georgia Forestry Commission. This plan, once completed, will include statistics and mitigation strategies that can be incorporated into the Cherokee County Hazard Mitigation Plan Update during annual reviews. However, according to the 2010 plan, Cherokee County has approximately 15 wildfires per year.

Natural Hazard: **Wildfire**



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 Cherokee 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

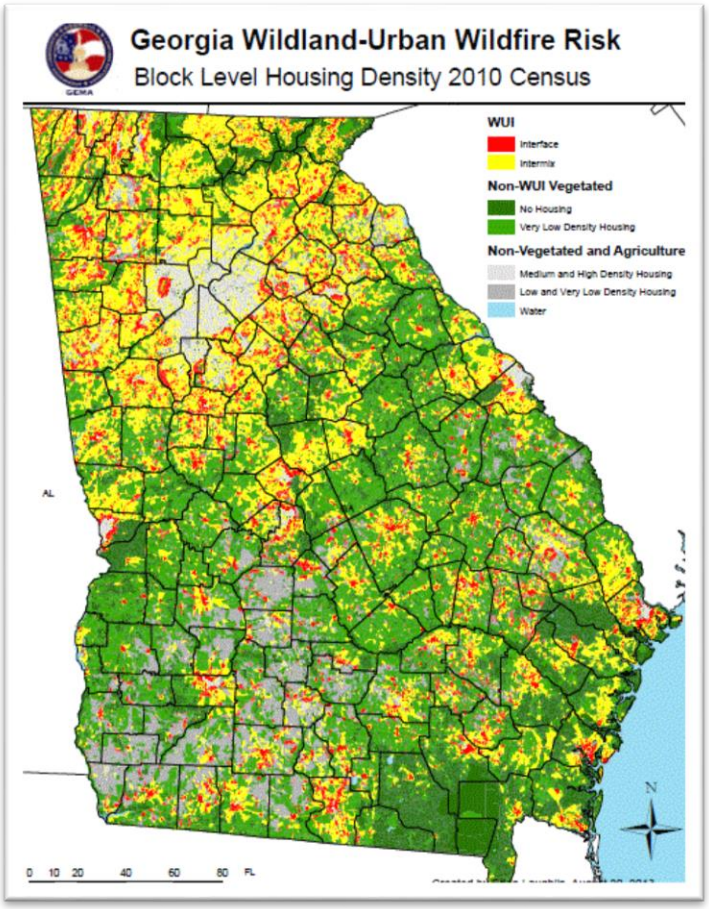
Little information is available regarding damages, in terms of dollars, for wildfire losses in Cherokee County. For loss estimation of all critical facilities potentially affected by wildfires, please see the critical facilities information located in Appendix C. According to the 2012 Ag Census by the USDA, Cherokee County has $44.043 Million in annual crop sales. These areas would potentially be

impacted by a wildfire event.

Natural Hazard: **Wildfire**

Land Use & Development Trends

With the continued increase in population, Wildland-Urban Interface (WUI) is increasing in Cherokee 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 Cherokee County complicated wildland fire management operations and planning initiatives. This development trend is expected to continue in the future.



Natural Hazard: **Wildfire**

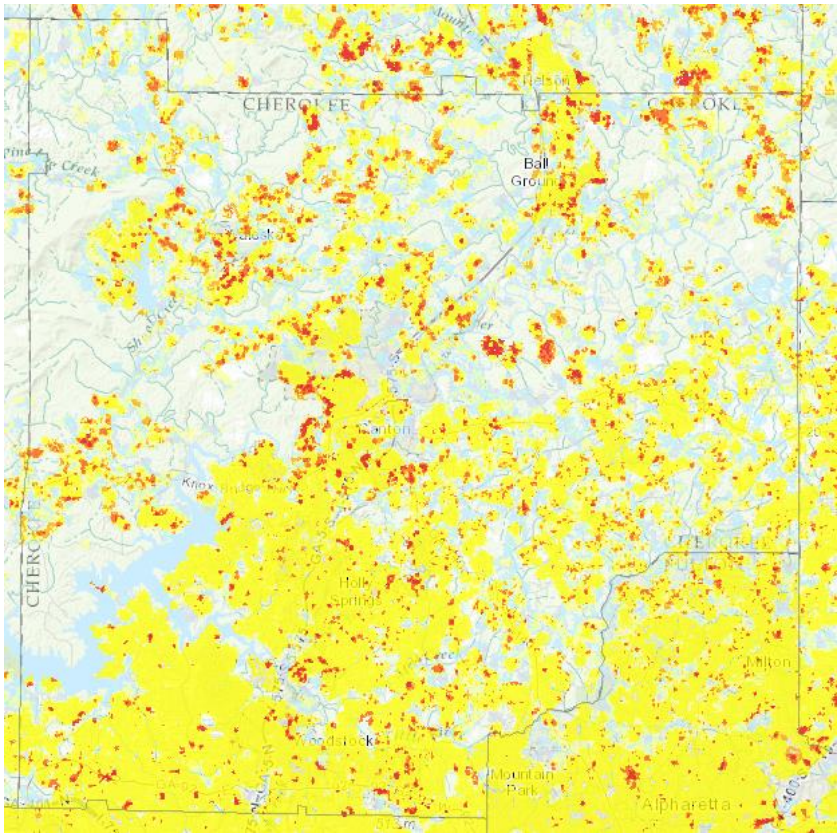
Multi-Jurisdictional Considerations

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

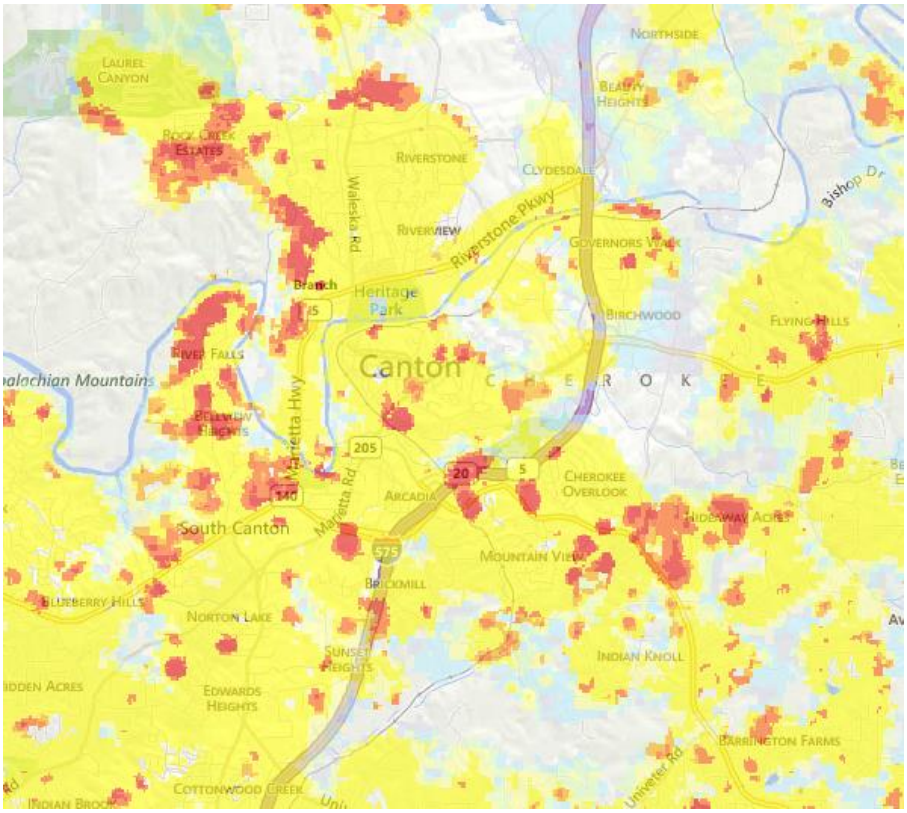
Hazard Summary

Wildfire is a significant threat to Cherokee County due to the increased amount of Wildland-Urban Interface. The increasing amount of area where structures and other human development meets undeveloped, wildland property is where 98% of Cherokee 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 Cherokee County.

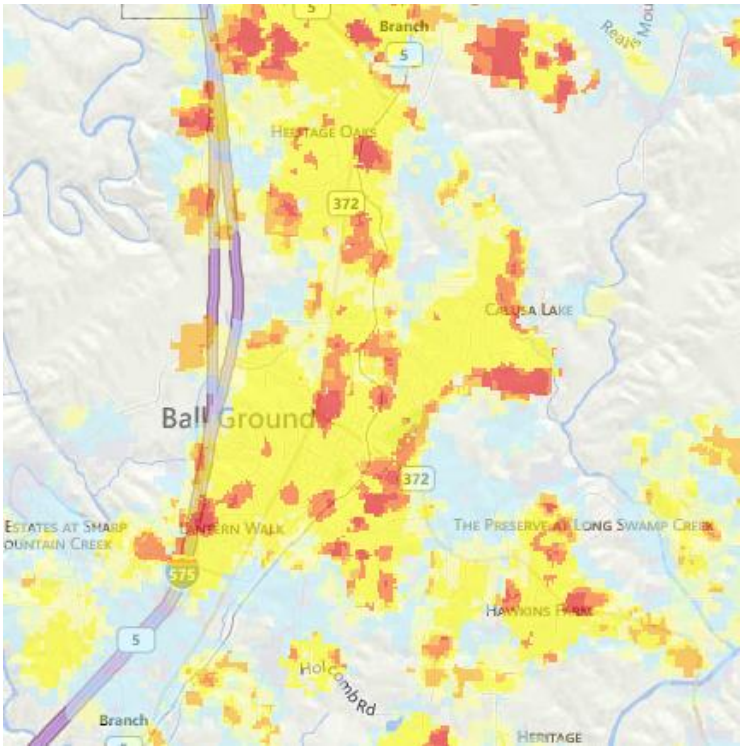
Cherokee County WUI Risk



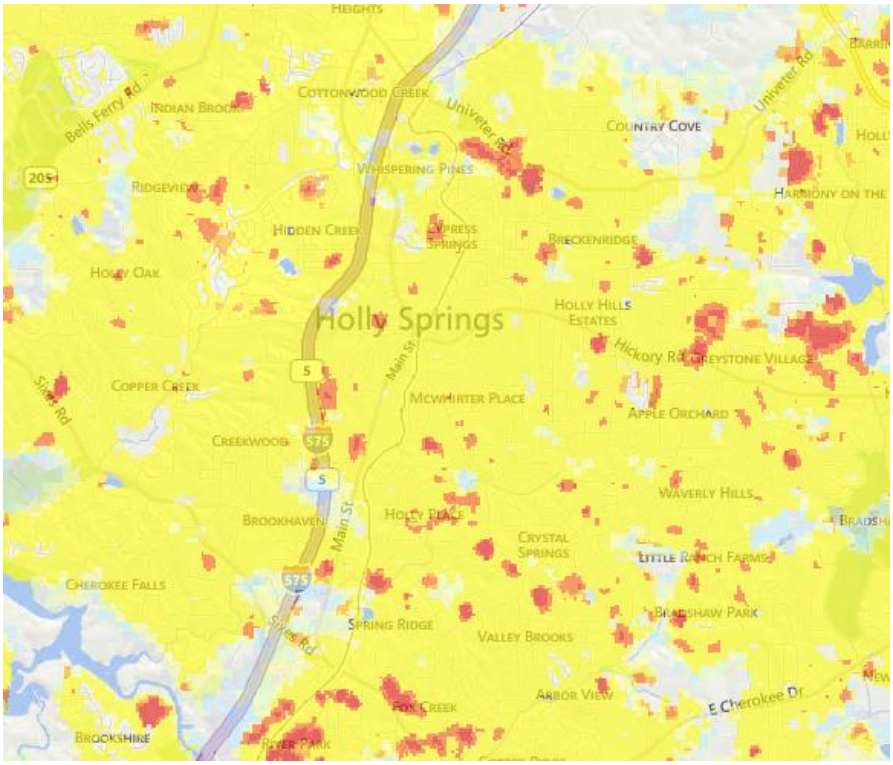
Canton WUI Risk



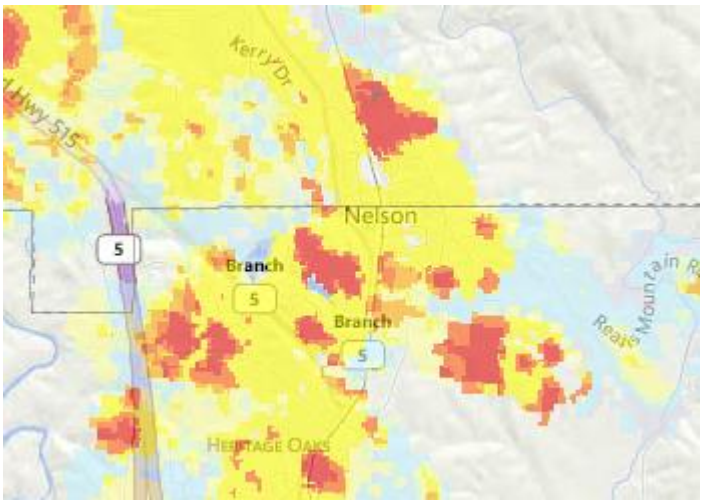
Ball Ground WUI Risk



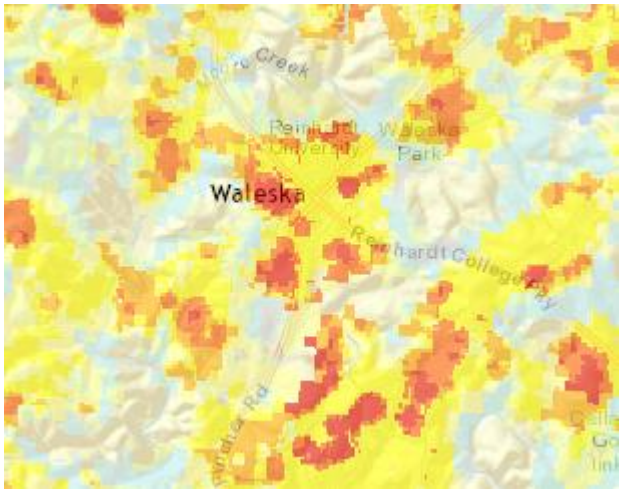
Holly Springs WUI Risk



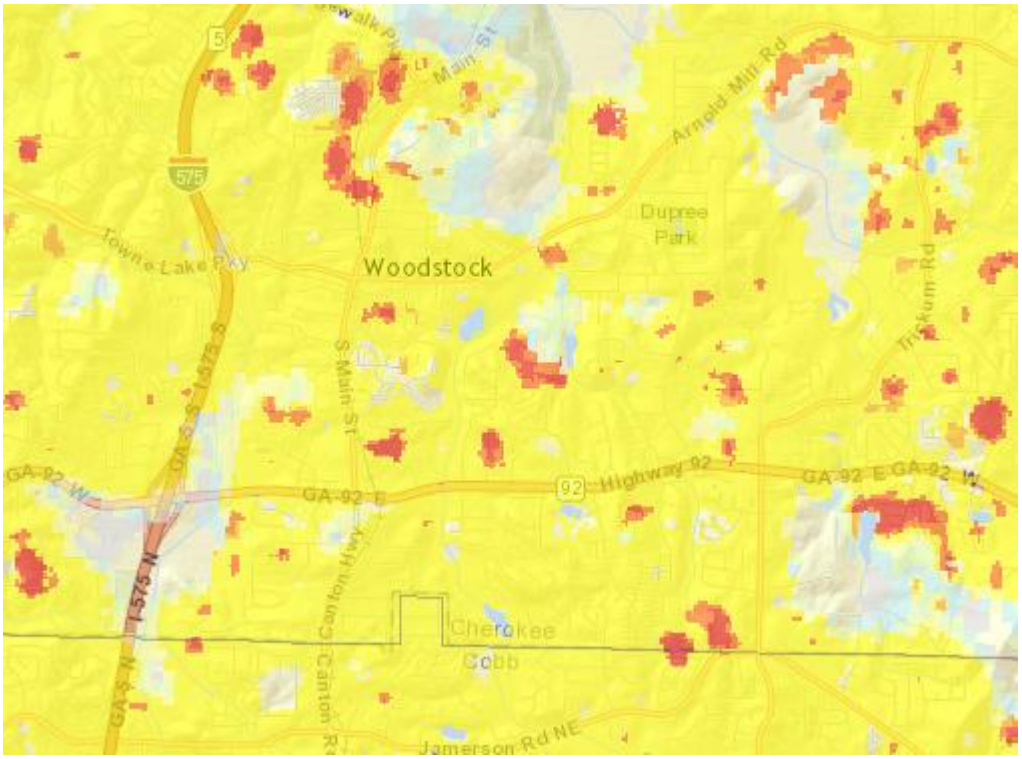
Nelson WUI Risk



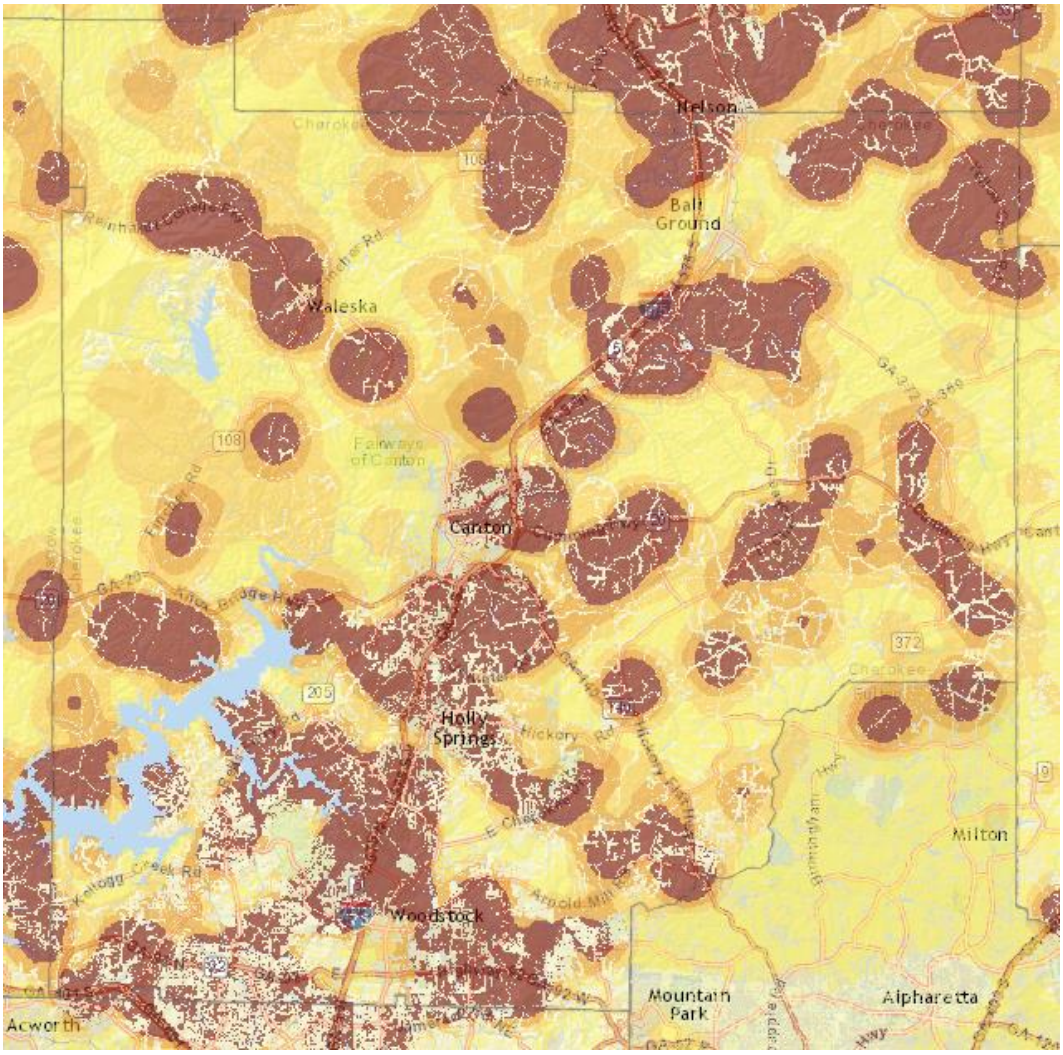
Waleska WUI Risk



Woodstock WUI Risk



Cherokee County Wildfire Ignition Density



Natural Hazard: **Earthquakes**

Hazard Description

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

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

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

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

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

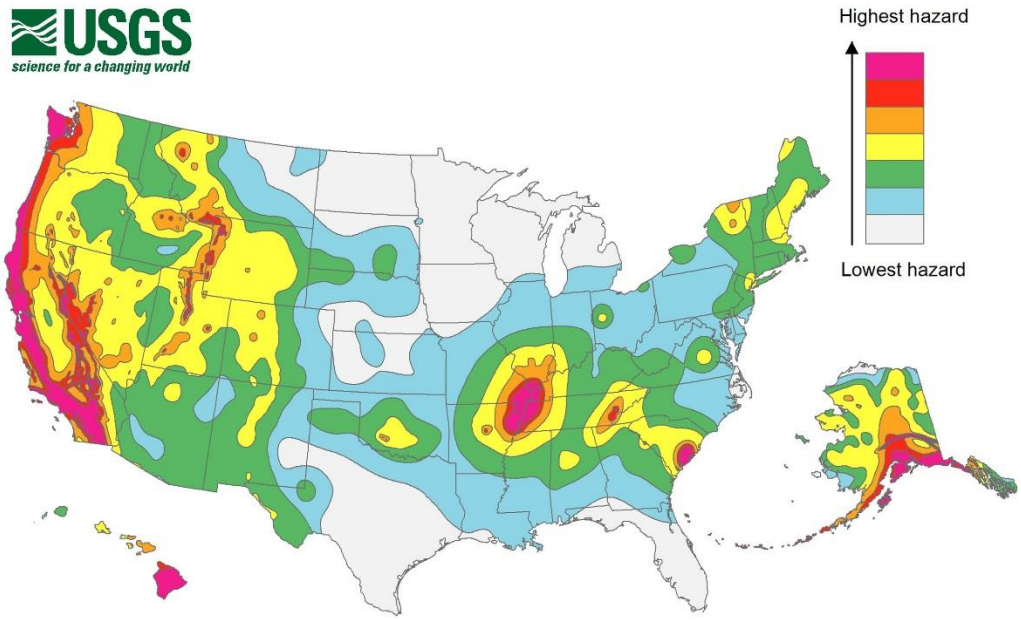
Natural Hazard: **Earthquakes**

(Hazard Description Continued)

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

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

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



Natural Hazard: **Earthquakes**

Hazard Profile

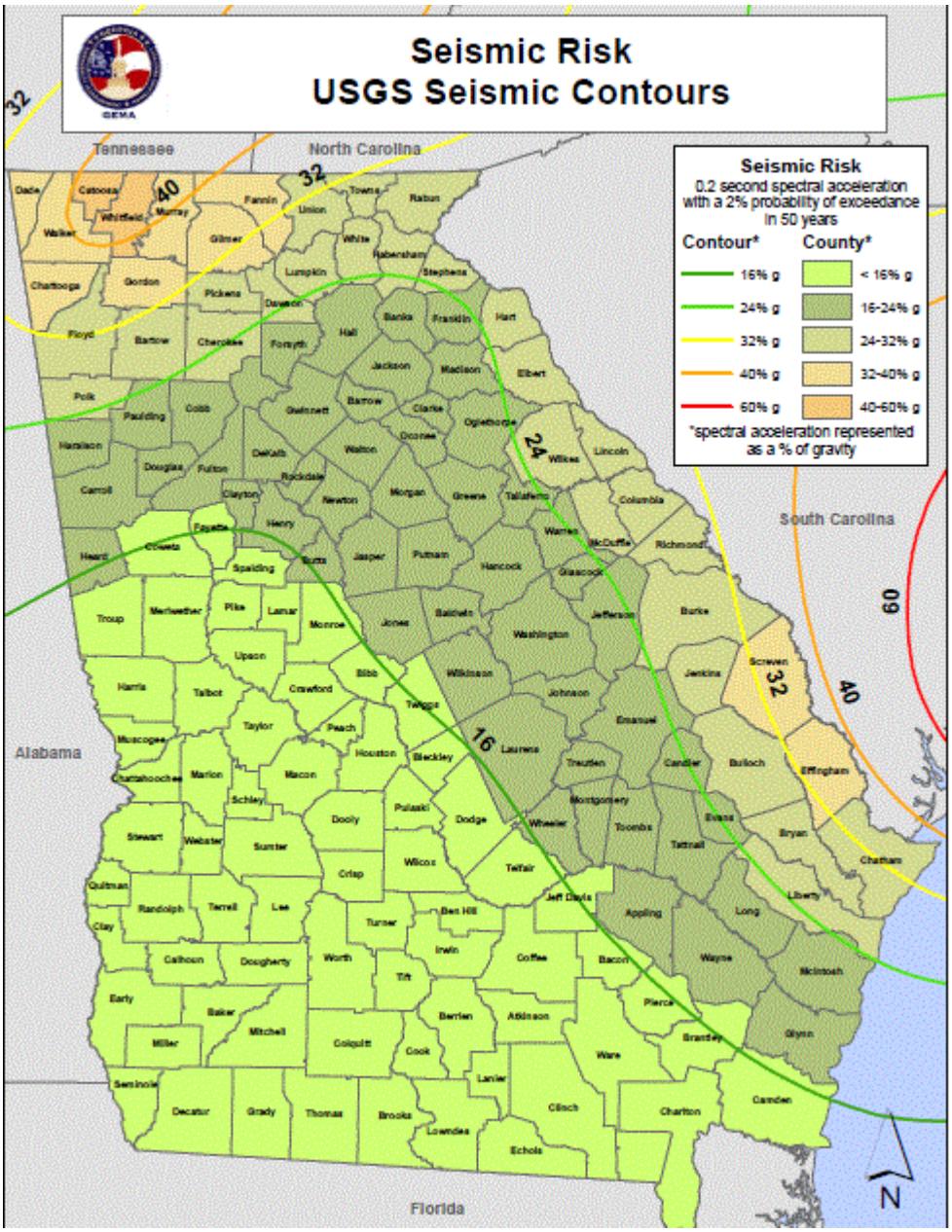
Cherokee County is not one of the 37 Georgia counties with the highest earthquake risk, according to the Georgia Emergency Management Agency and Georgia Tech School of Earth and Atmospheric Sciences. In reviewing data of the last 50 years, no earthquakes have originated from within Cherokee County. However, earthquakes with a magnitude of 4.0 or greater have occurred as close as Dalton, GA. The closest earthquake in the last 50 years occurred 9 miles SSE of Dalton, GA in 2012 and measured 2.4 on the Richter Scale. No earthquakes have originated within 50 miles of Canton, GA in the last 50 years. Historically, the 1886 Charleston, SC earthquake, estimated to be between 6.6 and 7.3 on the modern Richter Scale, likely caused impacts to Cherokee County. Although no historical records exist exhibiting any damages, Cherokee 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 Cherokee County, significant damage could occur. Therefore, the Cherokee County HMPC has determined the threat of earthquakes to be higher than the statistics would indicate.

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

Natural Hazard: **Earthquakes**

Assets Exposed to the Hazard

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



Natural Hazard: **Earthquakes**

Estimated Potential Losses

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

Land Use and Development Trends

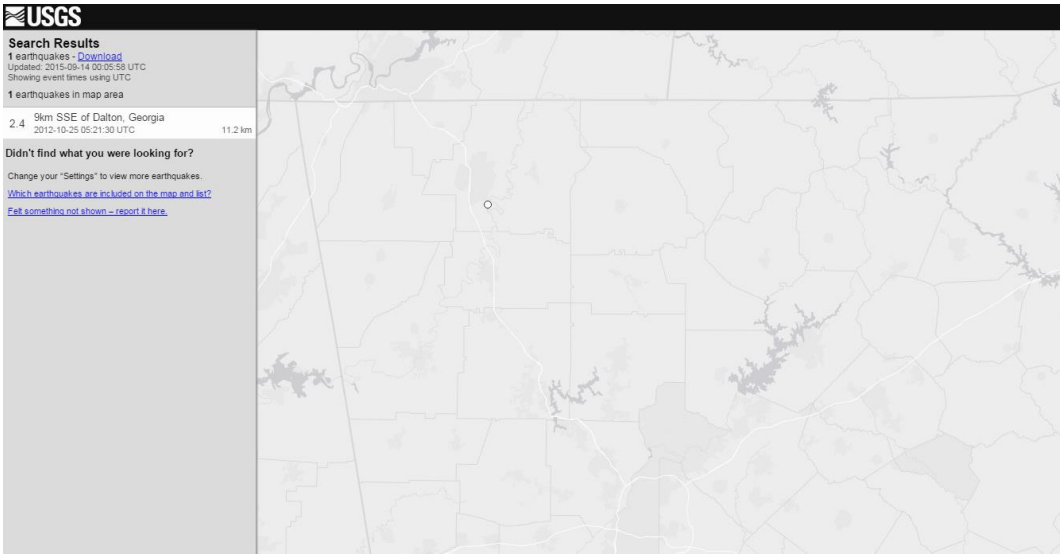
Cherokee County currently has no land use trends related to Earthquakes.

Multi-Jurisdictional Considerations

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

Hazard Summary

Even with the infrequency of earthquake impacts in Cherokee 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 earthquakes to inflict widespread devastation anywhere in Cherokee 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 Cherokee County. Data is available from 1990 to 2015 and all available data was reviewed. There were 61 NRC reported hazardous materials spills or releases in Cherokee County over a 25 year period. It is anticipated that many more hazardous materials incidents have occurred over the last 25 years, but have not been reported. According to the NRC data, Cherokee County averages 2.44 hazardous materials incidents of a reportable amount in any given year. The greatest threat for a hazardous materials spill comes from the transportation of materials through Cherokee County. This is particularly true for the Interstate 75 and 575 corridors that runs North and South through the center of the county, including the municipalities of Woodstock, Holly Springs, Canton, and Ball Ground.

Hazardous materials releases can also be the result of railway or fixed facility incidents. Fixed facilities continue to be an increasing concern due to Cherokee County's growing industrial footprint.

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. Over the past two decades, many waterways in Cherokee County have been impacted by hazardous materials spills. Public and private property located near fixed hazardous materials facilities are also a greater risk than the general population of Cherokee County.

Estimated Potential Losses

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

Cherokee County currently has no land use trends related to Hazardous Materials.

Multi-Jurisdictional Considerations

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

Hazard Summary

Hazardous materials incidents pose a significant threat to the citizens, infrastructure, and critical facilities of Cherokee County. Unknown quantities of hazardous materials are transported daily through Cherokee County and its municipalities. These materials are transported via highways, with Interstates 75 and 575 being of greatest concern. As a result of the threat posed by hazardous materials, the Cherokee 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

Cherokee County has 3 category I and 18 category II watershed dams. 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. Records show over 100 total dams located in Cherokee County. The category I dams in Cherokee County are located along the Little River and Mill and Canton Creeks.

The threat of a dam failure in Cherokee County could potentially lead to downstream flooding. This downstream flooding would have many of the same hazards as a flood event, but with the onset of such an event being much quicker than in a typical flood event.

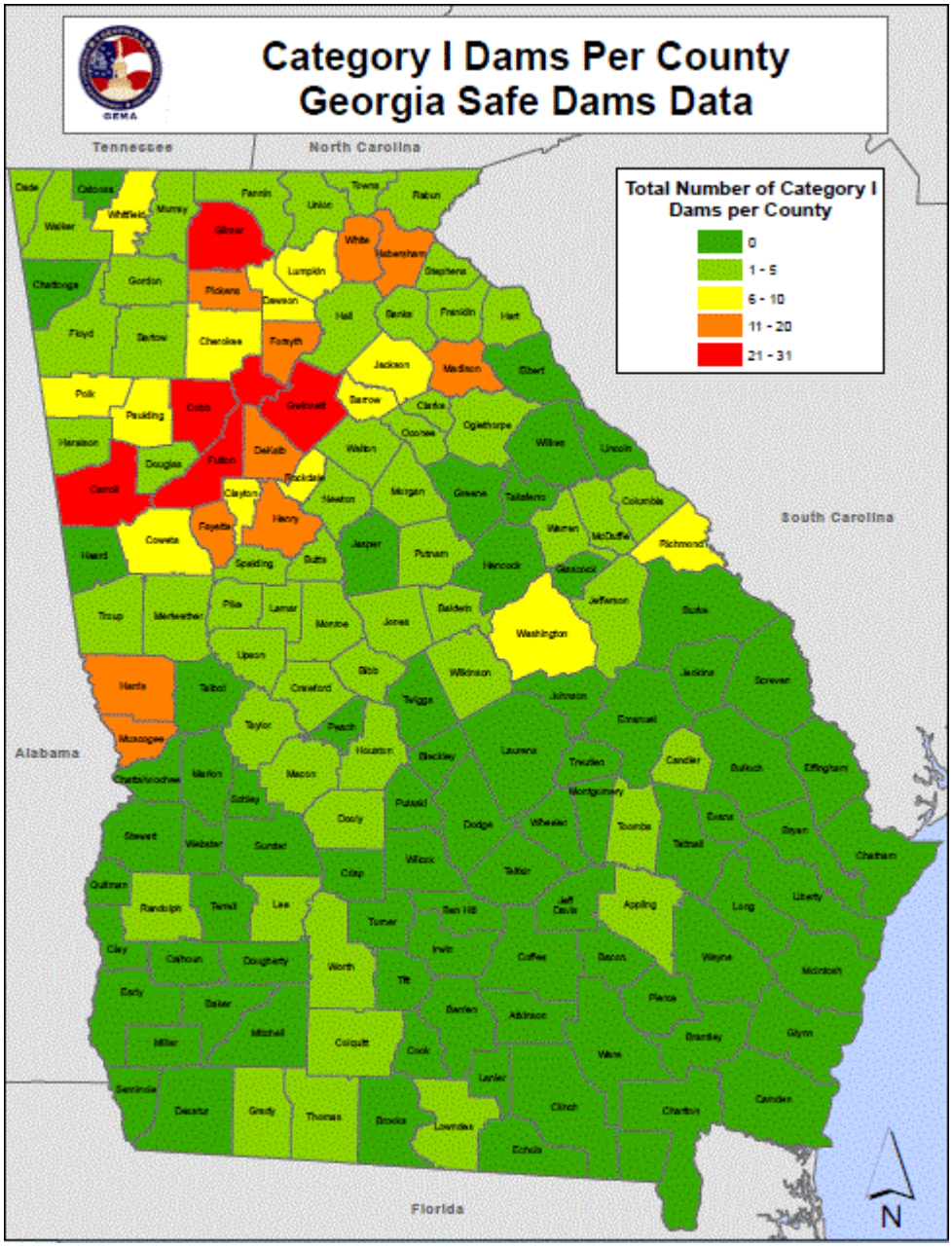
Assets Exposed to Hazard

To evaluate the assets that would potentially be impacted by a dam failure, the Cherokee County HMPC attempted to identify known structures within, or close to, the 100-year floodplain, particularly those downstream from a category I dam. Cherokee County's municipalities, could be exposed to the hazards of other dams or face secondary hazards from the category I dams.

Technological Hazard: **Dam Failure**

Estimated Potential Losses

For loss estimations, please refer to the critical facilities information in Appendix C.



Technological Hazard: **Dam Failure**

Land Use and Development Trends

Cherokee County continues to have population increases as Metro Atlanta expands to the Northwest through Cobb County and into Cherokee. This continued population growth within Cherokee County has led to a 51% population increase between 2000 and 2010.

Cherokee 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. 130424) first entered the NFIP on July 15, 1988. 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 Cherokee County municipalities – Ball Ground, Canton, Holly Springs, Nelson, Waleska, and Woodstock - also participate in NFIP.

Multi-Jurisdictional Considerations

During a dam failure event, many portions of Cherokee 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. This is particularly true for areas downstream of one of Cherokee County's category I dams.

Hazard Summary

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

Technological Hazard: **Transportation Incident**

Hazard Description

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

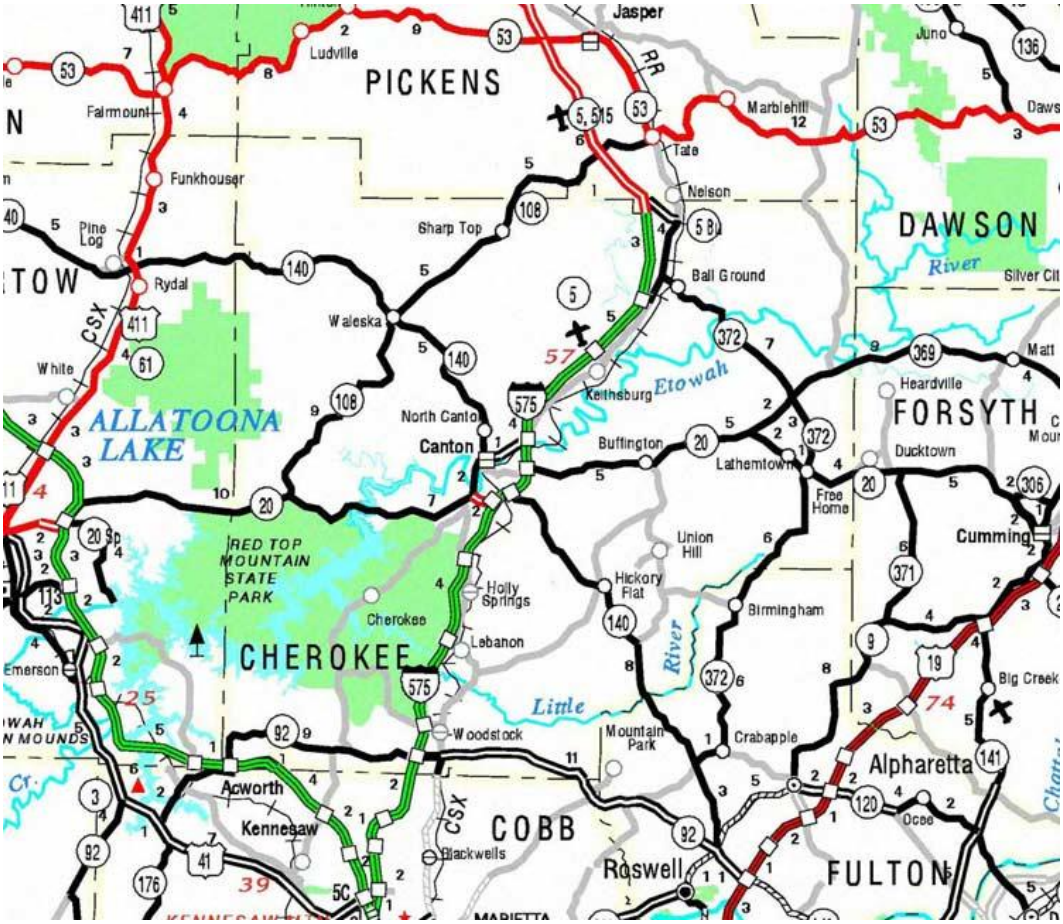
Roadway hazards are most likely to be caused by a motor vehicle accident involving one or more cars, trucks, vans, or transport vehicles. These incidents can have injuries as a result of the impact of the MVA or a hazardous materials release into the local environment, including waterways. Railway incidents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

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

Hazard Profile

Transportation incidents are of a significant concern in Cherokee County. Passing through Cherokee County are Interstates 75 and 575, and Georgia Highways 5, 20, 92, 108, 140, 369, and 372. The Cherokee County Airport is located 6 miles northeast of downtown Canton in Cherokee County. There are no navigable waterways in Cherokee County.

Technological Hazard: **Transportation Incident**



Assets Exposed to Hazard

All assets and critical facilities located along or near any transportation route could potentially be impacted by a transportation incident. Areas within Cherokee County that are not located along or near a transportation route could still face residual impacts. Some of Cherokee County's schools are located within very close proximity to railways, therefore increasing their potential risk to impact.

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

Cherokee County currently has no land use trends related to Transportation Incidents.

Technological Hazard: **Transportation Incident**

Multi-Jurisdictional Considerations

Cherokee County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along Interstate 575 are the greatest at risk. This includes the municipalities of Woodstock, Holly Springs, Canton, and Ball Ground.

Hazard Summary

The Cherokee 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 Cherokee 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, agri-terrorism, armed attack, intentional hazardous materials release, 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 Cherokee County, all critical facilities could be seen as potential targets. Terrorism includes a multitude of potential approaches, including agri-terrorism, which is terrorism targeted toward agriculture. Due to the high economic impact of agriculture in Cherokee County, agri-terrorism could be of particular concern.

Technological Hazard: **Terrorism**

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

Assets Exposed to the Hazard

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

Estimated Potential Losses

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

Land Use and Development Trends

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

Multi-Jurisdictional Considerations

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

Hazard Summary

Terrorism, while a low-probability hazard, would have devastating effects on Cherokee County and its municipalities. These impacts would be immediate and long-lasting and could be potentially economically crippling. Because of these considerations, the Cherokee County HMPC has developed mitigation actions with terrorism in mind.

CHAPTER FOUR
–
HAZARD MITIGATION STRATEGIES

Summary of Updates to Chapter Four

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Cherokee County Hazard Mitigation Plan 2010.

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

Goals and Objectives

Requirement §201.6(c)(3)

Requirement §201.6(c)(3)(i)

It is important that State and local government, public-private partnerships, and the average citizen can see the results of these mitigation efforts, therefore, the goals and strategies need to be achievable. The mitigation goals and objectives form the basis for the development of specific mitigation actions. County and municipal officials should consider the listed goals before making community policies, public investment programs, economic development programs, or community development decisions for their communities. The goals of Cherokee County have changed slightly in the last five years (since 2010) due to specific threat events, such as the snow and ice storms of 2014 and the tornado events of April 2011. The 2014 Ice Storms, in particular, led to changes at the State and local levels regarding the importance of winter weather preparedness, both for the general public and the response ability of local jurisdictions, including Cherokee County. Because of the recentness of the impacts of these hazards and the devastation that occurred, these types of events have taken a greater priority, particularly in the increased priority of mitigation strategies directly related to these events and the development of new mitigation strategies related to these hazards.

Each jurisdiction covered by the Cherokee County Hazard Mitigation plan update – Cherokee County and all municipalities – has limited ability to fully implement the mitigation actions described in this plan. These jurisdictions are severely hampered by their small population and tax base when attempting to raise sufficient revenue to pursue many of these actions. All jurisdictions lack the needed financial strength and staffing to implement all of the actions described in this plan. Many of the actions will be pursued through grant programs and by partnering with public and private organizations who can supplement the needed resources to accomplish the goals outlined in this plan. For actions where grant funding or partnerships are not available, Cherokee 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 Cherokee County strives to accomplish over the next five years. Action steps are the specific steps necessary to achieve these objectives. Objectives are not listed in order of importance.

OBJECTIVE1	Manage the development of land and building to minimize risk of loss due to natural and man-made hazards
OBJECTIVE 2	Protect structures and their occupants and contents from the damaging effects of natural and man-made hazards
OBJECTIVE 3	Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property
OBJECTIVE 4	Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community
OBJECTIVE 5	Manage the development of land and buildings to minimize risks of loss due to natural and man-made hazards

Identification and Analysis of Mitigation Techniques

Requirement §201.6(c)(3)(iv)

Requirement §201.6(c)(3)(iii)

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

1) The use of applicable building construction standards;

2) Hazard avoidance through appropriate land-use practices;

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

4) Removal or elimination of the hazard;

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

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

7) Modification of the basic characteristics of the hazard;

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

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

10) Establishment of hazard warning and communication procedures; and

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

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

Strategy Priority	Priority Description	Strategies within this priority
LOW	Low priority strategies are those strategies that will have less direct impact on mitigating Cherokee County's hazards, are in the early stages of strategy development, or score poorly on a preliminary cost-benefit analysis	**3.k; 4.d**
MEDIUM	Medium priority strategies are those strategies that will have a direct impact on mitigation Cherokee 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 Cherokee County. These strategies may be in the earlier stages of development or score mediocre on a preliminary cost-benefit analysis	**1.b; 1.d; 1.e; 1.f; 1.g; 1.h; 1.n; 1.o; 1.p; 1.s; 1.t; 1.u; 1.v; 1.w; 1.x; 1.y; 1.aa; 2.a; 2.b; 2.c; 2.f; 2.g; 2.h; 2.p; 2.q; 2.r; 2.s**
HIGH	High priority strategies are those strategies that would have a direct, large impact on mitigation Cherokee County's hazards. These strategies are oftentimes well-established needs of Cherokee County and/or its municipalities and have score high on a preliminary cost-benefit analysis	**1.a; 1.c; 1.i; 1.j; 1.k; 1.l; 1.m; 1.q; 1.r; 1.z; 2.d; 2.e; 2.i; 2.j; 2.k; 2.l; 2.m; 2.n; 2.o; 2.t; 2.u; 3.a; 3.b; 3.i; 3.l; 4.b; 4.c; 5.g**

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

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

Prevention

Requirement §201.6(c)(3)(ii)

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

Natural Hazards	Mitigation Strategies
Drought	5.a; 5.b; 5.c; 5.d; 7.d
Earthquake	7.c; 7.d
Flood	1.a; 1.b; 1.c; 1.d; 1.e; 1.f; 1.g; 7.c; 7.d
Thunderstorms	7.c; 7.d
Tornadoes	7.c; 7.d
Landslide	7.c; 7.d
Wildfire	5.a; 5.b; 5.c; 5.d; 7.c; 7.d
Winter Storms	7.c; 7.d; 8.a
Technological Hazards	**Mitigation Strategies**
Dam Failure	9.c
Hazardous Materials	10.c; 11.b
Terrorism	9.c; 10.c; 11.b
Transportation	
Communications Failure	

Property Protection

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

Natural Hazards	Mitigation Strategies
Drought	7.g
Earthquake	7.g
Flood	7.g
Thunderstorms	7.g
Tornadoes	7.g
Landslide	7.g
Wildfire	7.g
Winter Storms	7.g
Technological Hazards	**Mitigation Strategies**
Dam Failure	
Hazardous Materials	
Terrorism	
Transportation	
Communications Failure	

Natural Resource Protection

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

Natural Hazards	Mitigation Strategies
Drought	
Earthquake	7.j; 7.k
Flood	
Thunderstorms	7.j; 7.k
Tornadoes	7.j; 7.k
Landslide	7.j; 7.k
Wildfire	7.j; 7.k
Winter Storms	7.j; 7.k
Technological Hazards	**Mitigation Strategies**
Dam Failure	
Hazardous Materials	
Terrorism	
Transportation	
Communications Failure	

Structural Projects

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

Natural Hazards	Mitigation Strategies
Drought	
Earthquake	7.a
Flood	1.h; 1.i; 7.a
Thunderstorms	2.a; 2.b; 7.a
Tornadoes	2.a; 2.b; 7.a
Landslide	1.i; 7.a
Wildfire	7.a
Winter Storms	7.a
Technological Hazards	**Mitigation Strategies**
Dam Failure	9.a
Hazardous Materials	
Terrorism	
Transportation	
Communications Failure	

Emergency Services

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

Natural Hazards	Mitigation Strategies
Drought	6.b; 6.g; 6.h; 6.i; 6.j; 6.k; 7.b; 7.h
Earthquake	3.b; 3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Flood	3.b; 3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Thunderstorms	3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Tornadoes	3.a; 3.b; 3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Landslide	3.b; 3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Wildfire	3.b; 3.c; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Winter Storms	3.b; 3.c; 6.a; 6.b; 6.c; 6.d; 6.e; 6.f; 6.g; 6.h; 6.j; 6.k; 6.m; 6.n; 7.b; 7.e; 7.f; 7.h; 7.i
Technological Hazards	**Mitigation Strategies**
Dam Failure	9.b; 10.d
Hazardous Materials	10.a; 10.b
Terrorism	10.a; 10.b; 10.d
Transportation	10.a; 10.b
Communications Failure	

Public Education and Awareness

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

Natural Hazards	Mitigation Strategies
Drought	4.a; 4.b; 4.c; 4.d; 4.e; 5.e
Earthquake	4.a; 4.c; 4.d; 4.e
Flood	4.a; 4.c; 4.d; 4.e
Thunderstorms	4.a; 4.c; 4.d; 4.e
Tornadoes	4.a; 44.c; 4.d; 4.e
Landslide	4.a4.c; 4.d; 4.e
Wildfire	4.a; 4.b; 4.c; 4.d; 4.e; 5.e
Winter Storms	4.a; 4.c; 4.d
Technological Hazards	**Mitigation Strategies**
Dam Failure	11.a
Hazardous Materials	11.a
Terrorism	11.a
Transportation	11.a
Communications Failure	11.a

Overall

Mitigation Technique	Percentage
Prevention	28.8%
Property Protection	1.7%
Natural Resource Protection	3.4%
Structural Projects	10.2%
Emergency Services	44.1%
Public Education and Awareness	11.9%

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

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
OBJECTIVE ONE: Manage the development of land and buildings to minimize risks of loss due to natural and manmade hazards																
1.a	Maintain active participation in the National Flood Insurance Program (NFIP)	Cherokee County Planning and Zoning *Cherokee County and All municipalities*	**X**							Local government budgets	Staff time	6 months	**Ongoing**	**High**	**2005 Plan; 2010 Plan**	**Cherokee County 1.1.1**
1.b	Continue evaluation of current infrastructure for upgrade, retrofit, replacement, and expansion of capacity to facilitate current needs, to include construction materials and capacity upgrades in older systems	critical infrastructure operators *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants, and/or Local government budgets	TBD	18 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 1.2.1 (Completed)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.c	Complete and maintain Emergency Action Plan for Hickory Log Creek Reservoir and Dam	City of Canton; Cherokee County EMA *Cherokee County and City of Canton*	**X**		**X**	**X**			**X**	Local government budgets	Staff time	12 months	**Updated annually**	**High**	**2010 Plan**	**Cherokee County 1.3.1**
1.d	Evaluate existing dams for repairs, retrofits, and upgrades to ensure safety of residents and buildings downstream	operators of dams *Cherokee County and All municipalities*	**X**							Public and private grants and/or Local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 1.3.2**
1.e	Perform assessments of critical facilities to address building and site vulnerabilities to hazards	Cherokee County and all municipal governments *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or Local government budgets	TBD	36 months	**None**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 1.4.1(a)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.f	Identify damage control and retrofit measures to reduce vulnerability to damage at critical facilities, in conjunction with assessment in strategy 1.e	Cherokee County and all municipal governments *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or Local government budgets	TBD	36 months	**None**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 1.4.1(b)**
1.g	Identify damage control and retrofit measures to reduce disruption of operations at critical facilities during severe weather and disaster events, in conjunction with assessment in strategy 1.e	Cherokee County and all municipal governments *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or Local government budgets	TBD	36 months	**None**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 1.4.1(c)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.h	Complete a structural study on all schools to gauge their ability to withstand all hazards	Cherokee County EMA and Cherokee County Schools *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**NEW**	**Medium**	**NEW**	**NEW**
1.i	Improve Emergency Action Plan for Lake Arrowhead Reservoir and Dam	Cherokee County EMA *Cherokee County and All municipalities*	**X**							Local government budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**
1.j	Examine vulnerable bridges for potential retrofits/ replacement	Cherokee County Roads and Bridges *Cherokee County and All municipalities*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	24 months	**Ongoing**	**High**	**2010 Plan**	**Cherokee County 1.4.2(a)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.k	Examine culvert sizes countywide to mitigate flood damages and increase capacity	Cherokee County Roads and Bridges *Cherokee County and All municipalities*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**High**	**2010 Plan**	**Cherokee County 1.4.2(b)**
1.l	Evaluate outdoor warning siren system and add new outdoor warning sirens where needed	Cherokee County EMA *Cherokee County and All municipalities*				**X**				Public and private grants	TBD	36 months	**Ongoing**	**High**	**2005 Plan; 2010 Plan**	**Cherokee County 1.5.1(a)**
1.m	Maintain the outdoor warning sirens currently in place	Cherokee County EMA *Cherokee County and All municipalities*				**X**				Local government budgets and/or Public and private grants	TBD	24 months	**Ongoing**	**High**	**2005 Plan; 2010 Plan**	**Cherokee County 1.5.1(b)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.n	Evaluate potential mass notification systems for all hazards warning	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	local government budgets	Staff time	24 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 1.5.2**
1.o	Implement mass notification system from evaluation identified in strategy 1.l	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**NEW**	**Medium**	**NEW**	**NEW**
1.p	Perform regular maintenance of streams and drainage ways to ensure adequate conveyance of flood waters in the City of Canton to maintain MS4 program	City of Canton; Department of Natural Resources *City of Canton*	**X**		**X**	**X**				Public and private grants and/or government budgets	TBD	48 months	**Drains have been cleaned; 20% of system has annual maintenance**	**Medium**	**2010 Plan**	**Canton 5.2.1**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.q	Examine vulnerable bridges for potential retrofits/ replacement in the City of Canton	City of Canton *City of Canton*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	24 months	**NEW**	**High**	**NEW**	**NEW**
1.r	Examine culvert sizes and road elevation in the City of Canton to mitigate flood damages and increase capacity	City of Canton *City of Canton*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	36 months	**NEW**	**High**	**2010 Plan**	**Canton 5.1.2**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.s	Control flooding through reservoirs and other structural improvements, where deemed cost effective and feasible, such as levees/floodwalls, diversions, channel modifications, dredging, draining modifications, and storm sewers	City of Canton; Department of Natural Resources *City of Canton and Cherokee County*	**X**		**X**					Public and private grants and/or local government budgets	TBD	60 months	**Ongoing**	**Medium**	**2010 Plan**	**Canton 5.1.1**
1.t	Install pillars in Waleska Street Bridge to help keep debris out in the event of a disaster	City of Canton *Cherokee County and City of Canton*	**X**		**X**				**X**	Public and private grants and/or local government budgets	TBD	48 months	**NEW**	**Medium**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.u	Install pillars in the Marietta Highway Bridge to help keep debris out in the event of a disaster	City of Canton *Cherokee County and City of Canton*	**X**		**X**				**X**	Public and private grants and/or local government budgets	TBD	48 months	**NEW**	**Medium**	**NEW**	**NEW**
1.v	Evaluate current infrastructure for upgrade, retrofit/ replacement, and enlargement of capacity to facilitate current needs	City of Woodstock *City of Woodstock*	**X**		**X**					Public and private grants and/or local government budgets	TBD	48 months	**Ongoing**	**Medium**	**2010 Plan**	**Woodstock 1.2.1**
1.w	Perform assessment of critical facilities to address building and site vulnerabilities to hazards	City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 1.4.1(a)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.x	Identify damage control and retrofit measures to reduce vulnerability to damage during severe weather and disaster events in accordance with assessment in 1.w	City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 1.4.1(b)**
1.y	Identify damage control and retrofit measures to reduce disruption of operations during severe weather and disaster events in accordance with assessment in 1.w	City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 1.4.1(c)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
1.z	Examine vulnerable bridges for potential replacement/ retrofits to mitigate flood damages	City of Woodstock *City of Woodstock*	**X**			**X**			**X**	Public and private grants and/or local government budgets	TBD	48 months	**Ongoing**	**High**	**2010 Plan**	**Woodstock 1.4.2**
1.aa	Move generator at the City of Canton Water Treatment facility to an area above the floodplain	City of Canton *City of Canton*	**X**		**X**					Public and private grants and/or local government budgets	TBD	18 months	**NEW**	**Medium**	**NEW**	**NEW**

OBJECTIVE TWO: Protect Structures and their occupants and contents from the damaging effects of natural and man-made hazards

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.a	Implement a voluntary program of flood protection and property acquisition and relocation for high-risk residences and repetitive losses	Cherokee County and municipal governments *Cherokee County and All municipalities*	**X**			**X**		**X**		Public and private grants and/or local government budgets	TBD	60 months	**Some properties acquired in City of Woodstock after 2009 floods**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 2.1.1a**
2.b	Survey property owners to determine interest and assess costs associated with mitigation strategy 2.a	Cherokee County and municipal governments *Cherokee County and All municipalities*	**X**			**X**		**X**		local government budgets	Staff time	18 months	**None**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 2.1.1b**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.c	Assist local units of government to identify funding sources to acquire and remove or otherwise protect existing homes in the flood plain	Cherokee County EMA *Cherokee County and All municipalities*	**X**							local government budgets	Staff time	24 months	**City of Woodstock has acquired some properties**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 2.1.1c**
2.d	Install lightning and/or surge protection on existing critical facilities and publicly owned buildings	Cherokee County EMA *Cherokee County and All municipalities*			**X**	**X**				Public and private grants and/or local government budgets	TBD	48 months	**Lightning protection installed at Rabbit Hill radio tower**	**High**	**2010 Plan**	**Cherokee County 2.2.1**
2.e	Establish back-up emergency power to all emergency services critical facilities	Cherokee County EMA *Cherokee County and all municipalities*	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local government budgets	TBD	36 months	**In planning stages**	**High**	**2010 Plan**	**Cherokee County 2.3.1(a)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.f	Establish back-up emergency power to all non-emergency services critical facilities	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or Local government budgets	TBD	60 months	**In planning stages**	**Medium**	**2010 Plan**	**Cherokee County 2.3.1(b)**
2.g	Implement a voluntary program of flood protection and property acquisition and relocation of high-risk residences and repetitive-loss structures	Cherokee County EMA and City of Canton *City of Canton*	**X**							Public and private grants and/or local government budgets	TBD	48 months	**Ongoing; Days Inn has been remediated**	**Medium**	**2005 Plan; 2010 Plan**	**Canton 2.1.1a**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.h	Survey property owners to determine interest and assess costs associated with 3.i	City of Canton *City of Canton*	**X**							Local government budgets	Staff time	24 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Canton 2.1.1b**
2.i	Install lightning and/or surge protection on existing critical facilities and publicly owned buildings	City of Canton *City of Canton*			**X**	**X**				Public and private grants and/or local government budgets	TBD	36 months	**Ongoing; completed at Dam and City Hall**	**High**	**2010 Plan**	**Canton 2.2.1**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.j	Establish back-up emergency power to all critical facilities, with Canton Downtown Fire Station and 3 lift stations being the priority locations	City of Canton *City of Canton*	**X**	**X**	**X**	**X**		**X**	**X**	Public and private grants and/or local government budgets	TBD	48 months	**Ongoing; completed at City Hall, Canton PD, Public Works, Dam, Water treatment facility, most pump stations, Canton FD**	**High**	**2010 Plan**	**Canton 2.3.1**
2.k	Evaluate outdoor warning siren coverage for the City of Canton	Cherokee County EMA and City of Canton *City of Canton*				**X**				Local government budgets	Staff time	18 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.l	Implement new outdoor warning sirens in the City of Canton in accordance with findings of strategy 2.k	Cherokee County EMA and City of Canton *City of Canton*				**X**				Public and private grants and/or local government budgets	TBD	36 months	**NEW**	**High**	**NEW**	**NEW**
2.m	Build a weather safe room at the Public Works department	Cherokee County EMA and Canton Public Works *Cherokee County and all municipalities*		**X**	**X**	**X**				Public and private grants and/or local government budgets	TBD	30 months	**NEW**	**High**	**NEW**	**NEW**
2.n	Evaluate potential locations for safe rooms throughout Cherokee County	Cherokee County EMA *Cherokee County and all municipalities (potentially)*		**X**	**X**	**X**				Public and private grants and/or local government budgets	TBD (Staff time)	24 months	**New**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.o	Evaluate outdoor warning systems for upgrades, retrofits, and additions – considering unique geographic locations, technical requirements, and system types	City of Woodstock; Cherokee County EMA *City of Woodstock*			**X**	**X**				Local government budgets	Staff time	18 months	**Ongoing**	**High**	**2005 Plan; 2010 Plan**	**Woodstock 1.5.1(a)**
2.p	Implement outdoor warning sirens in accordance with finding from evaluation in strategy 2.o	City of Woodstock; Cherokee County EMA *City of Woodstock*			**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 1.5.1(b)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.q	Determine available options and feasibility for phone-based mass communications system for all hazards warnings	City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**		**X**		Public and private grants and/or local government budgets	Assessment – Staff time	36 months	**Ongoing**	**Medium**	**2010 Plan**	**Woodstock 1.5.2**
2.r	Implement a voluntary program of flood protection and property acquisition and relocation of high-risk residences and repetitive-loss structures	Cherokee County EMA and City of Woodstock *City of Woodstock*	**X**							Public and private grants and/or local government budgets	TBD	48 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 2.1.1(a)**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
2.s	Survey property owners to determine interest and assess costs associated with 3.i	City of Woodstock *City of Woodstock*	**X**							Local government budgets	Staff time	24 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Woodstock 2.1.1(b)**
2.t	Establish back-up emergency power to all emergency services critical facilities	Cherokee County EMA; City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**High**	**2010 Plan**	**Woodstock 2.3.1 (a)**
2.u	Establish back-up emergency power to all critical facilities not covered in strategy 2.t	Cherokee County EMA; City of Woodstock *City of Woodstock*	**X**	**X**	**X**	**X**			**X**	Public and private grants and/or local government budgets	TBD	60 months	**Ongoing**	**High**	**2010 Plan**	**Woodstock 2.3.1 (b)**
OBJECTIVE THREE: Educate and inform the public about the risks of hazards and the techniques available to reduce threats to life and property																

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.a	Continue to increase public awareness and promote flood insurance and special riders that may be required for earthquake, landslide, sinkhole or other damages not typically covered by insurance	Cherokee County EMA and Cherokee County Planning/Zoning *Cherokee County and All municipalities*	**X**			**X**	**X**		**X**	Public and private grants and/or local government budgets	TBD	18 months	**Public Awareness promoted at Senior Fairs, School Fairs, and Public Safety Night Out Lake Arrow head Emer Prep Fair**	**High**	**2010 Plan**	**Cherokee County 3.2.1**
3.b	Attend Holly Spring Autumn Fest annually in October to distribute and promote NFIP and severe weather preparedness	Cherokee County EMA *Cherokee County and Holly Springs*	**X**		**X**	**X**				Local government budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.c	Utilize all available mass media, such as newspapers, radio, TV, cable access, internet blogs, podcasts, video sharing, and social media to increase public awareness and distribute information on mitigation topics	Cherokee County EMA, Cherokee County government, and all municipality governments *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local government budgets	TBD	12 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 3.3.1**
3.d	Promote the use of and distribute NOAA weather radios in critical facilities	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**				Public and private grants and/or Local government budgets	TBD	24 months	**Distributed 500 weather radios with 2012 Hazard Mitigation grant funds; Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 3.4.1a**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.e	Promote the use of and distribute NOAA weather radios to institutions, businesses, and homes as a means for advanced warning	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**				Public and private grants and/or local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2005 Plan; 2010 Plan**	**Cherokee County 3.4.1b**
3.f	Take emergency-related pamphlets to all Cherokee County schools to be stages in the front office area for public access and consumption	Cherokee County EMA *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	24 months	**NEW**	**Medium**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.g	Continue City of Nelson Public Safety Day to promote emergency preparedness and awareness	Cherokee County EMA *Cherokee County and City of Nelson*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local government budgets	Staff time	12 months	**NEW**	**Medium**	**NEW**	**NEW**
3.h	Add emergency preparedness and safety literature in all new member/resident packets at Lake Arrowhead	Cherokee County EMA and American Red Cross *Cherokee County and All municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local government budgets	Staff time	12 months	**NEW**	**Medium**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.i	Increase public awareness of the Code Red Mass Notification system by placing information on City of Canton water bills regarding how to opt in to the system	Cherokee County EMA; City of Canton *City of Canton*	**X**	**X**	**X**	**X**				Local government budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**
3.j	Purchase additional Community Emergency Response Team (CERT) equipment	Cherokee County EMA *Cherokee County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local government budgets	TBD	18 months	**NEW**	**Medium**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
3.k	Add a layer into the Cherokee County GIS system for safe room locations	Cherokee County GIS; Cherokee County EMA *Cherokee County and all municipalities*		**X**	**X**	**X**				Local government budgets	Staff time	36 months	**NEW**	**Low**	**NEW**	**NEW**
3.l	Create a list and/or information sheet of public safety liaisons for businesses	Cherokee County EMA; Cherokee County Chamber of Commerce *Cherokee County and all municipalities*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local government and private budgets	Staff time	12 months	**NEW**	**High**	**NEW**	**NEW**
OBJECTIVE FOUR: Preserve and restore the beneficial functions of the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community																

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
4.a	Restore and protect river and stream corridors to ensure their natural functions to manage floods and filter runoff	Cherokee County EMA and Georgia Department of Natural Resources *Cherokee County and all municipalities*	**X**		**X**		**X**			Public and Private grants and/or local government budgets	TBD	36 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 4.1.1**
4.b	Protect water quantity and quality through water conservation programs to mitigate effects of drought and ensure uninterrupted potable water supplies	Cherokee County EMA *Cherokee County and All municipalities*	**X**				**X**			Public and private grants and/or local government budgets	TBD	24 months	**Ongoing**	**High**	**2010 Plan**	**Cherokee County 4.2.1**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
4.c	Perform hydrological study regarding flood impacts and strategies in City of Nelson	City of Nelson *City of Nelson*	**X**				**X**			Public and private grants and/or local government budgets	TBD	24 months	**NEW; Ongoing**	**High**	**NEW**	**NEW**
4.d	Build a reservoir for the City of Canton to decrease the depletion of the natural water resources of the area	City of Canton and Georgia Department of Natural Resources *City of Canton*			**X**		**X**	**X**		Public and Private grants and/or local government budgets	TBD	60 months	**NEW**	**Low**	**NEW**	**NEW**
OBJECTIVE FIVE: Manage the development of land and buildings to minimize risks of loss due to natural and manmade hazards																
5.a	Evaluate road elevation and culvert sizing standards for construction upgrade on all county roads	Cherokee County Roads and Bridges *Cherokee County*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**Ongoing**	**Medium**	**2010 Plan**	**Cherokee County 5.1.2**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
5.b	Evaluate road elevation and culvert sizing standards for construction upgrade in the City of Canton	City of Canton *City of Canton*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**NEW**	**Medium**	**NEW**	**NEW**
5.c	Evaluate road elevation and culvert sizing standards for construction upgrade in the City of Waleska	City of Waleska *City of Waleska*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**NEW**	**Medium**	**NEW**	**NEW**
5.d	Evaluate road elevation and culvert sizing standards for construction upgrade in the City of Nelson	City of Nelson *City of Nelson*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**NEW**	**Medium**	**NEW**	**NEW**

#	Mitigation Action	Lead Agency or Department *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Drought	Wildfire	Earthquake	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Source	Previous Strategy Number
5.e	Evaluate road elevation and culvert sizing standards for construction upgrade in the City of Ball Ground	City of Ball Ground *City of Ball Ground*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**NEW**	**Medium**	**NEW**	**NEW**
5.f	Evaluate road elevation and culvert sizing standards for construction upgrade in the City of Woodstock	City of Woodstock *City of Woodstock*	**X**		**X**	**X**				Public and private grants and/or local government budgets	TBD	60 months	**NEW**	**Medium**	**NEW**	**NEW**
5.g	Perform regular maintenance of streams and drainage ways to ensure adequate conveyance of flood waters	Georgia Department of Natural Resources *Cherokee County and All municipalities*	**X**		**X**	**X**				Public and private grants and/or government budgets	TBD	48 months	**Ongoing**	**High**	**2010 Plan**	**Cherokee County 5.2.1**

Completed Mitigation Strategies

Previous Strategy #	Strategy Description	Status
1.2.1	Evaluate current infrastructure for, upgrade, retrofit/replacement, and enlargement of capacity to facilitate current needs.	COMPLETE; Ongoing
3.1.1	Distribute the full 2010 plan documents to local officials, interested agencies and organizations, businesses, and residents, using all available means of publication and distribution	COMPLETE
3.1.2	Distribute plan by digital means of compact discs, internet access, and downloads	COMPLETE
3.2.1	Increase Public Awareness and promote flood insurance and special riders that may be required for earthquake, landslides, sinkholes, and other damages not typically covered by standard property protection policies	COMPLETE; Modified to "continue"

Deleted or Modified Mitigation Strategies

Previous Strategy #	Description	Notes/Comments
1.4.1	Perform assessments of critical facilities to address building and site vulnerabilities to hazards, identify damage control and retrofit measures to reduce vulnerabilities to damage and disruption of operations during severe weather and disaster events	Split into 3 strategies
1.4.2	Examine vulnerable bridges for potential retrofits/replacement to mitigate flood damages. To include culvert sizing for increased capacity	Split into 2 strategies
2.1.1	Implement a voluntary program of flood protection and property acquisition and relocation for high-risk residences and repetitive loss properties. Survey property owners to determine interest and assess cost. Assist local units of government to identify funding sources to acquire and remove or otherwise protect existing homes in the flood plain.	Split into 3 strategies
3.2.1	Increase public awareness and promote flood insurance and special riders that may be required for earthquake, landslides, sinkholes, and other damages not typically covered by standard property protection policies.	Completed; Modified to "continue"
3.4.1	Promote the use and distribute as funds available, inexpensive weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and increase public awareness of hazard risks.	Split into 2 strategies
2.3.1 (Canton)	Establish back-up emergency power to all critical facilities, with highest priority to emergency services	Modified to include specific priority location – Downtown Fire Station

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Multi-Jurisdictional Considerations

Thunderstorms

Thunderstorm events have occurred across all areas of Cherokee County. Crop damage from thunderstorm events would likely have the greatest impact in the rural areas of Cherokee 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 Cherokee County.

Winter Storms

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

Flooding

During a large-scale flood event, many portions of Cherokee County would potentially be impacted by flooding. However, the areas most prone to flooding have historically been those areas located within the 100-year floodplain. All of Cherokee County and its municipalities could potentially be impacted. However, the City of Canton is particularly vulnerable to flooding events.

Tornado

All portions of Cherokee County could potentially be impacted by a tornado due to the indiscriminate nature of tornadic events. Therefore, all mitigation actions identified regarding tornadoes should be pursued on a countywide basis and include all cities and towns located within Cherokee County.

Drought

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

Wildfire

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

Earthquakes

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

Hazardous Materials Incidents

All of Cherokee County, including all municipalities, is vulnerable to both fixed facility and transportation-related hazardous materials releases.

Dam Failure

During a dam failure event, many portions of Cherokee County would potentially be impacted by flooding. However, the areas most prone to flooding have historically been those areas located within the 100-year floodplain and downstream from dams. This is particularly true for areas downstream of one of Cherokee County's category I dams.

Transportation Incidents

Cherokee County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along Interstate 575 are the greatest at risk. This includes the municipalities of Woodstock, Holly Springs, Canton, and Ball Ground.

Terrorism

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

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 Cherokee County Hazard Mitigation Plan 2010.

Chapter 5 Section	Updates
Maintenance	• Content Revised
Plan Distribution	• New Section – Not in 2010 Plan
Implementation	• Content expanded and revised from 2010 Plan
Evaluation	• Content Revised from Monitoring, Evaluating, and Updating the Mitigation Plan Section
Peer Review	• New Section – Not in 2010 Plan
Plan Update	• Content Revised
Conclusion	• Content Revised

Maintenance

Requirement §201.6(c)(4)(iii)

In order to adhere to best practices, state and federal guidelines, and lessons learned, the Cherokee 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 2010 Cherokee County Hazard Mitigation Plan was followed, to the best abilities of Cherokee County. This most importantly included an increased attempt for public participation and inclusion in the planning process. The Cherokee County Hazard Mitigation Plan Update Committee will reconvene annually in February to monitor and evaluate the progress of the mitigation strategies in the Plan. Cherokee County's Emergency Management Director, Renee Cornelison, will be responsible for implementing this meeting. The Committee will discuss the following questions annually:
- Do the goals address current and expected hazards and conditions?
- Are the goals and objectives still relevant to the County?
- Has the nature or magnitude of risks changed?
- Does the risk assessment portion of the Plan need to be updated or modified?
- Are the goals and objectives meeting changes in state and federal policy?
- Are the current resources appropriate for implementing the Plan?
- Are there local implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did the jurisdictions, agencies, and other partners participate in the plan implementation process as proposed?

The responsible parties for various mitigation strategies will provide a report during this annual meeting regarding the following:
- How well did the implementation processes work?
- Were any difficulties encountered during implementation?
- How successful was the coordination of efforts?
- Are there any suggestions for revision of any strategies?

Cherokee County's Emergency Management Director will send the minutes from this annual meeting to Cherokee County Commissioners and City Councils for review.

If there are any updates or modifications to the Cherokee 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 Cherokee 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 publically-used facility hosting the meeting.

Maintenance Log

Revision Date	Revised Section	Reason for Revision	Revised By

Plan Distribution

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

Cherokee County Board of Commissioners
Cherokee County Fire Department
Cherokee County Emergency Management Agency
Cherokee County Sheriff's Office
Cherokee County Roads & Bridges Department
Cherokee County Planning and Land Use Department
Cherokee County Board of Education
City of Canton
City of Woodstock
City of Holly Springs
City of Ball Ground
City of Waleska
City of Nelson

A printed copy of the approved Plan will be available for viewing at the Cherokee County Emergency Management Agency located at 150 Chattin Drive, Canton, GA 30115. A printed copy of the approved Plan will also be available for viewing at the R.T. Jones Memorial Library located at 116 Brown Industrial Parkway in Canton. The existence and location of these copies will be publicized in the County's local newspaper, the Cherokee Tribune.

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

Implementation

Requirement §201.6(c)(4)(ii)

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

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

Cherokee County and its municipalities will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified and targeted for the proposed actions listed in the mitigation strategies. It will be the responsibility of each participating jurisdiction to determine additional implementation procedures beyond those listed within the Cherokee County Hazard Mitigation Plan.

This plan, as a joint effort between Cherokee County and all municipalities therein, will serve as a comprehensive mitigation plan. The mitigation strategies, hazard identification, and other information identified in this plan will be integrated into all comprehensive Cherokee County plans, as well as all municipality plans in the future. Incorporation of these strategies will occur, as necessary, throughout this planning cycle covered by this Hazard Mitigation Plan Update. In particular, aspects of this plan will be integrated into the Cherokee County Comprehensive Plan during the next planning cycle.

Identified hazards and mitigation strategies of the 2010 Cherokee 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. Cherokee County will integrate mitigation strategies identified in this plan into the Cherokee 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 Cherokee County and all municipalities therein. Many of these strategies will be applied using previously identified policies and ordinances, including the NFIP compliance

ordinances and water-use ordinances, which have now been applied countywide. All jurisdictions have the authority to adopt locally-binding ordinances and policies to enhance the mitigation strategies in their jurisdiction.

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local jurisdictions to implement hazard mitigation activities.

Regulatory Tools/Plans	Regulatory Type: Ordinance, Resolution, Codes, Plans, Etc.	Local Authority	State Prohibited	Higher Authority
Building Codes	County/Municipal Code	Yes	No	No
Capital Improvements Plan	Report (SPLOST)	Yes	No	No
Comprehensive Plan	2008 Comprehensive Multi-Jurisdictional Plan	Yes	No	No
Economic Development Plan	Atlanta Regional Commission Plan 2040 (Regional)	Yes	No	Yes
Emergency Management Accreditation Program		No	No	Yes
Emergency Response Plan	Cherokee County Local Emergency Operations Plan (LEOP)	Yes	No	Yes
Flood Management Plan	Ordinance 2015-O-005 (Floodplain Management and Flood Damage Prevention)	Yes	No	No
Historic Preservation		Yes	No	No
National Flood Insurance	Referenced in Cherokee County	Yes	No	Yes

Program Participation	Ordinance 2015-O-005			
Continuity of Government/ Operations Plan	COOP adopted with Resolution 2008-R-008	Yes	No	No
Post-Disaster Ordinance	Cherokee County Emergency Management Ordinance approved August 2012	Yes	No	No
Zoning Ordinances	County and Municipal Codes	Yes	No	No

The City of Waleska only has a few administrative and technical capabilities. City departments include: Administrative and Water Department.

The City of Canton offers many administrative and technical services to the community. City departments include: Administrative, Building Department, City Clerk, Community Development, Communications and Outreach, Economic Development, Information Technology and GIS, Main Street Program, Engineering, Fire Department, Finance, Tax Office Human Resources, Utilities, Parks and Recreation, Water Department, Reservoir, and Planning and Zoning.

The City of Woodstock offers many administrative and technical services to the community. City departments include: Administrative, Building and Code Enforcement, Community Development, Economic Development, Finance, Fire Department, GIS, Human Resources, Information Technology, Parks and Recreation, Planning Commission, Police Department, and Public Works.

The City of Holly Springs offers many administrative and technical services to the community. City departments include: Administrative, City Clerk, Parks and Recreation, Fire Department, Finance, Human Resources, Police Department, Public Works, and Stormwater.

The City of Ball Ground offers some administrative and technical services to the community. City departments include: Administrative, Water and Sewer, Roads and Streets, Parks and Recreation, Street Lights, Solid Waste Services, Finance, Planning and Zoning, Police Department, Capital Projects, and Main Street Program.

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

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

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

Peer Review

State Requirement Element F1

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

Cherokee County Hazard Mitigation Plan Update was peer reviewed by:

Cassie Mazloom — Date
Deputy Director
Cobb County Emergency Management Agency

Paul Cuprowski — Date
Director
Bartow County Emergency Management Agency

Billy Thurmond — Date
Director
Dawson County Emergency Services

Chris Grimes — Date
Deputy Director
Forsyth County Emergency Management Agency

Plan Update

Requirement §201.6(c)(4)(i)

The Federal Disaster Mitigation Act of 2000 requires that the Hazard Mitigation Plan be updated at least once every five years. The Cherokee County Emergency Management Agency is the department responsible with ensuring this requirement is met. The Cherokee County Hazard Mitigation Plan Update Committee will be involved in this future process and will aid the Cherokee 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 first quarter of 2022; therefore, the approval and adoption of the next plan update must be completed before that time.

In the second quarter of 2021, Cherokee County plans to begin the Hazard Mitigation Plan Update process for the third time. This planning process will include bi-monthly meetings to accomplish the identified goals of the Cherokee County Hazard Mitigation Plan Update. This process will be headed up by the Cherokee County Emergency Management Agency. The Cherokee 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 fourth quarter of 2021 to meet all identified planning deadlines.

Conclusion

As a result of the hazard mitigation planning process, Cherokee County, and the Cities of Woodstock, Canton, Ball Ground, Waleska, Nelson, and Holly Springs, as well as additional participating organizations have obtained a great deal of information and knowledge regarding Cherokee 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 Cherokee County Hazard Mitigation Planning Committee was the inability to consistently identify geographic locations that were more vulnerable to most hazards due to the widespread potential effects and random impact areas each hazard could have. This was exceedingly true for most natural hazards. Recognizing this challenge, the Cherokee 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 Cherokee County Hazard Mitigation Plan Update Committee to adopt strategies that will have the greatest positive effect on the greatest amount of the population.

The Cherokee County Hazard Mitigation Planning Committee adopted strategies in all six of the major mitigation categories: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Education and Awareness. Prevention and Emergency Services comprised the greatest number (over 72%) of the mitigation strategies identified by Cherokee County.

Appendix A – Cherokee County Dams Information

georgia.gov
Online access to Georgia government

GSWCC
Georgia Soil and Water Conservation Commission

Georgia Watershed Flood Control Dams
Search by County

- Select County -
Submit

County	Name	Sponsors	Purpose	Completed	Category[1]	NRCS Class[2]
CHEROKEE	LITTLE RIVER 03(38)	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1953	II	A
CHEROKEE	LITTLE RIVER 13	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1964	II	A
CHEROKEE	LITTLE RIVER 15	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1959	II	A
CHEROKEE	LITTLE RIVER 17	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1960	II	A
CHEROKEE	LITTLE RIVER 19	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1959	II	B
CHEROKEE	LITTLE RIVER 21	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1960	II	A
CHEROKEE	LITTLE RIVER 22	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1960	I	A
CHEROKEE	MILL-CANTON CREEKS 03	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1963	II	A
CHEROKEE	MILL-CANTON CREEKS 04	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1964	II	A
CHEROKEE	MILL-CANTON CREEKS 06	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1964	I	A
CHEROKEE	MILL-CANTON CREEKS 07	LIMESTONE VALLEY S&WCD	FLOOD CONTROL,RECREATION	1962	II	A
CHEROKEE	MILL-CANTON CREEKS 08	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1964	I	A
CHEROKEE	MILL-CANTON CREEKS 10	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1966	II	A
CHEROKEE	MILL-CANTON CREEKS 12	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1965	II	A
CHEROKEE	SALLACOA CREEK 074	CHEROKEE COUNTY & LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1979	II	B
CHEROKEE	SALLACOA CREEK 095	CHEROKEE COUNTY & LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1975	II	A
CHEROKEE	SHARP MOUNTAIN 05	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1957	II	A
CHEROKEE	SHARP MOUNTAIN 06	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1958	II	A
CHEROKEE	SHARP MOUNTAIN 07	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1959	II	A
CHEROKEE	STAMP-SHOAL CREEKS 1	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1965	II	A
CHEROKEE	STAMP-SHOAL CREEKS 2	LIMESTONE VALLEY S&WCD	FLOOD CONTROL	1966	II	A

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

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Todd A. MALONEY	[signature]	Todd.Maloney@cherokee.k12.ga.us	CCSPD
DAVID HATABIAN	[signature]	DAVID.HATABIAN@CANTON-GEORGIA.COM	City of CANTON
Heath Lee	[signature]	HLee@CCMWA.ORG	CCMWA / City of Canton
Joe Perkins	[signature]	JFPerkins@cherokeega.com	CSO
Kevin Martin	[signature]	KWM@reinhardt.edu	Reinhardt Univ
Steven Vcrik	[signature]	vcrik.steven@gmail.com	Reinhardt Univ
Walter May	[signature]	wpm@reinhardt.edu	Reinhardt Univ.
Bryon Reeves	[signature]	breeves@cityofballground.com	BallGround P.D.
Thomas Harris	[signature]	tharris@hollyspringsga.us	Holly Springs P.D.
Dean Floyd Fire Chief	[signature]	Dean.Floyd@Canton-Georgia.com	Canton Fire
JOE worthington	[signature]	jworthington@cherokeega.com	Building

1 Lux Mitigation and Planning Corp.

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
– Bhaji Dhillon	[illegible]	bhaji.dhillon@cobbemc.com	Cobb EMC
– RYAN SARKS HR/RISK/FLEET & SAFETY MANAGER	[illegible]	Ryan@ccwsa.com	CHEROKEE COUNTY WATER AUTH. CCWSA
CLIFF HARDEN / DIRECTOR	[illegible]	charden@cherokeega.com	CC Rcs & Prks
Denise Bowman / CHM	[illegible]	Denise.Bowman@dph.ga.gov	Cherokee Co. Health Dept.
* Jimmy Eley	[illegible]	Jeley@woodstockga.gov	Woodstock Fire
* MARK MITCHELL / CHIEF	[illegible]	Mark.Mitchell@canton-georgia.com	CANTON P.D.
* Jim Ray / Maint Mgr	[illegible]	jim.ray@pilgrims.com	Pilgrims
Bryan Reynolds	[illegible]	bdreynolds@cherokeega.com	Cherokee Rec & Parks

1

Lux Mitigation and Planning Corp.

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Josh Rogers Stormwater Code Enforcement	[illegible]	jrogers@hollyspringsga.us	City of Holly Springs
Rod Drake / Area MGR	[illegible]	rldrake@southernco.com	GA Power Co
G. Alan Rivas, LT.	[illegible]	german.rivas@canton-georgia.com	Canton P.D.
Lester Taylor Q.C	[illegible]	Lester.Taylor@CobbEMC.com	Cobb EMC
Richard Wilson Fleet Safety	[illegible]	rickwilson@ccws.com	Cherokee County Water
Oliver Cox Pilgrims Environmental	[illegible]	Oliver.Cox@Pilgrims.com	Pilgrims
Patrick D. Hart Planner	[illegible]	pdhart@woodstockga.gov	Woodstock
Ben Morgan / Civil Engineer	[illegible]	blmorgan@cherokeega.com	Cherokee County Engineering
Vic Knight Municipal MGR	[illegible]	vknight@wm.com	Waste Management
Merrick McClure Stormwater Manager	[illegible]	merrick.mcclure@canton-georgia.com	City of Canton
Amy Lawrence / EMA Clerk	[illegible]	aklawrence@cherokeega.com	Cherokee EMA

2 Lux Mitigation and Planning Corp.

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Charles Perry		charles.perry@canton-georgia.com	City of Canton F.D.

Lux Mitigation and Planning Corp.

2

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

	Name/Title	Signature	E-mail Address	Agency/Organization
-	Walter Dukes II		wadukes@southernco.com	Georgia Power
	KENDALL JONES		kjones@mustministries.org	MUST MINISTRIES
-	Alan Freeman		Alan.Freeman@cobbEMC.com	Cobb EMC
	Damon Kelly / MANAGER Safety & Security		damon.kelly@northside.com	Northside Hospital Cherokee
	Michael deCocq LT		MdeCocq@woodstockga.gov	Woodstock PD
* -	Tracy Tucker		Tracy.Tucker@Pilgrims.com	Pilgrims
	K. Scott Gordon		ksgordon@cherokeega.com	CC BOC
*	Janie G. Gianfala DEPUTY CHIEF		JSGianfala@cherokeega.com	Cherokee County Marshal Office
	Pam Carnes		pam@cherokeechamber.com	Cherokee Co. Chamber
-	Brandon Rogers		Brandon.Rogers@cobbemc.com	Cobb EMC
*	Mark Harris		mharris@cherokeega.com	CHEROKEE EMA

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Monday, May 18, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Kelly Reeves			GEMA
Anna Silbernagel		Asilbernagel@cherokeega.com	C.C. DSC
Aimee Abernathy/Planner		aabernathy@cityofwaleska.com	Waleska
Bart Giesey	Bart Giesey	bgiesey@woodstockga.gov	Woodstock FD

*1

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 3, 2015

	Name/Title	Signature	E-mail Address	Agency/Organization
	Chief J. Koury	[signature]	Jim.Koury@nelsongeorgia.com	Nelson Police Dept.
*	EMA Director Renee Cornelison	Renee Cornelison	rcornelison@cherokeega.com	EMA
	LT Michael de Cocq	[signature]	Mdecocq@woodstockga.gov	WPD
	Sgt. Preston Homan	[signature]	prestonhoman@canton-georgia.com	CPD.
	Chief Bryon Reeves	[signature]	breeves@cityofballground.com	B.G.P.D.
	Anthony Evangelista, LTC	[signature]	Tony.Evangelista@GASDF.US	GA State Defense Force
	Curtis Barnhart	[signature]	Curtis.Barnhart@dph.ga.gov	Env. Hlth
	Ana Silbernagel	[signature]	asilbernagel@cherokeega.com	Develop. Service Ctr
*	Josh Rogers	[signature]	jrogers@hollyspringsga.us	City of Holly Springs
	Kendall Jones	Kendall L. Jones	kjones@mustministries.org	MUST Ministries
	Timothy Prather	[signature]	tprather@cherokeega.com	Cherokee Fire

1

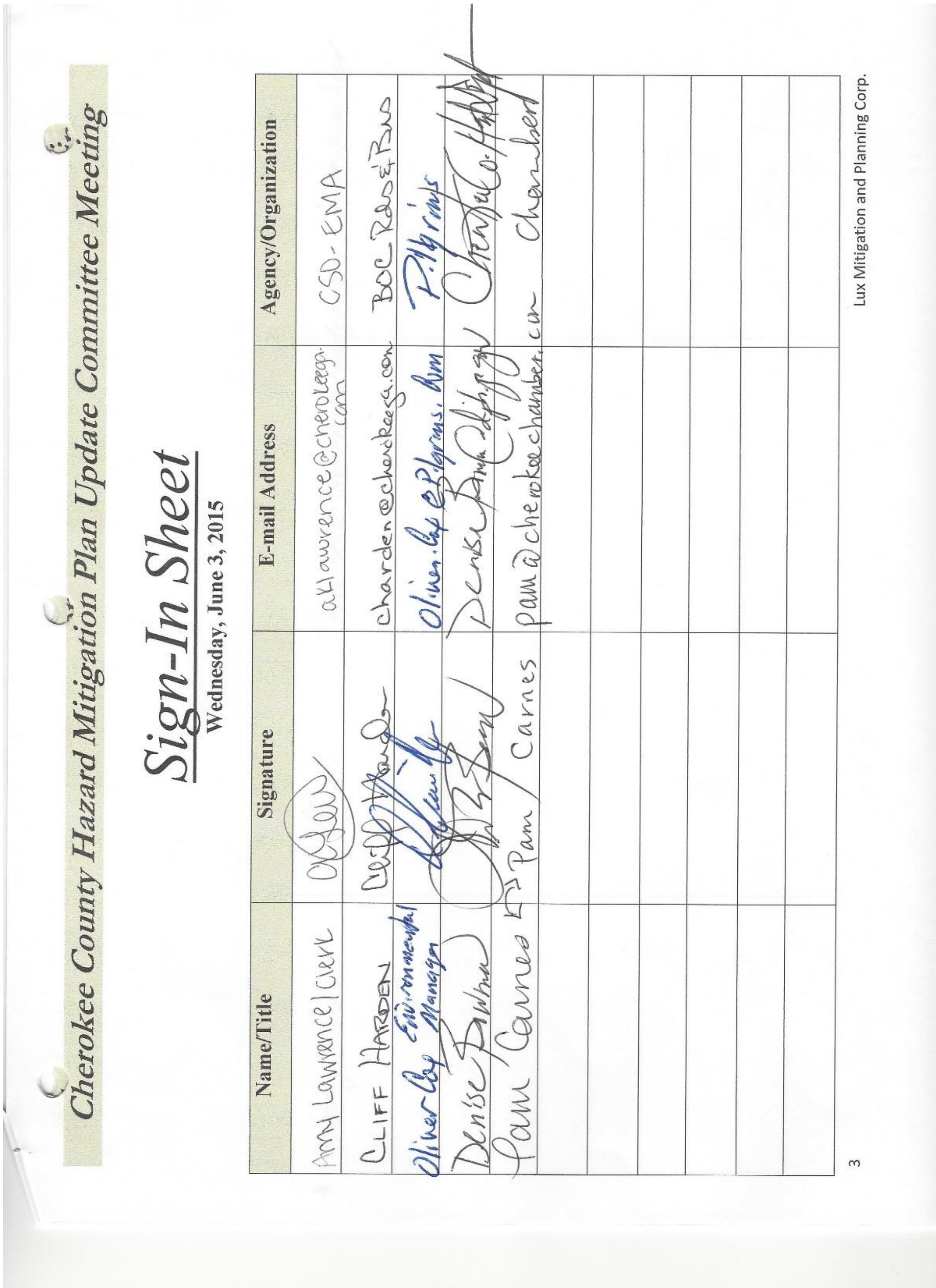
Lux Mitigation and Planning Corp.

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 3, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Sean Bagby		rsbagby@Cherokeega.com	GIS
Brett Wells / GIS Manager Planner		bwells@cherokeega.com	GIS
Richard Wilson Supervisor	Richard Wilson	rickwilson@ccwsa	CCWSA



Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 3, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Amy Lawrence / Clerk	[signature]	aklawrence@cherokeega.com	CSD-EMA
Cliff Harden	[signature]	charden@cherokeega.com	BOC Rds & Brs
Oliver Cap Environmental Manager	[signature]	Oliver.Cap@Pilgrims.com	Pilgrims
Denise [illegible]	[signature]	Denise.[illegible]	Cherokee Co. Habitat
Pam Carnes	Pam Carnes	pam@cherokeechamber.com	Chamber

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Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 3, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
* Dotty Bonds		dbonds@lakearrowheadgt.com	Lake Arrowhead

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 24, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Renee Cornelison EMA Director	Renee Cornelison	rcornelison@cherokeega.com	Cherokee EMA
Mark Harris Specialist - EMA		maharris@cherokeega.com	Cherokee EMA
Tom Harris HSPD/Sgt UPD	Tom Ha	tharris@hollyspringsga.us	HSPD
Jim Henry Chief of Police		Jim.Henry@nelsonga.com	Nelson PD
Charles Perry Sgt		charles.perry@cantonga.com	Canton Fire
Amy Lawrence/Clerk		aklawrence@cherokeega.com	CSD/EMA
Rod Drake/MGR.		rldrake@southernco.com	Ga. Power Co
Danny Meece/Engineer		danny.meece@inalfa-roofsystems.us	Inalfa Roof Systems
Kevin Martin		kwm@reinhardt.edu	Reinhardt University
Mike deCoq Lt		mdecoq@woodstockga.gov	WPD
Heath Tippens		htippens@cherokeega.org	CCED

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 24, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Jay Baker		hjbaker@cherokeega.c	CSO
The Salvation Army CASSIE KELLY	Cassie Co. Kelley	cassie_kelly@uss.salvationarmy.org	the Salvation Army
ANNA M. SILBERNAGEL		asilbernagel@cherokeega.com	DSC
Oliver Cox Environmental Manager		oliver.cox@windstream.com	P. Igrins
Dotty Boards		dboards@lakearrowhead.com	Lake Arrowhead
Jimmy Eley		jeley@woodstockga.gov	Woodstock Fire
Joe Perkins		JPerkins@cherokeega.com	CSO
Pam Carnes	Carnes	Pam@CherokeeChamber.com	Chamber
Preston Homan		preston.homan@canton-georgia.com	Canton PD
Denise Bowman		Denise.Bowman@dph.ga.gov	C.F.A. Dept

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 24, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Todd Maloney		Todd.Maloney@cherokee.k12.ga.us	Cherokee School District
Victor M. Fuentes, Jr.		Victor.Fuentes@inalfa-roofsystems.us	INALFA ROOF SYSTEMS
Richard Wilson	Richard Wilson	Rich.Wilso[illegible]	Cherokee County Water
Brett Inlets		bweh@cherokeega.com	Cherokee County GIS
Jim Ray	Jim Ray	jim.ray@pilgrims.com	Pilgrims Pride
Josh Rogers		jrogers@hollyspringsga.us	City of Holly Springs

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, June 24, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
KENDALL JONES	Kendall Jones	kjones@muststministries.org	MUST Ministries
Juliz Hewgley	Juliz Hewgley	juliz.hewgley@dph.ga.gov	Cherokee Co. Public Health

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, July 22, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
EMERGENCY OPERATIONS FACILITATOR Todd Maloney		Todd.Maloney@cherokee.k12.ga.us	Cherokee County Schools
Jim Kowly CHIEF OF POLICE		Jim.Kowly@[illegible]	Nelson PD
Bob Crowe Nelson PD		Crowe.bob@gmail.com	Nelson PD Auxiliary
Renee Cornelison EMA Director	Renee Cornelison	rcornelison@cherokeega.com	CSO-EM
Tom Harris, Sgt.	Tom Harris	tharris@hollyspringsga.us	HSPD
Ben Bixler ASST DIR Reinhardt		RBI@Reinhardt.edu	Reinhardt Un.
Robbie Bagby GIS Analyst		rsbagby@cherokeega.com	GIS
Josh Rogers Stormwater		jrogers@hollyspringsga.us	COHS
KENDALL JONES	Kendall L. Jones	kjones@muststministries.org	MUST Ministries
Mike deCoog Lt.		MdeCoog@[illegible]	WPD
Richard Wilson Street Code Enforcement	Richard Wilson	[illegible]	CCWSA

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

Wednesday, July 22, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Amy Lawrence/clerk		aklawrence@cherokeega.com	CSO EMA
Mark Harris EMA SPECIALIST		maharris@cherokeega.com	CSO EMA
Charles Perry		Charles.Perry@canton-georgia.com	CFD
Jim Ray/Maintenance Manager		jim.ray@pilgrims.com	Pilgrims
CLIFF HARDEN, DIR		charden@cherokeega.com	RDD & BRS
Olivia Garrison DPM Disaster		Olivia.garrison@redcross.org	Am Red Cross
Dotty Bonds		dbonds@LAKEARROWHEADGA.com	Lake Arrowhead
Curtis Brantley		curtis.brantley@dph.ga.gov	Env. Hlth

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

August 19, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Mark Harris - EM Specialist		mharris@cherokeega.com	Cherokee EMA
Doug Watkins - LNG		dwatkins@aglresources.com	AGL
JTE worthington		Jworthington@cherokeega.com	BLDG
Brett Wels - GIS		bwehs@cherokeega.com	Cherokee GIS
Mark E. Kissel Chiefs		M923018@CHEROKEE.K12.GA.US	CCSD
Kendall Jones		kjones@mustministries.org	MUST MINISTRIES
Pam Carnes		Pam@CherokeeChamber.com	Chamber of Commerce
Denise Brun		Denise.Brun@dph.ga.gov	C.C.H.D.
Rick Wilson		RickWilson@cherokeega.com	CCWSA
Michael deCoy		MdeCoy@woodstockga.gov	WPD

Cherokee County Hazard Mitigation Plan Update Committee Meeting

Sign-In Sheet

August 19, 2015

Name/Title	Signature	E-mail Address	Agency/Organization
Charles Perry		charles.perry@canton-georgia.com	Canton Fire
Amy Lawrence/ Admin Assistant		aklawrence@cherokeega.com	CSO/EMA
Chief Jim Kourey		Jim.Kourey@[illegible]	Nelson PD
Sgt. Tom Harris	T Hei	[illegible]@hollygrovega.us	HGPD
Bob Crowe		bob.crowe@nelsongeorgia.com	NPD
Scott Hooper		SHooper@[illegible]	City of Woodstock - PW's
Matt Baldwin		matt.baldwin@canton-georgia.com	Canton P.D.
Richat Rogers	Richat T. Rogers	rrogers@aglresources.com	AGL Resources
Curtis Barnhart		curtis.barnhart@dph.ga.gov	Env. Hlth
Cliff Harden		charden@cherokeega.com	CC Roads & Bdgs
Ben Morgan		bmorgan@cherokeega.com	Engineering

Appendix C – Cherokee County Critical Facilities Information

For Critical Facilities Information, Please see the Georgia Emergency Management Agency GMIS System

Appendix D – Natural Hazard Data Tables

Thunderstorms

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								1	23	37.742M	10.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/01/1974	23:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/04/1977	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	10/18/1980	17:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	03/28/1984	14:04	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	03/28/1984	14:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/03/1984	13:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/07/1984	23:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/05/1985	19:05	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	11/20/1986	09:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/23/1987	14:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	06/18/1988	14:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/16/1988	13:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

CHEROKEE CO.	CHEROKEE CO.	GA	08/04/1988	16:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/07/1988	14:23	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	11/05/1988	12:50	CST	Thunderstorm Wind	0 kts.	0	3	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/04/1989	13:30	CST	Thunderstorm Wind	0 kts.	1	1	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/04/1989	13:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	06/14/1989	17:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	06/15/1989	07:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/26/1989	17:02	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	10/01/1989	18:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/28/1990	12:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/20/1990	13:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/20/1990	21:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/20/1990	21:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/09/1990	19:02	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/09/1990	19:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

CHEROKEE CO.	CHEROKEE CO.	GA	08/10/1990	00:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	09/10/1990	15:30	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	09/13/1990	20:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/09/1991	19:50	CST	Hail	1.50 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/19/1991	15:40	CST	Hail	1.50 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/28/1991	14:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/28/1991	15:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/29/1991	10:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/02/1991	21:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/04/1991	12:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/10/1991	19:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/30/1991	22:58	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	12/23/1991	22:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	03/19/1992	10:55	CST	Hail	1.00 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	03/19/1992	13:10	CST	Hail	0.88 in.	0	0	0.00K	0.00K

CHEROKEE CO.	CHEROKEE CO.	GA	03/19/1992	13:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	07/17/1992	19:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/10/1992	15:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Woodstock	CHEROKEE CO.	GA	05/17/1993	16:03	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Ball Ground	CHEROKEE CO.	GA	06/09/1994	07:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Waleska	CHEROKEE CO.	GA	06/25/1994	19:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Canton	CHEROKEE CO.	GA	06/25/1994	19:50	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Canton	CHEROKEE CO.	GA	06/29/1994	08:55	EST	Thunderstorm Wind	0 kts.	0	0	500.00K	0.00K
Canton	CHEROKEE CO.	GA	08/16/1994	16:35	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
Canton	CHEROKEE CO.	GA	02/27/1995	19:27	EST	Thunderstorm Wind	0 kts.	0	0	204.00K	10.00K
Acworth	CHEROKEE CO.	GA	05/14/1995	17:25	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Canton	CHEROKEE CO.	GA	06/11/1995	18:57	EST	Thunderstorm Wind	0 kts.	0	0	1.00K	0.00K
Ball Ground	CHEROKEE CO.	GA	06/11/1995	19:07	EST	Thunderstorm Wind	0 kts.	0	0	1.00K	0.00K
Woodstock	CHEROKEE CO.	GA	06/26/1995	17:15	EST	Thunderstorm Wind	0 kts.	0	0	1.00K	0.00K
Waleska	CHEROKEE CO.	GA	07/03/1995	20:00	EST	Thunderstorm Wind	0 kts.	0	0	0.30K	0.00K

Canton	CHEROKEE CO.	GA	07/04/1995	17:00	EST	Thunderstorm Wind	0 kts.	0	0	10.00K	0.00K
Canton	CHEROKEE CO.	GA	07/04/1995	17:15	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	03/15/1996	14:10	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/15/1996	14:10	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/20/1996	14:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	05/06/1996	16:40	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/27/1996	20:20	EST	Thunderstorm Wind		0	0	15.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/24/1996	16:42	EST	Thunderstorm Wind		0	0	8.00K	0.00K
WALESKA	CHEROKEE CO.	GA	11/07/1996	22:35	EST	Thunderstorm Wind		0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	12/12/1996	15:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	01/24/1997	21:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	01/24/1997	23:15	EST	Hail	1.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/05/1997	18:00	EST	Thunderstorm Wind		0	0	25.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	04/19/1997	18:34	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/22/1997	13:45	EST	Hail	2.75 in.	0	0	0.00K	0.00K

WOODSTOCK	CHEROKEE CO.	GA	04/28/1997	17:13	EST	Hail	0.90 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/03/1997	02:25	EST	Hail	0.75 in.	0	0	0.00K	0.00K
HICKORY FLAT	CHEROKEE CO.	GA	05/19/1997	19:30	EST	Lightning		0	0	60.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/23/1997	05:45	EST	Thunderstorm Wind		0	0	1.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	09/10/1997	16:45	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	11/01/1997	17:50	EST	Thunderstorm Wind		0	0	0.50K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	02/17/1998	07:55	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/03/1998	10:00	EST	Lightning		0	0	20.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/03/1998	18:55	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/03/1998	20:38	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/08/1998	17:45	EST	Hail	1.00 in.	0	0	0.00K	0.00K
SOUTH CANTON	CHEROKEE CO.	GA	04/21/1998	16:29	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/22/1998	16:35	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/03/1998	15:55	EST	Hail	2.00 in.	0	0	20.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/03/1998	16:00	EST	Lightning		0	0	5.00K	0.00K

CANTON	CHEROKEE CO.	GA	05/03/1998	16:05	EST	Thunderstorm Wind		0	0	2.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/07/1998	07:42	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	05/07/1998	16:50	EST	Hail	2.75 in.	0	0	5.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	05/07/1998	17:09	EST	Hail	1.75 in.	0	0	1.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/07/1998	18:59	EST	Hail	2.75 in.	0	0	5.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	05/07/1998	19:40	EST	Hail	4.00 in.	0	0	75.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/07/1998	22:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/04/1998	15:40	EST	Thunderstorm Wind	61 kts.	0	0	10.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/04/1998	15:43	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/05/1998	18:30	EST	Thunderstorm Wind		0	0	5.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	06/15/1998	23:45	EST	Thunderstorm Wind		0	0	5.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	06/16/1998	14:30	EST	Lightning		0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	06/30/1998	19:00	EST	Thunderstorm Wind		0	0	0.50K	0.00K
FREE HOME	CHEROKEE CO.	GA	07/19/1998	17:23	EST	Hail	0.75 in.	0	0	0.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	07/19/1998	17:23	EST	Thunderstorm Wind		0	0	0.50K	0.00K

CANTON	CHEROKEE CO.	GA	07/19/1998	18:50	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/19/1998	18:55	EST	Thunderstorm Wind		0	0	20.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	02/27/1999	22:40	EST	Hail	1.50 in.	0	0	0.00K	0.00K
GREELEY	CHEROKEE CO.	GA	02/27/1999	22:55	EST	Thunderstorm Wind		0	0	10.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/03/1999	04:32	EST	Hail	0.75 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	03/03/1999	04:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/06/1999	05:54	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	05/07/1999	16:43	EST	Hail	1.75 in.	0	0	2.50K	0.00K
CANTON	CHEROKEE CO.	GA	05/13/1999	13:55	EST	Hail	1.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/13/1999	14:09	EST	Hail	1.25 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/29/1999	15:30	EST	Thunderstorm Wind		0	0	1.50K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	06/30/1999	14:15	EST	Thunderstorm Wind		0	0	5.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/30/1999	17:55	EST	Thunderstorm Wind		0	0	3.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/06/1999	14:45	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/10/1999	18:43	EST	Hail	0.88 in.	0	0	0.00K	0.00K

CANTON	CHEROKEE CO.	GA	07/21/1999	16:00	EST	Thunderstorm Wind		0	0	0.50K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/24/1999	15:35	EST	Thunderstorm Wind		0	0	0.20K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/24/1999	15:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/29/1999	15:40	EST	Thunderstorm Wind		0	0	0.50K	0.00K
CANTON	CHEROKEE CO.	GA	07/29/1999	15:40	EST	Hail	0.75 in.	0	0	0.00K	0.00K
MACEDONIA	CHEROKEE CO.	GA	02/13/2000	22:50	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/10/2000	23:30	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/03/2000	16:57	EST	Hail	0.88 in.	0	0	0.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	06/26/2000	20:10	EST	Thunderstorm Wind		0	0	1.50K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	08/10/2000	20:22	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	08/10/2000	21:30	EST	Lightning		0	1	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	08/10/2000	23:15	EST	Thunderstorm Wind		0	0	15.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/10/2000	23:15	EST	Lightning		0	0	1.400M	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	08/10/2000	23:37	EST	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/20/2000	20:55	EST	Lightning		0	6	30.00K	0.00K

CANTON	CHEROKEE CO.	GA	09/01/2000	05:00	EST	Lightning		0	0	200.00K	0.00K
WALESKA	CHEROKEE CO.	GA	09/24/2000	18:56	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	11/09/2000	08:40	EST	Thunderstorm Wind		0	0	5.00K	0.00K
PAYNE	CHEROKEE CO.	GA	11/09/2000	08:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	12/16/2000	20:40	EST	Thunderstorm Wind		0	0	3.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	02/16/2001	18:20	EST	Thunderstorm Wind		0	4	35.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	02/22/2001	03:45	EST	Lightning		0	0	300.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	04/03/2001	05:55	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/03/2001	06:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	05/24/2001	17:05	EST	Hail	2.75 in.	0	0	1.800M	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/24/2001	17:40	EST	Thunderstorm Wind	59 kts. E	0	0	5.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/28/2001	20:45	EST	Hail	0.75 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	06/04/2001	20:16	EST	Thunderstorm Wind		0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/06/2001	17:00	EST	Lightning		0	0	250.00K	0.00K

BALL GROUND	CHEROKEE CO.	GA	06/26/2001	18:13	EST	Hail	1.00 in.	0	0	0.00K	0.00K
ARNOLD MILL	CHEROKEE CO.	GA	06/30/2001	18:25	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/09/2001	18:10	EST	Thunderstorm Wind	52 kts. E	0	0	0.75K	0.00K
CANTON	CHEROKEE CO.	GA	04/28/2002	19:57	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLBROOK	CHEROKEE CO.	GA	04/28/2002	23:56	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLBROOK	CHEROKEE CO.	GA	04/28/2002	23:56	EST	Thunderstorm Wind		0	0	42.00K	0.00K
WALESKA	CHEROKEE CO.	GA	05/09/2002	16:05	EST	Thunderstorm Wind		0	0	1.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/09/2002	16:13	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/13/2002	14:03	EST	Thunderstorm Wind		0	0	15.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	05/13/2002	14:10	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/02/2002	16:30	EST	Thunderstorm Wind		0	0	0.50K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/03/2002	14:50	EST	Hail	1.50 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	07/03/2002	15:15	EST	Thunderstorm Wind		0	0	3.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	07/03/2002	15:27	EST	Hail	0.75 in.	0	0	0.00K	0.00K

WALESKA	CHEROKEE CO.	GA	08/15/2002	19:40	EST	Lightning		0	1	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	09/14/2002	15:05	EST	Thunderstorm Wind		0	0	8.00K	0.00K
CANTON	CHEROKEE CO.	GA	11/11/2002	02:44	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLBROOK	CHEROKEE CO.	GA	04/30/2003	14:42	EST	Hail	0.88 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	05/02/2003	15:55	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	05/02/2003	16:55	EST	Hail	0.75 in.	0	0	0.00K	0.00K
GREELEY	CHEROKEE CO.	GA	05/06/2003	11:15	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	05/06/2003	11:15	EST	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	05/06/2003	12:00	EST	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	05/06/2003	12:14	EST	Hail	0.75 in.	0	0	0.00K	0.00K
BUFFINGTON	CHEROKEE CO.	GA	05/17/2003	16:18	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/12/2003	18:00	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/12/2003	23:01	EST	Lightning		0	0	25.00K	0.00K

WALESKA	CHEROKEE CO.	GA	07/13/2003	19:45	EST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
SUTALLEE	CHEROKEE CO.	GA	07/13/2003	20:10	EST	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/22/2003	12:30	EST	Thunderstorm Wind	52 kts. MG	0	0	20.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/22/2003	12:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/04/2003	20:29	EST	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	08/06/2003	14:10	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	09/27/2003	18:40	EST	Hail	0.75 in.	0	0	0.00K	0.00K
PAYNE	CHEROKEE CO.	GA	06/23/2004	16:20	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/06/2004	16:15	EST	Lightning		0	1	400.00K	0.00K
HICKORY FLAT	CHEROKEE CO.	GA	07/06/2004	16:45	EST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	07/14/2004	00:28	EST	Thunderstorm Wind	50 kts. MG	0	0	15.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	07/14/2004	17:30	EST	Thunderstorm Wind	61 kts. EG	0	0	2.00K	0.00K

BALL GROUND	CHEROKEE CO.	GA	07/14/2004	17:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/14/2004	17:51	EST	Hail	1.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	11/24/2004	10:10	EST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	11/24/2004	10:14	EST	Thunderstorm Wind	61 kts. EG	0	0	1.700M	0.00K
WOODSTOCK	CHEROKEE CO.	GA	12/10/2004	15:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	02/21/2005	11:48	EST	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	02/21/2005	17:54	EST	Hail	2.75 in.	0	0	4.500M	0.00K
PAYNE	CHEROKEE CO.	GA	02/21/2005	19:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
SUTALLEE	CHEROKEE CO.	GA	02/21/2005	19:43	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/27/2005	16:05	EST	Hail	1.25 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/12/2005	17:25	EST	Hail	1.00 in.	0	0	50.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	04/22/2005	12:15	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/22/2005	20:40	EST	Hail	0.88 in.	0	0	0.00K	0.00K

WOODSTOCK	CHEROKEE CO.	GA	05/20/2005	10:20	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/06/2005	17:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/27/2005	20:11	EST	Lightning		0	0	250.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	07/06/2005	21:11	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/28/2005	16:00	EST	Lightning		0	0	250.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/23/2005	14:38	EST	Thunderstorm Wind	52 kts. MG	0	0	2.00K	0.00K
HICKORY FLAT	CHEROKEE CO.	GA	12/04/2005	15:25	EST	Hail	1.75 in.	0	0	15.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	01/13/2006	14:10	EST	Lightning		0	0	50.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	02/04/2006	01:00	EST	Hail	1.00 in.	0	0	10.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/08/2006	02:57	EST	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/08/2006	02:59	EST	Thunderstorm Wind	52 kts. EG	0	0	650.00K	0.00K
VICTORIA	CHEROKEE CO.	GA	04/19/2006	11:40	EST	Hail	1.00 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/25/2006	12:45	EST	Thunderstorm Wind	35 kts. EG	0	0	0.25K	0.00K

BALL GROUND	CHEROKEE CO.	GA	05/25/2006	14:56	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/25/2006	15:20	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	05/25/2006	15:36	EST	Lightning		0	0	100.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	05/25/2006	15:54	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/23/2006	18:00	EST	Lightning		0	0	150.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/24/2006	20:10	EST	Lightning		0	0	35.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/03/2006	14:58	EST	Thunderstorm Wind	44 kts. MG	0	0	0.50K	0.00K
CANTON	CHEROKEE CO.	GA	07/04/2006	13:56	EST	Thunderstorm Wind	52 kts. EG	0	0	6.00K	0.00K
WALESKA	CHEROKEE CO.	GA	07/20/2006	18:25	EST	Hail	0.88 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/02/2006	18:04	EST	Lightning		0	0	175.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/05/2006	17:28	EST	Thunderstorm Wind	39 kts. EG	0	0	1.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/10/2006	15:51	EST	Lightning		0	0	41.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/15/2006	15:36	EST	Lightning		0	0	175.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/28/2006	16:05	EST	Lightning		0	0	50.00K	0.00K

WOODSTOCK	CHEROKEE CO.	GA	09/28/2006	13:45	EST	Hail	0.88 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	09/28/2006	16:03	EST	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/01/2007	07:01	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/03/2007	15:50	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/04/2007	00:50	EST-5	Thunderstorm Wind	52 kts. EG	0	0	200.00K	0.00K
CANTON	CHEROKEE CO.	GA	04/26/2007	17:49	EST-5	Thunderstorm Wind	36 kts. EG	0	0	5.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/08/2007	15:40	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/11/2007	14:54	EST-5	Hail	1.75 in.	0	0	1.400M	0.00K
WALESKA	CHEROKEE CO.	GA	06/11/2007	15:09	EST-5	Lightning		0	0	5.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/11/2007	15:25	EST-5	Thunderstorm Wind	39 kts. EG	0	0	1.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/14/2007	15:20	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	06/25/2007	15:23	EST-5	Lightning		0	0	150.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	06/25/2007	15:23	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K

ALLATOONA LAKE	CHEROKEE CO.	GA	07/01/2007	15:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/01/2007	15:20	EST-5	Lightning		0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/06/2007	15:07	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/17/2007	16:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	75.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/23/2007	15:50	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	08/24/2007	16:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	08/30/2007	15:45	EST-5	Lightning		0	0	25.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	02/17/2008	16:15	EST-5	Thunderstorm Wind	56 kts. EG	0	0	330.00K	0.00K
WALESKA	CHEROKEE CO.	GA	02/26/2008	06:12	EST-5	Thunderstorm Wind	56 kts. EG	0	0	400.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/15/2008	12:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	03/15/2008	12:20	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	03/15/2008	13:20	EST-5	Hail	2.75 in.	0	0	5.000M	0.00K
CHEROKEE	CHEROKEE CO.	GA	04/04/2008	15:58	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K

KEITHSBURG	CHEROKEE CO.	GA	04/11/2008	18:23	EST-5	Thunderstorm Wind	65 kts. EG	0	0	150.00K	0.00K
CHEROKEE	CHEROKEE CO.	GA	05/20/2008	17:20	EST-5	Hail	2.75 in.	0	0	5.000M	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/11/2008	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/11/2008	16:57	EST-5	Lightning		0	0	150.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	06/29/2008	17:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/06/2008	21:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
VICTORIA	CHEROKEE CO.	GA	07/07/2008	19:05	EST-5	Thunderstorm Wind	56 kts. EG	0	0	3.000M	0.00K
VICTORIA	CHEROKEE CO.	GA	07/07/2008	19:05	EST-5	Lightning		0	0	250.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/07/2008	19:10	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/22/2008	16:36	EST-5	Thunderstorm Wind	39 kts. EG	0	0	1.50K	0.00K
WALESKA	CHEROKEE CO.	GA	08/02/2008	16:35	EST-5	Hail	1.75 in.	0	0	1.000M	0.00K
CANTON	CHEROKEE CO.	GA	08/02/2008	17:25	EST-5	Lightning		0	1	350.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/02/2008	17:30	EST-5	Thunderstorm Wind	56 kts. EG	0	1	150.00K	0.00K

WALESKA	CHEROKEE CO.	GA	08/07/2008	13:40	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/07/2008	13:44	EST-5	Thunderstorm Wind	39 kts. EG	0	0	0.50K	0.00K
CANTON	CHEROKEE CO.	GA	08/26/2008	08:06	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/26/2008	15:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
FREE HOME	CHEROKEE CO.	GA	09/08/2008	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	02/11/2009	17:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/10/2009	17:00	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/10/2009	17:39	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/10/2009	17:55	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/23/2009	19:05	EST-5	Hail	1.75 in.	0	0	1.500M	0.00K
GREELEY	CHEROKEE CO.	GA	08/20/2009	15:18	EST-5	Lightning		0	0	300.00K	0.00K
VICTORIA	CHEROKEE CO.	GA	08/20/2009	22:32	EST-5	Lightning		0	0	30.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/28/2009	06:26	EST-5	Thunderstorm Wind	35 kts. EG	0	0	15.00K	0.00K

HOLLY SPGS	CHEROKEE CO.	GA	09/16/2009	16:51	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	09/16/2009	16:57	EST-5	Thunderstorm Wind	36 kts. EG	0	0	1.00K	0.00K
CANTON	CHEROKEE CO.	GA	03/28/2010	19:00	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
OAK GROVE	CHEROKEE CO.	GA	06/17/2010	16:28	EST-5	Thunderstorm Wind	39 kts. EG	0	0	50.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/22/2010	19:46	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/22/2010	19:51	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/22/2010	20:05	EST-5	Lightning		0	0	25.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/22/2010	20:09	EST-5	Lightning		0	0	25.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	06/28/2010	18:56	EST-5	Thunderstorm Wind	35 kts. EG	0	0	1.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/28/2010	20:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WALESKA	CHEROKEE CO.	GA	07/09/2010	17:55	EST-5	Thunderstorm Wind	51 kts. MG	0	0	3.00K	0.00K
CANTON	CHEROKEE CO.	GA	08/13/2010	15:16	EST-5	Thunderstorm Wind	56 kts. EG	0	0	300.00K	0.00K

CANTON	CHEROKEE CO.	GA	08/13/2010	15:29	EST-5	Lightning		0	0	300.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	08/26/2010	14:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WALESKA	CHEROKEE CO.	GA	09/11/2010	18:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WALESKA	CHEROKEE CO.	GA	09/27/2010	16:50	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	10/27/2010	13:33	EST-5	Thunderstorm Wind	35 kts. EG	0	0	2.00K	0.00K
WALESKA	CHEROKEE CO.	GA	02/28/2011	16:26	EST-5	Thunderstorm Wind	51 kts. EG	0	1	500.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	02/28/2011	16:49	EST-5	Hail	1.25 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/26/2011	20:54	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BUFFINGTON	CHEROKEE CO.	GA	04/25/2011	14:47	EST-5	Lightning		0	0	50.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/25/2011	18:46	EST-5	Lightning		0	0	50.00K	0.00K
HICKORY FLAT	CHEROKEE CO.	GA	04/25/2011	19:10	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	04/27/2011	21:47	EST-5	Thunderstorm Wind	52 kts. EG	0	0	7.00K	0.00K
GREELEY	CHEROKEE CO.	GA	06/06/2011	17:32	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K

CANTON	CHEROKEE CO.	GA	06/15/2011	19:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
SUTALLEE	CHEROKEE CO.	GA	06/15/2011	19:42	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
GREELEY	CHEROKEE CO.	GA	06/18/2011	16:34	EST-5	Thunderstorm Wind	52 kts. EG	0	0	15.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/22/2011	15:12	EST-5	Thunderstorm Wind	36 kts. MG	0	0	55.00K	0.00K
OAK GROVE	CHEROKEE CO.	GA	06/24/2011	17:01	EST-5	Thunderstorm Wind	37 kts. EG	0	0	1.00K	0.00K
WALESKA	CHEROKEE CO.	GA	06/26/2011	17:17	EST-5	Thunderstorm Wind	52 kts. EG	0	0	150.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	07/04/2011	17:18	EST-5	Lightning		0	0	5.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/04/2011	18:29	EST-5	Thunderstorm Wind	37 kts. EG	0	0	25.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/20/2011	13:03	EST-5	Lightning		0	0	25.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/25/2011	16:17	EST-5	Lightning		0	0	1.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/25/2011	16:35	EST-5	Lightning		0	0	5.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	07/25/2011	16:57	EST-5	Lightning		0	0	50.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/08/2011	18:14	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K

WOODSTOCK	CHEROKEE CO.	GA	11/16/2011	13:14	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/02/2012	21:08	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	03/02/2012	22:24	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BUFFINGTON	CHEROKEE CO.	GA	04/17/2012	16:20	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	05/06/2012	19:08	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
HOLLY SPGS	CHEROKEE CO.	GA	05/22/2012	17:20	EST-5	Lightning		0	0	1.00K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	05/29/2012	23:08	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
WALESKA	CHEROKEE CO.	GA	07/03/2012	18:19	EST-5	Thunderstorm Wind	60 kts. EG	0	0	15.00K	0.00K
SUTALLEE	CHEROKEE CO.	GA	08/10/2012	20:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	08/10/2012	20:45	EST-5	Thunderstorm Wind	40 kts. EG	0	0	0.50K	0.00K
WALESKA	CHEROKEE CO.	GA	01/30/2013	12:50	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	03/05/2013	16:25	EST-5	Thunderstorm Wind	45 kts. EG	0	0	55.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/18/2013	17:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K

ARNOLD MILL	CHEROKEE CO.	GA	04/11/2013	19:50	EST-5	Thunderstorm Wind	40 kts. EG	0	0	0.25K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	06/17/2013	16:15	EST-5	Thunderstorm Wind	45 kts. EG	0	0	75.00K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	06/17/2013	17:05	EST-5	Thunderstorm Wind	40 kts. EG	0	0	30.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	01/11/2014	08:05	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
OAK GROVE	CHEROKEE CO.	GA	01/11/2014	08:10	EST-5	Thunderstorm Wind	55 kts. EG	0	2	50.00K	0.00K
WALESKA	CHEROKEE CO.	GA	05/14/2014	21:20	EST-5	Thunderstorm Wind	60 kts. EG	0	0	3.00K	0.00K
CANTON	CHEROKEE CO.	GA	09/03/2014	15:10	EST-5	Thunderstorm Wind	50 kts. EG	0	1	2.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/19/2015	10:50	EST-5	Thunderstorm Wind	45 kts. EG	0	0	0.25K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/20/2015	12:30	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/20/2015	12:35	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/26/2015	14:19	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K

UNIVETER	CHEROKEE CO.	GA	06/09/2015	03:20	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
GOBER	CHEROKEE CO.	GA	06/24/2015	16:56	EST-5	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
NORTH CANTON	CHEROKEE CO.	GA	06/26/2015	15:42	EST-5	Hail	1.75 in.	0	0	2.300M	0.00K

Tornadoes

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	25	80.153M	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/26/1965	00:30	CST	Tornado	F2	0	0	25.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	08/20/1973	15:00	CST	Tornado	F1	0	0	250.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/03/1974	19:00	EST	Tornado	F2	0	0	0.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	01/04/1982	01:35	CST	Tornado	F1	0	0	250.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	05/07/1984	23:30	CST	Tornado	F1	0	0	25.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/05/1985	19:05	CST	Tornado	F2	0	0	2.500M	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	04/04/1989	13:20	CST	Tornado	F2	0	0	2.500M	0.00K
CHEROKEE CO.	CHEROKEE CO.	GA	11/22/1992	11:17	EST	Tornado	F4	0	12	2.500M	0.00K
Woodstock	CHEROKEE CO.	GA	06/29/1994	09:00	EST	Tornado	F0	0	0	50.00K	0.00K
HICKORY FLAT	CHEROKEE CO.	GA	04/03/2000	02:00	EST	Tornado	F1	0	0	1.100M	0.00K
WALESKA	CHEROKEE CO.	GA	11/11/2002	01:48	EST	Tornado	F2	0	0	1.800M	0.00K
KEITHSBURG	CHEROKEE CO.	GA	05/06/2003	11:56	EST	Tornado	F1	0	0	10.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	07/14/2004	17:14	EST	Tornado	F0	0	0	1.00K	0.00K

CANTON	CHEROKEE CO.	GA	07/14/2004	17:43	EST	Tornado	F0	0	0	1.00K	0.00K
ORANGE	CHEROKEE CO.	GA	09/16/2004	16:55	EST	Tornado	F1	0	4	300.00K	0.00K
LEBANON	CHEROKEE CO.	GA	05/20/2008	17:35	EST-5	Tornado	EF1	0	4	46.000M	0.00K
WOODSTOCK	CHEROKEE CO.	GA	04/19/2009	22:00	EST-5	Tornado	EF1	0	2	5.000M	0.00K
UNIVETER	CHEROKEE CO.	GA	10/27/2010	14:36	EST-5	Tornado	EF0	0	0	425.00K	0.00K
GREELEY	CHEROKEE CO.	GA	04/27/2011	20:41	EST-5	Tornado	EF2	0	0	350.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	09/05/2011	14:11	EST-5	Tornado	EF1	0	1	17.000M	0.00K
WALESKA	CHEROKEE CO.	GA	06/13/2013	18:00	EST-5	Tornado	EF1	0	2	60.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/13/2013	18:30	EST-5	Tornado	EF0	0	0	2.50K	0.00K
WALESKA	CHEROKEE CO.	GA	01/11/2014	07:37	EST-5	Tornado	EF0	0	0	3.00K	0.00K

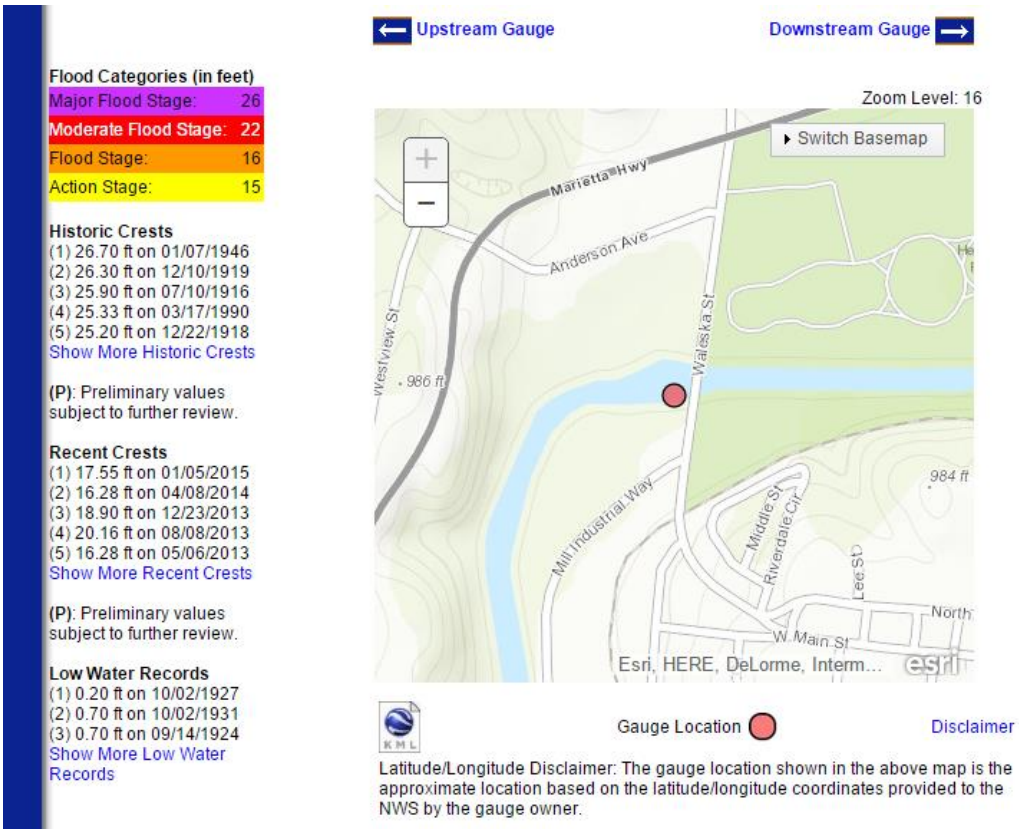
Floods

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	2	57.386M	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	01/26/1996	22:00	EST	Flash Flood		0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/27/1997	22:00	EST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	08/02/2000	13:25	EST	Flood		0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/06/2001	17:40	EST	Flood		0	0	0.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/27/2001	21:30	EST	Flash Flood		0	0	400.00K	0.00K
CANTON	CHEROKEE CO.	GA	06/28/2001	21:35	EST	Flash Flood		0	0	200.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	06/30/2001	18:53	EST	Flash Flood		0	0	58.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	03/06/2003	04:49	EST	Flash Flood		0	0	0.00K	0.00K
BALL GROUND	CHEROKEE CO.	GA	05/06/2003	13:13	EST	Flash Flood		0	0	5.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	05/17/2003	16:13	EST	Flood		0	0	0.00K	0.00K
NORTHWEST PORTION	CHEROKEE CO.	GA	07/13/2003	04:30	EST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	07/13/2003	18:50	EST	Flash Flood		0	0	250.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	GA	09/16/2004	16:45	EST	Flash Flood		0	2	1.000M	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	09/16/2004	20:00	EST	Flood		0	0	500.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	11/23/2004	22:30	EST	Flood		0	0	2.50K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	07/11/2005	02:00	EST	Flood		0	0	200.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	07/11/2005	05:15	EST	Flash Flood		0	0	1.600M	0.00K
NORTH CANTON	CHEROKEE CO.	GA	07/12/2005	14:30	EST	Flash Flood		0	0	25.00K	0.00K
CANTON	CHEROKEE CO.	GA	07/14/2005	20:15	EST	Flash Flood		0	0	5.00K	0.00K
CANTON	CHEROKEE CO.	GA	11/15/2006	15:30	EST-5	Flood		0	0	0.00K	0.00K
CANTON CHEROKEE ARPT	CHEROKEE CO.	GA	01/06/2009	12:20	EST-5	Flood		0	0	2.00K	0.00K
WOODSTOCK	CHEROKEE CO.	GA	09/21/2009	03:45	EST-5	Flash Flood		0	0	42.40K	0.00K
GREELEY	CHEROKEE CO.	GA	09/21/2009	08:07	EST-5	Flood		0	0	44.520M	0.00K
GREELEY	CHEROKEE CO.	GA	09/21/2009	09:23	EST-5	Flood		0	0	8.480M	0.00K
WOODSTOCK	CHEROKEE CO.	GA	10/12/2009	11:30	EST-5	Flash Flood		0	0	5.00K	0.00K
ARNOLD MILL	CHEROKEE CO.	GA	10/12/2009	13:35	EST-5	Flood		0	0	3.00K	0.00K
WALESKA	CHEROKEE CO.	GA	08/20/2010	17:43	EST-5	Flash Flood		0	0	15.00K	0.00K

BALL GROUND	CHEROKEE CO.	GA	08/07/2013	09:37	EST-5	Flash Flood		0	0	60.00K	0.00K
ARNOLD MILL	CHEROKEE CO.	GA	01/04/2015	07:45	EST-5	Flash Flood		0	0	3.00K	0.00K

Etowah River in City of Canton



Little River near Woodstock

Flood Categories (in feet)

Major Flood Stage:	21
Moderate Flood Stage:	16
Flood Stage:	11
Action Stage:	9

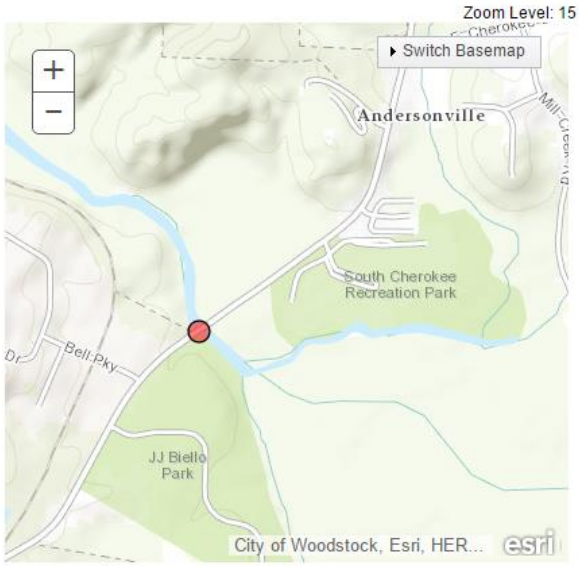
Historic Crests
(1) 20.80 ft on 09/21/2009
(2) 13.11 ft on 11/11/2009
(3) 12.90 ft on 01/04/2015
(4) 11.32 ft on 12/23/2013
(5) 11.20 ft on 04/07/2014
Show More Historic Crests

(P): Preliminary values subject to further review.

Recent Crests
(1) 12.90 ft on 01/04/2015
(2) 11.20 ft on 04/07/2014
(3) 11.32 ft on 12/23/2013
(4) 11.05 ft on 05/05/2013
(5) 13.11 ft on 11/11/2009
Show More Recent Crests

(P): Preliminary values subject to further review.

Low Water Records
(1) 0.30 ft on 10/21/2007
(2) 0.41 ft on 09/11/2007



Gauge Location Disclaimer

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.

Etowah River near East Canton

Upstream Gauge Downstream Gauge

Flood Categories (in feet)

Major Flood Stage:	27
Moderate Flood Stage:	23
Flood Stage:	17
Action Stage:	16

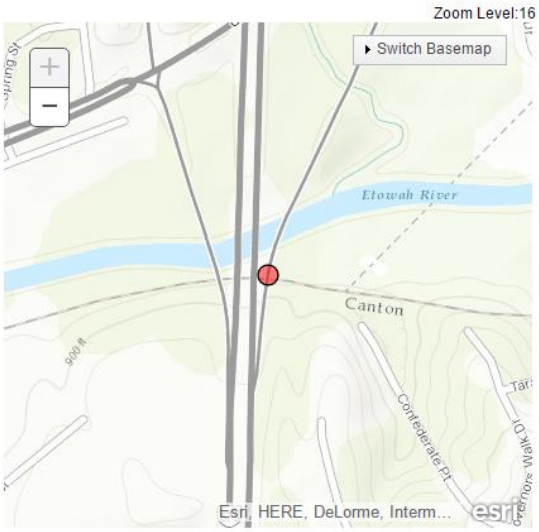
Historic Crests
(1) 24.36 ft on 08/08/2013
(2) 23.01 ft on 12/23/2013
(3) 22.28 ft on 01/07/2009
(4) 21.78 ft on 01/05/2015
(5) 21.26 ft on 11/11/2009
Show More Historic Crests

(P): Preliminary values subject to further review.

Recent Crests
(1) 21.78 ft on 01/05/2015
(2) 23.01 ft on 12/23/2013
(3) 17.36 ft on 12/10/2013
(4) 24.36 ft on 08/08/2013
(5) 18.43 ft on 05/20/2013
Show More Recent Crests

(P): Preliminary values subject to further review.

Low Water Records
Currently none available.



Gauge Location Disclaimer

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.

Sharp Mountain Creek near Ball Ground

Flood Categories (in feet)

Major Flood Stage:	28
Moderate Flood Stage:	23
Flood Stage:	18
Action Stage:	16

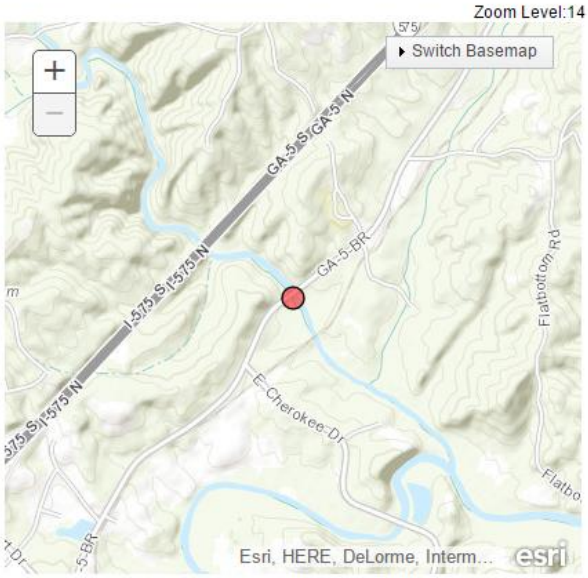
Historic Crests
(1) 18.00 ft on 09/22/2009

(P): Preliminary values subject to further review.

Recent Crests
(1) 18.00 ft on 09/22/2009

(P): Preliminary values subject to further review.

Low Water Records
(1) 2.58 ft on 07/05/2008
(2) 2.59 ft on 09/10/2007



Gauge Location

Disclaimer

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Settingdown Creek near Free Home

Flood Categories (in feet)

Major Flood Stage:	22
Moderate Flood Stage:	18
Flood Stage:	13
Action Stage:	10

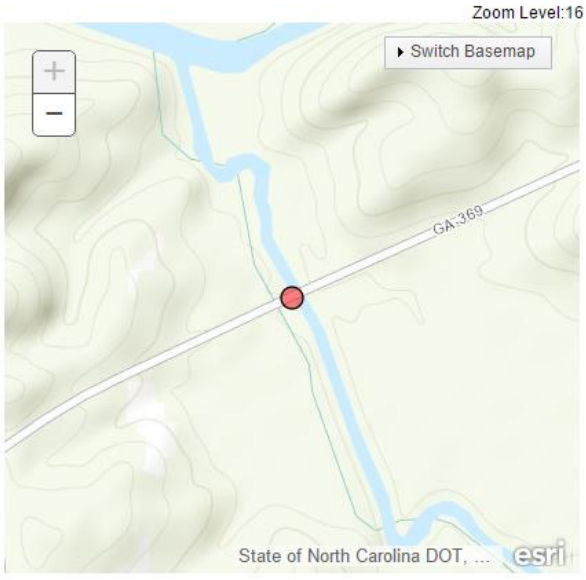
Historic Crests
(1) 14.23 ft on 09/22/2009

(P): Preliminary values subject to further review.

Recent Crests
(1) 14.23 ft on 09/22/2009

(P): Preliminary values subject to further review.

Low Water Records
(1) 0.16 ft on 09/22/2008
(2) 0.27 ft on 07/05/2008
(3) 0.33 ft on 10/01/2007
Show More Low Water Records



Gauge Location

Disclaimer

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.

Drought

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	921.89K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	09/01/1997	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	05/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	08/01/1999	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	04/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	05/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	06/01/2000	00:00	EST	Drought		0	0	0.00K	921.89K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	07/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	10/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	10/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	11/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	04/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	08/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/01/2003	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	03/01/2004	00:00	EST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	05/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	09/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	10/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	11/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/01/2007	00:00	EST-5	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	09/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K

Winter Storms

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	1.178M	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/08/1997	19:00	EST	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/23/1998	09:00	EST	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/06/1999	09:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/23/1999	11:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/22/2000	13:00	EST	Ice Storm		0	0	980.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/28/2000	19:00	EST	Ice Storm		0	0	32.79K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/17/2000	07:30	EST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/19/2000	00:00	EST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/01/2001	07:58	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/02/2002	06:00	EST	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/04/2002	14:00	EST	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/16/2003	12:00	EST	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/23/2003	00:00	EST	Heavy Snow		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/06/2003	15:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/25/2004	05:00	EST	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/26/2004	00:00	EST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/28/2005	20:00	EST	Winter Storm		0	0	140.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	04/02/2005	10:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/15/2005	00:00	EST	Ice Storm		0	0	25.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/06/2006	04:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/12/2006	00:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/13/2006	00:00	EST	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/01/2007	04:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/16/2008	18:30	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/19/2008	11:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/22/2008	08:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/05/2009	03:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/07/2010	14:00	EST-5	Winter Weather		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/12/2010	14:30	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	03/02/2010	05:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/15/2010	16:30	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	12/25/2010	11:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/09/2011	20:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/03/2011	16:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/09/2011	21:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/25/2013	07:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	01/28/2014	10:00	EST-5	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/11/2014	07:00	EST-5	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/16/2015	11:30	EST-5	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/20/2015	15:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/24/2015	02:00	EST-5	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	GA	02/25/2015	15:00	EST-5	Winter Storm		0	0	0.00K	0.00K

Appendix E – Worksheet 3As

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

Jurisdiction: Cherokee County

Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	67,547	67,547	100.000%	4,640,780,666	4,640,780,666	100.000%	214,346	214,346	100%
Commercial	2,504	2,504	100.000%	592,761,234	592,761,234	100.000%	0	0	#DIV/0!
Industrial	508	508	100.000%	105,174,101	105,174,101	100.000%	0	0	#DIV/0!
Agricultural	12,433	12,433	100.000%	583,160,800	583,160,800	100.000%	0	0	#DIV/0!
Religious/ Non-profit	290	290	100.000%	642,136,320	642,136,320	100.000%	0	0	#DIV/0!
Government	845	845	100.000%	621,825,920	621,825,920	100.000%	0	0	#DIV/0!
Education	59	59	100.000%	27,959,320	27,959,320	100.000%	0	0	#DIV/0!
Utilities	69	69	100.000%	158,559,960	158,559,960	100.000%	0	0	#DIV/0!
Total	84,255	84,255	100.000%	7,372,358,321	7,372,358,321	100.000%	214,346	214,346	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: Cherokee County
Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	67,547	42,245	62.542%	4,640,780,666	2,902,420,229	62.542%	214,346	134,055	63%
Commercial	2,504	1,208	48.243%	592,761,234	285,964,685	48.243%	0	0	#DIV/0!
Industrial	508	212	41.732%	105,174,101	43,891,554	41.732%	0	0	#DIV/0!
Agricultural	12,433	8,501	68.374%	583,160,800	398,733,207	68.374%	0	0	#DIV/0!
Religious/ Non-profit	290	134	46.207%	642,136,320	296,711,265	46.207%	0	0	#DIV/0!
Government	845	406	48.047%	621,825,920	298,770,797	48.047%	0	0	#DIV/0!
Education	59	29	49.153%	27,969,320	13,742,717	49.153%	0	0	#DIV/0!
Utilities	69	24	34.783%	158,559,960	55,151,290	34.783%	0	0	#DIV/0!
Total	84,255	52,759	62.618%	7,372,368,321	4,295,385,744	58.263%	214,346	134,055	63%

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: Cherokee County
Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community 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	67,547	3,245	4.804%	4,640,780,866	222,945,997	4.804%	214,346	10,297	5%
Commercial	2,504	108	4.313%	592,761,234	25,566,379	4.313%	0	0	#DIV/0!
Industrial	508	18	3.543%	105,174,101	3,726,641	3.543%	0	0	#DIV/0!
Agricultural	12,433	806	6.483%	583,160,800	37,804,842	6.483%	0	0	#DIV/0!
Religious/ Non-profit	290	15	5.172%	642,136,320	33,213,948	5.172%	0	0	#DIV/0!
Government	845	37	4.379%	621,825,920	27,227,881	4.379%	0	0	#DIV/0!
Education	59	0	0.000%	27,969,320	0	0.000%	0	0	#DIV/0!
Utilities	69	9	13.043%	158,559,960	20,681,734	13.043%	0	0	#DIV/0!
Total	84,255	4,238	5.030%	7,372,368,321	371,167,422	5.035%	214,346	10,297	5%

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: Ball Ground
Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	724	724	100.000%	37,591,840	37,591,840	100.000%	1,433	1,433	100%
Commercial	51	51	100.000%	3,171,880	3,171,880	100.000%	0	0	#DIV/0!
Industrial	14	14	100.000%	2,514,920	2,514,920	100.000%	0	0	#DIV/0!
Agricultural	52	52	100.000%	1,972,080	1,972,080	100.000%	0	0	#DIV/0!
Religious/ Non-profit	7	7	100.000%	1,076,800	1,076,800	100.000%	0	0	#DIV/0!
Government	53	53	100.000%	27,620,760	27,620,760	100.000%	0	0	#DIV/0!
Education	2	2	100.000%	1,724,760	1,724,760	100.000%	0	0	#DIV/0!
Utilities	7	7	100.000%	1,402,240	1,402,240	100.000%	0	0	#DIV/0!
Total	910	910	100.000%	77,075,280	77,075,280	100.000%	1,433	1,433	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: Ball Ground
Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community/ of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	724	9	1.243%	37,591,840	467,302	1.243%	1,433	18	1%
Commercial	51	2	3.922%	3,171,880	124,387	3.922%	0	0	#DIV/0!
Industrial	14	0	0.000%	2,514,920	0	0.000%	0	0	#DIV/0!
Agricultural	52	9	17.308%	1,972,080	341,322	17.308%	0	0	#DIV/0!
Religious/ Non-profit	7	0	0.000%	1,076,800	0	0.000%	0	0	#DIV/0!
Government	53	0	0.000%	27,620,760	0	0.000%	0	0	#DIV/0!
Education	2	0	0.000%	1,724,760	0	0.000%	0	0	#DIV/0!
Utilities	7	1	14.286%	1,402,240	200,320	14.286%	0	0	#DIV/0!
Total	910	21	2.308%	77,075,280	1,133,331	1.470%	1,433	18	1%

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

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

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Ball Ground
Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	724	702	96.961%	37,581,840	36,449,547	96.961%	1,433	1,389	97%
Commercial	51	50	98.039%	3,171,880	3,109,686	98.039%	0	0	#DIV/0!
Industrial	14	14	100.000%	2,514,920	2,514,920	100.000%	0	0	#DIV/0!
Agricultural	52	52	100.000%	1,972,080	1,972,080	100.000%	0	0	#DIV/0!
Religious/ Non-profit	7	7	100.000%	1,076,800	1,076,800	100.000%	0	0	#DIV/0!
Government	53	51	96.226%	27,620,760	26,578,467	96.226%	0	0	#DIV/0!
Education	2	2	100.000%	1,724,760	1,724,760	100.000%	0	0	#DIV/0!
Utilities	7	6	85.714%	1,402,240	1,201,920	85.714%	0	0	#DIV/0!
Total	910	884	97.143%	77,075,280	74,628,180	96.825%	1,433	1,389	97%

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

	Y	N
1. Do you know where the greatest damages may occur in your area?	N	
2. Do you know whether your critical facilities will be operational after a hazard event?	N	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	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: Woodstock
Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	9,448	9,448	100.000%	630,384,800	630,384,800	100.000%	23,896	23,896	100%
Commercial	794	794	100.000%	225,402,244	225,402,244	100.000%	0	0	#DIV/0!
Industrial	64	64	100.000%	16,567,280	16,567,280	100.000%	0	0	#DIV/0!
Agricultural	21	21	100.000%	605,600	605,600	100.000%	0	0	#DIV/0!
Religious/ Non-profit	30	30	100.000%	7,953,000	7,953,000	100.000%	0	0	#DIV/0!
Government	108	108	100.000%	262,130,200	262,130,200	100.000%	0	0	#DIV/0!
Education	2	2	100.000%	1,670,280	1,670,280	100.000%	0	0	#DIV/0!
Utilities	12	12	100.000%	15,751,280	15,751,280	100.000%	0	0	#DIV/0!
Total	10,479	10,479	100.000%	1,160,464,684	1,160,464,684	100.000%	23,896	23,896	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: Woodstock
Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	9,448	376	3.980%	630,384,800	25,087,287	3.980%	23,896	951	4%
Commercial	794	25	3.149%	225,402,244	7,097,048	3.149%	0	0	#DIV/0!
Industrial	64	4	6.250%	16,567,280	1,035,455	6.250%	0	0	#DIV/0!
Agricultural	21	9	42.857%	605,600	259,543	42.857%	0	0	#DIV/0!
Religious/ Non-profit	30	0	0.000%	7,963,000	0	0.000%	0	0	#DIV/0!
Government	108	4	3.704%	262,130,200	9,708,526	3.704%	0	0	#DIV/0!
Education	2	0	0.000%	1,670,280	0	0.000%	0	0	#DIV/0!
Utilities	12	2	16.667%	15,751,280	2,625,213	16.667%	0	0	#DIV/0!
Total	10,479	420	4.008%	1,160,464,684	45,813,072	3.948%	23,896	951	4%

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: Woodstock

Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	9,448	8,878	93.967%	630,384,800	592,353,541	93.967%	23,896	22,454	94%
Commercial	794	767	96.599%	225,402,244	217,737,432	96.599%	0	0	#DIV/0!
Industrial	64	58	90.625%	16,567,280	15,014,098	90.625%	0	0	#DIV/0!
Agricultural	21	21	100.000%	605,600	605,600	100.000%	0	0	#DIV/0!
Religious/ Non-profit	30	26	86.667%	7,963,000	6,892,600	86.667%	0	0	#DIV/0!
Government	108	98	90.741%	262,130,200	237,858,885	90.741%	0	0	#DIV/0!
Education	2	2	100.000%	1,670,280	1,670,280	100.000%	0	0	#DIV/0!
Utilities	12	11	91.667%	15,751,280	14,438,673	91.667%	0	0	#DIV/0!
Total	10,479	9,861	94.102%	1,160,464,684	1,086,571,109	93.632%	23,896	22,454	94%

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: Canton
Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,307	7,307	100.000%	432,646,960	432,646,960	100.000%	22,958	22,958	100%
Commercial	499	499	100.000%	162,359,960	162,359,960	100.000%	0	0	#DIV/0!
Industrial	62	62	100.000%	21,976,716	21,976,716	100.000%	0	0	#DIV/0!
Agricultural	59	59	100.000%	2,308,920	2,308,920	100.000%	0	0	#DIV/0!
Religious/ Non-profit	23	23	100.000%	1,023,440	1,023,440	100.000%	0	0	#DIV/0!
Government	132	132	100.000%	95,565,320	95,565,320	100.000%	0	0	#DIV/0!
Education	10	10	100.000%	7,425,560	7,425,560	100.000%	0	0	#DIV/0!
Utilities	12	12	100.000%	14,667,120	14,667,120	100.000%	0	0	#DIV/0!
Total	8,104	8,104	100.000%	737,973,996	737,973,996	100.000%	22,958	22,958	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: Canton
Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,307	54	0.739%	432,646,960	3,197,336	0.739%	22,968	170	1%
Commercial	499	69	13.828%	162,359,960	22,450,576	13.828%	0	0	#DIV/0!
Industrial	62	5	8.065%	21,976,716	1,772,316	8.065%	0	0	#DIV/0!
Agricultural	59	32	54.237%	2,308,920	1,252,296	54.237%	0	0	#DIV/0!
Religious/ Non-profit	23	2	8.696%	1,023,440	88,995	8.696%	0	0	#DIV/0!
Government	132	4	3.030%	96,565,320	2,895,919	3.030%	0	0	#DIV/0!
Education	10	0	0.000%	7,425,560	0	0.000%	0	0	#DIV/0!
Utilities	12	2	16.667%	14,667,120	2,444,520	16.667%	0	0	#DIV/0!
Total	8,104	168	2.073%	737,973,996	34,101,957	4.621%	22,968	170	1%

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

	Y	N
1. Do you know where the greatest damages may occur in your area?	N	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
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: Canton
Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community 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	7,307	6,879	94.143%	432,646,960	407,305,110	94.143%	22,958	21,613	94%
Commercial	499	487	97.595%	162,359,960	158,455,512	97.595%	0	0	#DIV/0!
Industrial	62	54	87.097%	21,976,716	19,141,011	87.097%	0	0	#DIV/0!
Agricultural	59	57	96.610%	2,308,920	2,230,652	96.610%	0	0	#DIV/0!
Religious/ Non-profit	23	23	100.000%	1,023,440	1,023,440	100.000%	0	0	#DIV/0!
Government	132	124	93.939%	96,565,320	89,773,482	93.939%	0	0	#DIV/0!
Education	10	9	90.000%	7,425,560	6,683,004	90.000%	0	0	#DIV/0!
Utilities	12	11	91.667%	14,667,120	13,444,860	91.667%	0	0	#DIV/0!
Total	8,104	7,644	94.324%	737,973,996	698,057,071	94.591%	22,958	21,613	94%

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?	Y	
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: Waleska
Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	68	68	100.000%	1,123,560	1,123,560	100.000%	644	644	100%
Commercial	14	14	100.000%	791,760	791,760	100.000%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	27	27	100.000%	879,960	879,960	100.000%	0	0	#DIV/0!
Religious/ Non-profit	4	4	100.000%	59,520	59,520	100.000%	0	0	#DIV/0!
Government	17	17	100.000%	11,104,160	11,104,160	100.000%	0	0	#DIV/0!
Education	6	6	100.000%	1,262,360	1,262,360	100.000%	0	0	#DIV/0!
Utilities	3	3	100.000%	751,080	751,080	100.000%	0	0	#DIV/0!
Total	139	139	100.000%	15,972,400	#DIV/0!	#DIV/0!	644	#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: Waleska

Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community/ of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	68	65	95.588%	1,123,560	1,073,991	95.588%	644	616	96%
Commercial	14	13	92.857%	791,760	735,206	92.857%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	27	27	100.000%	879,960	879,960	100.000%	0	0	#DIV/0!
Religious/ Non-profit	4	4	100.000%	59,520	59,520	100.000%	0	0	#DIV/0!
Government	17	16	94.118%	11,104,160	10,450,974	94.118%	0	0	#DIV/0!
Education	6	6	100.000%	1,262,360	1,262,360	100.000%	0	0	#DIV/0!
Utilities	3	2	66.667%	751,080	500,720	66.667%	0	0	#DIV/0!
Total	139	133	95.683%	15,972,400	#DIV/0!	#DIV/0!	644	#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?	Y	
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: Waleska

Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	68	3	4.412%	1,123,560	49,569	4.412%	644	28	4%
Commercial	14	3	21.429%	791,760	169,663	21.429%	0	0	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	27	8	29.630%	879,960	260,729	29.630%	0	0	#DIV/0!
Religious/ Non-profit	4	0	0.000%	59,520	0	0.000%	0	0	#DIV/0!
Government	17	0	0.000%	11,104,160	0	0.000%	0	0	#DIV/0!
Education	6	0	0.000%	1,262,360	0	0.000%	0	0	#DIV/0!
Utilities	3	0	0.000%	751,080	0	0.000%	0	0	#DIV/0!
Total	139	14	10.072%	15,972,400	#DIV/0!	#DIV/0!	644	#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?	Y	
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: Nelson

Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	210	210	100.000%	10,401,360	10,401,360	100.000%	1,314	1,314	100%
Commercial	1	1	100.000%	6,400	6,400	100.000%	0	0	#DIV/0!
Industrial	1	1	100.000%	291,240	291,240	100.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	253,640	253,640	100.000%	0	0	#DIV/0!
Religious/ Non-profit	3	3	100.000%	58,280	58,280	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	262,080	262,080	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	2	2	100.000%	259,280	259,280	100.000%	0	0	#DIV/0!
Total	236	236	100.000%	11,532,280	#DIV/0!	#DIV/0!	1,314	#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: Nelson
Hazard: Flood Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	210	0	0.000%	10,401,360	0	0.000%	1,314	0	0%
Commercial	1	0	0.000%	6,400	0	0.000%	0	0	#DIV/0!
Industrial	1	0	0.000%	291,240	0	0.000%	0	0	#DIV/0!
Agricultural	6	2	33.333%	253,640	84,547	33.333%	0	0	#DIV/0!
Religious/ Non-profit	3	0	0.000%	58,280	0	0.000%	0	0	#DIV/0!
Government	13	0	0.000%	262,080	0	0.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	2	0	0.000%	259,280	0	0.000%	0	0	#DIV/0!
Total	236	2	0.847%	11,532,280	#DIV/0!	#DIV/0!	1,314	#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?	Y	
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: Nelson
Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	210	201	95.714%	10,401,360	9,955,587	95.714%	1,314	1,258	96%
Commercial	1	1	100.000%	6,400	6,400	100.000%	0	0	#DIV/0!
Industrial	1	1	100.000%	291,240	291,240	100.000%	0	0	#DIV/0!
Agricultural	6	6	100.000%	253,640	253,640	100.000%	0	0	#DIV/0!
Religious/ Non-profit	3	3	100.000%	58,280	58,280	100.000%	0	0	#DIV/0!
Government	13	13	100.000%	262,080	262,080	100.000%	0	0	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	2	2	100.000%	259,280	259,280	100.000%	0	0	#DIV/0!
Total	236	227	96.186%	11,532,280	#DIV/0!	#DIV/0!	1,314	#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?	Y	
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: Holly Springs
Hazard: Non-Spatially Defined Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community/ of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	3,689	3,689	100.000%	229,602,320	229,602,320	100.000%	9,189	9,189	100%
Commercial	165	165	100.000%	36,914,777	36,914,777	100.000%	0	0	#DIV/0!
Industrial	76	76	100.000%	9,744,400	9,744,400	100.000%	0	0	#DIV/0!
Agricultural	135	135	100.000%	4,012,320	4,012,320	100.000%	0	0	#DIV/0!
Religious/ Non-profit	7	7	100.000%	577,800	577,800	100.000%	0	0	#DIV/0!
Government	66	66	100.000%	16,469,160	16,469,160	100.000%	0	0	#DIV/0!
Education	5	5	100.000%	626,200	626,200	100.000%	0	0	#DIV/0!
Utilities	9	9	100.000%	6,330,920	6,330,920	100.000%	0	0	#DIV/0!
Total	4,152	4,152	100.000%	304,277,897	304,277,897	100.000%	9,189	9,189	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: Holly Springs
Hazard: Wildfire Hazard

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

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	3,689	3,631	98.428%	229,602,320	225,992,416	98.428%	9,189	9,045	98%
Commercial	165	162	98.182%	38,914,777	38,243,599	98.182%	0	0	#DIV/0!
Industrial	76	74	97.368%	9,744,400	9,487,968	97.368%	0	0	#DIV/0!
Agricultural	135	135	100.000%	4,012,320	4,012,320	100.000%	0	0	#DIV/0!
Religious/ Non-profit	7	7	100.000%	577,800	577,800	100.000%	0	0	#DIV/0!
Government	66	62	93.939%	16,469,160	15,471,029	93.939%	0	0	#DIV/0!
Education	5	5	100.000%	626,200	626,200	100.000%	0	0	#DIV/0!
Utilities	9	8	88.889%	6,330,920	5,627,484	88.889%	0	0	#DIV/0!
Total	4,152	4,084	98.362%	304,277,897	298,038,818	97.950%	9,189	9,045	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?	Y	
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: Holly Springs

Hazard: Flood Hazard

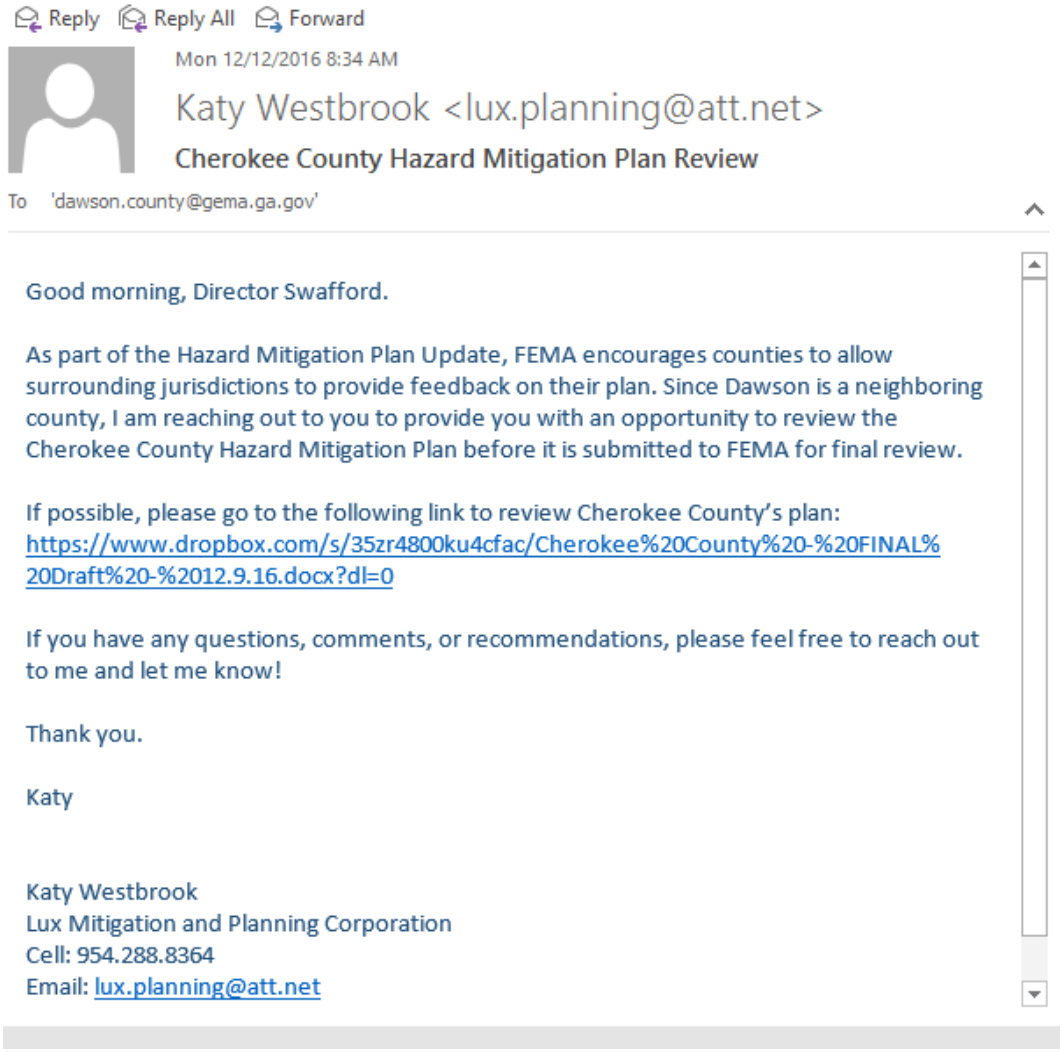
Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	3,689	12	0.325%	229,602,320	746,877	0.325%	9,189	30	0%
Commercial	165	4	2.424%	36,914,777	894,904	2.424%	0	0	#DIV/0!
Industrial	76	0	0.000%	9,744,400	0	0.000%	0	0	#DIV/0!
Agricultural	135	11	8.148%	4,012,320	326,930	8.148%	0	0	#DIV/0!
Religious/ Non-profit	7	0	0.000%	577,800	0	0.000%	0	0	#DIV/0!
Government	66	0	0.000%	16,469,160	0	0.000%	0	0	#DIV/0!
Education	5	0	0.000%	626,200	0	0.000%	0	0	#DIV/0!
Utilities	9	1	11.111%	6,330,920	703,436	11.111%	0	0	#DIV/0!
Total	4,152	28	0.674%	304,277,897	2,672,146	0.878%	9,189	30	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?	Y	
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



Reply Reply All Forward

Mon 12/12/2016 8:34 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'dawson.county@gema.ga.gov'

Good morning, Director Swafford.

As part of the Hazard Mitigation Plan Update, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their plan. Since Dawson is a neighboring county, I am reaching out to you to provide you with an opportunity to review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

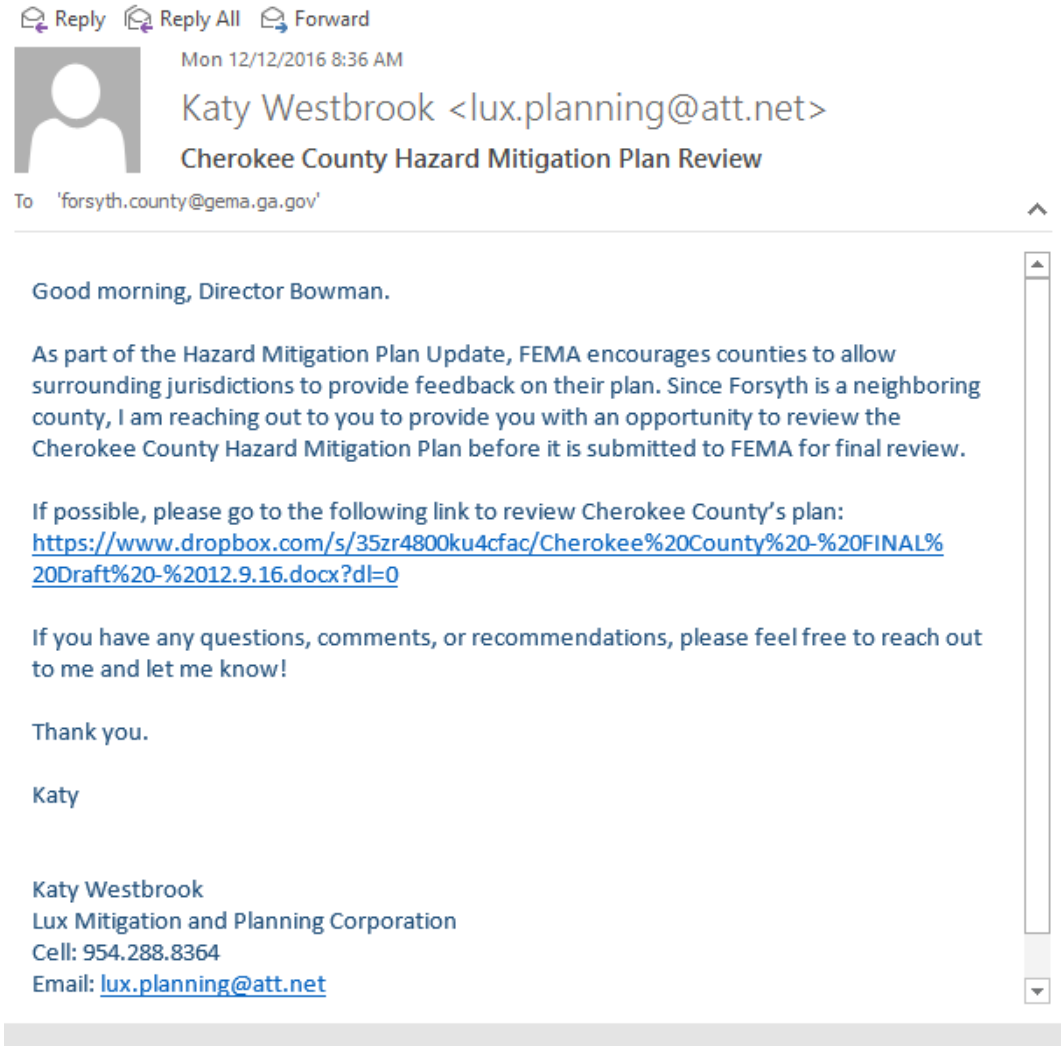
If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to reach out to me and let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corporation
Cell: 954.288.8364
Email: lux.planning@att.net



Reply Reply All Forward

Mon 12/12/2016 8:36 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'forsyth.county@gema.ga.gov'

Good morning, Director Bowman.

As part of the Hazard Mitigation Plan Update, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their plan. Since Forsyth is a neighboring county, I am reaching out to you to provide you with an opportunity to review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

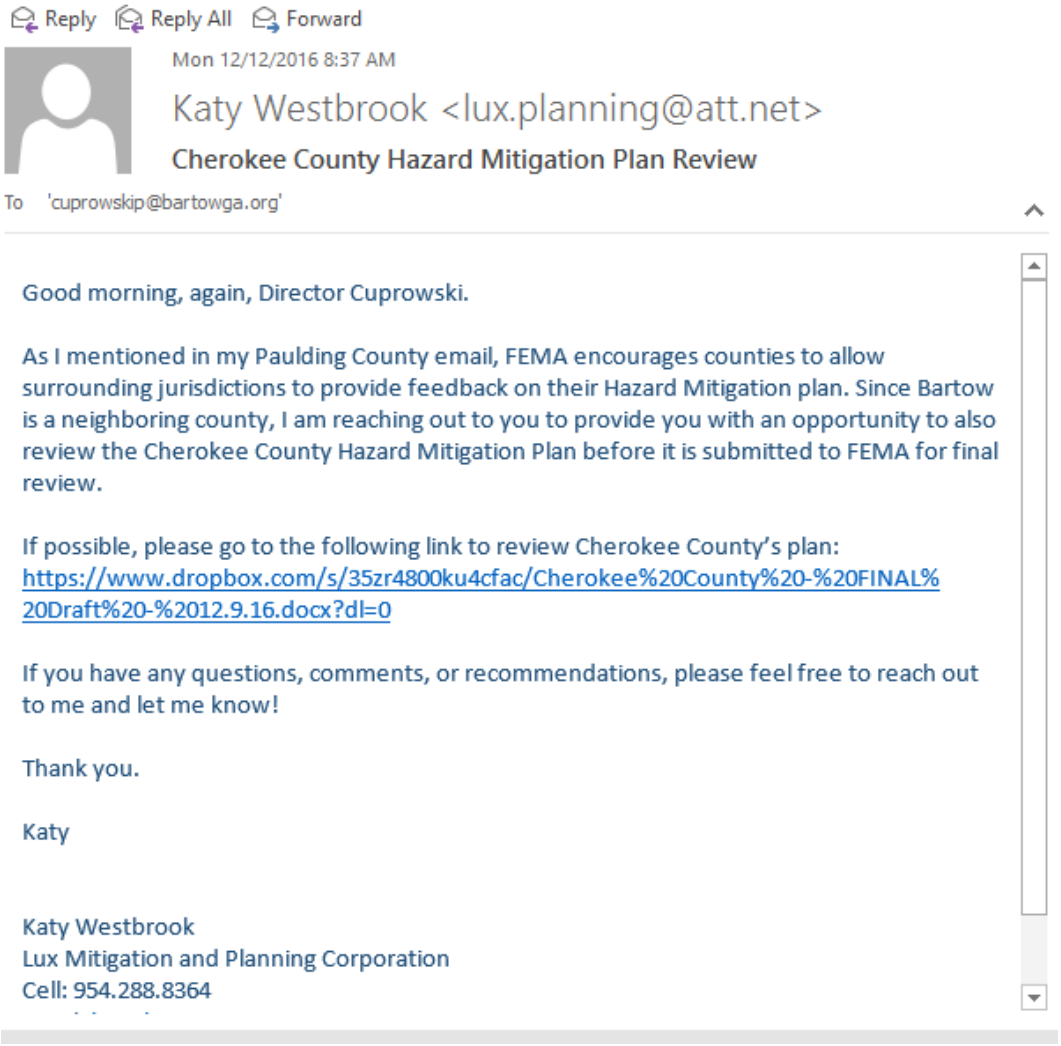
If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to reach out to me and let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corporation
Cell: 954.288.8364
Email: lux.planning@att.net



Reply Reply All Forward

Mon 12/12/2016 8:37 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'cuprowskip@bartowga.org'

Good morning, again, Director Cuprowski.

As I mentioned in my Paulding County email, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their Hazard Mitigation plan. Since Bartow is a neighboring county, I am reaching out to you to provide you with an opportunity to also review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

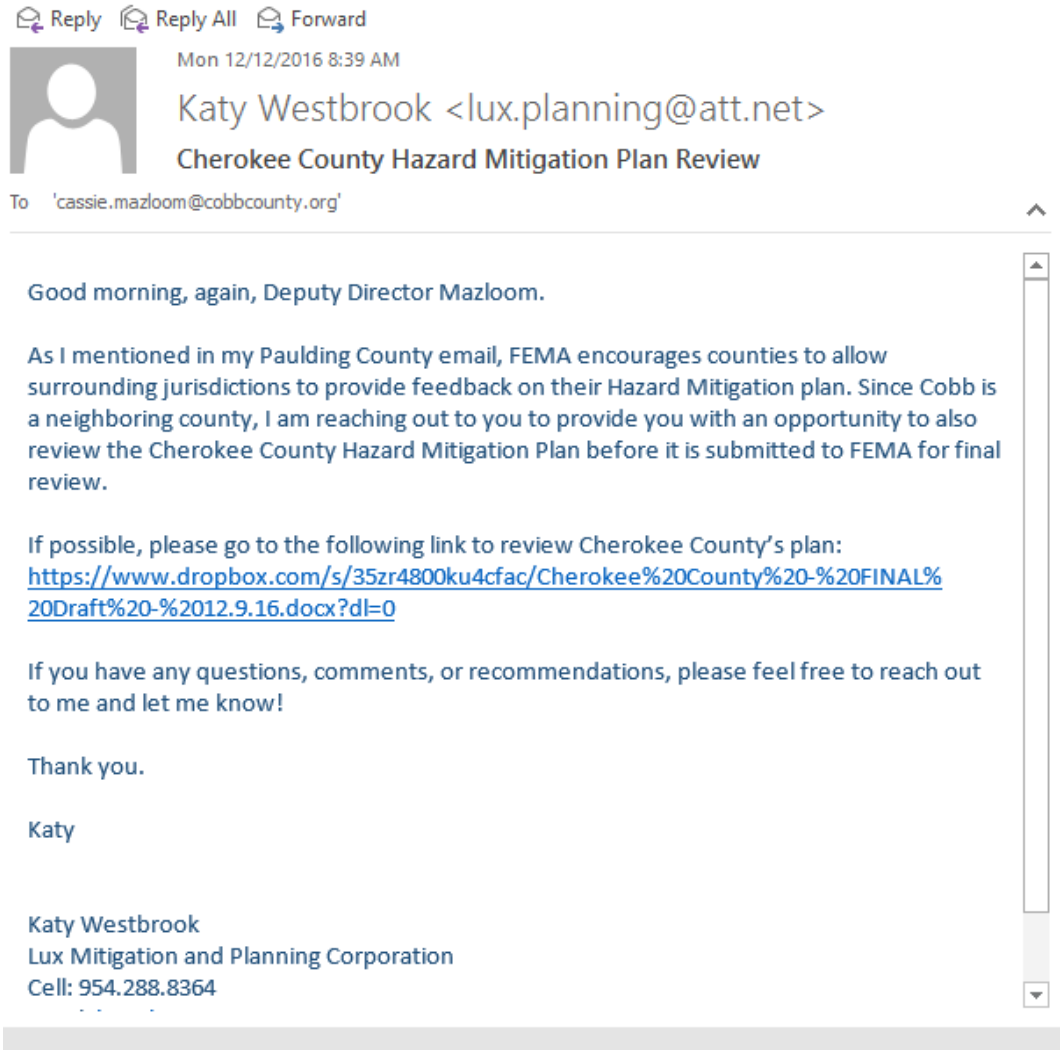
If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to reach out to me and let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corporation
Cell: 954.288.8364



Reply Reply All Forward

Mon 12/12/2016 8:39 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'cassie.mazloom@cobbcounty.org'

Good morning, again, Deputy Director Mazloom.

As I mentioned in my Paulding County email, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their Hazard Mitigation plan. Since Cobb is a neighboring county, I am reaching out to you to provide you with an opportunity to also review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

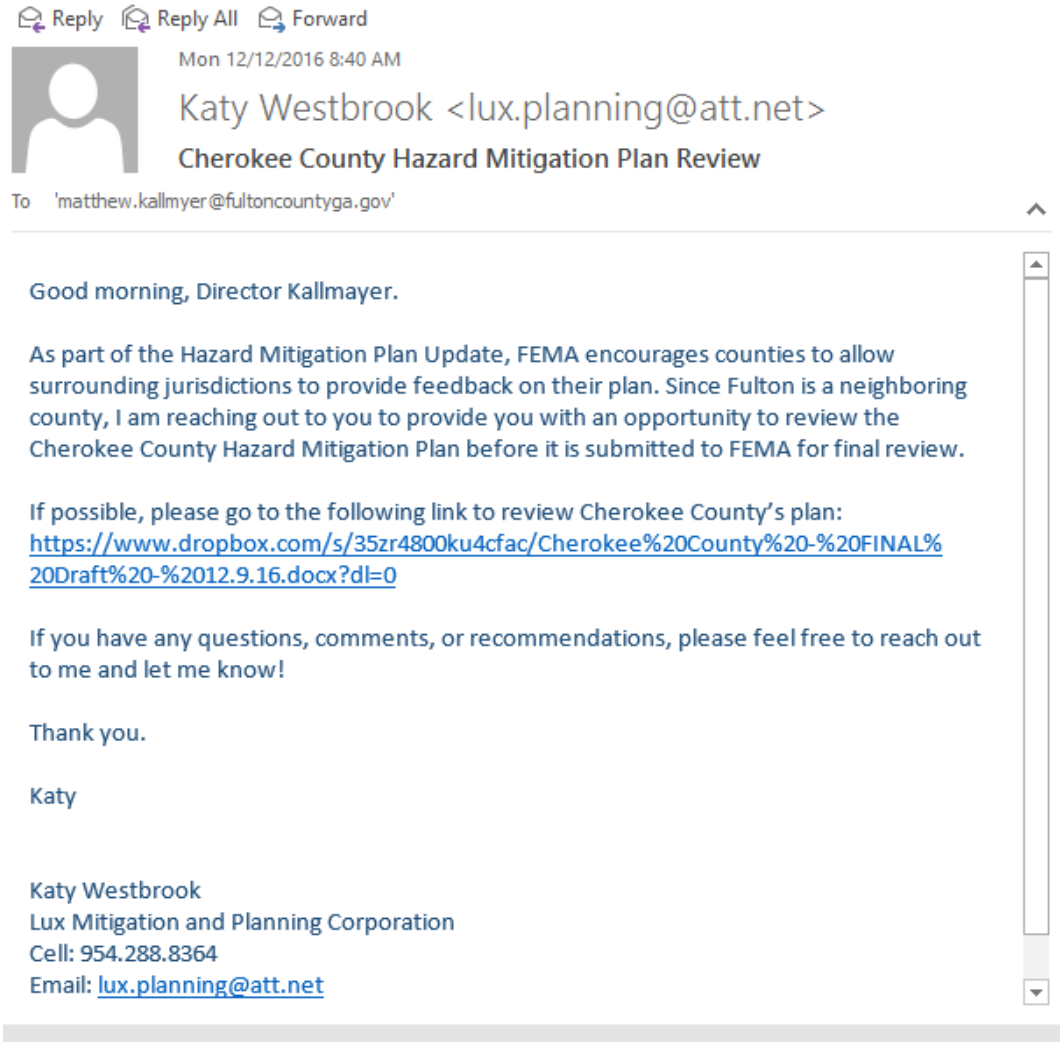
If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to reach out to me and let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corporation
Cell: 954.288.8364



Reply Reply All Forward

Mon 12/12/2016 8:40 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'matthew.kallmyer@fultoncountyga.gov'

Good morning, Director Kallmayer.

As part of the Hazard Mitigation Plan Update, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their plan. Since Fulton is a neighboring county, I am reaching out to you to provide you with an opportunity to review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

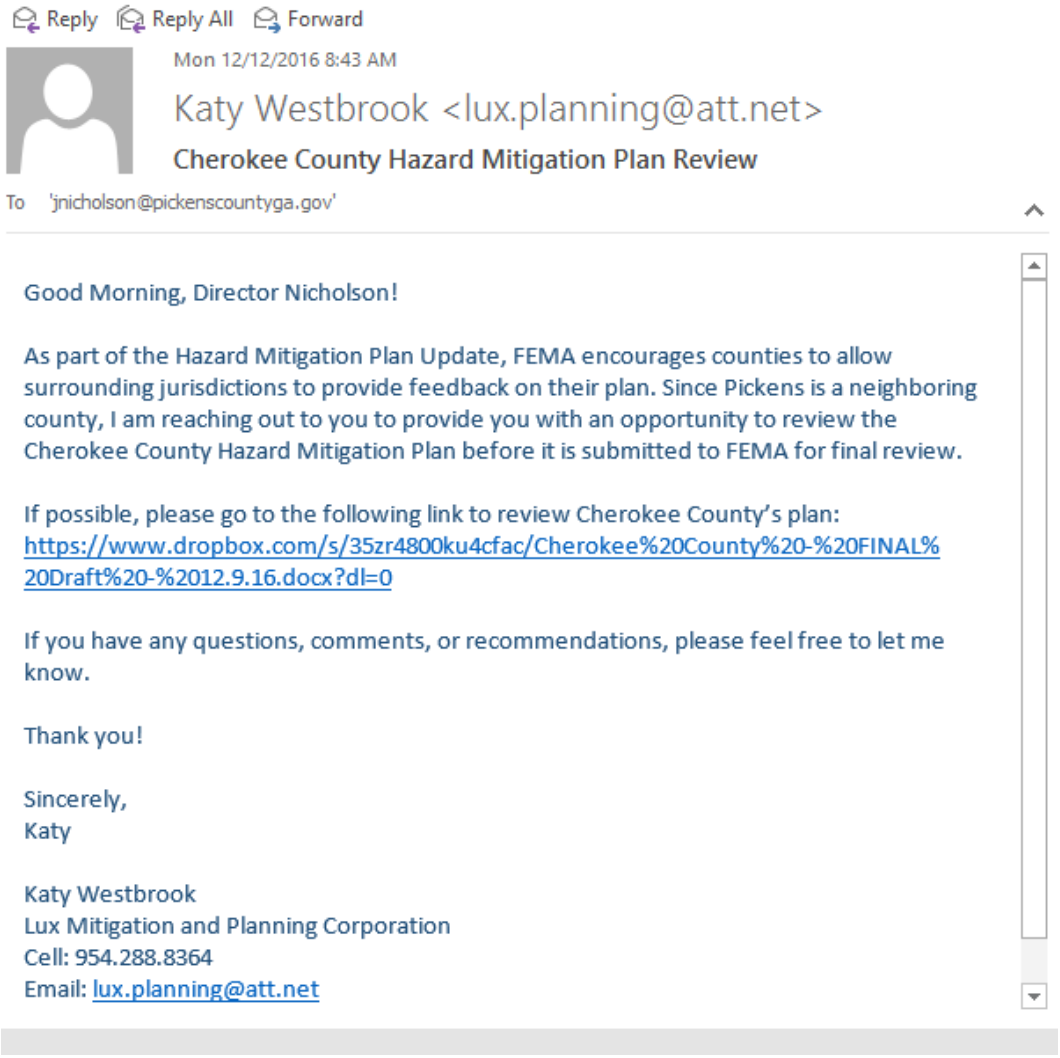
If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to reach out to me and let me know!

Thank you.

Katy

Katy Westbrook
Lux Mitigation and Planning Corporation
Cell: 954.288.8364
Email: lux.planning@att.net



Reply Reply All Forward

Mon 12/12/2016 8:43 AM

Katy Westbrook <lux.planning@att.net>

Cherokee County Hazard Mitigation Plan Review

To 'jnicholson@pickenscountyga.gov'

Good Morning, Director Nicholson!

As part of the Hazard Mitigation Plan Update, FEMA encourages counties to allow surrounding jurisdictions to provide feedback on their plan. Since Pickens is a neighboring county, I am reaching out to you to provide you with an opportunity to review the Cherokee County Hazard Mitigation Plan before it is submitted to FEMA for final review.

If possible, please go to the following link to review Cherokee County's plan: https://www.dropbox.com/s/35zr4800ku4cfac/Cherokee%20County%20-%20FINAL%20Draft%20-%2012.9.16.docx?dl=0

If you have any questions, comments, or recommendations, please feel free to let me know.

Thank you!

Sincerely,
Katy

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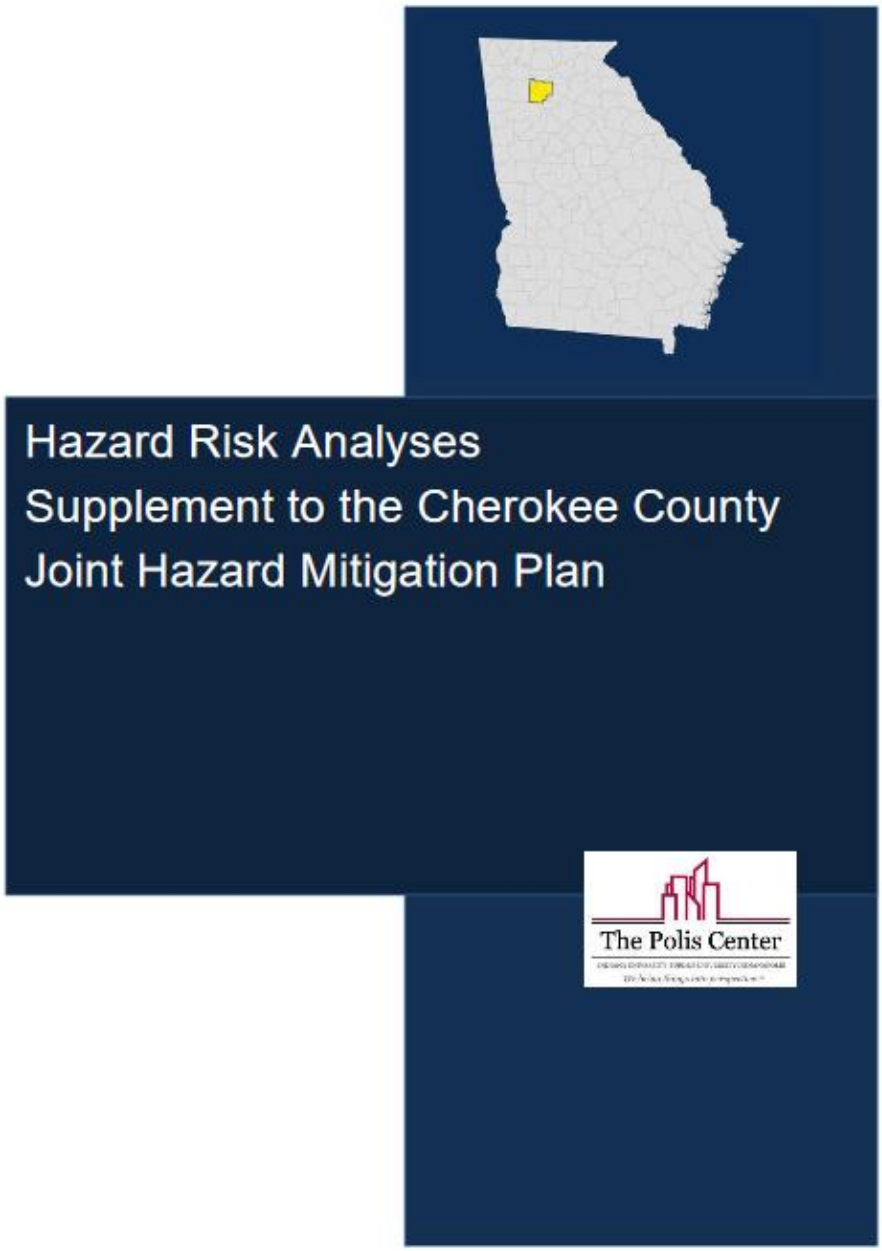
Appendix G – Cherokee County HAZUS Report



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Introduction

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

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

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

In 2015, the Georgia Department of Emergency Management partnered with The Polis Center (Polis) at Indiana University Purdue University-Indianapolis (IUPUI) to develop a detailed risk assessment focused on defining hurricane, riverine flood and tornado in Cherokee 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 Cherokee 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. Cherokee 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.

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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 Cherokee County were replaced with data derived from parcel and property assessment data obtained from Cherokee County. The county provided property assessment data was current as of June 2014 and the parcel data current as of February 2015. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Cherokee County is 95.4%. 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*

Occupancy Classification	Default Count	Updated Count	Default Exposure	Updated Exposure
Agricultural	261	261	$74,425,000	$74,425,000
Commercial	3,243	2,933	$2,276,071,000	$2,893,911,000
Education	124	111	$150,169,000	$983,366,000
Government	78	178	$66,041,000	$294,682,000
Industrial	1,186	1,093	$647,301,000	$1,595,288,000
Religious	308	306	$261,227,000	$538,826,000
Residential	75,676	77,127	$21,930,727,000	$31,042,168,000
Total	**80,876**	**82,009**	**$24,758,660,000**	**$37,422,666,000**

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

For Cherokee County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility (UDF)[1], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

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

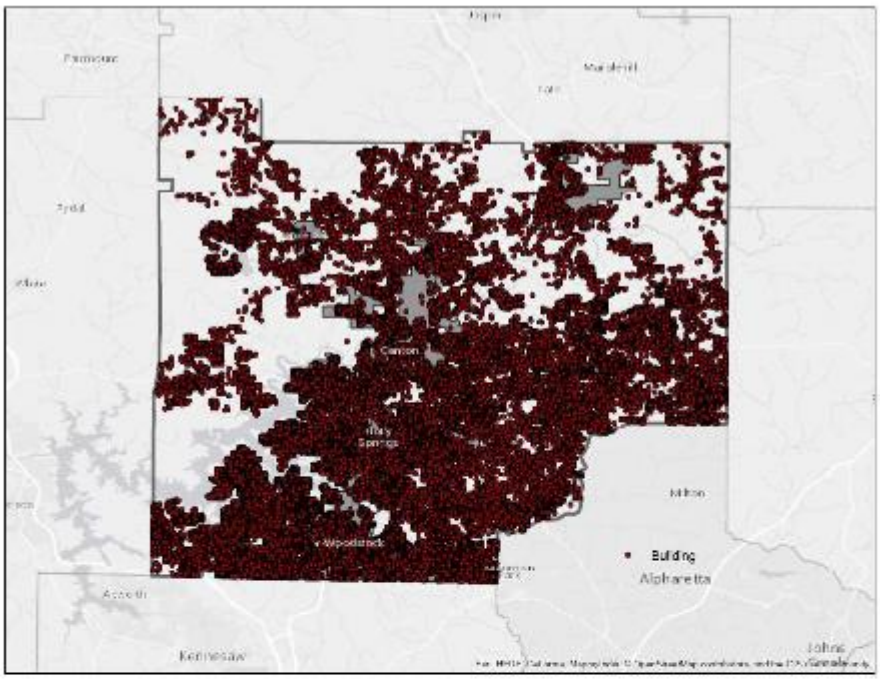

Figure 1: Cherokee County Overview

Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS) as of June 2015. For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five types of facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data for the seven communities, along with the unincorporated portion of the county.

Essential facilities include:

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

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Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Ball Ground		
EOC	0	$0
Care	0	$0
Fire	1	$1,300,000
Police	0	$0
School	1	$12,000,000
Total	**2**	**$13,300,000**
Canton		
EOC	0	$0
Care	1	$100,000,000
Fire	2	$2,900,000
Police	0	$0
School	7	$111,022,000
Total	**10**	**$213,922,000**
Holly Springs		
EOC	0	$0
Care	0	$0
Fire	1	$1,400,000
Police	0	$0
School	1	$20,000,000
Total	**2**	**$21,400,000**
Mountain Park		
EOC	0	$0
Care	0	$0
Fire	0	$0
Police	0	$0
School	0	$0
Total	**0**	**$0**
Nelson		
EOC	0	$0
Care	0	$0
Fire	0	$0
Police	0	$0
School	0	$0
Total	**0**	**$0**
Waleska		
EOC	0	$0
Care	0	$0
Fire	1	$1,400,000
Police	0	$0

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School	2	$123,396,000
Total	**3**	**$124,796,000**
Woodstock		
EOC	0	$0
Care	0	$0
Fire	4	$7,680,000
Police	0	$0
School	4	$64,000,000
Total	**8**	**$71,680,000**
Cherokee County Unincorporated		
EOC	1	$880,000
Care	0	$0
Fire	19	$28,783,000
Police	1	$1,400,000
School	29	$497,227,000
Total	50	$528,290,000
County Total		
Total	**75**	**$973,388,000**

Assumptions and Exceptions

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

- The Cherokee 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.
- 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

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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. Figure 2 shows that many hurricanes have impacted the Atlantic and Gulf coasts of the United States.

Figure 2: Continental United States Hurricane Strikes: 1950 to 2011[3]

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

[3] Source: NOAA National Climatic Data Center

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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.

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

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.

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 Cherokee County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Cherokee County but impacted the county. Since 1997, Cherokee County has had nine tropical systems within 20 miles of its county borders (Table 4).

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Table 4: Tropical Systems Affecting Cherokee County[4]

Year	Month	Day	Name	Wind (Knots)	Category
1915	September	5	Unnamed	40.25	TS
1928	August	15	Unnamed	34.05	TD
1940	August	13	Unnamed	34.5	TD
1971	September	18	Edith	28.75	TD
1975	September	23	Eloise	63.25	TS
1977	September	8	Bebe	28.75	TD
1997	September	23	Danny	23	TD
2004	September	8	Frances	28.75	TD
2005	July	7	Cindy	23	TD

Category Definitions:
TS – Tropical storm
TD – Tropical depression
CAT_1 – Category 1 (same format for 2, 3, and 4)
E – Extra-tropical cyclone

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Category 0, or tropical storm, with maximum winds of 63 mph.

Wind Damage Assessment

Wind losses were determined from probabilistic models run for the Category 0 storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled hurricane.

[4] Atlantic Oceanic and Meteorological Laboratory (2015). "Data Center." National Oceanic and Atmospheric Administration. http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. Retrieved 12-2-2015.

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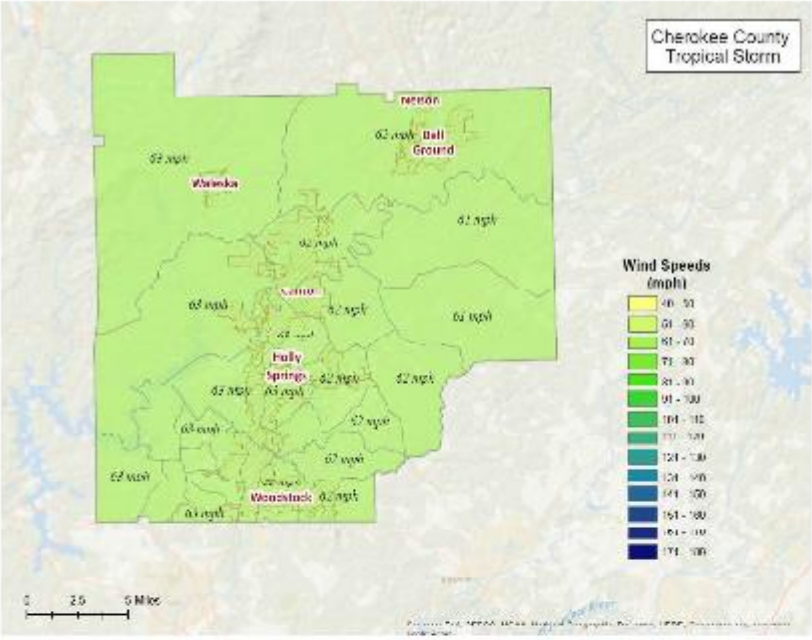

Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Cherokee County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. Figure 4 illustrates the building loss ratios of the modeled Category 0 storm. The following table shows a summary of the results of wind-related building damage in Cherokee County for the Category 0 (100 Year Event) storm. 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.

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.

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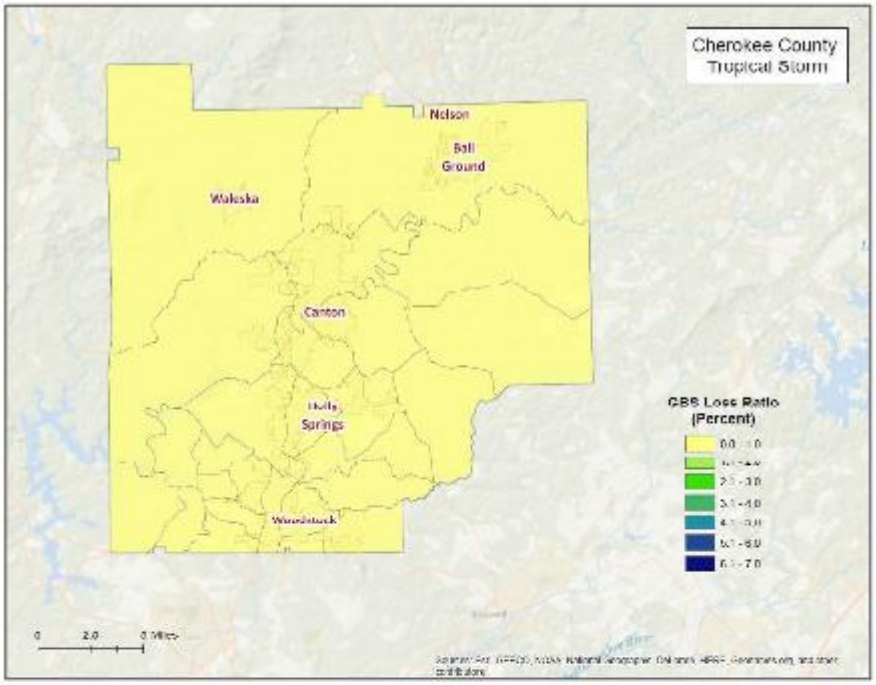

Figure 4: Hurricane Wind GBS Loss Ratios

Table 5 shows the Hurricane Wind Building Damage results including the number of buildings damaged, total building damage, and economic loss.

Table 5: Hurricane Wind Building Damage

Storm Classification	Number of Damaged Buildings	Building Damages	Total Economic Loss	Loss Ratio
Category 0	29	$11,664,240	$15,998,220	0.0%

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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 75 essential facilities in Cherokee County.

Classification	Number
EOCs	1
Fire Stations	28
Care Facilities	1
Police Stations	1
Schools	44

Table 6: Wind-Damaged Essential Facility Losses

Storm Classification	Facilities Moderately Damaged (>50%)	Facilities Completely Damaged (>50%)	Facilities with expected loss (<1day)
Category 0	0	0	75

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. There were no shelter requirements resulting from the current scenario.

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 7. 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 7: Wind-Related Debris Weight (Tons)

Storm Classification	Brick, Wood, and Other	Reinforced Concrete/Steel	Tree Debris	Other Tree Debris	Total
Category 0	405	0	2,296	8,103	10,804

Figure 5 shows the distribution of all wind related debris resulting from a Category 0 hurricane (tropical storm). Each dot represents 100 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.

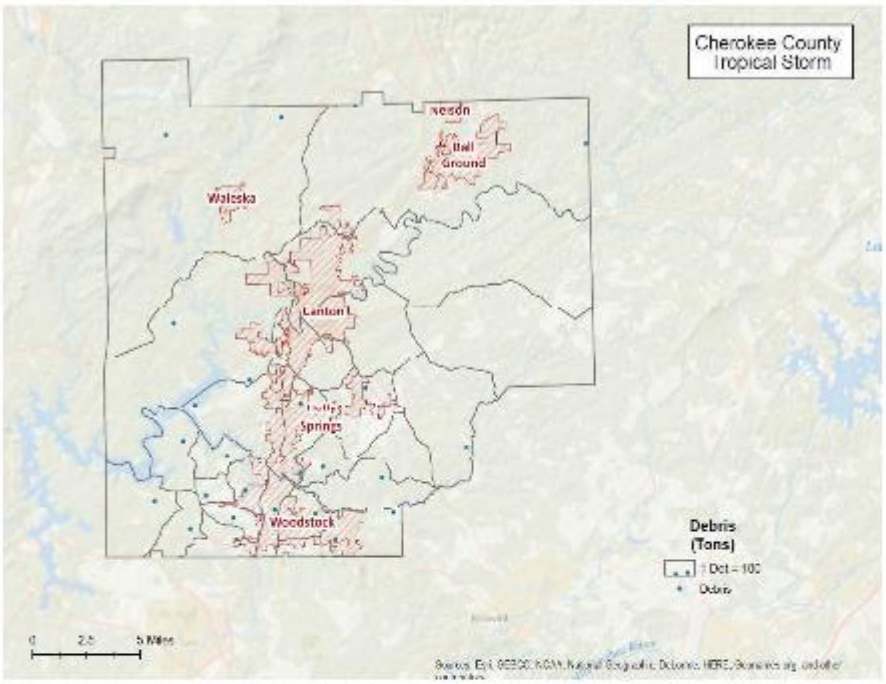

Figure 5: Wind-Related Debris Weight (Tons)

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

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

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

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in October 2015. 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.

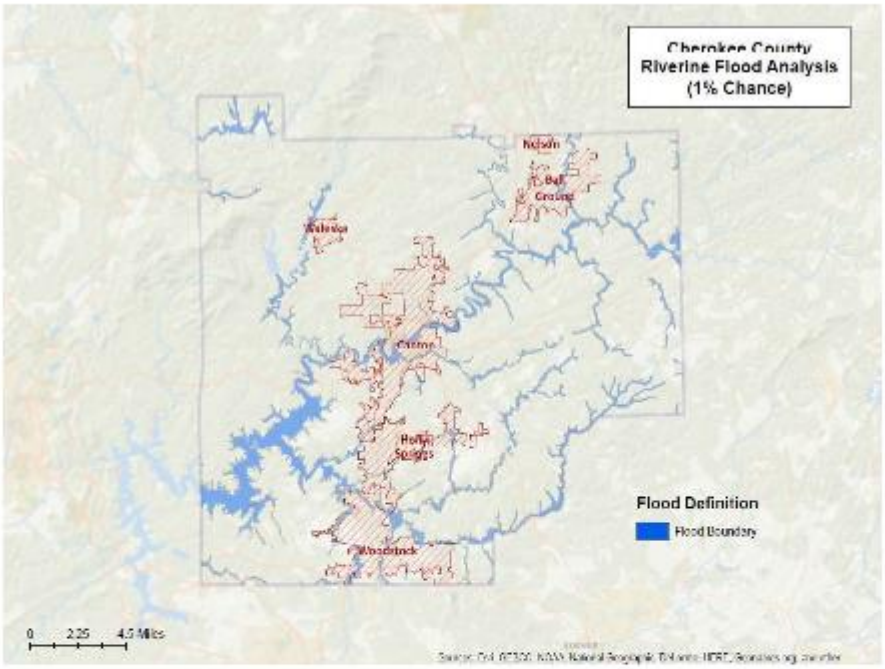

Figure 6: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Cherokee 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 8 provides a summary of the potential flood-related building damage in Cherokee 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.

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Table 8: Cherokee County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
Ball Ground					
Residential	718	8	$220,173,322	$2,596,804	1.18%
Canton					
Residential	7,062	17	$2,815,889,719	$13,658,187	.49%
Industrial	79	21	$242,149,387	$12,285,935	5.07%
Commercial	495	40	$603,293,980	$18,800,424	3.12%
Government	62	5	$103,067,195	$846,132	.82%
Holly Springs					
Industrial	148	2	$158,857,517	$432,237	.27%
Residential	3,996	23	$1,356,802,795	$2,517,886	.19%
Woodstock					
Religious	36	2	$211,571,415	$928,726	.44%
Residential	9,514	89	$3,516,178,939	$24,040,649	.68%
Commercial	468	27	$663,429,803	$10,225,015	1.54%
Unincorporated Cherokee County					
Commercial	1,230	14	$1,114,383,362	$3,879,893	.35%
Government	52	1	$120,698,710	$45,569	.04%
Industrial	550	14	$826,115,374	$35,621,055	4.31%
Residential	55,302	659	$22,525,856,040	$165,749,430	.74%
County Total					
Total	**79,712**	**922**	**$34,478,467,558**	**$291,627,942**	

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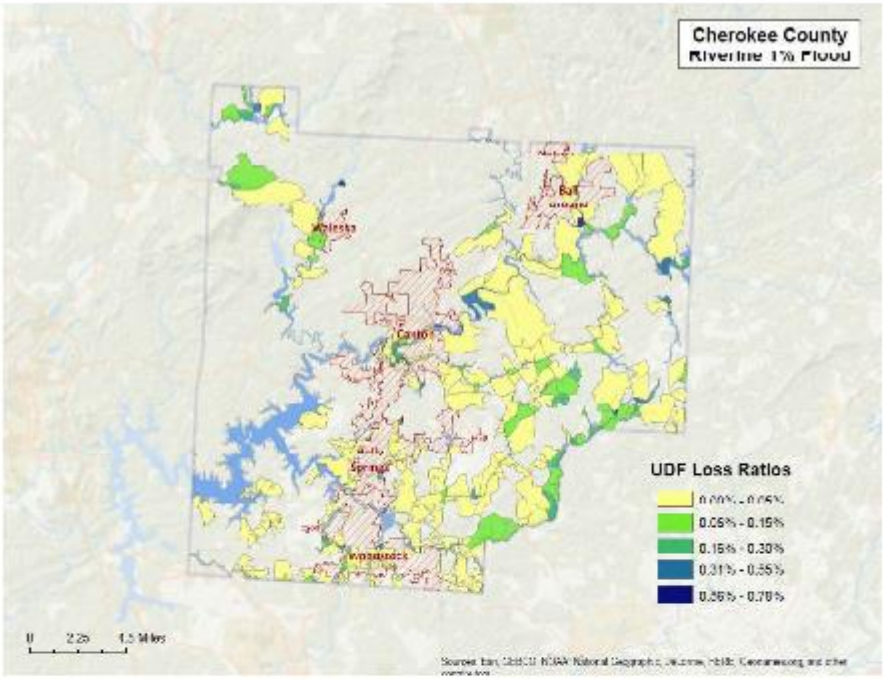

Figure 7: Potential UDF Loss Ratios from the 1% Riverine Flood

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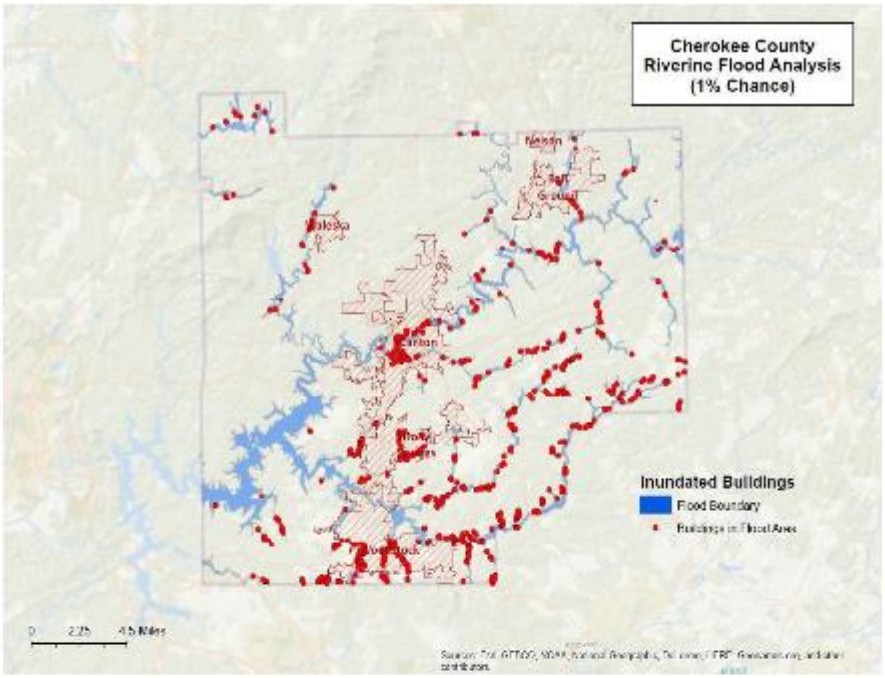

Figure 8: Damaged Buildings in 1% Riverine Flood

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 two schools that were subject to damage and loss of use in the Cherokee 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 4,111 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 214,346 individuals, of which 10,052 may require short term publicly provided shelter. The results are mapped in Figure 9.

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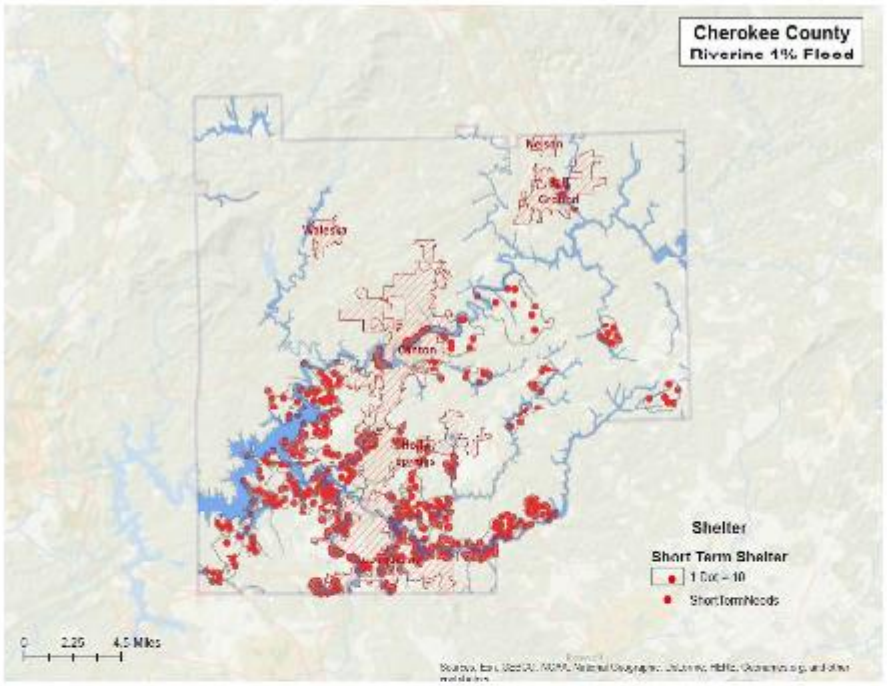

Figure 9: Riverine 1% Estimated Flood Shelter Requirements

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 87,160 tons of debris (3,486 truckloads at 25 tons per) might be generated: 1) Finishes- 20,918 tons; 2) Structural – 32,249 tons; and 3) Foundations- 33,993 tons. The results are mapped in Figure 10.

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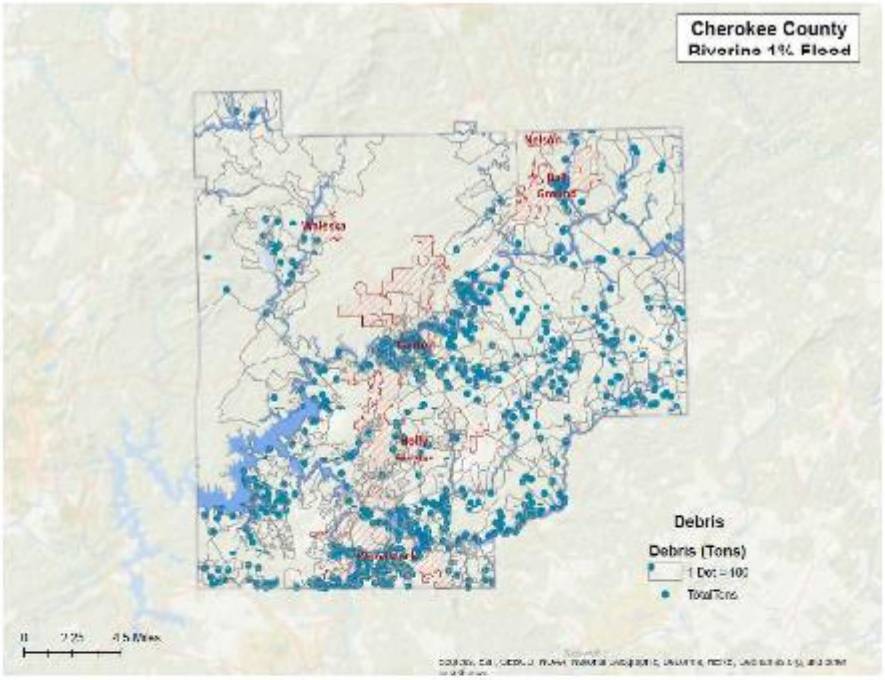

Figure 10: Flood Debris Weight (Tons) in 1% Riverine Flood

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Tornado Risk Assessment

Hazard Definition

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

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

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 9.

Table 9: Enhanced Fujita Tornado Rating

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

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

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Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel along Interstate 575, passing through Holly Springs and Canton. 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 10 depicts tornado path widths and expected damage.

Table 10: Tornado Path Widths and Damage Curves

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

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.

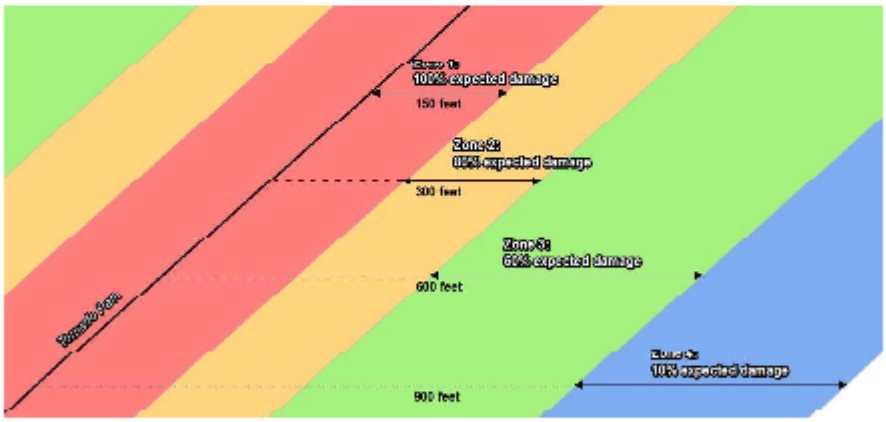

Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 11. 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.

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Table 11: 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%

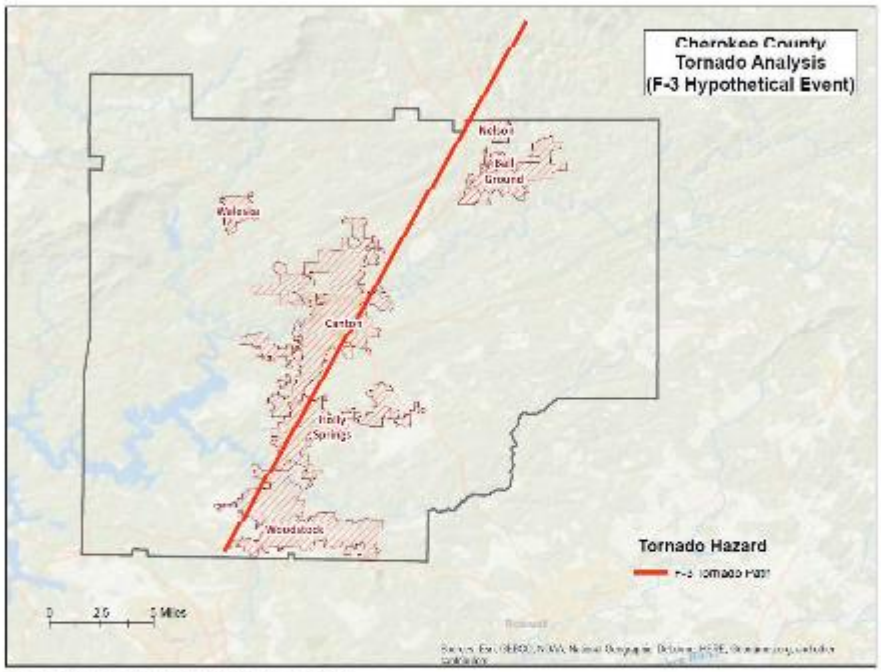

Figure 12: Hypothetical EF3 Tornado Path

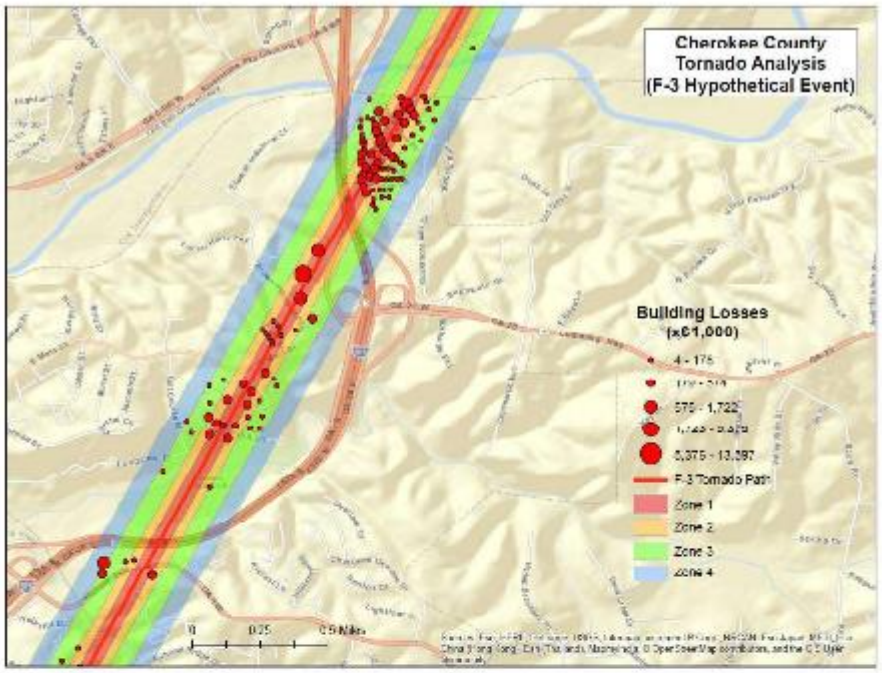

Figure 13: Modeled EF3 Tornado Damage Buffers

EF3 Tornado Building Damages

The analysis estimated that approximately 1,280 buildings could be damaged, with estimated building losses of $237.5 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Cherokee County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 12.

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Table 12: Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses
Commercial	48	$18,857,055
Education	1	$2,626,186
Government	11	$19,579,869
Industrial	44	$19,232,238
Religious	3	$468,844
Residential	1,173	$176,834,895
Total	**1,280**	**$237,599,087**

EF3 Tornado Essential Facility Damage

There was one essential facility located in the tornado path – William G. Hasty Elementary School in Canton. According to the modeling, the school would 10% damage should such a tornado strike occur.

According to the Georgia Department of Education, Hasty Elementary School currently enrolls approximately 900 students. 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.

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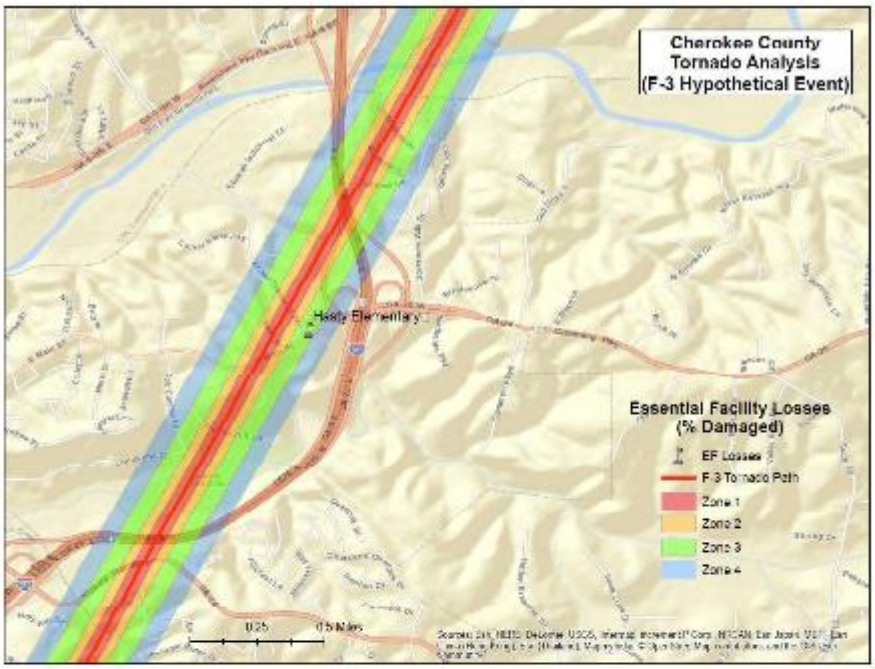

Figure 14: Modeled Essential Facility Damage in Cherokee County

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Exceptions Report

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

Statewide facility data were supplied by GEMA through the GMIS in June 2015. These updates were applied by The Polis Center. Table 13 summarizes the difference between the original Hazus-MH default data and the updated data for Cherokee County.

Table 13: Essential Facility Updates

Occupancy Classification	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
Care	$56,939,000	2	$100,000,000	1
EOC	$880,000	1	$880,000	1
Fire	$0	8	$43,463,000	28
Police	$9,856,000	8	$1,400,000	1
School	$589,076,000	39	$827,645,000	44

County Inventory Changes

The GBS records for Cherokee County were replaced with data derived from parcel and property assessment data obtained from Cherokee County. The county provided property assessment data was current as of January 2015 and the parcel data current as of June 2014.

General Building Stock Updates

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

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The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Cherokee County was 95.4%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 14 outlines the adjustments made to Cherokee County records.

Table 14: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	1,476	2%
Construction Unknown	2,309	3%
Condition Unknown	2,279	3%
Foundation Unknown	2,197	3%
Year Built Unknown	1,473	2%

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

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Cherokee 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

Local parcel and CAMA data were used to develop points representing the locations of buildings in the county, referred to as User Defined Facilities (UDF) in the Hazus model. For the flood model, this includes only buildings located in the 1% Annual Chance Riverine Flood Area. Table 15 identifies the total building count & exposure for the county and the total building count & exposure for buildings located in the 1% Annual Chance Riverine Flood Area.

Table 15: Building Count and Exposure for County and Riverine Flood Area

Feature	Counts	Exposure
Total buildings in the County	80,773	$36,317,545,072
Total buildings inside the 1% Annual Chance Riverine Flood Area	968	$751,321,777

It should be noted that UDFs are only used in the flood modeling process, due to the fact that it is important to identify if individual buildings are located within the flood area to obtain the depth of flood.

Assumptions

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

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