



Cherokee County Hazard Mitigation Plan



2015 Plan Update



This page left intentionally blank

Prepared under the direction of the Hazard Mitigation Planning Committee and the Cherokee
County Emergency Management Agency
by:



236 Town Mart
Clanton, AL 35045
Office (205) 280-3027, Fax (205) 280-0543
www.leehelmsllc.com

This page left intentionally blank

Cherokee County Hazard Mitigation Plan

Table of Contents

Introduction		13
Section One	Plan Update Process	15
	Continued Public Participation	15
	Hazard Mitigation Planning Committee	16
	Participation Guidelines	17
	Committee and Public Meeting Schedule and Participation	18
	Interagency and Intergovernmental Coordination	34
	Integration with Existing Plans	35
	Plan Adoption	36
Section Two	General Characteristics	39
	Growth Trends	39
	General Geology	45
Section Three	Cherokee County Risk Assessment	48
	I. Thunderstorms	67
	II. Lightning	69
	III. Hail	73
	IV. Tornados	77
	V. Floods/Flash Floods	83
	VI. Drought/Extreme Heat	89
	VII. Winter Storms/Frost Freezes/Heavy Snow/Ice Storms/Winter Weather/Extreme Cold	95
	VIII. Hurricanes/ Tropical Storms/Tropical Depressions/ High Winds/Strong Winds	99
	IX. Sinkholes/ Expansive Soils	105
	X. Landslide	109

	XI. Earthquake	113
	XII. Wildfires	125
	XIII. Dam/Levee Failures	127
Section Four	Vulnerability Assessment	133
	Hazard Impacts	133
	Socially Vulnerable Populations	143
	Vulnerable Structures	149
	Critical Facility Inventory	151
	Development Trends	153
	Methods of Warning	159
	Vulnerability Summary	162
	Estimated Loss Projections	162
	Mitigating Potential Losses	167
Section Five	Jurisdictional Assessments	173
	Town of Cedar Bluff	175
	City of Centre	191
	Town of Gaylesville	207
	Town of Leesburg	225
	Town of Sand Rock	243
	Cherokee County Board of Education	261
Section Six	Mitigation Plan Maintenance	265
	Incorporation into Existing Planning Mechanisms	267
	Continued Public Participation	268
APPENDIX I	Adopting Resolutions	269
	Cherokee County EMA	271

Cherokee County	273
Town of Cedar Bluff	275
City of Centre	277
Town of Gaylesville	279
Town of Leesburg	281
Town of Sand Rock	283
Cherokee County Board of Education	285

This page left intentionally blank

LIST OF MAPS, FIGURES, & TABLES

Maps		Page
2-1	Cherokee County General Location	41
2-2	Cherokee County Population Density	43
2-3	Geology of Alabama	47
4-1	Cherokee County Land Use Land Cover	157
Figures		
3-1	Generalized Tornado Paths	79
3-2	Wind Zones in the United States	80
3-3	Cherokee County Sinkhole Susceptibility	106
3-4	General Soils of Alabama	107
3-5	Cherokee County Landslide Susceptibility	111
3-6	National Seismic Hazard Map	119
3-7	Seismic Zones of the Southeastern United States	121
Tables		
1-1	Cherokee County Existing Plans by Jurisdiction	37
2-1	Growth Trends 1990-2014	40
3-1	Cherokee County Hazard Probability of Future Occurrence	51
3-2	Cherokee County Hazard Identification by Jurisdiction	52
3-3	Cherokee County Prioritized Occurrence Threat by Jurisdiction	53

3-4	Cherokee County Mitigation Actions Prioritization	54
3-5	Cherokee County Hazard Events	55
3-6	Estimating Hail Size	73
3-7	Fujita Tornado Scales	81
3-8	Flood Probability Terms	85
3-9	Cherokee County NFIP Status by Jurisdiction	88
3-10	Heat Index/Heat Disorders	93
3-11	Saffir-Simpson Hurricane Wind Scale	100
3-12	Earthquake PGA, Magnitude and Intensity Comparison	115
3-13	Cherokee County Dams Risk Categories	130
3-14	Cherokee County Dam Inventory List	131
4-1	Cherokee County Population Characteristics	145
4-2	Cherokee County Income Data	148
4-3	Cherokee County Housing Characteristics	149
4-4	Cherokee County Building Stock by General Occupancy	150
4-5	Cherokee County Building Exposure	150
4-6	Cherokee County Building Contents Exposure	151
4-7	Cherokee County Critical Facilities	152
4-8	Population Projections	155
4-9	Cherokee County Outdoor Warning Sirens	161
4-10	2014 Values used for Monetary Conversion of Tornado Injuries and Deaths	163
4-11	Cherokee County Vulnerability Summary	164
4-12	Cherokee County Estimated Loss Projections from Specified Hazards	165
4-13	Cherokee County Mitigation Actions	169
5-1	Town of Cedar Bluff Risk & Vulnerability Overview	177
5-2	Town of Cedar Bluff Hazard Events	179
5-3	Town of Cedar Bluff Hazard Probability Assessment	185
5-4	Town of Cedar Bluff Critical Facilities	185

5-5	Town of Cedar Bluff Estimated Loss Projections from Specified Hazards	186
5-6	Town of Cedar Bluff Mitigation Actions	187
5-7	City of Centre Risk & Vulnerability Overview	193
5-8	City of Centre Hazard Events	195
5-9	City of Centre Hazard Probability Assessment	201
5-10	City of Centre Critical Facilities	202
5-11	City of Centre Estimated Loss Projections from Specified Hazards	203
5-12	City of Centre Mitigation Actions	205
5-13	Town of Gaylesville Risk & Vulnerability Overview	209
5-14	Town of Gaylesville Hazard Events	211
5-15	Town of Gaylesville Hazard Probability Assessment	217
5-16	Town of Gaylesville Critical Facilities	218
5-17	Town of Gaylesville Estimated Loss Projections from Specified Hazards	219
5-18	Town of Gaylesville Mitigation Actions	221
5-19	Town of Leesburg Risk & Vulnerability Overview	227
5-20	Town of Leesburg Hazard Events	229
5-21	Town of Leesburg Hazard Probability Assessment	235
5-22	Town of Leesburg Critical Facilities	236
5-23	Town of Leesburg Estimated Loss Projections from Specified Hazards	237
5-24	Town of Leesburg Mitigation Actions	239
5-25	Town of Sand Rock Risk & Vulnerability Overview	245
5-26	Town of Sand Rock Hazard Events	247
5-27	Town of Sand Rock Hazard Probability Assessment	253
5-28	Town of Sand Rock Critical Facilities	254
5-29	Town of Sand Rock Estimated Loss Projections from Specified Hazards	255
5-30	Town of Sand Rock Mitigation Actions	257
5-31	Cherokee County BOE Mitigation Actions	263

This page left intentionally blank

Introduction

Cherokee County Hazard Mitigation Plan

The Cherokee County, Alabama, Natural Hazards Mitigation Plan is a multi-jurisdictional guide for all communities that have participated in the preparation of this plan through the Hazard Mitigation Planning Committee (HMPC). This plan fulfills the requirements set forth by the Federal Disaster Mitigation Act of 2000 (DMA 2000). It meets all eligibility requirements set forth by the Federal Emergency Management Agency (FEMA) for grant assistance. To date, assistance is available from the following grant programs: the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMA), and Pre-Disaster Mitigation Program (PDM). The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Repetitive Flood Claims Grant Program (RFC) and Severe Repetitive Loss Program (SRL) and incorporated these elements into the FMA Program. The FMA Program now allows for up to 100% federal cost share for severe repetitive loss properties; 90% federal cost share for repetitive loss properties; and 75% federal cost share for repetitive loss properties.

This plan covers the entire county including all unincorporated areas, the City of Centre, the Towns of Cedar Bluff, Gaylesville, Leesburg, and Sand Rock, and the Cherokee County Board of Education.

Authority

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-228, as amended), Title 44 Code of Federal Regulations, as amended by Section 201 of the Disaster Mitigation Act of 2000 requires that all state and local governments develop a Hazard Mitigation Plan as a condition of receiving federal disaster assistance.

Funding

Funding for this plan update was made available through the Hazard Mitigation Grant Program (HMGP). The Cherokee County Emergency Management Agency (AEMA) and Lee Helms Associates, L. L. C. entered into an agreement to update the 2009 plan.

Scope

The Cherokee County Hazard Mitigation Plan includes all incorporated and unincorporated areas in Cherokee County. All hazards that may affect Cherokee County and its residents are identified. Hazard mitigation strategies are discussed in terms of goals, objectives and mitigation actions. Responsibility for implementation of strategies is discussed and possible funding sources are identified.

Purpose

“Mitigation is the cornerstone of emergency management. It's the ongoing effort to lessen the impact disasters have on people's lives and property through damage prevention and flood insurance (<http://www.fema.gov/fima/>).” The Cherokee County Hazard Mitigation Plan is an effort to identify mitigation strategies that address the hazards to which Cherokee County is the most vulnerable. This plan is only one of many actions Cherokee County will take to achieve a safer, more hazard resistant environment for its residents.

Section One: Planning Process

Plan update process

The hazard mitigation planning update process began in 2013 after Cherokee County EMA was awarded a planning grant from the Alabama Emergency Management Agency (AEMA). The Cherokee County EMA received 75 percent funding from the Federal Emergency Management Agency (FEMA). The remaining 25 percent was provided locally through in-kind services.

The Cherokee County mitigation plan is the representation of the county's commitment to reduce risks from natural and man-made hazards. In doing this, the number, location, extent and probability of natural and manmade disasters occurring within the area was assessed. Previous 2010 plan information was provided to each jurisdiction/local government Hazard Mitigation Planning Committee members participating in the plan update. This information, which included updating of each jurisdiction's data tables, critical facilities and mitigation strategies, were the basis for the plan. Next, actions that would reduce the loss of life or property in the area were considered. In doing this, all jurisdictions, local governments, private-non-profits, first responders (police, fire and medical), and the general public were invited and encouraged to participate.

Continued Public Participation

After the initial plan was completed in 2005 and revision made in 2010, it was made available for ongoing public view and comment at the Cherokee County Emergency Operations Center, the office of the Cherokee County Commission, the offices of the Mayors, and the main public library. Following the plan's adoption, a public information notice in the local newspaper will inform the public that the plan may be viewed at the above listed offices. Each local government was instructed that amendments or additions could be made to that plan at any time. Additional opportunities for comment were provided at meetings held by the Cherokee County

EMA. No meeting notes or sign-in sheets were created and saved for these past meetings; however, they will be a requirement and placed in the next plan revision.

In the future, the County EMA will strive to gain more public participation in the maintenance and updates of the county's hazard mitigation plan by encouraging Parent Teacher Organizations, Senior Citizens Clubs, Chamber of Commerce, Kiwanis Club, etc. by mail, telephone, and personal contacts. In addition, the County EMA will encourage the county and municipalities with websites to place the 2015 plan on their site and offer the public a place to comment on the plan. Jurisdictions having websites are: Cherokee County - www.cherokee-county-al.gov; Cherokee County BOE – www.cherokee12.org; Cedar Bluff – www.cedarbluff-al.org; Centre – www.cityofcentre.org; Leesburg – www.leesburgal.com; Sand Rock – www.sandrock-al.org. Gaylesville is the only jurisdiction without its own website.

Hazard Mitigation Planning Committee

Before beginning the plan update process, LHA staff coordinated with Mrs. Beverly Daniel, Cherokee County EMA Director, to review the hazard mitigation planning committee. Existing members were confirmed to continue service. Replacements were made to fill vacancies as needed and new members were added to represent local governments participating in the plan for the first time. Mrs. Daniel assumed the responsibility as Chairman of the Hazard Mitigation Planning Committee and also invited the Local Emergency Planning Committee (LEPC) to participate in the planning process. The Hazard Mitigation Committee consisted of the following members:

Cherokee County

James Lowery, Volunteer at Cherokee County EMA

Kirk Day, Cherokee County Probate Judge/County Commission Chair

Corey Chambers, Cherokee County Highway Department/County Engineer

John A. Roberts, 911/Revenue Commissioner

Matt Teal, Volunteer at Cherokee County EMA

Tim Burgess, Cherokee County Commission/Administrator
Gerald Ware, Cherokee County Dept. of Human Resources/Director
Sandy Pentecost, Cherokee County Dept. of Human Resources/Supervisor
Daniel Steele, Cherokee County Commission/Deputy Administrator

Town of Cedar Bluff

Sabrina Minton, Assistant Town Clerk
Martha Baker, Town of Cedar Bluff

City of Centre

Tony Wilkle, City of Centre/Mayor

Town of Gaylesville

Elizabeth Stafford, Town of Gaylesville, Mayor

Town of Leesburg

Edward Mackey, Town of Leesburg, Mayor

Town of Sand Rock

James Ricky Mackey, Town of Sand Rock, Mayor

Cherokee County Board of Education

Trina Wood, Cherokee County BOE/Assistant Superintendent

Others

Lee Helms, Lee Helms Associates, L. L. C.
Marc Summers, WEIS Radio News Director

Participation Guidelines

The Chairman of the Hazard Mitigation Planning Committee set forth a list of participation guidelines for the Hazard Mitigation Planning Committee:

1. At least one appointed representative from each participating local government should attend all committee meetings. In the event of extenuating circumstances, the local government may send a non-appointed representative. If a committee member cannot attend the meetings, he or she will be contacted in person, by phone, by email, or by mail in order to obtain the jurisdiction's participation in the plan revision. Committee members are also encouraged to attend neighboring communities' HMPC meetings and participate in their plan updates. Each local government should submit requested information to Cherokee County EMA or LHA in a timely manner. Local governments should meet timeframes and deadlines established by the committee. In the event of extenuating circumstances, the Hazard Mitigation Planning Committee Chairman may approve late submissions.
2. Committee members should fully cooperate with the Cherokee County EMA and LHA staff during the update and finalization of the Cherokee County Hazard Mitigation Plan by providing the best available information necessary to complete the plan.
3. Each participating local government must submit a list of prioritized mitigation actions. The local government must provide mitigation measures and the method used to prioritize the actions. The selected actions must identify the hazard(s) being mitigated.

Committee and Public Meeting Schedule and Participation

Each jurisdiction, public and private nonprofits, general public, and neighboring communities were invited and encouraged to participate in each of the committee meetings. In the event they were unable to attend the meetings they were required to obtain meeting materials from the Cherokee County EMA or LHA prior to or immediately following the missed meeting. Meeting materials were completed and returned via mail, fax, email, or by scheduling an individual meeting with the Cherokee County EMA and/or LHA for the local government to be

counted as an active participant in the planning process. Neighboring communities of DeKalb, Etowah, Calhoun and Cleburne were invited by phone or email and encouraged to attend all committee meetings and provide input. None of these communities attended any of the meetings; however, all expressed their willingness to help in the event of a disaster. Public meeting notices were published in the Cherokee County Herald two weeks prior to the meeting date and included contact information for assistance. Attendees at the meetings were asked to group themselves by jurisdiction to review and complete meeting materials that required collaboration and provide other needed data. Some individuals participated with and contributed to more than one jurisdiction as deemed appropriate. A “Citizen Input on Hazard Mitigation Plan” form (sample found in this section) was available at all meetings for general public citizens to complete. Committee representatives were asked to take these forms and have their concerned citizens to complete. No forms were completed during the planning process.

This page left intentionally blank

INITIAL MEETING AGENDA
2015 CHEROKEE COUNTY HAZARD MITIGATION PLAN UPDATE

Thursday, May 8, 2014 @ 10 a.m.

County Commission Chambers in the Cherokee County Administrative Building, Centre, AL

1. Introductions
 - Sign-in sheets – please print and make sure your email is on the form
2. Project Background
 - 2010 plan update was prepared by the East Alabama Regional Planning Commission under the direction of the Hazard Mitigation Planning Committee, the Local Emergency Planning Committee, and the Cherokee County Emergency Management Agency and adopted by:
 - Cherokee County - (includes Unincorporated)
 - Cedar Bluff – Town
 - Centre – City
 - Gaylesville – Town
 - Leesburg – Town
 - Sand Rock – Town
 - Cherokee County School System – School District
 - 2014-2015 plan update will be prepared by Lee Helms Associates, L. L. C. under the direction of the Hazard Mitigation Planning Committee, the Local Emergency Planning Committee, and the Cherokee County Emergency Management Agency
3. Project Participation
 - Identify opportunities for public input into the 2015 plan update
 - Identify potential plan meeting participants that are not present today (municipalities, school boards, engineers, hospitals, surrounding county EMAs, fire departments, etc.)
 - PNP's are their own applicant
4. Project Schedule
 - 2010 plan update expires May 19, 2015
 - Period of Performance (POP) for the grant is November 18, 2013 – November 18, 2014
 - Goal date for draft plan to be submitted in order to be approved before the POP expires: Monday, July 7, 2014
 - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval). **A request for an extension to the POP can be made by Cherokee County EMA.**
 - There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax [205-280-0543](tel:205-280-0543) or email to renee@leehelmsllc.com. If you have any questions or need assistance, call LHA at 205-280-3027.
5. Project Tasks for this Meeting
 - All general public attendees are to complete the form titled: “Citizen Input on Hazard Mitigation Planning” and leave completed form with LHA representative
 - Local EMA Director is to complete Questionnaire #1 and return to LHA
 - Local EMA Director is to provide LHA with a copy of the media release for this meeting
 - Update 2010 plan information – see handouts
 - Discuss in-kind contributions for local match to this planning grant
 - Set date and location for next meeting

This page left intentionally blank

Thursday, May 8, 2014 at 10 a.m.

**County Commission Chambers in the Cherokee County Administrative Building in Centre
Cherokee County Hazard Mitigation Planning Meeting 1**

The Chairman of the Hazard Mitigation Planning Committee, Ms. Beverly Daniel, opened the meeting. Lee Helms Associates, L. L. C. reviewed the original plan with committee members and attendees and explained the update process. Attendees were given worksheets and other materials related to the agenda topics in order to review and provide data for the update. A total of 11 committee members or designees attended the meeting, along with 1 LHA representative. No members of the general public were in attendance.

Cherokee County

- Matt Teal, Cherokee County EMA, Volunteer
- Tim Burgess, Cherokee County Commission, Administrator
- Gerald Ware, Cherokee County Department of Human Resources, Director
- Corey Chambers, Cherokee County Highway Department, County Engineer
- Daniel Steele, Cherokee County Commission, Deputy Administrator
- Kirk Day, Cherokee County, Probate Judge
- Lee Helms, Lee Helms Associates, L. L. C., Owner/Consultant
- Sandy Pentecost, Cherokee County Department of Human Resources, Supervisor
- Beverly Daniel, Cherokee County Emergency Management Agency, Director

Cherokee County BOE

- Trina Wood, Cherokee County BOE, Superintendent

Town of Cedar Bluff

- Martha Baker, Town of Cedar Bluff

City of Centre

- Tony Wilkle, City of Centre, Mayor

Town of Gaylesville

Town of Leesburg

- Edward Mackey, Town of Leesburg, Mayor (by phone and email)

- Jennifer Sharpe, Town of Leesburg, Clerk (by phone and email)

Town of Sand Rock

- James Ricky Mackey, Town of Sand Rock, Mayor (by phone and email)
- Melonie Garrett, Town of Sand Rock, Clerk (by phone and email)

CHEROKEE COUNTY

Thursday, May 8, 2014 at 10 a.m. – Cherokee County Commission Chambers in Centre, AL
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Lee Helms	Agency: Lee Helms Associates Job Title: Owner	Phone: 205-280-3027 Fax: 205-280-0543	lee@leehelmsllc.com
Trina Wood	Agency: Cherokee Co. BOE Job Title: Assistant Superintendent	Phone: 256-927-5893 Fax: 256-927-4204	twood@cherokee.k12.org
MATT TESS	Agency: Cherokee Co. EMA Job Title: EMA Volunteer	Phone: 256-557-1596 Fax:	k4bmx@tds.net
Martha Baker	Agency: Town of Cedar Bluff Job Title:	Phone: 256-779-6121 Fax:	mbaker@tds.net
Tim BURGESS	Agency: Cherokee Co. Commission Job Title: Administration	Phone: 256-927-3668 Fax: 256-927-3669	tburgess@cherokee-county-al.gov
Gerald Ware	Agency: Cherokee County DHE Job Title: Director	Phone: 256-927-1440 Fax:	Gerald.Ware@dhe.alabama.gov



CHEROKEE COUNTY

Thursday, May 8, 2014 at 10 a.m. – Cherokee County Commission Chambers in Centre, AL
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Corey Chambers	Agency: Cherokee Co. Hwy Dept	Phone: (256) 927-5573	CCHDCC@TDS.net
	Job Title: County Engineer	Fax: (256) 927-7864	
Tony Wilkie	Agency: City of Centre	Phone: 256 927-5222	CentreAL@tds.net
	Job Title: M.A.P.A	Fax: 256 927 5219	
Daniel Steele	Agency: Cherokee Co. Commission	Phone: (256) 927 9668	
	Job Title: Dep. Admin	Fax:	
Kirk Day	Agency: Cherokee Co.	Phone: 256 927-3863	kirkday@cherokee-county-al.gov
	Job Title: Probate Judge	Fax:	
Sandy Pentecost	Agency: Cherokee Co DHR	Phone: 256 927 1440	sandy.pentecost@dhr.eklabva.gov
	Job Title: Supervisor	Fax:	
Beverly Daniel	Agency: Cherokee Co EMA	Phone: 256-927-3367	beverlydaniel@cherokee-county-al.gov
	Job Title: Director	Fax:	



CITIZEN INPUT ON HAZARD MITIGATION PLANNING

Where in the county do you live (Which city or township?)	
What is your zip code at home?	
Do you work with Law Enforcement, Fire Service, Emergency Medical Services, Public Health, or Emergency Management? (Yes or No)	

Which of these emergency events have occurred at your home or in your neighborhood during the past ten years?

	EVENT	YES	NO
A	Brush or grass fire?		
B	Building fire?		
C	Severe thunderstorm?		
D	Tornado?		
E	Winter Weather?		
F	Terrorism?		
G	Drought?		
H	Hazardous material spill or release from pipelines, trucks, trains, or aircraft?		
I	Hazardous material spill or release from a facility?		
J	Power failure for more than two or three hours?		
K	Earthquake		

Did you have to leave your home because of any of these events?

If so, which ones? List by letter designation: _____

Did you lose time from work or school because of any of these events?

If so, which ones? List by letter designation: _____

Which of the following events are you concerned about in the next 12 months?

	EVENT	YES	NO
A	Brush or grass fire?		
B	Building fire?		
C	Severe thunderstorm?		
D	Tornado?		
E	Winter Weather?		
F	Terrorism?		
G	Drought?		

H	Hazardous material spill or release from pipelines, trucks, trains, or aircraft?		
I	Hazardous material spill or release from a facility?		
J	Power failure for more than two or three hours?		
K	Earthquake		

Of the concerns listed in question eight, please list the ones that you think are most likely to happen. List in priority by letter designation:

Of the concerns that you think are most likely to happen from question 9, which one do you think would affect most of the population of your County? _____

Of the concerns listed in question eight, please list the ones you think are least likely to happen. List by letter designation: _____

Do you own a NOAA weather radio? YES _____ NO _____

If yes, is it on right now? YES _____ NO _____

Are you familiar with the Emergency Alert System YES _____ NO _____

Do you have a device that can sound an alarm to alert you to emergencies? YES _____ NO _____

Can you receive emergency warning information on your pager, cell phone, or wireless messaging devices? YES__ NO__ If no, would you like to? YES__ NO__

Do you have a family emergency plan for events such as a home fire? YES _____ NO _____

Do you have a safe place for shelter in or around your home? YES _____ NO _____

Are there emergency plans at your place of employment? YES _____ NO _____

If you are willing to, please provide your name, address, and a telephone number so that the County Emergency Management or the community representative may contact you if further input is needed:

Name	
Mailing Address	
Contact Number	
E-Mail	

Questions?

MID-TERM MEETING AGENDA

2014 CHEROKEE COUNTY HAZARD MITIGATION PLAN UPDATE

Wednesday, October 1, 2014 @ 10 a.m.

Cherokee County Commission Chambers, Centre, AL

1. Introductions

- Sign-in sheets – please print and make sure your email is on the form.

2. Project Schedule Reminder

- 2010 plan update expires May 19, 2015
- Period of Performance for the grant is November 18, 2013 – May 15, 2015 (POP extension was approved)
- Goal date for draft plan to be submitted in order to be approved before current plan expires: Wednesday, December 31, 2014 (with the extension)
 - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval)
- There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax 205-280-0543 or email to renee@leehelmsllc.com. If you have any questions or need assistance, call LHA at 205-280-3027.

3. Project Tasks for this Meeting

- All general public attendees are to complete the form titled: “Citizen Input on Hazard Mitigation Planning” and leave completed form with LHA representative
- Local EMA Director is to provide LHA with a copy of the media release for this meeting if applicable
- Update 2010 plan information – see handouts Discuss in-kind contributions for local match to this planning grant



Wednesday, October 1, 2014 at 10 a.m.

**County Commission Chambers in the Cherokee County Administrative Building in Centre
Cherokee County Hazard Mitigation Planning Meeting 2**

The Chairman of the Hazard Mitigation Planning Committee, Ms. Beverly Daniel, opened the meeting. Lee Helms Associates, L. L. C. reminded the committee members and attendees of the project schedule. Attendees were given worksheets and other materials related to the agenda topics in order to review and provide data for the update. These worksheets were previously emailed to participants with instructions on what information needs updating. A total of 7 committee members or designees attended the meeting, along with one LHA representative.

Cherokee County

- James Lowery, Cherokee County EMA, Volunteer
- Tim Burgess, Cherokee County Commission, Administrator (by phone and email)
- Gerald Ware, Cherokee County Department of Human Resources, Director (by phone and email)
- Corey Chambers, Cherokee County Highway Department, County Engineer
- Daniel Steele, Cherokee County Commission, Deputy Administrator (by phone and email)
- Kirk Day, Cherokee County, Probate Judge
- Lee Helms, Lee Helms Associates, L. L. C., Owner/Consultant
- Sandy Pentecost, Cherokee County Department of Human Resources, Supervisor (by phone and email)
- Beverly Daniel, Cherokee County Emergency Management Agency, Director
- John A. Roberts, 911 Revenue Commissioner
- Marc Summers, WEIS Radio, News Director

Cherokee County BOE

- Trina Wood, Cherokee County BOE, Superintendent (by phone and email)

Town of Cedar Bluff

- Sabrina Minton, Town of Cedar Bluff, Assistant Town Clerk

City of Centre

- Tony Wilkle, City of Centre, Mayor (by phone and email)

Town of Gaylesville**Town of Leesburg**

- Edward Mackey, Town of Leesburg, Mayor (by phone and email)
- Jennifer Sharpe, Town of Leesburg, Clerk (by phone and email)

Town of Sand Rock

- James Ricky Mackey, Town of Sand Rock, Mayor (by phone and email)
- Melonie Garrett, Town of Sand Rock, Clerk (by phone and email)

Attendees from the initial meeting returned their updated worksheets to LHA by email or fax. For the information that was missing, LHA contacted each participant by telephone and/or email and gathered the information. Attendees of Meeting 2 were provided the same worksheets and will be responded to in the same way.

CHEROKEE COUNTY

Wednesday, October 1, 2014 at 10 a.m. – Cherokee County Commission Chambers in Centre, AL

INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

Mid-Team

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Sabrina Minton	Agency: Assistant Town Clerk	Phone:	
	Job Title: Town of Cedar Bluff	Fax:	
MARC SUMMERS	Agency: LEIS RADIO	Phone: 256-927-5152	LEISNEWS@TDS.NET
	Job Title: NEWS DIRECTOR	Fax:	
Corsy Chambers	Agency: Cherokee Co. Hwy Dept	Phone: (256) 927-5573	CC.H.D.CC@TDS.net
	Job Title: County Engineer	Fax: (256) 927-7864	
John A Roberts	Agency: 911	Phone: 256 927 5527	
	Job Title: Revenue Comm	Fax: 256 927 5528	
Beverly Daniel	Agency: Cherokee Co EMT	Phone: 256-927-3367	beverlydaniel@cherokee-county-al.gov
	Job Title: Director	Fax:	
Lee Helms	Agency: Lee Helms Associates	Phone: 205-280-3027	lee@leehelmsllc.com
	Job Title: Owner / Consultant	Fax: 205-280-0543	



CHEROKEE COUNTY

Wednesday, October 1, 2014 at 10 a.m. – Cherokee County Commission Chambers in Centre, AL

~~INITIAL~~ HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

Midterm

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
James Lowery	Agency: Vol Cherokee Co EMA Job Title:	Phone: 256-557-6843 Fax:	James.lowery3891@gmail.com
Kirk Day	Agency: Cherokee Co Job Title: Probate Judge/Co Comm. Chair	Phone: 256-927-3363 Fax:	kirkday@cherokee-county-al.gov
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	



Interagency and Intergovernmental Coordination

Interagency and intergovernmental coordination also played a vital part in the development of this plan. Each of the agencies listed below were contacted via mail, email, fax, or telephone requesting the best available data that they could contribute to the 2015 plan update. All information provided was beneficial in completing risk and vulnerability assessments.

Federal Agencies

- National Weather Service provided storm event data
- United States Geological Survey provided information on general geology, earthquakes, sinkholes, land subsidence, and landslides
- U.S. Army Corp of Engineers and HAZUS-MH 2.1 provided information on dams
- Federal Emergency Management Agency provided information throughout the plan, including the National Flood Insurance Program information
- U.S. Department of Transportation's Hazardous Material Information System provided event data
- U.S. Department of Agriculture – Census of Agriculture provided land value per acre
- HAZUS-MH 2.1 provided estimation information on potential damage, economic loss, and social impacts from natural disasters

State Agencies

- Alabama Emergency Management Agency provided hazard information throughout the plan
- Geological Survey of Alabama provided information on general geology, earthquakes, sinkholes, and landslides
- Alabama Department of Economic and Community Affairs provided the Alabama Drought Management Plan, National Flood Insurance Program information and FEMA flood map update information
- Forestry Commission provided information regarding wildfires

Regional Agencies

- East Alabama Regional Planning and Development Commission (EARPDC) provided area planning and development and transportation planning information, as well as maps pertaining to plan information

Local Agencies

- Cherokee County Emergency Management Agency provided assistance in gathering data

Academia

- University of Alabama - Department of Geology

Integration with Existing Plans

Careful attention was taken when updating the plan so that it would not contradict or conflict with any existing local subdivision regulations, zoning ordinances, comprehensive plans, or standard building codes. **Table 1-1** provides a list of the existing plans by jurisdiction. Wherever appropriate, the East Alabama Regional Planning and Development Commission's economic development planning efforts have been integrated into this plan revision.

Local planning mechanisms by jurisdictions are listed in **Table 1-1**. Hazard mitigation information and actions in this plan may be incorporated into these local planning mechanisms. The mitigation action tables for each jurisdiction identifies who is responsible for the actions, funding mechanisms and other resources available that will be pursued, prioritization of the actions, and completion dates for each action. During the past five years, the jurisdictions incorporated the previous hazard mitigation information into other planning mechanisms. Goals and objectives were considered in comprehensive plans. Risks assessments, including hazard information and mapping, helped form the basis for emergency management program activities and plans; Capital Improvement Plans; and Floodplain Management Plans. Future growth and development will be planned away from high-risk locations.

Plan Adoption

All jurisdictions in Cherokee County, along with the Cherokee County Board of Education have actively participated in the planning process by attending meetings and/or providing input. The committee was responsible for updating materials, reviewing sections of the plan, and recommending changes to the plan. Upon completion of the plan each municipality (Cedar Bluff, Centre, Gaylesville, Leesburg, and Sand Rock) along with the Cherokee County Commission and the Cherokee County Board of Education will pass formal resolutions adopting the Cherokee County Hazard Mitigation Plan. By adopting this multi-jurisdictional hazard mitigation plan, Cherokee County and the listed participants will be eligible applicants for mitigation grant funds through the Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program, and the Flood Mitigation Assistance Program. Adopting Resolutions can be found in **Appendix I**.

**Table 1-1: Cherokee County
Existing Plans by Jurisdiction**

PLAN/POLICY	Cedar Bluff	Centre	Gaylesville	Leesburg	Sand Rock	County
Comprehensive Plan	N	N	N	N	N	N
Strategic Plan	N	N	N	N	N	N
Growth Management Plan	N	N	N	N	N	N
Capital Improvement Plan	N	N	N	N	N	N
Zoning Ordinance	Y	Y	N	N	N	N
Building Code	Y	Y	N	N	N	N
Flood Plain Management Plan	Y	Y	Y	Y	Y	Y
Elevation Certificates	Y	Y	Y	Y	Y	Y
Drainage Ordinance	N	N	N	N	N	N
Emergency Management Plan	Y	Y	Y	Y	Y	Y
Critical Facilities Map	Y	Y	Y	Y	Y	Y
Existing Land Use Map	Y	Y	Y	Y	Y	Y
State Plan	N	N	N	N	N	Y
Hazard Mitigation	Y	Y	Y	Y	Y	Y
Strategic National Stockpile Plan	Y	Y	Y	Y	Y	Y
Other						

Source: Participating Jurisdictions, 2015

This page left intentionally blank

Section Two: General Characteristics

Cherokee County is located in rural northeast Alabama. The county adjoins the State of Georgia on the east, Cleburne and Calhoun Counties on the south, and Etowah and DeKalb Counties on the west and north, respectively. The county has 554 square miles of land area and approximately 46 square miles of water area for a total of 600 total square miles. There are 47 persons per square mile as reported by the 2010 Census. The county contains five municipalities: the Town of Cedar Bluff, City of Centre, Town of Gaylesville, Town of Leesburg, and the Town of Sand Rock. See **Map 2-1: Cherokee County General Location**.

Cherokee County is governed by a four-member commission presided over by a Probate Judge. An elected mayor and council serve each municipality. Leesburg and Centre house the major employers in the county: Leesburg Yarn Mills in Leesburg is a textile/cotton mill that employs approximately 413; American Apparel in Centre is a textile service that employs approximately 288; Cherokee County Nursing Home in Centre is a long-term care service that employs approximately 250; and KTH Products in Leesburg is a metal fabrication service that employs approximately 220. Cherokee County is served by two U. S. Highways 411 and 278, and four State Highways 9, 35, 68, and 273. The county has one airport located in Centre that provides service to small private and commercial aircraft. There are no major railroads or navigable waterways within the county. Utilities in Cherokee County include electricity, gas, water, and sewer. Cherokee Electric Cooperative provides electrical service and gas is supplied by DeKalb/Cherokee Gas Company and Ferrell Gas Company. AT&T and TDS Telecom provide telecommunication services. Charter Cable Service provides cable for the Centre and Cedar Bluff areas. Water and sewer service is provided by Cherokee County Water and Sewer, Centre Waterworks and Sewer Board, and Cedar Bluff Waterworks and Sewer. The Cherokee Advocate has been the local newspaper since 1890.

Growth Trends

Cherokee County's population has increased approximately 35% over the past twenty-four years. **Map 2-1: Cherokee County General Location and Map 2-2: Cherokee County Population Density** depicts the newest 2010 Census Tracts and population concentrations in

Cherokee County. **Table 2-1** below shows the growth trends for the county and its municipalities compared to the State of Alabama.

Table 2-1: Growth Trends 1990-2014

Change 1990-2014

	4/1/1990	4/1/2000	4/1/2010	1/1/2014	Number	Percent
Cedar Bluff	975	1,607	1,820	1,832	875	88%
Centre	2,808	3,245	3,489	3,540	732	26%
Gaylesville	98	142	144	148	50	51%
Leesburg	753	895	1,027	1,044	291	39%
Sand Rock	395	458	560	569	174	44%
Cherokee County	19,554	23,990	25,989	26,310	6,756	35%
Alabama	4,041,281	4,447,032	4,779,736	4,852,988	811,707	20%
<i>Source: 2010 U.S. Bureau of Census; easidemographics.com; Calculations by LHA, 2015</i>						

MAP 2-1: CHEROKEE COUNTY GENERAL LOCATION



(Source: 2010 Plan)

This page left intentionally blank

MAP 2-2: CHEROKEE POPULATION DENSITY

Legend

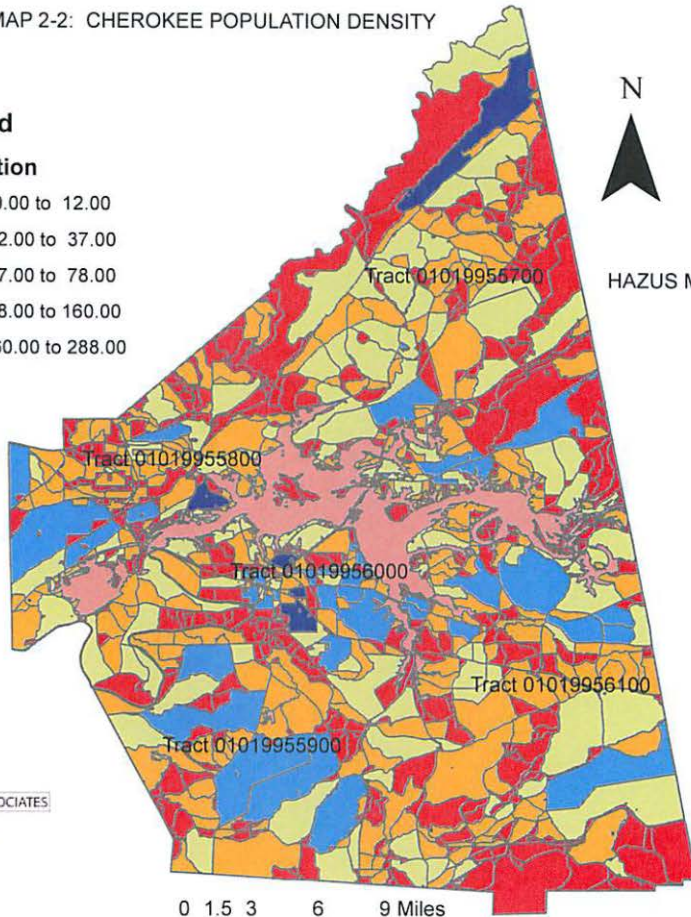
Population

- 0.00 to 12.00
- 12.00 to 37.00
- 37.00 to 78.00
- 78.00 to 160.00
- 160.00 to 288.00

N



HAZUS MH 2011 FEMA



0 1.5 3 6 9 Miles

This page left intentionally blank

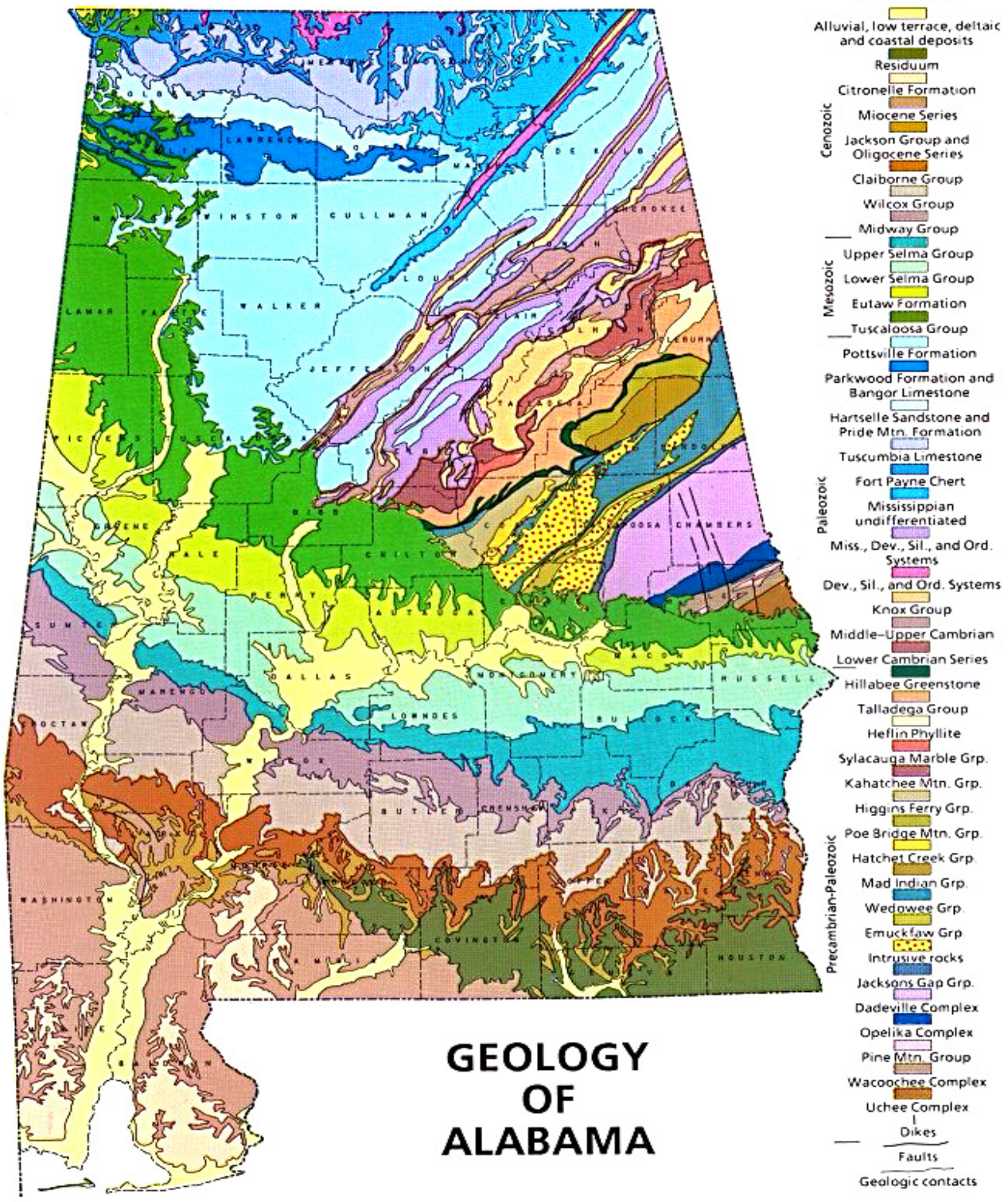
General Geology

(Source: U. S. Department of the Interior/U. S. Geological Survey)

Geologic units covering 18% of the area's surface in Cherokee County, Alabama are shown on **Map 2-3: Geology in Alabama**. Cherokee County is in the Valley and Ridge physiographic province in northeastern Alabama and consists of a series of subparallel ridges and valleys trending generally northeast-southwest. This characteristic topography is developed on folded and thrust-faulted sedimentary rocks. The ridges are formed by sandstone and chert beds that are resistant to erosion; valleys are underlain by less resistant shale and carbonate rocks. The northwestern half of the province has well-developed Valley and Ridge topography. The southeastern part of the province is characterized by a wide plain of varied relief containing irregularly spaced parallel ridges and valleys. In the extreme northeastern part of the province, mountainous terrain is developed on faulted and folded sandstone and quartzite. *(Source: GSA Alabama Stratigraphy, Circular 140; Accessed February 6, 2015).*

This page left intentionally blank

Map 2-3: Geology of Alabama



GEOLOGY OF ALABAMA

Source: The University of Alabama - Geology Department

Section Three: Risk Assessment

The risk assessment process is necessary to identify those natural and man-made hazards that pose a threat to Cherokee County and its municipal jurisdictions. This process used information provided by members of the Cherokee County Hazard Mitigation Planning Committee to identify these hazards.

The county's Hazard Probability Assessment Summary is shown in **Table 3-1**. A zero denotes no data is available to determine the probability or affected area. Each jurisdiction has an individual hazard probability assessment shown in Section Five of the plan.

Table 3-2 shows the hazards that pose a threat to each jurisdiction. Each jurisdiction was responsible for identifying the hazards that pose a threat to their community. Due to the nature of all man-made hazards being possible, however unlikely, each jurisdiction identified them as posing a threat.

Table 3-3 provides the prioritized occurrence threat by jurisdiction based on past events. Occurrence prioritizations were based on the National Oceanic and Atmospheric Administration (NOAA)-National Climatic Data Center (NCDC) reports of occurrences. Hazards are prioritized highest to least threat designating the hazard with the highest threat of occurrence as number one.

Table 3-4 provides the mitigation actions prioritization by jurisdiction. Each jurisdiction was responsible for prioritizing their proposed mitigation actions for the next five years. The jurisdictions took into consideration the impacts of hazards they had experienced over the past five years, as well as the mitigation actions available to help protect their jurisdictions and citizens.

Tables 3-5 is the cornerstone for the hazard profiles that follow in this section. This table contains data from the NOAA NCDC for a defined ten-year study period of January 1, 2003 – December 31, 2013. The table shows events for all hazard types and provides the location, date, type, magnitude, deaths and injuries, dollar amounts for property and crop damages, and total damages.

As FEMA guidelines request that detailed event data be provided, the Hazard Mitigation Committee agreed upon the new ten-year study period as a means of establishing a corrected historical reference that utilized verifiable sources.

Event locations in the table labeled as “countywide” refer to an event that affected the entire county, including all municipalities within. If there is an associated amount of damages, they are assumed to be countywide. Countywide events are also listed in each municipality’s event table in the individual Jurisdiction Assessment located in Section Five. There are events labeled for specific unincorporated areas of the county that were identified as affected. Such events will not be repeated in the individual jurisdiction tables since the location was site specific and did not affect an incorporated jurisdiction.

Some events provided by the NOAA/NCDC are reported as statewide occurrences. Hurricanes, droughts, and winter storms often have this type of far-reaching impact. In cases such as this, the event is shown as a countywide event that affected all municipalities. The county’s extent and probability of a hazard will be listed under each event description.

The extent of the hazard provides the range of magnitude or strength that could be experienced by the county if such an event occurred. The hazard is classified using terms of major, minor, and minimum based on the probability of future damage estimates providing information on the range of magnitude or severity the county can anticipate from potential hazardous events. A major ranking requires continuous action and participation from the entire community and has a 100% or greater chance of an annual occurrence. A minor ranking involves fewer people, effort, and area of community and has a 50% - 99% chance of an annual occurrence. A minimum ranking involves a small number of people and plans for a specific action and has a 49% or less chance of an annual occurrence.

Probability is the likelihood that events of particular severities will occur. The ability of scientists and engineers to calculate probability varies considerably depending on the hazard in question. In many areas, flood studies of various kinds can provide reasonably accurate estimates of how often water will reach particular places and elevations. On the other hand, tornadoes and earthquakes are nearly impossible to predict, except in the most general sense. The probability (frequency) of the various hazards is drawn from a combination of sources, expertise, and the NCDC Storm Event Database for Alabama.

For the 2014 plan update, the probability (%) that an identified hazard will occur on an annual basis was determined using the following formula:

Number of historical or reported events in a time period divided by the number of years the incidents occurred within = Probability of Future Annual Event Occurrences

Example: 13 Extreme Temperature events experienced divided by a 6 year period; $13 \div 6 = >100\%$

A similar formula was used to determine an estimate of the expected damages from each event:

Total amount of damages (in dollars) for each historical or reported event divided by the number of damage causing events within the time period = Estimate of expected future damages

Example: \$172,000 total reported hail damage from 2003-2013 with 21 of those being reported as damage causing; $\$172,000/21=\$8,190$

**Table 3-1: Cherokee County
Hazard Probability of Future Occurrence**

Natural Hazards	Number of Occurrences Between 2003-2013	Probability of Future Occurrence	Area Affected
Thunderstorm	89	80%	Countywide
Lightning	2	20%	Countywide
Hail	71	70%	Countywide
Tornado	4	40%	Countywide
Flood/Flash Flood	12	>100%	Countywide
Droughts/Extreme Heat	26	>100%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	14	>100%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	13	>100%	Countywide
Sinkhole/Expansive Soil	0	Unknown	Countywide
Landslide	0	Unknown	Countywide
Earthquake	1	10%	Countywide
Dam/Levee Failure	0	Unknown	Unincorporated Areas
Wildfire (3-year study period – 1,095 days)	190	>100%	Countywide
<i>Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; Alabama Geological Survey, 2015</i>			
Methodology: Probability of Future Occurrences was expressed by dividing the total number of occurrences by the ten-year study period, with the exception of wildfire being a 3-year study period. Zero denotes no data available to determine the probability of future occurrence or areas affected.			

**Table 3-2: Cherokee County
Hazard Identification by Jurisdiction**

Natural Hazards	Cedar Bluff	Centre	Gaylesville	Leesburg	Sand Rock	County
Thunderstorm	X	X	X	X	X	X
Lightning	X	X	X	X	X	X
Hail	X	X	X	X	X	X
Tornado	X	X	X	X	X	X
Flood/Flash Flood	X	X	X	X	X	X
Drought/Extreme Heat	X	X	X	X	X	X
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/ Winter Weather/Extreme Cold	X	X	X	X	X	X
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	X	X	X	X	X	X
Sinkhole/Expansive Soil	X	X	X	X	X	X
Landslide	X	X	X	X	X	X
Earthquake	X	X	X	X	X	X
Wildfire	X	X	X	X	X	X
Dam/Levee Failure	X	X	X	X	X	X

Source: Participating Jurisdictions, 2015

Key: X = Affects the jurisdiction; N/A = Not a threat to the jurisdiction

**Table 3-3: Cherokee County
Prioritized Occurrence Threat by Jurisdiction Based on Past Events**

Natural Hazards	Cedar Bluff	Centre	Gaylesville	Leesburg	Sand Rock	Cherokee County
Thunderstorm	6	5	5	7	5	2
Lightning	9	8	7	9	7	9
Hail	5	4	6	6	6	3
Tornado	9	8	7	9	7	8
Flood/Flash Flood	7	6	4	5	5	7
Drought/Extreme Heat	2	2	2	2	2	4
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/ Winter Weather/Extreme Cold	3	3	3	3	3	5
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	4	4	4	4	4	6
Sinkhole/Expansive Soil	9	8	7	9	7	11
Landslide	9	8	7	9	7	11
Earthquake	8	7	6	8	6	10
Wildfire (3-year study period)	1	1	1	1	1	1
Dam/Levee Failure	9	8	7	9	7	11

Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey, 2015

Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

**Table 3-4: Cherokee County
Mitigation Actions Prioritization**

Natural Hazards	Cedar Bluff	Centre	Gaylesville	Leesburg	Sand Rock	Cherokee County
Thunderstorm	1	1	1	1	1	1
Lightning	5	5	5	5	5	5
Hail	5	5	5	5	5	5
Tornado	2	2	2	2	2	2
Flood/Flash Flood	4	3	4	3	4	4
Drought/Extreme Heat	6	6	6	6	6	6
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/ Winter Weather/Extreme Cold	3	4	3	4	3	3
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	7	7	7	7	7	7
Sinkhole/Expansive Soil	11	11	11	11	11	11
Landslide	10	10	10	10	10	10
Earthquake	7	7	7	8	7	7
Wildfire	9	9	9	9	9	9
Dam/Levee Failure	8	8	8	7	8	8

Source: Participating Jurisdictions, 2015

Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one. The mitigation actions prioritization may or may not be the same as the prioritized occurrence threats.

TABLE 3-5: CHEROKEE COUNTY HAZARD EVENTS

89 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
RINGGOLD	CHEROKEE CO.	AL	03/19/2003	15:50	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
SPRING GARDEN	CHEROKEE CO.	AL	05/02/2003	17:17	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	05/06/2003	09:45	CST	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	05/17/2003	21:40	CST	Thunderstorm Wind	55 kts. EG	0	0	17.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/19/2003	10:53	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/12/2003	14:14	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/16/2003	16:55	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	07/06/2004	13:20	CST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	11/24/2004	02:10	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	04/22/2005	18:08	CST	Thunderstorm Wind	52 kts. EG	0	0	8.00K	0.00K
FORNEY	CHEROKEE CO.	AL	04/30/2005	04:05	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
FORNEY	CHEROKEE CO.	AL	07/04/2005	15:20	CST	Thunderstorm Wind	50 kts. EG	0	0	11.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	08/17/2005	16:13	CST	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/22/2006	15:55	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
PEASANT GAP	CHEROKEE CO.	AL	06/22/2006	16:04	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/23/2006	14:50	CST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
PEASANT GAP	CHEROKEE CO.	AL	07/21/2006	18:05	CST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	07/28/2006	15:06	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	01/05/2007	07:00	CST-6	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
BLUE POND	CHEROKEE	AL	06/29/2007	18:25	CST-	Thunderstorm	50 kts.	0	0	2.00K	0.00K

	CO.				6	Wind	EG				
CEDAR BLUFF	CHEROKEE CO.	AL	06/29/2007	18:40	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2007	15:09	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
FORNEY	CHEROKEE CO.	AL	07/01/2007	15:09	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
POPE	CHEROKEE CO.	AL	07/01/2007	15:09	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	07/23/2007	17:29	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	07/23/2007	17:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
FARILL	CHEROKEE CO.	AL	08/17/2007	14:15	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/17/2007	14:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	08/17/2007	15:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	08/17/2007	15:42	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
PINE GROVE	CHEROKEE CO.	AL	11/22/2007	03:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
BLUE POND	CHEROKEE CO.	AL	05/20/2008	16:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MOSHAT	CHEROKEE CO.	AL	06/09/2008	15:03	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/09/2008	15:06	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	06/11/2008	18:45	CST-6	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	06/11/2008	18:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	07/21/2008	18:45	CST-6	Thunderstorm Wind	40 kts. EG	0	0	1.00K	0.00K
ROUND MTN	CHEROKEE CO.	AL	07/21/2008	19:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
NEW MOON	CHEROKEE CO.	AL	07/22/2008	14:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/31/2008	17:30	CST-6	Thunderstorm Wind	40 kts. EG	0	0	0.50K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	08/02/2008	15:04	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
FARILL	CHEROKEE CO.	AL	08/07/2008	10:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
CENTRE	CHEROKEE	AL	01/06/2009	15:45	CST-	Thunderstorm	50 kts.	0	0	5.00K	0.00K

	CO.				6	Wind	EG				
WATSON	CHEROKEE CO.	AL	02/18/2009	14:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
CENTRE	CHEROKEE CO.	AL	04/02/2009	21:46	CST-6	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	04/10/2009	15:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
LITTLE RIVER	CHEROKEE CO.	AL	03/21/2010	14:49	CST-6	Thunderstorm Wind	60 kts. EG	0	0	30.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/24/2010	23:53	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GNATVILLE	CHEROKEE CO.	AL	05/28/2010	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
LAWRENCE	CHEROKEE CO.	AL	05/28/2010	14:58	CST-6	Thunderstorm Wind	59 kts. MG	0	0	2.00K	0.00K
FULLERTON	CHEROKEE CO.	AL	05/30/2010	16:37	CST-6	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
BLUE POND	CHEROKEE CO.	AL	06/01/2010	15:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	06/15/2010	14:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/17/2010	14:32	CST-6	Thunderstorm Wind	40 kts. EG	0	0	5.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	06/19/2010	11:49	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
COLOMA	CHEROKEE CO.	AL	08/01/2010	15:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
JAMESTOWN	CHEROKEE CO.	AL	08/05/2010	18:42	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.50K	0.00K
LEONARD	CHEROKEE CO.	AL	02/25/2011	00:35	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	02/28/2011	14:29	CST-6	Thunderstorm Wind	60 kts. EG	0	0	6.00K	0.00K
CENTRE	CHEROKEE CO.	AL	02/28/2011	14:38	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ALEXIS	CHEROKEE CO.	AL	02/28/2011	14:51	CST-6	Thunderstorm Wind	55 kts. EG	0	0	1.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/04/2011	18:56	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	04/04/2011	18:57	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	04/11/2011	19:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	7.00K	0.00K
MT ZION	CHEROKEE CO.	AL	04/11/2011	19:07	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
BLUE POND	CHEROKEE	AL	04/11/2011	19:08	CST-	Thunderstorm	50 kts.	0	0	5.00K	0.00K

	CO.				6	Wind	EG				
FIRESTONE	CHEROKEE CO.	AL	04/11/2011	19:13	CST-6	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	04/11/2011	19:17	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
GNATVILLE	CHEROKEE CO.	AL	04/27/2011	05:55	CST-6	Thunderstorm Wind	70 kts. EG	0	1	15.00K	0.00K
SLACKLAND	CHEROKEE CO.	AL	04/27/2011	05:58	CST-6	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	04/27/2011	06:02	CST-6	Thunderstorm Wind	60 kts. EG	0	0	15.00K	0.00K
COLOMA	CHEROKEE CO.	AL	04/27/2011	06:02	CST-6	Thunderstorm Wind	60 kts. EG	0	0	2.00K	0.00K
KEY	CHEROKEE CO.	AL	04/27/2011	06:06	CST-6	Thunderstorm Wind	60 kts. EG	0	0	15.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	05/13/2011	11:28	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	05/13/2011	11:47	CST-6	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/26/2011	15:36	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
JAMESTOWN	CHEROKEE CO.	AL	06/18/2011	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LEONARD	CHEROKEE CO.	AL	06/26/2011	14:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/26/2011	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	06/26/2011	15:16	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2012	17:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BOMAR	CHEROKEE CO.	AL	07/05/2012	18:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WATSON	CHEROKEE CO.	AL	07/05/2012	19:12	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BLAINE	CHEROKEE CO.	AL	07/05/2012	19:27	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
ROUND MTN	CHEROKEE CO.	AL	07/05/2012	19:31	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
KEY	CHEROKEE CO.	AL	07/05/2012	19:35	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
GNATVILLE	CHEROKEE CO.	AL	07/05/2012	19:37	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	03/18/2013	15:08	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
RINGGOLD	CHEROKEE	AL	06/16/2013	18:15	CST-	Thunderstorm	50 kts.	0	0	0.00K	0.00K

	CO.				6	Wind	EG				
Totals:								0	1	470.00K	0.00K

2 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	152.00K	0.00K
POPE	CHEROKEE CO.	AL	05/20/2008	17:09	CST-6	Lightning		0	0	2.00K	0.00K
CONGO	CHEROKEE CO.	AL	08/13/2010	15:30	CST-6	Lightning		0	0	150.00K	0.00K
Totals:								0	0	152.00K	0.00K

71 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Totals:								0	0	85.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	03/19/2003	14:24	CST	Hail	1.75 in.	0	0	8.00K	0.00K
BROOMTOWN	CHEROKEE CO.	AL	03/19/2003	14:40	CST	Hail	1.00 in.	0	0	0.00K	0.00K
SPRING GARDEN	CHEROKEE CO.	AL	04/25/2003	15:18	CST	Hail	1.00 in.	0	0	0.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	04/25/2003	16:05	CST	Hail	1.75 in.	0	0	8.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	05/02/2003	14:24	CST	Hail	1.00 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/02/2003	14:29	CST	Hail	4.50 in.	0	0	65.00K	0.00K
SPRING GARDEN	CHEROKEE CO.	AL	05/02/2003	17:17	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/13/2004	23:40	CST	Hail	0.88 in.	0	0	0.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	02/21/2005	16:30	CST	Hail	1.00 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/07/2005	15:00	CST	Hail	0.88 in.	0	0	1.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	04/22/2005	17:55	CST	Hail	1.00 in.	0	0	1.00K	0.00K
BLANCHE	CHEROKEE CO.	AL	04/22/2005	18:25	CST	Hail	1.75 in.	0	0	1.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	05/10/2005	17:55	CST	Hail	0.88 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	05/10/2005	18:19	CST	Hail	0.75 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	06/20/2005	16:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	07/04/2005	14:41	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	10/21/2005	14:15	CST	Hail	1.75 in.	0	0	0.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	10/21/2005	14:20	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	04/08/2006	00:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K

GAYLESVILLE	CHEROKEE CO.	AL	04/19/2006	12:05	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/19/2006	12:21	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/19/2006	12:30	CST	Hail	2.00 in.	0	0	1.00K	0.00K
FORNEY	CHEROKEE CO.	AL	04/19/2006	12:39	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	12:39	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	12:58	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	13:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	04/19/2006	14:32	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	05/30/2006	20:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/22/2006	16:25	CST	Hail	0.88 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	06/23/2006	15:05	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	04/03/2007	13:20	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	13:45	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	15:40	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	15:58	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/14/2007	17:00	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	05/20/2008	16:00	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
LITTLE RIVER	CHEROKEE CO.	AL	05/20/2008	16:03	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
COLOMA	CHEROKEE CO.	AL	05/20/2008	16:33	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	05/20/2008	16:41	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
MOSHAT	CHEROKEE CO.	AL	06/09/2008	15:03	CST-6	Hail	1.50 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/09/2008	15:06	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	06/11/2008	18:13	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
BROOMTOWN	CHEROKEE CO.	AL	07/13/2008	10:55	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
RINGGOLD	CHEROKEE CO.	AL	08/02/2008	14:50	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LAWRENCE	CHEROKEE CO.	AL	08/02/2008	16:02	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
HOWELLS XRDS	CHEROKEE CO.	AL	08/02/2008	16:16	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
BROOMTOWN	CHEROKEE CO.	AL	02/18/2009	14:45	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	04/10/2009	05:30	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
GAYLESVILLE	CHEROKEE CO.	AL	04/10/2009	05:30	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
MT ZION	CHEROKEE CO.	AL	04/10/2009	05:30	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
BLUE POND	CHEROKEE CO.	AL	04/10/2009	14:50	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
LAWRENCE	CHEROKEE CO.	AL	04/10/2009	15:00	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/10/2009	15:02	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/10/2009	15:40	CST-6	Hail	2.75 in.	0	0	0.00K	0.00K
COLOMA	CHEROKEE CO.	AL	04/10/2009	16:49	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K

POPE	CHEROKEE CO.	AL	03/26/2011	18:16	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/26/2011	12:35	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
BOMAR	CHEROKEE CO.	AL	06/09/2011	18:23	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
SAND ROCK	CHEROKEE CO.	AL	06/15/2011	13:52	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CONGO	CHEROKEE CO.	AL	06/15/2011	14:03	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/15/2011	14:07	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	06/15/2011	15:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FIRESTONE	CHEROKEE CO.	AL	06/24/2011	15:10	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	09/22/2011	03:26	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	03/02/2012	19:43	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	03/02/2012	23:00	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
SLACKLAND	CHEROKEE CO.	AL	03/16/2012	12:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
RICHARDSON	CHEROKEE CO.	AL	05/21/2012	16:50	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2012	17:00	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
SPRING GARDEN	CHEROKEE CO.	AL	04/17/2013	14:38	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FORNEY	CHEROKEE CO.	AL	04/17/2013	14:42	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	85.00K	0.00K

4 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
JAMESTOWN	CHEROKEE CO.	AL	04/22/2005	18:01	CST	Tornado	F0	0	0	4.00K	0.00K
JAMESTOWN	CHEROKEE CO.	AL	04/22/2005	18:03	CST	Tornado	F0	0	0	20.00K	0.00K
GNATVILLE	CHEROKEE CO.	AL	03/15/2008	09:50	CST-6	Tornado	EF2	0	0	75.00K	0.00K
GNATVILLE	CHEROKEE CO.	AL	04/27/2011	18:25	CST-6	Tornado	EF3	0	25	19.000M	0.00K
Totals:								0	25	19.099M	0.00K

12 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
COUNTYWIDE	CHEROKEE CO.	AL	05/06/2003	10:30	CST	Flash Flood		0	0	25.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	150.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/17/2003	21:40	CST	Flash Flood		0	0	8.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	12:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	11/24/2004	04:15	CST	Flash Flood		0	0	11.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/12/2005	14:45	CST	Flash Flood		0	0	1.00K	0.00K
CENTRE	CHEROKEE CO.	AL	01/06/2009	13:15	CST-6	Flash Flood		0	0	25.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	08/16/2010	20:50	CST-6	Flash Flood		0	0	8.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/14/2011	20:45	CST-6	Flash Flood		0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/17/2013	14:45	CST-6	Flash Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/06/2003	10:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/19/2003	01:00	CST	Flood		0	0	0.00K	0.00K
Totals:								0	0	258.00K	0.00K

26 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

**14 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold
Events – 01/01/2003 thru 12/31/2013 (4018 days)**

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/25/2004	19:00	CST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	13:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/25/2010	07:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/07/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/02/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/15/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/09/2011	17:30	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/17/2013	14:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	50.00K	0.00K

**13 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
01/01/2003 thru 12/31/2013 (4018 days)**

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	28.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	80.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	52 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2003	18:15	CST	Strong Wind	45 kts. EG	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/11/2009	14:30	CST-6	Strong Wind	43 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:00	CST-6	Strong Wind	43 kts. EG	0	0	7.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:18	CST-6	Strong Wind	43 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	18:30	CST-6	Strong Wind	38 kts. MG	0	0	7.00K	0.00K
Totals:								0	0	500.00K	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)

No sinkhole events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: Local Input)

No landslide events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/
 CNN.com/US)

Location	County/Zone	St.	Date	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013
 (Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

Hazard Profiles

I. Thunderstorms

A thunderstorm is a convective cloud that often produces heavy rain, wind gusts, thunder, lightning, and hail. Cherokee County experiences many thunderstorms each year. The county is most susceptible to thunderstorms during the spring, summer, and late fall. Most of the damage caused by thunderstorms results from straight-line winds, lightning, flash flooding, and hail. Occasionally, thunderstorms will spawn tornados.

Primary Effects from thunderstorms in Cherokee County would include:

1. High Winds, Straight-line Winds
2. Lightning
3. Flooding
4. Hail
5. Spawning Tornados

Hazardous results from significant thunderstorms in Cherokee County would include:

1. High winds can cause downed trees and electrical lines resulting in loss of power
2. Severe storms are capable of producing intense lightning that poses many threats to people and infrastructure and can ignite fires.
3. Heavy rains can produce severe storm water run-off in developed areas, and cause bodies of water to breach their banks.
4. Large hail can injure people and livestock and damage crops.
5. Severe thunderstorms can produce tornados that destroy anything in its path, resulting in loss of power, shelter, and potential loss of life.

The National Weather Service reported 89 severe thunderstorms during the ten-year study period of 2003 - 2013. An estimated \$470,000 in property damage and no crop damage resulted from these storms. One injury and no deaths were reported during these thunderstorm events.

Table 3-5 shows the historical occurrences of severe thunderstorms during the study period. Each jurisdiction is at risk for thunderstorm events. Of the storms reported, 54 occurred in an unincorporated county area, and the remaining 35 affected only specific municipalities.

On January 5, 2007, thunderstorms ahead of a passing cold front produced several areas of wind damage. Winds up to 55 knots or 63 miles per hour were recorded. A mobile home in the Leesburg area received substantial damage, in addition to a sign being blown down and a roof being damaged near the intersection of Highways 68 and 411. Property damages of \$50,000 occurred. No crop damages, injuries, or deaths were reported.

On April 27, 2011, thunderstorm winds up to 70 knots or 81 miles per hour damaged a home on County Road 6 near Gnatville. One injury and property damages of \$15,000 resulted.

On March 21, 2010, a storm system associated with a cold front resulted in two houses and one mobile home sustaining roof damage, 2 barns were damaged, and several trees were blown down near Black Oak Church on County Road 57. Winds up to 60 knots or 69 miles per hour were recorded.

Cherokee County experienced 89 thunderstorm events in a 10 year period resulting in a greater than 100% (8.90) probability that a thunderstorm event will occur on an annual basis. The total amount of damages for the 89 thunderstorm events was \$470,000 with 79 thunderstorm events causing damage resulting in an estimated \$5,950 of expected annual damages from future events. The referenced thunderstorm event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a thunderstorm event; the ranking is minor to major.

II. Lightning

Lightning is a natural phenomenon associated with all thunderstorms but can occur in the absence of a storm. Lightning typically occurs as a by-product of a thunderstorm. Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences in charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning can occur between opposite charges within the thunderstorm cloud (Intra Cloud Lightning) or between opposite charges in the cloud and on the ground (Cloud-To-Ground Lightning). Cloud-to-ground lightning is divided two different types of flashes depending on the charge in the cloud where the lightning originates. Thunder is the sound made by a flash of lightning. As lightning passes through the air it heats the air quickly. This causes the air to expand rapidly and creates the sound wave we hear as thunder. Normally, you can hear thunder about 10 miles from a lightning strike. Since lightning can strike outward 10 miles from a thunderstorm, if you hear thunder, you are likely within striking distance from the storm. The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: National Weather Service/Lightning Safety Accessed 11/16/14*). Each jurisdiction is equally at risk for lightning events. Lightning strikes can cause power outages, fires, electrocution, disruptions to communication systems, personal injuries, and deaths. The NOAA NCDC reported two lightning events during the ten-year study period of 2003-2013 resulting in \$152,000 property damages, no crop damages, injuries, or deaths were reported as results of these lightning events. **Table 3-5** shows the historical occurrences of lightning during the study period. The entire planning area of the county is equally at risk for a lightning event. While the State of Alabama experienced 11-20 deaths as a result of lightning strikes during 2003 – 2013, none of the deaths occurred in Cherokee County.

The action of rising and descending air in a thunderstorm separates positive and negative charges, with lightning the result of the buildup and discharge of energy between positive and negative charge areas.

Water and ice particles may also affect the distribution of the electrical charge. In only a few millionths of a second, the air near a lightning strike is heated to 50,000°F, a temperature hotter than the surface of the sun. Thunder is the result of the very rapid heating and cooling of air near the lightning that causes a shock wave.

The hazard posed by lightning is significantly underrated. High winds, rainfall, and a darkening cloud cover are the warning signs for possible cloud-to-ground lightning strikes. While many lightning casualties happen at the beginning of an approaching storm, more than half of lightning deaths occur after a thunderstorm has passed. The lightning threat diminishes after the last sound of thunder, but may persist for more than 30 minutes. When thunderstorms are in the area, but not overhead, the lightning threat can exist when skies are clear. Lightning has been known to strike more than 10 miles from the storm in an area with clear sky above.

According to the National Oceanic and Atmospheric Administration (NOAA), an average of 20 million cloud-to-ground flashes has been detected every year in the continental United States. About half of all flashes have more than one ground strike point, so at least 30 million points on the ground is struck on the average each year. In addition, there are roughly 5 to 10 times as many cloud-to-cloud flashes as there are to cloud-to-ground flashes (NOAA, July 7, 2003). During the years 2004-2013, Alabama experienced 11 deaths due to lightning (NOAA, December 18, 2014). The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: NOAA, December 18, 2014*).

Cloud-to-ground lightning can kill or injure people by either direct or indirect means. The lightning current can branch off to strike a person from a tree, fence, pole, or other tall object. It is not known if all people are killed who are directly struck by the flash itself. In addition, electrical current may be conducted through the ground to a person after lightning strikes a nearby tree, antenna, or other tall object. The current also may travel through power lines, telephone lines, or plumbing pipes to a person who is in contact with an electric appliance, telephone, or plumbing fixture. Lightning may use similar processes to damage property or cause fires.

On May 20, 2008 an advancing cold front brought a round of severe thunderstorms, with large hail and damaging winds to the area. A horse was killed by lightning strike in the Blairtown

Community. Property damages of \$2,000 resulted. No crop damages, injuries, or human deaths were reported.

On August 13, 2010, thunderstorms developed in an unstable atmosphere as the result of a moist boundary layer and diurnal heating. Lightning struck a house on County Road 77 resulting in a fire and \$150,000 property damage. No crop damages, injuries, or deaths were reported.

Cherokee County experienced 2 lightning events in a 10 year period resulting in a 20% (0.20) that a lightning event will occur on an annual basis; however, it is likely a lightning event will occur. The total amount of damages for the 2 lightning events was \$152,000 with 2 lightning events causing damage resulting in an estimated \$76,000 of expected annual damages from future events. The referenced thunderstorm event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a lightning event; the ranking is minimum to minor.

Primary effects from lightning in Cherokee County would include:

1. Power Outages
2. Wild Fires
3. Electrocution
4. Disruption of Communication Waves

Hazardous results from significant lightning in Cherokee County would include:

1. Power outages result in tremendous losses for food distributors and individuals due to loss of refrigeration as well as disruptions to routine business operations.
2. Fires destroy most everything it comes in contact with and also can be detrimental to the health of any living organism due to the massive smoke cloud it produces.
3. Electrocution of electronic device such as water and sewer pumps can cause disruption in service leading to unsanitary conditions and lack of potable water.
4. Disrupted communications from electrical storms can result in inability to communicate with other agencies, making preparation or recovery from a storm nearly impossible.

This page left intentionally blank

III. Hail

Hail is frequently associated with severe thunderstorms. Hail is an outgrowth of severe thunderstorms and develops within a low-pressure front as warm air rises rapidly in to the upper atmosphere and is subsequently cooled, leading to the formation of ice crystals. These are bounced about by high-velocity updraft winds and accumulate into frozen droplets, falling as precipitation after developing enough weight (FEMA, 1997).

The National Weather Service (NWS) defines severe thunderstorms as those with downdraft winds in excess of 58 miles an hour and/or hail at least 3/4 inches in diameter. While only about 10 percent of thunderstorms are classified as severe, all thunderstorms are dangerous because they produce numerous dangerous conditions, including one or more of the following: hail, strong winds, lightning, tornadoes, and flash flooding (National Weather Service – Flagstaff). The size of hailstones varies and is related to the severity and size of the thunderstorm that produced it. The higher the temperatures at the Earth’s surface, the greater the strength of the updrafts, and the greater the amount of time the hailstones are suspended, giving the hailstones more time to increase in size. Hailstones vary widely in size, as shown in **Table 3-6**. Note that penny size (3/4 inches in diameter) or larger hail is considered severe.

Table 3-6: Estimating Hail Size

Size	Inches in Diameter
Pea	¼ inch
Marble/mothball	½ inch
Dime/Penny	¾ inch
Nickel	7/8 inch
Quarter	1 inch
Ping-Pong Ball	1 ½ inch
Golf Ball	1 ¾ inch
Tennis Ball	2 ½ inch
Baseball	2 ¾ inch
Tea Cup	3 inches
Grapefruit	4 inches
Softball	4 ½ inches
<i>Source: NWS, January 10, 2003</i>	

Hailstorms occur most frequently during the late spring and early summer, when the jet stream moves northward across the Great Plains. During this period, extreme temperature changes occur from the surface up to the jet stream, resulting in the strong updrafts required for hail formation.

The NOAA NCDC reported 71 hail events during the ten-year study period of 2003-2013. An estimated \$85,000 in property damage resulted from these events. No crop damage, injuries, or deaths were reported during these hail events. **Table 3-5** shows the historical occurrences of hail events during the study period. Each jurisdiction is at risk for hail. Of the events reported, 32 occurred in an unincorporated county area, and the remaining 39 affected only specific municipalities.

The most significant event during the study period occurred in the municipality of Centre on May 2, 2003 when hail up to softball size (4.5 inches) fell, resulting in \$65,000 in property damage. (*Source: NCDC NOAA*)

Cherokee County experienced 71 hail events in a 10 year period resulting in a greater than 70% (7.10) probability that a hail event will occur on an annual basis. The total amount of damages for the 71 hail events was \$85,000 with 7 hail events causing damage resulting in an estimated \$12,143 of expected annual damages from future events. The referenced hail event(s) is/are the one(s) that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a thunderstorm event; the ranking is minor to major.

Primary Effects from Hail in Cherokee County would include:

1. Property Damage
2. Crop Damage
3. Communication equipment damage
4. Livestock loss and injury

Hazardous results from significant Hail in Cherokee County would include:

1. Any size hail can damage exposed real and personal property. Hail is a major problem for car dealerships, as the unprotected lots of cars receive major damage.
2. Heavy hail is capable of destroying entire crop yields. Farmers of above ground crops are especially concerned with hail as it is extremely detrimental to the crop.
3. Communication equipment, such as receivers, is susceptible to large hail. These instruments can be seriously damaged or destroyed by large hail.
4. Large hail is a danger to livestock of all sorts and is a threat farmers must consider. Hundreds of thousands of dollars are invested in these animals which may be injured or killed in a hailstorm.

This page left intentionally blank

IV. Tornadoes

Tornadoes are rotating columns of air extending downward to the ground with recorded winds in excess of 300 miles per hour. Most tornadoes last less than 30 minutes, but can exist for more than an hour. In Alabama the typical tornado season extends from March through early June, with April and June being peak months for tornado activity. Additionally, Alabama experiences a secondary tornado season from November through December. **Figure 3-1** shows the general paths of tornadoes across the United States.

Figure 3-2 shows the FEMA designated wind zones in the United States. Cherokee County is located in Zone IV which warrants profiling. Zone IV has witnessed a higher frequency of tornadoes than any other zone. Zone IV has also witnessed some of the deadliest tornadoes in history.

A total of 4 tornadoes occurred in Cherokee County according to NOAA NCDC during 2003 - 2013. An estimated \$19.099 million in property damage, no crop damage, no deaths and 25 injuries occurred as a result of the reported tornadoes.

The most significant event during the study period occurred in the unincorporated area of Gnatville on April 27, 2011 with an EF3 tornado, 18.21 miles in length and 1,500 yards wide. A powerful storm system crossed the Southeast United States on Wednesday, April 27, 2011, resulting in a large and deadly tornado outbreak. This epic event broke the record for number of tornadoes in a day for the State of Alabama, becoming the most significant tornado outbreak in the state's history. Central Alabama had two rounds of severe weather that day. During the early morning hours, a Quasi-Linear Convective System quickly moved across the northern half of the National Weather Service, Birmingham county warning area. Straight line winds of 90 mph (78kts) or greater and 11 tornadoes lead to widespread damage and power outages. During the afternoon, long-lived supercell thunderstorms produced long-track, strong and violent tornadoes. Destruction and loss of life across many towns and communities was devastating. This tornado initially touched down in eastern Jefferson County, north northeast of Trussville and moved northeast through portions of St. Clair, Calhoun, Etowah and Cherokee Counties. The tornado moved into southwestern Cherokee County south of Estes Crossroads, along County Road 19. As the tornado continued northeast, it strengthened as it moved south of Gnatville, to an EF2 rating with winds of 120 mph. Extensive tree damage was noted along County Road 6 and several mobile homes

sustained significant damage off of County Road 447. The tornado strengthened further to an EF3 rating with winds of 150 mph as it crossed AL Highway 9 south of Coloma. A single family home was destroyed on County Road 31. The tornado weakened slightly as it crossed Frog Mountain, but continued to knock down trees and damage an outbuilding. The tornado re-strengthened as it crossed County Road 45 north of Rock Run. Damage along County Road 29 south of Forney was consistent with an EF3 rating and winds of 160 mph. Several well built homes were completely destroyed. The tornado weakened as it moved toward the Alabama/Georgia state line, but continued to cause significant tree damage consistent with an EF1 rating and winds of 105 mph. Property damages of \$19 million and 25 injuries were recorded. No crop damages or deaths were reported. (Source: NCDC NOAA)

Each jurisdiction has been affected by tornado activity in the past. The location of Cherokee County in Wind Zone IV, past occurrences of tornados, and the potential for future occurrences to cause damage, death, and injuries leaves Cherokee County vulnerable to and at risk for tornados.

Cherokee County experienced 4 tornado events in a 10 year period resulting in a 40% (0.40) probability that a tornado event will occur on an annual basis. The total amount of damages for the 4 tornado events was \$19,099,000 with 4 tornado events causing damage resulting in an estimated \$4,774,750 of expected annual damages from future events. The referenced tornado event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a tornado event; the ranking is major.

Primary effects from Tornados in Cherokee County would include:

1. Loss of life
2. Property damage
3. Infrastructure destruction and damage
4. Sanitation and water delivery interruption

Hazardous results from significant Tornados in Cherokee County would include:

1. Collapse of structures can leave people homeless.

2. Roadways may become blocked by debris. Damage may destroy automobiles, creating additional hardships to individuals and families and business operations.
3. High wind speeds associated with a tornado can destroy anything in its path. Power poles topple, communication receivers are destroyed, and water sanitation and treatment plants are offline.
4. Due to destruction, sanitation crews are unable to remove massive amounts of waste, and water delivery is disrupted. This can lead to an increase in disease-carrying insects and lack of potable water.

Figure 3-1: Generalized Tornado Paths

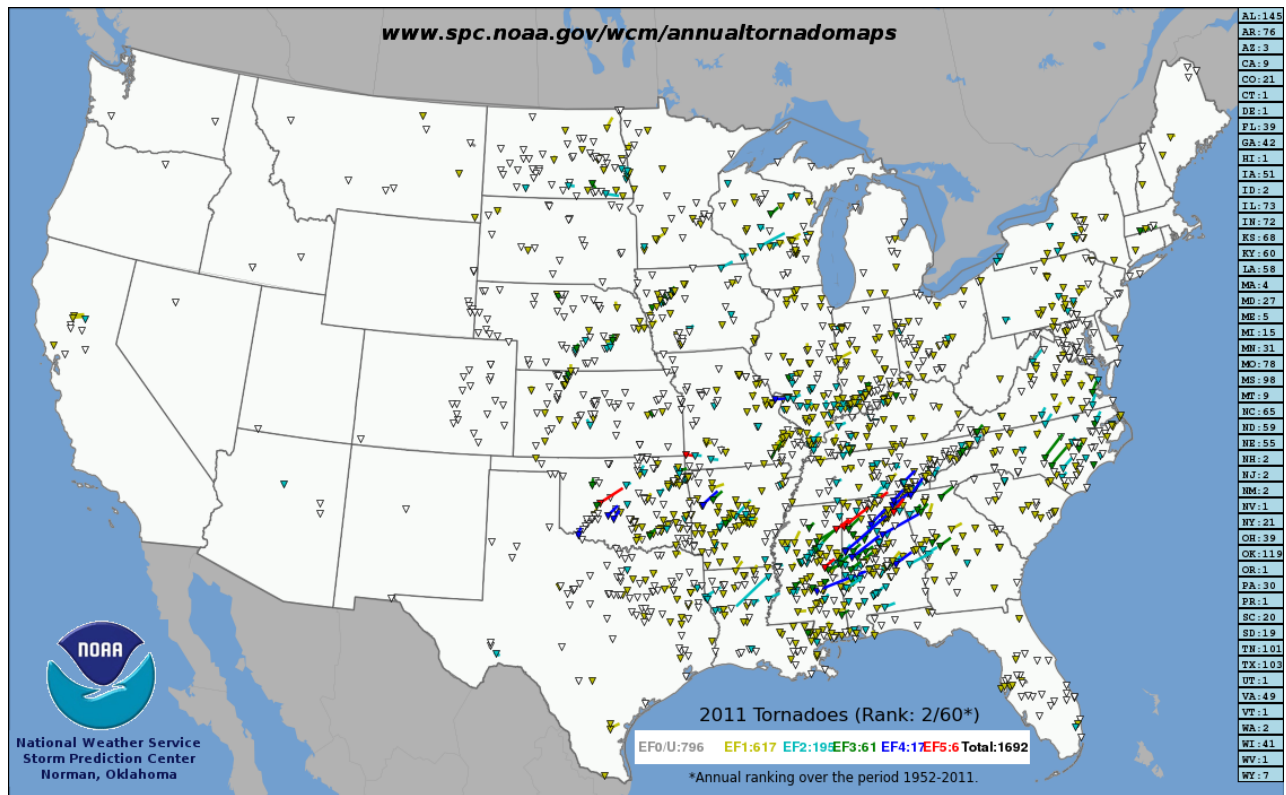


Figure 3-2: Wind Zones in the United States

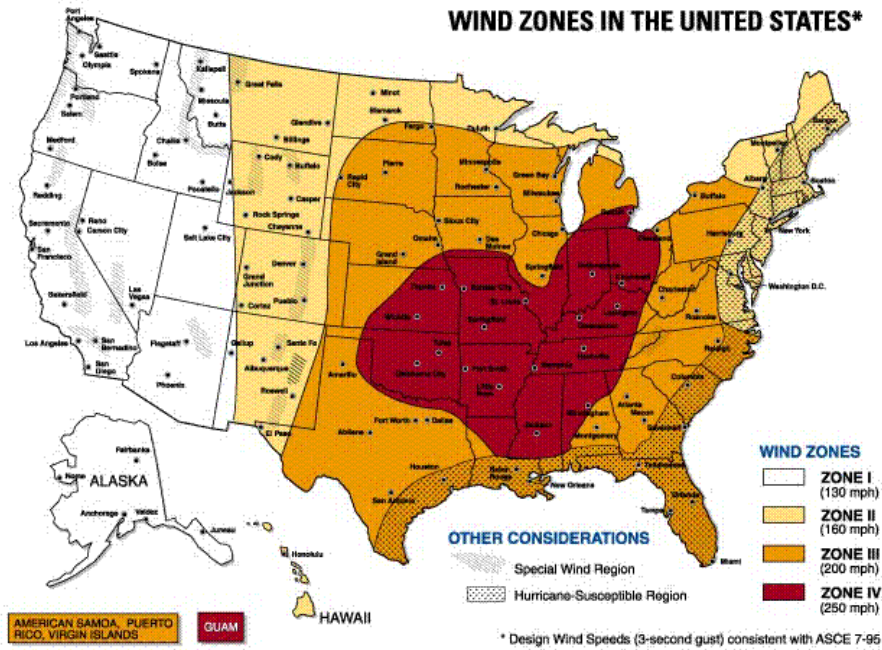


Figure I.2 Wind zones in the United States
 Source: www.fema.gov

Tornados are now measured using the new Enhanced Fujita Tornado Scale by examining the damage caused by the tornado after it passes over man-made structures and vegetation. The new scale was put into use in February of 2007. Due to the study period of the plan, which goes from 2003-2013, events shown in **Table 3-5** express the magnitude of tornados using the original Fujita scale and the enhanced Fujita scale. Below is a table comparing the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the National Weather Service, as well as damage descriptions of each category. Like the original Fujita scale, there are six categories from zero to five that represent damage in increasing degrees. The new scale incorporates the use of 28 Damage Indicators and 8 Degrees of Damage to assign a rating.

Table 3-7: Fujita Tornado Scales

Fujita Tornado Scale

Category	Wind Speed	Description of Damage
F0	40-72 mph	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.
F1	73-112 mph	Moderate damage. The lower limit is the beginning of hurricane speed. Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
F2	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3	158-206 mph	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
F4	207-260 mph	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	261-318 mph	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100-yards; trees debarked.

Enhanced Fujita Tornado Scale

Category	Wind Speed	Description of Damage
EF0	65-85 mph	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110 mph	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135 mph	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165 mph	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200 mph	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200 mph	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur. So far only one EF5 tornado has been recorded since the Enhanced Fujita Scale was introduced on February 1, 2007.

Source: NOAA, NWS, Storm Prediction Center, 2007.

This page left intentionally blank

V. Floods/Flash Floods

There are three types of flooding that affect Cherokee County: (1) general flooding, (2) storm water runoff, and (3) flash flooding. General flooding occurs in areas where development has encroached into flood-prone areas. Storm water runoff causes flooding in areas that have inadequate drainage systems. Flash flooding is caused when a large amount of rain falls within a short period of time. **Table 3-5** shows severe flooding events in Cherokee County recorded by NOAA NCDC. Between 2003 and 2013 there were 10 occurrences of flash flooding and 2 floods in the county. Damages from these events were only as a result of flash flooding and totaled \$258,000 in property damage, no crop damage, no deaths, and no injuries.

Flash floods involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure and ice jams may also lead to flash flooding.

Dam-break floods may occur due to structural failures (e.g., progressive erosion), overtopping or breach from flooding, or earthquakes. Dam failures are potentially the worst flood events. Dam safety has been an ongoing hazard mitigation issue in the State of Alabama for the past decade, especially for small dams that are privately owned and poorly maintained. No state law currently exists to regulate any private dams or the construction of new private dams, nor do private dams require federal licenses or inspections. There have been several attempts in the State of Alabama to pass legislation that would require inspection of dams on bodies of water over 50 acre-feet or dams higher than 25 feet. Enactment has been hampered by the opposition of agricultural interest groups and insurance companies.

Approximately 1,700 privately owned dams would fit into the category proposed by the law. According to *HAZUS MH 2.1*, Cherokee County has 11 High Density Polyethylene (HPDE - Earth) Dams, one High Density Polyethylene Concrete Gravity Dam, and two High Density Polyethylene Miscellaneous Dams. No historical records are available of dam/levee failures in Cherokee County. When a dam fails, a large quantity of water is suddenly released downstream,

destroying anything in its path. The area impacted by the water emitted by dam failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide.

The probability of future occurrences of dam/levee failure events cannot be characterized on a countywide basis because of the lack of information available. The qualitative probability is rated low because the overall area affected is low and impacts are localized. This rating is intended only for general comparison to other hazards that are being considered.

Local drainage floods may occur outside of recognized drainage channels or delineated flood plains for a variety of reasons, including concentrated local precipitation, a lack of infiltration, inadequate facilities for drainage and storm water conveyance, and/or increased surface runoff. Such events often occur in flat areas, particularly during winter and spring in areas with frozen ground, and also in urbanized areas with large impermeable surfaces. High groundwater flooding is a seasonal occurrence in some areas, but may occur in other areas after prolonged periods of above-average precipitation.

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies use historical records to determine the probability of occurrence for different extents of flooding. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year. It is also often referred to as the “100-year flood” since its probability of occurrence suggests it should only occur once every 100 years. This expression is, however, merely a simple and general way to express the statistical likelihood of a flood; actual recurrence periods are variable from place to place. Smaller floods occur more often than larger (deeper and more widespread) floods. Thus, a “10-year” flood has a greater likelihood of occurring than a “100-year” flood. **Table 3-8** shows a range of flood recurrence intervals and their probabilities of occurrence.

Table 3-8: Flood Probability Terms	
Flood Recurrence Intervals	Percent Chance of Annual Occurrence
10-Year	10.0%
50-Year	2.0%
100-Year	1.0%
500-Year	0.2%
<i>(Source: FEMA, August 2001)</i>	

On May 7, 2003, a flash flood event resulted in numerous roads across the county being temporarily impassable due to high water. Many remained closed for several hours. Broomtown, Gaylesville, Cedar Bluff, and Leesburg were among the areas that reported flooding. Property damages of \$150,000 resulted. No crop damages, injuries, or deaths were reported.

On May 19, 2003, the readings at Weiss Lake were above the flood stage of 564 feet during the time period with a crest of 566.57 feet on May 22, 2003 at 11 a.m. CDT as a result of floods.

Cherokee County experienced 12 flood/flash flood events in a 10 year period resulting in a greater than 100% (1.20) probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 12 flood/flash flood events was \$258,000 with 8 flash floods events causing damage resulting in an estimated \$32,250 of expected annual damages from future events. The referenced flood/flash flood event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a flood/flash flood event; the ranking is minor to major.

Primary Effects from Floods in Cherokee County would include:

1. Loss of life
2. Property damage
3. Crop damage

4. Dam and levee failure

Hazardous results from significant flood in Cherokee County would include:

1. Rising water levels can quickly sweep people along in its path.
2. Rapidly moving water destroys anything in its path and also leaves hazardous mold and breed insects.
3. Periods of standing water kill inadaptable plants, and flowing water removes sediment and nutrients from the soil.
4. Breached dams and levees allow water to flood into the surrounding floodplain resulting in destruction of crops and property.

Dam failures may result from one or more the following:

1. Prolonged periods of rainfall and flooding (the cause of most failures)
2. Inadequate spillway capacity which causes excess overtopping flows
3. Internal erosion erosions due to embankment or foundation leakage or piping
4. Improper maintenance
5. Improper design
6. Negligent operation
7. Failure of upstream dams
8. Landslides into reservoirs
9. High winds
10. Earthquakes

Flood Assessment Tools

Programs

Cherokee County participates in the *National Flood Insurance Program (NFIP)*. The *NFIP* allows property owners to purchase federally sponsored flood insurance. The *NFIP* maps communities in order to establish Flood Risk Zones or Special Flood Hazards Areas. These hazard areas are then mapped on the *Flood Insurance Rate Maps (FIRMS)*. *FIRMS* are used to assess the risks of floods and aid in proper floodplain management. The National Flood Insurance Program (NFIP) requires local participation. **Table 3-9** shows the current NFIP status of each jurisdiction.

Flood Mitigation Assistance Program (FMA) - This program now allows for additional cost share flexibility: up to 100% federal cost share for severe repetitive loss properties; up to 90% federal costs share for repetitive loss properties; and 75% federal cost share for NFIP insured properties.

The Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) Grant Programs were eliminated by the Biggert-Waters Flood Insurance Reform Act of 2012. Elements of these flood grant programs have been incorporated into FMA.

Regulations

The *National Pollutant Discharge Elimination System (NPDES)* requires cities to obtain a NPDES permit for the discharge of wastewater/storm water. This program will address residential and commercial land uses, illicit discharges and improper disposal, industrial facilities, and construction sites.

Additionally, Cherokee County and each jurisdiction have various plans and regulatory tools in place to aid in hazard mitigation as shown earlier in the plan in **Table 1-1**.

Table 3-9: Cherokee County National Flood Insurance Program Status by Jurisdiction						
CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Eff. Map Date	Sanction Date	Tribal
010234#	Cherokee County	02/16/79	06/17/91	01/19/11	06/17/91	No
015010#	Town of Cedar Bluff	05/15/85	01/01/87	01/19/11 (M)	01/01/87	No
010233#	City of Centre	02/07/75	03/14/80	01/19/11 (M)	03/14/80	No
010498#	Town of Gaylesville	-	01/19/11	01/19/11 (M)	04/20/11	No
010235#	Town of Leesburg	10/15/75	01/19/11	01/19/11 (M)	01/19/11	No
010485#	Town of Sand Rock	-	01/19/11	01/19/11 (M)	10/13/11	No
<i>Legend: M = No Elevation Determined – All Zone A, C and X</i>						
<i>Source: FEMA Community Status Book Report as of February 6, 2014</i>						

Repetitive Loss Properties

Repetitive loss properties are those for which two or more losses of at least \$1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978. *FEMA – Local Multi-Hazard Mitigation Planning Guidance, July 1, 2008.*

Cherokee County has no reported Repetitive Loss properties or Severe Repetitive Loss properties at this time.

Flood Prone Areas

Cherokee County is prone to flooding along Weiss Lake and its tributaries. The Town of Cedar Bluff has flooding along its town limits. The northern border of the City of Center is the

most susceptible to flooding. Individual FIRM panels for the county are available for view at the EMA Office.

VI. Droughts/Extreme Heat

Drought occurs when there is a deficiency of precipitation over an extended period of time. Climatic factors, such as high temperature, high winds, and low relative humidity, can contribute to the severity of a drought. No society is immune to the social, economic, and environmental impacts of a drought. There are two primary types of drought: meteorological and hydrological droughts. These events can result in agricultural and socioeconomic droughts.

Meteorological droughts are defined as the degree of dryness as compared to the normal precipitation for the area over the duration of the dry season. This type of drought is specific to a given region since atmospheric conditions and precipitation vary from one region to the next.

Hydrological droughts are associated with the effects of precipitation deficiencies on surface or groundwater supplies. Hydrological droughts do not occur as often as meteorological or agricultural droughts. It takes longer for precipitation deficiencies to show up in soil moisture, stream flow, groundwater levels, and reservoir levels. Hydrological droughts have an immediate impact on crop production, but reservoirs may not be affected for several months. Climate, changes in land use, land degradation, and the construction of dams can have adverse effects on the hydrological system especially in drought conditions.

Agricultural droughts occur when the moisture in the soil no longer meets the needs of the crops.

Socioeconomic droughts occur when physical water shortage begins to affect people and their quality of life.

A drought's severity depends on numerous factors, including duration, intensity, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multidimensional nature, drought is difficult to define in exact terms and also poses difficulties in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the

confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

Droughts may cause a shortage of water for human and industrial consumption, hydroelectric power, recreation, and navigation. Water quality may also decline and the number and severity of wildfires may increase. Severe droughts may result in the loss of agricultural crops and forest products, undernourished wildlife and livestock, lower land values, and higher unemployment.

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA, 1997). Heat stress can be indexed by combining the effects of temperature and humidity, as shown in **Table 3-10**. The index estimates the relationship between dry bulb temperatures (at different humidity) and the skin's resistance to heat and moisture transfer - the higher the temperature or humidity, the higher the apparent temperature.

In addition to affecting people, severe heat places significant stress on plants and animals. The effects of severe heat on agricultural products, such as cotton, may include reduced yields and even loss of crops (Brown and Zeiher, 1997). Similarly, cows may become overheated, leading to reduced milk production and other problems. (Garcia, September 2002).

Drought is a natural event that, unlike floods or tornadoes, does not occur in a violent burst but gradually happens; furthermore, the duration and extent of drought conditions are unknown because rainfall is unpredictable in amount, duration and location. Drought events can potentially affect the entire county.

The Draft Alabama Drought Management Plan (DMP), developed by the Alabama Department of Economic and Community Affairs – Office of Water Resources (ADECA-OWR), defines drought in terms of several indices that describe the relative amounts of surface water flow, groundwater levels, and recent precipitation as compared to localized norms. Because drought is defined in relative terms, it can be stated that all areas of the county are susceptible to drought.

The National Weather Service uses two indexes to categorize drought. The most accurate index of short-term drought is the Crop Moisture Index (CMI). This index is effective in

determining short-term dryness or wetness affecting agriculture. The most accurate index of long-term drought is the Palmer Index (PI). It has become the semi-official index of drought.

During the past ten years, Cherokee County experienced D2 Severe to D3 Extreme Drought in 2006, D1 Moderate to D4 Exceptional Drought in 2007, D1 Moderate to D4 Exceptional Drought in 2008, and D2 Severe in 2010. No deaths, injuries, property or crop damages were reported. Possible impacts resulting from the drought categories experienced by Cherokee County include: D1 – Crop and pasture damages; streams, reservoirs, or wells low; some water shortages; voluntary water-use restrictions requested. D2 – Crop or pasture losses likely; water shortages common; water restrictions imposed. D3 – Major crop/pasture losses; widespread water shortages or restrictions. D4 – Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Cherokee County experienced 26 drought/extreme heat events in a 10 year period resulting in a greater than 100% (2.60) probability that a drought/extreme heat event will occur on an annual basis. The total amount of damages for the 26 drought/extreme heat events was \$0 or unknown with no drought/extreme heat events causing damage resulting in an estimated \$0 or unknown amounts of expected annual damages from future events. No deaths or injuries were reported. The referenced drought event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a drought event; the ranking is minimum to minor.

Primary effects from Drought and Excessive Heat in Cherokee County would include:

1. Crop and other agricultural damage
2. Water supply shortage - water wells, creeks, rivers, and lakes dry up
3. Increase vulnerability to forest fires and sinkholes
4. Heat exhaustion; heat stroke; heat syncope; and heat cramps

Hazardous results from significant Drought and Excessive Heat in Cherokee County would include:

1. Agricultural damage from drought will result in economic losses of crops and livestock.

2. A water supply shortage will result in the necessity for water to be trucked into the area, damage to the sewer system and lack of hydroelectric power.
3. Forest fires can devastate vast acreages and burn homes and businesses.
4. Heat exhaustion can be debilitating and result in a hospital stay. Heat stroke can cause death.
5. Energy prices will inflate due to loss of hydro-power

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground. The combination of high temperatures and humid conditions increase the level of discomfort and the potential for danger to humans. A sibling to the heat wave is the drought. Droughts occur when a long period passes without any substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

The human risks associated with extreme heat include heatstroke, heat exhaustion, heat syncope, heat cramps. A description of each of these conditions follows:

- Heatstroke is considered a medical emergency and is often fatal. It exists when rectal temperature rises above 105°F as a result of environmental temperatures. Patients may be delirious, stuporous, or comatose. The death to care ratio in reported cases averages about 15%.
- Heat Exhaustion is much less severe than heatstroke. The body temperature may be normal or slightly elevated. A person suffering from heat exhaustion may complain of dizziness, weakness or fatigue. The primary cause of heat exhaustion is fluid and electrolyte imbalance. The normalization of fluids will typically alleviate the situation.
- Heat Syncope is typically associated with exercise by people who are not acclimated to exercise. The symptom is a sudden loss of consciousness. Consciousness returns promptly when the person lies down. The cause is primarily associated with circulatory instability as a result of heat. The condition typically causes little or no harm to the individual.

- Heat Cramps are typically a problem for individuals who exercise outdoors but are unaccustomed to heat. Similar to heat exhaustion it is thought to be a result of a mild imbalance of fluids and electrolytes.

In 1979 R. G. Steadman, a meteorologist, developed the heat index, which is a relationship between dry bulb temperatures (at different humidity) and the skin’s resistance to heat and moisture transfer. Utilizing Steadman’s heat index, the following table was developed to show the risk associated with ranges in apparent temperature or heat index.

Table 3-10: Heat Index/Heat Disorders

Danger Category	Heat Disorder	Apparent Temperature (°F)
IV Extreme Danger	Heatstroke or sunstroke imminent.	>130
III Danger	Sunstroke, heat cramps, or heat exhaustion likely, heat stroke possible with prolonged exposure and physical activity.	105-130
II Extreme Caution	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and physical activity.	90-105
I Caution	Fatigue possible with prolonged exposure and physical activity.	80-90

(Source: National Weather Service, 1997)

Droughts and heat waves have a county-wide impact. The future incidence of drought is highly unpredictable, conditions may be localized or widespread, and not much historical data is

available making it difficult to determine the future probability of drought conditions with any accuracy. The qualitative probability rating for drought is high.

Table 3-5 reflects that the NOAA NCDC reported 26 instances of drought for Cherokee County from 2003-2013. No crop or property damages were reported. There were no reports of extreme heat events during this ten year period.

The National Weather Service reported two instances of drought for Cherokee County in 2006. Statewide, 31 counties were declared a disaster area. Alabama farmers received one million dollars in federal disaster aid along with other grant assistance. It was during this time that the State implemented its Drought Monitoring System. An initial five wells were selected to track water levels around the state, with plans to increase the number of monitoring wells to 25. Drought conditions continued to escalate into 2007 and by August the Federal Government declared all 67 Alabama counties Natural Disaster areas. West-central Alabama reported a rainfall deficit that reached nearly 30 inches by 2007. Impacts were felt by farmers of all crops, including timber, livestock producers, and the forestry service. Additionally, electricity providers were affected as river and lake levels dropped and some municipalities were forced to place restrictions on water consumption as supplies became strained. State Agriculture Commissioner Ron Sparks referred to this event as the worst drought in 30-40 years.

VII. Winter Storms/Frost Freezes/Heavy Snow/Ice Storms/Winter Weather/Extreme Cold

Cherokee County is vulnerable to extreme winter weather conditions such as extreme cold temperatures, snow, and ice. **Table 3-5** shows the winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events that have affected Cherokee County from 2003- 2013. In the category of winter storms/frost freezes/heavy snow/ice storms/winter weather/extreme cold events, 14 storms were reported for Cherokee County between 2003 and 2013 – 2 winter storm events; 2 frost freeze events; 2 heavy snow events; 1 ice storm event; 6 winter weather events; and 1 extreme cold event. The entire planning area is equally at risk to all hazards in this category.

The most common impacts of severe winter weather are power failure due to downed power lines and traffic hazards. Winter storm occurrences tend to be very disruptive to transportation and commerce as the county and its citizens are unaccustomed to them. Trees, cars, roads, and other surfaces develop a coating or glaze of ice, making even small accumulations of ice extremely hazardous to motorists and pedestrians. The most prevalent impacts of heavy accumulations of ice are slippery roads and walkways that lead to vehicle and pedestrian accidents; collapsed roofs from fallen trees and limbs and heavy ice and snow loads; and fallen trees, telephone poles and lines, electrical wires, and communication towers. As a result of severe ice storms, telecommunications and power can be disrupted for days. Also many homes and buildings, especially in rural areas, lack proper insulation or heating, leading to risk of hypothermia. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death.

On January 9, 2011 a winter storm event occurred as a result of a low pressure system moving across the northern Gulf of Mexico pushing moisture northward and interacting with cold air already in place. Snow accumulations ranged from near 2 to 6.5 inches, which was reported near Centre. No deaths, injuries, property or crop damages were reported.

A frost freeze event on April 7-8, 2007 resulted in an unusually cold spring time air mass settling across Central Alabama (including Cherokee County) and bringing record cold temperatures to the entire region. Sub-freezing temperatures were recorded as far south as Wetumpka, Alabama and mid to upper 20s were recorded as far south as Clanton in Chilton

County, Alabama. Fruit crops suffered heavy damage, although dollar loss estimates were not known. No deaths, injuries, or property damages were reported.

On February 12, 2010, a heavy snow event resulted in 2-3 inches of snow falling across the county. Many bridges and other elevated surfaces became icy and hazardous. Another heavy snow event occurred on December 25, 2010. Many locations saw precipitation begin as rain and change over to snow. An average snowfall accumulation of 2 inches occurred across the county with isolated amounts of 3 inches near Sand Rock. No deaths, injuries, or property damages were reported from these events.

An ice storm event occurred on January 28, 2005 resulting in vehicles sliding off the roadways under the icy conditions. Exposed surfaces had ice accumulation to at least one half of an inch with a few locations reporting ice accumulations of around one inch. Numerous trees, tree limbs, and power lines were knocked down and many of the fallen trees temporarily blocked roadways. Several homes and vehicles were damaged by the fallen trees. Several area bridges became totally iced over and were very hazardous for travel. Many roads were temporarily closed due to icing. Power outages were widespread during the early morning hours with up to 30,000 homes and businesses without power. The rain changed over to freezing rain just after sunset on January 28. Icing conditions started in the early evening hours and tapered off to no additional significant accumulations early on January 29. Property damages of \$50,000 occurred. No deaths, injuries, or crop damages were reported.

The most recent winter weather event that occurred during the study period occurred on January 17, 2013. Up to half an inch of snow fell across the county, resulting in hazardous road conditions and early closures for local businesses. No deaths, injuries, or property or crop damages were reported.

An extreme cold event resulted in the coldest temperatures in 7 years occurring across much of North and Central Alabama and lasted for about two days. Early morning temperatures ranged from 2 to 10 degrees. The coldest temperatures were measured in outlying areas. Although no new records were established, these temperatures were very cold for the Deep South. Many area residents reported frozen and broken water pipes as a result of the extended cold. Several lawn

sprinkler systems also froze and broke making many areas very icy. No deaths, injuries, or property or crop damages were reported.

Cherokee County experienced 14 storms in the category of winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events in a 10 year period resulting in a greater than 100% (1.40) probability that a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event will occur on an annual basis. The total amount of damages for the 14 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events was \$50,000 with one winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events causing damage resulting in an estimated \$50,000 expected annual damages from future events. The referenced events are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serve as the extent/range of magnitude or severity that could be experienced by Cherokee County due to such events. Worst case events are described above and serve as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event; the ranking is minimum to minor.

Primary effects from winter storms in Cherokee County would include:

1. Injury and damage from downed trees and utility lines due to the snow and ice load
2. Widespread impassable roads and bridges
3. Disruption of services and response capabilities
4. Crop and other agricultural damage

Hazardous results from winter storms in Cherokee County would include:

1. Loss of power, communications, and fires are common results of severe winter storms. Widespread power outages close down businesses and impact hospitals, nursing homes, and adult and child care facilities serving special needs populations.
2. Loss of transportation ability will affect emergency response, recovery and supply of food and materials.

3. Numerous vehicle accidents in a winter storm can stretch thin the resources of fire rescue and law enforcement.
4. Stranded motorists and the homeless can create a food and housing shortage within the community.
5. The widespread nature of winter storms usually creates a strain on police, fire and medical providers due to the volume of calls for service.

This page left intentionally blank

VIII. Hurricanes/Tropical Storms/Tropical Depressions/High Winds/Strong Winds

Hurricane season in the northern Atlantic Ocean, which affects the United States, begins on June 1 and ends on November 31. These months accompany warmer sea surface temperatures which is a required element to produce the necessary environment for tropical cyclone/hurricane development.

According to data from the National Oceanic and Atmospheric Administration's National Hurricane Center, there are three classification levels of storms based on wind speed. The first, a tropical depression, is "an organized system of clouds and thunderstorms with a defined surface cyclonic closed circulation and maximum sustained winds of 38 mph or less." A tropical storm is the second level and is described as "an organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph." A "hurricane," which is the third classification level, is "an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher." Individual hurricanes vary in intensity and are categorized using the Saffir-Simpson Hurricane Scale.

NOAA measures wind speeds for thunderstorm/wind and hurricane events in knots (kts) while the Saffir-Simpson scale, shown later in the Hurricane profile, measures wind speed in miles per hour. Both knots and miles per hour is a speed measured by a number of units of distance covered in certain amount of time. Here is how knots compare to MPH:

- 1 knot = 1 nautical mile per hour = 6076.12 feet per hour
- 1 MPH = 1 mile per hour = 5280 feet per hour

To convert knots into miles per hour, multiply the number of knots by 1.151.

Saffir-Simpson Hurricane Wind Scale

Once a tropical storm reaches the level of a hurricane, it is then classified by the storm's intensity. Intensity levels, or categories, are used to assign a number (e.g., Category 1) to a hurricane based on the storm's intensity at the current time. The Saffir-Simpson Hurricane Wind Scale, **Table 3-11**, is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. With the scale

in place, people within the hurricane’s tract can better estimate the type of damage they should expect (i.e., wind, storm surge, and/or flooding impacts) due to the intensity of the oncoming hurricane.

Table 3-11: Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

(Source: National Hurricane Center – NOAA)

Threats Related to Hurricanes

Hurricanes impact regions in a variety of ways. The intensity of the storm, the speed of the winds, whether the storm moves through a region quickly or whether it stalls over one area all are variables toward the physical damage the storm will cause. Storm surges, high winds, and heavy

rains are the three primary elements of hurricanes, while tornados and inland flooding are potential secondary elements caused in the wake of the storm. Cherokee County is not directly affected by storm surge.

July 10, 2005, a Tropical Storm event from the effects of what was once Hurricane Dennis left approximately 3,600 residents countywide without power for a short time. Several trees were blown down in Gaylesville and Cedar Bluff. Property damages of \$28,000 were reported.

August 29, 2005, a Tropical Storm event from the effects of what was once Hurricane Katrina resulted in several trees and power lines being blown down across Cherokee County. Power outages were widespread. Several vehicles and homes were damaged by the fallen trees. Property damages of \$80,000 were reported.

August 23, 2008 the effects of what was once Tropical Storm Fay but weakened to a Tropical Depression after making landfall, brought high winds, heavy rain, and numerous tornadoes to Central Alabama. No property or crop damages, injuries or deaths were reported in Cherokee County.

November 9-11, 2009, a Tropical Depression event from the effects of what was once Hurricane Ida brought very heavy rain and gusty winds to Cherokee County. The winds blew down shallow rooted trees where the saturated soil likely played a significant role. Property damages of \$2,000 were reported.

On September 16, 2004, a high wind event resulted in a maximum wind gust of 60 miles per hour winds. At least 8,000 customers were without power at the height of the storm. Several roadways, creeks, and homes were flooded due to the torrential rain. Doppler radar and ground observations indicated as much as 6 inches of rain fell in association with what was once Hurricane Ivan. Property damages of \$350,000 were reported.

On September 5, 2011, a Strong Wind event from the effects of Hurricane Lee resulted in a strong wind event in Cherokee County. Gradient winds caused several trees to fall in northern Cherokee County, in locations such as Sand Rock, Little River, and Starling Gap. Several hardwoods also fell on a home in Gaylesville.

Cherokee County experienced 13 hurricane/tropical storm/tropical depression/high wind/strong wind events in a 10 year period resulting in a greater than 100% (1.30) probability that

a hurricane/tropical storm/tropical depression/high wind/strong wind event will occur on an annual basis. The total amount of damages for the 13 hurricane/tropical storm/tropical depression/high wind/strong wind events was \$500,000 with 12 hurricane/tropical storm/tropical depression/high wind/strong wind events causing damage resulting in an estimated \$41,667 of expected annual damages from future events. No deaths or injuries were reported. The referenced hurricane/tropical storm/tropical depression/high wind/strong wind event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a hurricane/tropical storm/tropical depression/high wind/strong wind event; the ranking is minor to major.

Primary Effects of Hurricanes:

1. Storm Surges
 - a. Primary cause of deaths in hurricanes
 - b. Large volumes of ocean water that are driven onshore by a land-falling hurricane or tropical storm
 - c. Can increase mean water level by 15 feet+ if accompanied by tide
2. Wind
 - a. Secondary cause of deaths related to hurricanes
 - b. Continue causing destruction as storm travels miles inland
 - c. Able to completely destroy towns and structures that fall within storm path
 - d. Winds near perimeter of eye of storm are strongest and most intense
 - e. Oftentimes produce tornados
3. Heavy Rains
 - a. Rain levels during hurricanes can easily exceed 15 to 20 inches
 - b. Cause flooding beyond coastal regions

Secondary Effects of Hurricanes:

1. Tornados
 - a. Usually found in right-front quadrant of storm or embedded in rain bands

- b. Some hurricanes capable of producing multiple twisters
 - c. Usually not accompanied by hail or numerous lightning strikes
 - d. Tornado production can occur for days after the hurricane makes landfall
 - e. Can develop at any time of the day or night during landfall of a hurricane
2. Inland Flooding
- a. Statistically responsible for greatest number of fatalities over last 30 years
 - b. Stronger storms not necessarily cause of most flooding; weaker storms that move slowly across the landscape can deposit large amounts of rain, causing significant flooding

Cherokee County is at a low risk for a direct hit by a hurricane due to its position several miles inland from the Alabama coastline. Although Cherokee County does not feel the effects of storm surges, other effects including heavy rain, flooding, winds, and tornados often have significant impacts on Cherokee County.

This page left intentionally blank

X. Sinkholes/ Expansive Soils

Sinkholes

Naturally occurring Sinkholes occur where limestone, carbonate rock, salt beds, or rocks can be dissolved by ground water circulating through them. As the rock dissolves, spaces and caverns develop underground. The land usually stays intact until the underground spaces become too large to support the ground at the surface. When the ground loses its support it will collapse, forming a sinkhole. Sinkholes can be small or so extreme they consume an automobile or a house. The most damage from sinkholes tends to occur in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania.

According to the Geological Survey of Alabama's sinkhole data as of 2010, Cherokee County has experienced sinkholes; however, the sinkhole density in Cherokee County is low. **Figure 3-3** shows sinkholes susceptibility in Cherokee County.

Expansive Soils

Expansive soils are soils that swell when they come in contact with water. The presence of clay is generally the cause of such behavior. **Figure 3-4** shows the general soil areas for the state. Cherokee County has Limestone Valleys and Uplands and Appalachian Plateau soils. There were no expansive soils reported from NOAA or local sources during the time frame covered by the plan. Though these soils have shrink-swell potential, the committee does not feel a profile is necessary.

Figure 3-3: Cherokee County Sinkhole Susceptibility
 (Source: Alabama State Hazard Mitigation Plan, April 2013)

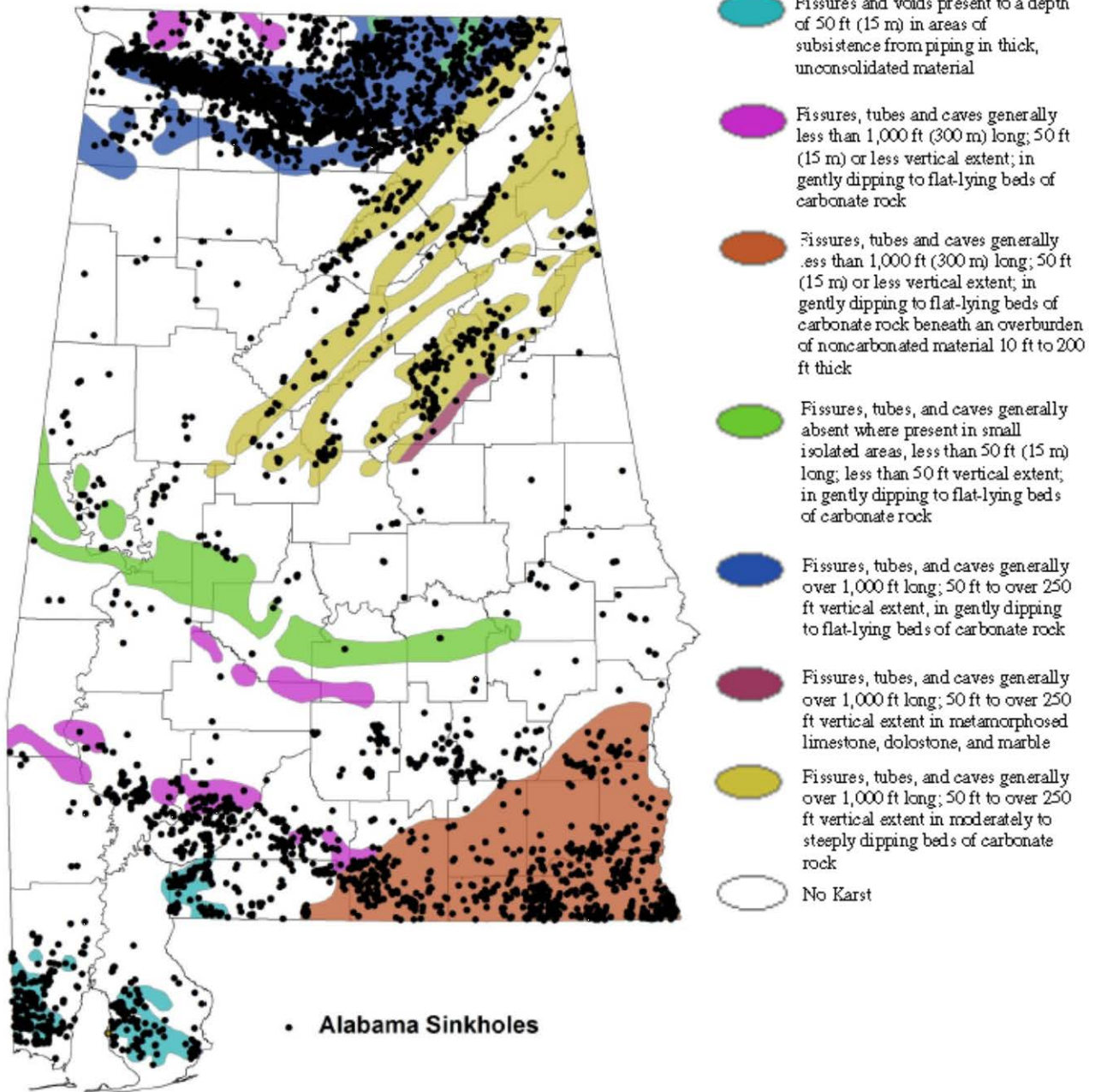
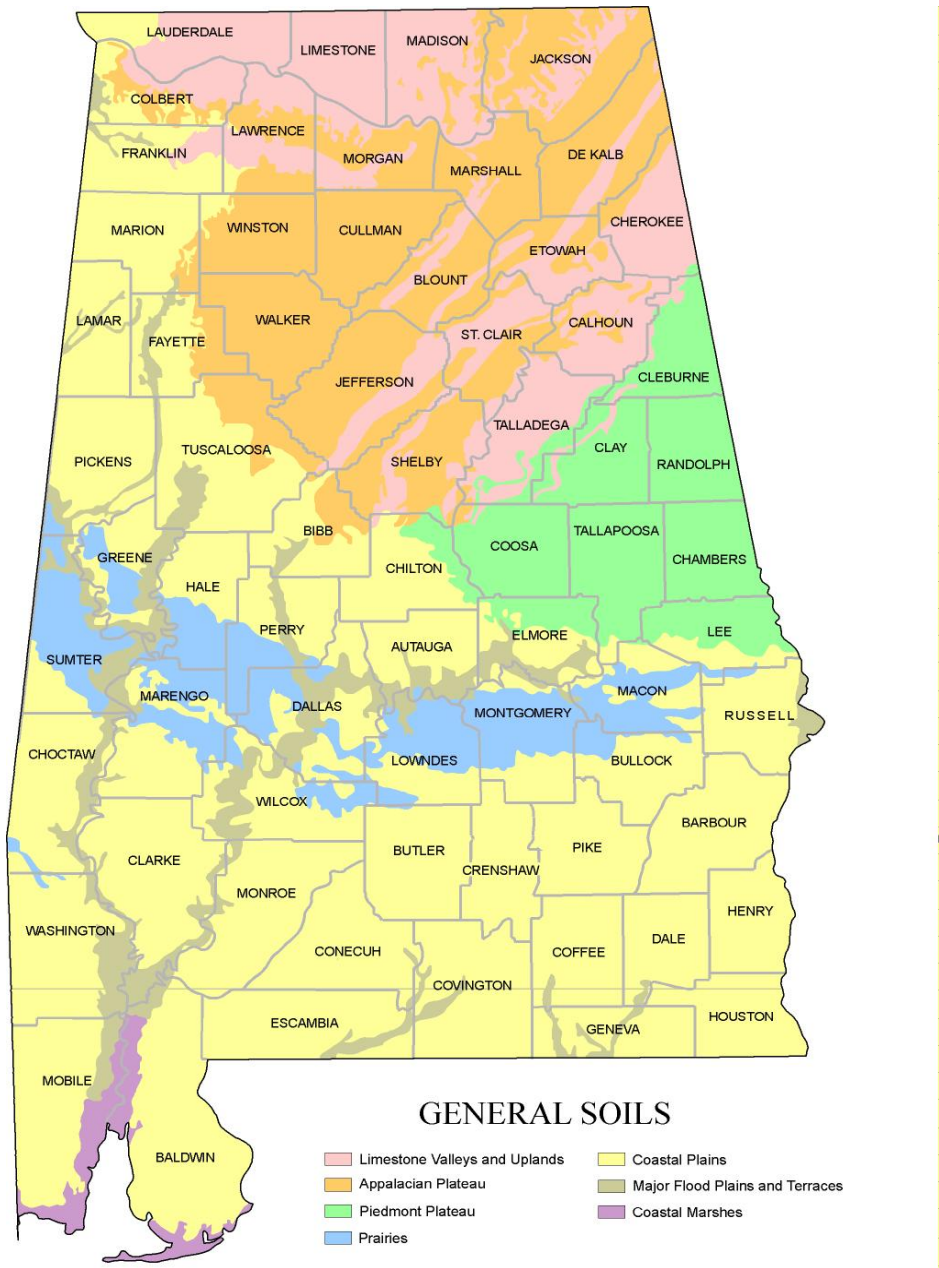


Figure 3-4: General Soils of Alabama



Produced by the Department of Geography
College of Arts and Sciences
The University of Alabama

There were no active sinkholes reported by NOAA.

Cherokee County experienced no sinkhole event in a 10 year period resulting in an unknown probability that a sinkhole event will occur on an annual basis. The total amount of damages for the one sinkhole event was unknown with no sinkhole event causing damage resulting in unknown expected annual damages from future events. No deaths or injuries were reported. There is no sinkhole event(s) to reference the ones that resulted in the most damages, deaths, and injuries during the past ten year period; therefore, the extent/range of magnitude or severity that could be experienced by Cherokee County due to a sinkhole event is also unknown; the ranking is minimum to minor.

Primary effects from sinkholes in Cherokee County would include:

1. Property damage
2. Underground infrastructure damage
3. Impassable roads
4. Building collapse

Hazardous results from significant sinkholes in Cherokee County would include:

1. Formation of sinkholes can destroy any structure it underlies. Houses, businesses, and government buildings are extremely susceptible to this damage.
2. Underground power, gas, and water lines can be broken causing leakage and breaks that can disrupt service and have negative environmental effects.
3. The ground underneath a road sinks and either leaves the road unsupported or destroys it completely. This is extremely dangerous for unsuspecting motorists and repair crews.
4. Unsupported foundations of buildings allow for collapse of the foundation and possibly the entire structure resulting in mass amounts of injury and damage as well as possible death.

X. Landslides

A landslide is defined by the United States Geologic Survey as the movement of rock, debris, or earth down a slope. Various natural and man-induced triggers can cause a landslide. Naturally induced landslides occur as a result of weakened rock composition, heavy rain, changes in groundwater levels, and seismic activity. Geologic formations in a given area are key factors when determining landslide susceptibility. Cherokee County has argillaceous rocks – shales, clayey soil, existing landslides, and poorly compacted fills (*Source: GSA Landslides in Alabama, Accessed February 6, 2015*).

Figure 3-5 shows that most of Cherokee County is at a low risk of incidence; however, areas in Cherokee County have a moderate to high incidence of landslides. There were no landslides reported by NOAA or the U.S. or Alabama Geological Survey during the time frame covered by this plan.

Cherokee County experienced no landslide events in a 10 year period resulting in a less an unknown probability that a landslide event will occur on an annual basis. The total amount of damages for a landslide event is unknown as no landslide events occurred that caused damage; therefore, an estimated amount of expected annual damages from future events is unknown. No deaths or injuries were reported. There are no landslide event(s) that resulted in damages, deaths, and injuries during the past ten year period, so the extent/range of magnitude or severity that could be experienced by Cherokee County due to a landslide event is also unknown; the ranking is minimum to minor.

Primary effects from landslide in Cherokee County would include:

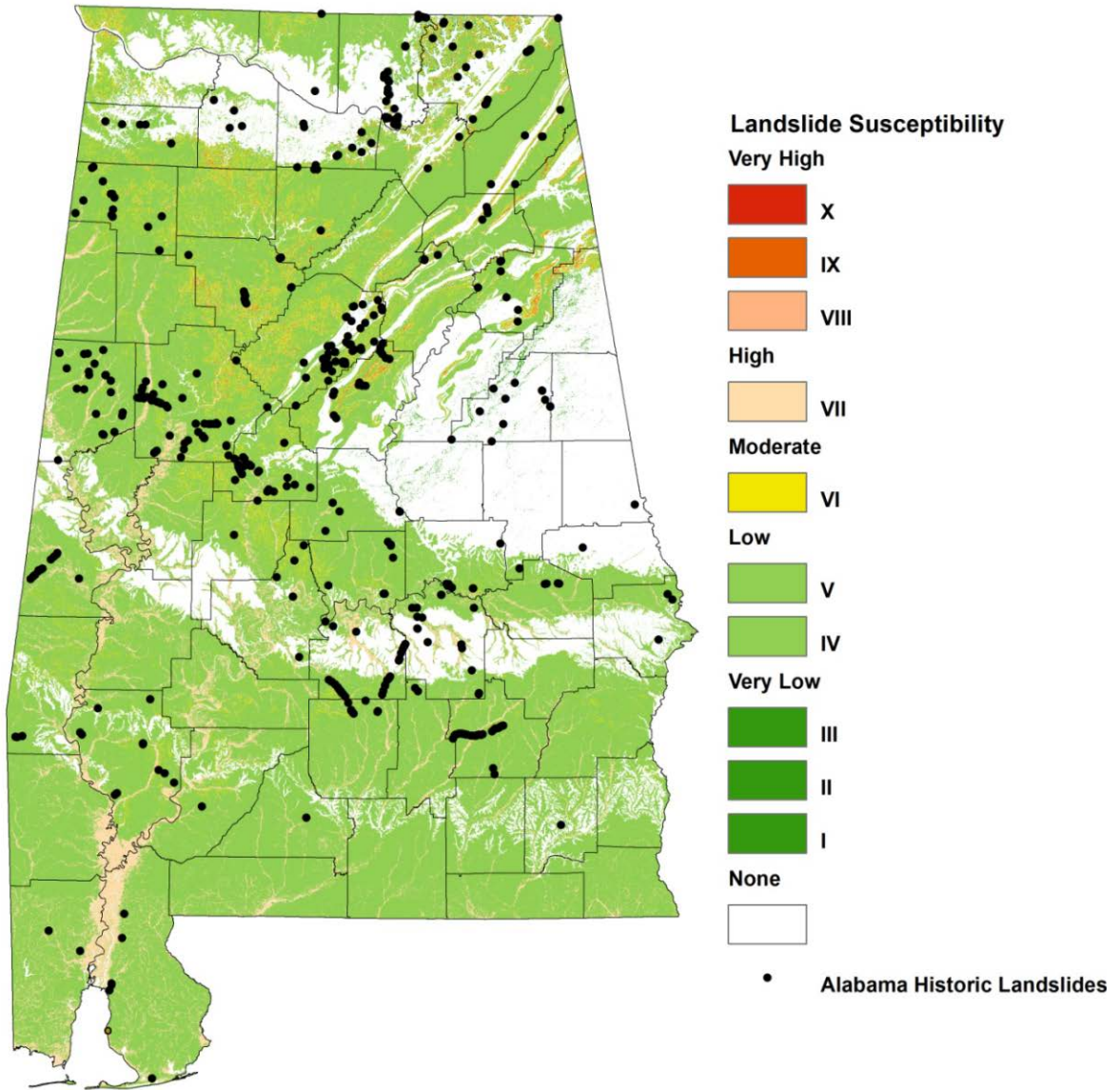
1. Property damage
2. Impassable roads
3. Sediment erosion
4. Underground infrastructure damage

Hazardous results from landslide in Cherokee County would include:

1. Landslides move with tremendous force capable of destroying most structures in their path while carrying anything it comes in contact with.

2. Material from landslides can damage and destroy roads as well as block them with debris resulting in disruption to business and other activity.
3. Removed sediment can leave the surrounding area bare and prone to erosion.
4. The flow of a landslide can rip underground pipes and wiring from an area as well as bury them deeper under debris creating a loss of services.

Figure 3-5: Cherokee County Landslide Susceptibility
 (Source: Alabama State Hazard Mitigation Plan, April 2013)



This page left intentionally blank

XI. Earthquakes

An earthquake is a sudden slip on a fault and the resulting ground shaking and radiated seismic energy caused by an abrupt release of accumulated strain in the tectonic plates that comprise the earth's crust. These rigid plates, known as tectonic plates, are some 50 to 60 miles in thickness and move slowly and continuously over the earth's interior. The plates meet along their edges, where they move away, past or under each other at rates varying from less than a fraction of an inch up to five inches per year. While this sounds small, at a rate of two inches per year, a distance of 30 miles would be covered in approximately one million years (FEMA, 1997).

The tectonic plates continually bump, slide, catch, and hold as they move past each other which causes stress to accumulate along faults. When this stress exceeds the elastic limit of the rock, an earthquake occurs, immediately causing sudden ground motion and seismic activity. Secondary hazards may also occur, such as surface faulting, sinkholes, and landslides. While the majority of earthquakes occur near the edges of the tectonic plates, earthquakes may also occur at the interior of plates.

The vibration or shaking of the ground during an earthquake is described by ground motion. The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. The following are the two kinds of seismic waves:

- P (primary) waves are longitudinal or compression waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion), with particle motion in the same direction as wave travel. They move through the earth at approximately 15,000 MPH.
- S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side-to-side (horizontal motion) due to particle motion at right angles to the direction of wave travel. Unreinforced buildings are more easily damaged by S waves. There are also two kinds of surface waves, Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

Seismic activity is commonly described in terms of magnitude and intensity. Magnitude (M) describes the total energy released and intensity (I) subjectively describes the effects at a particular location. Although an earthquake has only one magnitude, its intensity varies by location.

Magnitude is the measure of the amplitude of the seismic wave and is expressed by the Richter scale. The Richter scale is a logarithmic measurement, where an increase in the scale by one whole number represents a tenfold increase in measured amplitude of the earthquake. Intensity is a measure of the strength of the shock at a particular location and is expressed by the Modified Mercalli Intensity (MMI) scale.

Another way of expressing an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. If an object is dropped while standing on the surface of the earth (ignoring wind resistance), it will fall towards earth and accelerate faster and faster until reaching terminal velocity. The acceleration due to gravity is often called "g" and is equal to 9.8 meters per second squared (980 cm/sec/sec). This means that every second something falls towards earth, its velocity increases by 9.8 meters per second. Peak ground acceleration (PGA) measures the rate of change of motion relative to the rate of acceleration due to gravity. For example, acceleration of the ground surface of 244 cm/sec/sec equals a PGA of 25.0 percent. It is possible to approximate the relationship between PGA, the Richter scale, and the MMI, as shown in **Table 3-12**. The relationships are, at best, approximate, and also depend upon such specifics as the distance from the epicenter and depth of the epicenter. An earthquake with 10.0 percent PGA would roughly correspond to an MMI intensity of V or VI, described as being felt by everyone, overturning unstable objects, or moving heavy furniture.

Table 3-12: Earthquake PGA, Magnitude and Intensity Comparison

PGA (%g)	Magnitude (Richter)	Intensity (MMI)	Description (MMI)
<0.17 – 1.4	1.0 – 3.0	I	Not felt except by a very few under especially favorable conditions.
0.17 – 1.4	3.0 – 3.9	II - III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
1.4 – 9.2	4.0 – 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
9.2 - 34	5.0 – 5.9	VI – VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
34 – 124	6.0 – 6.9	VIII - IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
>124	7.0 and higher	VIII or Higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

(Source: <http://earthquake.usgs.gov>)

Earthquake-related ground failure, due to liquefaction, is a common potential hazard from strong earthquakes in the central and eastern United States. Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the empty spaces between granules to collapse. Pore-water pressure may also increase sufficiently

to cause the soil to behave like a fluid (rather than a soil) for a brief period and causing deformations. Liquefaction causes lateral spreads (horizontal movement commonly 10-15 feet, but up to 100 feet), flow failures (massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Sands blows were common following major New Madrid earthquakes in the central United States.

The hazards associated with earthquakes include anything that can affect the lives of humans, including surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunamis, and seiches. Earthquake risk is defined as the probability of damage and loss that would result if an earthquake caused by a particular fault were to occur. Losses depend on several factors including the nature of building construction, population density, topography and soil conditions, and distance from the epicenter.

Interestingly, an earthquake's magnitude can be a poor indicator of hazard impact because the duration of ground shaking, and resulting increased damages, is not factored into the magnitude concept. The majority of losses are due to collapsing houses and other structures, the most vulnerable being those of unreinforced masonry and adobe. Structures built with more flexible materials such as steel framing are preferred. Wood frame construction, which constitutes a high percentage of homes in the United States, also tends to flex rather than collapse but is more susceptible to fire. Building codes have historically been utilized to address construction standards to mitigate damages for earthquakes and other hazards. However, older structures, non-compliance, and incomplete knowledge of needed measures remain a problem. In order to reduce losses to lives and property, wider adoption of improved construction methods for both residential and important critical facilities such as hospitals, schools, dams, power, water, and sewer utilities is needed.

Three zones of frequent earthquake activity affecting Alabama are the New Madrid Seismic Zone (NMSZ), the Southern Appalachian Seismic Zone (SASZ) (also called the Eastern Tennessee Seismic Zone), and the South Carolina Seismic Zone (SCSZ). The NMSZ lies within the central Mississippi Valley, extending from northeast Arkansas through southeast Missouri, western Tennessee, and western Kentucky, to southern Illinois. The SASZ extends from near Roanoke in southwestern Virginia southwestward to central Alabama. Considered a zone of moderate risk, the

SASZ includes the Appalachian Mountains. Most of the earthquakes felt in Alabama are centered in the SASZ. The hypocenters of earthquakes in this zone are on deeply buried faults. The SCSZ is centered near Charleston South Carolina and encompasses nearly the whole State. Cherokee County is at risk for earthquakes. The risk of a significant, damage-causing earthquake in Cherokee County is low to moderate.

Earthquakes occurring in Cherokee County are predominantly low magnitude events. Cherokee County's historical earthquake activity is slightly below Alabama's state average. It is 84% smaller than the overall U. S. average. (*Source: City-Data.com, Accessed February 6, 2015*). However, there is growing concern that a high magnitude event is inevitable and earthquakes are becoming a much larger concern to the county. GSA is currently working to better define seismic hazards and impacts throughout the county. **Figure 3-6** shows the Percent Ground Acceleration (PGA) with two percent 50 year exceedance probability.

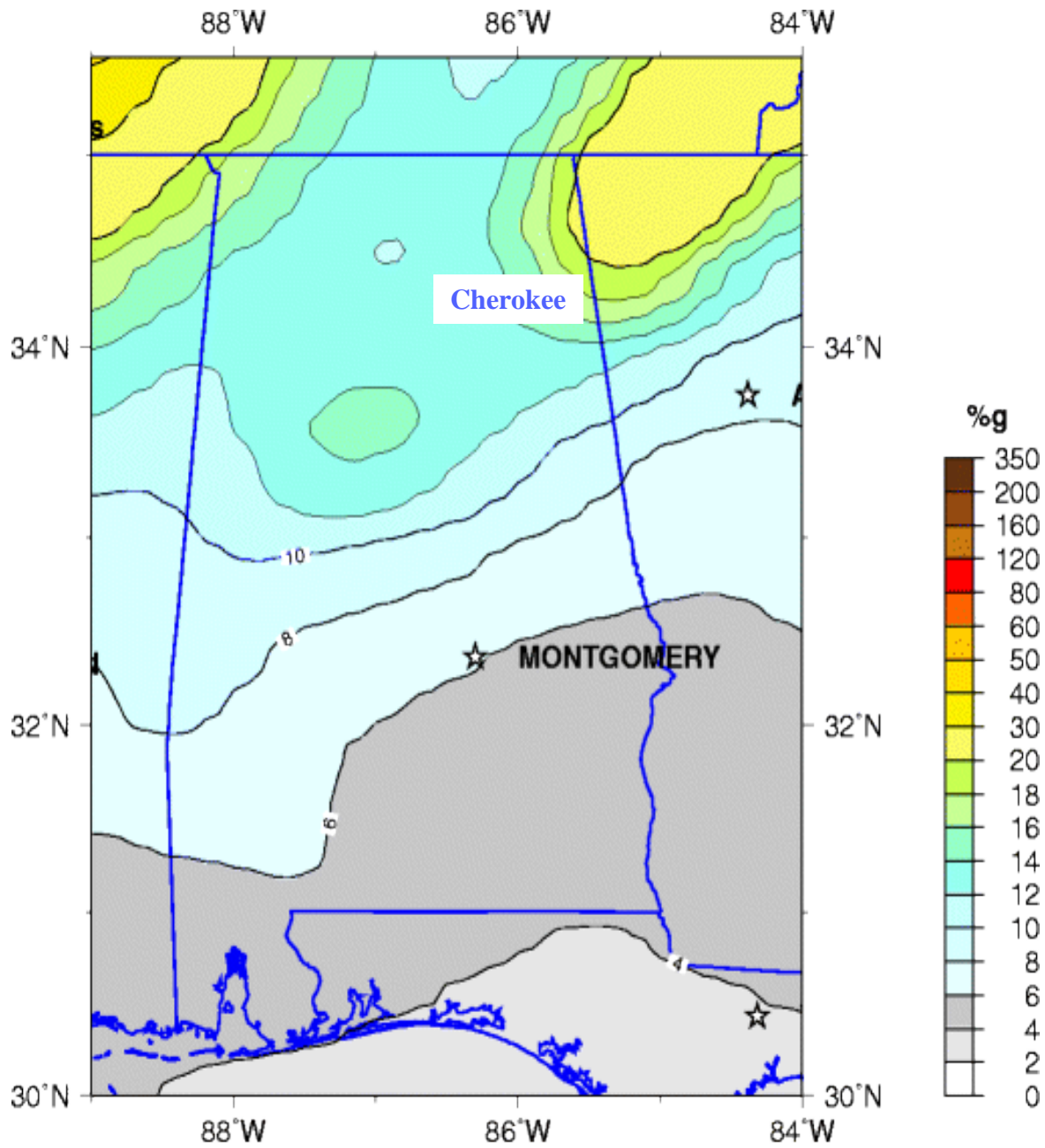
According to Homefacts.com, the USGS database shows that there is a 3.09% chance of a major earthquake within 50 km of Centre, Alabama within the next 50 years. The largest earthquake within 30 miles of Centre, Alabama was a 4.6 magnitude that occurred in 2015, which is not in this plan's update study period.

On 4/29/2003 at 08:59:39, a magnitude 4.9 (4.4 MB, 4.6 MW, 4.9 LG, Depth: 12.2 mi, Class: Light, Intensity: IV - V) earthquake occurred 21.4 miles away from the county center. The county EMA reported power outages and a few trees down.

Although many areas of the United States are better known for their susceptibility, earthquakes do occur in Alabama. **Figure 3-7** shows the seismic zones of the Southeastern United States, which includes Alabama, as well as the epicenters of earthquakes recorded in the state from 1886-2007 as provided by the Geological Survey of Alabama and noted in the Alabama EMA Earthquake Book 2002.

Two zones of frequent earthquake activity that could potentially impact Cherokee County are the New Madrid Seismic Zone and the Southern Appalachian Seismic Zone. Damage could be significant in Cherokee County if a powerful earthquake were to occur because buildings in this part of the country have not been constructed to withstand such a powerful force. In 1916 on October 18, a strong earthquake occurred on an unnamed fault east of Birmingham. It was

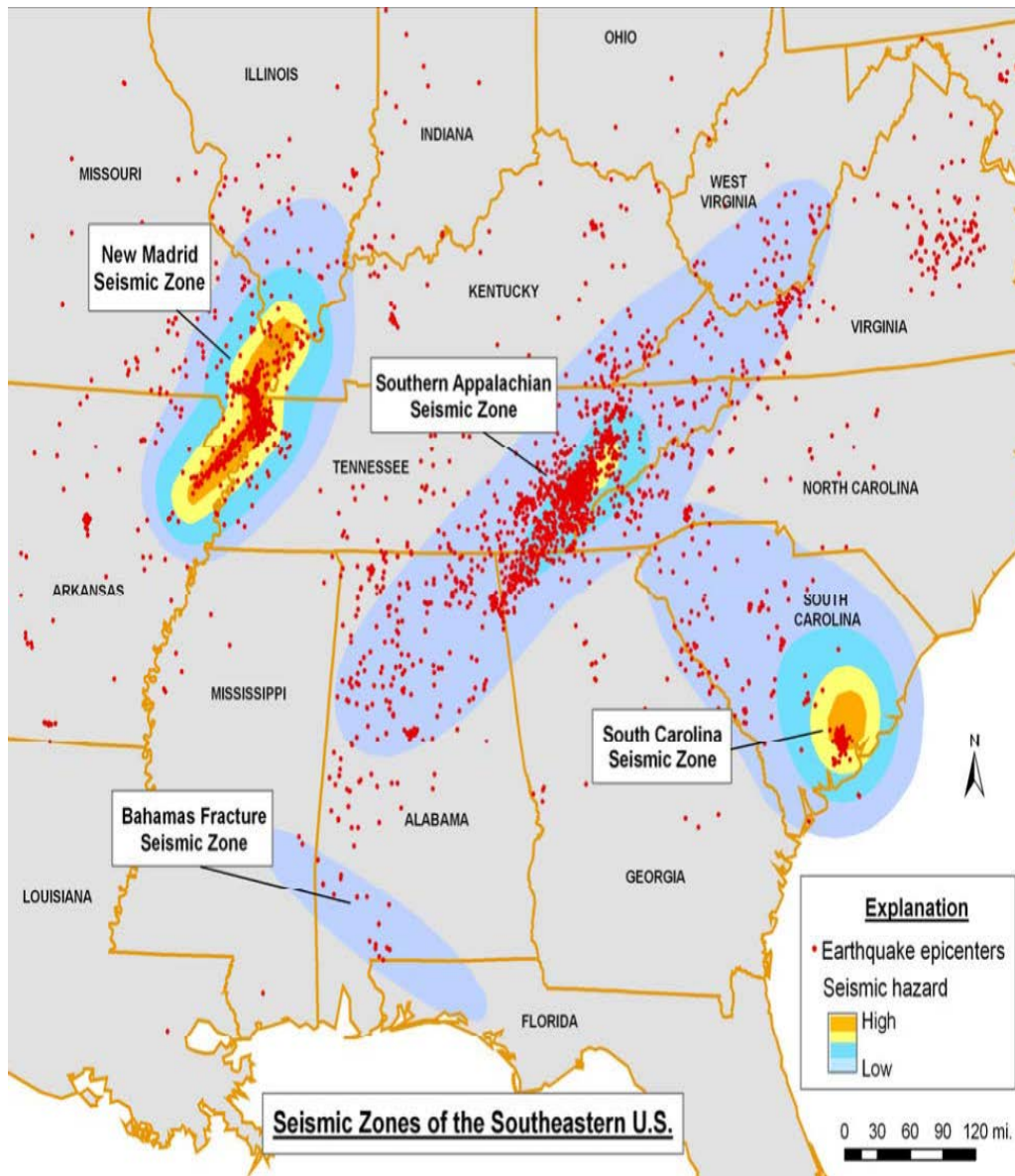
apparently most strong at Easonville. Near the epicenter, chimneys were knocked down, windows broken, and frame buildings were greatly shaken. It was noted by residents in seven states and covered 100,000 square miles. The 1895 New Madrid earthquake registered a 6.8 on the Richter scale and was moderately felt throughout the southeastern United States. The New Madrid Fault line runs along the Mississippi River. Geologists agree that another major earthquake along the New Madrid Fault line could cause chimneys to fall, glass to break, and walls to crack in Cherokee County.



**Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
 site: NEHRP B-C boundary
 National Seismic Hazard Mapping Project (2008)
 Figure 3-6**

This page left intentionally blank

Figure 3-7: Seismic Zones of the Southeastern United States



Source: Geological Survey of Alabama, 2010

This page left intentionally blank

In the eastern United States strong earthquakes occur less frequently than other parts of the country; however, this does not mean that the damage in this area would be any less catastrophic should a powerful quake occur. There are two important reasons for this. The first is that the type of rock present in the eastern part of the country transmits seismic waves more effectively. This in turn creates better transmission of earthquake energy and results in higher damage over a wider area. Second, because buildings and other structures in the eastern United States have not been designed to withstand severe earth shaking, they will sustain more damage.

Cherokee County experienced no earthquake events in a 10 year period resulting in an unknown probability that an earthquake event will occur on an annual basis. The total amount of damages for an earthquake event is unknown with no earthquake event causing damage resulting in an unknown estimate of expected annual damages from future events. No deaths or injuries were reported. There are no earthquake event(s) to reference the ones that resulted in the most damages, deaths, and injuries during the past ten year period or serve as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a earthquake event; the ranking is minimum to minor.

Primary effects from earthquake in Cherokee County would include:

1. Property Damage
2. Underground infrastructure damage
3. Building collapse
4. Trigger for other natural disasters

Hazardous results from earthquake in Cherokee County would include:

1. Shaking can cause cracking of roads, bridges, or buildings, which may also lead to collapse.
2. Pipes and wiring underground could be severely damaged due to the movement of the earth. This would result in interruption of service and long periods of repair before lines were serviceable again.
3. Buildings in Cherokee County are not built to meet the rigors of earthquakes; collapsing structures could kill or injure occupants.

4. Earthquakes can create other disasters such as landslides, flooding, and sinkholes.
5. Shifting of underlying soil and breaching of dams are examples of possible results from an earthquake.

XII. Wildfires

Wildfires are responsible for burning thousands of acres of land across the United States each year. They are large, fast moving, disastrous fires that occur in the wilderness or rural areas. These fires are uncontrolled and in dry conditions can spread rapidly through the surrounding vegetation and structures. Cherokee County is susceptible to wild/forest fires especially during times of drought. According to the Alabama Forestry Commission's Forest Resource Report of 2012, Cherokee County has a total of 246,076 acres of forestland, which accounts for 69 percent of the total land area in the county – acres are made up of 97,757 acres of softwoods; 49,973 acres of oak-pine; and 98,346 acres of hardwoods.

The frequency and severity of wildfires is dependent on weather and on human activity. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, damage forest resources and destroy structures. **Table 3-5** shows the number of fires and acres burned during the period 2010 to 2013, as recorded by the Alabama Forestry Commission. Cherokee County had a total of 190 fires during this three year period, affecting a total of 9,278.90 acres.

The National Forest Service (NFS) maintains data nationwide and produces various maps and forecasts daily under the Wildland Fire Assessment System (WFAS). A review of this data showed Cherokee County has a 5-10 percent probability of a fire occurring because of a lightning strike. The probability of ignition by lightning depends mainly on fuel moisture. Fuel Model Maps help to determine susceptibility of vegetative cover to wildfires. Cherokee County is covered by Fuel Models A and C. Areas covered by these models consist of light fuel vegetation such as herbaceous plants and round woods that are less than one-quarter of an inch.

Cherokee County experienced 190 wildfire events in a three year period resulting in a greater than 100% (63.33) probability that wildfire event will occur on an annual basis. The total amount of acres burned was 9,278.90 multiplied by \$1,900 (the average market value for an acre of land in Cherokee County) equals \$17,629,910 damages for the 109 wildfire events with 109 wildfire events causing damage resulting in an estimated \$5,876,637 multiplied by 1.09 (projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars - \$1 in 2008 = \$1.09 in 2014...a cumulative

rate of inflation of 9%) equals a total of \$6,405,534 of expected annual damages from future events. No deaths or injuries were reported. The referenced wildfire event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Cherokee County due to a wildfire event; the ranking is minor to major. The extent/range of magnitude or severity that could be experienced by Cherokee County due to a wildfire event is minimum to minor.

Primary effects from wildfire in Cherokee County would include:

1. Loss of property
2. Loss of livestock
3. Destruction of wilderness
4. Crop destruction

Hazardous results from significant wildfire in Cherokee County would include:

1. Widespread fire destroys everything flammable, leaving people homeless and businesses destroyed.
2. Fenced in livestock have no way of escaping the path of a wildfire and most are lost due to smoke inhalation.
3. Most wildfires actually help forests grow because they rid the forest of underbrush, but exceptionally hot fires that have a long duration destroy entire forests.
4. An entire year's crop can be lost by burning through all vegetation.

XIII. Dam/Levee Failures

A dam is barriers constructed across a watercourse in order to store, control, or divert water. Dams are usually constructed of earth, rock, concrete, or mine tailings. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet, with one acre-foot being the volume of water that covers one acre of land to a depth of one foot. Due to topography, even a small dam may have a reservoir containing many acre-feet of water. A dam failure is the collapse, breach, or other failure of a dam that causes downstream flooding. Dam failures may result from natural events, human-caused events, or a combination thereof. Due to the lack of advance warning, failures resulting from natural events, such as hurricanes, earthquakes, or landslides, may be particularly severe. Prolonged rainfall that produces flooding is the most common cause of dam failure (FEMA, 1997).

Dam failures usually occur when the spillway capacity is inadequate and water overtops the dam or when internal erosion through the dam foundation occurs (also known as piping). If internal erosion or overtopping cause a full structural breach, a high-velocity, debris-laden wall of water is released and rushes downstream, damaging or destroying whatever is in its path.

Dam failures may result from one or more the following:

- Prolonged periods of rainfall and flooding (the cause of most failures)
- Inadequate spillway capacity which causes excess overtopping flows
- Internal erosion erosions due to embankment or foundation leakage or piping
- Improper maintenance
- Improper design
- Negligent operation
- Failure of upstream dams
- Landslides into reservoirs
- High winds
- Earthquakes

Dam failures are potentially the worst flood events. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event such as an earthquake.

Historical records of dam/levee failures for Cherokee County are not available. When a dam fails, a large quantity of water is suddenly released downstream, destroying anything in its path. The area impacted by the water emitted by dam failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide. The risks associated with dam/levee failures are the same as those risks associated with flooding. There have been no significant dam or levee failures reported in Cherokee County during 2003 - 2013.

Dam safety has been an ongoing hazard mitigation issue in the State of Alabama, especially for small dams that are privately owned and poorly maintained. No state law currently exists to regulate any private dams or the construction of new private dams, nor do private dams require federal licenses or inspections. There have been several attempts in the State of Alabama to pass legislation that would require inspection of dams on bodies of water over 50 acre-feet or dams higher than 25 feet. Enactment has been hampered by the opposition of agricultural interest groups and insurance companies. Once established, the program will provide an up-to-date inventory of dams in Cherokee County. A full inventory of dams will help to benefit public safety and emergency response operations in the event of a natural or other disaster. It will also provide for the inspection and permitting certification of certain dams in order to protect the citizens of Alabama by reducing the risk of failure of such dams. According to *HAZUS-MH 2.1 2012* and *NOAA*, Cherokee County has 10 HPDE – Earth Dams. The Weiss Dam is classified as having high hazard potential, meaning failure or misoperation would probably result in the loss of human life. The Weiss Dam (owned by Alabama Power Company) is located on the Coosa River near Leesburg. The reservoir for the dam covers 30,200 acres, reaches a maximum depth of 62 feet and has a watershed of 5,273 square miles. It is formed by 30, 400-foot long earthen dikes with the maximum dam height standing at 126 feet. The reservoir empties into a broad flood plain that is sparsely populated, rural, agricultural lands. The roads affected in the event of a failure are secondary highways and lesser roads. The City of Gadsden in neighboring Etowah County would be most affected by a dam failure where water would reach them in four to seven hours. The Adams Ferry Bridge would receive a flood wave in approximately 1 minute and 21 seconds in a normal condition failure. A flood wave would reach Garrett Bridge in 24 seconds. The Alabama

Power Company Hydroelectric Plant monitors the Weiss Dam watershed through easements. The lake and inundation areas are held in easements that require permits to build in these locations. These permits are issued by the power company. The Terrapin Creek Watershed Dam Number 6 is listed in the significant risk category meaning its failure would probably not result in the loss of life but would result in economic loss, environmental damage, and disruption of lifeline facilities. The remaining eight dams in the county are listed as low risk meaning that their failure or misoperation would not result in the loss of life and only result in low economic or environmental damage. None of the dams is located in a municipality. All are located in sparsely populated areas scattered throughout the unincorporated jurisdiction. **Table 3-13** shows risk categories of dams. **Table 3-14** provides an inventory listing of all the dams in Cherokee County and includes additional data on each.

An estimated 2,228 dams are located in Alabama. As of March 2010 the 2009 dams are listed in the National Inventory of Dams (NID) and maintained by the USACE. The Tennessee Valley Authority (TVA), USACE, Alabama Power Company (APCo), and the Alabama Electric Cooperative, Inc. have jurisdiction over approximately 32 federally regulated hydroelectric, navigation, and flood control project dams in Alabama. Some existing dams have inadequate spillways and embankments. Many dams are poorly maintained. (*Source: Alabama State Hazard Mitigation 2013 Plan Update*)

The probability of future occurrences cannot be characterized on a countywide basis because of the lack of information available. The qualitative probability is rated low because the overall area affected is low and impacts are localized. This rating is intended only for general comparison to other hazards that are being considered.

Primary effects from Dam failure in Cherokee County would include:

1. Loss of life
2. Destruction of property
3. Unregulated water flow to surrounding areas
4. Increased amount of disease and disease-carrying animals in the area

Hazardous results from dam failure in Cherokee County would include:

1. Heavy flooding would be a direct result of a dam failure, causing many deaths by injuring and trapping people in structures.
2. Large amounts of water would sweep with it property and severely damage any property that remained in the area.
3. Chemical spills from local factories caused by rushing water would pollute the area and destroy crops and other property.
4. The river would be able to flow naturally once the dam was breached - damaging any structures in the path, as well as interrupting wildlife cycles and hydrologic power supply.
5. There would be increased diseases as a result of the unsanitary conditions.

Table 3-13: Cherokee County Dams Risk Categories

Risk Categories	Number of Dams
High - loss of one human life is likely if the dam fails	1
Significant - possible loss of human life and likely significant property or environmental destruction if the dam fails if the dam fails	1
Low - no loss of life and low economic or environmental damage	8
Total	10
<i>(Source: HAZUS MH 2.1, Accessed 2015)</i>	

Table 3-14: Cherokee County Dam Inventory List

Dam Name	NID ID	River	NID Height	NID Storage	Year Completed	Drainage Area	Hazard	County	Longitude	Latitude
Arrington No. 2 Dam	AL00579	TR-Hurricane Creek	30.00	231.00	1952		L	Cherokee	-85.434999	33.965000
Arrington No. 1 Dam	AL00578	TR-Hurricane Creek	16.00	71.00	1952		L	Cherokee	-85.440000	33.961670
LaGarde No. 2 Dam	AL00577	Glade Branch	25.00	45.00	1948		S	Cherokee	-85.548329	33.963330
LaGarde No. 1 Dam	AL00576	Glade Branch	8.00	159.00	1939		L	Cherokee	-85.555000	33.959999
Weisner Dam	AL00573	TR-Terrapin Creek	24.00	1,133.00	1957		L	Cherokee	-85.671669	34.071669
Norton Dam	AL01720	TR-Spring Creek	21.00	77.00	1959		L	Cherokee	-85.513329	34.016670
Weiss Dam	AL01415	Coosa		306,300.00	1961	5,273.00	H	Cherokee	-85.750000	34.166699
Terrapin Creek Watershed Dam No. 6	AL00581	TR-Terrapin Creek		1,277.00	1963		S	Cherokee	-85.625000	34.003329
Terrapin Creek Watershed Dam No. 8	AL00580	Frog Creek		5,880.00	1968		L	Cherokee	-85.569999	34.000000
Terrapin Creek Watershed Dam No. 17	AL00582	Hurricane Creek		3,780.00	1962		L	Cherokee	-85.446669	34.001669

(Source: HAZUS-MH 2.1, Accessed February 6, 2015)

This page left intentionally blank

Section Four: Vulnerability Assessment

In Section Three, the primary effects and hazardous results were considered for all identified hazards. In this section each hazard was further reviewed to identify the impacts on the county and its jurisdictions. Impact in terms of dollar value for past hazard occurrences are shown for the county in **Table 3-5** and for each jurisdiction in their individual Hazard Event table in Section Five of this plan.

Vulnerability is the extent to which something is damaged by a hazard. Vulnerability is very often measured using “damage functions.” These are based on studies of how buildings perform when they are exposed to hazards. Similar functions are available for infrastructure and other physical assets. Injury and mortality functions (how many people are injured or die during events) are also sometimes used as indicators of vulnerability, but these are generally not as reliable as functions for physical assets because there are many more variables.

Hazard Impacts

Thunderstorms (Source: NCDC NOAA)

Damage from thunderstorms can have a wide range of severity. All jurisdictions are vulnerable to thunderstorm events. Cherokee County experiences storms every year with varying frequency and intensity. During the years 2003 – 2013, Cherokee County experienced 89 thunderstorm events resulting in no deaths, one injury, \$470,000 of property damages, and no crop damages. The highest magnitude of winds occurred on April 27, 2011 near Gnatville and was recorded at 70 knots or 81 miles per hour. This event caused one injury and \$15,000 of property damages. Another event occurred on January 5, 2007 having winds of 55 knots or 63 miles per hour and resulting in \$50,000 property damages.

Lightning (Source: NCDC NOAA)

Lightning can cause substantial property damage and loss of human lives. All jurisdictions are vulnerable to lightning events. During the years 2003 – 2013, Cherokee County experienced 2 lightning events resulting in no deaths or injuries, \$152,000 of property damages, and no crop damages. Lightning resulted in \$150,000 property damages on August 13, 2010 near Congo.

Hail (Source: NCDC NOAA)

During the years 2003 – 2013, Cherokee County experienced 71 hail events resulting in no deaths or injuries, \$85,000 of property damages, and no crop damages. All jurisdictions are vulnerable to hail events. Golf ball sized hail occurred near Centre on May 2, 2003 causing \$65,000 of property damages.

Tornados (Source: NCDC NOAA)

The impacts of tornados can be far-reaching. Life, property, and personal items are at risk. Tornados do not follow a definite path; all jurisdictions are vulnerable to tornado events. Property damage, injury, and death can result from the weakest tornados. Interruption of electrical services, communications, and other utilities may occur. Transportation corridors may be blocked or even destroyed. Debris removal can take time and can be costly. Residents may suffer from post-traumatic stress disorder, depression, anxiety, and grief for lost loved ones. Longer response times results from having limited emergency personnel. Cherokee County experienced two F0s, one EF2, and one EF3 during the years of 2003 – 2013.

Areas with higher population densities pose the greatest potential for property damage, injury, and death. Census Tract 01019955701 is the most densely populated area in the county, having 63.60 persons per square mile. Communities with a high concentration of mobile homes are extremely vulnerable to tornados. Mobile homes are not capable of withstanding the strong winds associated with tornados. Cherokee County has a total of 5,229 mobile homes countywide, 32.34% of the total housing stock. The greatest concentration of mobile homes in a municipality is in the Town of Leesburg where 32.94% of the units are mobile homes. (Sources: U.S. Census Bureau, 2010-2012 American Community Survey and usa.com)

A powerful storm system crossed the Southeast United States on Wednesday, April 27, 2011, resulting in a large and deadly tornado outbreak. This epic event broke the record for number of tornadoes in a day for the state of Alabama, becoming the most significant tornado outbreak in the state's history. The tornado moved into southwestern Cherokee County south of Estes Crossroads, along County Road 19. As the tornado continued northeast, it strengthened as

it moved south of Gnatville to an EF2 rating with winds of 120 mph. Extensive tree damage was noted along County Road 6 and several mobile homes sustained significant damage off of County Road 447. The tornado strengthened further to an EF3 rating with winds of 150 mph as it crossed AL Hwy 9 south of Coloma. A single family home was destroyed on County Road 31. The tornado weakened slightly as it crossed Frog Mountain, but continued to knock down trees and damage an outbuilding. The tornado re-strengthened as it crossed County Road 45 north of Rock Run. Damage along County Road 29 south of Forney was consistent with an EF3 rating and winds of 160 mph. Several well built homes were completely destroyed. This one event resulted in 25 injuries and \$19.099 million in property damages.

Central Alabama had two rounds of severe weather that day. During the early morning hours, a Quasi-Linear Convective System quickly moved across the northern half of the National Weather Service, Birmingham county warning area. Straight line winds of 90 mph (78kts) or greater and 11 tornadoes lead to widespread damage and power outages. During the afternoon, long-lived supercell thunderstorms produced long-track, strong and violent tornadoes. Destruction and loss of life across many towns and communities was devastating.

Most of the violent tornadoes from this day were captured on video by a number of people, including storm spotters and chasers, as well as numerous television news crews and remotely controlled web-enabled video cameras. This allowed unprecedented coverage and viewing of this historic event in real time from people worldwide.

Floods/Flash Floods (*Source: NCDC NOAA*)

Flooding can occur along the banks of the creeks and streams that flow throughout the county and where development has encroached in the floodplain. Flash flooding can occur anywhere in the county due to inadequate or clogged drainage systems and excessive rainfall. Unpaved dirt roads, common in the rural areas, are particularly vulnerable. Impacts in developed areas include street flooding and water backing up into homes and buildings. In addition to damaging homes, flooding can adversely impact crops, water and sewer systems, and dams and levees. The primary flooding problems occur along Weiss Lake and its tributaries. The Town of Cedar Bluff has flooding along its town limits. The northern border of Centre is the most

susceptible to flooding. The area along these three waterways is designated as a Zone "A" Special Flood Hazard Area on the Flood Hazard Boundary Maps (Cherokee County Alabama Panel Nos. 010234 0025B - 0225B, June 17, 1998). These maps are maintained on file in the office of the County EMA Coordinator and each town hall. To date, there are no Repetitive Loss properties in Cherokee County to indicate any significant impact areas. Impacts for both flood types includes property and crop damage, contamination or failure of water and sewer systems, increase in waterborne disease, and possible dam or levee failure. All jurisdictions are vulnerable to flood events.

During 2003-2013, Cherokee County experienced two flood events. No deaths, injuries, property or crop damages resulted from these events. However during this time, Cherokee County experienced eight flash floods resulting in \$258,000 in property damages. A road of particular concern in the City of Centre is Park Street in downtown Centre. On August 12, 2005 a flash flood caused this road to become impassable and temporarily closed. On January 6, 2009 a car on Park Street was swept away by flood waters briefly trapping its occupant. No major problems were reported in Cedar Bluff and Sand Rock. La Rue Finis Road in Leesburg has been subject to repeated flooding. There is a mobile home park located on this road and while no homes have been lost or washed away, residents have reported several inches of prolonged standing water. The intersection of State Highway 35 and County Road 68 in Gaylesville experiences repeated flooding. Additionally, Riverside Drive and Oak Street experience periods of standing water.

Drought/Extreme Heat (Source: NCDC NOAA)

All jurisdictions are vulnerable to occurrences of drought and extreme heat. Droughts may cause a shortage of water for human and industrial consumption, hydroelectric power, recreation, and navigation. Water quality may also decline and the number and severity of wildfires may increase. Severe droughts may result in the loss of agricultural crops and forest products, undernourished wildlife and livestock, lower land values, and higher unemployment. The effects are far reaching and impact people, livestock, crops, and hydrologic systems. Droughts create conditions of increased vulnerability to wild fires that can destroy lives and property, and also lead

to water supply shortages as reservoirs and ground water levels drop. Heat exhaustion and stroke are common and can disproportionately impact the elderly and low-income residents who cannot afford air conditioning.

The categories of drought are defined as follows (*Source <http://droughtmonitor.unl.edu>*)
Accessed 11/16/14: **Abnormally Dry (D0)** - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** - Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

In 2006, Cherokee County experienced D2 Severe Drought events and D3 Extreme Drought events. Impacts of such events include crop and/or pasture losses; water shortages; and imposing water restrictions. In 2007 and 2008, Cherokee County experienced D1 Moderate Drought events, D2 Severe Drought events, D3 Extreme Drought events, and D4 Exceptional Drought events. Impacts of such events include exceptional and widespread crop and/or pasture losses; water shortages, especially in reservoirs, streams, and wells; water restrictions; and water emergencies. In 2010, Cherokee County experienced D2 Severe Drought events. Impacts of such events include crop and/or pasture losses; water shortages; and imposing water restrictions.

All Cherokee County drought events resulted in agricultural, hydrologic, and sociological impacts to be widely felt. No injuries, deaths, property or crop damages were reported to the NCDC NOAA as results of these drought events.

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA). Heat stress can be indexed by combining the effects of temperature and humidity. The index estimates the relationship between dry bulb temperatures (at different humidity) and the

skin's resistance to heat and moisture transfer - the higher the temperature or humidity, the higher the apparent temperature. The human risks associated with extreme heat include heatstroke, heat exhaustion, heat syncope, heat cramps. During 2003-2013, no Cherokee County extreme heat events were reported to the NCDC NOAA.

Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold
(Source: NCDC NOAA)

During 2003-2013, Cherokee County has been affected by two winter storm events, two frost/freeze events; two heavy snow events; one ice storm event; six winter weather events, and one extreme cold event, resulting in \$50,000 of property damages. These events impacted the county in a variety of ways. Ice and small amounts of snow can cripple the county, leaving roads impassable, effectively crippling residents from traveling to school, work, or the grocery store, creating a panic of activity and traffic congestion in advance of a predicted storm. Drivers are not accustomed to driving in these conditions, therefore many accidents occur. Snow and ice can weigh down tree limbs and power lines causing them to break, resulting in power failures and property damages. Local businesses and residents are not equipped with generators to restore power during these severe winter weather events. Also, many homes may not be properly insulated, leading to health concerns and even death. The most significant impacts from an actual event are power outages and consequential loss of heat, numerous transportation related accidents, and stranded motorists. Much like drought, extreme cold has more impact on disadvantaged populations, especially the homeless. Since these storms have no defined track, all residents of Cherokee County are vulnerable to severe winter storm events.

Hurricane/Tropical Storm/Tropical Depression/Strong Wind/High Wind
(Source: NCDC NOAA)

Tropical Storms Dennis and Katrina, Tropical Depressions Fay and Ida, High Winds from Hurricane Ivan, and Strong Winds from Hurricane Lee have affected Cherokee County. The most significant impacts have been related to excessive rainfall, damaging wind, and tornados. Residents suffer loss of power, damage to homes, blocked roadways from associated storm debris, and loss of other crucial utilities. Mobile homes are particularly vulnerable and are impacted more

than conventionally built structures. Mobile homes in the county represent 32.34% of the housing stock. Effects of these storms generally impact the entire county and are not limited to a specific location. The fact that other surrounding counties will have also been affected by the same event only adds to the burden, as utility crews are often overwhelmed by the needs of an entire region or state.

Hurricane Frances (Strong Winds)

On September 7, 2004, Strong Winds from Hurricane Frances moved northward near the Alabama and Georgia state line. Winds of 30 to 40 miles per hour along with saturated ground conditions allowed several trees and power lines to be blown down. Property damages of \$1,000 resulted.

Hurricane Ivan (High Winds)

On September 16, 2004, Hurricane Ivan impacted Southern Alabama making landfall near Gulf Shores at approximately 10 a.m. on September 16 as a Category 3 Hurricane. Storm surge values of 10-14 feet along the Alabama and Florida coastlines were the highest observed in over 100 years. As the storm moved inland, high winds and heavy rains wreaked havoc across the state. Heavy rainfall ranges between five and eight inches caused minor flooding across various areas of the state. Hurricane force winds were experienced for two to four hours across all inland Alabama counties, causing major damage to trees. These fallen trees were determined to be the primary cause of all inland structural damage attributed to the storm and electricity to residents to be interrupted for a week or more. Alabama totaled an estimated \$500,000,000 in damage to timber. Most of the soybean and pecan crops were destroyed, while the cotton crop suffered significantly though was not completely ruined. At least 100 trees and power lines were blown down across Cherokee County and three homes sustained significant damage with many more suffering minor roof damage. Maximum wind gusts were estimated around 60 miles per hour. Approximately 8,000 customers were without power at the height of the storm. Several roadways, creeks, and homes were flooded due to the torrential rain. Doppler radar and ground observations indicated as

much as 6 inches of rain fell in association with Ivan. Cherokee County suffered \$350,000 in property damages as a result of high winds from Hurricane Ivan.

Tropical Storm Dennis

On July 10, 2005, the remnants of Hurricane Dennis moved across Cherokee County. Numerous trees were blown down in Gaylesville, Calhoun, Sand Mountain, and Cedar Bluff. At least 3,600 customers were temporarily without power. Cherokee County suffered approximately \$28,000 in property damages.

Tropical Storm Katrina

On August 29, 2005, Hurricane Katrina made landfall on August 29, 2005 near Buras, Louisiana as a Category 3 storm and became known not only as the costliest but also as one of the most devastating hurricanes in the history of the United States. It is the deadliest hurricane to strike U.S. coastlines since 1928 and produced damages in excess of \$75 billion. Katrina had maximum sustained winds estimated to be 120 MPH at landfall. As Katrina moved across land, the storm weakened, though it maintained hurricane status past Laurel, Mississippi. Southwestern Alabama experienced hurricane conditions as Katrina moved through neighboring Mississippi. The effects of Katrina were widespread across Alabama, particularly areas in the western portions of the state. These effects included significant rainfall values totaling between 5 and 6 inches and high winds. The rain and winds resulted in thousands of fallen trees and downed power lines. Power outages lasted from a few days to a week or more, and Alabama Power reported Katrina to be the worst storm in their history for statewide damage and power outages. Additionally, minor damages occurred to some structures throughout the area. In Alabama, six tornados also stemmed from Katrina, four of which were F-0 and two that were F-1s. Numerous trees were snapped off or blown down across Cherokee County. Cherokee County reported approximately \$80,000 in property damages as a result of Tropical Storm Katrina.

Tropical Depression Fay

On August 23, 2008, Tropical Storm Fay weakened to a Tropical Depression after it made its final landfall on the Florida Panhandle and entered Southern Alabama. No fatalities or injuries, property or crop damages were reported in Cherokee County.

Tropical Depression Ida

On November 9, 2009, the remnants of what was at one time Hurricane Ida but now had weakened into a Tropical Depression, brought very heavy rain and gusty winds to a large portion of Central Alabama. Nearly everyone across Central Alabama experienced at least 3 inches of rain. Sustained winds around Central Alabama maxed out between 20 and 30 mph, with peak wind gusts generally between 30 and 40 mph. These winds blew down a few trees around the area, especially shallow rooted trees where the saturated soil likely played a significant role. Cherokee County suffered \$2,000 in property damages.

Strong Winds from Hurricane Lee

On September 5, 2011, a strong wind event occurred as a result of Hurricane Lee. Numerous trees were reported down across Cherokee County as the result of gradient winds associated with Hurricane Lee. Several trees fell in northern Cherokee County, in locations including Sand Rock, Little River, and Starling Gap. One tree was reported on a house on Sand Rock Avenue, several hardwoods fell on a home in Gaylesville, and a tree fell on a house on Alabama Highway 9 in Cedar Bluff. Winds up to 50 miles per hour were recorded. Property damages of \$24,000 resulted.

Sinkholes and Expansive Soils (Sources: NCDC NOAA; Geological Survey; Local Input)

Impacts of sinkhole events are damages to property, infrastructure, and/or roadways. Areas of denser development could experience more significant impact and loss due to increased number and concentration of structures and associated utility services. All jurisdictions identified this possible hazard. There are limited adverse effects and shrink-swell potential of soils in Cherokee

County. No sinkholes or expansive soils were reported by the NOAA NCDC Storm Events Database or the U. S. Geological Survey.

Landslides (Sources: NCDC NOAA; Geological Survey; Local Input)

Like sinkholes, landslides are possible in Cherokee County, but seldom occur. Road construction itself is often the source of potential landslide events as existing slopes and hillsides are cut to accommodate the road construction; the associated roadway receives the most impact of these types of landslides. The potential impacts to Cherokee County as a result of landslides include property damages, impassable roads, sediment erosion, and possible infrastructure damages. All jurisdictions identified landslides as a possible local hazard. Naturally occurring landslides have not been reported in the county. No landslides were reported by the NOAA NCDC Storm Events Database or the U. S. Geological Survey.

Earthquakes (Sources: Alabama Geological Survey; USGS Database; www.homefacts.com/earthquakes/Alabama.html)

While earthquakes can and do occur in Cherokee County, their impact has historically been minimal and insignificant. Previous events have occurred in the northeastern part of the county, but did not result in any damages, injuries, or deaths. One event was reported by CNN.com on April 29, 2003, with a magnitude of 4.9. Power outages and a few trees down were reported. All jurisdictions identified earthquakes as a local hazard. Construction of many buildings on steep slopes susceptible to landslides and in karst terrains susceptible to sinkholes will be a major contributing factor to damage from future earthquakes in the county. Earthquakes can trigger other natural disasters such as landslides and sinkholes. No earthquakes were reported by the NOAA NCDC Storm Events Database.

Wildfires (Source: Alabama Forestry Commission)

Cherokee County contains a significant amount of forestland, over 69% of its land area. Both rural and urban areas in all jurisdictions are impacted by wildfires. The timber industry is very prominent and timber crops could be significantly impacted in this county. During 2010-2013,

Cherokee County experienced 190 wildfire events resulting in 9,278.90 total acres being burned. Based on this data, the average number of wildfires per year is 63; average acres burned per year is 3,093; and the average fire size in acres per year is 49. Alabama's forest products industries are vital to the state's economy. Both rural and urban areas in all jurisdictions are impacted by wildfires and result in loss of wilderness, crops, livestock and other property. Loss of human life, both residents and firefighters, is also possible.

Dam and Levee Failures (Sources: HAZUS MH 2.1; Local Input)

There are eleven dams located in Cherokee County: ten earth dams and one concrete gravity dam. No dams are located in a municipality, nor classified as having high hazard potential. Only the unincorporated county identified this hazard. The impact of a dam failure in the county is low given their location in remote areas with little residential occupancy. Potential impacts would be limited or unregulated water flow, associated damages to property and crops, and a potential increase in water borne disease. The risks associated with dam/levee failures are also the same as those risks associated with flooding. There have been no significant dam or levee failures reported in Cherokee County during 2003 - 2013.

Socially Vulnerable Populations

Certain populations are generally more affected by hazard events. These populations can be defined in terms of social, racial, and economic characteristics. Data provided in the section was obtained from the 2010 Census using breakouts for entire municipalities and census tracts. Cherokee County has 553.70 square miles of land and 46.28 square miles of water. The county has 43.32 persons per square mile.

Table 4-1 shows the county's population characteristics by jurisdiction and by census tract. Centre is the most populated jurisdiction, followed by Cedar Bluff, Leesburg, Sand Rock and Gaylesville .

Map 2-1 shows the county's census tracts. In terms of vulnerability, the larger the population of an area the more people and structures that could possibly be damaged or destroyed. Tract 01019955800 is the most populated tract and contains portions of Cedar Bluff,

Leesburg, Sand Rock, and Collinsville in Cherokee County, Ft. Payne in DeKalb County, and Gadsden in Etowah County. Tract 01019956100 is the second most populated tract and contains portions of Centre and Spring Garden in Cherokee County and portions of Piedmont in Calhoun County. Tract 01019955900 is the third most populated tract and contains portions of Centre in Cherokee County and Piedmont in Calhoun County. Tract 01019956000 is the fourth most populated tract and contains portions of Centre and Cedar Bluff. Tract 01019955702 is the fifth most populated tract and contains portions of Gaylesville, Broomtown, and Cedar Bluff in Cherokee County and Mentone in DeKalb County. Tract 01019955701, the sixth and least populated tract, contains portions of Cedar Bluff and Gaylesville.

Table 4-1: Cherokee County Population Characteristics

Geographic Area	<i>Population</i>	<i>Race-White</i>	<i>Race-Black</i>	<i>Race-Other*</i>	<i>Under 19 years</i>	<i>Age 20-64 years</i>	<i>Age 65 and Over</i>
Cherokee County	25,989	24,081	1,208	700	5,566	15,772	4,651
Cedar Bluff	1,820	1,568	181	71	210	520	161
Centre	3,489	3,034	347	108	701	1,992	796
Gaylesville	144	139	0	5	31	89	24
Leesburg	1,027	991	11	25	222	652	153
Sand Rock	560	546	0	14	137	354	69
Census Tracts							
01019955701 63.60 = persons per sq mi	3,332	2,949	277	106	765	1,925	642
01019955702 27.76 persons per sq mi	3,872	3,783	14	75	925	2,274	673
01019955800 20.07 persons per sq mi	5,561	5,233	122	206	1,402	3,338	821
01019955900 44.83 persons per sq mi	4,235	3,811	307	117	1,083	2,500	652
01019956000 29.80 persons per sq mi	4,017	3,679	253	85	793	2,163	1,061
01019956100 29.80 persons per sq mi	4,972	4,626	235	111	1,246	2,924	802
<i>(Source: 2010 Census; www.usa.com, Accessed 2015)</i>							

Minority populations are generally considered to be more vulnerable to hazard events. These populations may not have the resources necessary to recover as quickly or completely from disasters. Minorities generally have higher percentages of inadequate medical insurance, inadequate home insurance, and homes that may be deemed as substandard housing.

Populations over sixty-five years of age and those under eighteen years of age are more vulnerable than other population groups. These groups are at higher risk for injury and medical complications that may occur during or as a result of a disaster. These special needs populations may require more attention during evacuation and may require special shelters.

In addition to the racial and age composition within the county, income levels are important when identifying vulnerable populations. Lower income individuals may not have the resources to prepare for or recover from disasters. **Table 4-2** shows the median household income, per capita income, and poverty level data for the jurisdictions and census tracts in Cherokee County.

The median household income for the State of Alabama is \$43,160. The median household income for the United States is \$53,046. Tract 9955900 is the only tract that exceeds the state average and is lower than the national average; all remaining tracts are less than the state and national averages. The population of Gaylesville has a median household income that exceeds the state and national averages. Sand Rock has a median household income that exceeds the state average, but is less than the national average. (*Source: 2010 Census; 2008-2012 Census Data at USA.com*)

Per capita income is the average obtained by dividing aggregate income by the total population of an area. The per capita income for the State of Alabama is \$23,587. The per capita income for the United States is \$28,051. Tracts 01019955702 and 01019956100 are lower than the state average. All tracts are lower than the national average. Sand Rock is the only municipality having a per capita income higher than the state average; however, is still lower than the national average. All other municipalities do not have a per capita income that equals or exceeds either the state or national average. (*Source: 2010 Census; 2008-2012 Census Data at USA.com*)

The percent of persons below the poverty level in the State of Alabama is 18.1%. The corresponding rate for the United States is 14.9%. Tracts 01019955701, 01019955702, 01019955900, and 01019956100 exceed the state and national poverty level rates. Tracts 0101995557, 01019956000 and 99556000 exceed the national poverty level rate, but are lower than the state poverty level rate. Tract 01019955800 is the only tract that is lower than both the state and national poverty rates. Leesburg has a poverty level rate lower than the state and higher than the national poverty level rates. Gaylesville and Sand Rock have poverty rates lower than both the state and national poverty level rates. Cedar Bluff has the highest poverty rate in the county at 23.37%. (*Source: 2010 Census; 2008-2012 Census Data at USA.com*)

According to the 2010 Census, the total population of Cherokee County is 25,989, which is 8.34% more than it was in 2000. The population growth rate is higher than the state average rate of 7.48% and is lower than the national average rate of 9.71%. The Cherokee County population density is 43.32 people per square mile, which is much lower than the state 91.18 and national 81.32 average densities of people per square mile. The most prevalent race in Cherokee County is white, which represents 93% of the total population.

As of 2010 Census Data, the per capita income of Cherokee County is \$22,472, which is lower than the state average of \$23,587 and national average of \$28,051. Cherokee County median household income is \$36,241, which has increased by 17.38% since 2000. The median household income growth rate is lower than the state average rate of 26.44% and national average rate of 26.32%.

As of 2010 Census Data, the median price of a house in Cherokee County is \$99,900, which is lower than the state average of \$122,300 and national average of \$181,400. The Cherokee County median house value has increased by 31.27% since 2000. The growth rate for the price of a house in Cherokee County is lower than the state average rate of 43.71% and national average rate of 51.67%. The median year that a house in Cherokee County was built is 1983, which is newer than the median year for a house built in the state which is 1980 and for a house built in the USA which is 1975.

Table 4-2: Cherokee County Income Data

Geographic Area	Median Household Income	Per Capita Income	Population Below Poverty Level	Population Percent Below Poverty Level
Cherokee County	\$36,241	\$22,472	4,956	19.48%
Cedar Bluff	\$35,257	\$19,419	423	23.37%
Centre	\$34,069	\$20,982	717	22.97%
Gaylesville	\$58,958	\$22,820	12	3.82%
Leesburg	\$34,464	\$18,555	149	17.39%
Sand Rock	\$51,563	\$24,762	21	4.28%
Census Tracts				
01019955701	\$36,361	\$24,174	580	16.77%
01019955702	\$31,327	\$17,672	1,439	30.20%
01019955800	\$38,173	\$23,786	589	12.57%
01019955900	\$43,209	\$24,095	792	18.57%
01019956000	\$40,305	\$25,691	605	16.26%
01019956100	\$37,861	\$20,467	951	20.91%
<i>(Source: 2010 Census; 2008-2012 Census Data at USA.com, Accessed February 9, 2015)</i>				

Vulnerable Structures

Housing is an important consideration of mitigation planning. The concentration and the type of housing are two primary factors. In Cherokee County there are a total of 16,267 housing units. **Table 4-3** shows the housing characteristics of the county by jurisdiction.

Centre has the greatest number of housing units, followed by Cedar Bluff, Leesburg, Sand Rock, and Gaylesville. Cedar Bluff has the highest number of mobile home units within a municipality; while, Leesburg has the highest percent of mobile homes within a municipality. Mobile home units are historically very vulnerable to a variety of hazards and prone to high amounts of damage and complete destruction.

Little River Canyon, Weiss Lake, and Cherokee Rock Village are among Cherokee County’s natural attractions creating a small tourism industry. Development along the formerly uninhabited eastern rim of Little River Canyon continues to increase and is prone to landslides and erosion as it does so.

Table 4-3: Cherokee County Housing Characteristics

Geographic Area	Total Housing Units	Mobile Home Units	Mobile Home %
Cherokee County	16,168	5,229	32.34%
Cedar Bluff	1,162	294	25.30%
Centre	2,045	157	7.68%
Gaylesville	120	30	25%
Leesburg	674	222	32.94%
Sand Rock	258	54	20.93%

(Source: 2010 Census; Easidemographics.com; Percent calculations by LHA)

Table 4-4 and **Table 4-5** reflect information taken from HAZUS-MH 2.1 2012. **Table 4-4** shows the building stock in Cherokee County by general occupancy. The data provides the number of buildings by use and is shown by Census Tract. Complementing this information is **Table 4-5** that provides the value totals for these building types and **Table 4-6** that provides the content value for these building types, each table is shown by Census Tract.

Table 4-4: Cherokee County Building Stock by General Occupancy

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Count
9955700	4,129	95	30	12	12	6	2	4,286
9955800	1,187	23	8	3	14	2	0	1,237
9955900	1,678	65	32	15	11	3	1	1,805
9956000	4,276	268	67	31	26	14	8	4,690
9956100	2,672	74	29	26	11	1	0	2,813
Total	13,942	525	166	87	74	26	11	14,831

(Source: HAZUS-MH 2.1 2012)

Table 4-5: Cherokee County Building Exposure

(Numbers shown in thousands of dollars)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Value
9955700	290,940	20,561	6,014	1,031	5,877	4,053	2,427	\$330,903
9955800	242,293	20,948	43,525	1,829	22,977	1,973	1,361	\$334,906
9955900	127,763	42,941	9,319	2,006	7,599	4,175	525	\$194,328
9956000	187,273	116,394	20,135	8,770	8,237	5,341	5,189	\$351,339
9956100	214,810	20,356	4,462	5,754	6,200	598	0	\$252,180
Total	\$1,063,079	\$221,200	\$83,455	\$19,390	\$50,890	\$16,140	\$9,502	\$1,463,656

(Source: HAZUS-MH 2.1 2012)

Table 4-6: Cherokee County Building Contents Exposure

(Numbers shown in thousands of dollars)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Content Value
9955700	145,761	20,673	7,595	1,031	5,857	5,699	2,427	\$189,043
9955800	121,295	21,125	64,526	1,829	22,977	2,843	1,361	\$235,956
9955900	64,111	43,501	12,394	2,006	7,599	5,572	525	\$135,708
9956000	93,785	121,422	26,852	8,770	8,237	5,915	5,264	\$270,245
9956100	107,510	21,189	5,177	5,754	6,200	897	0	\$146,727
Total	\$532,462	\$227,910	\$116,544	\$19,390	\$50,870	\$20,926	\$9,577	\$977,679

(Source: HAZUS-MH 2.1 2012)

Critical Facility Inventory

Critical facilities are crucial to the daily operation of Cherokee County. Critical facilities help maintain a certain quality of life. Loss of operation could result in severe impacts on the community. Each of the critical facilities listed in **Table 4-7** is vulnerable to each of the hazards identified in the risk assessment. Critical facilities include but are not limited to the following:

- Governmental services
- Police and Fire Departments
- Public Works
- Education
- Industrial
- Medical

Each jurisdiction listed facilities based on the location of the facility without regard to ownership or function. *HAZUS-MH 2.1* was also utilized for building counts and building and content values.

TABLE 4-7: Cherokee County Critical Facilities

Facility	Location	Use	Value
Cherokee Baptist Med Center	400 Northwood Drive, Centre	Hospital	\$9,052,630
Central Dispatch	100 Cedar Bluff Road, Centre	Emergency Center	\$900,000
Cedar Bluff VFD	4920 Main Street, Cedar Bluff	Fire Station	
Broomtown Rinehart FD	2340 Co. Rd. 46, Gaylesville	Fire Station	
Gaylesville VFD	4740 Main St., Gaylesville	Fire Station	
Tucker's Chapel VFD	2000 Co. Rd. 47, Cedar Bluff	Fire Station	
Sand Rock VFD	1805 Sand Rock Ave., Sand Rock	Fire Station	
Leesburg VFD	1900 Lokey Street, Leesburg	Fire Station	
Ellisville VFD	7315 AL Hwy. 9 South, Centre	Fire Station	
Centre VFD	401 E. Main Street, Centre	Fire Station	
McCord's Crossroads VFD	6600 Co. Rd. 16, Centre	Fire Station	
Spring Garden VFD	4635 Co. Rd. 8, Spring Garden	Fire Station	
Cherokee Co. Sheriff's Department	100 Cedar Bluff Rd., Centre	Police Station	\$1,260,000
Cherokee County Criminal	100 W. Main Street, Centre	Police Station	\$1,260,000
Leesburg Police Department	1910 Lokey Street, Leesburg	Police Station	\$1,260,000
Cherokee County Sheriff	200 Cherokee Ave. West	Police Station	\$1,260,000
Cedar Bluff Police Department	4920 Main Street, Cedar Bluff	Police Station	\$1,260,000
Cherokee County Career & Technology Center	600 Bay Springs Rd, Centre	School	\$6,733,560
Spring Garden High School	2430 Co. Rd. 29, Spring Garden	School	\$8,936,280
Cedar Bluff High School	3655 Old Highway 9, Cedar Bluff	School	\$7,820,880
Gaylesville High School	760 Trojan Way, Gaylesville	School	\$5,698,630
Sand Rock High School	1950 Sand Rock Ave., Sand Rock	School	\$15,158,920
Centre Elementary School	725 E. Main Street, Centre	School	\$11,254,850
Centre Middle School	350 E. Main Street, Centre	School	\$4,469,080
Cherokee County High School	910 Warrior Drive, Centre	School	\$5,751,030
Centre Municipal Airport	Centre	Airport	\$10,651,000
Cedar Bluff U. B. Land App. Syst	Cedar Bluff Utility Board	Wastewater Treatment Plant	\$59,940,000
Cherokee County Wastewater	Leesburg	Wastewater Treatment Plant	\$59,940,000
Centre Wastewater Treatment Lagoon	South College Street, Centre	Wastewater Treatment Plant	\$59,940,000
WEIS 990 (AM)	Centre	Broadcast Facility	\$90,000
WAGC 1560 (AM)	Centre	Broadcast Facility	\$90,000
WRHY CH 290 (FM)	Centre	Broadcast Facility	\$90,000
TOTAL			\$272,816,860

Development Trends

Cherokee County is an extremely rural county. According to the East Alabama Regional Planning and Development Commission's *Comprehensive Economic Development Strategy for the East Alabama Region*, Revised 2011, economic development issues include:

- Speculative buildings have been difficult to sell
- Local governments have not identified potential industrial sites
- There is no industrial park to accommodate larger businesses
- Schools are in poor condition
- Public water needs to extend throughout the county
- Sewer service is very limited
- The county does not have direct Interstate access
- There are no active rail lines in the county
- There is poor Internet access, which greatly deters businesses
- Rapid population growth has created a shortage of housing
- E-911 needs upgrading
- Local governments have insufficient funds to make needed infrastructure and public facility and service improvements, as well as undertake aggressive tourism and industrial development efforts
- Weiss Lake has a pollution problem, especially from untreated sewage being released upstream
- An area of concern for the county is substandard manufactured homes being brought into the area from Georgia. The State of Alabama has now enacted a law banning older manufactured homes, which is helping in this area.
- Another area of concern for the county is large-scale hog farming locating near residential developments.
- The county does not have the authority to enact and enforce a zoning ordinance. Authority is needed

According to the East Alabama Regional Planning and Development Commission's *Comprehensive Economic Development Strategy for the East Alabama Region*, Revised 2011, economic development opportunities include:

- Rapid growth
- The county is a prime area for eco-tourism development
- The Appalachian Scenic Byway crosses the county and connects the county with Interstates 20 and 59
- Improvements are being made to the Little River Canyon Rim Road, which traverses the Little River Canyon National Preserve
- Water theme park development potential on Weiss Lake
- Honda supplier in Leesburg brings high wage jobs into the county
- A rural public transportation system serves the entire county
- An industrial park in Centre can accommodate smaller businesses
- There is an airport with a 5,000 foot runway
- A feasibility study is underway for a countywide sewer system
- Private lakefront developments have begun to install their own sewer systems
- A satellite company is planning to expand the availability of cable modems
- The county formed an Industrial Development Authority with a full-time director
- Gadsden State Community College has established a new Cherokee County Campus
- Elected officials countywide communicate very well

Table 4-8 provides the population projections for Cherokee County. **Map 4-1** shows current land use and land cover in Cherokee County.

Table 4-8: Population Projections

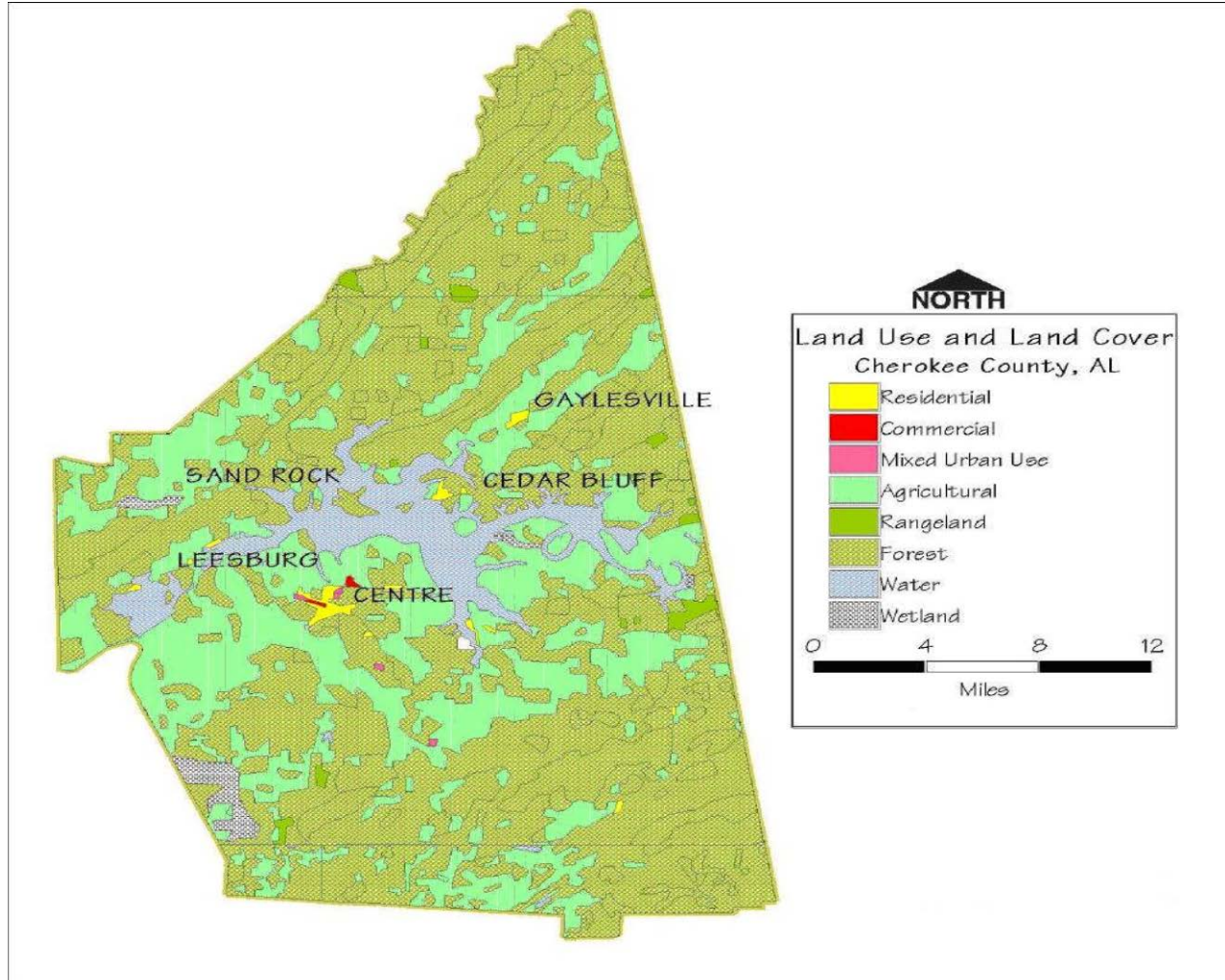
County	2000	2010	2015	2020	2025	2030	2035	2040	Number Difference	Percent Difference
Cherokee	23,988	25,989	26,756	27,356	27,725	27,883	27,875	27,771	1,782	6.9%

Note: These projections are driven by population change between Census 2000 and Census 2010. Recent data on births and deaths from the Alabama Department of Public Health are used to derive birth and death rates for the state and each county.

Source: U.S. Census Bureau and Center for Business and Economic Research, The University of Alabama, Fall 2012 – As noted in the Alabama State Hazard Mitigation Plan, April 2013

This page left intentionally blank

MAP 4-1: CHEROKEE COUNTY LAND USE AND LAND COVER



(Source: EARPDC, 2015)

This page left intentionally blank

Methods of Warning

Cherokee County Emergency Management Agency and the county's jurisdictions have constructed a warning system that provides multiple ways to receive weather watches, warnings, and other emergency messages.

NOAA Weather Radio

NOAA Weather Radio is a nationwide network of radio stations broadcasting weather and other emergency information 24 hours a day. All National Weather Service issued watches, warnings, forecasts and other emergency messages are broadcast on one of seven frequencies.

National Weather Service personnel at offices in Birmingham record weather information that plays in a cyclical pattern repeating every three to six minutes. Broadcasts generally include local area five-day forecasts, current weather conditions, radar reports, weather summaries, climatic data, river and lake stage readings, and other weather information. The broadcasts are continuously updated to provide the listener with the latest information.

NOAA Weather Radio is useful any time for the latest weather information but becomes even more important during severe or hazardous weather. During episodes of severe weather, the normal broadcast cycle is interrupted and focus shifted to the local severe weather threat. Watches, warnings, and statements are given the highest priority and are updated frequently as conditions change.

In an emergency, each transmitter is capable of transmitting a warning alarm tone signal and the new Specific Area Message Encoding (SAME) signal followed by information on the emergency situation. These signals will activate specially designed receivers, either bringing up the volume or producing a visual and/or audible alarm. Not all weather band receivers have this capability, but all radios that receive NOAA Weather Radio transmissions can receive the emergency broadcasts. The warning alarm device is tested each Wednesday between 11 am and noon, weather permitting.

Outdoor Warning Sirens

Cherokee County EMA has outdoor warning sirens in place. Although these sirens cover most of the populated areas, there are many places without an outdoor siren. Since the previous plan update, the county has begun using the CodeRED Warning System countywide; therefore, the county does not plan to install outdoor warning sirens within the next five years. The costs of purchasing, installing, and maintaining outdoor warning sirens became very expensive and unaffordable for the county. **Table 4-9** lists the outdoor warning sirens in Cherokee County.

The existing sirens have an effective radiated coverage area of one mile around the siren. The sirens are activated only for Tornado Warnings, and activated from the Cherokee County EMA's EOC. Activations are simultaneously completed for the entire coverage areas.

The entire countywide Outdoor Siren Warning System is periodically tested. Notification of testing is usually posted in the newspapers to avoid confusion. The general public is advised not to depend on hearing the sirens inside a building. The sirens are designed to be heard outdoors only and are installed near recreational areas and shopping malls where there are large outdoor populations. As a backup to the Outdoor Siren Warning System, police and fire units throughout the county can be instructed to sound their sirens. Additionally, the county now utilizes the CodeRED Warning System.

CodeRED Emergency Notification Warning System

The CodeRED Warning System is easy to use under any conditions. Authorized users launch messages via telephone or Internet from anywhere at any time. The system can support thousands of users. CodeRED utilizes technology that ensures messages are delivered in their entirety whether the call is picked up live by a person or an answering device. Real time reporting allows users to view the status of every communication. Multiple redundancies are built in to ensure delivery of critical communications. CodeRED is a massive dialing system that is capable of transmitting millions of messages an hour. The system's resources are allocated to match local telephone infrastructure, resulting in less disconnected calls, network congestion, and busy signals during an emergency situation.

Broadcast Media

One of the key elements of the Countywide Warning System is broadcast media. Most of the radio, television, and cable companies that serve Cherokee County residents are dedicated to informing their audiences of impending emergencies. These broadcasters have partnered with the Cherokee County Emergency Management Agency to bring their listeners and viewers fast, accurate, and important severe weather and civil emergency information via EAS and traditional newsgathering methods. Most of the television stations serving the Cherokee County market feature live Doppler radar and certificated meteorologists. Many of the radio stations maintain continuous severe weather coverage.

TABLE 4-9: Cherokee County Outdoor Warning Sirens		
Existing Sirens		
Number	Location	Address
1	John's Crossroads	6480 County Road 22
2	Centre City Hall	401 East Main Street
3	Cherokee County High School	910 Warrion Drive
4	Leesburg Town Hall	1910 Lokey Street
5	Cedar Bluff Town Hall	3420 Spring Street
6	Gaylesville Town Hall	4740 Main Street
7	Sand Rock Town Hall	1925 Sand Rock Avenue
8	Mt. Weisner VFD	650 County Road 39
9	McCord Crossroads VFD	6600 County Road 16
10	Broomtown VFD	2340 County Road 46
11	Ellisville VFD	7315 AL Highway 9 South
12	Cherokee Electric Cooperative	1550 Chesnut Bypass
13	Spring Garden School	4635 County Road 8
14	Tuckers Chapel VFD	1550 County Road 142
15	Ebenezer Church	11775 County Road 22
16	Rock Run Community	6575 County Road 29
<i>*All sirens have a one mile audible radius</i>		
<i>Source: Cherokee County EMA</i>		

Vulnerability Summary

Table 4-12 provides a summary of Cherokee County’s vulnerability to specified hazards by jurisdiction. Each jurisdiction was tasked with considering how vulnerable they are to each hazard by considering the percentage of potential damage and the frequency of occurrences. Using information from the Risk Assessment in Section Three as well as the data in the earlier parts of this section as a basis for evaluation, the committee members assigned either N/A: Not Applicable, L: Low Risk, M: Medium Risk, and H: High Risk as defined in the Table Key.

Estimated Loss Projections

Table 4-10 shows the figures used for valuation of deaths and injuries are approximations based on FEMA guidance used in benefit-cost analysis of hazard mitigation measures. Major and minor injuries are combined in the NOAA data, so it was necessary to use a blended number in the valuation.

Table 4-12 shows the estimated loss projections for each hazard. The average number of occurrences per year is shown along with total number of deaths and injuries. The average amount of loss per event was determined by combining crop and property loss damages for each event type and then dividing by the corresponding total number of events reported during the ten-year study period. This amount is shown under the column heading Average Crop and Property Loss. There are instances where the Average Crop and Property Loss (per event) and Projected Loss (per Event) for an identified hazard could not be determined due to the absence of historical event data. This is a data limitation beyond the control of an affected jurisdiction.

Table 4-10: 2014 Values used for Monetary Conversion of Tornado Injuries and Deaths	
Damage Category	Value
Injury (blended major and minor)	\$23,175
Death	\$3,660,003
<i>(Source: FEMA)</i>	

The Projected Loss is shown per event by hazard type. Due to the fluctuations in the value of a dollar over the ten-year study period, the year 2008 was chosen as a midpoint year. The Projected Loss was then calculated by adjusting the 2008 value of \$1 up to \$1.09, a 9 % increase to reflect the value of the dollar in 2014. Average loss amounts were increased by 9% to achieve a 2014 value for an estimated projected loss per event occurrence. *(Source: U. S. Inflation Calculator based on the U. S. Government Consumer Price Index Data)*

Table 4-11: Cherokee County Vulnerability Summary

Natural Hazards	Cedar Bluff	Centre	Gaylesville	Leesburg	Sand Rock	Cherokee County
Thunderstorm	H	H	H	H	H	H
Lightning	L	L	L	L	L	L
Hail	L	L	L	L	L	L
Tornado	H	H	H	H	H	H
Flood/Flash Flood	M	L	M	L	M	M
Drought/Extreme Heat	L	L	L	L	L	L
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/ Winter Weather/Extreme Cold	M	M	M	M	M	M
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	L	L	L	L	L	L
Sinkhole/Expansive Soil	L	L	L	L	L	L
Landslide	L	L	L	L	L	L
Earthquake	L	L	L	L	L	L
Wildfire	M	M	M	M	M	M
Dam/Levee Failure	L	L	L	M	L	L
<p>KEY: NA – Not Applicable; not a hazard to the jurisdiction L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction) M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence) H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)</p>						
<p><i>(Source: Participating Jurisdictions, 2015)</i></p>						

**Table 4-12: Cherokee County
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	8.9	0	1	\$260	\$5,281	\$6,040
Lightning	0.2	0	0	\$0	\$76,000	\$82,840
Hail	7.1	0	0	\$0	\$1,197	\$1,305
Tornado	0.4	0	25	\$144,844	\$4,774,750	\$5,362,358
Flood/Flash Flood	1.2	0	0	\$0	\$21,500	\$23,435
Drought/Extreme Heat	2.6	0	0	\$0	\$0	Unknown
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	1.4	0	0	\$0	\$3,571	\$3,892
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	1.3	0	0	\$0	\$38,462	\$41,923
Sinkhole/Expansive Soil	0	0	0	\$0	\$0	Unknown
Landslide	0	0	0	\$0	\$0	Unknown
Earthquake	0.1	0	0	\$0	\$0	Unknown
Wildfire (3 year study period)	63	0	0	\$0	\$93,100	\$101,479
Dam/Levee Failure	0	0	0	\$0	\$0	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire which is a 3-year period. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero and Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

This page left intentionally blank

Mitigating Potential Losses

The Hazard Mitigation Planning Committee set forth mitigation goals and objectives for the county and its jurisdictions. Each jurisdiction sets forth its own mitigation action plan located in Section Five.

Mitigation Strategy

In the preparation of the mitigation strategy, the Hazard Mitigation Planning Committee reviewed the goals and objectives of the 2010 plan revision. The committee agreed the goals and objectives would remain the same for this plan revision.

Mitigation Actions

Mitigation ideas can be found on the FEMA.gov website. FEMA summarizes mitigation actions into four types: Local Planning and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, Education and Awareness.

Jurisdictions sought and selected their own mitigation actions to support the goals and objectives of the mitigation strategy. The identification of mitigation actions has been shaped by the events that occurred over the past five years, vulnerabilities, and available mitigation actions. Each significant event revealed strengths and weaknesses within the hazard mitigation program; therefore, jurisdictions adjusted their mitigation actions to address these weaknesses accordingly. Because of these events, the prioritization of actions has been re-evaluated and ranked as follows:

Actions identify the activity, what hazard(s) are addressed, whether the activity applies to a new or existing asset, and an estimated cost. The action also identifies the planning mechanism, possible funding sources, and a time frame for completion of the activity.

Action Priority and Cost Benefit Review

In the selection and prioritization of mitigation actions, each member was asked to consider the following: funding options, political support, public support, legality, preservation of the environment, and staff capability. The committee then looked at each strategy in terms of costs and benefits. Not only were direct costs and benefits considered, but indirect costs and benefits

were also acknowledged. Indirect costs and/or benefits are often intangible attributes such as social effects.

Priority mitigation actions will be implemented only if they are cost beneficial; maximum benefits must outweigh the associated costs of the proposed actions. The committee performed a general evaluation of each mitigation measure which might require FEMA funds. The committee weighed the estimated costs for each mitigation measure against the projected benefits of the action. A more detailed benefit-cost analysis will be required for each priority action to determine economic feasibility during the project planning phase. Projects will also require a more detailed evaluation for eligibility and feasibility including social impact, environmental impact, technical feasibility, and other criteria that measure project effectiveness. This detailed evaluation of projects will be performed in the pre-application phase of a grant request. Further, implementation of actions will be subject to the availability of FEMA grants and other sources of funding from year-to-year.

Mitigation Status

During the plan update mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 4-13** shows Cherokee County's mitigation actions for the 2015 plan update. For this plan update process, all previous mitigation actions remain and new actions were added to the plan.

For this plan revision, the committee decided to assign a new prioritization labeling as one project may be equally as important as another project. As a result, projects will be labeled high, medium, and low in priority. All actions will be addressed as soon as possible depending on available funding and resources; however, actions labeled high in priority will be addressed first, medium in priority will be addressed secondly, and low in priority will be addressed last. The most important determination is funding, which greatly affects which projects can be completed.

In order to track the progress of identified actions, Benchmarking is provided in the Mitigation Action Table shown below.

Table 4-13: Cherokee County’s Mitigation Actions	
Mitigation Action 1.1.1	Train local flood plain managers through programs offered through the State Flood Plain Manager
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2016
Estimated Cost	\$1,000 annually
Funding Sources	Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county engineer and the assistant county engineer attended NFIP training.
Mitigation Action 3.1.3	Distribute FEMA publication 320- Taking Shelter From the Storm: Building a Safe Room in your House – to local homebuilders
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county distributed the following information: storm shelter/safe room; emergency supply list; disaster readiness for seniors and special needs; preparing your pets for emergencies; what you need to know about weather from NOAA; Ready Kids; and FIPS codes for weather radios.
	169

Table 4-13: Cherokee County’s Mitigation Actions

Mitigation Action 3.1.4	Create a mitigation library to be housed at the County Library
Type	Public Education and Awareness
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$550
Funding Sources	Local
Priority	Medium
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 3.5.1	Encourage the construction of safe rooms within new and existing public buildings, such as new schools, libraries, community centers, and other public buildings and in new and existing construction of all types, where feasible
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds, Strong Winds, Hail
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark – Action has been revised and remains in this plan revision	The construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible was encouraged at all meetings attended by EMA where appropriate.
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION

Table 4-13: Cherokee County’s Mitigation Actions

Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county’s original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.
Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$16,350
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark - REVISED ACTION – Separated “encourage community safe rooms” from “construct/install” community safe rooms and added individual storm shelters	The county was approved for 82 individual storm shelters through DR 1971 and 49 of those have been installed. One community safe room was installed in the Town of Leesburg using HMGP funds. Another community safe room was installed at New Bethel Church in the Key Community using funds from the Governor’s Emergency Relief Fund and local donations.

Table 4-13: Cherokee County’s Mitigation Actions

Mitigation Action 6.4.1	Complete a wind retrofit of the County Courthouse
Type	Property Protection
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, Tropical Storms and Depressions, Strong Winds, High Winds
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Cherokee County Commission
Estimated Time Frame for Completion	2020
Estimated Cost	\$327,000
Funding Sources	HMGP; PDM; Local
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far

Section Five: Jurisdictional Assessments

This page left intentionally blank

Town of Cedar Bluff

This page left intentionally blank

**Table 5-1: Town of Cedar Bluff
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	1	6	H
Lightning	X	5	9	L
Hail	X	5	5	L
Tornado	X	2	9	H
Flood/Flash Flood	X	4	7	M
Drought/Extreme Heat	X	6	2	L
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold	X	3	3	M
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	X	7	4	L
Sinkhole/Expansive Soil	X	11	9	L
Landslide	X	10	9	L
Earthquake	X	7	8	L
Wildfire	X	9	1	M
Dam/Levee Failure	X	8	9	L

KEY:

Hazard Identification – Identified by local jurisdictions

Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.

Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2015)

This page left intentionally blank

TABLE 5-2: TOWN OF CEDAR BLUFF HAZARD EVENTS

9 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CEDAR BLUFF	CHEROKEE CO.	AL	07/12/2003	14:14	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	11/24/2004	02:10	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/29/2007	18:40	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2007	15:09	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	08/17/2007	15:42	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/17/2010	14:32	CST-6	Thunderstorm Wind	40 kts. EG	0	0	5.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/04/2011	18:56	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/26/2011	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2012	17:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	33.00K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

10 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CEDAR BLUFF	CHEROKEE CO.	AL	10/21/2005	14:15	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/19/2006	12:21	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/19/2006	12:30	CST	Hail	2.00 in.	0	0	1.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	13:45	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	15:40	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/03/2007	15:58	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/14/2007	17:00	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	04/10/2009	15:40	CST-6	Hail	2.75 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	06/15/2011	14:07	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CEDAR BLUFF	CHEROKEE CO.	AL	07/01/2012	17:00	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	1.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

6 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
COUNTYWIDE	CHEROKEE CO.	AL	05/06/2003	10:30	CST	Flash Flood		0	0	25.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	150.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	12:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	11/24/2004	04:15	CST	Flash Flood		0	0	11.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/06/2003	10:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/19/2003	01:00	CST	Flood		0	0	0.00K	0.00K
Totals:								0	0	216.00K	0.00K

26 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

**14 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold
Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)**

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/25/2004	19:00	CST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	13:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/25/2010	07:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/07/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/02/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/15/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/09/2011	17:30	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/17/2013	14:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	50.00K	0.00K

**13 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
01/01/2003 thru 12/31/2013 (4018 days)**
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	28.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	80.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	52 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2003	18:15	CST	Strong Wind	45 kts. EG	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/11/2009	14:30	CST-6	Strong Wind	43 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:00	CST-6	Strong Wind	43 kts. EG	0	0	7.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:18	CST-6	Strong Wind	43 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	18:30	CST-6	Strong Wind	38 kts. MG	0	0	7.00K	0.00K
Totals:								0	0	500.00K	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)

No sinkhole events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: Local Input)

No landslide events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/CNN.com/US)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013

(Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

**Table 5-3: Town of Cedar Bluff
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Annual Occurrence	Extent	Area Affected
Thunderstorm	9	90%	>10%	Town wide
Lightning	0	Unknown	<5%	Town wide
Hail	10	100%	<5%	Town wide
Tornado	0	Unknown	>10%	Town wide
Flood/Flash Flood	6	60%	5-10%	Town wide
Drought/Extreme Heat	26	>100%	<5%	Town wide
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/ Winter Weather/ Extreme Cold	14	>100%	>5-10%	Town wide
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	13	>100%	<5%	Town wide
Sinkhole/Expansive Soil	0	Unknown	<5%	Town wide
Landslide	0	Unknown	<5%	Town wide
Earthquake	1	10%	<5%	Town wide
Wildfire	190	>100%	5-10%	Town wide
Dam/Levee Failure	0	Unknown	<5%	Town wide
<i>Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions; 2015</i>				
Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-11). Zero denotes no data available to determine the probability, extent, or affected area.				

TABLE 5-4: Cedar Bluff Critical Facilities

Facility	Location	Use	Value
Town Hall	3420 Spring Street, Cedar Bluff	Government	
Cedar Bluff VFD	4920 Main Street, Cedar Bluff	Fire Station	
Tucker's Chapel VFD	2000 Co. Rd. 47, Cedar Bluff	Fire Station	
Cedar Bluff Police Department	4920 Main Street, Cedar Bluff	Police Station	\$1,260,000
Cedar Bluff High School	3655 Old Highway 9, Cedar Bluff	School	\$7,820,880
TOTAL			\$9,080,880

**Table 5-5: Cedar Bluff
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	0.9	0	0	Unknown	\$3,667	\$3,997
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	1.0	0	0	Unknown	\$1,000	\$1,090
Tornado	0.0	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	0.6	0	0	Unknown	\$36,000	\$39,240
Drought/Extreme Heat	2.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	1.4	0	0	Unknown	\$3,571	\$3,893
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	1.3	0	0	Unknown	\$38,462	\$41,923
Sinkhole/Expansive Soil	0.0	0	0	Unknown	Unknown	Unknown
Landslide	0.0	0	0	Unknown	Unknown	Unknown
Earthquake	0.1	0	0	Unknown	Unknown	Unknown
Wildfire	63.0	0	0	Unknown	\$93,100	\$101,479
Dam/Levee Failure	0.0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U.S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey; 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figure from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero or Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

Town of Cedar Bluff Mitigation Action Plan

The Town of Cedar Bluff recognizes the importance of Mitigation Planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-6** shows the Town of Cedar Bluff’s updated mitigation actions. During the plan update process, changes in numbering were made, actions revised, and new actions identified and added to the plan.

MITIGATION STRATEGY – TOWN OF CEDAR BLUFF

Table 5-6: Cedar Bluff Mitigation Actions	
Mitigation Action 3.1.3	Distribute FEMA publication 320- Taking Shelter From the Storm: Building a Safe Room in your House – to local homebuilders
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county distributed the following information: storm shelter/safe room; emergency supply list; disaster readiness for seniors and special needs; preparing your pets for emergencies; what you need to know about weather from NOAA; Ready Kids; and FIPS codes for weather radios.

Table 5-6: Cedar Bluff Mitigation Actions

Mitigation Action 3.5.1	Encourage the construction of safe rooms within new and existing public buildings, such as new schools, libraries, community centers, and other public buildings and in new and existing construction of all types, where feasible
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds, Strong Winds, Hail
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark – Action has been revised and remains in this plan revision	The construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible was encouraged at all meetings attended by EMA where appropriate.
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION
Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county’s original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.

Table 5-6: Cedar Bluff Mitigation Actions

Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$40 per weather radio
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark - REVISED ACTION – Separated “encourage community safe rooms” from “construct/install” community safe rooms and added individual storm shelters.	The county was approved for 82 individual storm shelters through DR 1971 and 49 of those have been installed. One community safe room was installed in the Town of Leesburg using HMGP funds. Another community safe room was installed at New Bethel Church in the Key Community using funds from the Governor’s Emergency Relief Fund and local donations.
Mitigation Action 6.4.2	Complete a wind retrofit of the Town Hall
Type	Property Protection
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, Tropical Storms and Depressions, Strong Winds, High Winds
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2020
Estimated Cost	\$120,000
Funding Sources	HMGP; PDM; Local
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far

This page left intentionally blank

City of Centre

This page left intentionally blank

**Table 5-7: City of Centre
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	1	5	H
Lightning	X	5	8	L
Hail	X	5	4	L
Tornado	X	2	8	H
Flood	X	3	6	L
Drought/Extreme Heat	X	6	2	L
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/ Winter Weather/Extreme Cold	X	4	3	M
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	X	7	4	L
Sinkhole/Expansive Soil	X	11	8	L
Landslide	X	10	8	L
Earthquake	X	7	7	L
Wildfire	X	9	1	M
Dam/Levee Failure	X	8	8	L

KEY:

Hazard Identification – Identified by local jurisdictions

Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.

Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions; 2015)

This page left intentionally blank

TABLE 5-8: CITY OF CENTRE HAZARD EVENTS

12 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CENTRE	CHEROKEE CO.	AL	06/19/2003	10:53	CST	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/16/2003	16:55	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/22/2006	15:55	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/23/2006	14:50	CST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/17/2007	14:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/09/2008	15:06	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/31/2008	17:30	CST-6	Thunderstorm Wind	40 kts. EG	0	0	0.50K	0.00K
CENTRE	CHEROKEE CO.	AL	01/06/2009	15:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/02/2009	21:46	CST-6	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/24/2010	23:53	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CENTRE	CHEROKEE CO.	AL	02/28/2011	14:38	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/26/2011	15:36	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
Totals:								0	0	66.50K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database/Local Input)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

13 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CENTRE	CHEROKEE CO.	AL	05/02/2003	14:29	CST	Hail	4.50 in.	0	0	65.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/13/2004	23:40	CST	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/07/2005	15:00	CST	Hail	0.88 in.	0	0	1.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	12:39	CST	Hail	0.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	12:58	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/19/2006	13:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/22/2006	16:25	CST	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	06/09/2008	15:06	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/10/2009	15:02	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/26/2011	12:35	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	09/22/2011	03:26	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	03/02/2012	19:43	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	03/02/2012	23:00	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	66.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

11 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
COUNTYWIDE	CHEROKEE CO.	AL	05/06/2003	10:30	CST	Flash Flood		0	0	25.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	150.00K	0.00K
CENTRE	CHEROKEE CO.	AL	05/17/2003	21:40	CST	Flash Flood		0	0	8.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	12:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	11/24/2004	04:15	CST	Flash Flood		0	0	11.00K	0.00K
CENTRE	CHEROKEE CO.	AL	08/12/2005	14:45	CST	Flash Flood		0	0	1.00K	0.00K
CENTRE	CHEROKEE CO.	AL	01/06/2009	13:15	CST-6	Flash Flood		0	0	25.00K	0.00K
CENTRE	CHEROKEE CO.	AL	07/14/2011	20:45	CST-6	Flash Flood		0	0	0.00K	0.00K
CENTRE	CHEROKEE CO.	AL	04/17/2013	14:45	CST-6	Flash Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/06/2003	10:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/19/2003	01:00	CST	Flood		0	0	0.00K	0.00K
Totals:								0	0	250.00K	0.00K

26 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

14 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/25/2004	19:00	CST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	13:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/25/2010	07:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/07/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/02/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/15/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/09/2011	17:30	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/17/2013	14:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	50.00K	0.00K

**13 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
01/01/2003 thru 12/31/2013 (4018 days)**

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	28.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	80.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	52 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2003	18:15	CST	Strong Wind	45 kts. EG	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/11/2009	14:30	CST-6	Strong Wind	43 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:00	CST-6	Strong Wind	43 kts. EG	0	0	7.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:18	CST-6	Strong Wind	43 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	18:30	CST-6	Strong Wind	38 kts. MG	0	0	7.00K	0.00K
Totals:								0	0	500.00K	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)

No sinkhole events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: Local Input)

No landslide events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/CNN.com/US)

Location	County/Zone	St.	Date	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013

(Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

**Table 5-9: City of Centre
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	12	>100%	>10%	Citywide
Lightning	0	Unknown	<5%	Citywide
Hail	13	>100%	<5%	Citywide
Tornado	0	Unknown	>10%	Citywide
Flood/Flash Flood	11	>100%	<5%	Citywide
Drought/Extreme Heat	26	>100%	<5%	Citywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	14	>100%	5-10%	Citywide
Hurricane/High Wind/Strong Wind/Tropical Storm/Tropical Depression	13	>100%	<5%	Citywide
Sinkhole/Expansive Soil	0	Unknown	<5%	Citywide
Landslide	0	Unknown	<5%	Citywide
Earthquake	1	10%	<5%	Citywide
Wildfire (2010-2013 – 3 year study period)	190	>100%	5-10%	Citywide
Dam/Levee Failure	0	Unknown	<5%	Citywide

Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS ; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdiction; 2015

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-11). Zero denotes no data available to determine the probability, extent, or affected area.

TABLE 5-10: Centre Critical Facilities			
Facility	Location	Use	Value
City Hall	401 East Main Street, Centre	Government	
Cherokee Baptist Med Center	400 Northwood Drive, Centre	Hospital	\$9,052,630
Central Dispatch	100 Cedar Bluff Road, Centre	Emergency Center	\$900,000
Ellisville VFD	7315 AL Hwy. 9 South, Centre	Fire Station	
Centre VFD	401 E. Main Street, Centre	Fire Station	
McCord's Crossroads VFD	6600 Co. Rd. 16, Centre	Fire Station	
Cherokee Co. Sheriff's Department	100 Cedar Bluff Rd., Centre	Police Station	\$1,260,000
Cherokee County Criminal	100 W. Main Street, Centre	Police Station	\$1,260,000
Cherokee County Career & Technology Center	600 Bay Springs Rd, Centre	School	\$6,733,560
Centre Elementary School	725 E. Main Street, Centre	School	\$11,254,850
Centre Middle School	350 E. Main Street, Centre	School	\$4,469,080
Cherokee County High School	910 Warrior Drive, Centre	School	\$5,751,030
Centre Municipal Airport	Centre	Airport	\$10,651,000
Centre Wastewater Treatment Lagoon	South College Street, Centre	Wastewater Treatment Plant	\$59,940,000
WEIS 990 (AM)	Centre	Broadcast Facility	\$90,000
WAGC 1560 (AM)	Centre	Broadcast Facility	\$90,000
WRHY CH 290 (FM)	Centre	Broadcast Facility	\$90,000
TOTAL			\$111,542,150

**Table 5-11: City of Centre
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	1.2	0	0	Unknown	\$5,542	\$6,040
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	1.3	0	0	Unknown	\$5,077	\$5,539
Tornado	0	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	1.1	0	0	Unknown	\$22,272	\$24,773
Drought/Extreme Heat	2.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	1.4	0	0	Unknown	\$3,571	\$3,893
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	1.3	0	0	Unknown	\$38,462	\$41,923
Sinkhole/Expansive Soil	0	0	0	Unknown	Unknown	Unknown
Landslide	0	0	0	Unknown	Unknown	Unknown
Earthquake	0.1	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	63	0	0	Unknown	\$93,100	\$101,479
Dam/Levee Failure	0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero or Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

This page left intentionally blank

City of Centre Mitigation Action Plan

The City of Centre recognizes the importance of Mitigation Planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-12** shows the City of Centreville’s updated mitigation actions. During the plan update process, changes in numbering were made, actions revised, and new actions identified and added to the plan.

MITIGATION STRATEGY – CITY OF CENTRE

Table 5-12: Centre Mitigation Actions	
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	City Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION
Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	City Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county’s original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.
	205

Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$40 per weather radio
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	City Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor's Emergency Relief Fund; Local
Priority	High
Benchmark	NEW ACTION
Mitigation Action 6.2.1	Construct drainage improvements to Cedar Bluff Road and Park Street
Type	Property Protection
Goal	Reduce Cherokee County's risk from natural hazards
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	City Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$272,500
Funding Sources	HMGP, PDM, Local
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints prevented this action from being implemented during the past five years.

Town of Gaylesville

This page left intentionally blank

**Table 5-13: Town of Gaylesville
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	1	5	H
Lightning	X	5	7	L
Hail	X	5	6	L
Tornado	X	2	7	H
Flood	X	4	4	M
Drought/Extreme Heat	X	6	2	L
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	3	3	M
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	7	4	L
Sinkhole/Expansive Soil	X	11	7	L
Landslide	X	10	7	L
Earthquake	X	7	6	L
Wildfire	X	9	1	M
Dam/Levee Failure	X	8	7	L

KEY:

Hazard Identification – Identified by local jurisdictions

Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.

Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions; 2015)

This page left intentionally blank

TABLE: 5-14: TOWN OF GAYLESVILLE HAZARD EVENTS

4 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
COUNTYWIDE	CHEROKEE CO.	AL	06/22/2004	16:20	CST	Thunderstorm Wind	60 kts. EG	0	0	12.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	01/13/2005	10:15	CST	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	14:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	15:21	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	18.00K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

1 Hail Event – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	14:37	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

6 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/18/2003	14:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2005	00:00	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	09:56	CST	Flash Flood		0	0	2.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	07/10/2005	19:30	CST	Flash Flood		0	0	4.00K	0.00K
Totals:								0	0	6.00K	0.00K

27 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/22/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/02/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

7 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	13:05	CST-6	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

6 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	17:00	CST	Tropical Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	17:00	CST	Tropical Storm		0	0	210.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	07:00	CST	High Wind	56 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/11/2005	16:00	CST	Strong Wind	40 kts. EG	0	0	14.00K	0.00K
Totals:								0	0	626.00K	0.00K

0 Sinkhole/Expansive Soil Events - 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

0 Landslide Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/
 CNN.com/US)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013

(Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

This page left intentionally blank

**Table 5-15: Town of Gaylesville
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Annual Occurrence	Extent	Area Affected
Thunderstorm	4	40%	>10%	Town wide
Lightning	0	Unknown	<5%	Town wide
Hail	1	10%	<5%	Town wide
Tornado	0	Unknown	>10%	Town wide
Flood/Flash Flood	6	60%	5-10%	Town wide
Drought/Extreme Heat	27	>100%	<5%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	7	70%	5-10%	Town wide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	6	60%	<5%	Town wide
Sinkhole/Expansive Soil	0	Unknown	<5%	Town wide
Landslide	0	Unknown	<5%	Town wide
Earthquake	1	10%	<5%	Town wide
Wildfire (2010-2013 – 3 year study)	190	>100%	5-10%	Town wide
Dam/Levee Failure	0	Unknown	<5%	Town wide

Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdiction; 2015

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-11). Zero or Unknown denote there is no data available to determine the probability, extent, or affected area.

TABLE 5-16: Gaylesville Critical Facilities

(Source: HAZUS-MH 2.1; Local)

Facility	Location	Use	Value
Town Hall	4740 Main Street, Gaylesville	Government	
Broomtown Rinehart FD	2340 Co. Rd. 46, Gaylesville	Fire Station	
Gaylesville VFD	4740 Main St., Gaylesville	Fire Station	
Gaylesville High School	760 Trojan Way, Gaylesville	School	\$5,698,630
TOTAL			\$5,698,630

**Table 5-17: Town of Gaylesville
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	0.4	0	0	Unknown	\$4,500	\$4,905
Lightning	0.0	0	0	Unknown	Unknown	Unknown
Hail	0.1	0	0	Unknown	Unknown	Unknown
Tornado	0.0	0	0	Unknown	Unknown	Unknown
Flood/Flood	0.6	0	0	Unknown	\$1,000	\$1,090
Drought/Extreme Heat	2.7	0	0	Unknown	Unknown	Unknown
Winter Weather/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	0.7	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/ High Wind/ Strong Wind	0.6	0	0	Unknown	\$104,333	\$113,723
Sinkhole/Expansive Soil	0.0	0	0	Unknown	Unknown	Unknown
Landslide	0.0	0	0	Unknown	Unknown	Unknown
Earthquake	0.1	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	63	0	0	Unknown	\$93,100	\$101,479
Dam/Levee Failure	0.0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey; 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero and Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

This page left intentionally blank

Town of Gaylesville Mitigation Action Plan

The Town of Gaylesville recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-18** shows the Town of Gaylesville’s updated mitigation actions. During the plan update process, changes in numbering were made, actions revised, and new actions identified and added to the plan.

MITIGATION STRATEGY – TOWN OF GAYLESVILLE

Table 5-18: Gaylesville Mitigation Actions	
Mitigation Action 3.1.3	Distribute FEMA publication 320- Taking Shelter From the Storm: Building a Safe Room in your House – to local homebuilders
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county distributed the following information: storm shelter/safe room; emergency supply list; disaster readiness for seniors and special needs; preparing your pets for emergencies; what you need to know about weather from NOAA; Ready Kids; and FIPS codes for weather radios.
Mitigation Action 3.5.1	Encourage the construction of safe rooms within new and existing public buildings, such as new schools, libraries, community centers, and other public buildings and in new and existing construction of all types, where feasible
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds, Strong Winds, Hail
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark – Action has been revised and remains in this plan revision	The construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible was encouraged at all meetings attended by EMA where appropriate.

Table 5-18: Gaylesville Mitigation Actions

Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION
Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county’s original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.
Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$16,350 for entire project
Funding Sources	Local; HMGP
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far

Table 5-18: Gaylesville Mitigation Actions

Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark	NEW ACTION
Mitigation Action 6.2.2	Construct drainage improvements along Highways 35 and 68 and along Riverside Drive
Type	Property Protection
Goal	Reduce Cherokee County’s risk from natural hazards
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$92,650 for Highways 35 and 68 \$190,750 for Riverside Drive
Funding Sources	HMGP, PDM, Local
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints prevented this action from being implemented during the past five years.

This page left intentionally blank

Town of Leesburg

This page left intentionally blank

**Table 5-19: Town of Leesburg
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	1	7	H
Lightning	X	5	9	L
Hail	X	5	6	L
Tornado	X	2	9	H
Flood	X	3	5	M
Drought/Extreme Heat	X	6	2	L
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	4	3	M
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	X	7	4	L
Sinkhole/Expansive Soil	X	11	9	L
Landslide	X	10	9	L
Earthquake	X	8	8	L
Wildfire	X	9	1	M
Dam/Levee Failure	X	7	9	M

KEY:

Hazard Identification – Identified by local jurisdictions

Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.

Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions; 2015)

This page left intentionally blank

TABLE 5-20: TOWN OF LEESBURG HAZARD EVENTS

4 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
LEESBURG	CHEROKEE CO.	AL	01/05/2007	07:00	CST-6	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	07/23/2007	17:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	02/28/2011	14:29	CST-6	Thunderstorm Wind	60 kts. EG	0	0	6.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	05/13/2011	11:28	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Totals:								0	0	64.00K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No lightning events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database

5 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
LEESBURG	CHEROKEE CO.	AL	05/02/2003	14:24	CST	Hail	1.00 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	06/20/2005	16:30	CST	Hail	0.75 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	04/19/2006	14:32	CST	Hail	0.75 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	05/20/2008	16:41	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	04/10/2009	05:30	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database

7 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
COUNTYWIDE	CHEROKEE CO.	AL	05/06/2003	10:30	CST	Flash Flood		0	0	25.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	150.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	12:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	11/24/2004	04:15	CST	Flash Flood		0	0	11.00K	0.00K
LEESBURG	CHEROKEE CO.	AL	08/16/2010	20:50	CST-6	Flash Flood		0	0	8.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/06/2003	10:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/19/2003	01:00	CST	Flood		0	0	0.00K	0.00K
Totals:								0	0	224.00K	0.00K

26 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

14 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/25/2004	19:00	CST	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	13:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/25/2010	07:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/07/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/02/2010	09:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/15/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/09/2011	17:30	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/17/2013	14:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	50.00K	0.00K

**13 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
01/01/2003 thru 12/31/2013 (4018 days)**

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	28.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	80.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	52 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2003	18:15	CST	Strong Wind	45 kts. EG	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/11/2009	14:30	CST-6	Strong Wind	43 kts. EG	0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:00	CST-6	Strong Wind	43 kts. EG	0	0	7.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	17:18	CST-6	Strong Wind	43 kts. EG	0	0	10.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/05/2011	18:30	CST-6	Strong Wind	38 kts. MG	0	0	7.00K	0.00K
Totals:								0	0	500.00K	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)

No sinkhole events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: Local Input)

No landslide events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/U.S. Geological Survey/Alabama Geological Survey

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/CNN.com/US)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013

(Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

This page left intentionally blank

**Table 5-21: Town of Leesburg
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Annual Occurrence	Extent	Area Affected
Thunderstorm	4	40%	>10%	Town wide
Lightning	0	Unknown	<5%	Town wide
Hail	5	50%	<5%	Town wide
Tornado	0	Unknown	<5%	Town wide
Flood/Flash Flood	7	70%	5-10%	Town wide
Drought/Extreme Heat	26	>100%	<5%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	14	>100%	5-10%	Town wide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	13	>100%	<5%	Town wide
Sinkhole/Expansive Soil	0	Unknown	<5%	Town wide
Landslide	0	Unknown	<5%	Town wide
Earthquake	1	10%	<5%	Town wide
Wildfire (2010-2013 – 3 year study period)	190	>100%	5-10%	Town wide
Dam/Levee Failure	0	Unknown	5-10%	Town wide

Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions; 2015

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-11). Zero and Unknown denote there is no data available to determine the probability, extent, or affected area.

TABLE 5-22: Leesburg Critical Facilities			
Facility	Location	Use	Value
Leesburg Town Hall	1910 Lokey Street, Leesburg	Government	
Leesburg VFD	1900 Lokey Street, Leesburg	Fire Station	
Leesburg Police Department	1910 Lokey Street, Leesburg	Police Station	\$1,260,000
Cherokee County Wastewater	Leesburg	Wastewater Treatment	\$59,940,000
TOTAL			\$61,200,000

**Table 5-23: Town of Leesburg
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	.4	0	0	Unknown	\$16,000	\$17,440
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	.5	0	0	Unknown	Unknown	Unknown
Tornado	0	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	.7	0	0	Unknown	\$32,000	\$34,880
Drought/Extreme Heat	2.6	0	0	Unknown	Unknown	Unknown
Winter Storm/ Frost Freeze/ Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	1.4	0	0	Unknown	\$50,000	\$54,500
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	1.3	0	0	Unknown	\$41,667	\$45,417
Sinkhole/Expansive Soil	0	0	0	Unknown	Unknown	Unknown
Landslide	0	0	0	Unknown	Unknown	Unknown
Earthquake	0.1	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	63	0	0	Unknown	\$25,176	\$5,876,700
Dam/Levee Failure	0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey; 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero and Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

This page left intentionally blank

Town of Leesburg Mitigation Action Plan

The Town of Leesburg recognizes the importance of Mitigation Planning and will incorporate Mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-24** shows the Town of Leesburg’s updated mitigation actions. During the plan update process, changes in numbering were made, actions revised, and new actions identified and added to the plan.

Table 5-24: Leesburg Mitigation Actions	
Mitigation Action 1.1.1	Train local flood plain managers through programs offered through the State Flood Plain Manager
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2016
Estimated Cost	\$1,900 annually
Funding Sources	Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county engineer and the assistant county engineer attended NFIP training.
Mitigation Action 3.1.2	Maintain a library of technical assistance and guidance materials to support the local flood plain manager
Type	Public Education and Awareness
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	New
Local Planning Mechanism	Cherokee County EMA; Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$550
Funding Sources	Local
Priority	Low
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far

Table 5-24: Leesburg Mitigation Actions

Mitigation Action 3.5.2	Promote the use of weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee Co. EMA, Town Council/Mayor
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Medium
Benchmark– Action remains in this plan revision	The use of weather radios in households and businesses was encouraged at all meetings attended by EMA, Town Council members, and the Mayor, where appropriate.
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms, to include a generator for the Town Hall
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 - \$25,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION
Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county’s original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.

Table 5-24: Leesburg Mitigation Actions

Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$40 per weather radio
Funding Sources	Local; HMGP
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 5.4.2	Support the Alabama Skywarn Foundation efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.
Type	Emergency Services Protection
Goal	Reduce Cherokee County’s vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$40 per weather radio
Funding Sources	Local Funds, HMGP, PDM
Priority	Medium
Benchmark– Action remains in this plan revision	Budgetary restraints prevented this action from being implemented during the past five years.
Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark	NEW ACTION - The county was approved for 82 individual storm shelters through DR 1971 and 49 of those have been installed. One community safe room was installed in the Town of Leesburg using HMGP funds. Another community safe room was installed at New Bethel Church in the Key Community using funds from the Governor’s Emergency Relief Fund and local donations.

Table 5-24: Leesburg Mitigation Actions

Mitigation Action 6.2.3	Construct drainage improvements along LaRue Finnis Street
Type	Property Protection
Goal	Reduce Cherokee County's risk from natural hazards
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Town Council/Mayor
Estimated Time Frame for Completion	2019
Estimated Cost	\$27,250
Funding Sources	HMGP, PDM, Local
Priority	High
Benchmark – Action remains in this plan revision	Budgetary restraints prevented this action from being implemented during the past five years.

Town of Sand Rock

This page left intentionally blank

**Table 5-25: Town of Sand Rock
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	1	5	H
Lightning	X	5	7	L
Hail	X	5	6	L
Tornado	X	2	7	H
Flood/Flash Flood	X	4	5	M
Drought/Extreme Heat	X	6	2	L
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	X	3	3	M
Hurricane/Tropical Storm/Tropical Depression/Strong Wind/High Wind	X	7	4	L
Sinkhole/Expansive Soil	X	11	7	L
Landslide	X	10	7	L
Earthquake	X	7	6	L
Wildfire	X	9	1	M
Dam/Levee Failure	X	8	7	L

KEY:

NA – Not Applicable; not a hazard to the jurisdiction

L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction)

M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence)

H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: Local; 2015)

This page left intentionally blank

TABLE 5-26: TOWN OF SAND ROCK HAZARD EVENTS

4 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
COUNTYWIDE	CHEROKEE CO.	AL	06/22/2004	16:20	CST	Thunderstorm Wind	60 kts. EG	0	0	12.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	01/13/2005	10:15	CST	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	14:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	15:21	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	20.00K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

1 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE CO.	CHEROKEE CO.	AL	06/10/2011	14:37	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

4 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/18/2003	14:30	CST	Flood		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2005	00:00	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	09/16/2004	09:56	CST	Flash Flood		0	0	2.00K	0.00K
COUNTYWIDE	CHEROKEE CO.	AL	07/10/2005	19:30	CST	Flash Flood		0	0	4.00K	0.00K
Totals:								0	0	6.00K	0.00K

27 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/27/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/22/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/02/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

7 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/09/2011	13:05	CST-6	Ice Storm		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	02/12/2010	11:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

6 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	07/10/2005	17:00	CST	Tropical Storm		0	0	50.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/29/2005	17:00	CST	Tropical Storm		0	0	210.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	09/16/2004	07:00	CST	High Wind	56 kts. EG	0	0	350.00K	0.00K
CHEROKEE (ZONE)	CHEROKEE (ZONE)	AL	06/11/2005	16:00	CST	Strong Wind	40 kts. EG	0	0	14.00K	0.00K
Totals:								0	0	626.00K	0.00K

0 Sinkhole/Expansive Soil Events - 01/01/2003 thru 12/31/2013 (4018 days)
 (Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

0 Landslide Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

1 Earthquake Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: U.S. Geological Survey/Alabama Geological Survey/USGS Database/
 CNN.com/US)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
CHEROKEE	COUNTY	AL	4/29/2003	Earthquake	4.9	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

No earthquake events were reported during 01/01/2003 thru 12/31/2013 by the NOAA NCDC Storm Events Database/or www.homefacts.com/earthquakes/Alabama.html

190 Wildfire Events – 1/1/2010 thru 12/31/2013

(Source: Alabama Forestry Commission)

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size
Cherokee	190	63	9,278.90	3,093	49

0 Dam/Levee Failure Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

This page left intentionally blank

**Table 5-27: Town of Sand Rock
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Annual Occurrence	Extent	Area Affected
Thunderstorm	4	40%	>10%	Town wide
Lightning	0	Unknown	<5%	Town wide
Hail	1	10%	<5%	Town wide
Tornado	0	Unknown	>10%	Town wide
Flood/Flash Flood	4	40%	<5-10%	Town wide
Drought/Extreme Heat	27	>100%	<5%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	7	70%	>5-10%	Town wide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	6	60%	<5%	Town wide
Sinkhole/Expansive Soil	0	Unknown	<5%	Town wide
Landslide	0	Unknown	<5%	Town wide
Earthquake	1	10%	<5%	Town wide
Wildfire (2010-2013 – 3 year study period)	190	>100%	<5-10%	Town wide
Dam/Levee Failure	0	Unknown	<5%	Town wide
<i>Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions; 2015</i>				
<p>Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-11). Zero and Unknown denote there is no data available to determine the probability, extent, or affected area.</p>				

TABLE 5-28: Sand Rock Critical Facilities			
Facility	Location	Use	Value
Town Hall	1925 Sand Rock Ave., Sand Rock	Government	
Sand Rock VFD	1805 Sand Rock Ave., Sand Rock	Fire Station	
Sand Rock High School	1950 Sand Rock Ave., Sand Rock	School	\$15,158,920
TOTAL			\$15,158,920

**Table 5-29: Town of Sand Rock
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	.4	0	0	Unknown	\$5,000	\$5,450
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	.1	0	0	Unknown	Unknown	Unknown
Tornado	0	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	.4	0	0	Unknown	\$1,500	\$1,635
Drought/Extreme Heat	2.7	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	.7	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	.6	0	0	Unknown	\$104,333	\$113,723
Sinkhole/Expansive Soil	0	0	0	Unknown	Unknown	Unknown
Landslide	0	0	0	Unknown	Unknown	Unknown
Earthquake	0	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	36	0	0	Unknown	\$5,876,700	\$6,405,603
Dam/Levee Failure	0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey; 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero and Unknown denote there is no data available to determine the average occurrences, average loss or projected loss per event.

This page left intentionally blank

Town of Sand Rock Mitigation Action Plan

The Town of Sand Rock recognizes the importance of Mitigation Planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-30** shows the Town of Sand Rock’s updated mitigation actions. During the plan update process, changes in numbering were made, actions revised, and new actions identified and added to the plan.

Table 5-30: Sand Rock Mitigation Actions	
Mitigation Action 3.1.3	Distribute FEMA publication 320- Taking Shelter From the Storm: Building a Safe Room in your House – to local homebuilders
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Low
Benchmark – Action remains in this plan revision	During the past five years, the county distributed the following information: storm shelter/safe room; emergency supply list; disaster readiness for seniors and special needs; preparing your pets for emergencies; what you need to know about weather from NOAA; Ready Kids; and FIPS codes for weather radios.

Table 5-30: Sand Rock Mitigation Actions

Mitigation Action 3.5.1	Encourage the construction of safe rooms within new and existing public buildings, such as new schools, libraries, community centers, and other public buildings and in new and existing construction of all types, where feasible
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Tornadoes, Severe Thunderstorms, High Winds, Strong Winds, Hail
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark – Action has been revised and remains in this plan revision	The construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible was encouraged at all meetings attended by EMA where appropriate.
Mitigation Action 3.5.2	Promote the use of weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County’s risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee Co. EMA, Town Council/Mayor
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	HMGP; PDM; Local
Priority	Medium
Benchmark– Action remains in this plan revision	The use of weather radios in households and businesses was encouraged at all meetings attended by EMA, Town Council members, and the Mayor, where appropriate.
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark	NEW ACTION

Table 5-30: Sand Rock Mitigation Actions

Mitigation Action 5.1.3	Install outdoor warning sirens for areas not yet covered
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA; Local Jurisdictions
Estimated Time Frame for Completion	2019
Estimated Cost	\$30,000 each
Funding Sources	Local; HMGP; ADECA
Priority	High
Benchmark - Action deleted for this plan update	The county's original plan was to have a siren at each school and in each fire district. The existing sirens are very old and the costs of repairs are becoming more than the county can afford. The county now pays \$10,000 per year for a contract with CODE RED for severe weather warnings via phone and text messaging. Residents must subscribe for this service, but it is paid for by the County Commission. The County Commission and the Cherokee County EMA feels CODE RED is more cost effective than outdoor warning sirens.
Mitigation Action 5.4.1	Purchase and distribute weather radios in households and businesses
Type	Emergency Services
Goal	Reduce Cherokee County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$16,350 for entire project
Funding Sources	Local; HMGP
Priority	High
Benchmark - Action remains in this plan revision	Budgetary restraints have prevented this action from being implemented thus far
Mitigation Action 5.4.2	Support the Alabama Skywarn Foundation efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas
Type	Emergency Services Protection
Goal	Reduce Cherokee County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$40 per weather radio
Funding Sources	Local Funds, HMGP, PDM
Priority	Medium
Benchmark- Action remains in this plan revision	Budgetary restraints prevented this action from being implemented during the past five years.

Table 5-30: Sand Rock Mitigation Actions

Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County EMA
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark	NEW ACTION The county was approved for 82 individual storm shelters through DR 1971 and 49 of those have been installed. One community safe room was installed in the Town of Leesburg using HMGP funds. Another community safe room was installed at New Bethel Church in the Key Community using funds from the Governor’s Emergency Relief Fund and local donations.

Cherokee County Board of Education

This page left intentionally blank

Cherokee County Board of Education Action Plan

The Cherokee County Board of Education recognizes the importance of Mitigation Planning and will incorporate mitigation planning in other planning documents as they are revised or initiated.

Mitigation Status

The Cherokee County Board of Education’s Mitigation Plan has been added to this plan update. **Table 5-31** shows the Cherokee County Board of Education’s mitigation actions.

Table 5-31: Cherokee County BOE Mitigation Actions	
Mitigation Action 5.1.2	Purchase emergency generators for backup services and to accompany community safe rooms if feasible and necessary
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County BOE
Estimated Time Frame for Completion	2019
Estimated Cost	\$2,000 - \$25,000 each
Funding Sources	Local; HMGP; ADECA; Governor’s Emergency Relief Fund
Priority	High
Benchmark	NEW ACTION
Mitigation Action 6.1.2	Construct/install community safe rooms and/or individual storm shelters
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Cherokee County BOE
Estimated Time Frame for Completion	2019
Estimated Cost	\$4,500 - \$125,000 each
Funding Sources	HMGP; PDM; ADECA; Governor’s Emergency Relief Fund; Local
Priority	High
Benchmark	NEW ACTION

This page left intentionally blank

Section Six: Mitigation Plan Maintenance

The plan may be reviewed at any time at the request of any local government, by the Chairman of the Hazard Mitigation Planning Committee, or at the discretion of the Cherokee County EMA Director. Local governments may submit a formal letter to the Cherokee County EMA Director or the Chairman of the Cherokee County Hazard Mitigation Planning Committee requesting a review of the plan. The public may also request review of the plan by submitting a formal letter to the Cherokee County EMA Director or the Chairman of the Cherokee County Hazard Mitigation Planning Committee requesting a review of the plan. In the future, the County EMA will strive to get jurisdictions with websites to post the Hazard Mitigation Plan and provide a way for the public to comment online. Citizen Input on Hazard Mitigation Planning forms will be placed in public places, to include on the courthouse bulletin board, in the local government buildings, and in the library to provide the public a chance to provide feedback during the plan's implementation, monitoring, and evaluation process.

The Hazard Mitigation Planning Committee may re-evaluate the plan after a disaster has occurred to make sure that mitigation of the hazard was addressed properly. At the minimum, the Hazard Mitigation Planning Committee will meet on an annual basis to monitor, evaluate, and amend this plan. The meetings will be publicized well in advance so the public can attend. Public participation is encouraged to allow the public an opportunity to participate in the process. The Hazard Mitigation Planning Committee will review a variety of resources and examine conditions, which may affect mitigation activities for natural and technological hazards. The committee will review existing plans, policies, maps, and other documentation such as, but not limited to:

- NFIP flood panels
- Post-disaster redevelopment models
- Critical facilities lists and maps
- Existing land-use maps
- Future land-use maps
- Current zoning maps
- Land development codes
- Governing body codes and resolutions

- Comprehensive plans, including drainage studies
- Emergency Operations Plan
- Standard Operating Guidelines
- Various other plans and/or studies related to hazard mitigation

The EMA Director will serve as the point of contact for all amendments to the plan and will coordinate all additions or deletions of actions to the plan, as needed. The EMA Director will be responsible for informing the local governing bodies of any amendments made to the plan. Any local government seeking to add an action to the plan will be responsible for providing support for the action in the form of a resolution if, and only if, the funding source(s) requires so. The entire plan will be updated on a five-year planning cycle.

Regular plan monitoring will be achieved through the County EMA's efforts to track mitigation activities. The EMA Director is the responsible person for the review of the plan to include monitoring, evaluating, and updating of the plan, reconvening the committee only if additional information is available or the EMA Director requires assistance. The annual review of the plan will take place in June of each year. Although the entire plan's progress will be monitored, evaluated, and updated on a continuous basis throughout the five-year timeframe, the annual review will begin by the EMA Director emailing a survey form to the HMPC members asking them for their input and giving them a two-week deadline on returning the information to the EMA Director. Following the two-week deadline, the EMA Director will consolidate the survey forms and act upon the findings as needed and in the methods described below.

The County EMA will conduct an annual evaluation of the plan, reconvening the committee only if additional information is available or the EMA Director requires assistance. The EMA Director will document the annual evaluation and note the findings. The evaluation will consider several basic factors including:

1. Changes in the level of risk to the county and its citizens
2. Changes in laws, policies, or regulations at the local or state level
3. Changes in state or local agencies or their procedures that will affect how mitigation programs or funds are administered

4. Significant changes in funding sources or capabilities
5. Changes in the composition of the Hazard Mitigation Committee
6. Progress on mitigation actions (including project closeouts) and new mitigation actions that the county is considering
7. Major changes to the multi-jurisdictional hazard mitigation plan

Additionally, the County EMA will contact local agencies (and other individuals and organizations as appropriate) to determine if updates have been made to certain elements of the local plans as part of the annual review process. The purpose of this effort is to ensure that local information about risk, goals, projects, and mitigation strategies included in the plan remains current.

In the event modifications to the plan are warranted as a result of the annual review or other conditions, the HMPC will oversee and approve all revisions to the plan. Conditions which might warrant revisions to this plan would include, but not be limited to, special opportunities for funding, a response to a natural disaster, and changes in jurisdictions' capabilities to implement the plan. Before any revisions are submitted to the jurisdictions for adoption, a notice may be placed in the local newspaper or posted in public facilities, allowing an opportunity for the public to review the proposed amendments at the EMA, submit written comments, and/or present comments at a public meeting. The HMPC will then submit all revisions for adoption by jurisdictions affected by the changes. A copy of the plan revisions will be submitted to all holders of the original plan in a timely manner.

Incorporation into Existing Planning Mechanisms

The Cherokee County Hazard Mitigation Plan is incorporated into the current Cherokee County Emergency Operations Plan that is administered by the Cherokee County Emergency Management Agency. The Cherokee County Hazard Mitigation Plan update has also been incorporated into the District IV, East Alabama Regional Planning and Development Commission's Comprehensive Economic Development Strategy (CEDS).

Incorporation of the hazard mitigation plan will vary for each jurisdiction based on existing planning methods and processes. Jurisdictions with planning commissions and

respective zoning ordinances and building codes will incorporate mitigation plan elements as appropriate into their review of new developments.

Many jurisdictions have no zoning or existing plans of any type other than this mitigation plan (see Table 1-1) and do not have the resources or funding to prepare them. In these cases, where applicable, the mitigation plan elements will be incorporated into local development decisions by the appropriate local coordinating body in order to determine funding, prioritization, and review of new development activities. At such time as the jurisdiction does adopt zoning and building codes they will reflect the goals and objectives set forth in this plan. Further, any jurisdiction preparing or updating a comprehensive plan will reflect their hazard mitigation goals and objectives in their plan. These updates will occur as budget and time allow.

Continued Public Participation

The plan will be available for the public to view at the Cherokee County Emergency Operations Center, all City and Town Halls, the Cherokee County Commission office, the East Alabama Regional Planning and Development Commission, and the Public Library. Written comments regarding the plan can be made to the Cherokee County EMA Director.

During the past five years, the Cherokee County EMA held annual public meetings and making personal contacts with the Committee Members to gather updated information, as stated in the 2009 Hazard Mitigation Plan. No records were kept of these meeting or contacts. Regular plan monitoring will be conducted differently in the next five years (see page 282).

APPENDIX I

Adopting Resolutions

This page left intentionally blank

APPROVAL & IMPLEMENTATION

The purpose of hazard mitigation is to implement action that eliminate the risk from hazards, or reduce the severity of the effects of hazards on people and property. Mitigation actions are both short-term and long-term activities that reduce the cause or occurrence of hazards; reduce exposure to hazards; or reduce effects of hazards through various means to include preparedness, response and recovery measures.

This plan update applies to all local agencies, boards, commissions, and departments assigned mitigation responsibilities, and to others as designated by the Cherokee County Commission or Director of the Cherokee County Emergency Management Agency.

The Cherokee County Hazard Mitigation Plan Update was prepared in compliance with Public Law 106-390, *Disaster Mitigation Act of 2000*, as amended. This plan update implements hazard mitigation measures intended to eliminate or reduce the effects of future disasters throughout Cherokee County, and was developed in a joint and cooperative venture by members of the Cherokee County Hazard Mitigation Planning.

Cherokee County will comply with all applicable state and federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 Code of Federal Regulations (CFR) 13.11c. Cherokee County will amend its plan whenever necessary to reflect changes in local/state and/or federal laws and statutes as required in 44 CFR, 13.11d. At a minimum, the Cherokee County EMA will review and if necessary, update the plan every five years from the date of approval in accordance with 44 CFR, 201.6 (5) (d) (3) in order to continue program eligibility.

As the Director of the Cherokee County Emergency Management Agency, I hereby adopt this plan update in accordance to the powers delegated to me and accept this plan update for implementation in order to protect the lives and property of the citizens of Cherokee County, Alabama.

Date

Beverly Daniel, Director

Cherokee County Emergency Management Agency

This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Cherokee County Commission recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

WHEREAS, By adopting a Hazard Mitigation Plan, the Cherokee County Commission will help ensure the long-term viability of the county and lessen the effects to the county from recurring damage due to natural hazards, and

WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.


NOW THEREFORE BE IT RESOLVED BY THE Cherokee County Commission that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Cherokee County, Alabama.

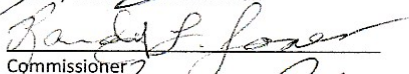
ADOPTED AND APPROVED this the 27th day of July, 2015.

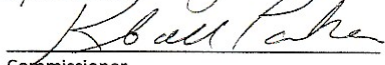
Attest:

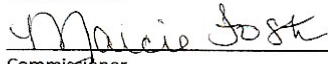
County Administrator

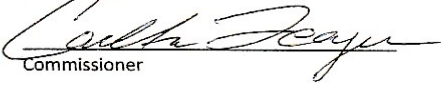
(SEAL)



County Commission Chairman


Commissioner


Commissioner


Commissioner


Commissioner

This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Cedar Bluff Town Council recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

WHEREAS, By adopting a Hazard Mitigation Plan, the Cedar Bluff Town Council will help ensure the long-term viability of the city and lessen the effects to the city from recurring damage due to natural hazards, and

WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Cedar Bluff Town Council that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Centre, Alabama.

ADOPTED AND APPROVED this the 14th day of December, 2015.

Attest:


City Clerk


Tammy Crane, Mayor

This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Centre City Council recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

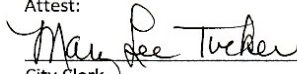
WHEREAS, By adopting a Hazard Mitigation Plan, the Centre City Council will help ensure the long-term viability of the city and lessen the effects to the city from recurring damage due to natural hazards, and

WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Centre City Council that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Centre, Alabama.

ADOPTED AND APPROVED this the 28th day of July, 2015.

Attest:



Mary Lee Tucker
City Clerk



Tony Wilkie, Mayor



This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Gaylesville Town Council recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

WHEREAS, By adopting a Hazard Mitigation Plan, the Gaylesville Town Council will help ensure the long-term viability of the city and lessen the effects to the city from recurring damage due to natural hazards, and

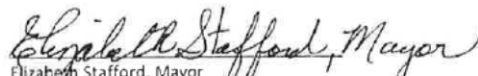
WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Gaylesville Town Council that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Centre, Alabama.

ADOPTED AND APPROVED this the 5th day of October, 2015.

Attest:


City Clerk


Elizabeth Stafford, Mayor

This page left intentionally blank

RESOLUTION 2015-10-5

A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Leesburg Town Council recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

WHEREAS, By adopting a Hazard Mitigation Plan, the Leesburg Town Council will help ensure the long-term viability of the city and lessen the effects to the city from recurring damage due to natural hazards, and

WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Leesburg Town Council that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Centre, Alabama.

ADOPTED AND APPROVED this the 5th day of October 2015.

Attest:


Jennifer Mackey, Town Clerk


Brandy Plake, Mayor

This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Sand Rock Town Council recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

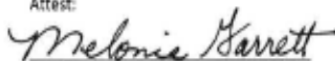
WHEREAS, By adopting a Hazard Mitigation Plan, the Sand Rock Town Council will help ensure the long-term viability of the city and lessen the effects to the city from recurring damage due to natural hazards, and


WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Sand Rock Town Council that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Centre, Alabama.

ADOPTED AND APPROVED this the 09 day of November, 2015.

Attest:


City Clerk


Ricky Mackzy, Mayor

This page left intentionally blank

**A RESOLUTION ADOPTING THE
CHEROKEE COUNTY NATURAL HAZARDS MITIGATION PLAN
2015 – 2020**

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires jurisdictions (states, counties and towns) to have a Hazard Mitigation Plan; and

WHEREAS, The Hazard Mitigation Plan is required to be updated every five (5) years to maintain eligibility for pre and post disaster Hazard Mitigation Grant funds administered by FEMA; and

WHEREAS, The Cherokee County Board of Education recognizes the vulnerability of its resources, property and operation to the impacts of disasters and emergencies; and

WHEREAS, The Cherokee County Emergency Management Agency coordinated with Lee Helms and Associates to update the Multi-Jurisdictional Hazard Mitigation Plan for Cherokee County and the municipalities within the county, and

WHEREAS, By adopting a Hazard Mitigation Plan, the Cherokee County Board of Education will help ensure the long-term viability of the organization and lessen the effects to property and equipment from recurring damage due to natural hazards, and

WHEREAS, FEMA has reviewed and determined the updated Plan meets all planning requirements.

NOW THEREFORE BE IT RESOLVED BY THE Cherokee County Board of Education that the 2015-2020 Cherokee County Multi-Jurisdictional Hazard Mitigation Plan be adopted to serve as the Local Hazard Mitigation Plan for Cherokee County, Alabama.

ADOPTED AND APPROVED this the 5th day of January, 2016.

Attest:

Clerk



Superintendent of Education