Cleburne County Hazard Mitigation Plan

2015 Plan Update

LEE HELMS ASSOCIATES

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

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Cleburne County Hazard Mitigation Plan

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Introduction

Cleburne County Hazard Mitigation Plan

The Cleburne County Hazard Mitigation Plan is a multi-jurisdictional, multi-hazard mitigation plan. 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, Edwardsville, Fruithurst, Heflin, Ranburne, Heflin Water and Sewer Board and Cleburne County Water Board.

On October 30, 2000, the United States Congress passed the Disaster Mitigation Act of 2000, also known as DMA2K. Among its other features, DMA2K established a requirement that in order to remain eligible for federal disaster assistance and grant funds, localities must develop and adopt hazard mitigation plans as a condition of receiving mitigation project grants under the Pre-Disaster Mitigation (PDM) Program and the Post-Disaster Hazard Mitigation Program (HMGP). On February 26, 2002 (updated October 1, 2002 and October 28, 2003), the Federal Emergency Management Agency (FEMA) published an Interim Final Rule (IFR) updated to the Final Rule (FR) on October 1, 2013 that provides the guidance and regulations under which such plans must be developed. The Final Rule (FR) provides detailed descriptions of both the planning process that localities are required to observe, as well as the contents of the plan that emerges.

Cleburne County will continue to comply with all applicable federal and state statutes and regulations related to hazard mitigation planning. In addition, Cleburne County will amend its plan whenever necessary to reflect changes in countywide hazard mitigation.

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 grant's Period of Performance is November 18, 2013 through November 18, 2014; however, an extension was granted to this POP making resulting in the expiration of the grant being May 29, 2015. Cleburne County entered into an agreement with Lee Helms Associates L.L.C. (LHA) to update the 2010 plan that was revised by the East Alabama Regional Planning and Development Commission (EARPDC) and expires on November 23, 2015.

Scope

The Cleburne County Hazard Mitigation Plan includes all incorporated and unincorporated areas in Cleburne County. The plan addresses all natural hazards identified by the Federal Emergency Management Agency. All hazards that may affect Cleburne 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 Cleburne County Hazard Mitigation Plan is an effort to identify mitigation strategies that address the hazards to which Cleburne County is the most vulnerable. This plan is only one of many means Cleburne 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 June of 2014 after the Cleburne County Emergency Management Agency (CCEMA) was awarded a planning grant from the Alabama Emergency Management Agency (AEMA). The CCEMA received 75 percent funding from the Federal Emergency Management Agency (FEMA). The remaining 25 percent was provided locally through in-kind services. The 2015 plan update reflects the same basic structure as the 2010 plan.

The Cleburne County mitigation plan is the representation of the county's commitment to reduce risks from natural hazards. In doing this, the number, location, extent and probability of natural disasters occurring within the area were 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), neighboring counties, and the general public were invited and encouraged to participate. Jurisdictions, planning committee members, the public, and neighboring communities actively participated by attending meetings and/or providing input by phone, fax, email, postal mail and one-on-one contacts made by the EMA Director/Hazard Mitigation Planning Commission Chairman. Three meetings will be held prior to plan approval by FEMA, all of which provide the public an opportunity to participate in the planning process and provide public feedback to be incorporated into the plan's revision. Citizen input forms are also available at these meetings and at the EMA Office for those who cannot attend the meetings, but wish to participate and provide input into the plan.

Continued Public Participation

The plan will be available for the public to view at the Cleburne County Emergency Operations Center, all City and Town Halls and the Cleburne County Courthouse.

After the initial plan was completed in 2005, it was made available for ongoing public view and comment at the Cleburne County Emergency Operations Center, all City and Town

Halls, and the Cleburne County Courthouse. 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 annual meetings held by the Cleburne County EMA. No meeting notes or sign-in sheets were created and saved for these past meetings; however, they will be a future 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 and/or Facebook pages to place the 2015 plan on their site and offer the public a place to comment on the plan.

Hazard Mitigation Planning Committee

Before beginning the plan update process, LHA staff coordinated with Mr. Steve Swafford, Cleburne County EMA Director, to review the hazard mitigation planning committee. All but four existing members were confirmed to continue service. Replacements were made and new members were added to represent local governments participating in the plan for the first time. Mr. Swafford, the Cleburne County EMA Director assumed the responsibility as Chairman of the Hazard Mitigation Planning Committee. The Hazard Mitigation Planning Committee (HMPC) consisted of the following members:

Cleburne County

Steve Swafford, County Administrator and EMA Director
Ryan Robertson, Cleburne County Commission, Ex-Officio Chairman
Crystal Cavender, Cleburne County EMA/911, Human Resource Officer
Kurt Turner, Cleburne County 911, Senior Communications Officer
Ted Beam, Department of Human Resources, Financial Worker
Sharon B. Clegg, Department of Human Resources, Finance Officer
Kelly Prescott, Department of Human Resources, Administrative Support Assistant
Shannon W. Robbins, Cleburne County Highway Department, County Engineer

Lee Helms, Lee Helms Associates, L. L. C./Contractor, Owner

Town of Edwardsville

Billy Driggers, Mayor (participated by emails, telephone calls and one-on-one visits)

City of Fruithurst

James Owens, Mayor (participated by emails, telephone calls and one-on-one visits)

City of Heflin

Shane Smith, City of Heflin, City Clerk

Town of Ranburne

Owen Lowrey, Mayor (participated by emails, telephone calls and one-on-one visits)

Heflin Water and Sewer Board

Donald Dewberry, Manager

Cleburne County Water Board

Mike Copeland, Manager

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. The Towns of Edwardsville, Fruithurst and Ranburne were not able to attend the committee meetings; however, they actively participated by emails, telephone calls and one-on-one visits. Committee members are also encouraged to attend neighboring communities' HMPC meetings and participate in their plan updates.

2. Each local government should submit requested information to Cleburne County EMA or LHA in a timely manner. Local governments should meet time frames and deadlines established by the committee. In the event of extenuating circumstances, the Hazard Mitigation Planning Committee Chairman may approve late submissions.
3. Committee members should fully cooperate with LHA and the Cleburne County EMA during the update and finalization of the Cleburne County Hazard Mitigation Plan by providing the best available information necessary to complete the plan.
4. Each participating jurisdiction must review mitigation strategies from the 2010 plan for which they were responsible and provide new actions they wish to pursue in the future. 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 of Cherokee (Beverly Daniels, EMA Director, 256-927-3367), Calhoun (Jonathan Gaddy, EMA Director, 256-435-0540), Talladega (Travis McGrady, EMA Director, 256-761-2125), Clay (Theresa Daugherty, EMA Director, 256-396-5886), and Randolph (Donnie Knight, EMA Director, 256-357-0014) in Alabama were invited and encouraged to participate in each of the committee meetings. In the event they were unable to attend the meetings they were provided meeting materials from the Cleburne 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 Cleburne County EMA and/or LHA to be counted as an active participant in the planning process. Neighboring communities 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 during contacts made, all expressed their willingness to help in the event of a disaster. Public meeting notices were published in the Cleburne News at least seven days prior to the meeting date and included contact information for assistance. Attendees at the meetings were asked to group themselves by jurisdiction in order 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. Zero forms were completed during the planning process and are included in this section.

TO: Cleburne County Hazard Mitigation Planning Committee
Beverly Daniel, Cherokee County EMA
Jonathan Gaddy, Calhoun County EMA
Travis McGrady, Talladega County EMA
Theresa Daugherty, Clay County EMA
Donnie Knight, Randolph County EMA

FROM: Lee Helms, Lee Helms Associates, L. L. C.
Steve Swafford, Cleburne County EMA

SUBJECT: Cleburne County Hazard Mitigation Planning Committee Meeting
Thursday, February 12, 2015 at 10 a.m.

The Cleburne County Hazard Mitigation Planning Committee (HMPC) is in the process of revising the current Cleburne County Hazard Mitigation Plan. You are invited and encouraged to attend this meeting as you have been identified and have served as your entity's point of contact for completion of hazard mitigation planning for the county. The mission of this meeting is to update the 2010 plan information, discuss in-kind contributions for the local match to this planning grant, and provide the public an opportunity to comment on the plan. You are welcome to bring any entity specific information that you would like to include in this plan update; otherwise, needed information will be discussed at this meeting.

In order to comply with federal and state regulations involving funding that might be available to Cleburne County for natural hazards mitigation, the Cleburne County EMA will hold a public meeting of the HMPC at 10 a.m. on Thursday, February 12, 2015. The meeting will be held at the Cleburne County EMA Office located at the Cleburne County Mountain Center, 6751 Highway 78, Heflin, AL 36264.

Mr. Lee Helms of Lee Helms Associates, L. L. C. (LHA) of Clanton, Alabama will be conducting this meeting, as well as all other meetings regarding the update of the Cleburne

County Hazard Mitigation Plan. LHA will ensure all federal and state requirements are met. The Cleburne County HMPC Meeting will not last longer than one hour. Your attendance and input is required for your department/agency/municipality to be eligible to receive future funding for any mitigation projects.

If you have any questions, please contact the LHA Office at 205-280-3027, email renee@leehelmsllc.com, or fax 205-280-0543.

INITIAL MEETING AGENDA

2015 CLEBURNE COUNTY HAZARD MITIGATION PLAN UPDATE

Thursday, February 12, 2015 @ 10 a.m.
Cleburne County EMA, 6751 Highway 78, Heflin, AL 36264

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 and Development Commission under the direction of the Hazard Mitigation Planning Committee and the Cleburne County Emergency Management Agency and adopted by:
     - Cleburne County – Unincorporated
     - Edwardsville - Town
     - Fruithurst - City
     - Heflin - City
     - Ranburne – Town
   - 2015 plan update will be prepared by Lee Helms Associates, L. L. C. under the direction of the Hazard Mitigation Planning Committee and the Cleburne County Emergency Management Agency

3. Project Participation
   - Identify opportunities for public input into the 2015 plan update
   - Identify potential plan meeting participates 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 November 23, 2015
   - Period of Performance for the grant is November 18, 2013 – November 18, 2014; however, an extension has been approved until May 29, 2015.
   - 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 (allow 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.

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
   - Update 2010 plan information – see handouts
   - Discuss in-kind contributions for local match to this planning grant
   - Set date and location for next meeting

Thursday, February 12, 2015 at 10 a.m.
Cleburne County EMA, 6751 Highway 78, Heflin, AL 36264

Cleburne County Hazard Mitigation Planning Meeting 1

In the absence of the Chairman of the Hazard Mitigation Planning Committee, Mr. Steve Swafford, Crystal Cavender 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 one LHA representative. No members of the general public were in attendance.

- Lee Helms, LHA, Contractor
- Donald Dewberry, Heflin Water & Sewer Board, Manager
- Crystal Cavender, Cleburne County EMA/911, Human Resource Officer
- Ted Beam, Dept. of Human Resources, Financial Worker
- Shane Smith, City of Heflin, City Clerk
- Ryan Robertson, Cleburne County Commission, Ex-Officio Chairman
- Sharon B. Clegg, Dept. of Human Resources, Finance Officer
- Shannon W. Robbins, Cleburne County Highway Dept., County Engineer
- Kurt Turner, Cleburne County 911, Senior Communications Officer
- Kelly Prescott, Dept. of Human Resources, Administrative Support Assistant

CLEBURNE COUNTY

Thursday, February 12, 2015 at 10 a.m. – Cleburne Co. EMA, 6751 Hwy. 78, Heflin, AL 36264
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Donald Dewberry	Agency: Heflin Water + Sewer Bd Job Title: Works Manager	Phone: 256-463-2011 Fax: 256-463-2014	heflinwaterbd@wmconnect.com
Crystal Cavender	Agency: Cleburne Co EMA/911 Job Title: Human Resource Officer	Phone: 256 463 3823 Fax: 256 463 7829	ccavender@cleburnecounty.us.
Ted Beam	Agency: DHR Job Title: Financial Worker	Phone: 256-463-1718 Fax: 256-463-5445	ted.Beam@dhr.alabama.gov
Shara Smith	Agency: City of Heflin Job Title: City Clerk	Phone: 256-463-2250 Fax: 256-463-2683	SSmith@cityofheflin.org
Ryan Robertson	Agency: Cleburne County Commission Job Title: Ex-officio Chairman	Phone: 256-310-2625 Fax: 256-463-1044	ryanr@cleburnecounty us
Lee Helms	Agency: Lee Helms Associates Job Title: Owner/Contractor	Phone: 205-280-3027 Fax: 205-280-0543	lee@leehelmsllc.com

LEE HELMS ASSOCIATES

CLEBURNE COUNTY

Thursday, February 12, 2015 at 10 a.m. – Cleburne Co. EMA, 6751 Hwy. 78, Heflin, AL 36264
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Sharon B. Clegg	Agency: Cle. Co. DHR Job Title: Finance Officer	Phone: 256-463-1735 Fax: 256-463-5445	Sharon.clegg@dhr.cleburne.gov
Shannon W. Robbins	Agency: Cleburne Co. Highway Dept. Job Title: County Engineer	Phone: 256-463-2271 Fax: 256-463-2085	swrobbins@cleburne county.us
Kurt Turner	Agency: Cleburne Co. 911 Job Title: SE. Communications Office	Phone: 256-463-3820 Fax: 256-463-2569	KTurner@cleburnecounty.us
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	

LEE HELMS ASSOCIATES

CLEBURNE COUNTY

Thursday, February 12, 2015 at 10 a.m. – Cleburne Co. EMA, 6751 Hwy. 78, Heflin, AL 36264

INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Kelly Prescott	Agency: Cleburne Co DHR Job Title: ASA II	Phone: 256 463 1700 Fax: 256 463 5445	Kelly.Prescott@dhr.alabama.gov
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	

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SECOND MEETING AGENDA

2015 CLEBURNE COUNTY HAZARD MITIGATION PLAN UPDATE

Monday, June 29, 2015 @ 2 p.m.

Cleburne County EMA, 6751 Highway 78, Heflin, AL 36264

1. Introductions

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

2. Project Schedule Reminder

- 2010 plan update expires November 23, 2015
- Period of Performance for the grant is November 18, 2013 – November 18, 2014 (extended to November 27, 2015)
  - 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
- Update 2010 plan information and review 2015 plan information – see handouts
- Discuss in-kind contributions for local match to this planning grant

Monday, June 29, 2015 @ 2 p.m.
Cleburne County EMA, 6751 Highway 78, Heflin, AL 36264

Cleburne County Hazard Mitigation Planning Meeting 2

The Chairman of the Hazard Mitigation Planning Committee, Mr. Steve Swafford, 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 3 committee members or designees attended the meeting, along with one LHA representative.

- Steve Swafford, County Administrator and EMA Director
- Lee Helms, LHA, Contractor
- Crystal Cavender, Cleburne County EMA/911, Human Resource Officer
- Shane Smith, City of Heflin, City Clerk

CLEBURNE COUNTY

Monday, June 29, 2015 at 2 p.m. – Cleburne Co. EMA, 6751 Hwy. 78, Heflin, AL 36264
MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Shane Smith	Agency: City of Heflin Job Title: City Clerk	Phone: 256-463-2290 Fax: 256-463-2683	ssmith@cityofheflin.org
Crystal Cavender	Agency: Cleburne EMA Job Title: HR Officer	Phone: 256 463-3823 Fax: 256-463-7829	ccavender@cleburne county.us
Steve Swafford	Agency: Cleburne County Job Title: County Admin.	Phone: 256-463-3822 Fax: 256-463-7829	swafford@cleburnecounty.us
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	

LEE HELMS ASSOCIATES

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 provided area planning and development and transportation planning information, as well as maps pertaining to plan information

Local Agencies

- Cleburne 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 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 such as emergency operations plans, comprehensive plans, community outreach events, strategic plans, capital improvement plans, zoning ordinances, building codes, elevation certificates, drainage ordinances and existing land use plans.

In order to expand on and improve these existing policies and plans, each participating jurisdiction is committed to increasing hazard mitigation planning and action capability by being involved and incorporating, where appropriate, mitigation planning and actions into local planning initiatives and into public works and emergency management functions. While no specific actions are planned for the immediate future for any participating jurisdiction, the next comprehensive plan update may detail these actions further.

Plan Adoption

All jurisdictions in Cleburne County actively participated in the planning process. Representatives from each local government attended each of the meetings and provided information vital to the update of this plan. Upon completion of the plan each of the four municipalities (Edwardsville, Fruithurst, Heflin and Ranburne) along with the Cleburne County Commission, Heflin Water and Sewer Board and Cleburne County Water Board passed a formal resolution adopting the plan. By adopting this multi-jurisdictional hazard mitigation plan the listed participants will be eligible applicants for mitigation grant funds through the Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program, and Flood Mitigation Assistance Program. Adopting Resolutions can be found in **Appendix I**.

Table 1-1: Cleburne County Existing Plans by Jurisdiction					
PLAN/ POLICY	**Edwardsville**	**Fruithurst**	**Heflin**	**Ranburne**	**Unincorporated County**
Comprehensive Plan	N	N	Y	N	N
Strategic Plan	N	N	Y	N	Y
Growth Management Plan	N	N	N	N	N
Capital Improvement Plan	N	N	Y	N	N
Zoning Ordinance	N	N	Y	N	N
Building Code	N	N	Y	N	N
Floodplain Management Plan	N	N	N	N	N
Elevation Certificates	N	N	Y	N	N
Drainage Ordinance	N	N	Y	N	N
Emergency Operations Plan	Y	Y	Y	Y	Y
Critical Facilities Map	N	N	N	N	N
Existing Land Use Map	N	N	Y	N	N
State Plan	N	N	N	N	Y
Hazard Mitigation	Y	Y	Y	Y	Y
Strategic National Stockpile Plan	Y	Y	Y	Y	Y
Other	N	N	N	N	N
Source: Participating Jurisdictions, 2015					

Section Two: General Characteristics

Cleburne County is located in East Alabama along the state's eastern border. In Alabama, Cherokee, Calhoun, Talladega, Clay and Randolph counties border Cleburne County. Polk, Haralson, and Carroll Counties in West Georgia also border the county. According to the 2010 Census, Cleburne County has 560 square miles of land area and approximately 0.8 square miles of water area. The county contains four municipalities: Edwardsville, Fruithurst, Heflin and Ranburne. See **Map 2-1**: Cleburne County General Location and Population Density Map. Cleburne County is governed by County Commissioners who are elected by citizens in their commission districts. An elected mayor and council serve each municipality. The City of Heflin serves as the Cleburne County seat while the City of Fruithurst is the predominant center for local business and trade.

Cleburne County has no airport. The major highways in Cleburne County are Interstate 20, U. S. Highway 78, U. S. Highway 431, State Route 9, and State Route 46. The county is served by two rail lines, Norfolk Southern Railway and Amtrak. Utilities in Cleburne County include electricity, gas, water, sewer, and solid waste. Electrical service is provided by Alabama Power and gas is supplied by Alabama Gas Corporation, Robinson Gas Inc., State Line Gas, D&S Propane Gas, Alga Propane Gas and Southern Natural Gas. Centurylink provides telecommunication services. Water and sewer service is provided by municipal or rural systems. Most unincorporated areas are serviced only by septic tanks. Cleburne County operates a solid waste collection program and inert landfill.

Adjacent to Cleburne County, Alabama is Cherokee County to the north; Calhoun County, AL to the west; Talladega and Clay Counties in Alabama to the southwest; Randolph County, AL to the south; Polk County, GA to the northeast, Haralson County, GA to the east, and Carroll County, GA to the southeast.

Growth Trends

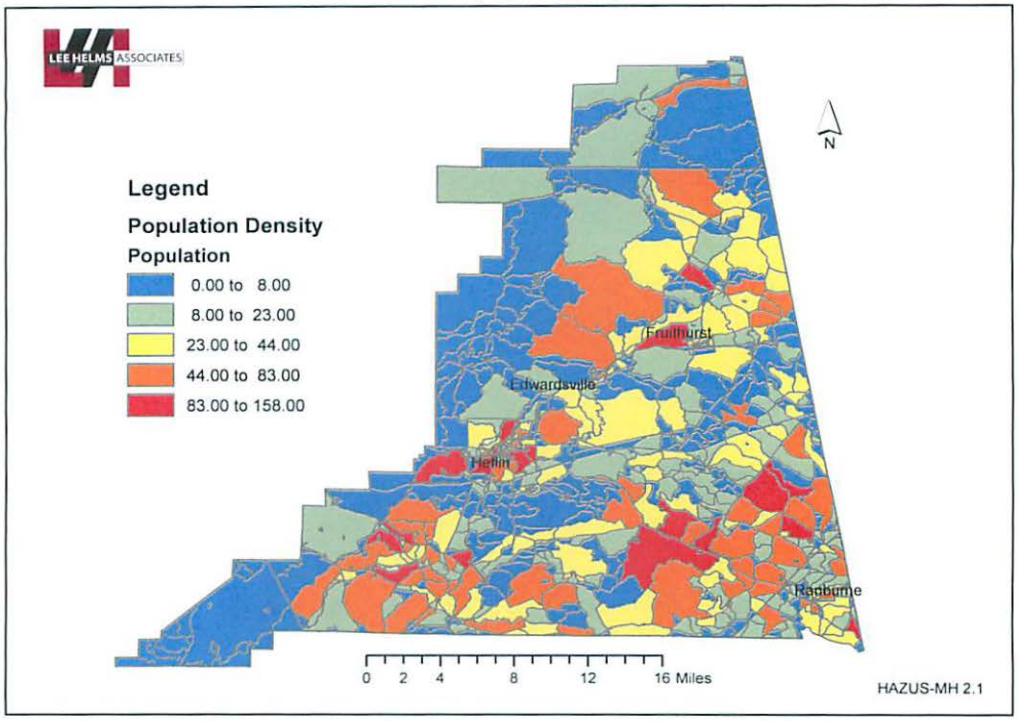
Cleburne County's population increased during the years 1990-2019. All municipalities experienced growth in population, with the exception of the Town of Edwardsville. **Map 2-1**: Cleburne County General Location and Population Density Map depict the newest 2010 Census Tracts and population concentrations in Cleburne 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 1990-2019

						Change 1990-2019	
	4/1/1990	**4/1/2000**	**4/1/2010**	**1/1/2014**	**1/1/2019**	**Number**	**Percent**
Edwardsville	276	189	202	200	201	-75	-73%
Fruithurst	214	254	284	288	290	76	36%
Heflin	2,848	3,222	3,480	3,465	3,488	640	23%
Ranburne	332	370	409	409	413	81	24%
Cleburne County	12,733	14,124	14,972	15,014	15,126	2,393	19%
Alabama	4,041,281	4,447,032	4,779,736	4,852,988	4,960,057	918,776	23%

Source: 2010 U.S. Bureau of Census; Calculations by LHA, 2015

Map 2-1: Cleburne County, AL
Population Density Map



Map Update 2015

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

Geologic maps and their subsequent derivative products have immense economic and societal value, and when these maps are current, digital, and Internet accessible, they are particularly useful. Having knowledge of local geological units helps a community to locate and develop mineral and water resources; assess and protect groundwater quality; safely site solid and hazardous waste disposal facilities; construct, restore, maintain, and protect sensitive ecosystems; and identify and prepare for such natural hazards as earthquakes, volcanic eruptions, landslides, and land subsidence. Geologic maps can also show how the physical environment has been impacted by human activity. Geologic maps enhance our ability to identify health hazards; to site and build the community's infrastructure of roads and highways, railroads, pipelines, utilities, dams and locks, buildings, and foundations; and to make more informed land-use and planning decisions. . Geologic maps are fundamental elements for informing the policy decisions of federal, state, and local agencies. Geologic units in Cleburne County, Alabama include the following:

Phyllite undifferentiated (Precambrian - Paleozoic) – at surface, covers 0.1% of the area - Phyllite undifferentiated. Lithology: slate.

Chickamauga Group; Middle Ordovician rocks; Rockmart Slate (Middle Ordovician) - at surface, covers 0.1 % of the area. Lithology: beach sand; alluvium.

Newala Limestone (Ordovician) - at surface, covers 0.1 % of the area. Lithology: limestone.

Knox Group undifferentiated (Ordovician-Cambrian) - at surface, covers 0.1 % of the area. Lithology: dolostone (dolomite); limestone.

Frog Mountain (Devonian) - at surface, covers 0.1 % of the area. Lithology: sandstone.

Talladega Group; Cheaha Quartzite Member of Lay Dam Formation (Silurian-Devonian) *at surface, covers 0.1 % of this area* – is white to light-gray medium to coarse-grained arkosic quartzite and metaconglomerate. Lithology: quartzite; meta-conglomerate.

Poe Bridge Mountain Group; Garnet quartzite (garnetite) and garnitiferous altered mafic rock (Precambrian to Paleozoic) - at surface, covers 0.1 % of the area – Rocks in the area of Turkey Heaven Mountain in Cleburne and Randolph Counties that are here assigned to the Poe

Bridge Mountain Group also have been interpreted as part of the Wedowee Group. Lithology: quartzite; mafic metavolcanic rock.

Poe Bridge Mountain Group; Roscoelite-graphite quartz schist and graphitic quartzite (Precambrian to Paleozoic) *at surface, covers < 0.1 % of this area* - Poe Bridge Mountain Group; Roscoelite-graphite quartz schist and graphitic quartzite. Rocks in the area of Turkey Heaven Mountain in Cleburne and Randolph Counties that are here assigned to the Poe Bridge Mountain Group also have been interpreted as part of the Wedowee Group. Lithology: schist; quartzite

Poe Bridge Mountain Group (Precambrian to Paleozoic) *at surface, covers < 0.1 % of this area* - Poe Bridge Mountain Group - coarse to fine-grained feldspathic graphite schist, +/- staurolite +/- kyanite +/- sillimanite-muscovite-biotite schist, and garnet-biotite-muscovite schist, and gneiss; locally common pegmatites. Rocks in the area of Turkey Heaven Mountain in Cleburne and Randolph Counties that are here assigned to the Poe Bridge Mountain Group also have been interpreted as part of the Wedowee Group. Lithology: mica schist; gneiss; pegmatite

Knox Group undifferentiated (Ordovician-Cambrian) *at surface, covers < 0.1 % of this area* - Knox Group undifferentiated - Light-gray to light-brown locally sandy dolomite, dolomitic limestone, and limestone; characterized by abundant light-colored chert. Lithology: dolostone (dolomite); limestone; chert

Mad Indian Group (Precambrian to Paleozoic) *at surface, covers < 0.1 % of this area* - Mad Indian Group - fine-grained feldspathic biotite gneiss; medium to coarse-grained muscovite-biotite-garnet schist; locally kyanite and sillimanite. Many of the schists have been retrograded to chlorite-garnet-quartz-sericite schist. Both mi and migr extensively cut by feldspathic dikes and pegmatites. Lithology: felsic gneiss; schist; pegmatite

Ketchepedrakee Amphibolite (Precambrian to Paleozoic) *at surface, covers < 0.1 % of this area* - Ketchepedrakee Amphibolite - dark-green to black fine to coarse-grained, layered to massive amphibolite mixed with zones of chlorite actinolite schist, includes all amphibolite associated with the Poe Bridge Mountain Group. Lithology: amphibolite; schist

Hillabee Greenstone (Paleozoic) *at surface, covers < 0.1 % of this area* - Hillabee Greenstone - pale-green to light-olive-brown massive, fine-grained greenstone interbedded locally with well-foliated mafic phyllite. Lithology: greenstone; phyllite

Talladega Group; No name on map (Silurian?-Devonian) *at surface, covers < 0.1 % of this area* - No name on map - fossiliferous chert facies in vicinity of Jemison, Chilton County, contains marine invertabrate fossils of early to Middle Devonian age. Lithology: chert

Weisner and Wilson Ridge Formations undifferentiated (Cambrian) *at surface, covers < 0.1 % of this area* - Weisner and Wilson Ridge Formations undifferentiated -- interbedded quartzose to slightly feldspathic sandstone and laterally continous conglomerate in ledge-forming units separated by greenish-gray silty mudstone. Lithology: sandstone; conglomerate; mudstone

Shady Dolomite (Cambrian) *at surface, covers < 0.1 % of this area* - Shady Dolomite - bluish-gray or pale-yellowish-gray thick-bedded siliceous dolomite; characterized by coarsely crystalline porous chert. Lithology: dolostone (dolomite); chert

Nichols Formation (Cambrian) *at surface, covers < 0.1 % of this area* - Nichols Formation - massive to laminated greenish-gray and black micaceous mudstone containing minor interbeds of siltstone and very fine-grained sandstone. Lithology: mudstone; siltstone; sandstone

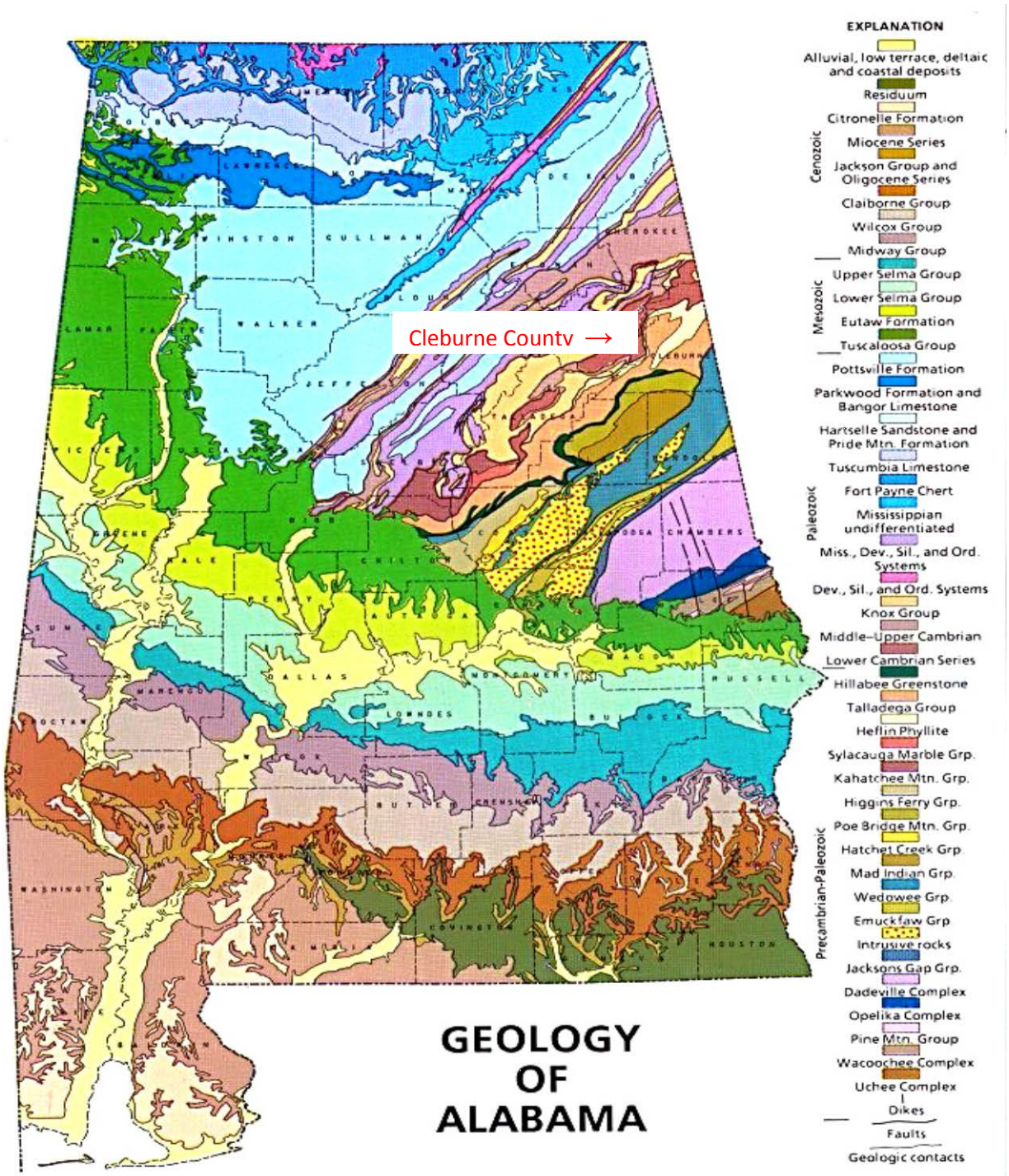
Cochran Formation (Cambrian) *at surface, covers < 0.1 % of this area* - Cochran Formation - poorly sorted arkosic sandstone and conglomerate containing interbedded greenish-gray siltstone and mudstone. The Cochran Formation is exposed only in northeastern Calhoun and northwestern Cleburne Counties. Lithology: arkose; conglomerate; siltstone; mudstone

Chilhowee Group undifferentiated (Cambrian) *at surface, covers < 0.1 % of this area* - Chilhowee Group undifferentiated - light to medium-gray arkose, arkosic conglomerate, and discontinous mudstone overlain by greenish-gray mudstone with minor siltstone and sandstone; dominantly light-gray pebbly quartzose sandstone in upper part. Lithology: conglomerate; mudstone; siltstone; sandstone

Beaverdam Amphibolite (Precambrian to Paleozoic) *at surface, covers < 0.1 % of this area* - Beaverdam Amphibolite - dark-green to dark-gray hornblende amphibolite, extensively sheared and folded, and locally retrograded to actinolite-tremolite-chlorite schist. Includes all amphibolite associated with the Wedowee Group. Lithology: amphibolite; schist

Figure 2-1: Geology of Alabama

(Source: University of AL – Geology Department)



2014

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Section Three: Risk Assessment

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

The county's Hazard Probability Assessment Summary is shown in **Table 3-1**. A zero or unknown 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.

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 as high, medium, or low threat designating the hazard with the most threat of occurrence as high.

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 severity 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 2015 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 divided 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: Cleburne County Hazard Probability of Future Occurrence			
Natural Hazards	**Number of Occurrences Between 2003-2013**	**Probability of Future Occurrence**	**Area Affected**
Thunderstorm	38	>100%	Countywide
Lightning	2	20%	Countywide
Hail	23	>100%	Countywide
Tornado	4	40%	Countywide
Flood/Flash Flood	6	60%	Countywide
Droughts/Extreme Heat	36	>100%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	12	>100%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	Countywide
Sinkhole/Expansive Soil	2	20%	Unincorporated County
Landslide	Unknown	Unknown	N/A
Earthquake	3	30%	Countywide
Dam/Levee Failure	Unknown	Unknown	N/A
Wildfires: 2010 - 2013	155	>100%	Countywide
Source: Participating Jurisdictions, 2015			
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 or unknown denotes no data available to determine the probability of future occurrence or areas affected.			

Table 3-2: Cleburne County Hazard Identification by Jurisdiction					
Natural Hazards	**Edwardsville**	**Fruithurst**	**Heflin**	**Ranburne**	**Cleburne County**
Thunderstorm	X	X	X	X	X
Lightning	X	X	X	X	X
Hail	X	X	X	X	X
Tornado	X	X	X	X	X
Flood/Flash Flood	X	X	X	X	X
Drought/Extreme Heat	X	X	X	X	X
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	X	X	X	X	X
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	X	X	X	X
Sinkhole/Expansive Soil	X	X	X	X	X
Landslide	X	X	X	X	X
Earthquake	X	X	X	X	X
Wildfire	X	X	X	X	X
Dam/Levee Failure	X	X	X	X	X
Source: Participating Jurisdictions 2015					

Table 3-3: Cleburne County Prioritized Occurrence Threat by Jurisdiction Based on Past Events					
Natural Hazards	**Edwardsville**	**Fruithurst**	**Heflin**	**Ranburne**	**Cleburne County**
Thunderstorm	6	6	4	6	2
Lightning	8	9	8	6	10
Hail	5	5	6	6	4
Tornado	6	9	8	7	8
Flood/Flash Flood	7	8	7	6	7
Drought/Extreme Heat	2	2	2	2	3
Winter Weather/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3	3	3	3	5
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	4	4	5	4	6
Sinkhole/Expansive Soil	7	8	7	6	11
Landslide	8	8	9	7	12
Earthquake	5	7	7	5	9
Wildfire – 2010-2013	1	1	1	1	1
Dam/Levee Failure	8	9	9	7	12
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: Cleburne County Mitigation Actions Prioritization					
Natural Hazards	**Edwardsville**	**Fruithurst**	**Heflin**	**Ranburne**	**Cleburne County**
Thunderstorm	1	1	1	1	1
Lightning	2	2	2	3	2
Hail	2	2	2	3	2
Tornado	1	1	1	1	1
Flood/Flash Flood	2	2	1	2	1
Drought/Extreme Heat	2	2	2	3	2
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	2	2	2	3	2
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	1	1	1	1	1
Sinkhole/Expansive Soil	2	2	2	3	2
Landslide	2	2	2	3	2
Earthquake	2	2	2	3	2
Wildfire	2	2	2	3	2
Dam/Levee Failure	2	2	2	3	2
Source: Participating Jurisdictions, 2014					
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: CLEBURNE COUNTY HAZARD EVENTS

38 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	CLEBURNE CO.	AL	05/02/2003	17:22	CST	Thunderstorm Wind	55 kts. EG	0	0	12.00K	0.00K
HOLLIS XRDS	CLEBURNE CO.	AL	05/07/2003	14:15	CST	Thunderstorm Wind	55 kts. EG	0	0	60.00K	0.00K
BORDEN SPGS	CLEBURNE CO.	AL	07/21/2003	16:45	CST	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	07/21/2003	16:50	CST	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	05/09/2004	14:30	CST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	06/22/2004	18:25	CST	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
HOLLIS XRDS	CLEBURNE CO.	AL	07/14/2004	16:30	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/24/2004	07:49	CST	Thunderstorm Wind	50 kts. EG	0	0	17.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	03/13/2005	20:52	CST	Thunderstorm Wind	52 kts. EG	0	0	14.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	04/30/2005	04:31	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/02/2005	17:35	CST	Thunderstorm Wind	55 kts. EG	0	0	19.00K	0.00K
HOLLIS XRDS	CLEBURNE CO.	AL	07/01/2005	15:15	CST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	07/04/2005	17:09	CST	Thunderstorm Wind	52 kts. EG	0	0	37.00K	0.00K
RANBURNE	CLEBURNE CO.	AL	06/20/2006	16:05	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
BORDEN SPGS	CLEBURNE CO.	AL	06/22/2006	16:00	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
BELLTOWN	CLEBURNE CO.	AL	07/01/2007	16:05	CST-6	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	07/20/2007	11:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	02/26/2008	04:35	CST-6	Thunderstorm Wind	70 kts. EG	0	0	200.00K	0.00K
BEASONS MILL	CLEBURNE CO.	AL	06/11/2008	16:50	CST-6	Thunderstorm Wind	45 kts. EG	0	0	0.10K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	06/11/2008	16:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	06/29/2008	16:18	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K

CHULAFINNEE	CLEBURNE CO.	AL	07/22/2008	15:52	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
BELLTOWN	CLEBURNE CO.	AL	02/18/2009	15:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/30/2010	10:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/30/2010	10:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ABEL	CLEBURNE CO.	AL	02/25/2011	01:22	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	02/25/2011	01:22	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	04/04/2011	20:08	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
UNION HILL	CLEBURNE CO.	AL	04/11/2011	20:24	CST-6	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
MT PLEASANT	CLEBURNE CO.	AL	04/20/2011	23:33	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/24/2011	17:07	CST-6	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
BELLTOWN	CLEBURNE CO.	AL	06/24/2011	17:25	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
COLD WATER	CLEBURNE CO.	AL	03/02/2012	18:55	CST-6	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
COLD WATER	CLEBURNE CO.	AL	03/02/2012	23:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	03/18/2013	15:27	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
MUSCADINE	CLEBURNE CO.	AL	03/18/2013	15:28	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HIGH TOWER	CLEBURNE CO.	AL	04/11/2013	16:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HOPEWELL	CLEBURNE CO.	AL	04/11/2013	16:15	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	550.10K	0.00K

2 Lightning 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
RANBURNE	CLEBURNE CO.	AL	05/07/2003	14:22	CST	Lightning		0	0	70.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	05/08/2003	15:00	CST	Lightning		0	0	48.00K	0.00K
Totals:								0	0	118.00K	0.00K

23 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
FRUITHURST	CLEBURNE CO.	AL	03/19/2003	16:23	CST	Hail	0.75 in.	0	0	0.00K	0.00K
BORDEN SPGS	CLEBURNE CO.	AL	05/02/2003	15:25	CST	Hail	0.75 in.	0	0	0.00K	0.00K
OAK LEVEL	CLEBURNE CO.	AL	05/02/2003	15:56	CST	Hail	0.75 in.	0	0	0.00K	0.00K
ABEL	CLEBURNE CO.	AL	05/07/2003	14:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
CHULAFINNEE	CLEBURNE CO.	AL	05/07/2003	14:05	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MICAVILLE	CLEBURNE CO.	AL	05/07/2003	14:24	CST	Hail	1.00 in.	0	0	0.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	05/07/2003	14:24	CST	Hail	1.00 in.	0	0	0.00K	0.00K
RANBURNE	CLEBURNE CO.	AL	05/07/2003	14:30	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	02/21/2005	20:48	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	04/22/2005	20:14	CST	Hail	0.88 in.	0	0	1.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	05/10/2005	18:58	CST	Hail	0.75 in.	0	0	0.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	12/28/2005	13:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	04/08/2006	01:24	CST	Hail	0.75 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/22/2006	15:20	CST	Hail	0.75 in.	0	0	0.00K	0.00K
HOLLIS XRDS	CLEBURNE CO.	AL	02/17/2008	14:11	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	04/04/2008	15:08	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
BELLTOWN	CLEBURNE CO.	AL	05/20/2008	18:04	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	06/09/2008	15:38	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/09/2008	16:45	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
BELLTOWN	CLEBURNE CO.	AL	02/18/2009	15:55	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
TRIKEM	CLEBURNE CO.	AL	02/18/2009	16:13	CST-6	Hail	4.25 in.	0	0	0.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	02/18/2009	17:10	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
MICAVILLE	CLEBURNE CO.	AL	03/26/2011	22:05	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K

Totals:								0	0	1.00K	0.00K

4 Tornado 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
EDWARDSVILLE	CLEBURNE CO.	AL	03/06/2003	02:51	CST	Tornado	F1	0	0	0.00K	12.00K
HEFLIN	CLEBURNE CO.	AL	05/11/2008	01:36	CST-6	Tornado	EF1	0	0	1.750M	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	05/11/2008	01:47	CST-6	Tornado	EF1	0	0	50.00K	0.00K
CHULAFINNEE	CLEBURNE CO.	AL	08/25/2008	11:06	CST-6	Tornado	EF2	0	0	100.00K	0.00K
Totals:								0	0	1.900M	12.00K

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
COUNTYWIDE	CLEBURNE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	250.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	05/08/2003	15:30	CST	Flash Flood		0	1	8.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	09/16/2004	10:45	CST	Flash Flood		0	0	50.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	11/24/2004	08:25	CST	Flash Flood		0	0	6.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	07/10/2005	19:00	CST	Flash Flood		0	0	7.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	01/30/2013	11:38	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	1	321.00K	0.00K

36 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/30/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/26/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

12 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/25/2004	19:30	CST	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/25/2010	08:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/09/2011	19:00	CST-6	Heavy Snow		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/17/2013	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	40.00K	0.00K

8 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)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	24.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	25.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	5.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	50 kts. EG	0	0	500.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	569.00K	0.00K

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

(Source: U.S. Geological Survey)

2 sinkhole 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/unknown landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: www.city-data.com)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
58.9 miles away from county center	CLEBURNE	AL	04/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
89.5 miles away from county center	CLEBURNE	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
88.4 miles away from county center	CLEBURNE	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

155 Wildfire Events – 2010 thru 2013
(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Cleburne	155	52	5,278	1,759	34

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

No/unknown 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. Cleburne 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 Cleburne County would include:

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

Hazardous results from significant thunderstorms in Cleburne 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.

Table 3-5 shows the historical occurrences of thunderstorms during the study period. Each jurisdiction is at risk for thunderstorm events. Of the 38 thunderstorms reported, 3 affected the entire county, 18 occurred in an unincorporated county area, and the remaining 17 affected only specific municipalities.

On February 26, 2008, an advancing cold front moving through Alabama caused widespread wind damage across Heflin and a few tornadoes across Central Alabama, especially in the eastern half of the state. Numerous trees and power lines were blown down across the northern portion of the county. At least 10 buildings had roof damage due to downed trees, and at

least 3 buildings had roofs completely blown off. Several mobile homes in a mobile home park suffered varying degrees of damage to underpinning, roofs, and structure. No injuries, deaths or crop damages occurred. Property damages of $200,000 occurred.

On July 20, 2007, thunderstorms resulted in several trees and power lines being blown down across East Central Cleburne County. A few homes suffered significant damage due to fallen trees. No injuries, deaths, or crop damages occurred. Property damages of $100,000 resulted from this event.

Cleburne County experienced 38 thunderstorm events in a 10 year period resulting in a greater than 100% (3.80) probability that a thunderstorm event will occur on an annual basis. The total amount of damages for the 38 thunderstorm events was $550,100 with 31 thunderstorm events causing damage resulting in an estimated $17,745 average property loss per event. The referenced thunderstorm event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period. The extent/range of magnitude or severity that could be experienced by Cleburne County due to a thunderstorm event; the ranking is minor to major. The highest winds produced by a thunderstorm was 80 miles per hour.

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, and disruptions to communication systems. The NOAA NCDC reported no lightning events during the ten-year study period of 2003-2013. Since no lightning events were reported, no property damages, crop damages, injuries, or deaths were reported as results of 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 Cleburne 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 2003-2013, 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 7, 2003, lightning struck a home on Webb Drive in Ranburne that resulted in a fire that damaged 50% of the home. Another lightning strike caused minor damage to a home on SR 46. Property damages of $70,000 occurred.

On May 8, 2003, lightning was believed responsible for fires at three houses in and east of Helfin. Property damages of $48,000 occurred. Cleburne County experienced 2 lightning events in a 10 year period resulting in a 20% (0.20) probability that a lightning event will occur on an annual basis. The total amount of damages for the 2 lightning events was $118,000 with 2 lightning events causing damage resulting in an estimated $59,000 of expected annual damages from future events. The extent/range of magnitude or severity that could be experienced by Cleburne County due to a lightning event is based on the Vaisala's National Lightning Detection Network (NLDN) at NOAA.gov and is 6-8 average flash density fl/sq mi/yr cloud-to-ground lightning incidences

Primary effects from lightning in Cleburne County would include:

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

Hazardous results from significant lightning in Cleburne 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.

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
Source: NWS, January 10, 2003	

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 23 hail events during the ten-year study period of 2003-2013. An estimated $1,000 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, zero affected the entire county, 10 occurred in an unincorporated county area, and the remaining 13 affected only specific municipalities.

On April 22, 2005, Heflin experienced hail magnitude of 0.88 inches (nickel size). Property damages of $1,000 resulted.

On February 18, 2009, a hail event from a powerful low pressure system and associated cold front pushed through the Trikem area, and helped trigger numerous thunderstorms. Some

became supercells that produced long swaths of large hail, areas of damaging winds, and at least one tornado. Cleburne County experienced hail magnitude of 4.25 inches (softball size) on Interstate 20 between mile markers 196 and 199, resulting in no property damage across the area. No injuries, deaths, property or crop damages occurred.

Cleburne County experienced 23 hail events in a 10 year period resulting in a greater than 100% (2.30) probability that a hail event will occur on an annual basis. The total amount of damages for the 23 hail events was $1,000 with 1 hail event causing damage resulting in an unknown amount of expected annual damages from future events. The referenced hail 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 Cleburne County due to a hail event; the ranking is minor to major. The largest size hail Cleburne County experienced was 4.25 inches (softball size).

Primary Effects from Hail in Cleburne County would include:

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

Hazardous results from significant Hail in Cleburne 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.

IV. Tornados

Tornados 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 tornados across the United States.

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

A total of four tornados occurred in Cleburne County according to NOAA NCDC during 2003 - 2013. An estimated $1.9 million in property damage, $12,000 in crop damage, and no injuries or deaths occurred as a result of the reported tornados.

A tornado event resulting in $12,000 crop damages occurred in the Edwardsville Community on March 6, 2003 with a F1 tornado, 5.9 miles in length and 250 yards wide.

The most significant event during the study period occurred in the area of Heflin on May 11, 2008 with an EF1 tornado, 3.78 miles in length and 1,000 yards wide. The tornado touched down along the Talladega Scenic Drive, just south of US Highway 78. It then moved along a slightly curved path until it crossed CR-79. Next, it tracked almost due east as it produced its most concentrated damage near SR-9. The tornado lifted near the end of Brockford Road in the vicinity of Shadow Lane, on the east side of the City of Heflin. Hundreds of trees were either snapped off or uprooted along the path. Eight homes were destroyed and more than 40 others received significant damage. Property damages of $1.75 million occurred.

A tornado event occurred in the area of Chulafinnee on August 25, 2008 with an EF2 tornado, .36 miles in length and 400 yards wide. This tornado event was a result of Tropical Storm Fay and its remnants after landfall. The tornado touched down on US-431, about a half mile south of the intersection with AL-281. It then moved northwestward, along and just east of US-431, and lifted just before reaching AL-281. One gas station/convenience store and one auto body shop were significantly damaged. Approximately 100 to 200 trees were snapped off or were

uprooted along the damage path. Property damages of $100,000 occurred.

The location of Cleburne County in Wind Zone IV, past occurrences of tornados, and the potential for future occurrences to cause damage, death, and injuries leaves Cleburne County vulnerable to and at risk for tornados.

Cleburne County experienced four tornado events in a 10 year period resulting in a greater than 40% (.40) probability that a tornado event will occur on an annual basis. The total amount of damages for the four tornado events was $1.9 million with 4 tornado events causing damage resulting in an estimated $475,000 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 Cleburne County due to a tornado event; the ranking is major. According to the Fujita Tornado Scale, Cleburne County's extent is EF2, considerable damage.

Primary effects from Tornados in Cleburne 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 Cleburne 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

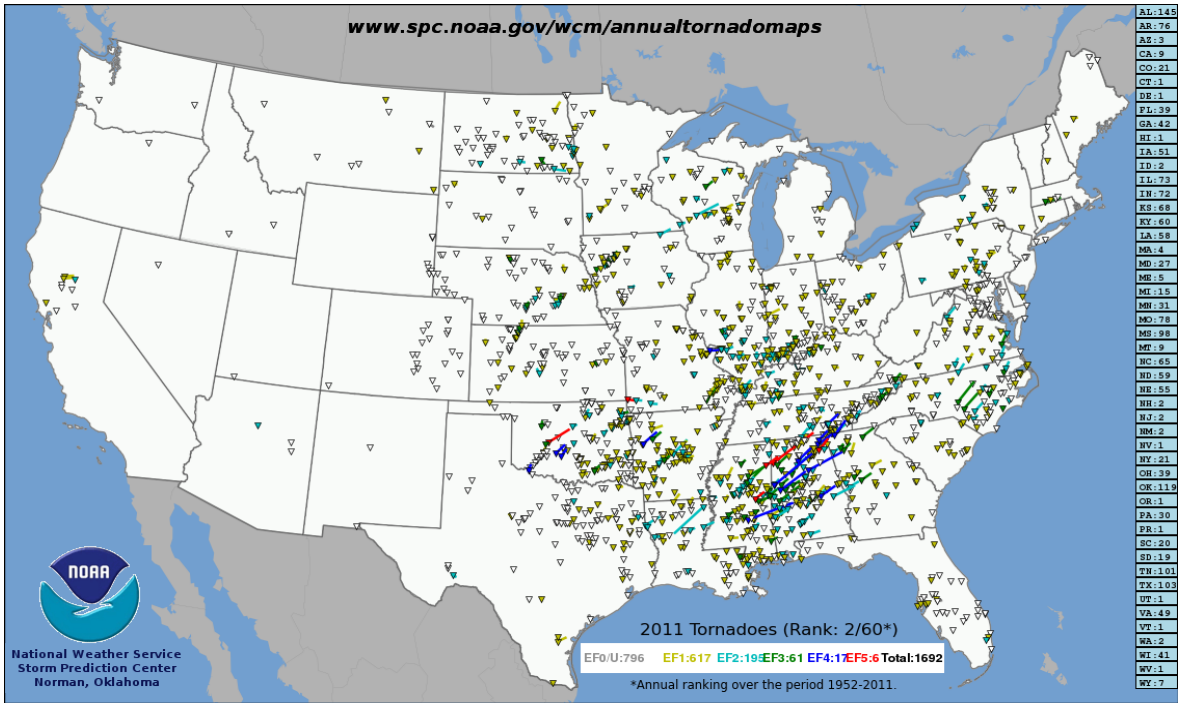


Figure 3-2: Wind Zones in the United States

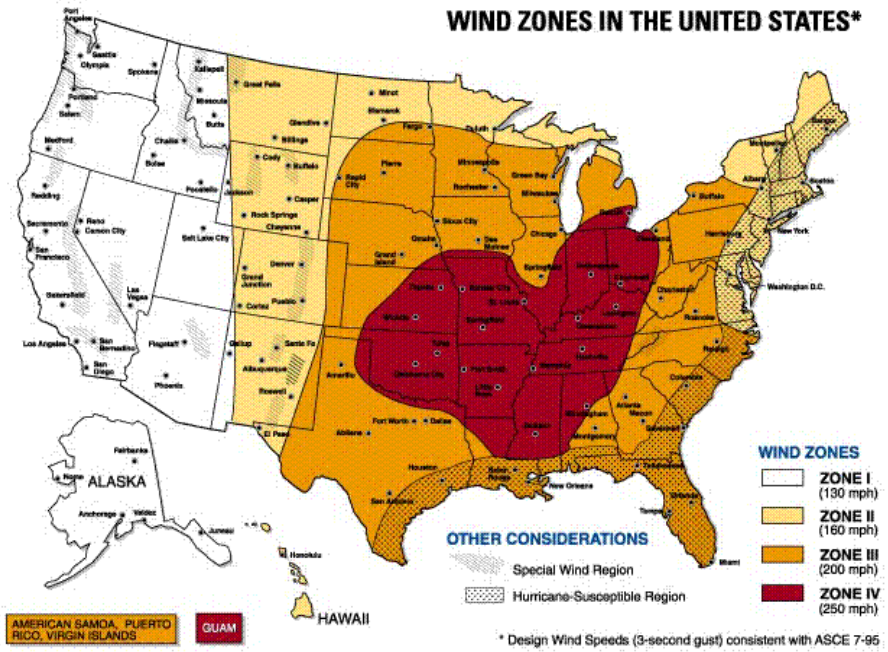


Figure I.2 Wind zones in the United States

Source: www.fema.gov, 2014

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, this 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.

V. Floods/Flash Floods

There are three types of flooding that affect Cleburne 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 flash flooding events in Cleburne County recorded by NOAA NCDC. Between 2003 and 2013 there were 6 occurrences of flash flooding and no floods in the county. Damages from these flash flood events totaled $321,000 in property damage, no crop damage, no deaths, and one injury.

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*, Cleburne County has 35 High Density Polyethylene (HPDE - Earth) Dams, one Rock Filled Dam (HPDR), and four miscellaneous dams (HPDZ) including six high hazard dams. No historical records are available of dam/levee failures in Cleburne 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%
(Source: FEMA, 2014)	

On May 7, 2003, a countywide flash flood occurred, causing thirty to forty roads to become flooded and impassable for at least 10 hours. The hardest hit areas were along the Cleburne and Randolph County line in extreme southern Cleburne County. A mudslide occurred on SR 9 near Heflin. No injuries, deaths, or crop damages occurred or were reported from this event. Property damages of $250,000 resulted. The following day, May 8, 2003, Cleburne County Emergency Medical Service personnel along with volunteer firemen from Hollis, Heflin, and Micaville and an Alabama State Trooper worked to rescue an unidentified male after the car he attempted to drive trough floodwaters was washed into a ditch and almost submerged. The man attempted to drive through floodwaters from the Tallapoosa River covering a portion of CR 36 when the swift current pushed the car into a ditch where it caught on some trees. One injury and $8,000 of property damage resulted from the flash flood on this date.

On September 16, 2004, a flash flood event in association with Ivan occurred, causing hundreds of trees and power lines to be blown down across the county. At least 10 homes suffered moderate damage with much more reporting minor roof damage. The debris removal took two weeks in some locations. Power was restored to most of the county in 24 hours. Maximum wind gust were estimated between 55 and 65 miles an hour. Several roadways and creeks were flooded due to the torrential rain. One creek bridge suffered damage. Doppler radar and ground observations indicate as much as 6 inches of rain fell. No injuries, deaths, or crop damages occurred or were reported from this event. Property damages of $50,000 were reported.

Cleburne County experienced 6 flood/flash flood events in a 10 year period resulting in a

greater than 60% (.60) probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 6 flood/flash flood events was $321,000 with 5 flood/flash flood events causing damage resulting in an estimated $64,200 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 Cleburne County due to a flood/flash flood event; the ranking is minor to major. The extent of flooding for Cleburne County is approximately six inches of water over roadways making them impassible.

Primary Effects from Floods in Cleburne County would include:

1. Loss of life
2. Property damage
3. Crop damage
4. Dam and levee failure

Hazardous results from significant flood in Cleburne 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

Cleburne County does not participate 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. An update of the flood maps of Cleburne County was completed in 2010. Currently the county, the Town of Edwardsville, the Town of Fruithurst, and the Town of Ranburne are not participating in the NFIP; while the City of Heflin is the only jurisdiction considered to be a participant in the NFIP. The Town of Fruithurst has had no flood areas identified. The National Flood Insurance Program (NFIP) requires local participation. The Cleburne County Commission and the Mayors of the Towns of Edwardsville and Rayburne choose not to participate in the NFIP. They are in process of meeting with local developers on this issue and have not reached an agreement on the NFIP among all the officials involved; however, these three jurisdictions encourage floodplain regulations and conduct outreach events in the communities to educate and promote floodplain practices. The City of Heflin is a NFIP participate in good standing and enforces floodplain regulations, as well as educates and promotes floodplain practices through community outreach events. **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, Cleburne 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: Cleburne County
National Flood Insurance Program Status by Jurisdiction

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Eff. Map Date	Sanction Date	Tribal
010042#	Cleburne County Not Participating		08/16/07	08/16/11	08/16/08	No
010280#	Town of Edwardsville Not Participating	12/27/74	08/16/11	08/16/11	12/27/75	No
NOT IDENTIFIED	Town of Fruithurst Not Participating					
010043#	City of Heflin	11/01/74	07/05/82	08/16/11	Member in good standing – Not Sanctioned	No
010321#	Town of Ranburne Not Participating		08/16/07	08/16/11	08/16/08	No

Source: FEMA Community Status Book Report as of May 6, 2015

Severe Repetitive Loss Properties and Repetitive Loss Properties

FEMA defines repetitive loss properties as those having two or more claims of $1,000 or more in the past 10-year period. FEMA defines severe repetitive loss properties as those properties claiming at least four claims over $5,000, which amount to more than $20,000 total; or properties with two claim payments cumulatively greater than the market value of the building – both of which must take place within a 10-year period and not less than 10 days apart.

Even though there are repetitive flooding issues in the county, there are no Severe Repetitive Loss or Repetitive Loss properties in Cleburne County at this time. The City of Heflin is the only jurisdiction participating in the NFIP. The City of Heflin enforces floodplain regulations and practices, as well as conducts community outreach events for education and promotion of the NFIP, and plan to continue doing so as a NFIP member in the future. Since the last plan update, Cleburne County, Edwardsville, and Ranburne were mapped with special flood hazard areas on August 16, 2011. The Town of Fruithurst has no flood areas identified. In general, flooding does not affect residential properties in Cleburne County. The majority of flooding issues in the county are with infrastructure, particularly roads and bridges.

The most prevalent areas of flooding within the county are in the southern one-fourth of the county, along the Tallapoosa River. The majority of vulnerability in this area is that of flooded roadways and water overtopping bridges. These events create a strain on the county's financial and human resources.

The Towns of Ranburne and Edwardsville both experience flash flooding on a small scale. Minimal damages have been reported from these municipalities with regard to flooding. Flooding events usually consist of roadways underwater for short periods of time, which also causes stress to the towns' financial and human resources. Fruithurst has reported no major flooding issues.

VI. Drought/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, Cleburne 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, D2 Severe to D3 Extreme Drought in 2011, D3 Extreme Drought in 2012, and D2 Severe to D3 Extreme Drought in 2013. No deaths, injuries, property or crop damages were reported. 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.

Cleburne County experienced 36 drought/extreme heat events in a 10 year period resulting in a greater than 100% (3.60) probability that a drought/extreme heat event will occur on an annual basis. The total amount of damages for the 36 drought/extreme heat events was $0 (unknown) with no drought/extreme heat events causing damage resulting in an estimated $0 or unknown amount of expected annual damages from future events. 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 Cleburne County due to a drought event; the ranking is minimum to minor.

Primary effects from Drought and Excessive Heat in Cleburne 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 Cleburne 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, 2014)

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 36 instances of drought for Cleburne County from 2003-2013. No crop or property damages were reported. There were no reports of extreme heat events during this ten year period.

VII. Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold

Cleburne 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 Cleburne County from 2003 - 2013.

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 it 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 February 25, 2004, a winter storm event resulting in a combination of snow and sleet across Cleburne County accumulating one to three inches across the northern and western mountains. Numerous roads were ice covered. January 9, 2011, Cleburne County experienced a winter storm having snow accumulations ranging from 2 to 5 inches. No injuries, deaths, crop, or property damages were reported from these winter storm events.

On April 7-8, 2007, two frost freezes occurred from an unusually cold springtime air mass settled across Central Alabama, bringing record cold temperatures to the entire region of Cleburne County. Sub-freezing temperatures were recorded. No injuries, deaths, crop, or property damages were reported from these frost freeze events.

On December 25, 2010, a heavy snow event resulted in an average snowfall accumulation of 2.5 inches occurred across the county with isolated amounts of 4.0 inches near Muscadine and on Mount Cheaha. In addition, several roads were closed and numerous accidents occurred due to slick and icy conditions. February 12, 2010, a heavy snow event resulted in an average of 3 to 4 inches of snow falling across the entire county. Many bridges and other elevated surfaces

became icy and hazardous. January 17, 2013, heavy snow accumulated up to 3 inches in the higher elevations of Mt. Cheaha in Cleburne County. No injuries, deaths, crop, or property damages occurred from these heavy snow events.

An ice storm event occurred on January 28, 2005 from cold air combining with an approaching storm system. At least 15 additional vehicles slid 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 tampered off to no additional significant accumulations early on January 29. No injuries, deaths, or crop damages occurred. Property damages of $40,000 resulted.

On December 26, 2010, a winter weather event resulting in light snowfall caused roadways to remain icy, making travel hazardous. No injuries, deaths, or property, or crop damages occurred.

On January 24, 2003, an extreme cold event brought the coldest temperatures in seven years across Central Alabama and lasted for 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 injuries, deaths, or property, or crop damages occurred.

Cleburne County experienced 12 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events in a 10 year period resulting in a less than 100% (1.20) 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 12 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events was $40,000 with one winter

storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event causing damage resulting in an estimated $40,000 of expected annual damages from future events. The referenced winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events 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 Cleburne County due to a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event; the ranking is minor to major.

Primary effects from winter storms in Cleburne 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 Cleburne 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 medical facilities, 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.

VIII. Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind

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, 2014)

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. Cleburne County is not directly affected by storm surges; therefore, no additional analysis will be completed on the topic.

On July 10-11, 2005, numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Cleburne County. No injuries, deaths, or crop damages occurred. Property damages of $24,000 resulted from this event.

On August 23-25, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Cleburne County area. No injuries, deaths, or crop damages occurred. Property damages of $5,000 resulted.

On November 9, 2009, Tropical Depression Ida brought heavy rains and sustained winds to Central Alabama. Winds maxed out between 20-30 mph, with peak wind gusts generally between 30 and 40 mph. These winds blew down a few trees, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of $2,000 resulted.

On September 16, 2004, a high wind event (in association with Ivan) resulted in hundreds of trees and power lines being blown down across the county. At least 10 homes suffered moderate damage with much more reporting minor roof damage. The debris removal took two weeks in some locations. Power was restored to most of the county in 24 hours. Maximum wind gust were estimated between 55 and 65 miles an hour. Several roadways and creeks were flooded due to the torrential rain. One creek bridge suffered damage. Doppler radar and ground observations indicate as much as 6 inches of rain fell.

On September 7, 2004, a strong wind (38 mph) event occurred as remnants of Hurricane Frances moved northward mainly across the eastern counties of Central Alabama. Strong winds of 30 to 40 mph along with saturated ground conditions allowed several trees and power lines to be blown down. No injuries, deaths, or crop damages occurred. Property damages of $1,000 resulted.

On March 9, 2006, a strong wind event resulted in 46 mph winds causing sporadic tree damage. No injuries, deaths, or crop damages occurred. Property damages of $2,000 resulted.

On December 20, 2007, a strong wind event resulted in 35 mph winds causing tree and power line damage. Numerous power outages were reported. No injuries, deaths, or crop damages occurred. Property damages of $10,000 resulted.

Cleburne County experienced 8 hurricane/tropical storm/tropical depression/high wind/strong wind events in a 10 year period resulting in an 80% (.80) 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 8 hurricane/tropical storm/tropical depression/high wind/strong wind events was $569,000 with 8 hurricane/tropical storm/tropical depression/high

wind/strong wind events causing damage resulting in an estimated $71,125 of expected annual damages from future events. The referenced hurricane/tropical storm/tropical depression/high wind/strong wind events 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 Cleburne 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. 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
2. 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

Cleburne 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 Cleburne County does not feel the effects of

storm surges, other effects including heavy rain, flooding, winds, and tornados often have significant impacts on Cleburne County.

IX. Sinkhole/Expansive Soil

Sinkholes

Naturally occurring Sinkholes occur where soluble limestone, carbonate rock, salt beds, or rocks can be dissolved by groundwater 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, Cleburne County has experienced sinkholes; however, the sinkhole density in Cleburne County is low. **Figure 3-3** shows sinkholes and sinkhole density in Cleburne County.

Cleburne County experienced 2 sinkholes in a 10 year period resulting in a 20% (.20) probability that a sinkhole event will occur on an annual basis. The total amount of damages for a sinkhole event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor. The largest sinkhole was approximately 50 feet in diameter.

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. Cleburne County has Limestone Valleys and Uplands and Piedmont 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

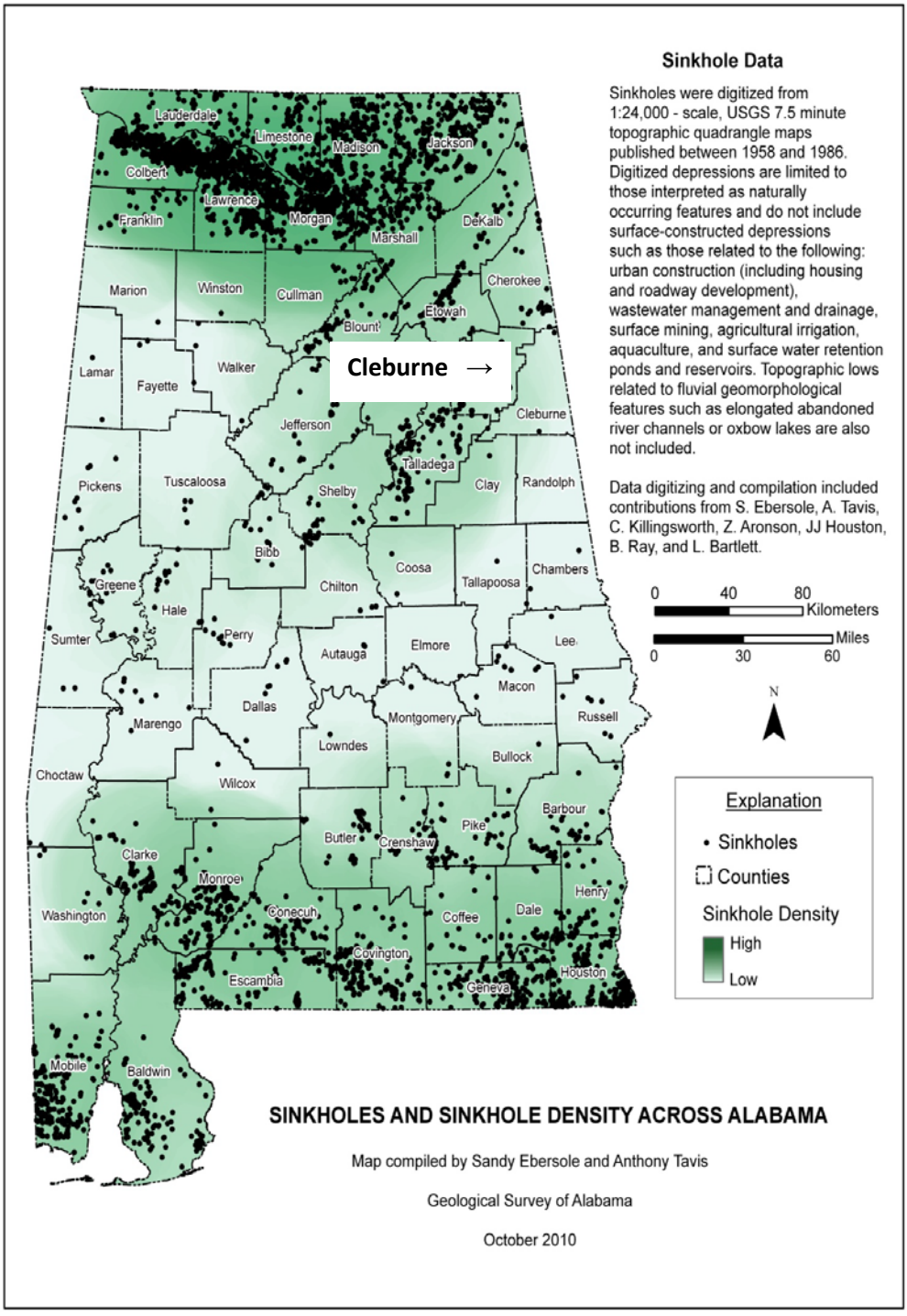
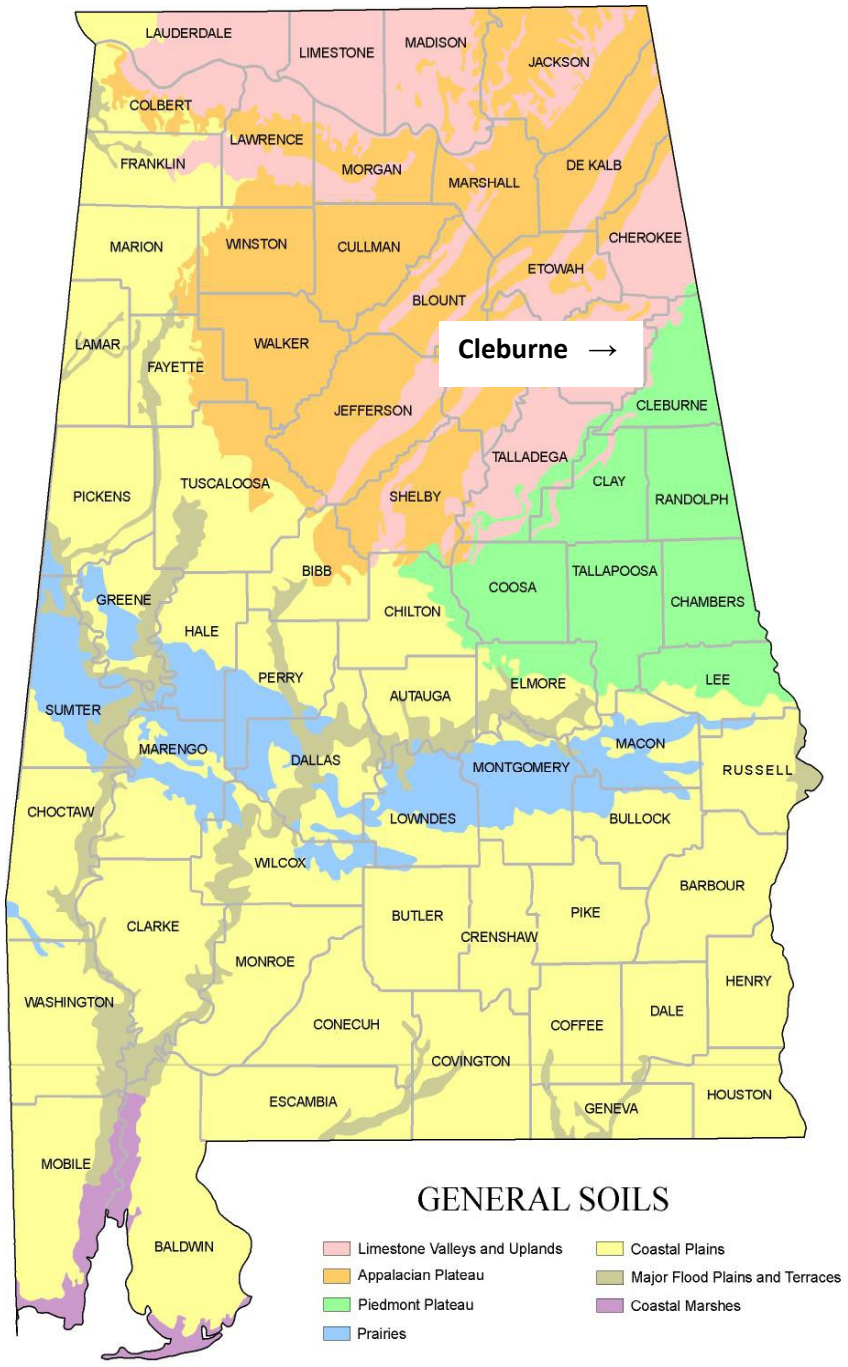

Sinkhole Data
Sinkholes were digitized from 1:24,000 - scale, USGS 7.5 minute topographic quadrangle maps published between 1958 and 1986. Digitized depressions are limited to those interpreted as naturally occurring features and do not include surface-constructed depressions such as those related to the following: urban construction (including housing and roadway development), wastewater management and drainage, surface mining, agricultural irrigation, aquaculture, and surface water retention ponds and reservoirs. Topographic lows related to fluvial geomorphological features such as elongated abandoned river channels or oxbow lakes are also not included.
Data digitizing and compilation included contributions from S. Ebersole, A. Tavis, C. Killingsworth, Z. Aronson, JJ Houston, B. Ray, and L. Bartlett.
Cleburne →
0 40 80 Kilometers
0 30 60 Miles
N
Explanation
• Sinkholes
Counties
Sinkhole Density
High
Low
Lauderdale
Limestone
Madison
Jackson
Colbert
Lawrence
Franklin
Morgan
Marshall
DeKalb
Marion
Winston
Cullman
Cherokee
Etowah
Blount
Lamar
Fayette
Walker
Jefferson
Cleburne
Talladega
Pickens
Tuscaloosa
Shelby
Clay
Randolph
Bibb
Coosa
Chambers
Greene
Hale
Chilton
Tallapoosa
Sumter
Perry
Autauga
Elmore
Lee
Macon
Dallas
Montgomery
Russell
Marengo
Lowndes
Bullock
Choctaw
Wilcox
Barbour
Pike
Butler
Crenshaw
Clarke
Monroe
Henry
Washington
Conecuh
Coffee
Dale
Covington
Houston
Escambia
Geneva
Mobile
Baldwin
SINKHOLES AND SINKHOLE DENSITY ACROSS ALABAMA
Map compiled by Sandy Ebersole and Anthony Tavis
Geological Survey of Alabama
October 2010

Figure 3-4: General Soils of Alabama



Source: Cartographic Research Lab, University of Alabama, 2014

X. Landslide

A landslide is defined by the United States Geological 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. The three underlying geologic formations present within the region are the Coker, Gordo, and Tuscaloosa groups. These groups are classified as having low to moderate susceptibility to slope failure. A 1982 study performed by Karen F. Rheams of the United States Geological Survey indicated 23 landslides had occurred in the county but all of these were man-induced events attributed to roadway construction. **Figure 3-5** shows the landslide incidence and indicates that Cleburne County is at a low to no risk of incidence. The 2010 plan update did not address landslides as there were no reports of landslides from any source. According to the Geological Survey of Alabama's sinkhole data as of 2010, Cleburne County has experienced landslides; however, the landslide probability in Cleburne County is low.

Primary effects from landslide in Cleburne County would include:

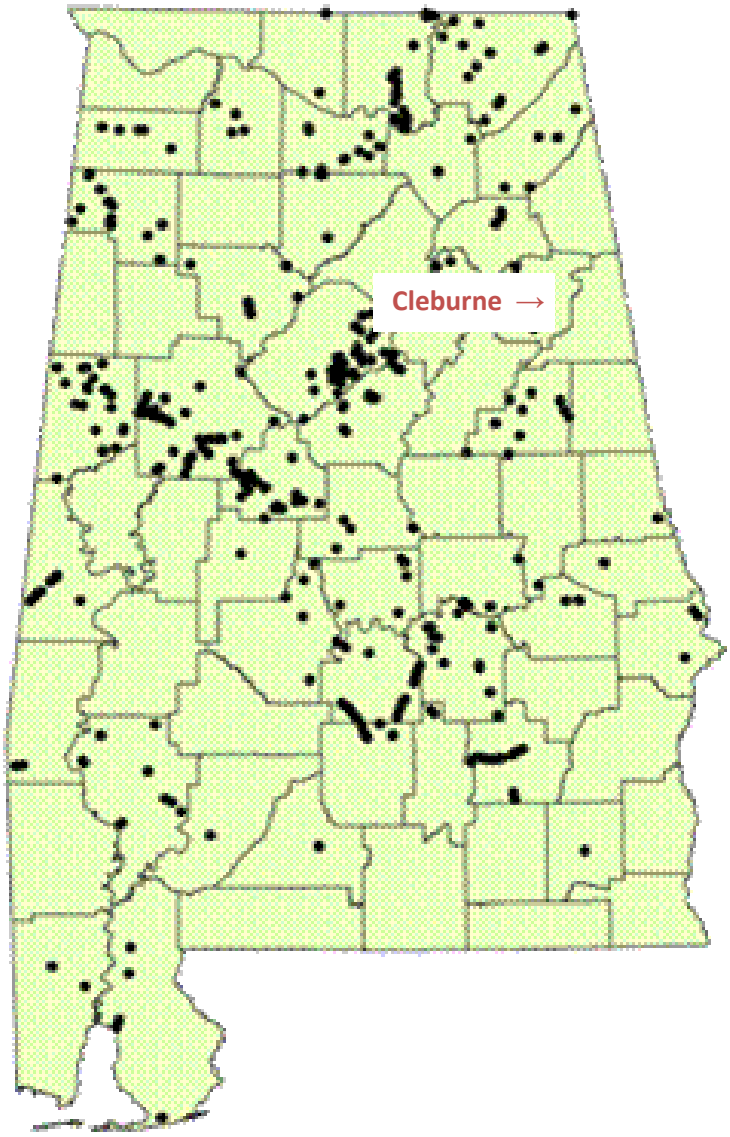
1. Property damage
2. Impassable roads
3. Sediment erosion
4. Underground infrastructure damage

Hazardous results from landslide in Cleburne County would include:

1. Landslides move with tremendous force capable of destroying most structures in its 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.

Cleburne County experienced 0 landslides in a 10 year period resulting in 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 well as the expected annual damages from future events. The ranking is minimum to minor.

Figure 3-5: Landslide Incidence in Cleburne County



Source: Geological Survey of Alabama, 2015

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, 2014)			

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 that 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

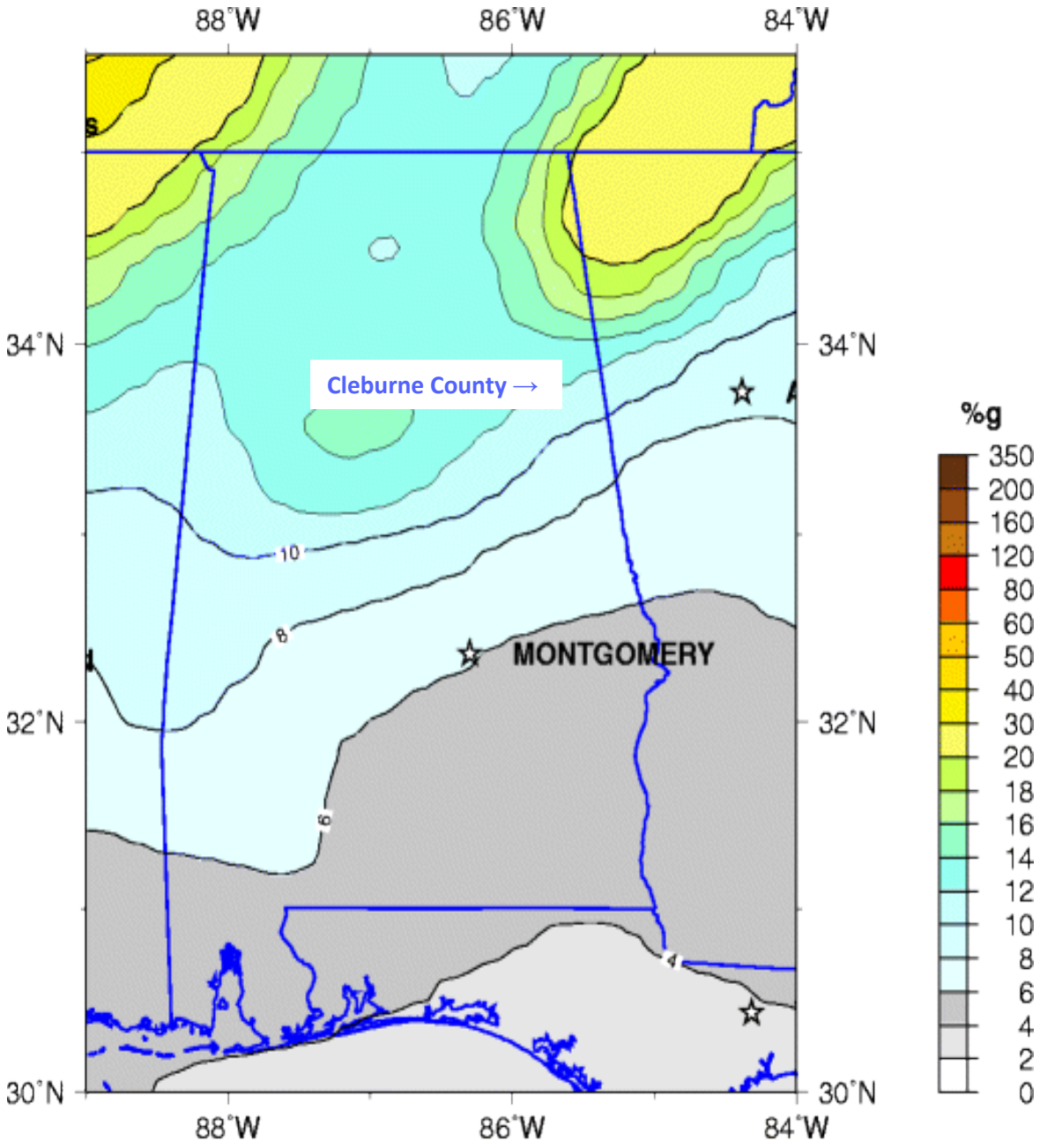
Tennessee Seismic Zone), and the South Carolina Seismic Zone (SCSZ). The NMSZ lies within the central Mississippi Valley, extending from northeast Arkansas through southeast Missouri, western Tennessee, and western Kentucky, to southern Illinois. The SASZ extends from near Roanoke in southwestern Virginia 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. Cleburne County is at risk for earthquakes.

Earthquakes occurring in Cleburne County are predominantly low magnitude events. 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. There is insufficient data to predict the future probability of an earthquake occurring in Cleburne County. The risk of a significant, damage-causing earthquake in Cleburne County is low to moderate. The northeastern portion of the county is at a slightly greater risk than other portions of the county.

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. Cleburne County did not experience any major earthquake events during the past ten years (January 1, 2003 – December 31, 2013) as noted in **Table 3-5**.

Two zones of frequent earthquake activity that could potentially impact Cleburne County are the New Madrid Seismic Zone and the Southern Appalachian Seismic Zone. Damage could be significant in Cleburne 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

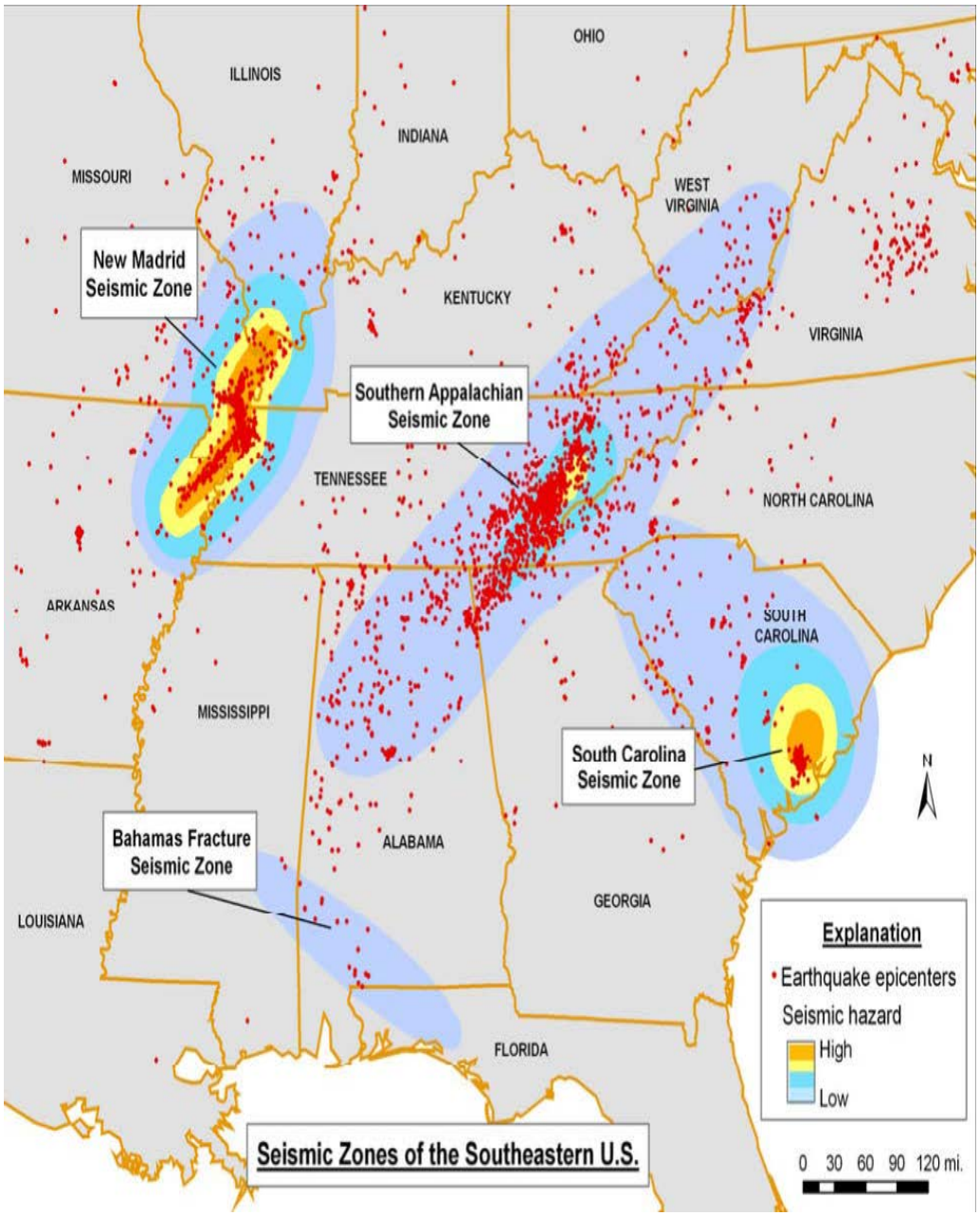
states and covered 100,000 square miles. The 1895 New Madrid earthquake registered a 6.8 on the Richter scale and was moderately felt throughout the southeastern United States. The New Madrid Fault line runs along the Mississippi River. Geologists agree that another major earthquake along the New Madrid Fault line could cause chimneys to fall, glass to break, and walls to crack in Cleburne 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

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



Source: Geological Survey of Alabama, 2014

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.

Cleburne County experienced three earthquake events in a 10 year period resulting in a 30% (0.30) probability that an earthquake event will occur on an annual basis. The total amount of damages for an earthquake event is also unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

Primary effects from earthquake in Cleburne County would include:

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

Hazardous results from earthquake in Cleburne 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 Cleburne 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. Wildfire

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.

The frequency and severity of wildfires is dependent on weather and on human activity. Nearly all wildfires in Cleburne County are human caused (only a small percent are caused by lightning), with arson and careless debris burning being the major causes of wildfires. 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 3-13** shows the number of fires and acres burned during the period 2010 to 2013, as recorded by the Alabama Forestry Commission. Cleburne County had a total of 155 fires during this 3 year period, affecting a total of 5,278 acres. Cleburne County is located in an area where the current fire danger conditions are low to moderate, according to the U. S. Forestry Service.

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 Cleburne County has an 11-15 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. Cleburne 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.

Table 3-13: Wildfires in Cleburne County 2010-2013

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
Cleburne	155	52	5,278	1,759	34

Source: Alabama Forestry Commission, 2014

Cleburne County experienced 155 wildfire events in a 3 year period resulting in a greater than 100% (51.66) probability that a wildfire event will occur on an annual basis. The total amount of acres burned for the 155 wildfire events was 5,278 resulting in an estimated 34 acres burned per wildfire event. The total amount of acres burned was 5,278 multiplied by $1,900 (the average market value for an acre of land in Cleburne County) equals $10,028,200 damages for the 155 wildfire events with 155 wildfire events causing damage resulting in an estimated $64,698 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 $70,521 of expected annual damages from future events. No deaths or injuries were reported. The ranking, extent/range of magnitude or severity that could be experienced by Cleburne County due to a wildfire event is minimum to minor.

Primary effects from wildfire in Cleburne County would include:

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

Hazardous results from significant wildfire in Cleburne 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 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 Cleburne 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 Cleburne 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 Cleburne 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* and *NOAA*, Cleburne County has 31 High Density Polyethylene (HPDE - Earth) Dams including one high hazard dam (failure or poor operation would likely result in the loss of human life), six significant hazard dams (failure or poor operation would not likely result in the loss of human life, but would result in economic loss, environmental damage, and disruption of lifeline facilities), and 24 low hazard dams (failure or poor operations would not likely result in the loss of human life, but would result in low economic and environmental damage). None of the dams is located within a municipality. All dams are located in sparsely populated areas scattered throughout the unincorporated jurisdiction. **Table 3-14** shows risk categories of dams. **Table 3-15** provides an inventory listing of all the dams in Cleburne County and includes additional data on each.

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 Cleburne 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 Cleburne 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 3-14: Cleburne County Dams Risk Categories

Risk Categories	Number of Dams
High - loss of one human life is likely if the dam fails	6
Significant - possible loss of human life and likely significant property or environmental destruction if the dam fails if the dam fails	4
Low	30
Total	**40**

(Source: HAZUS MH 2.1)

Table 3-15: Cleburne County Dam Inventory

	Dam Name	NID ID	River	NID Height	NID Storage	Year Completed	Drainage Area	Hazard	Longitude	Latitude
1.	Heflin	AL00624	Town Creek	0	169	1955	0	H	-85.583329	33.64167
2.	Creighton No. 1	AL00634	Tr Chulafinnee	0	50	1950	0	H	-85.651669	33.546669
3.	Robinson No. 2	AL00632	Tr. Chulafinnee	0	70	1957	0	L	-85.623859	Not in Hazus
4.	Esterling	AL00631	Tr. Jackson Creek	0	100	1952	0	L	-85.715	33.604999
5.	Huston	AL00630	Tr. Chulafinnee	0	90	1961	0	L	-85.638329	33.54167
6.	Abel	AL00629	Tr. Chulafinnee	0	140	1960	0	L	-85.684999	33.54333
7.	Allen and Phill	AL00628	Little Hillabee	0	100	1960	0	L	-85.729999	33.581669
8.	Stricklin	AL00636	Tr. Chulafinnee	0	90	1964	0	L	-85.655	33.545
9.	Lake Cleburne	AL00626	Tr. Tallapoosa Creek	0	530	1966	0	L	-85.54	33.608329
10	Edmonds Lake	AL00637	Chulafinnee Creek	0	680	1950	0	L	-66833	33.549999
11	Bell	AL00623	Tr. Cane Creek	0	70	1973	0	L	-85.556669	33.673329
12	Owens	AL00622	TR. Henry Creek	0	200	1962	0	L	-85.556669	33.69333
13	Aderhold	AL00621	Tr. Cane Creek	0	90	1950	0	L	-85.51	33.743329
14	Nelson	AL00619	Tr. Muscadine Creek	0	85	1965	0	L	-85.434999	33.745
15	Laminack	AL00618	Tr. Muscadine Creek	0	110	1960	0	S	-85.39333	33.73833
16	Snows	AL00617	Little Terrapin	0	80	1960	0	L	-85.399999	33.94
17	Robinson	AL00627	Tr. Snake Creek	0	100	1957	0	L	-85.636669	33.6
18	Creighton No. 2	AL00635	Tr. Chulafinnee	0	62	1950	0	H	-85.655	33.546669
19	Bonner	AL01813	Bobo Branch	0	115	1975	0	L	-85.63333	33.626669
20	White No. 1	AL01814	Tr. Chulafinnee	0	50	1950	0	L	-85.684999	33.575
21	White No.2	AL01815	Tr. Chulafinnee	0	80	1950	0	L	-85.684999	33.571669
22	Terrapin Creek	AL00605	Tr. Terrapin Creek	36	811	1964	3	S	-85.47333	33.936669
23	Terrapin Creek	AL00606	Mathis Branch	47	764	1964	2.7	L	-85.479999	33.886669
24	Terrapin Creek	AL00609	Little Terrapin	51	6161	1969	15.9	L	-85.459999	33.886669
25	Terrapin Creek	AL00607	Camp Creek	59	4926	1966	17.5	L	-85.5	833329
26	Terrapin Creek	AL00604	Terrapin Creek	68	9890	1972	29.0094	L	-85.528329	33.833329
27	Terrapin Creek	AL00608	Terrapin Creek	106	6772	1968	21.6	L	-85.416939	33.916939
28	Boy Scout	AL00005	Carr Creek	37	1337	1972	2.75	L	-85.66667	33.52167
29	Lost Creek Wat	L00612	Lost Creek	40	1932	1966	8.5203	L	-85.33667	33.549999
30	Lost Creek Wat	Al00613	Tr. Lost Creek	38	563	1966	1.9594	L	-85.344999	33.549999
31	Lost Creek Wat	Al00610	Tr. Lost Creek	31	385	1966	1.4797	L	-85.368329	33.54
32	Lost Creek Wat	AL00611	Little Lost Creek	32	457	1964	1.6594	L	-85.356669	33.555
33	Cahulga Creek	AL00616	Cahulga Creek	40	3940	1972	6.5406	H	-85.6	33.64167
34	Dynne Creek Wa	AL02288	Tr-Dynne Creek	53	1068	1986	3.2094	S	-85.511669	33.556669
35	Laminack	AL02353	Tr. Muscadine Creek	15	115	1985	0.625	L	-85.44333	33.805
36	Dynne Creek Wa	AL02446	Tr-Dynne Creek	29	1003	1987	2.5406	S	-85.53333	33.56667
37	Site 7	AL00615	Shoal Creek	74	6610	1971	9	H	-85.583329	33.741669
38	Site 24	AL00614	Shoal Creek	88	6926	1972	13	H	-85.626669	33.716669
39	Coleman Lake	AL00002	Coleman Creek	32	200	1965	2	L	-85.549999	33.76667
40	Morgan Lake	AL82401	Trib. Hillabee Creek	20	70	1945	1	L	-85.833329	33.5

(Source: HAZUS-MH 2.1)

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.

Thunderstorms *(Source: NCDC NOAA)*

Damage from thunderstorms can have a wide range of severity. All jurisdictions are vulnerable to thunderstorm events. Two thunderstorm events resulting in the largest amount of damages occurred in Cleburne County during 2003-2013. One event occurred in Heflin on February 26, 2008 and resulted in property damages of $200,000. Numerous trees and power lines were blown down across the northern portion of the county. At least 10 buildings had roof damage due to downed trees, and at least 3 buildings had roofs completely blown off. Several mobile homes in a mobile home park suffered varying degrees of damage to underpinning, roofs, and structure. No injuries, deaths or crop damages occurred. Another event occurred in East Central Cleburne County on July 20, 2007 that resulted in property damages of $100,000. A few homes suffered significant damage due to fallen trees.

Lightning *(Source: NCDC NOAA)*

Lightning can cause substantial property damage and loss of human lives. All jurisdictions are vulnerable to lightning events. Two lightning events resulting in the largest amount of damages occurred in Cleburne County during 2003-2013. On May 7, 2003, lightning struck a home on Webb Drive in Ranburne that resulted in a fire that damaged 50% of the home.

Another lightning strike caused minor damage to a home on SR 46. Property damages of $70,000 occurred. On May 8, 2003, lightning was believed responsible for fires at three houses in and east of Helfin. Property damages of $48,000 occurred.

Hail *(Source: NCDC NOAA)*

Severe thunderstorms have been known to produce hailstones 4.25 inch in diameter (softball size) in Cleburne County. All jurisdictions are vulnerable to hail events. On February 18, 2009, a hail event from a powerful low pressure system and associated cold front pushed through the Trikem Area, and helped trigger numerous thunderstorms. Some became supercells that produced long swaths of large hail, areas of damaging winds, and at least one tornado. Cleburne County experienced hail magnitude of 4.25 inches (softball size) on Interstate 20 between mile markers 196 and 199, resulting in no property damage across the area.

Tornado *(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.

Areas with higher population densities pose the greatest potential for property damage, injury, and death. The City of Heflin is the most densely populated area in the county. 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. Cleburne County has a total of 1,952 mobile homes countywide, 29.11% of the total housing stock. The greatest concentration of mobile homes in a municipality is in the City of Fruithurst where 54.11% of the units are mobile homes. *(Sources: U.S. Census Bureau, 2010-2012 American Community Survey and Easidemographics.com)*

The most significant event during the study period occurred in the area of Heflin on May

11, 2008 with an EF1 tornado, 3.78 miles in length and 1,000 yards wide. The tornado touched down along the Talladega Scenic Drive, just south of US Highway 78. It then moved along a slightly curved path until it crossed CR-79. Next, it tracked almost due east as it produced its most concentrated damage near SR-9. The tornado lifted near the end of Brockford Road in the vicinity of Shadow Lane, on the east side of the City of Heflin. Hundreds of trees were either snapped off or uprooted along the path. Eight homes were destroyed and more than 40 others received significant damage. Property damages of $1.75 million occurred.

Flood/Flash Flood *(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 such as the City of Heflin 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. All jurisdictions are vulnerable to flood events.

On May 7, 2003, a countywide flash flood occurred, causing thirty to forty roads to become flooded and impassable for at least 10 hours. The hardest hit areas were along the Cleburne and Randolph County line in extreme southern Cleburne County. A mudslide occurred on SR 9 near Heflin. (*Source: NOAA NCDC*)

On September 16, 2004, a flash flood event in association with Ivan occurred, causing hundreds of trees and power lines to be blown down across the county. At least 10 homes suffered moderate damage with much more reporting minor roof damage. The debris removal took two weeks in some locations. Power was restored to most of the county in 24 hours. Maximum wind gust were estimated between 55 and 65 miles an hour. Several roadways and creeks were flooded due to the torrential rain. One creek bridge suffered damage. Doppler radar and ground observations indicate as much as 6 inches of rain fell. (*Source: NOAA NCDC*)

Drought/Extreme Heat (*Source: NOAA NCDC*)

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.

During the past ten years, Cleburne 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, D2 Severe to D3 Extreme Drought in 2011, D3 Extreme Drought in 2012, and D2 Severe to D3 Extreme Drought in 2013. (*Source: NOAA NCDC*)

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.

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.

Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold

Cleburne County commonly has extreme cold and winter storm events in any given year. These events impact the county in a variety of ways. Ice and small amounts of snow can cripple the county. 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 failure and property damage. 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 deaths. Since these storms have no defined track, all residents of Cleburne County are vulnerable to severe winter storms.

On February 25, 2004, a winter storm event resulting in a combination of snow and sleet across Cleburne County accumulating one to three inches across the northern and western mountains. Numerous roads were ice covered. January 9, 2011, Cleburne County experienced a winter storm having snow accumulations ranging from 2 to 5 inches.

On April 7-8, 2007, two frost freezes occurred from an unusually cold springtime air mass settled across Central Alabama, bringing record cold temperatures to the entire region of Cleburne County. Sub-freezing temperatures were recorded.

On December 25, 2010, a heavy snow event resulted in an average snowfall accumulation of 2.5 inches occurred across the county with isolated amounts of 4.0 inches near Muscadine and on Mount Cheaha. In addition, several roads were closed and numerous accidents occurred due to slick and icy conditions. February 12, 2010, a heavy snow event resulted in an average of 3 to 4 inches of snow falling across the entire county. Many bridges and other elevated surfaces became icy and hazardous. January 17, 2013, heavy snow accumulated up to 3 inches in the higher elevations of Mt. Cheaha in Cleburne County.

An ice storm event occurred on January 28, 2005 from cold air combining with an approaching storm system. At least 15 additional vehicles slid 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.

On December 26, 2010, a winter weather event resulting in light snowfall caused roadways to remain icy, making travel hazardous.

On January 24, 2003, an extreme cold event brought the coldest temperatures in seven

years across Central Alabama and lasted for 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.

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

Tropical Storms and Tropical Depressions such as Fay, Dennis, Ivan, Frances and Ida have affected Cleburne 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 29.11% 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.

On July 10-11, 2005, numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Cleburne County. No injuries, deaths, or crop damages occurred. Property damages of $24,000 resulted from this event. *(Source: NOAA NCDC)*

On August 23-25, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Cleburne County area. No injuries, deaths, or crop damages occurred. Property damages of $5,000 resulted. *(Source: NOAA NCDC)*

On November 9, 2009, Tropical Depression Ida brought heavy rains and sustained winds to Central Alabama. Winds maxed out between 20-30 mph, with peak wind gusts generally between 30 and 40 mph. These winds blew down a few trees, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of $2,000 resulted. *(Source: NOAA NCDC)*

On September 16, 2004, a high wind event (in association with Ivan) resulted in hundreds of trees and power lines being blown down across the county. At least 10 homes suffered moderate damage with much more reporting minor roof damage. The debris removal

took two weeks in some locations. Power was restored to most of the county in 24 hours. Maximum wind gust were estimated between 55 and 65 miles an hour. Several roadways and creeks were flooded due to the torrential rain. One creek bridge suffered damage. Doppler radar and ground observations indicate as much as 6 inches of rain fell. *(Source: NOAA NCDC)*

On September 7, 2004, a strong wind (38 mph) event occurred as remnants of Hurricane Frances moved northward mainly across the eastern counties of Central Alabama. Strong winds of 30 to 40 mph along with saturated ground conditions allowed several trees and power lines to be blown down. No injuries, deaths, or crop damages occurred. Property damages of $1,000 resulted. *(Source: NOAA NCDC)*

On March 9, 2006, a strong wind event resulted in 46 mph winds causing sporadic tree damages. No injuries, deaths, or crop damages occurred. Property damages of $2,000 resulted.

On December 20, 2007, a strong wind event resulted in 35 mph winds causing tree and power line damage. Numerous power outages were reported. No injuries, deaths, or crop damages occurred. Property damages of $10,000 resulted. *(Source: NOAA NCDC)*

Sinkholes/Expansive Soils

During the risk assessment, it was determined that Cleburne County has experienced 2 sinkholes; however, the sinkhole density in Cleburne County is low. No expansive soil issues were reported from NOAA NCDC or the U. S. Geological Survey.

Landslides *(Source: Local Input; Geological Survey of Alabama)*

No landslide occurrences have been reported in Cleburne County.

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

Cleburne County experienced three earthquake events in a 10 year period resulting in a 30% (0.30) probability that an earthquake event will occur on an annual basis. The total amount of damages for an earthquake event is also unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

A major earthquake in Cleburne County could result in great loss of life and property

damage in the billions of dollars. Adding to the danger is the fact that structures in the area were not built to withstand earthquake shaking. 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; however, three earthquakes were reported by city-data.com – a 4.9 magnitude earthquake occurred on April 29, 2003, 58.9 miles from the county's center; a 3.3 magnitude earthquake occurred on May 9, 2004, 80.5 miles from the county's center; and a 3.6 magnitude earthquake occurred on August 19, 2004, 88.4 miles from the county's center. Damages are unknown.

Wildfires *(Source: Alabama Forestry Commission)*

Cleburne County has a significant amount of acreage that is comprised of forestland and is therefore vulnerable to wildfires, especially during times of drought. 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. Cleburne County experienced 155 wildfires from 2010-2013 resulting in 5,278 acres burned.

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

Cleburne County has 35 High Density Polyethylene (HPDE - Earth) Dams, one Rock Filled Dam (HPDR), and four miscellaneous dams (HPDZ) including six high hazard dams. Potential impacts would include unregulated water flow, possible crop and property damage, and an increase of waterborne disease. 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 Cleburne 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 2010 Census using breakouts for entire municipalities and census tracts.

According to the 2010 Census, Cleburne County has 560.10 square miles of land area and 26.69 persons per square mile.

Table 4-1 shows the county's population characteristics by jurisdiction and by census tract. The City of Heflin is the most populated jurisdiction, followed by the Towns of Ranburne, Fruithurst, and Edwardsville. The county has four 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 800 is the most populated tract and includes Muscadine, portions of Heflin, and Ranburne. Tract 600 is the second most populated tract and includes portions of Heflin, Fruithurst, and portions of Edwardsville. Tract 700 is the third most populated tract and includes portions of Heflin, Hollis Crossroads, and Delta. Tract 500 is the least populated tract and includes Piedmont, portions of Fruithurst, and portions of Edwardsville.

Table 4-1: Cleburne County Population Characteristics

Geographic Area	*Population*	*Race-White*	*Race-Black*	*Race-Other**	*Under 19 years*	*Age 20-64 years*	*Age 65 and Over*
Cleburne County	14,972	14,079	498	395	3,957	8,654	2,361
Edwardsville	202	198	1	3	45	125	32
Fruithurst	284	279	0	5	85	164	35
Heflin	3,480	3,039	328	113	889	1,970	621
Ranburne	409	405	0	4	102	207	100
Census Tracts 500	2,684	2,618	7	59	733	1,579	372
600	4,202	3,750	333	119	1,085	2,405	712
700	3,419	3,114	153	152	861	2,002	556
800	4,667	4,597	5	65	1,278	2,668	721
(Source: 2010 Census)							

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 Cleburne County.

The median household income for the State of Alabama is $43,160. The median household income for the United States is $53,046. No tracts exceed the state and national averages. All municipalities have a median household income that is less than the state and national averages. *(Source: 2010 Census)*

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. No tracts exceed the state and national averages. Only one municipality, Ranburne, has a per capita income that exceeds the state average; however, is less than the national average. All other municipalities have a per capita income that is less than the state and national averages. *(Source: 2010 Census)*

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 500, 600, and 800 are higher than the state and national rates. Tract 700 is the only tract lower than the state and national averages. Only the Town of Ranburne has a rate that is below the state and national rates. All other municipalities have rates higher than the state and national rates. The Town of Edwardsville has the highest poverty rate in the county at 41.64%. *(Source: 2010 Census)*

Table 4-2: Cleburne County Income Data

Geographic Area	Median Household Income	Per Capita Income	Persons Below Poverty Level	Percent Below Poverty Level
Cleburne County	$37,244	$19,049	2,650	17.98%
Edwardsville	$36,786	$21,042	142	41.64%
Fruithurst	$41,250	$17,257	35	14.17%
Heflin	$31,706	$17,706	834	25%
Ranburne	$38,393	$26,487	55	12.39%
Census Tracts				
500	$34,375	$18,555	460	21.76%
600	$32,396	$19,200	843	22.90%
700	$38,359	$18,263	383	9.78%
800	$42,692	$19,757	964	19.17%
(Sources: 2010 Census; www.usa.com,2015)				

Vulnerable Structures

Housing is an important consideration of mitigation planning. The concentration and the type of housing are two primary factors. In Cleburne County there are a total of 6,706 housing units. **Table 4-3** shows the housing characteristics of the county by jurisdiction.

The City of Heflin has the greatest concentration of housing units, followed by the Towns of Fruithurst, Edwardsville, and Ranburne. The City of Heflin has the highest number of mobile home units within a municipality; while, the Town of Fruithurst 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.

Table 4-3: Cleburne County Housing Characteristics

Geographic Area	Total Housing Units	Mobile Home Units	Mobile Home %
Cleburne County	6,706	1,952	29.11%
Edwardsville	168	57	33.93%
Fruithurst	146	79	54.11%
Heflin	1,478	243	16.44%
Ranburne	230	28	12.17%

(Source: 2010 Census)

Table 4-4 shows the building stock in Cleburne County by general occupancy. The data provides the number of buildings by use and is shown by census tract. According to this data, provided by *HAZUS-MH 2.1* software, tract 700 has the highest number of structures in the county. 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. Tract 800 also has the highest total value for structures in the county.

Table 4-4: Cleburne County Building Stock by General Occupancy								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Building Count**
500	1059	25	18	0	4	4	1	**1111**
600	2048	124	30	4	19	11	4	**2240**
700	1577	165	22	7	5	4	2	**1782**
800	1892	67	25	29	9	3	3	**2028**
TOTAL	**6576**	**381**	**95**	**40**	**37**	**22**	**10**	**7161**
(Source: HAZUS-MH 2.1)								

Table 4-5: Cleburne County Building Exposure *(Numbers shown in thousands of dollars)*								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Total Exposure**
500	96433	4789	2940	0	2308	2126	749	**109345**
600	157304	34888	19222	811	9516	5809	5083	**232633**
700	144186	8476	13930	632	2056	2906	1605	**173791**
800	126880	15946	5890	3708	4643	888	2524	**160479**
TOTAL	**524803**	**64099**	**41982**	**5151**	**18523**	**11729**	**9961**	**676248**
(Source: HAZUS-MH 2.1)								

Table 4-6: Cleburne County Building Contents Exposure *(Numbers shown in thousands of dollars)*								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Total Exposure**
500	48308	5036	3869	0	2308	3143	749	**63413**
600	78839	36560	27646	811	9516	6452	5083	**164907**
700	72192	8544	20222	632	2056	3975	1605	**109226**
800	63532	15946	8352	3708	4643	1306	2524	**100011**
TOTAL	**262871**	**66086**	**60089**	**5151**	**18523**	**14876**	**9961**	**437557**
(Source: HAZUS-MH 2.1)								

Critical Facility Inventory

Critical facilities are crucial to the daily operation of Cleburne 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
- Police and Fire Departments
- Public Works
- Educational
- Industrial
- Medical

HAZUS-MH 2.1 was also utilized for building and content values.

TABLE 4-7: Cleburne County Critical Facilities

(Source: Local and HAZUS-MH 2.1)

Facility	Location	Area	Use	Value
Governmental Services				
County Courthouse	120 Vickery St.	Heflin	Governmental	$8,000,000
County Jail/Sheriff's Department	140 Lambert Dr.	Heflin	Law Enforcement	$4,000,000
E911 Center		Heflin	Emergency Services	$900,000
Piney Woods-Oak Level VFD	7890 Co. Rd. 65	Fruithurst	Fire Protection	
Muscadine VFD	156 County Road 446	Muscadine	Fire Protection	
Hollis VFD	9020 Highway 431	Heflin	Fire Protection	
Fruithurst VFD	P.O. Box 146	Fruithurst	Fire Protection	
Micaville VFD	3384 Co. Rd. 10	Heflin	Fire Protection	
Abernathy VFD	14326 County Road 66	Heflin	Fire Protection	
Ranburne VFD	2975 Frank Ledbetter MD	Ranburne	Fire Protection	
Borden Springs VFD	39155 County Road 49	Piedmont	Fire Protection	
Macedonia VFD	2314 County Road 48	Ranburne	Fire Protection	
Micaville VFD	3384 County Road 10	Heflin	Fire Protection	
Turkey Heaven VFD	13589 Highway 46	Heflin	Fire Protection	
Heflin VFD	P.O. Box 128	Heflin	Fire Protection	
Crane Creek VFD	12106 Highway 78	Fruithurst	Fire Protection	
Library	935 Coleman St.	Heflin	Educational	$250,000
Cleburne County Mountain Center	6751 Highway 78		Public Safety/E-911	
Cleburne County Nursing Home	122 Brockford Road		Nursing Home	
Cleburne County EMS	5902 Highway 46		EMS	
Public Works				
County Water System	90 Brockford Rd.	Heflin	Water	$15,000,000
Streets Department/Engineering Office	302 Haley Rd.	Heflin		$1,000,000
Education				
Cleburne Co. Elementary School	584 Evans Bridge Rd.	Heflin	Educational	$5,038,750
Cleburne Co. High School	520 Evans Bridge Rd.	Heflin	Educational	$12,234,750
Pleasant Grove Elementary School	9855 Highway 9	Heflin	Educational	$2,217,690
Cleburne Co. Career Technical School	11200 Highway 46	Fruithurst/Ranburne	Educational	$6,733,560
Fruithurst Elementary School	222 School Street	Fruithurst	Educational	
Ranburne Elementary School	181 Young Drive	Ranburne	Educational	
Ranburne High School	21045 Main Street	Ranburne	Educational	
TOTAL				**$55,374,750St**

Development Trends

The 2010 Census for Cleburne County, Alabama shows a countywide population of 14,972. Current population projection numbers show that the population in Cleburne County will continue increasing within the next 20 years. There is a population change of 973 from 2010 to 2035, which is a 7% population increase. **Table 4-8** provides the population projections for Cleburne County.

Table 4-8: Cleburne County Population Projections

YEAR	POPULATION PROJECTION
2015	15,354
2020	15,634
2025	15,817
2030	15,907
2035	15,945

(Sources: Center for Business and Economic Research, University of Alabama; Alabama Hazard Mitigation Plan, 2014)

The development trends in the county do not indicate any marked increase in vulnerability to identified hazards.

Methods of Warning

Cleburne 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 the first Tuesday of each month at four p.m., weather permitting.

TABLE 4-9: Cleburne County Outdoor Warning Sirens				
Number	**Jurisdiction**	**Address**	**Latitude**	**Longitude**
1	County	38895 County Raod 49	33.650212	-85.409347
2	County	7890 County Road 65	33.802892	-85.43411
3	County	Coleman Lake Rd.	33.703521	-85.568249
4	County	16219 Highway 78	33.738935	-85.416827
5	County	4032 Tallapoosa Street	33.707557	-85.508697
6	County	County Road 66	33.687066	-85.473676
7	County	5902 Highway 46 (EMS)	33.65463	-85.532059
8	County	52 Brandt Place	33.64778	-85.58975
9	County	579 County Road 158	33.57983	-85.672106
10	County	4087 Highway 9	33.59921	-85.606526
11	County	County Road 42	33.576379	-85.517051
12	County	2343 County Road 48	33.580299	-85.343477
13	County	579 County Road 158	33.576983	-85.672106
14	County	1393 County Road 22	33.55575	-85.635719
15	County	County Road 19	33.559924	-85.558208
16	County	Highway 46 Crumley Chapels Church	33.559010	-85.399119
17	County	21375 Main Street	33.522798	-85.346488
18	County	4432 County 41	33.509896	-85.422338
19	County	Cheaha State Park	33.477136	-85.808562

20	County	County Road 5 (Micaville)	33.507673	-85.548436
21	County	9857 Highway 9	33.512476	-85.641191
22	County	County Road 11 (Boy Scout Camp)	33.542830	-85.569613
23	County	3456 County Road 3	33.501594	-85.740422
*All sirens have a one mile audible radius				
(Source: Participating Jurisdictions, 2014)				

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 to not 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.

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 Cleburne County residents are dedicated to informing their audiences of impending emergencies. These broadcasters have partnered with the Cleburne 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 Cleburne County market (ABC 33/40, NBC 13, and Fox 6) feature live Doppler radar and certificated meteorologists. Many of the radio stations provide continuous severe weather coverage. Local newspapers, outdoor warning sirens, NOAA radios, and ALERT FM also assist in informing the public of risks, threats, watches, warnings, evacuations, shelters, etc. The Cleburne County EMA has printed and distributed materials with information concerning safe rooms, natural and man-made hazards, and what to do during tornados.

Vulnerability Summary

Table 4-11 provides a summary of Cleburne 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
(Source: FEMA, 2014)	

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: Cleburne County Vulnerability Summary					
Natural Hazards	**Edwardsville**	**Frutihurst**	**Heflin**	**Ranburne**	**Cleburne County**
Thunderstorm	H	H	H	H	H
Lightning	H	H	H	H	H
Hail	H	H	H	H	H
Tornado	H	H	H	H	H
Flood/Flash Flood	M	M	M	M	M
Drought/ Extreme Heat	H	H	H	H	H
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/ Winter Weather/Extreme Cold	M	M	M	M	M
Hurricane/Tropical Storm/Tropical Depression/ High Wind/Strong Wind	M	M	M	M	M
Sinkhole/ Expansive Soil	L	L	L	L	L
Landslide	L	L	L	L	L
Earthquake	L	L	L	L	L
Wildfire	H	H	H	H	H
Dam/Levee Failure	L	L	L	L	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: Participating Jurisdictions, 2015)					

Table 4-12: Cleburne 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	3.8	0	0	Unknown	$17,745	$19,342
Lightning	0.2	0	0	Unknown	$59,000	$64,310
Hail	2.3	0	0	Unknown	$1,000	$1,090
Tornado	0.4	0	0	Unknown	$475,000	$517,750
Flood/Flash Flood	0.6	0	1	$3,863	$64,200	$74,189
Drought/Extreme Heat	3.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	1.2	0	0	Unknown	$40,000	$43,600
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$71,125	$77,526
Sinkhole/Expansive Soil	0.2	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire	52.0	0	0	Unknown	$64,698	$70,521
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 which is a 3-year period (# fires x # acres per fire x $1,900/acre average). 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 denotes no data available to determine the average occurrences, average loss or projected loss per event.

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. Ultimately, the goal of mitigation is to reduce or eliminate the long-term risk to people and their property from hazards and their effects. The members of the Cleburne County Hazard Mitigation Committee, as well as all jurisdictions participating in the mitigation plan have identified the following goals for this mitigation plan:

- To protect human life and health,
- To protect natural resources and farmland,
- To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges,
- To increase public awareness of risk and mitigation,
- To minimize expenditure of public money for costly flood control projects,
- To minimize prolonged business interruptions,
- To help maintain a stable tax base by providing for the sound use and development of flood prone areas,
- To do all these things in a manner that is equitable to all citizens of the County.

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.

The committee agreed some routine actions are continuing; therefore, hazards including drought, wildfire, earthquake, sinkholes, and landslides may or may not have specific actions listed in the mitigation action charts. The following routine mitigation actions are implemented by all participating jurisdictions where applicable and are not listed in the charts:

- Restricting the use of public water resources for non-essential usage during drought emergencies.
- Encouraging citizens to take water-saving measures during drought emergencies.
- Adopting and enforcing building code provisions to reduce risk.
- Reduce risk through local planning, codes and ordinances.
- Regulating development in landslide and sinkhole hazard areas.
- Promoting conservation of open space or wildland-urban boundary zones to separate developed areas from high-hazard areas.
- Setting guidelines for annexation and service extensions in high-risk areas.
- Addressing fire mitigation through access, signage, fire hydrants, water availability, and vegetation management.
- Encouraging fire-resistant construction techniques.
- Educating citizens and increasing awareness on actions they can take to reduce their risks and vulnerabilities of all hazards.

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 Cleburne County's updated mitigation actions for the 2015 plan revision. During the plan update process new actions were identified and 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.

Mitigation Strategy – Cleburne County

Table 4-13: Cleburne County Mitigation Actions, 2015	
Mitigation Action - Completed	Identification of flood hazard areas in communities that do not have flood studies or flood insurance rate maps.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and Engineers
Time frame for Completion	5 years
Estimated Cost	TBD
Funding Sources	Local; Grants
Priority	High
Milestones	This action was completed on August 16, 2011; therefore, will be deleted from future plans.
Mitigation Action	Installation of outdoor alert and warning systems in areas currently not covered.
Hazard(s) Addressed	Severe Weather
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and Municipal Leaders
Time frame for Completion	2 years
Estimated Cost	$14,000 per unit
Funding Sources	Local; Grants
Priority	High
Milestones	Due to budgetary constraints this project is still awaiting completion. The county would still like to follow through with the mitigation of flooding in these areas in the near future should funds become available within the county.
Mitigation Action	Acquisition of repetitive flood loss properties.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and Engineers
Time frame for Completion	5 years
Estimated Cost	TBD
Funding Sources	Local; Grants
Priority	High
Milestones	Due to budgetary constraints this project is still awaiting completion. The county engineer would still like to follow through with the mitigation of flooding in these areas in the near future should funds become available within the county.
Mitigation Action	County Road 10-Flooding of roadway during rains. Flagging or barricades by engineering department on a regular basis. There is a need to increase culvert size at four sites along this road to eliminate flooding.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and Engineers
Time frame for Completion	5 years
Estimated Cost	$400,000
Funding Sources	Local; Grants
Priority	High

Milestones	Due to budgetary constraints this project is still awaiting completion. The county engineer would still like to follow through with the mitigation of flooding in these areas in the near future should funds become available within the county.
Mitigation Action	County Road 4-Flash flooding caused by water to overtop bridge structure. There is a need to elevate/ reconstruct bridge.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and Engineers
Time frame for Completion	5 years
Estimated Cost	$250,000
Funding Sources	Local; Grants
Priority	High
Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.
Mitigation Action	Install Community Safe Rooms in the county.
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	New
Local Planning Mechanism	Cleburne County Commission and EMA
Time frame for Completion	3 years from funding
Estimated Cost	$150,000 each
Funding Sources	Local; Grants
Priority	High
Milestones	New Action
Mitigation Action	Provide emergency generators where needed throughout the county.
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and EMA
Time frame for Completion	3 years from funding
Estimated Cost	$100,000
Funding Sources	Local; Grants
Priority	High
Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future
Mitigation Action	County Road 5 bridge over Lockchelooge Creek-Water leaves creek bed flooding over bridge and roadway caused by flash flooding.
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	Cleburne County Commission and EMA
Time frame for Completion	3 years from funding
Estimated Cost	$100,000
Funding Sources	Local; Grants
Priority	High
Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.

Mitigation Action	County Road 126-Flash Flooding produces water over bridge structure.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	County Engineer and Commission
Time frame for Completion	5 years
Estimated Cost	$200,000
Funding Sources	Grants and Local
Priority	Medium
Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.
Mitigation Action	County Road 428 – Water overtops bridge during rains. Flagging or barricades by Engineering department on a regular basis. To reduce the effects of flooding the bridge should be elevated.
Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	County Engineer and Commission
Time frame for Completion	5 years
Estimated Cost	$250,000
Funding Sources	Grants and Local
Priority	Medium
Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.
Mitigation Action	Install severe weather community shelter in the Macedonia Community.
Hazard(s) Addressed	Severe Weather
Applies to new/existing asset	New
Local Planning Mechanism	County Engineer and Commission
Time frame for Completion	5 years
Estimated Cost	$45,000
Funding Sources	Grants and Local
Priority	Medium
Milestones	DELETE ACTION- The County would like to install community safe rooms in various locations in the county. Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.
Mitigation Action	Cleburne County Water Authority – Purchase and install a backup generator for water.
Hazard(s) Addressed	All
Applies to new/existing asset	New
Local Planning Mechanism	County Engineer and Commission
Time frame for Completion	1 year
Estimated Cost	$25,000
Funding Sources	Grants and Local
Priority	Medium

Milestones	Budgetary constraints have prevented this project from being completed. It is still in the interest of the county and engineer to complete this project should future funding come available.
Mitigation Action	Encourage individual citizens to install in-home tornado shelters.
Hazard(s) Addressed	Thunderstorms, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset	New and Existing
Local Planning Mechanism	EMA and Individuals
Time frame for Completion	2020
Estimated Cost	$5,000
Funding Sources	Citizens, Local, HMGP
Priority	High
Milestones	This action was submitted as a Limited Amendment to the 2010 hazard mitigation plan and remains relevant in this plan update.

Section Five: Jurisdiction Assessments

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TOWN OF EDWARDSVILLE

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Table 5-1: Town of Edwardsville
Risk and Vulnerability Overview

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

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

KEY

Hazard Identification: X Affects the Jurisdiction, N/A Not a threat to the jurisdiction

Priority: 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 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: 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)

TABLE 5-2: TOWN OF EDWARDSVILLE HAZARD EVENTS

5 Thunderstorms 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
EDWARDSVILLE	CLEBURNE CO.	AL	05/09/2004	14:30	CST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	06/22/2004	18:25	CST	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	04/30/2005	04:31	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	06/11/2008	16:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	26.0K	0.00K

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

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

3 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
EDWARDSVILLE	CLEBURNE CO.	AL	05/07/2003	14:24	CST	Hail	1.00 in.	0	0	0.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	12/28/2005	13:50	CST	Hail	0.75 in.	0	0	0.00K	0.00K
EDWARDSVILLE	CLEBURNE CO.	AL	02/18/2009	17:10	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

2 Tornado 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
EDWARDSVILLE	CLEBURNE CO.	AL	03/06/2003	02:51	CST	Tornado	F1	0	0	0.00K	12.00K
EDWARDSVILLE	CLEBURNE CO.	AL	05/11/2008	01:47	CST-6	Tornado	EF1	0	0	50.00K	0.00K
Totals:								0	0	50.00K	12.00K

3 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	CLEBURNE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	250.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	09/16/2004	10:45	CST	Flash Flood		0	0	50.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	11/24/2004	08:25	CST	Flash Flood		0	0	6.00K	0.00K
Totals:								0	0	306.00K	0.00K

36 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/30/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/26/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

12 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/25/2004	19:30	CST	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/25/2010	08:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/09/2011	19:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/17/2013	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	40.00K	0.00K

8 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)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	24.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	25.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	5.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	50 kts. EG	0	0	500.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	569.00K	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.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: www.city-data.com)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
58.9 miles away from county center	CLEBURNE	AL	04/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
89.5 miles away from county center	CLEBURNE	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
88.4 miles away from county center	CLEBURNE	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

155 Wildfire Events – 2010 - 2013

(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Cleburne	155	52	5,278	1,759	34

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.

Table 5-3: Town of Edwardsville
Hazard Probability Assessment

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	5	50%	>10%	Countywide
Lightning	Unknown	Unknown	>10%	Town-wide
Hail	3	300%	>10%	Town-wide
Tornado	2	20%	>10%	Town-wide
Flood/Flash Flood	3	30%	5-10%	Countywide
Drought/Extreme Heat	36	>100%	>10%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	12	>100%	5-10%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Countywide
Sinkhole/Expansive Soil	Unknown	Unknown	<10%	N/A
Landslide	Unknown	Unknown	<10%	N/A
Earthquake	3	30%	<10%	N/A
Wildfire	155	>100%	>10%	Countywide
Dam/Levee Failure	0	Unknown	<10%	N/A

Sources: 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, 2014

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: Town of Edwardsville Critical Facilities			
Facility	**Location**	**Use**	**Value**
Governmental Services			
Town Hall	4036 Tallapoosa St	Government	$75,000
Police Department		Police Dispatch	N/A
Muscadine Volunteer Fire Department	1564 County Road 57	Fire and Rescue	N/A
Public Works			
Water System	N/A	Water Supply	$300,000
Public Works	4036 Tallapoosa St		$10,000
Miscellaneous			
Streets	N/A	Transportation	$200,000
Senior Center/Recreation Facilities		Recreation	$5,000
(Source: Local Jurisdiction; HAZUS-MH 2.1)		**TOTAL**	**$590,000**

Table 5-5: Town of Edwardsville 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	3.8	0	0	Unknown	$17,745	$19,342
Lightning	0.2	0	0	Unknown	$59,000	$64,310
Hail	2.3	0	0	Unknown	$1,000	$1,090
Tornado	0.4	0	0	Unknown	$475,000	$517,750
Flood/Flash Flood	0.6	0	1	$3,863	$64,200	$74,189
Drought/Extreme Heat	3.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	1.2	0	0	Unknown	$40,000	$43,600
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$71,125	$77,526
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire	52.0	0	0	Unknown	$64,698	$70,521
Dam/Levee Failure	Unknown	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 denotes no data available to determine the average occurrences, average loss or projected loss per event.

Town of Edwardsville Mitigation Action Plan

The Town of Edwardsville 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 Edwardsville's updated mitigation actions. During the plan update process new actions were identified and 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.

Mitigation Strategy – Town of Edwardsville

Table 5-6: Town of Edwardsville Mitigation Actions 2015	
Mitigation Action	Install/Construct Community Safe Rooms for the public
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Town Council
Local Planning Mechanism	Town Council and County EMA
Time frame for Completion	3 years
Estimated Cost	$100,000
Funding Sources	Local and grants funds
Priority	High
Status	The town has continued interest in completing this project. Budgetary constraints have prevented the implementation to date.
Mitigation Action New	Install emergency generators in needed facilities
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	Town Council and County EMA
Time frame for Completion	3 years
Estimated Cost	$80,000
Funding Sources	Local and grants funds
Priority	High
Status	New Action

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Town of Fruithurst

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

TABLE 5-8: TOWN OF FRUITHURST HAZARD EVENTS

7 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	CLEBURNE CO.	AL	05/02/2003	17:22	CST	Thunderstorm Wind	55 kts. EG	0	0	12.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	07/21/2003	16:50	CST	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	06/22/2004	18:25	CST	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	04/30/2005	04:31	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	07/20/2007	11:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	06/29/2008	16:18	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	03/18/2013	15:27	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	550.10K	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.

4 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
FRUITHURST	CLEBURNE CO.	AL	03/19/2003	16:23	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	05/10/2005	18:58	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	04/08/2006	01:24	CST	Hail	0.75 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	04/04/2008	15:08	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
FRUITHURST	CLEBURNE CO.	AL	06/09/2008	15:38	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 occurred or were reported during 01/01/2003 thru 12/31/2013.

3 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	CLEBURNE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	250.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	09/16/2004	10:45	CST	Flash Flood		0	0	50.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	11/24/2004	08:25	CST	Flash Flood		0	0	6.00K	0.00K
Totals:								0	1	321.00K	0.00K

36 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/30/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/26/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K

Totals:								0	0	0.00K	0.00K

12 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/25/2004	19:30	CST	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/25/2010	08:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/09/2011	19:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/17/2013	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	40.00K	0.00K

8 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)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	24.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	25.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	5.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	50 kts. EG	0	0	500.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	569.00K	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)
No sinkhole 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 landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: www.city-data.com)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
58.9 miles away from county center	CLEBURNE	AL	04/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
89.5 miles away from county center	CLEBURNE	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
88.4 miles away from county center	CLEBURNE	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

155 Wildfire Events – 2010 thru 2013
(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Cleburne	155	52	5,278	1,759	34

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: Town of Fruithurst Hazard Probability Assessment				
Natural Hazards	**Number of Historical Occurrences**	**Probability of Future Occurrence**	**Extent**	**Area Affected**
Thunderstorm	7	70%	>10%	Countywide
Lightning	Unknown	Unknown	>10%	N/A
Hail	4	40%	>10%	Town-wide
Tornado	Unknown	Unknown	>10%	N/A
Flood/Flash Flood	3	30%	5-10%	Countywide
Drought/Extreme Heat	36	>100%	>10%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/ Extreme Cold	12	>100%	5-10%	Countywide
Hurricane/High Wind/ Strong Wind/ Tropical Storm/ Tropical Depression	8	80%	5-10%	Countywide
Sinkhole/Expansive Soil	Unknown	Unknown	<10%	N/A
Landslide	Unknown	Unknown	<10%	N/A
Earthquake	3	30%	<10%	Countywide
Wildfire	155	>100%	>10%	Countywide
Dam/Levee Failure	Unknown	Unknown	<10%	N/A

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 4-12). Zero denotes no data available to determine the probability, extent, or affected area.

TABLE 5-10: Town of Fruithurst Critical Facilities, 2015			
Facility	**Location**	**Use**	**Value**
Government			
City Hall	16201 Highway 78	Government	
Education			
Fruithurst Elementary School	222 School Street	Education	
Miscellaneous			
Fruithurst Group Home	15314 Highway 78	Foster Care	
Senior Center	16201 Highway 78	Recreaction	
Source: Local			

Table 5-11: Town of Fruithurst
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	3.8	0	0	Unknown	$17,745	$19,342
Lightning	0.2	0	0	Unknown	$59,000	$64,310
Hail	2.3	0	0	Unknown	$1,000	$1,090
Tornado	0.4	0	0	Unknown	$475,000	$517,750
Flood/Flash Flood	0.6	0	1	$3,863	$64,200	$74,189
Drought/Extreme Heat	3.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	1.2	0	0	Unknown	$40,000	$43,600
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$71,125	$77,526
Sinkhole/Expansive Soil	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire	52.0	0	0	Unknown	$64,698	$70,521
Dam/Levee Failure	Unknown	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 denotes no data available to determine the average occurrences, average loss or projected loss per event.

Town of Fruithurst Mitigation Action Plan

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

Mitigation Strategy – Town of Fruithurst

Table 5-12: Town of Fruithurst Mitigation Actions 2015	
Mitigation Action	Install/construct community safe rooms near the senior citizens center
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	Town Council
Time frame for Completion	5 Years
Estimated Cost	$100,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The town is still interested in pursuing this project. Budgetary constraints have prevented the town from completing this project.
Mitigation Action New	Install emergency generators in needed facilities
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	Town Council
Time frame for Completion	5 Years
Estimated Cost	$80,000
Funding Sources	Local and Grant Funds
Priority	High
Status	New Action

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City of Heflin

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Table 5-13: City of Heflin Risk and Vulnerability Overview				
Natural Hazards	**Hazard Identification**	**Mitigation Actions Prioritization**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	1	4	H
Lightning	X	2	8	H
Hail	X	2	6	H
Tornado	X	1	8	H
Flood	X	1	7	M
Drought/Extreme Heat	X	2	2	H
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	2	3	M
Hurricane/Tropical Storm/ Tropical Depression/ High Wind/ Strong Wind	X	1	5	M
Sinkhole/Expansive Soil	X	2	7	L
Landslide	X	2	9	L
Earthquake	X	2	7	L
Wildfire	X	2	1	H
Dam/Levee Failure	X	2	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 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)

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

TABLE 5-14: CITY OF HEFLIN HAZARD EVENTS

13 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	CLEBURNE CO.	AL	05/02/2003	17:22	CST	Thunderstorm Wind	55 kts. EG	0	0	12.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	06/22/2004	18:25	CST	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/24/2004	07:49	CST	Thunderstorm Wind	50 kts. EG	0	0	17.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	03/13/2005	20:52	CST	Thunderstorm Wind	52 kts. EG	0	0	14.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	04/30/2005	04:31	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/02/2005	17:35	CST	Thunderstorm Wind	55 kts. EG	0	0	19.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	07/04/2005	17:09	CST	Thunderstorm Wind	52 kts. EG	0	0	37.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	02/26/2008	04:35	CST-6	Thunderstorm Wind	70 kts. EG	0	0	200.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/30/2010	10:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	11/30/2010	10:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	02/25/2011	01:22	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	04/04/2011	20:08	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/24/2011	17:07	CST-6	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	321.00K	0.00K

1 Lightning 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
HEFLIN	CLEBURNE CO.	AL	05/08/2003	15:00	CST	Lightning		0	0	48.00K	0.00K
Totals:								0	0	48.00K	0.00K

4 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
HEFLIN	CLEBURNE CO.	AL	02/21/2005	20:48	CST	Hail	1.00 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	04/22/2005	20:14	CST	Hail	0.88 in.	0	0	1.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/22/2006	15:20	CST	Hail	0.75 in.	0	0	0.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	06/09/2008	16:45	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
Totals:								0	0	1.00K	0.00K

1 Tornado 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
HEFLIN	CLEBURNE CO.	AL	05/11/2008	01:36	CST-6	Tornado	EF1	0	0	1.750M	0.00K
Totals:								0	0	1.750M	0.00K

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
COUNTYWIDE	CLEBURNE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	250.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	05/08/2003	15:30	CST	Flash Flood		0	1	8.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	09/16/2004	10:45	CST	Flash Flood		0	0	50.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	11/24/2004	08:25	CST	Flash Flood		0	0	6.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	07/10/2005	19:00	CST	Flash Flood		0	0	7.00K	0.00K
HEFLIN	CLEBURNE CO.	AL	01/30/2013	11:38	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	1	321.00K	0.00K

36 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/30/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/26/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

12 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/25/2004	19:30	CST	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/25/2010	08:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/09/2011	19:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/17/2013	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	40.00K	0.00K

8 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)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	24.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	25.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	5.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	50 kts. EG	0	0	500.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	569.00K	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.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: www.city-data.com)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
58.9 miles away from county center	CLEBURNE	AL	04/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
89.5 miles away from county center	CLEBURNE	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
88.4 miles away from county center	CLEBURNE	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

155 Wildfire Events – 2010 thru 2013
(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Cleburne	155	52	5,278	1,759	34

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 5-15: City of Heflin Hazard Probability Assessment				
Natural Hazards	**Number of Historical Occurrences**	**Probability of Future Occurrence**	**Extent**	**Area Affected**
Thunderstorm	13	>100%	>10%	Countywide
Lightning	1	10%	>10%	City-wide
Hail	4	40%	>10%	City-wide
Tornado	1	10%	>10%	Citywide
Flood/Flash Flood	6	60%	5-10%	Countywide
Drought/Extreme Heat	36	>100%	>10%	Countywide
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold	12	>100%	5-10%	Countywide
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	8	80%	5-10%	Countywide
Sinkhole/Expansive Soil	Unknown	Unknown	<10%	N/A
Landslide	Unknown	Unknown	<10%	N/A
Earthquake	3	30%	<10%	Countywide
Wildfire	155	>100%	>10%	Countywide
Dam/Levee Failure	Unknown	Unknown	<10%	N/A

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 or unknown denotes no data available to determine the probability, extent, or affected area.

TABLE 5-16: City of Heflin Critical Facilities			
Facility	**Location**	**Use**	**Value**
Governmental Services			
City Hall	850 Ross Street	Government	$300,000
Armory	110 Evans Street	Government	
Public Works			
Water System	850 Ross Street	Water Supply	$7,500,000
Sewer System	850 Ross Street	Sewage	$4,500,000
Street Department	850 Ross Street	Transportation	$175,000
Water Treatment	2724 Highway 78	Water Supply	
Education			
Cleburne County High School	520 Evans Bridge Road	Education	
Cleburne County Special Education	584 Evans Street	Education	
Cleburne County Middle School	584 Evans Bridge Road	Education	
Cleburne County Vocational School	11200 AL-46	Education	
Miscellaneous			
Senior Center/Recreational Facility	1228 Coleman Street	Recreation	$3,000,000
(Source: Local Jurisdiction, 2015)		**TOTAL**	**$15,475,000**

Table 5-17: City of Heflin 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	3.8	0	0	Unknown	$17,745	$19,342
Lightning	0.2	0	0	Unknown	$59,000	$64,310
Hail	2.3	0	0	Unknown	$1,000	$1,090
Tornado	0.4	0	0	Unknown	$475,000	$517,750
Flood/Flood	0.6	0	1	$3,863	$64,200	$74,189
Drought/Extreme Heat	3.6	0	0	Unknown	Unknown	Unknown
Winter Weather/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	1.2	0	0	Unknown	$40,000	$43,600
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$71,125	$77,526
Sinkhole/Expansive Soil	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire	52.0	0	0	Unknown	$64,698	$70,521
Dam/Levee Failure	Unknown	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 causing damage 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 denotes no data available to determine the average occurrences, average loss or projected loss per event.

City of Heflin Mitigation Action Plan

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

Mitigation Strategy – City of Heflin

Table 5-18: City of Heflin Mitigation Actions 2015	
Mitigation Action	Sugar Hill Road-Enlarge 18” pipe to 24” pipe that runs under roadway to eliminate flooding during heavy rains.
Hazard(s) Addressed	Flooding
Applies to new/existing asset	Existing
Local Planning Mechanism	City Council and Street Superintendent
Time frame for Completion	5 Years
Estimated Cost	$45,000
Funding Sources	Local Funds
Priority	High
Status	The city has been unable to complete this project due to lack of funds. They plan to continue in pursuing this action in the future.
Mitigation Action	Ross Street-Correcting an inadequate drainage system from previous resurfacing of the street causing flooding into area storefronts.
Hazard(s) Addressed	Flooding
Applies to new/existing asset	Existing
Local Planning Mechanism	City Council and Street Superintendent
Time frame for Completion	3 Years
Estimated Cost	Unknown
Funding Sources	Local Funds
Priority	High
Status	The city did not have adequate funding for this action to be completed. They plan to explore options to complete and fund this action in the future.
Mitigation Action	Install Community Safe Rooms
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	New
Local Planning Mechanism	City Council and County EMA
Time frame for Completion	3 Years
Estimated Cost	$42,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The city has been unable to complete this action due to lack of funds. They plan to pursue this action should grant funds become available.
Mitigation Action	Expand City Hall to include a community safe room
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	City Council and County EMA
Time frame for Completion	7 Years

Estimated Cost	$80,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The city has not completed this project due to funding. They plan to complete this action in the future if funding is available.
Mitigation Action	Purchase emergency generators for the police department and water department.
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	Existing
Local Planning Mechanism	City Council, Police Department, Water Works and Sewer Board
Time frame for Completion	1 Year
Estimated Cost	$42,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The city has not completed this project due to funding. They plan to complete this action in the future as funding becomes available.
Mitigation Action	Encourage individual citizens to install in-home tornado shelters.
Hazard(s) Addressed	Thunderstorms, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset	New and Existing
Local Planning Mechanism	EMA and Individuals
Time frame for Completion	2020
Estimated Cost	$5,000
Funding Sources	Citizens, Local, HMGP
Priority	High
Milestones	This action was submitted as a Limited Amendment to the 2010 hazard mitigation plan and remains relevant in this plan update.

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Town of Ranburne

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Table 5-19: Town of Ranburne Risk and Vulnerability Overview				
Natural Hazards	**Hazard Identification**	**Mitigation Actions Prioritization**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	1	6	H
Lightning	X	3	6	H
Hail	X	3	6	H
Tornado	X	1	7	H
Flood	X	2	6	M
Drought/Extreme Heat	X	3	2	H
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	1	4	M
Sinkhole/Expansive Soil	X	3	6	L
Landslide	X	3	7	L
Earthquake	X	3	5	L
Wildfire	X	3	1	H
Dam/Levee Failure	X	3	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 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)

TABLE 5-20: TOWN OF RANBURNE HAZARD EVENTS

4 Thunderstorms 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	CLEBURNE CO.	AL	05/02/2003	17:22	CST	Thunderstorm Wind	55 kts. EG	0	0	12.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	06/22/2004	18:25	CST	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	04/30/2005	04:31	CST	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
RANBURNE	CLEBURNE CO.	AL	06/20/2006	16:05	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Totals:								0	0	18.00K	0.00K

1 Lightning 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
RANBURNE	CLEBURNE CO.	AL	05/07/2003	14:22	CST	Lightning		0	0	70.00K	0.00K
Totals:								0	0	70.00K	0.00K

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
RANBURNE	CLEBURNE CO.	AL	05/07/2003	14:30	CST	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.

3 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	CLEBURNE CO.	AL	05/07/2003	16:00	CST	Flash Flood		0	0	250.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	09/16/2004	10:45	CST	Flash Flood		0	0	50.00K	0.00K
COUNTYWIDE	CLEBURNE CO.	AL	11/24/2004	08:25	CST	Flash Flood		0	0	6.00K	0.00K
Totals:								0	0	306.00K	0.00K

36 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/18/2006	07:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/30/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/19/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	06/26/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K

Totals:								0	0	0.00K	0.00K

12 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
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/25/2004	19:30	CST	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/09/2011	16:40	CST-6	Winter Storm		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/07/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/25/2010	08:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	02/09/2011	19:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/17/2013	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/28/2005	20:45	CST	Ice Storm		0	0	40.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/19/2008	06:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/26/2010	03:00	CST-6	Winter Weather		0	0	0.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	40.00K	0.00K

8 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)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	24.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	25.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	5.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/16/2004	09:00	CST	High Wind	50 kts. EG	0	0	500.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	09/07/2004	00:15	CST	Strong Wind	33 kts. ES	0	0	1.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	03/09/2006	18:00	CST	Strong Wind	40 kts. EG	0	0	2.00K	0.00K
CLEBURNE (ZONE)	CLEBURNE (ZONE)	AL	12/20/2007	18:00	CST-6	Strong Wind	30 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	569.00K	0.00K

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

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

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

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: www.city-data.com)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
58.9 miles away from county center	CLEBURNE	AL	04/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
89.5 miles away from county center	CLEBURNE	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
88.4 miles away from county center	CLEBURNE	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

155 Wildfire Events – 2010 thru 2013
(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Cleburne	155	52	5,278	1,759	34

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 5-21: Town of Ranburne Hazard Probability Assessment				
Natural Hazards	**Number of Historical Occurrences**	**Probability of Future Occurrence**	**Extent**	**Area Affected**
Thunderstorm	4	40%	>10%	Countywide
Lightning	1	10%	>10%	Town-wide
Hail	1	10%	>10%	Town-wide
Tornado	Unknown	Unknown	>10%	Town-wide
Flood/Flash Flood	3	30%	5-10%	Countywide
Drought/Extreme Heat	36	>100%	>10%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	12	>100%	5-10%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Countywide
Sinkhole/Expansive Soil	Unknown	Unknown	<10%	Town wide
Landslide	Unknown	Unknown	<10%	Town wide
Earthquake	3	30%	<10%	Countywide
Wildfire	155	>100%	>10%	Countywide
Dam/Levee Failure	Unknown	Unknown	<10%	Town wide

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 5-22: Town of Ranburne Critical Facilities			
Facility	**Location**	**Use**	**Value**
Government			
City Hall	21383 Main Street	Government	
Education			
Ranburne Elementary School	181 Young Dr.	Education	
Ranburne High School	21045 Main St	Education	
Source: Local Jurisdiction, 2015		**TOTAL**	**$**

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

Table 5-23: Town of Ranburne 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	3.8	0	0	Unknown	$17,745	$19,342
Lightning	0.2	0	0	Unknown	$59,000	$64,310
Hail	2.3	0	0	Unknown	$1,000	$1,090
Tornado	0.4	0	0	Unknown	$475,000	$517,750
Flood/Flash Flood	0.6	0	1	$3,863	$64,200	$74,189
Drought/Extreme Heat	3.6	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	1.2	0	0	Unknown	$40,000	$43,600
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	0.8	0	0	Unknown	$71,125	$77,526
Sinkhole/Expansive Soil	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire	52.0	0	0	Unknown	$64,698	$70,521
Dam/Levee Failure	Unknown	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 denotes no data available to determine the average occurrences, average loss or projected loss per event.

Town of Ranburne Mitigation Action Plan

The Town of Ranburne recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. The town has been very active with their mitigation projects, as noted below under benchmarking.

Town of Ranburne Mitigation Actions

Table 5-24:Town of Ranburne Mitigation Actions 2015	
Mitigation Action	Ranburne Public Park- Reduce flooding problem at park causing damage to nearby property and roadways.
Hazard(s) Addressed	Flooding
Applies to new/existing asset	New
Local Planning Mechanism	City Council and Street Superintendent
Time frame for Completion	3 Years
Estimated Cost	$25,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The City has not started on this action due to lack of funding. They plan to begin as soon as funding becomes available.
Mitigation Action	Construct/Install Community Safe Room at Ranburne Public Park
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	New
Local Planning Mechanism	City Council and County EMA
Time frame for Completion	5 Years
Estimated Cost	$50,000
Funding Sources	Local and Grant Funds
Priority	High
Status	There was lack of funds which caused this project to be delayed. They city still plans on completing this item as soon as funds become available.
Mitigation Action	Purchase Emergency Generators for Town Hall and Police Department
Hazard(s) Addressed	Thunderstorm, Tornado, High Wind
Applies to new/existing asset	New
Local Planning Mechanism	City Council and Police Department
Time frame for Completion	1 Year
Estimated Cost	$37,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The city was unable to complete this action item due to budgetary constraints. They plan to complete this action when funds become available.
Mitigation Action	Georgia Avenue – Two (2) locations where culverts were washed leaving no road way on.

Hazard(s) Addressed	Flood
Applies to new/existing asset	Existing
Local Planning Mechanism	City Council and Police Department
Time frame for Completion	5 years
Estimated Cost	$25,000
Funding Sources	Local and Grant Funds
Priority	High
Status	The city was unable to complete this action item due to budgetary constraints. They plan to complete this action when funds become available.

HEFLIN WATER AND SEWER BOARD

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Heflin Water and Sewer Board's Mitigation Action Plan

The Heflin Water and Sewer Board in Cleburne County has its own financial account; therefore, serves as its own applicant for hazard mitigation grants. Representatives participated in this plan update by attending meetings, personal contact, email, facsimile, and/or regular mail. The Heflin Water and Sewer Board recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Strategy-Heflin Water and Sewer Board

Table 5-25: Heflin Water and Sewer Board's Mitigation Actions 2015	
Mitigation Action NEW	Install freestanding community safe rooms in vulnerable locations.
Type	Structural Projects
Goal	Reduce risk from natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Local Planning Mechanism	Heflin Water and Sewer Board
Estimated Time Frame for Completion	One year from funding availability
Estimated Cost	$100,000 - $125,000 each
Funding Sources	HMGP; ADECA
Priority	Low
Status	NEW ACTION
Mitigation Action NEW	Encourage the construction of storm shelters in new and existing construction. Construct/install individual storm shelters as needed at water facilities.
Type	Structural Projects
Goal	Reduce risk from natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, Hail, High Wind, Strong Wind
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Heflin Water and Sewer Board
Estimated Time Frame for Completion	One year from funding availability
Estimated Cost	$5,000 each
Funding Sources	HMGP; ADECA
Priority	High
Status	NEW ACTION
Mitigation Action NEW	Purchase emergency generators for post- disaster mitigation and conduct routine tests on backup generators for all critical facilities, to include lift stations.
Type	Emergency Services Protection
Goal	Reduce the water and sewer authorities' vulnerability to natural hazards

Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Heflin Water and Sewer Board
Estimated Time Frame for Completion	One year from available funding
Estimated Cost	$5,000 - $30,000 each
Funding Sources	HMGP; ADECA
Priority	High
Status	New Action

CLEBURNE COUNTY WATER BOARD

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Cleburne County Water Board's Mitigation Action Plan

The Cleburne County Water Board has its own financial account; therefore, serves as its own applicant for hazard mitigation grants. Representatives participated in this plan update by attending meetings, personal contact, email, facsimile, and/or regular mail. The Cleburne County Water Board recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Strategy-Cleburne County Water Board

Table 5-26: Cleburne County Water Board's Mitigation Actions 2015	
Mitigation Action NEW	Install freestanding community safe rooms in vulnerable locations.
Type	Structural Projects
Goal	Reduce risk from natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, Hail, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Local Planning Mechanism	Water Board
Estimated Time Frame for Completion	One year from funding availability
Estimated Cost	$100,000 - $125,000 each
Funding Sources	HMGP; ADECA
Priority	Low
Status	NEW ACTION
Mitigation Action NEW	Encourage the construction of storm shelters in new and existing construction. Construct/install individual storm shelters as needed at water facilities.
Type	Structural Projects
Goal	Reduce risk from natural hazards
Hazard(s) Addressed	Tornadoes, Thunderstorms, Hail, High Wind, Strong Wind
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Water Board
Estimated Time Frame for Completion	One year from funding availability
Estimated Cost	$5,000 each
Funding Sources	HMGP; ADECA
Priority	High
Status	NEW ACTION
Mitigation Action NEW	Purchase emergency generators for post- disaster mitigation and conduct routine tests on backup generators for all critical facilities, to include lift stations.
Type	Emergency Services Protection
Goal	Reduce the water and sewer authorities' vulnerability to natural hazards.
Hazard(s) Addressed	All

Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Water Board
Estimated Time Frame for Completion	One year from available funding
Estimated Cost	$5,000 - $30,000 each
Funding Sources	HMGP; ADECA
Priority	High
Status	New Action

Section Six: Mitigation Plan Maintenance

The plan may be reviewed at any time at the request of any local government, by the Chairman (Cleburne County EMA Director) of the Hazard Mitigation Planning Committee, or at the EMA Director's discretion. Local governments may submit a formal letter to the Cleburne County EMA Director/Chairman of the Cleburne 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 Cleburne County EMA Director/Chairman of the Cleburne 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, update, 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 annually monitor, evaluate, and amend this plan. Public participation is encouraged to allow the public an opportunity to participate in the process. Efforts will be made to have the annual survey form placed on all jurisdictional websites for the public to complete and return. The Hazard Mitigation Planning Committee will review a variety of resources and examine conditions, which may affect mitigation activities for natural 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

For monitoring, evaluating, and updating this plan, Director of the Cleburne County EMA/Chairman of the HMPC will serve as the point of contact for all amendments to the plan and will coordinate all additions, deletions or amendments of actions to the plan, as needed. The EMA Director/Chairman of the HMPC 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 with the Cleburne County EMA Director being the responsible person for reconvening the committee. The five-year plan update will begin at least six months prior to current plan's expiration.

During the past five years, the Cleburne County EMA/Chairman of the HMPC kept no records of the annual plan reviews; therefore, regular plan monitoring will be conducted differently in the next five years. Regular plan monitoring will be achieved through the County EMA's efforts to track mitigation activities. The Director of the Cleburne County EMA/Chairman of the HMPC 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/HMPC Chairman 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/HMPC Chairman 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/HMPC Chairman. Following the two-week deadline, the EMA Director/HMPC Chairman will consolidate the survey forms and act upon the findings as needed and in the methods described below. Again, efforts will be made to have the

annual survey form placed on all jurisdictional websites for the public to complete and return.

The County EMA will conduct an annual evaluation of the plan, reconvening the committee only if additional information is available or the EMA Director/HMPC Chairman requires assistance. The EMA Director/HMPC Chairman 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 Director/HMPC Chairman 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 Cleburne County Hazard Mitigation Plan is a stand-alone plan; however, will be placed alongside the current Cleburne County Emergency Operations Plan that is administered by the Cleburne County Emergency Management Agency.

Incorporation of the hazard mitigation plan will vary for each jurisdiction based an 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 jurisdictions do 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.

The jurisdictions are funded through their local budgets and utilize grants that allow them to expand on and improve existing policies and programs. The EMA distributes educational material and reaches out to the citizens and businesses in the county. **Table 1-1** provides a list of plans, policies, and ordinances available to each jurisdiction. These plans, policies, and ordinances, along, with an engineer, planners, GIS staff, a building inspector, emergency managers, and grant writers help to expand on and improve the jurisdictions' capabilities.

APPENDIX I
Adopting Resolutions

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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 Cleburne County Commission or Director of the Cleburne County Emergency Management Agency.

The Cleburne 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 Cleburne County, and was developed in a joint and cooperative venture by members of the Cleburne County Hazard Mitigation Planning.

Cleburne 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. Cleburne 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 Cleburne 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 Cleburne 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 Cleburne County, Alabama.

Date	Steve Swafford, Director Cleburne County Emergency Management Agency

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County of Cleburne

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the County of Cleburne participated in the updating of a multi-jurisdictional plan, the Cleburne County Hazard Mitigation Plan; and

WHEREAS, the County of Cleburne is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the County of Cleburne has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the County Commission that the County of Cleburne adopts the 2015 Cleburne County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the County Commission.

_____

Chairman, Cleburne County Commission

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Town of Edwardsville

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Edwardsville participated in the updating of a multi-jurisdictional plan, Cleburne County Hazard Mitigation Plan; and

WHEREAS, the Town of Edwardsville is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the Town of Edwardsville has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Town Council that the Town of Edwardsville adopts the 2015 Cleburne County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Town Council.

_____

Mayor, Town of Edwardsville

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Town of Fruithurst

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Fruithurst participated in the updating of a multi-jurisdictional plan, Cleburne County Hazard Mitigation Plan; and

WHEREAS, the Town of Fruithurst is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the Town of Fruithurst has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Town Council that the Town of Fruithurst adopts the 2015 Cleburne County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Town Council.

_____

Mayor, Town of Fruithurst

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City of Heflin

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the City of Heflin participated in the updating of a multi-jurisdictional plan, the Cleburne County Hazard Mitigation Plan; and

WHEREAS, the City of Heflin is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the City of Heflin has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the City Council that the City of Heflin adopts the 2015 Cleburne County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the City Council.

_____

Mayor, City of Heflin

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Town of Ranburne

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Ranburne participated in the updating of a multi-jurisdictional plan, Cleburne County Hazard Mitigation Plan; and

WHEREAS, the Town of Ranburne is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the Town of Ranburne has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Town Council that the Town of Ranburne adopts the 2015 Cleburne County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Town Council.

_____

Mayor, Town of Randburne

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Heflin Water and Sewer Board

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, Heflin Water and Sewer Board participated in the updating of a multi-jurisdictional plan, Cleburne County Hazard Mitigation Plan; and

WHEREAS, Heflin Water and Sewer Board is a local special district that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, Heflin Water and Sewer Board has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Board that the Heflin Water and Sewer Board adopts the 2015 Cleburne County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Heflin Water and Sewer Board.

_____

Chairman, Heflin Water and Sewer Board

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Cleburne County Water Board

2015 Cleburne County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Cleburne County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, Cleburne County Water Board participated in the updating of a multi-jurisdictional plan, Cleburne County Hazard Mitigation Plan; and

WHEREAS, Cleburne County Water Board is a local special district that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, Cleburne County Water Board has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Board that the Cleburne County Water Board adopts the 2015 Cleburne County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Cleburne County Water Board.

_____

Chairman, Cleburne County Water Board