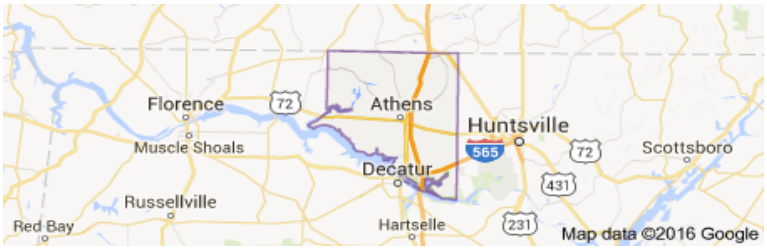

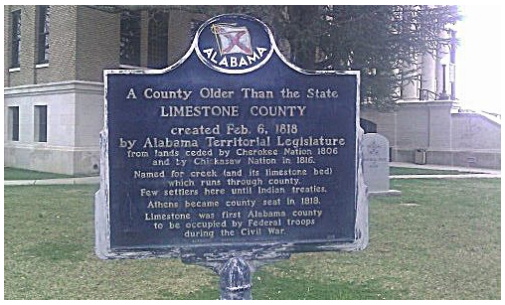

LIMESTONE COUNTY, ALABAMA

NATURAL HAZARDS MITIGATION PLAN

2015

Prepared under the direction of the:
Athens-Limestone County EMA
and the
Limestone County Hazard Mitigation Planning Committee

By:

LEE HELMS ASSOCIATES

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Limestone County Natural Hazards Mitigation Plan

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SECTION 1: INTRODUCTION

Background

Limestone County Hazard Mitigation Plan

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.

In 2005, Limestone County officially adopted the initial Limestone County Natural Hazard Mitigation Plan in response to the requirements of DMA2K and the Interim Final Rule (IFR) Section 201.6 (a). FEMA also approved this plan. In addition Section 201.6 (d) (3) mandates that a county update its plan every five years "to reflect changes in development, progress in local mitigation efforts, and changes in priorities." The first update to the 2005 plan was approved in 2011. The 2015 version of this plan is the third plan revision in response to those requirements and the Final Rule (FR) Section 201.6.

Limestone County will continue to comply with all applicable federal and state statutes and regulations related to hazard mitigation planning. In addition, Limestone 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 April 21, 2014 through January 4, 2016, extended to September 20, 2017. Limestone County entered into an agreement with Lee Helms Associates L.L.C. (LHA) in November 2014 to update the 2010 plan that was also revised by Lee Helms Associates L.L.C. (LHA) and expires on January 4, 2016.

Scope

The Limestone County Hazard Mitigation Plan includes all incorporated and unincorporated areas in Limestone County. The plan addresses all natural hazards that may affect Limestone County and its residents. 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

The purpose of the plan is to rationalize the process of identifying and implementing appropriate countywide hazard mitigation actions. The document includes a detailed characterization of natural hazards countywide; a risk assessment that describes potential losses to physical property, people, and operations; a set of goals, objectives, strategies and actions that will guide the county's mitigation activities, and a detailed plan for implementing and monitoring the required aspects of the plan.

SECTION 2: THE PLANNING PROCESS

Plan Update Process

As the 2015 process of updating the 2010 plan began, the Athens-Limestone County EMA (ALCEMA) reappointed the Hazard Mitigation Planning Committee (HMPC) to participate in the process and reiterated the importance of the plan for the county. The Limestone County Commission delegated responsibility for overseeing the update of the plan to the ALCEMA. The HMPC served as the core group responsible for all decisions about the planning process and content. The HMPC meets two times in addition to personal visits and other correspondence. The third and final meeting will be for jurisdictions to allow the public and neighboring communities an opportunity to comment and/or provide input into the plan. An initial HMPC meeting was held on Wednesday, February 18, 2015 at 1:30 p.m. in the Athens-Limestone County EMA's Emergency Operations Center located at 1011 W. Market Street in Athens. This meeting was the first of two public meetings held during the planning process. Advertisements for the meeting were placed in The Limestone Ledger. The second HMPC meeting was held by teleconferences, emails, facsimiles, and local visits to all participating jurisdictions. The final HMPC and public meeting will be held as stated above, allowing the public input into the plan prior to a final. Advertisements, agendas, sign in sheets and additional meeting informational documents are included in this section. Adoption Resolutions can be found in **Section 8**. All jurisdictions and planning committee members actively participated by attending meetings and providing input by phone, fax, email, postal mail and one-on-one contacts made by the EMA Director/HMPC Chairperson. No one from the public or neighboring communities chose to participate.

The Athens-Limestone County EMA led the update of all sections of the plan. Subject matter experts on the HMPC were solicited for specific information regarding hazards, risks, capabilities and strategies. HMPC members were also asked to review/discuss statuses of mitigation strategies from the 2010 plan for which they were responsible and asked to provide new actions that they may pursue in the future.

The hazard mitigation planning update process began in September of 2014 after the Limestone County Emergency Management Agency (ALCEMA) was awarded a planning grant from the Alabama Emergency Management Agency (AEMA). The ALCEMA 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 an updated more concise structure than the 2010 plan; however, all required information remains a part of the plan.

The Limestone County Hazard Mitigation Planning Committee's members serve for the entire five-year planning cycle of the Natural Hazards Mitigation Plan. The HMPC mission statement remained the same and is as follows:

To develop and oversee a comprehensive natural hazard mitigation planning process that:

- Facilitates coordination among local, state, and federal agencies
- Monitors and evaluates the potential risks of hazards to life and property
- Actively mobilizes all available community resources and measures to mitigate the threats of hazards
- Implement programmed actions with specific results

Athens-Limestone County EMA Director/HMPC Chairperson, Rita White, devised a list of requirements and guidelines during the 2010 plan update that must be adhered to by each committee member in order for them to remain a part of the multi-jurisdictional plan. The HMPC approved these requirements and guidelines by vote during the first HMPC meeting. These requirements and guidelines remain the same for the 2015 plan update. Each HMPC member stated they fully understood and would abide by, the guidelines set forth by the Athens-Limestone County EMA. The requirements/guidelines remain the same and are as follows:

- Attendance by them, or a representative, at each of the HMPC meetings
- If unable to attend a meeting, follow up by communicating with the Limestone County EMA through personal visits, phone calls, correspondence, email or fax
- Timely submission of information necessary for the draft plan
- Full cooperation among the members of each municipality with the Limestone County EMA and the consultant. All jurisdictions, planning committee members, the public and neighboring communities must actively participate by attending meetings and providing input by phone, fax, email, postal mail or one-on-one contacts made by the HMPC Chairperson.

The HMPC members listed below actively participated in this plan's update by attending meetings and/or providing information via telephone, email, fax, postal mail, or through personal

visits made by the HMPC Chairperson, Rita White, or representatives of Lee Helms Associates:

Limestone County

Daphne Ellison, Athens-Limestone County EMA Officer (participated via telephone, email, fax and personal visits)

David Freeman, IT Director (replaced by Jonathan Yeardon)

Eddie Gilbert, Athens-Limestone County EMA Officer

Mark Yarbrough, Limestone County Commission Chairman

Richard Sanders, County Engineer (replaced by Bryant Moss)

Rita White, Athens-Limestone County EMA Director

Ardmore (members participated via telephone, email, fax and personal visits)

Billy Shannon, Mayor

Terry Barkley, Ardmore Street Dept.

Tim Toone, Ardmore Response

Athens

Brian Thornton, Athens Fire and Rescue, Assistant Fire Chief (participated via telephone, email, fax and personal visits)

Gary Scroggins, Athens Utilities (participated via telephone, email, fax and personal visits)

Micah Cochran, Athens Street Department

Ronnie Marks, Mayor (participated via telephone, email, fax and personal visits)

Tony Kirk, Athens Fire Department, Fire Chief

Elkmont

Tracy Compton, Mayor (participated via telephone, email, fax and personal visits)

Lester

Richard Durham, Mayor (participated via telephone, email, fax and personal visits)

Mooresville

Margaret-Anne Crumlish, Mayor (participated via telephone, email, fax and personal visits)

Athens City Schools

Dr. William Holladay III, Superintendent (participated via telephone, email, fax and personal visits)

Vance Roberson, Transportation/Maintenance Director

Others

Lee Helms, Lee Helms Associates, L. L. C., Consultant

Renee Helms, Lee Helms Associates, L. L. C., Consultant (participated via telephone, email and fax)

INITIAL MEETING AGENDA

2015 ATHENS - LIMESTONE COUNTY HAZARD MITIGATION PLAN UPDATE
Wednesday, February 18, 2015 @ 1:30 p.m.
Athens – Limestone County EMA, 1011 W. Market Street, Athens, AL 35611

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 Lee Helms Associates, L. L. C. under the direction of the Hazard Mitigation Planning Committee and the Athens – Limestone County Emergency Management Agency and adopted by:
     - Limestone County – Unincorporated
     - Ardmore - Town
     - Athens - City
     - Elkmont - Town
     - Lester – Town
     - Mooresville - 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 Athens - Limestone 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 January 4, 2016
   - Period of Performance for the grant is April 21, 2014 – January 4, 2016
   - 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

Limestone County

Emergency Management Agency

FOR IMMEDIATE RELEASE **CONTACT: Rita White**

DATE: APRIL 27, 2016 **(256) 232-2631**

There will be a public meeting on February 18, 2015 at 1:30 pm at the Emergency Management Agency located at 1011 W. Market St., Athens, AL 35611. The purpose of this meeting is to begin the process of updating the Limestone County Hazard Mitigation Plan. Participation in this process is required in order for jurisdictions, boards, etc. to be eligible to apply for federal hazard mitigation grants in the future.

LIMESTONE COUNTY

EMERGENCY MANAGEMENT AGENCY

1011 W. Market St. • Athens, Alabama 35611

(256) 232-2631 • Fax (256) 233-2682

Email ema@limestonecounty-al.gov

Rita White, Director

April 27, 2016

MEMORANDUM

There will be a public meeting on February 18, 2015 at 1:30 pm at the Emergency Management Agency. The purpose of this meeting is to begin the process of updating the Limestone County Hazard Mitigation Plan. Participation in this process is required in order for your jurisdiction, board, etc. to be eligible to apply for federal hazard mitigation grants in the future.

Please make plans to attend this meeting.

Thank You,

Rita White, Director

Limestone County EMA

LEGALS

STATE OF ALABAMA,
LIMESTONE COUNTY,

CITY OF ATHENS.

Notice is hereby given that the following Ordinance will be considered by the City Council of the City of Athens, Alabama, at its regular meeting to be held on March 9, 2015, in the Council Chambers of the Athens Police Department at 951 E. Hobbs Street, in the City of Athens, Alabama, at 5:30 p.m., and at such time and place, all persons who desire shall have an opportunity of being heard in opposition to or in favor of the following proposed Ordinance.

AN ORDINANCE TO REZONE PROPERTY FOR THE CITY OF ATHENS FROM THE MC (MEDICAL CENTER) DISTRICT TO THE R-2(1) (DUPLEX RESIDENTIAL) DISTRICT. PROPERTIES ARE LOCATED ALONG COMAN STREET, BRYAN STREET & BUTLER DRIVE

STATE OF ALABAMA,

LIMESTONE COUNTY,

ORDINANCE
NUMBER 2015 -

CITY OF ATHENS.

WHEREAS, the City Council of the City of Athens, Alabama, has heretofore adopted, "The Zoning Ordinance of the City of Athens, Alabama," and,

WHEREAS, Ordinance 2014-1930 adopted by the City Council of the City of Athens, Alabama for the rezoning of properties along Coman Street, Bryan Street, and Butler Drive from the MC - Medical Center District to the R-2-1 Duplex Residential District had an error in the legal description.

WHEREAS, the Planning Commission of the City of Athens, Alabama, has made a recommendation to the City Council of the City of Athens, Alabama, that the hereinafter correctly described area should be rezoned from the MC (Medical Center) District to a R-2(1) (Duplex Residential) District.

WHEREAS, the adoption of Ordinance 2014-1930 was not based on a recom-

LEGALS

LEGAL NOTICE

There will be a public meeting on **February 18, 2015** at 1:30pm at the Emergency Management Agency located at 1011 W. Market St., Athens, AL 35611. The purpose of this meeting is to begin the process of updating the Limestone County Hazard Mitigation Plan. Participation in this process is required in order for jurisdictions, boards, etc. to be eligible to apply for federal hazard mitigation grants in the future.

The News Courier
February 3, 4, 5, 6, 8, 10, 11, 12, 13 and 15, 2015

STATE OF ALABAMA,
LIMESTONE COUNTY,

CITY OF ATHENS.

Notice is hereby given that the following Ordinance will be considered by the City Council of the City of Athens, Alabama, at its regular meeting to be held on March 9, 2015, in the Council Chambers of the Athens Police Department at 951 E. Hobbs Street, in the City of Athens, Alabama, at 5:30 p.m., and at such time and place, all persons who desire shall have an opportunity of being heard in opposition to or in favor of the following proposed Ordinance.

AN ORDINANCE TO DESIGNATE THE DONNELL HOUSE AND SURROUNDING YARD, LOCATED AT 601 CLINTON STREET, AS A HISTORIC SITE UNDER THE PROVISIONS OF THE ATHENS HISTORIC PRESERVATION ORDINANCE

STATE OF ALABAMA,
LIMESTONE COUNTY,

ORDINANCE
NUMBER 2015 -

CITY OF ATHENS.

WHEREAS, the City Council of the City of Athens, Alabama, has heretofore adopted, "The Historic Preservation Ordinance of the City of Athens, Alabama," and,

WHEREAS, the Athens Board of Education, owner of the Donnell House property, supports the designation of the hereinafter described area as a historic site.

LEGALS

OF ATHENS, ALABAMA, as follows:

That all of the hereinafter described area or real estate is hereby designated as a historic site in accordance with and defined by "The Historic Preservation Ordinance of the City of Athens, Alabama," and that the area is situated in City of Athens, Limestone County, Alabama, and is described as follows:

A tract of land lying generally described as in the Northeast Quarter of the Southeast Quarter of Section 8, Township 3 South, Range 4 West, Limestone County, Alabama. This property is more particularly described as follows:

Commence at the intersection of the centerlines of Forrest Street and Clinton Street, thence South 2 Degrees 26 Minutes 59 Seconds West along the centerline of Clinton Street a distance of 300 feet to a point; thence South 88 Degrees 59 Minutes 1 Seconds East a distance of 315 feet to the Point of Beginning along the centerline of an asphalt drive in front of the Donnell House and east of a covered walkway; thence South 0 Degrees 25 Minutes 7 Seconds West a distance of 69 feet to a point; thence South 88 Degrees 42 Minutes 59 Seconds East a distance of 155 feet to a point; thence North 0 Degrees 37 Minutes 13 Seconds East a distance of 9 feet to a point; thence South 88 Degrees 42 Minutes 59 Seconds East passing between the historic log outbuilding and a flat roofed brick outbuilding a distance of 34 feet to a point; thence North 0 Degrees 37 Minutes 13 Seconds East a distance of 60 feet to a point; thence North 87 Degrees 49 Minutes 57 Seconds West a distance of 187 feet to a point; thence South 4 Degrees 37 Minutes 16 Seconds West a distance of 33 feet returning to the Point of Beginning, containing 0.45 acres, more or less.

This the 9th day of February, 2015.

/s/Annette Barnes
CITY CLERK

The News Courier
February 15 and 22, 2015

LEGALS

Scrivener's Affidavit recorded in Limestone County in RLPY 2013 Page 14735 and Madison County in Instrument Number 20060620000407390; the undersigned U.S. Bank National Association, as Trustee for Residential Asset Mortgage Products, Inc., Mortgage Asset-Backed Pass-Through Certificates, Series 2005-EFC7, as Mortgagee / Transferee, under and by virtue of the power of sale contained in said mortgage, will sell at public outcry to the highest bidder for cash, in front of the main entrance of the Courthouse at Athens, Limestone County, Alabama, on March 18, 2015, during the legal hours of sale, all of its right, title, and interest in and to the following described real estate, situated in Limestone County, Alabama, to-wit:

A tract or parcel of land lying and being in the Northwest Quarter of Section 15, Township 2 South, Range 3 West, and being more particularly described as: Beginning at the center of the South Boundary of Section 15, Township 2 South, Range 3 West, thence run North and along the half section line and the center line of a County Road for a distance of 2658.0 feet to a point; thence leaving said half section and county road, run South 88 degrees 48 minutes West for a distance of 30.0 feet to the true point of beginning of the herein described real estate; thence run South 88 degrees 48 minutes West for a distance of 820.0 feet to an iron pin; thence run north and parallel with the half section line and road for a distance of 210.0 feet to an iron pin; thence run North 88 degrees 48 minutes East for a distance of 820.00 feet to an iron pin located on the West right-of-way margin of said country road; thence run South and along the West right-of-way for a distance of 210.0 feet to the true point of beginning and containing 4.0 acres, more or less.

Property street address for informational purposes: 21515 East Limestone Road, Toney, AL 35773

THIS PROPERTY WILL BE SOLD ON AN "AS IS, WHERE IS" BASIS, SUBJECT TO ANY EASEMENTS, ENCUMBRANCES AND EXCEP-

LEGALS

This sale is made for the purpose of paying the indebtedness secured by said mortgage, as well as the expenses of foreclosure.

The Mortgagee / Transferee reserves the right to bid for and purchase the real estate and to credit its purchase price against the expenses of sale and the indebtedness secured by the real estate.

This sale is subject to postponement or cancellation.

U.S. Bank National Association, as Trustee for Residential Asset Mortgage Products, Inc., Mortgage Asset-Backed Pass-Through Certificates, Series 2005-EFC7, Mortgagee / Transferee
Andy Saag
SIROTE & PERMUTT, P.C.
P. O. Box 55727
Birmingham, AL 35255-5727
Attorney for Mortgagee / Transferee
www.sirote.com/foreclosures
345290

The News Courier
February 8, 15 and 22, 2015

MORTGAGE FORECLOSURE NOTICE

Default having been made in the terms of that certain mortgage executed by **PAUL BARNETT** and **MICHELLE BARNETT,** as Mortgagors, to **ALVIN WALLACE** (now deceased, whose heir at law is his widow, **OLLIE MAE WALLACE,** as Mortgagee, which said mortgage is dated July 3, 2003, and recorded in the Office of the Judge of Probate of Limestone County, Alabama, at RLPY 2003, Page 49592, and said default continuing, and by virtue of the power contained in said mortgage, the following described property will be sold at public outcry for cash, to the highest bidder, in front of the Courthouse door of Limestone County, Alabama, during the legal hours of sale, on the 2nd day of March, 2015, to-wit:

A tract of land lying in the Southwest Quarter of the Southwest Quarter of Section 16, Township 2 South, Range 5 West, Limestone County, Alabama, and being more

LEGALS

Section 16 for a distance of 456.0 feet, passing an iron pin on the East Right-of-Way margin of Harris Road at a distance of 37.0 feet; thence South 01 degrees 11 minutes West and parallel with the West boundary of said Section 16 for a distance of 116.0 feet to an iron pin; thence North 88 degrees 13 minutes West and parallel with the South boundary of said Section 16 for a distance of 456.0 feet to the True Point of Beginning, passing an iron pin on the East right-of-way margin of Harris Road at a distance of 420.5 feet, being subject to a portion of the right-of-way of Harris Road along the West boundary.

This sale is made for the purpose of paying the indebtedness secured by said mortgage as well as the expenses of foreclosure.

OLLIE MAE WALLACE,
Mortgagee

Landy Raley, Atty.
121-A No. Marion St.
Athens, AL 35611
256-232-2920
lawoffice@landyraley.net

The News Courier
February 8, 15 and 22, 2015

LIMESTONE COUNTY

Wednesday, February 18, 2015 at 1:30 p.m. – Limestone Co. EMA, 1011 W. Market Street, Athens, AL 35611
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
David Freeman	Agency: Limestone Co Job Title: IT Dir	Phone: Fax:	
Richard Sanders	Agency: County Engineering Job Title: County Engineer	Phone: Fax:	richard.sanders@limestonecounty-al.gov
Mark Yarbrough	Agency: Limestone County Commission Job Title: Chairman	Phone: Fax:	Mark.yarbrough@limestonecounty-al.gov
Vance Roberson	Agency: Athens City Schools Job Title: Transp./Maint Dir	Phone: 256-614-2600 Fax:	vance.roberson@acs-k12.org
Rita White	Agency: Limestone EMA Job Title: Director	Phone: 256-232-2631 Fax:	
Eddie Gilbert	Agency: Limestone EMA Job Title: EM offic	Phone: Fax:	

LEE HELMS ASSOCIATES

LIMESTONE COUNTY

Wednesday, February 18, 2015 at 1:30 p.m. – Limestone Co. EMA, 1011 W. Market Street, Athens, AL 35611
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Tony Kirk	Agency: Athens Fire Job Title: Fire Chief	Phone: 256-233-8710 Fax: 256-233-8714	tkirk@athensal.us
	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:	

LEE HELMS ASSOCIATES

by HMPC members to provide to citizens and for citizens in attendance to complete. No forms were submitted during this planning update period. Comments and information gathered from the Citizen Input forms (if any) were considered when choosing and prioritizing mitigation action items, as well as in future planning. The consolidation of these forms is below:

CITIZEN INPUT ON HAZARD MITIGATION PLANNING
(no forms submitted)

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

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

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

Did you have to leave your home because of any of these events?
If so, which ones? List by letter designation:

Did you lose time from work or school because of any of these events?
If so, which ones? List by letter designation:

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

	EVENT	YES	NO

A	Brush or grass fire?		
B	Building fire?		
C	Severe thunderstorm?		
D	Tornado?		
E	Winter Weather?		
F	Terrorism?		
G	Drought?		
H	Hazardous material spill or release from pipelines, trucks, trains, or aircraft?		
I	Hazardous material spill or release from a facility?		
J	Power failure for more than two or three hours?		
K	Earthquake		

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

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

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

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

If yes, is it on right now? YES _ NO_

Are you familiar with the Emergency Alert System YES _ NO_

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

Can you receive emergency warning information on your pager, cell phone, or wireless messaging devices? YES _ NO_ If no, would you like to? YES _ NO _

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

Do you have a safe place for shelter in or around your home? YES _ NO_

Are there emergency plans at your place of employment? YES _ NO_

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

Name	
Mailing Address	
Contact Number	
E-Mail	

Questions?

Continued Public Participation

After the initial plan was completed in 2005, it was made available for ongoing public view and comment at the Athens-Limestone County EMA. Additional opportunities for comment were provided at meetings (HMPC; LEPC; others) held by the Athens-Limestone County EMA each year.

In the future, the County EMA will strive to gain more public participation in the maintenance and updates of the county's hazard mitigation plan by encouraging Parent Teacher Organizations, Senior Citizens Clubs, Chamber of Commerce, Kiwanis Club, etc. by mail, telephone, and personal contacts. In addition, the County EMA will encourage the county and municipalities with websites to place the 2015 plan on their site and offer the public a place to comment on the plan. Jurisdictions having websites are: Limestone County EMA – www.limestonecountyema-al.gov; Limestone County - www.limestonecounty.net and limestonecounty-al.gov; Athens – www.athensalabama.us; Mooresville – www.morresvilleal.com; Athens City Schools – www.acs-k12.org. The Towns of Ardmore, Elkmont and Lester do not have websites.

Interagency and Intergovernmental Coordination

Interagency and intergovernmental coordination also played a vital part in the update 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. Census – provided population and demographic information
- U.S. Department of Agriculture – Census of Agriculture provided land value per acre
- HAZUS-MH 2.1 (2011) provided critical facility information, dam information, estimation information on potential damage, economic loss, and social impacts from natural disasters, etc.

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

- Top of Alabama Regional Council of Governments provided area planning and development and transportation planning information, as well as maps pertaining to plan information

Local Agencies

- Athens-Limestone County Emergency Management Agency provided assistance in gathering data

Academia

- University of Alabama - Department of Geology

Miscellaneous

- Easidemograhics.com – provided population and demographic information
- USA.com – provided population and demographic information

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. Integration with existing plans of the local EMA and regional planning commission was taken. This plan's goals for risk reduction will be incorporated into the objectives and policies of other plans, such as the comprehensive plan completed by the regional planning commission and implemented through zoning and building codes, capital improvement programs and permitting processes. The risk assessment's data, analysis and maps will be integrated into other plans to inform policies and decision making for examples: Forms the basis for other emergency management program activities and plans (EOPs, evacuations plans and post-disaster recovery plans; incorporates hazard information and mapping into land use plans, zoining and subdivision codes; the development review can guide growth and redevelopment away from high-risk locations and to design and site future public facilities to minimize exposure to hazards. **Table 2-1** provides a list of the existing plans by jurisdiction. Some of the communities are very limited on the dedication of local resources to advancing mitigation. In addition, several communities have very little infrastructure or local ordinances and planning mechanisms.

Plan Adoption

All jurisdictions in Limestone County, along with the Athens City Schools, actively participated in the planning process. Representatives from each local government attended the HMPC meetings or by other means listed previously in this plan, provided information vital to the update of this plan. Upon completion of the plan each of the five municipalities (Ardmore, Athens, Elkmont, Lester and Mooresville) along with the Limestone County Commission, and Athens City School System 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 **Section 8.**

Table 2-1 indicates existing plans by jurisdictions. Abilities to expand on and improve these existing polices and programs include cross referencing of all current plans and identification of potential mitigation projects that will involve more specific opportunities to reduce the effects of future disasters. This includes probable tax increase considerations and coordinated review of each jurisdiction's budgets.

Table 2-1: Existing Plans by Jurisdiction						
PLAN/ POLICY	**Ardmore**	**Athens**	**Elkmont**	**Lester**	**Mooresville**	**Limestone County**
Comprehensive Plan						X
Subdivision Regulations		X				X
Growth Management Plan						
Capital Improvement Plan		X				
Zoning Ordinance		X				X
Building Code		X				
Floodplain Management Plan		X				X
Elevation Certificates		X				X
Drainage Ordinance		X				X
Emergency Management Plan	X	X	X	X	X	X
Critical Facilities Map	X	X	X	X	X	X
Existing Land Use Map		X				X
State Plan						
Hazard Mitigation	X	X	X	X	X	X
Strategic National Stockpile Plan	X	X	X	X	X	X
Other						
Source: Rita White, Athens-Limestone County EMA, 2016						

SECTION 3: GENERAL CHARACTERISTICS

Growth Trends

Growth trends for Limestone County has remained the same as stated in the 2010 plan revision; therefore, this section has not changed. This section was reviewed by the HMPC; and according to the 2010 Census, there was a 32.72% population growth since the year 2000. The population growth rate is much higher than the state average rate of 8.33% and is much higher than the national average rate of 11.61%. Limestone County is part of one of the fastest growing regions in Alabama. The county has seen tremendous growth in the areas of technology and has prepared for future growth in the areas of automotive manufacturing and biotechnology. (*Source: TARCOG*)

Development trends, particularly population shifts and land use changes created by major economic development expansions and infrastructure improvements of countywide significance, are important considerations to effective mitigation planning. These trends must be continually monitored and analyzed to keep abreast of changing vulnerabilities of jurisdictions and the increasing exposure of growing populations, new buildings, and enlarged infrastructure to natural hazards. As growth and development patterns change over time, the risks to property damage and lives also change. This section examines the projected growth trends and other impacts of countywide significance that are expected to affect the location and extent of natural hazards vulnerability over time.

One of the fastest growing counties in Alabama, Limestone County is situated at the crossroads of technology and innovation. A highly-educated workforce and attractive business incentives fuel industry growth in multiple sectors, including aerospace, advanced manufacturing, automotive, biotechnology and robotics. A central location on Interstate-65 places the county less than 100 miles from Birmingham, Alabama and Nashville, Tennessee; a convenient location that connects products made in Limestone County to the region, country and world.

Limestone County is centrally located between many of the Southeast's major automotive manufacturers. The county features a certified mega site, as well as available land and buildings suitable for manufacturing use.

In addition to the mega site, the county has six fully-serviced industrial parks and other sites and buildings. The buildings range in size from 15,000 square feet to over 60,000 square feet. The

six fully-served industrial parks (Southpoint Industrial Park; I-565 Business Park; Elm Industrial Park; Elkmont Industrial Park; Breeding Industrial Park; and Dekko Industrial Park) with available buildings and available sites to build. Demographic information and other GIS tools for available buildings and sites in Limestone County are available on the Tennessee Valley Authority Economic Development website. The I-65 Mega site in Athens, AL consists of 2,010 acres; quick access to I-65 and I-565; Port access on Tennessee River; and is located only fifteen minutes from Huntsville airport.

Limestone County has become a major player in the robotics industry on the state and national level. A state-of-the-art robotics training center, located at Calhoun Community College, offers prime workforce development resources. The 60,000 square foot facility provides no-cost training to Alabama industries and their affiliates. The county's close proximity to defense and research companies in North Alabama makes the county a natural choice for this emerging industry.

Limestone County has the advantage of a strong infrastructure that includes quick access to major shipping routes and an international intermodal center. The county is ideally situated in the central part of North Alabama, at the intersection of Interstate-65 and the four-lane U.S. Highway 72. The county is within 10 hours of nearly all of the key markets in the Southeast, Midwest and East. The county also offers affordable utilities, with electricity supplied by the Tennessee Valley Authority (TVA).

Businesses in Athens and Limestone County have access to robust workforce development programs that enable them to respond quickly to the changing needs in their industry.

With a variety of retail sites available and a growing population, Athens and Limestone County, have many advantages to offer to retailers. The county has large tracts available, and retail sites along Interstate-65. The county's population has also steadily increased, and is expected to continue to increase in the upcoming years.

Area businesses located in Limestone County can take advantage of technical education programs and courses through Calhoun Community College and business courses through Athens State University. Other nearby colleges offers additional technical courses and degree programs. Located in southern Limestone County, Calhoun Community College offers both academic and technical degree and certification programs, as well as workforce training programs. Calhoun Community College works closely with area industries to respond to the changes in technology and

needed job skills.

Athens State University, located in Athens, Alabama, is senior level college, providing academic programs of study. The university offers degree programs and courses in business, sciences, and computers, as well as education, health, and other arts and sciences studies.

The Limestone County Career Technical School provides technical education and job skills training to high school students in Athens and Limestone County.

Limestone County is also in close proximity to the University of Alabama in Huntsville (UAH), Alabama A&M University, J.F. Drake State Technical College, and Virginia College. These schools offer technical education through degree and certification programs, continuing education courses and industry-specific workforce training programs.

Limestone County is situated between the three most populous areas in North Alabama. It is positioned on three principal routes for its region. These routes, in order of volume of traffic carried, are Interstate 565/State Route 3 between Huntsville and Decatur, Interstate 65 north to south through Athens, and Highway 72/State Route 2 running east to west from the Shoals area to Huntsville.

While the highest individual counts are found along the southern corridor and Limestone County, the greatest change in traffic patterns has occurred along Highway 72 moving east to Huntsville. Traffic counts range between 18,430 per day to 37,400 per day beginning immediately west of Highway 31 in Athens and following Highway 72 east to the county line. Limestone County also has one of the highest Percent Commercial Vehicles counts for the entire RPO region along the north-south I-65 corridor. (*SOURCES: TARCOG- Limestone County Industrial Development Board)*

This plan fully recognizes that changes in development for jurisdictions in hazard prone areas are on-going issues that must be constantly monitored and addressed in the local planning process. Changing development trends and the on-going growth and shift of population can increase levels of vulnerability. The potential impacts of these changes can have adverse impacts, such as those noted here:

- Increasing demands for developable land area to accommodate new growth can push new development to previously undeveloped flood plains.
- New development and associated parking, roads, and other impermeable surfaces can increase urban runoff, exacerbating flooding hazards.

- New construction in previously rural areas can push the wildland-urban interface, increasing exposure to wildfires.
- New housing may be constructed inadequately to withstand the damaging wind threats of high winds and tornadoes.
- Increased population can stretch the demand for limited water resources in times of drought.
- More development in widespread areas subject to sinkholes can increase the probability of property and infrastructure damages.

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

Geologic units have profound effects on many things, including the likelihood of landslides, the availability of groundwater in wells, the amount of shaking suffered in an earthquake, the presence of desirable minerals, the way the landscape is shaped, and the kinds of plants that grow best in the area. The geologic units in Limestone County include:

Silurian Formations, including Decatur Limestone, Brownsport Group (Lobelville Formation, Bob Limestone, Beech River Formation), Wayne Group (Dixon Formation, Lego Formation, Waldron Shale, Laurel Limestone, Osgood Formation) and Brassfield Limestone (Silurian) at surface, covers 4 % of this area – lithology: limestone, shale and mudstone.

Alluvial deposits (Quaternary) at surface, covers 4% of this area – lithology: sand, silt, clay or mud and gravel.

Ordovician [units] including Richmond Group (which includes Mannie Shale, Fernvale Limestone, Sequatchie Formation, and Arnheim Formation), the Maysville Group (which includes Leipers Formation), the Eden Group (which includes Inman Formation), and the Nashville Group (which includes Catheys Formation) (Ordovician) at surface, covers 4 % of this area – lithology: shale and limestone.

Nashville Group; Bigby-Cannon Limestone and Hermitage Formation (Ordovician) at surface, covers 4 % of this area – lithology: calcarenite, limestone, shale and coquina.

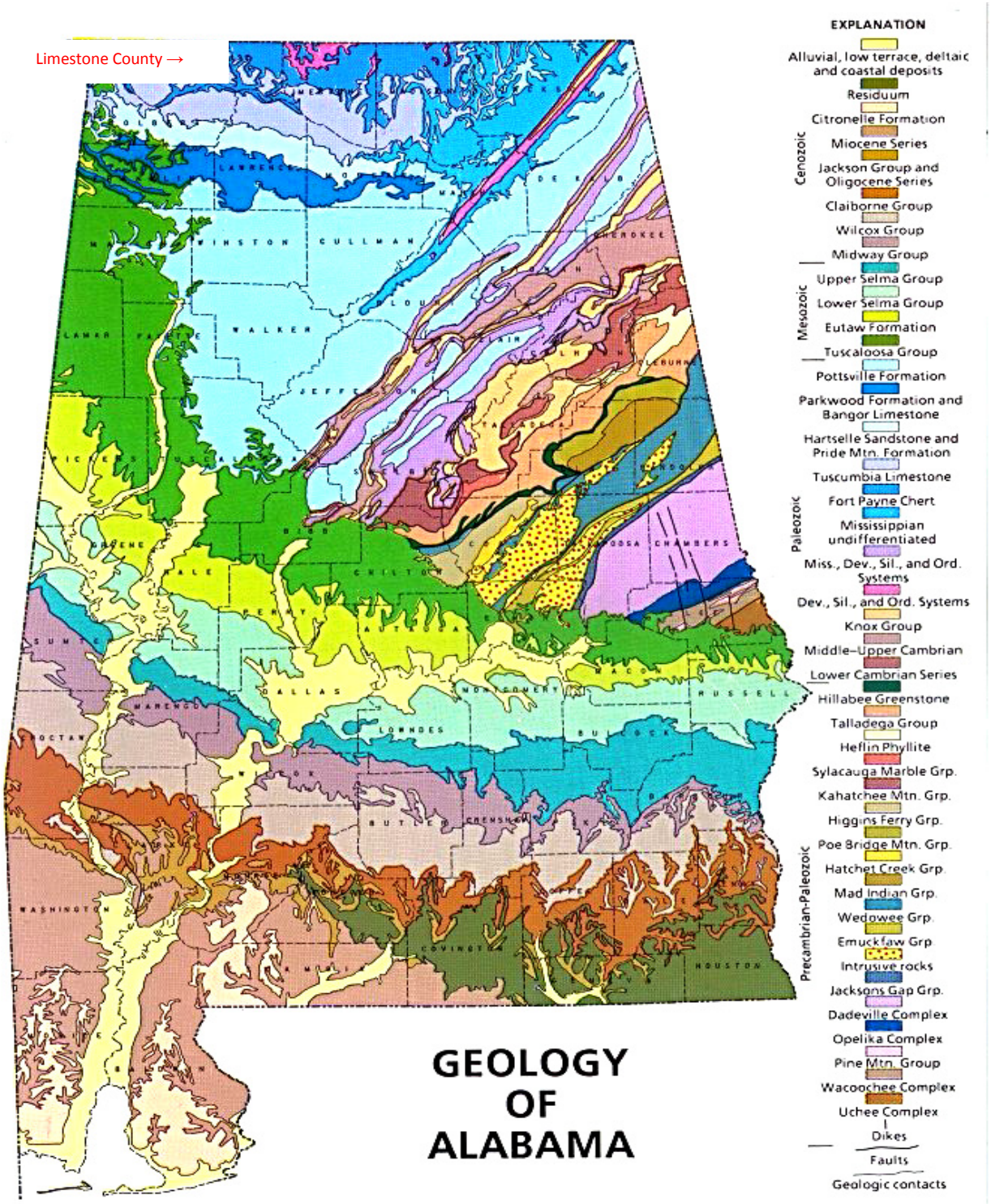
Fort Payne Formation (Mississippian) at surface, covers 4 % of this area – lithology: chert and shale.

Ordovician System undivided in part (Includes Sequatchie Formation, Elkmont Formation, Leipers Limestone, Inman Formation, Nashville Group, and Stones River Group) (Ordovician)

at surface, covers 4 % of this area – lithology: shale and limestone.
Tuscumbia Limestone (Mississippian) at surface, covers 4 % of this area – lithology: chert and limestone.

Fort Payne Chert (Mississippian) at surface, covers 4 % of this area – lithology: limestone, chert, siltstone, shale, claystone.

Figure 3-1: Geology of Alabama
(Source: University of AL – Geology Department)


Limestone County →
EXPLANATION
Alluvial, low terrace, deltaic and coastal deposits
Residuum
Citronelle Formation
Miocene Series
Jackson Group and Oligocene Series
Claiborne Group
Wilcox Group
Midway Group
Upper Selma Group
Lower Selma Group
Eutaw Formation
Tuscaloosa Group
Pottsville Formation
Parkwood Formation and Bangor Limestone
Hartselle Sandstone and Pride Mtn. Formation
Tuscumbia Limestone
Fort Payne Chert
Mississippian undifferentiated
Miss., Dev., Sil., and Ord. Systems
Dev., Sil., and Ord. Systems
Knox Group
Middle–Upper Cambrian
Lower Cambrian Series
Hillabee Greenstone
Talladega Group
Heflin Phyllite
Sylacauga Marble Grp.
Kahatchee Mtn. Grp.
Higgins Ferry Grp.
Poe Bridge Mtn. Grp.
Hatchet Creek Grp.
Mad Indian Grp.
Wedowee Grp.
Emuckfaw Grp.
Intrusive rocks
Jacksons Gap Grp.
Dadeville Complex
Opelika Complex
Pine Mtn. Group
Wacoochee Complex
Uchee Complex
Dikes
Faults
Geologic contacts
Cenozoic
Mesozoic
Paleozoic
Precambrian-Paleozoic
GEOLOGY OF ALABAMA

SECTION 4: RISK AND VULNERABILITY ASSESSMENT

Risk Assessment

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

Table 4-1 summarizes the county's Hazard Probability Assessment. A zero denotes no data is available to determine the probability or affected area. Each jurisdiction has an individual hazard probability assessment shown in **Section 6** of the plan.

Table 4-2 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 4-3 provides the prioritized occurrence threat by jurisdiction based on past events. Occurrence prioritizations were based on the National Oceanic and Atmospheric Administration (NOAA)-National Climatic Data Center (NCDC) reports of occurrences. Hazards are prioritized highest to least threat designating the hazard with the highest threat of occurrence as number one.

Table 4-4 through Table 4-16 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. This grant was awarded in 2014; therefore, the study period of 2003 – 2013 was chosen for this plan's update.

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 6**. 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. In addition to extent rankings and whenever possible, the worst case scenarios of hazard events are provided as documentation of the extent the particular hazard has on Limestone County.

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

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Table 4-1: Limestone County Hazard Probability of Future Occurrence			
Natural Hazards	**Number of Occurrences Between 2003-2013**	**Probability of Future Occurrence**	**Area Affected**
Thunderstorm	146	>100%	Countywide
Lightning	22	>100%	Countywide
Hail	81	>100%	Countywide
Tornado	36	>100%	Countywide
Flood/Flash Flood	48	>100%	Countywide
Droughts/Extreme Heat	19	>100%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	Countywide
Sinkhole/Expansive Soil	1	10%	Countywide
Landslide	Unknown	Unknown	Countywide
Earthquake	2	20%	Countywide
Wildfire (3 year study period – 2010-2013)	24	>100%	Countywide
Dam/Levee Failure	Unknown	Uknown	Countywide
Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; City-Data.com; Alabama Geological Survey; 2016			
Methodology: Probability of Future Occurrences was expressed by dividing the total number of occurrences by the ten-year study period, with the exception of wildfire being a 3-year study period. Zero denotes no data available to determine the probability of future occurrence or areas affected.			

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Table 3-2: Limestone County Hazard Identification by Jurisdiction						
Natural Hazards	**Ardmore**	**Athens**	**Elkmont**	**Lester**	**Mooresville**	**Limestone County**
Thunderstorm	X	X	X	X	X	X
Lightning	X	X	X	X	X	X
Hail	X	X	X	X	X	X
Tornado	X	X	X	X	X	X
Flood/Flash Flood	X	X	X	X	X	X
Drought/Extreme Heat	X	X	X	X	X	X
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	X	X	X	X	X	X
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	X	X	X	X	X
Sinkhole/Expansive Soil	X	X	X	X	X	X
Landslide	X	X	X	X	X	X
Earthquake	X	X	X	X	X	X
Wildfire	X	X	X	X	X	X
Dam/Levee Failure	X	X	X	X	X	X

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Table 3-3: Limestone County Prioritized Occurrence Threat by Jurisdiction Based on Past Events						
Natural Hazards	**Ardmore**	**Athens**	**Elkmont**	**Lester**	**Mooresville**	**Limestone County**
Thunderstorm	6	1	4	6	5	1
Lightning	7	6	7	8	6	7
Hail	6	5	5	8	7	2
Tornado	7	8	7	7	7	4
Flood/Flash Flood	4	4	6	5	4	3
Drought/Extreme Heat	3	4	3	3	3	8
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold	1	2	1	1	1	5
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	5	7	6	4	4	9
Sinkhole/Expansive Soil	7	9	8	8	7	11
Landslide	7	9	8	8	7	12
Earthquake	7	9	8	8	7	10
Wildfire	2	3	2	2	2	6
Dam/Levee Failure	7	9	8	8	7	12

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2003-2013 LIMESTONE COUNTY HAZARD EVENT OCCURRENCES

Table 4-4: Thunderstorm Events

146 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database; Accessed 2015)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MOORESVILLE	LIMESTONE CO.	AL	03/19/2003	08:30	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	05/17/2003	10:36	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/11/2003	13:50	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2003	14:30	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/22/2003	21:08	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	11/18/2003	13:00	CST	Thunderstorm Wind	60 kts. ES	0	0	10.00K	0.00K
CAIRO	LIMESTONE CO.	AL	05/30/2004	23:24	CST	Thunderstorm Wind	65 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/30/2004	23:33	CST	Thunderstorm Wind	65 kts. ES	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/06/2004	17:25	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	07/14/2004	14:40	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/14/2004	15:10	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	07/25/2004	12:47	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:48	CST	Thunderstorm Wind	60 kts. ES	0	0	20.00K	0.00K
ATHENS	LIMESTONE	AL	02/21/2005	13:52	CST	Thunderstorm	60 kts.	0	0	5.00K	0.00K

	CO.					Wind	ES				
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:52	CST	Thunderstorm Wind	60 kts. ES	0	0	10.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	02/21/2005	13:57	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	02/21/2005	14:55	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	05/14/2005	11:15	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2005	14:47	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	08/06/2005	13:50	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	08/16/2005	16:15	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	11/28/2005	12:40	CST	Thunderstorm Wind	60 kts. ES	0	0	3.00K	0.00K
BELLE MINA	LIMESTONE CO.	AL	12/04/2005	01:07	CST	Thunderstorm Wind	59 kts. MG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/09/2006	17:00	CST	Thunderstorm Wind	70 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/30/2006	15:50	CST	Thunderstorm Wind	70 kts. EG	0	0	30.00K	0.00K
MT ROZELL	LIMESTONE CO.	AL	05/31/2006	16:30	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/31/2006	16:33	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2006	13:30	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ELKMONT	LIMESTONE	AL	06/01/2006	13:30	CST	Thunderstorm	50 kts.	0	0	0.00K	0.00K

	CO.					Wind	EG				
CAIRO	LIMESTONE CO.	AL	06/02/2006	12:50	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/04/2006	14:50	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2006	14:45	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SALEM	LIMESTONE CO.	AL	08/04/2006	13:30	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	11/15/2006	11:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	04/03/2007	21:25	CST-6	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
UNION HILL	LIMESTONE CO.	AL	06/18/2007	20:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
MT ROZELL	LIMESTONE CO.	AL	07/01/2007	11:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BETHEL	LIMESTONE CO.	AL	07/01/2007	11:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/01/2007	12:23	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HAYS MILL	LIMESTONE CO.	AL	07/09/2007	13:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HAYS MILL	LIMESTONE CO.	AL	07/09/2007	14:28	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/17/2007	14:01	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.000M	0.00K
RIPLEY	LIMESTONE CO.	AL	08/25/2007	18:09	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.000M	0.00K
RIPLEY	LIMESTONE	AL	10/18/2007	23:15	CST-	Thunderstorm	50 kts.	0	0	0.00K	0.00K

	CO.				6	Wind	EG				
THACH	LIMESTONE CO.	AL	10/18/2007	23:29	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.000M	0.00K
RIPLEY	LIMESTONE CO.	AL	01/10/2008	14:58	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ATHENS	LIMESTONE CO.	AL	01/10/2008	15:05	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	01/10/2008	15:10	CST-6	Thunderstorm Wind	56 kts. EG	0	0	5.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	07/09/2008	14:34	CST-6	Thunderstorm Wind	56 kts. EG	0	0	3.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	07/22/2008	14:20	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
SALEM	LIMESTONE CO.	AL	07/31/2008	15:30	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/31/2008	15:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
TANNER	LIMESTONE CO.	AL	07/31/2008	16:20	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	08/07/2008	10:06	CST-6	Thunderstorm Wind	61 kts. EG	0	0	5.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	08/07/2008	10:06	CST-6	Thunderstorm Wind	56 kts. EG	0	0	20.00K	0.00K
GIPSY	LIMESTONE CO.	AL	08/07/2008	10:06	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/11/2009	12:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
TANNER	LIMESTONE CO.	AL	04/02/2009	15:40	CST-6	Thunderstorm Wind	56 kts. EG	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	04/02/2009	15:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
WHEELER LAKE	LIMESTONE	AL	06/15/2009	17:53	CST-	Thunderstorm	50 kts.	0	0	2.00K	0.00K

NORTH	CO.				6	Wind	EG				
WHEELER LAKE NORTH	LIMESTONE CO.	AL	06/15/2009	17:57	CST-6	Thunderstorm Wind	56 kts. EG	0	0	3.00K	0.00K
BLACKBURN	LIMESTONE CO.	AL	06/15/2009	18:02	CST-6	Thunderstorm Wind	56 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2009	18:05	CST-6	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
GIPSY	LIMESTONE CO.	AL	07/05/2009	02:27	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/05/2009	02:35	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	07/05/2009	02:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
STEWERDS STORE	LIMESTONE CO.	AL	10/09/2009	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
SARDIS SPGS	LIMESTONE CO.	AL	10/09/2009	14:59	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2010	15:43	CST-6	Thunderstorm Wind	43 kts. EG	0	0	3.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/09/2010	16:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
STEWERDS STORE	LIMESTONE CO.	AL	07/16/2010	13:50	CST-6	Thunderstorm Wind	48 kts. EG	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/26/2010	14:05	CST-6	Thunderstorm Wind	65 kts. EG	0	0	35.00K	0.00K
UNION HILL	LIMESTONE CO.	AL	07/29/2010	12:10	CST-6	Thunderstorm Wind	56 kts. EG	0	0	35.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/05/2010	14:00	CST-6	Thunderstorm Wind	52 kts. EG	0	0	12.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	08/05/2010	14:15	CST-6	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
WHEELER LAKE	LIMESTONE	AL	08/15/2010	15:41	CST-	Thunderstorm	56 kts.	0	0	8.00K	0.00K

NORTH	CO.				6	Wind	EG				
WHEELER LAKE NORTH	LIMESTONE CO.	AL	08/15/2010	15:41	CST-6	Thunderstorm Wind	56 kts. EG	0	0	8.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/21/2010	21:50	CST-6	Thunderstorm Wind	43 kts. EG	0	0	4.00K	0.00K
CROSS KEY	LIMESTONE CO.	AL	10/24/2010	22:48	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	10/26/2010	14:58	CST-6	Thunderstorm Wind	61 kts. EG	0	0	10.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	02/24/2011	22:37	CST-6	Thunderstorm Wind	52 kts. EG	0	0	8.00K	0.00K
THACH	LIMESTONE CO.	AL	02/28/2011	11:38	CST-6	Thunderstorm Wind	61 kts. EG	0	0	5.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	02/28/2011	11:41	CST-6	Thunderstorm Wind	61 kts. EG	0	0	30.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	02/28/2011	11:57	CST-6	Thunderstorm Wind	61 kts. EG	0	0	16.00K	0.00K
O NEAL	LIMESTONE CO.	AL	04/04/2011	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	04/04/2011	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SHANGHAI	LIMESTONE CO.	AL	04/04/2011	13:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BLACKBURN	LIMESTONE CO.	AL	04/04/2011	13:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/04/2011	13:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BLACKBURN	LIMESTONE CO.	AL	04/04/2011	13:52	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	04/04/2011	13:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
PISGAH	LIMESTONE	AL	04/04/2011	14:00	CST-	Thunderstorm	50 kts.	0	0	0.50K	0.00K

	CO.				6	Wind	EG				
ATHENS	LIMESTONE CO.	AL	04/04/2011	14:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/11/2011	17:15	CST-6	Thunderstorm Wind	43 kts. EG	0	0	0.50K	0.00K
GREENBRIER	LIMESTONE CO.	AL	04/20/2011	04:30	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BELLE MINA	LIMESTONE CO.	AL	05/22/2011	11:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/25/2011	22:40	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/25/2011	22:40	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
HOLBERT SPGS	LIMESTONE CO.	AL	05/25/2011	22:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/25/2011	22:41	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
SHANGHAI	LIMESTONE CO.	AL	05/25/2011	22:43	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
O NEAL	LIMESTONE CO.	AL	05/25/2011	22:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CAIRO	LIMESTONE CO.	AL	05/25/2011	22:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GOURDSVILLE	LIMESTONE CO.	AL	05/25/2011	22:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
O NEAL	LIMESTONE CO.	AL	05/25/2011	22:49	CST-6	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2011	19:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2011	19:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
REID	LIMESTONE	AL	06/15/2011	19:10	CST-	Thunderstorm	52 kts.	0	0	2.00K	0.00K

	CO.				6	Wind	EG				
ATHENS	LIMESTONE CO.	AL	06/15/2011	19:12	CST-6	Thunderstorm Wind	48 kts. EG	0	0	1.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	06/18/2011	12:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	16.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	06/26/2011	12:45	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/04/2011	15:40	CST-6	Thunderstorm Wind	43 kts. EG	0	0	2.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	07/12/2011	15:45	CST-6	Thunderstorm Wind	39 kts. EG	0	0	0.50K	0.00K
SALEM	LIMESTONE CO.	AL	08/03/2011	23:18	CST-6	Thunderstorm Wind	70 kts. EG	0	0	100.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	08/09/2011	02:38	CST-6	Thunderstorm Wind	52 kts. EG	0	0	20.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/09/2011	02:38	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/29/2012	19:07	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:08	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:12	CST-6	Thunderstorm Wind	35 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/03/2012	21:40	CST-6	Thunderstorm Wind	43 kts. EG	0	0	5.00K	0.00K
HOLBERT SPGS	LIMESTONE CO.	AL	07/01/2012	17:40	CST-6	Thunderstorm Wind	52 kts. EG	0	0	25.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
O NEAL	LIMESTONE	AL	07/18/2012	14:55	CST-	Thunderstorm	52 kts.	0	0	3.00K	0.00K

	CO.				6	Wind	EG				
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:57	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	15:00	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
GOOD SPGS	LIMESTONE CO.	AL	09/02/2012	14:15	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	14:34	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	09/02/2012	14:43	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	09/02/2012	14:45	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	15:05	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
BURGREEN CORNER	LIMESTONE CO.	AL	12/10/2012	03:19	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
THACH	LIMESTONE CO.	AL	01/30/2013	04:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
PISGAH	LIMESTONE CO.	AL	01/30/2013	04:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	03/18/2013	13:34	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	04/19/2013	00:14	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
WHEELER LAKE	LIMESTONE	AL	06/17/2013	12:19	CST-	Thunderstorm	52 kts.	0	0	1.00K	0.00K

NORTH	CO.				6	Wind	EG				
WHEELER LAKE NORTH	LIMESTONE CO.	AL	06/17/2013	12:20	CST-6	Thunderstorm Wind	56 kts. EG	0	0	1.00K	0.00K
SHANGHAI	LIMESTONE CO.	AL	06/17/2013	12:24	CST-6	Thunderstorm Wind	35 kts. EG	0	0	0.50K	0.00K
CAPSHAW	LIMESTONE CO.	AL	06/17/2013	12:35	CST-6	Thunderstorm Wind	43 kts. EG	0	0	0.50K	0.00K
CAPSHAW	LIMESTONE CO.	AL	06/20/2013	19:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
Totals:								0	0	3.752M	0.00K

Table 4-5: Lightning Events

22 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
ELKMONT	LIMESTONE CO.	AL	01/13/2006	09:00	CST	Lightning		0	0	250.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/09/2006	18:00	CST	Lightning		0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/21/2006	05:00	CST	Lightning		0	0	50.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/30/2006	15:50	CST	Lightning		0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2010	15:57	CST-6	Lightning		0	0	1.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	06/01/2010	16:42	CST-6	Lightning		0	0	40.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	06/04/2010	16:45	CST-6	Lightning		0	1	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/26/2010	14:15	CST-6	Lightning		0	1	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	08/05/2010	14:30	CST-6	Lightning		0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	04/15/2011	11:34	CST-6	Lightning		0	0	2.00K	0.00K

SARDIS SPGS	LIMESTONE CO.	AL	06/15/2011	19:25	CST-6	Lightning		0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	06/21/2011	10:36	CST-6	Lightning		0	0	0.50K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/04/2011	16:14	CST-6	Lightning		0	0	0.50K	0.00K
CAPSHAW	LIMESTONE CO.	AL	07/10/2011	18:30	CST-6	Lightning		0	0	1.00K	0.00K
BURGREEN CORNER	LIMESTONE CO.	AL	07/10/2011	18:30	CST-6	Lightning		0	0	150.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/03/2011	23:30	CST-6	Lightning		0	0	500.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/15/2012	17:23	CST-6	Lightning		0	0	5.00K	0.00K
MOORESVILLE	LIMESTONE CO.	AL	07/05/2012	19:49	CST-6	Lightning		0	0	5.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/18/2012	15:05	CST-6	Lightning		0	0	5.00K	0.00K
COPELAND CO	LIMESTONE CO.	AL	08/10/2012	15:07	CST-6	Lightning		0	0	20.00K	0.00K
ATHENS	LIMESTONE CO.	AL	10/12/2012	10:45	CST-6	Lightning		0	0	5.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	08/08/2013	14:00	CST-6	Lightning		0	0	10.00K	0.00K
Totals:								0	2	1.060M	0.00K

Table 4-6: Hail Events

81 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
ATHENS	LIMESTONE CO.	AL	05/06/2003	06:42	CST	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:27	CST	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:55	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	14:33	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	04/22/2005	17:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K

ARDMORE	LIMESTONE CO.	AL	04/22/2005	17:05	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	04/07/2006	18:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
CAIRO	LIMESTONE CO.	AL	04/20/2006	09:07	CST	Hail	0.88 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/13/2006	19:15	CST	Hail	0.75 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/13/2006	19:15	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/13/2006	19:28	CST	Hail	1.00 in.	0	0	0.00K	0.00K
TANNER	LIMESTONE CO.	AL	02/06/2008	03:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	02/06/2008	03:40	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
HOLLAND GIN	LIMESTONE CO.	AL	06/21/2008	14:01	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	07/22/2008	14:32	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
CAIRO	LIMESTONE CO.	AL	04/10/2009	12:49	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	04/10/2009	12:55	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	04/10/2009	12:57	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
SWANCOTT	LIMESTONE CO.	AL	04/10/2009	13:17	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
SWANCOTT	LIMESTONE CO.	AL	04/10/2009	13:18	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
TANNER	LIMESTONE CO.	AL	04/13/2009	17:19	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	04/13/2009	17:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	06/02/2009	18:42	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/12/2010	03:42	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	03/12/2010	03:45	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	03/12/2010	03:52	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/12/2010	04:00	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/12/2010	04:11	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K

ATHENS	LIMESTONE CO.	AL	03/12/2010	05:33	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/12/2010	05:33	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	06/01/2010	15:41	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	06/01/2010	15:47	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	10/24/2010	21:40	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
HAYS MILL	LIMESTONE CO.	AL	03/29/2011	22:20	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
THACH	LIMESTONE CO.	AL	03/29/2011	22:30	CST-6	Hail	1.75 in.	0	0	5.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/29/2011	22:39	CST-6	Hail	3.00 in.	0	0	5.00K	0.00K
STEWERDS STORE	LIMESTONE CO.	AL	04/27/2011	08:30	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
REID	LIMESTONE CO.	AL	04/27/2011	08:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/27/2011	16:10	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	06/15/2011	19:11	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
REID	LIMESTONE CO.	AL	06/15/2011	19:15	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/12/2011	15:45	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	07/12/2011	15:55	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	08/09/2011	03:00	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	01/23/2012	01:15	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	02/22/2012	17:30	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	03/02/2012	08:56	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/02/2012	09:58	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K

HOLLAND GIN	LIMESTONE CO.	AL	03/02/2012	14:00	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	03/15/2012	17:10	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	03/31/2012	15:15	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
MT ROZELL	LIMESTONE CO.	AL	03/31/2012	15:23	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	03/31/2012	15:39	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	15:45	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/31/2012	15:48	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	15:50	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	15:52	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	15:53	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	15:55	CST-6	Hail	2.00 in.	0	0	0.00K	0.00K
BLACKBURN	LIMESTONE CO.	AL	03/31/2012	15:57	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	03/31/2012	16:00	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	16:00	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/31/2012	16:01	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	03/31/2012	16:05	CST-6	Hail	2.50 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	16:07	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	03/31/2012	16:28	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	03/31/2012	16:39	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
BETHEL	LIMESTONE CO.	AL	03/31/2012	16:39	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
ARDMORE ARPT	LIMESTONE CO.	AL	03/31/2012	17:45	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/31/2012	17:49	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
THACH	LIMESTONE CO.	AL	03/31/2012	17:52	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K

BURGREEN CORNER	LIMESTONE CO.	AL	05/05/2012	23:45	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/18/2012	17:43	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:11	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	06/03/2012	23:20	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/13/2012	12:06	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CARTWRIGHT	LIMESTONE CO.	AL	03/18/2013	13:12	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	04/28/2013	01:22	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	10.00K	0.00K

Table 4-7: Tornado Events

36 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
SHANGHAI	LIMESTONE CO.	AL	05/06/2003	06:20	CST	Tornado	F1	0	0	350.00K	0.00K
CAIRO	LIMESTONE CO.	AL	05/17/2003	09:55	CST	Tornado	F1	0	0	450.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:28	CST	Tornado	F0	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:33	CST	Tornado	F0	0	0	0.00K	0.00K
CAIRO	LIMESTONE CO.	AL	05/30/2004	23:26	CST	Tornado	F1	0	3	200.00K	0.00K
LESTER	LIMESTONE CO.	AL	10/18/2004	17:27	CST	Tornado	F0	0	0	0.00K	0.00K
CAIRO	LIMESTONE CO.	AL	04/07/2006	18:05	CST	Tornado	F1	0	0	10.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	04/07/2006	21:24	CST	Tornado	F0	0	0	0.00K	0.00K
SALEM	LIMESTONE CO.	AL	05/09/2006	16:00	CST	Tornado	F0	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/09/2006	16:05	CST	Tornado	F0	0	0	20.00K	0.00K

RIPLEY	LIMESTONE CO.	AL	04/04/2008	07:34	CST-6	Tornado	EF0	0	0	1.00K	0.00K
COPELAND CO	LIMESTONE CO.	AL	04/04/2008	08:04	CST-6	Tornado	EF0	0	0	10.00K	0.00K
NEW HOPE	LIMESTONE CO.	AL	05/08/2008	13:35	CST-6	Tornado	EF0	0	0	10.00K	0.00K
ORRVILLE	LIMESTONE CO.	AL	12/24/2008	15:33	CST-6	Tornado	EF1	0	0	200.00K	0.00K
MURPHREE PLACE	LIMESTONE CO.	AL	04/02/2009	15:35	CST-6	Tornado	EF0	0	0	11.00K	0.00K
THACH	LIMESTONE CO.	AL	04/10/2009	12:59	CST-6	Tornado	EF0	0	0	20.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	05/06/2009	07:59	CST-6	Tornado	EF2	0	0	40.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/28/2009	18:55	CST-6	Tornado	EF0	0	0	0.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	10/26/2010	14:40	CST-6	Tornado	EF0	0	0	5.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	04/27/2011	10:15	CST-6	Tornado	EF0	0	0	0.00K	0.00K
REID	LIMESTONE CO.	AL	04/27/2011	10:23	CST-6	Tornado	EF0	0	0	0.00K	0.00K
OAKLAND	LIMESTONE CO.	AL	04/27/2011	10:24	CST-6	Tornado	EF0	0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	04/27/2011	10:30	CST-6	Tornado	EF1	0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	04/27/2011	10:35	CST-6	Tornado	EF0	0	0	0.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	04/27/2011	15:17	CST-6	Tornado	EF4	4	45	1.000B	0.00K
ORRVILLE	LIMESTONE CO.	AL	04/27/2011	15:53	CST-6	Tornado	EF0	0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/25/2011	22:40	CST-6	Tornado	EF0	0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	05/25/2011	22:49	CST-6	Tornado	EF0	0	0	0.00K	0.00K
STEWERDS STORE	LIMESTONE CO.	AL	05/25/2011	22:55	CST-6	Tornado	EF0	0	0	0.00K	0.00K
BETHEL	LIMESTONE CO.	AL	05/25/2011	23:00	CST-6	Tornado	EF0	0	0	0.00K	0.00K
STEWERDS STORE	LIMESTONE CO.	AL	03/02/2012	09:10	CST-6	Tornado	EF2	0	0	0.00K	0.00K
SPENCER	LIMESTONE CO.	AL	03/02/2012	13:55	CST-6	Tornado	EF0	0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	03/02/2012	15:26	CST-6	Tornado	EF0	0	0	0.00K	0.00K

BETHEL	LIMESTONE CO.	AL	03/02/2012	15:39	CST-6	Tornado	EF1	0	0	0.00K	0.00K
TANNER	LIMESTONE CO.	AL	05/17/2013	13:00	CST-6	Tornado	EF0	0	0	50.00K	0.00K
HOLLAND GIN	LIMESTONE CO.	AL	05/17/2013	13:45	CST-6	Tornado	EF0	0	0	100.00K	0.00K
Totals:								4	48	1.001B	0.00K

Table 4-8: Flood/Flash Flood Events

48 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	03/26/2009	08:05	CST-6	Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	03/26/2009	09:00	CST-6	Flood		0	0	0.00K	0.00K
LAWNGATE	LIMESTONE CO.	AL	03/26/2009	09:00	CST-6	Flood		0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	05/01/2009	22:00	CST-6	Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	09/23/2009	10:30	CST-6	Flood		0	0	0.00K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	01/13/2013	23:00	CST-6	Flood		0	0	0.00K	0.00K
NEW HOPE	LIMESTONE CO.	AL	07/04/2013	18:00	CST-6	Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/15/2003	09:30	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/22/2003	02:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/22/2003	02:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K

ATHENS	LIMESTONE CO.	AL	02/22/2003	09:46	CST	Flash Flood		0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/05/2004	20:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/25/2004	13:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	12/06/2004	14:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
MOORESVILLE	LIMESTONE CO.	AL	02/21/2005	15:10	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/01/2005	19:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2005	15:50	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/07/2006	21:00	CST	Flash Flood		0	0	0.00K	0.00K
RIPLEY	LIMESTONE CO.	AL	05/27/2008	08:00	CST-6	Flash Flood		0	0	0.50K	0.00K
WHEELER LAKE NORTH	LIMESTONE CO.	AL	07/09/2008	15:08	CST-6	Flash Flood		0	0	0.00K	0.00K
FRENCH MILL	LIMESTONE CO.	AL	07/31/2008	16:40	CST-6	Flash Flood		0	0	0.00K	0.00K
UNION HILL	LIMESTONE CO.	AL	12/10/2008	00:30	CST-6	Flash Flood		0	0	0.00K	0.00K
REID	LIMESTONE CO.	AL	03/26/2009	04:00	CST-6	Flash Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	03/26/2009	04:00	CST-6	Flash Flood		0	0	0.00K	0.00K
OAKLAND EAST	LIMESTONE CO.	AL	04/02/2009	16:14	CST-6	Flash Flood		0	0	0.00K	0.00K
UNION HILL	LIMESTONE CO.	AL	05/01/2009	20:00	CST-6	Flash Flood		0	0	0.00K	0.00K
THACH	LIMESTONE CO.	AL	06/04/2009	15:00	CST-6	Flash Flood		0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	12/08/2009	20:40	CST-6	Flash Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	05/02/2010	21:03	CST-6	Flash Flood		0	0	0.00K	0.00K
GREENBRIER	LIMESTONE CO.	AL	05/02/2010	21:30	CST-6	Flash Flood		0	0	0.00K	0.00K

GREENBRIER	LIMESTONE CO.	AL	05/02/2010	21:57	CST-6	Flash Flood		0	0	0.00K	0.00K
O NEAL	LIMESTONE CO.	AL	01/17/2012	14:19	CST-6	Flash Flood		0	0	5.00K	0.00K
HOLLAND GIN	LIMESTONE CO.	AL	01/17/2012	15:20	CST-6	Flash Flood		0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/05/2012	18:28	CST-6	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Flash Flood		0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	01/13/2013	17:00	CST-6	Flash Flood		0	0	0.00K	0.00K
CAPSHAW	LIMESTONE CO.	AL	07/04/2013	12:00	CST-6	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/04/2013	12:00	CST-6	Flash Flood		0	0	0.00K	0.00K
SALEM CORNER	LIMESTONE CO.	AL	07/04/2013	15:40	CST-6	Flash Flood		0	0	0.00K	0.00K
BURGREEN CORNER	LIMESTONE CO.	AL	07/04/2013	17:25	CST-6	Flash Flood		0	0	0.00K	0.00K
SARDIS SPGS	LIMESTONE CO.	AL	08/07/2013	14:00	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	15.50K	0.00K

Table 4-9: Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 4-10: Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/25/2010	04:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 4-11: Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 4-12: Sinkhole Events

1 Sinkhole Event – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: Local; No sinkhole events were reported to NOAA NCDC Storm Events Database/U.S. and AL Geological Survey)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
LIMESTONE (ZONE)	Ingram Road off Highway 31	AL	2011			Sinkhole	7' deep	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 4-13: Landslide Events

0 Landslide Event – 01/01/2003 thru 12/31/2013 (4018 days)
(Sources: Local, NOAA NCDC Storm Events Database/U.S. and AL Geological Survey)
No landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

Table 4-14: Earthquake Events

2 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: city-data.com) No earthquake events were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
79.6 miles away from Limestone County's Center	Limestone	AL	4/29/2003	08:59	CST	Earthquake	4.9	0	0	0.00K	0.00K
1 mile away from Limestone County's Center	Limestone	AL	4/18/2008	09:36	CST	Earthquake	5.4	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 4-15: Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 4-16: Dam/Levee Failure Events

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.

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Hazard Profiles

This section provides: a general description of each hazard; background information about previous occurrences; nature of the hazard to include the extent (or severity) of each hazard; and, the probability and loss estimates of future occurrences of each hazard. The primary effects and hazardous results are considered for all identified hazards. 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 4-4 through Table 4-16** and for each jurisdiction in their individual Hazard Event table in **Section 6** of this plan. Events occurring within this plan's study period were discussed to demonstrate the severity of the hazard to Limestone County.

I. Thunderstorms

A thunderstorm is a convective cloud that often produces heavy rain, wind gusts, thunder, lightning, and hail. Limestone 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. **Table 4-4** shows the historical occurrences of thunderstorms during the study period. Damage from thunderstorms can have a wide range of severity. Each jurisdiction is at risk for thunderstorm events.

On August 25, 2007, Limestone County experienced a thunderstorm event that resulted in $1 million in property damages. A slow moving cold front pushed into unstable, tropical air overnight on the 24th, producing wind damage and flash flooding in many areas. As this cold front continued to push further southeast during the day on the 25th, thunderstorms ahead of the front produced isolated large hail as well damaging winds during the afternoon and evening hours. Thunderstorm winds produced roof damage to businesses on Shaw Road off U.S. Highway 72 west of Athens in the Ripley Community. Property damages of $1 million resulted.

On October 18, 2007, Thach in Limestone County experienced a thunderstorm event that resulted in $1 million in property damages. An isolated supercell thunderstorm moved northeast into Lawrence County during the early to mid afternoon along a warm frontal boundary. This storm produced an EF1 tornado which produced minor damage. Later in the evening, a broken line of strong to severe thunderstorms along and ahead of an approaching cold front moved east into

northern Alabama, continuing until just after midnight on the 19th. A tree was blown down on a home on New Bethel Road in Elkmont.

Limestone County experienced 146 thunderstorm events in a 10 year period resulting in a greater than 100% probability that a thunderstorm event will occur on an annual basis. The total amount of damages for the 146 thunderstorm events were $3,752,000 with 101 thunderstorm events causing damage resulting in an estimated $37,149 of expected annual damages from future events. The referenced thunderstorm event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Limestone County due to a thunderstorm event; the ranking is minor to major. The extent of a thunderstorm event for Limestone County is 75 miles per hour winds and property damages of one million per event.

Primary effects from thunderstorms in Limestone County would include:

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

Hazardous results from significant thunderstorms in Limestone 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.

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 and can cause substantial property damage and loss of human lives. Each jurisdiction is at risk for lightning events. Lightning strikes can cause power outages, fires, electrocution, and disruptions to communication systems. The NOAA NCDC reported 22 lightning events during the ten-year study period of 2003-2013, resulting in two injuries and $1,060,000 in property damages. **Table 4-5** shows the historical occurrences of lightning during the study period. The State of Alabama has experienced 11-20 deaths as a result of lightning strikes during 2003 – 2013.

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.

Figure 4-1: Formation of Lightning
Source: University Corporation for Atmospheric Research (UCAR)

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).

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.

The probability of a lightning strike causing damage somewhere in Limestone County is high. However, because the impacts are so localized, the site-specific incidence of a lightning strike occurring is considered very low.

A lightning event occurred on June 4, 2010 as daytime heating and a weak boundary extending from eastern Virginia southwest into northern Alabama sparked scattered strong to severe pulse thunderstorms during the afternoon and evening. A few storms in Marshall and Limestone counties knocked down several trees in the Horton and Douglas Communities. A man was struck by lightning on Paradise Shores Road and sustained non-life threatening injuries. One injury occurred as a result of this storm.

On July 26, 2010, scattered strong to severe pulse storms developed along an outflow boundary just north of the Tennessee River during peak daytime heating. This storm produced scattered reports of wind damage, isolated flash flooding and one lightning injury. A severe microburst on the east side of Athens heavily damaged a gas station and nearly uprooted some trees as well. One female was struck and injured by lightning while on Highway 31 North. One injury occurred as a result of this storm.

On August 3, 2011, a series of severe thunderstorms produced widespread wind damage. One of the storms knocked a tree down onto a mobile home, killing one occupant. Wind speeds up

to 110 mph knocked a series of power poles down as well. Several power outages were reported due to lightning or trees being knocked down onto power lines. A lightning strike from severe thunderstorms moving through Limestone County caused a fire that burned the Athens Church of God to the ground. As a result of this storm, $500,000 occurred in property damages.

Limestone County experienced 22 lightning events in a 10 year period resulting in an 100% probability that a lightning event will occur on an annual basis. The total amount of damages for the 22 lightning events was $1,060,000 with 19 lightning events causing damage resulting in an estimated $55,790 of expected annual damages from future events. The referenced lightning 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 Limestone County due to a lightning event; the ranking is minimum to minor. Limestone County is at a moderate risk of lightning incidences. According to the Vaisala's National Lightning Detection Network (NLDN), Limestone County's extent for lightning flashes per square mile per year is from six to twenty-eight and one-half million in property damages per event.

Primary effects from lightning in Limestone County would include:

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

Hazardous results from significant lightning in Limestone 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

Limestone County is at a severe risk of experiencing hail which has ranged from dime/penny size to tennis ball size in some areas of the county. 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, as shown in **Figure 4-2**, 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).

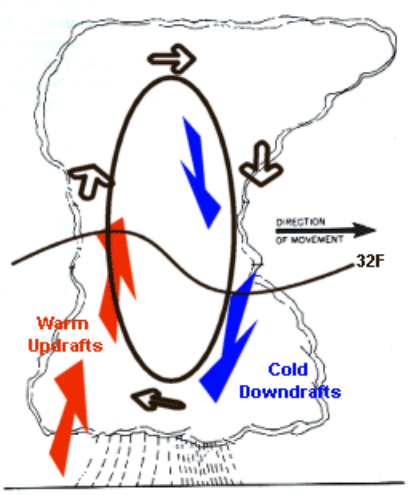

Figure 4-2
How Hail Is Formed
Source: NWS, January 10, 2003

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 4-17**. Note that penny size (3/4 inches in diameter) or larger hail is considered severe.

Table 4-17: 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
Half Dollar	1 ¼ inch
Walnut/Ping-Pong Ball	1 ½ inch
Golf Ball	1 ¾ inch
Hen Egg	2 inches
Tennis Ball	2 ½ inch
Baseball	2 ¾ inch
Tea Cup	3 inches
Grapefruit	4 inches
Softball	4 ½ inches
Source: SPC.NOAA.gov, 2016	

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. Hailstorms occur in some form or fashion on a very regular basis in Limestone County. The annual probability of hail occurring somewhere in the county is clearly quite high; however, the site-specific incidence of hail is considered low because of the localized nature of the hazard.

During 2003-2013, approximately 81 events were reported having hail from .75 inch (penny size) up to 3 inches (tea cup size), resulting in $10,000 of property damages. **Table 4-6** shows pertinent information relating to the 81 hail events in Limestone County.

Two hail events occurred on March 29, 2011. Tea cup sized hail was reported near Ardmore that resulted in $5,000 property damage and golf ball sized hail was reported near Thach that resulted in $5,000. Numerous thunderstorms erupted during the late evening hours of the 29th across Northern Alabama. A few of the storms produced large hail, including one report of up to 3 inch diameter hail (public report via broadcast media of three inch diameter hail). Frequent lightning was observed with the strongest storms. The storms exited during the early morning hours

of the 30th, about as quickly as they arrived, moving northeast and east at 45 to 60 mph.

Limestone County experienced 81 hail events in a 10 year period resulting in a greater than 100% probability that a hail event will occur on an annual basis. The total amount of damages for the 81 hail events was $10,000 with 2 hail events causing damage resulting in an estimated $5,000 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 Limestone County due to a hail event; the ranking is minor to major. Limestone County's extent of hail is three inches in diameter (tea cup sized hail).

Primary Effects from hail in Limestone County would include:

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

Hazardous results from significant hail in Limestone 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.

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IV. Tornados

A tornado is a rapidly rotating funnel (or vortex) of air that extends toward the ground from a cumulonimbus cloud. Most tornadoes do not touch the ground, but when the lower tip of a tornado touches the earth, it can cause extensive damage. Tornadoes often form in convective cells such as thunderstorms or at the front of hurricanes. 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 4-3** shows the general paths of tornados across the United States.

Figure 4-4 shows the FEMA designated wind zones in the United States. Limestone County is located in Zone IV. 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. 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.

A total of 36 tornados occurred in Limestone County according to NOAA NCDC during 2003 - 2013. An estimated $1.001 billion in property damages, four deaths and 48 injuries occurred as a result of the reported tornados. **Table 4-18** lists the figures used by FEMA for the valuation of deaths and injuries. These figures are approximations and are based on FEMA guidance used in benefit-cost analysis of hazard mitigation measures.

Table 4-18: Values Used for Monetary Conversion of Tornado Injuries and Deaths

Damage Category	Value for Monetary Conversion
Injury (blended major and minor)	$23,175
Death	$3,666,003

(Source: FEMA Guidance)

FEMA uses statistical values of $5.8 - $6.6 million per person for deaths, $1.08 million for major injuries, and $90 thousand for minor injuries. These 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. The county damage, injury and casualty data were then projected to a 30-year horizon and discounted using a 7% discount rate, in accordance with OMB guidance (Circular No. A - 94). The resulting data was subsequently disaggregated to separate damages related to injuries and deaths from other damages. This was done because deaths cause a strong bias in the outcome due to their extremely high value.

Areas with higher population densities pose the greatest potential for property damage, injury, and death. The Cities of Athens and Ardmore are the most densely populated areas 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. Limestone County has a total of 35,241 mobile homes countywide, 13.20% of the total housing stock. The greatest concentration of mobile homes in a municipality is in the Town of Lester where 21.82% of the units are mobile homes.

The most significant event during the study period occurred in the area of Lawngate on April 27, 2011 with an EF4 tornado, 18.86 miles in length and 1320 yards wide. A powerful storm system crossed the Southeast United States on Wednesday, resulting in a large and deadly tornado outbreak. This epic event broke the record for number of tornadoes in a day for the State of Alabama, becoming the most significant tornado outbreak in the state's history. Some of the devastation was literally unimaginable with countless homes, neighborhoods and even portions of cities or towns either partially or completely destroyed. This storm system would be responsible for one of the largest and deadliest tornado outbreaks to ever impact much of the southeastern region.

The powerful storm system that affected the National Weather Service, Huntsville service area, actually occurred in three separate waves of severe weather that day. The first occurred during the early morning hours of April 27, 2011 roughly between the hours of 2 AM and 8 AM CDT, while the second occurred during the late-morning to early afternoon period. The third and most devastating wave occurred during the afternoon hours on Wednesday, with some of the most violent and destructive tornadoes to affect the Central Tennessee Valley area in recent decades. The worst areas impacted by these storms included the towns of Phil Campbell and Oak Grove in eastern Franklin County Alabama, Mt. Hope in Western Lawrence County and the Tanner Community in Eastern Limestone County. Along a line connecting these areas tracked an EF5 tornado with peak winds around 210 mph, the strongest and most violent on the Enhanced Fujita Scale. The violent tornado continued it's path from the Tennessee River along the Lawrence/Limestone county line northeast through Tanner and into the east Central portion of Limestone County. Homes were completely obliterated along a wide swath in the Tanner community. Nearly a dozen high tension power lines were snapped or taken to the ground in Limestone County. Concrete power poles were also snapped off at their base. A subsequent ground team, aided by a storm survey expert from the University of Alabama in Huntsville, surveyed the most intense damage in Limestone County. High-end EF3 damage was noted over a large area in Eastern Limestone County along and north of the East Limestone High School. The intensity was maximized in Limestone County in the Community of Tanner, with a large swath of EF4 damage and a narrow corridor of high end EF4 damage. Several well-constructed homes with anchor bolting were completely wiped clean. One home had the debris lofted over 300 hundred yards with large items carried completely away. Intense ground scarring was noted in this area. In addition, a large cargo container was picked up and blown approximately 600 yards and several cars were carried airborne for hundreds of yards. In all, hundreds of homes received moderate to major damage along the path with many of these being total losses. Most of the violent tornadoes from this day were captured on video by a number of people, including storm spotters and chasers, as well as numerous television news crews and remotely controlled web-enabled video cameras. This allowed unprecedented coverage and viewing of this historic event in real time from people worldwide. (*Source: NCDC NOAA*)

The entire county is vulnerable to high winds caused by tornadoes. The location of Limestone County in Wind Zone IV, past occurrences of tornados, and the potential for future

occurrences to cause damage, death, and injuries leaves Limestone County vulnerable to and at risk for tornados.

Limestone County experienced 36 tornado events in a 10 year period resulting in a greater than 100% probability that a tornado event will occur on an annual basis. The total amount of damages for the 36 tornado events was $1,001,000,000 with 10 tornado events causing damage resulting in an estimated $100,100,000 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 Limestone County due to a tornado event; the ranking is minor to major. Limestone County's extent of tornado events is an EF4.

Primary effects from Tornados in Limestone 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 Limestone 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 4-3: Generalized Tornado Paths

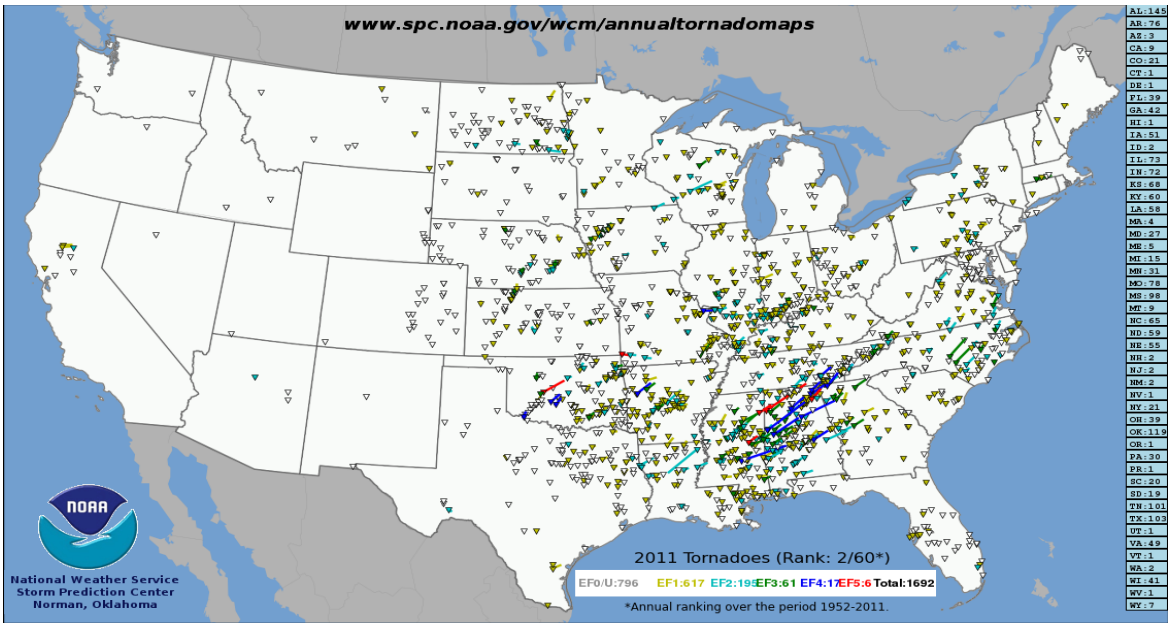
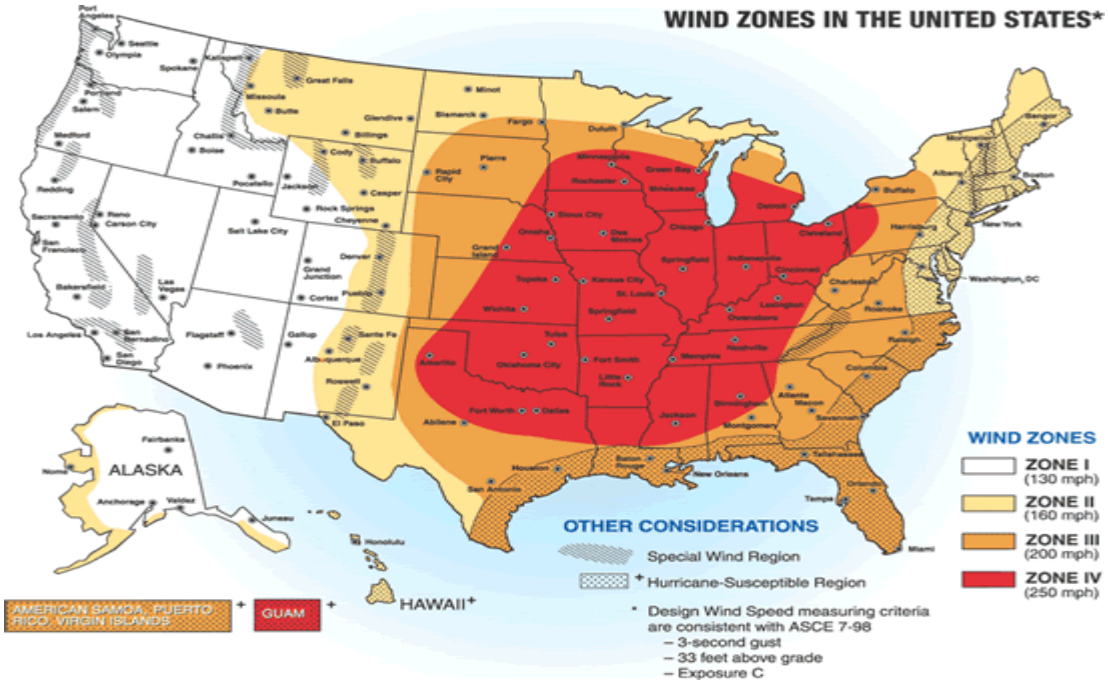


Figure 4-4: Wind Zones in the United States



Source: www.fema.gov

Figure 4-4 shows the different wind zones throughout the State of Alabama used by the American Society of Civil Engineers (ASCE) for determining design wind speeds. Design wind speeds are used by engineers to determine what type of winds (i.e. how strong) a building should be designed to withstand. According to **Figure 4-4**, the U. S. Wind Zone map, Limestone County is located in

Zone IV. This map shows the frequency and strength of extreme windstorms across the U. S. The map is based on 40 years of tornado history and more than 100 years of hurricane history. Zone IV has experienced both frequent and strong tornadoes, with wind speeds reaching 250 mph.

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 4-7** 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. The new scale takes into account quality of construction and standardizes different kinds of structures. The only differences between the Fujita Scale and the Enhanced Fujita Scale is adjusted wind speeds, measurements of which weren't used in previous ratings, and refined damage descriptors; to standardize ratings and to make it easier to rate tornadoes which strike few structures.

Table 4-19: 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.

Source: FEMA, 1997.

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

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V. Floods/Flash Floods

Flooding is the accumulation of water within a water body (e.g., stream, river, lake, or reservoir) and the overflow of excess water onto adjacent floodplains. Floodplains are usually lowlands adjacent to water bodies that are subject to recurring floods.

Floods are natural events that are considered hazards only when people and property are affected. Nationwide, hundreds of floods occur each year, making them one of the most common hazards in the U.S. (FEMA, 1997). There are a number of categories of floods that have affected or could affect Limestone County, Alabama, including the following:

- Riverine flooding, including overflow from a river channel, flash floods, ice-jam floods and dam break floods
- Local drainage or high groundwater levels
- Fluctuating lake levels
- Debris flows
- Subsidence

While there is no sharp distinction between riverine floods, flash floods, alluvial fan floods, ice jam floods, and dam-break floods, these types of floods are widely recognized and may be helpful in considering the range of flood risk and appropriate responses.

The most common kind of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and coastal regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. In steep valleys, flooding is usually rapid and deep, but of short duration, while flooding in flat areas is typically slow, relatively shallow, and may last for long periods of time.

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.

Alluvial fan floods occur in the deposits of rock and soil that have eroded from

mountainsides and accumulated on valley floors in the pattern of a fan. Alluvial fan floods often cause greater damage than overbank flooding due to the high velocity of the flow, amount of debris, and broad area affected. Human activities may exacerbate flooding and erosion on alluvial fans via increased velocity along roadway acting as temporary drainage channels or changes to natural drainage channels from fill, grading, and structures.

Ice jam floods are primarily a function of the weather and are most likely to occur where the channel slope naturally decreases, culverts freeze solid, reservoir headwaters, natural channel constructions (e.g., bends and bridges), and along shallows.

Dam-break floods may occur due to structural failures (e.g., progressive erosion), overtopping or breach from flooding, or earthquakes.

Local drainage floods may occur outside of recognized drainage channels or delineated floodplains 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.

Flooding/flash flooding caused by rainfall occurs to some extent almost every year in almost every part of Limestone County. Flooding occurs most frequently between November and April, with a peak from February through April. Flash flooding has the potential to affect every jurisdiction in Limestone County. Riverine flooding can potentially create minor to moderate property damage and a slight risk of casualties throughout areas of the county adjacent to rivers and creeks. Flash flooding can potentially create extensive property damage and casualties to the entire county. Riverine and flash flooding can also affect accessibility for emergency services. **Table 4-20** shows the flood risk in dollar amount to critical facilities in Limestone County based on FEMA HAZUS-MH 2011.

Table 4-20: Flood Risk to Limestone County Critical Facilities based on FEMA HAZUS Data

County	Police	Schools	Fire	EOCs	Total
Limestone	$14,157,500	$167,767,906	$5,040,000	$536,520	$187,501,656

(Source: HAZUS MH 2.1- 2011; LHA Chart Developed in 2016)

Dam and levee failures are flood risks. According to HAZUS-MH 2011, Limestone County has 12 High Density Polyethylene (HPDE - Earth) Dams. According HAZUS-MH 2011, two dams (Brookwood Forest Lake and Montgomery Lake) are considered high hazard dams (loss of one human life is likely if the dam fails). This classification is assigned to a dam depending upon the urban development directly downstream of the dam and whether or not failure would result in serious economic loss. Classifications are assigned to a dam depending upon the urban development directly downstream of the dam and whether or not failure would result in serious economic loss. The classification is not an indication of the quality of the dams' construction. In the event of a flood or significant earthquake in Limestone County, the possibility for an emergency situation could exist at these dams. The ALCEMA is prepared to coordinate efforts if an event arises at these dams.

No historical records are available of dam/levee failures in Limestone 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.

Flooding can occur along the banks of the creeks and streams that flow throughout the county and where development has encroached in the floodplain. Flash flooding can occur anywhere in the county due to inadequate or clogged drainage systems and excessive rainfall. Unpaved dirt roads, common in the rural areas, are particularly vulnerable. Impacts in developed areas include street flooding and water backing up into homes and buildings. In addition to damaging homes, flooding can adversely impact crops, water and sewer systems, and dams and levees. All jurisdictions are vulnerable to flood events.

On February 5, 2004, a flood event occurred in Limestone County. Many roads near Browns Ferry Nuclear Power Plant and in Athens were covered with several inches of water over the roads. This storm resulted in no reported damages. (*Source: NOAA NCDC*)

On March 26, 2009, runoff from heavy rainfall caused area streams to overflow and closing

Bill Black, Myers and Cowford Roads due to 2 – 4 inches of water over roadways. This storm resulted in no reported damages. (*Source: NOAA NCDC*)

On September 23, 2009, a flood event occurred in Limestone County. Runoff from rainfall from the night of the 22nd through the morning of the 23rd caused Big Creek, Northwest of Athens, to rise over its banks and flood Bill Black Road. During peak flooding, up to two feet of water was flowing over this low water crossing. This storm resulted in no reported damages. (*Source: NOAA NCDC*)

On January 17, 2012, flash flood events occurred in Limestone County. Flash flooding (2 – 3.5 inches) occurred on several roads including Bethel, Thach and McKee Roads in northeast Limestone County adjacent to northern Madison County. Flash flooding (2 - 3.5 inches) also occurred along several points along and near Highway 99, including at the intersection of Tillman Road. These storms resulted in $15,000 of property damages. (*Source: NOAA NCDC*)

On July 4, 2013, a flood event occurred in Limestone County. A nearly stationary band of heavy rain developed on the 4th of July across portions of Northwest and North Central Alabama. A bulk of the rainfall occurred during the late morning through late afternoon hours. The hardest hit counties were Lawrence, Eastern Limestone, Western Madison and Morgan Counties where 5 to 10 inches of rain were measured. Capshaw Road was closed at Sanderson Road and between Wall Triana and Nance Roads, in addition to other roads in East Limestone County. Lavert Avenue was closed due to flash flooding. Fifteen area and county roads were closed due to high water in southeastern Limestone County, from near Mooresville Road to along and northeast of Huntsville Browns Ferry Road. Water was at least a foot to a foot and a half deep over the roadways. Arbor Trace near County Line Road was also closed due to flooding. Widespread area flooding occurred and numerous roads were closed or became impassible in some areas through the evening of July 6th. These storms resulted in no reported damages. (*Source: NOAA NCDC*)

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. During this plan's study period, flooding occurred to the extent of 18 inches of water on roadways *(Source: NCDC Storm Events)*. 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 4-21** shows a range of flood recurrence intervals and their probabilities of occurrence.

Table 4-21: 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, August 2001)

Limestone County experienced 48 flood/flash flood events in a 10 year period resulting in a greater than 100% probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 48 flood/flash flood events was $15,500 with 2 flood/flash flood events causing damage resulting in an estimated $7,750 of expected annual damages from future

events. The referenced 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 Limestone County due to a flood event; the ranking is minor to major. During this plan's study period, flooding occurred to the extent of 18 inches of water on roadways.

Primary Effects from Floods in Limestone County would include:

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

Hazardous results from significant flood in Limestone 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

Limestone County participates in the ***National Flood Insurance Program (NFIP)***. The *NFIP* allows property owners to purchase federally sponsored flood insurance. The *NFIP* maps communities in order to establish Flood Risk Zones or Special Flood Hazards Areas. These hazard areas are then mapped on the *Flood Insurance Rate Maps (FIRMS)*. *FIRMS* are used to assess the risks of floods and aid in proper floodplain management. An update of the flood maps of Limestone County was completed in 2014. The City of Athens, the Town of Ardmore and the Town of Mooresville are participating members of the National Flood Program. The Towns of Elkmont and Lester are not listed as participating or not participating. The Town of Ardmore has no determined elevations; therefore, all areas are Zone A, C, and X. The National Flood Insurance Program (NFIP) requires local participation. **Table 4-22** shows the current NFIP status of each jurisdiction. There are no Severe Repetitive Loss properties or Repetitive Loss properties in Limestone County at this time.

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, Limestone 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 2-1**.

Table 4-22: Limestone County
National Flood Insurance Program Status by Jurisdiction

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Eff. Map Date	Reg-Emer Date	Tribal
010307#	Limestone County	03/18/77	07/16/81	10/02/14	07/16/81	No
010306#	Town of Ardmore	12/17/76	04/15/86	07/07/09 (M)	04/15/86	No
010146#	City of Athens	03/08/74	09/28/79	10/02/14	09/28/79	No
Not Listed	Town of Elkmont					No
Not Listed	Town of Lester					No
010455#	Town of Mooresville	-	07/07/09	10/02/14	09/21/10	No
Source: FEMA Community Status Book Report as of February 6, 2014						
Key: M = No Elevation Determined – All Zone A, C, and X *NSFHA = No Special Flood Hazard Area – All Zone C*						

VI. Drought/Extreme Heat

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. Though historically not a major problem, the region is susceptible to extreme drought conditions.

The climate of Limestone County is best described as being closer to a continental climate. Average temperature ranges from 90 degrees F to 70 degrees F during a summer day and 45 degrees F to 10 degrees F during a winter day to 65 degrees F to 50 degrees F during a summer night and 25 degrees F to -10 degrees F during a winter night. Generally, Limestone County has hot summers and mild winters.

Drought is a normal part of virtually every climate on the planet, including areas of both high and low normal rainfalls. Drought is the result of a natural decline in the expected precipitation over an extended period of time, typically one or more seasons in length. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity (FEMA, 1997). Drought is a complex natural hazard which is reflected in the following four definitions commonly used to describe it:

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. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall. They may also be called a water management drought. 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 4-24**. 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.

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.

Limestone County experienced moderate (D1) to exceptional (D4) drought conditions, as explained in **Table 4-23,** from March 2007 through August 2008 having hydrologic, agricultural, and sociological impacts. Crops became highly stressed due to the lack of rainfall, with losses ranging from 50 to nearly 100 percent. Many crops were considered to be in poor or very poor condition, along with livestock and hay production. In addition, about 60 percent of the livestock, and 75 percent of pasture lands, were also considered to be poor or very poor, and hay yields for the summer were less than half of normal. Stream flows on area rivers and waterways remained near record low levels, and most reservoir levels were well below normal. Navigation on major rivers became significantly impacted, and many boat landings on major lakes became unusable due to extremely low lake levels. The number of mandatory water restrictions continued to increase, with fines and surcharges being enforced for excessive water usage. Many residential lawns, shrubbery, and gardens became severely stressed by the very dry conditions. Statewide, 31 counties were declared a disaster area. Alabama farmers received one million dollars in federal disaster aid along with other grant assistance. It was during this time that the State implemented its Drought Monitoring System. Drought conditions continued to escalate and by August 2007 all 67 Alabama counties were declared Natural Disaster areas by the Federal Government. The State Agriculture Commissioner (at the time) Ron Sparks referred to this event as the worst drought in 30-40 years. (*Source: NOAA NCDC*)

In 2012, severe drought (D2) conditions were declared on July 3 and ended on the 25th.

(*Source: NOAA NCDC*)

Table 4-23: Drought Severity Classification

		Ranges					
Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

(Accessed 2014)

On June 28, 2009, the heat index values in Limestone County reached 108 degrees This event is referenced as a worst case excessive heat scenario of such an event occurring during the plan's study period of 2003-2013.

Limestone County experienced 19 drought/extreme heat events in a 10 year period resulting

in a greater than 100% probability that a drought event will occur on an annual basis. The total amount of damages for the 19 drought/extreme heat events was $0 with 0 drought events causing damage resulting in an unknown estimation of expected annual damages from future events. The referenced drought/extreme heat 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 Limestone County due to a drought/extreme heat event; the ranking is minor to major. Limeston County's extent for drought conditions is Exceptional Drought (D4) and for excessive heat is 108 degrees Farenheit.

Primary effects from Drought and Excessive Heat in Limestone 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 Limestone 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 4-24: Heat Index/Heat Disorders

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

(Source: National Weather Service, 1997)

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

Limestone County is vulnerable to extreme winter weather conditions such as extreme cold temperatures, snow, and ice. **Table 4-10** shows the winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold events that have affected Limestone County from 2003 - 2013.

Limestone County commonly has extreme cold and winter storm events. 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 Limestone County are vulnerable to severe winter storms.

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 October 28-29, 2008, countywide temperatures dropped to below freezing for more than 5 hours. Some of the lows reached were: Athens - 30, Belle Mina - 25, Pryor Field - 29, and Sardis Springs - 26.

On January 29, 2010, a mix of rain, sleet, and snow changed to primarily freezing rain during the day. This produced accumulation of ice between 0.25 and 0.35 inches on trees and elevated surfaces, along with a few tenths of an inch of snowfall through the early afternoon hours. The highest ice accumulation of 0.35 inches was reported in the Ardmore community. One elderly

woman was injured in a wreck due to the slick conditions.

On February 8, 2010, a winter weather event resulted in one to four inches of snowfall accumulation across the county. The highest snowfall accumulation was reported in Elmont. Several car accidents occurred across the county. Another winter weather event on February 2, 2013 resulted in a combination of light snow and sleet accumulation of around a quarter of an inch about a mile east of Cartwright, Alabama. No damages were reported.

On October 26, 2013, a frost freeze event resulted in the temperature dropping to 27 degrees at Pryor Field Regional Airport (ASOS). No damages were reported.

On January 14, 2013, a light glaze of ice was reported at the corner of Highway 99 and Tillman Mill Road. It was estimated that around a tenth of an inch of freezing rain had accumulated on trees and power lines about eight miles northwest of Athens. No damages were reported.

On January 9, 2011, a heavy snow event resulted in most locations across the county receiving eight to ten inches of snowfall. Even some amounts between ten and twelve inches fell in extreme northwestern portions of the county.

On January 17, 2013, one half inch of snow was reported off of County Line Road and Mill Road, about two miles west of Madison, Alabama in Eastern Limestone County. No damages were reported.

No snow/ice storm and extreme cold events occurred during this plan's study period.

Limestone County experienced 30 winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold events in a 10 year period resulting in a greater than 100% probability that a winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold event will occur on an annual basis. The total amount of damages for the 30 winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold events was $0 or unknown resulting in an unknown estimation of expected annual damages from future events. The referenced winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold 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 Limestone County due to a winter storm/frost freeze/heavy snow/ice storm/winter weather/extreme cold event; the ranking is minimum to minor. According to noaa.gov, Limestone County's extent is 25 degree weather, .35 inches of ice and 8-10 inches of snowfall.

Primary effects from winter storms in Limestone 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 Limestone County would include:

1. Loss of power, communications, and fires are common results of severe winter storms. Widespread power outages close down businesses and impact hospitals, nursing homes, and adult and child care facilities serving special needs populations.
2. Loss of transportation ability will affect emergency response, recovery and supply of food and materials.
3. Numerous vehicle accidents in a winter storm can stretch thin the resources of fire rescue and law enforcement.
4. Stranded motorists and the homeless can create a food and housing shortage within the community.
5. The widespread nature of winter storms usually creates a strain on police, fire and medical providers due to the volume of calls for service.

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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.

NOAA measures wind speeds for thunderstorm/wind and hurricane events in knots (kts) while the Saffir-Simpson scale as shown in **Table 4-25**, 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 4-25**, 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 and/or flooding impacts) due to the intensity of the oncoming hurricane.

Table 4-25: 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; Accessed 2014)

Hurricanes impact areas in a variety of ways. The intensity of the storm, the speed of the winds, whether the storm moves through an area 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. Limestone County is not directly affected by storm surges.

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

Limestone County.

Hurricanes and tropical storms such as Dennis and Katrina have affected Limestone 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. Limestone County has a total of 7,366 mobile homes countywide, 19.89% of the total housing stock. The greatest concentration of mobile homes in a municipality is in the Town of Colony where 45.26% of the units are mobile homes.

Effects of these storms generally impact the entire county and are not limited to a specific location. The fact that other surrounding counties will have also been affected by the same event only adds to the burden, as utility crews are often overwhelmed by the needs of an entire region or state.

Hurricane Dennis made landfall on July 10, 2005 at the Santa Rosa Sound in Florida, approximately 25 miles from the Florida-Alabama state line. The remnants of Tropical Storm Dennis moved northward from the Gulf Coast and into the Tennessee Valley during the evening of July 10th. Gusty winds in excess of tropical storm force resulted in some minor tree damage across north Alabama along with several power outages. The winds and rain diminished during the early morning hours of July 11th.

The remnants of Hurricane Katrina moved northward along the Alabama/Mississippi state line. Katrina was still a strong tropical storm as the center passed just west of North Alabama during the evening hours of August 29, 2005. Most of North Alabama experienced tropical storm force wind gusts for several hours with a few wind gusts as high as 60 mph being reported. While structural damage was very limited, a few homes did receive minor roof damage due to the loss of a few shingles. Numerous trees and power lines were blown down across the entire area and thousands of people lost power. Katrina moved relatively quickly to the north and thus rainfall was limited. Rainfall amounts were around four to five inches near the Alabama/Mississippi line but tapered off significantly farther to the east with locations near the Alabama/Georgia line only seeing a half inch or less.

On January 29, 2008, Limestone County experienced high winds of at least 45 mph with gusts over 50 mph blew down numerous trees and power lines across the county leaving power outages. A 53 mph wind gust was measured at Pryor Field. Limestone County reported $5,000 in

property damages. Another high wind event occurred on February 11, 2009 when a sustained period of high winds (60 mph) knocked down trees across the county. A tree was blown down onto a home in Ardmore. Numerous trees were knocked down in the Paradise Shores community. Limestone County reported $5,000 in property damages.

On March 18, 2013, a strong wind (50 mph) event occurred and resulted in trees being knocked down on Sutton Hill Road. Property damages of $1,000 were reported. Another strong wind event occurred on December 11, 2008 resulting in an uprooted tree falling onto a power line which tripped a power substation and knocked power out for about 5000 utility customers in the Athens area. Property damages of $3,000 were reported.

Limestone County experienced 8 hurricane/tropical storm/tropical depression/high wind/strong wind events in a 10 year period resulting in an 80% probability that a hurricane/tropical storm 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 $14,000 with 4 hurricane/tropical storm/tropical depression/high wind/strong wind events causing damage resulting in an estimated $3,500 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 Limestone County due to a hurricane/tropical storm/tropical depression/high wind/strong wind event; the ranking is minor to major. Limestone County's extent from these storms is winds in excess of tropical storm winds, up to 60 mph.

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

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IX. Sinkhole/Expansive Soil

Sinkholes

Land subsidence, the loss of surface elevation due to the removal of subsurface support, ranges from broad, regional lowering of the land surface to localized collapse. The primary cause of land subsidence is a direct result of human activity often in areas of karsts geology. The human activities that may trigger subsidence include mining and the withdrawal of groundwater and/or petroleum. The most dramatic form of subsidence is the collapse of superficial material into underground voids.

A sinkhole is a natural depression or hole in the surface topography caused by the removal of soil or bedrock, often both, by water. They may be formed gradually or suddenly. Sinkholes are common where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by circulating ground water. As the rock dissolves, spaces and caverns develop underground. These sinkholes can be dramatic because the surface land usually stays intact until there is not enough support. Then a sudden collapse of the land surface can occur.

There are three types of potential problems associated with the existence or formation of sinkholes: subsidence, flooding, and pollution. The term subsidence commonly involves a gradual sinking, but it also refers to an instantaneous or catastrophic collapse. In Limestone County, sinkholes are common where the rock below the land surface is limestone, dolomite, or salt that can naturally be dissolved by ground water. As the rock dissolves, cavities and caverns develop underground. Sinkholes may be dramatic if the land stays intact for some time until the underground spaces just get too big and a sudden collapse of the land surface occurs.

The change in the local environment affecting the soil mass causing subsidence and sinkholes collapse is called “triggering mechanism.” Water, is the main factor affecting the local environment that causes subsidence. The main triggering mechanisms for subsidence are:

- ☐ Water level decline,
- ☐ Changes in groundwater flow,
- ☐ Increased loading, and
- ☐ Deterioration (abandoned coalmines).

Water level decline can happen naturally or be human induced. Main factors in water decline

are:

- ☐ Pumping of water from wells,
- ☐ Localized drainage from construction,
- ☐ Dewatering, and
- ☐ Drought

Changes in the groundwater flow (as indicated in **Figure 4-5**) include an increase in the velocity of groundwater movement, increase in the frequency of water table fluctuations, and increased or reduced recharge. Increased loading causes pressure in the soil leading to failure of underground cavities and spaces. Vibrations caused by an earthquake, vibrating machinery and blasting, can cause structural collapse followed by surface settlement.

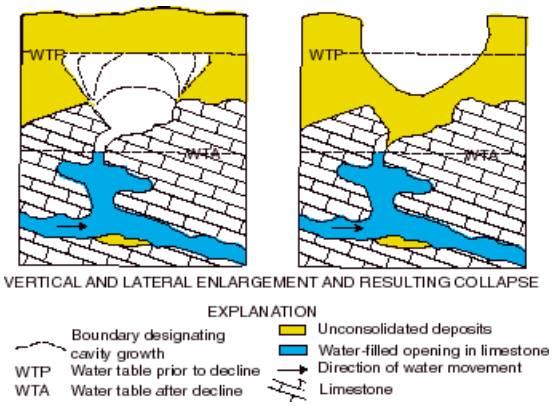

Figure 4-5
Water Level Decline
Source: Alabama Department of Transportation, 2014

Natural 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.

Historically, land subsidence or sinkhole events have not been well documented. Limestone County geology has a low susceptibility to such events; therefore, is at a slight risk for sinkholes.

The probability of future occurrences cannot be predicted due to a lack of historical records and detailed geologic studies. Areas in Limestone County underlain by carbonate rocks and characterized by the presence of subsurface cavities, sinkholes, and underground drainage are called "karst terrains." It is these karst areas that are most susceptible to sinkhole development and subsidence.

As development continues in rural areas of Limestone County it is likely that sinkholes will begin to have a greater impact on communities. When subsidence occurs in developed areas it can have a significant impact on communities including loss of property values, increased insurance costs and potential injuries.

In Limestone County, sinkholes are common where the rock below the land surface is limestone, dolomite, or salt that can naturally be dissolved by ground water. As the rock dissolves, cavities and caverns develop underground. Sinkholes may be dramatic if the land stays intact for some time until the underground spaces just get too big and a sudden collapse of the land surface occurs. Some sinkholes are formed due to the leak in underground storm drains and sewer systems; when they collapse, the damage can be seen for many miles due to the repairs that become necessary.

The probability of future occurrences based on past experiences during this plan's study period is 10% annual probability a sinkhole will occur in Limestone County. These are random events, which can be influenced by drought conditions.

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 4-7** shows the general soil areas for the state. Limestone County has Limestone Valley and Upland soils. Soils in this area were formed mainly in residuum weathered from limestones. Soils of the Tennessee and Coosa river valleys were weathered from pure limestones and are mainly red clayey soils with silt loam surface textures. Decatur and Dewey soils are extensive throughout the valleys. Topography is generally level to undulating. Elevation is about 600 feet. Most of the land is open and cropped to cotton or soybeans.

Most of the soils of the uplands are derived from cherty limestones. Bodine and Fullerton soils are extensive in many of these landscapes. They typically have a gravelly loam and gravelly clay subsoil and a gravelly silt loam surface layer. Elevation is about 700 feet, and topography ranges from level to very steep. Cotton and soybeans are major row crops. Much of the area is used for pasture or forest.

Figure 4-6

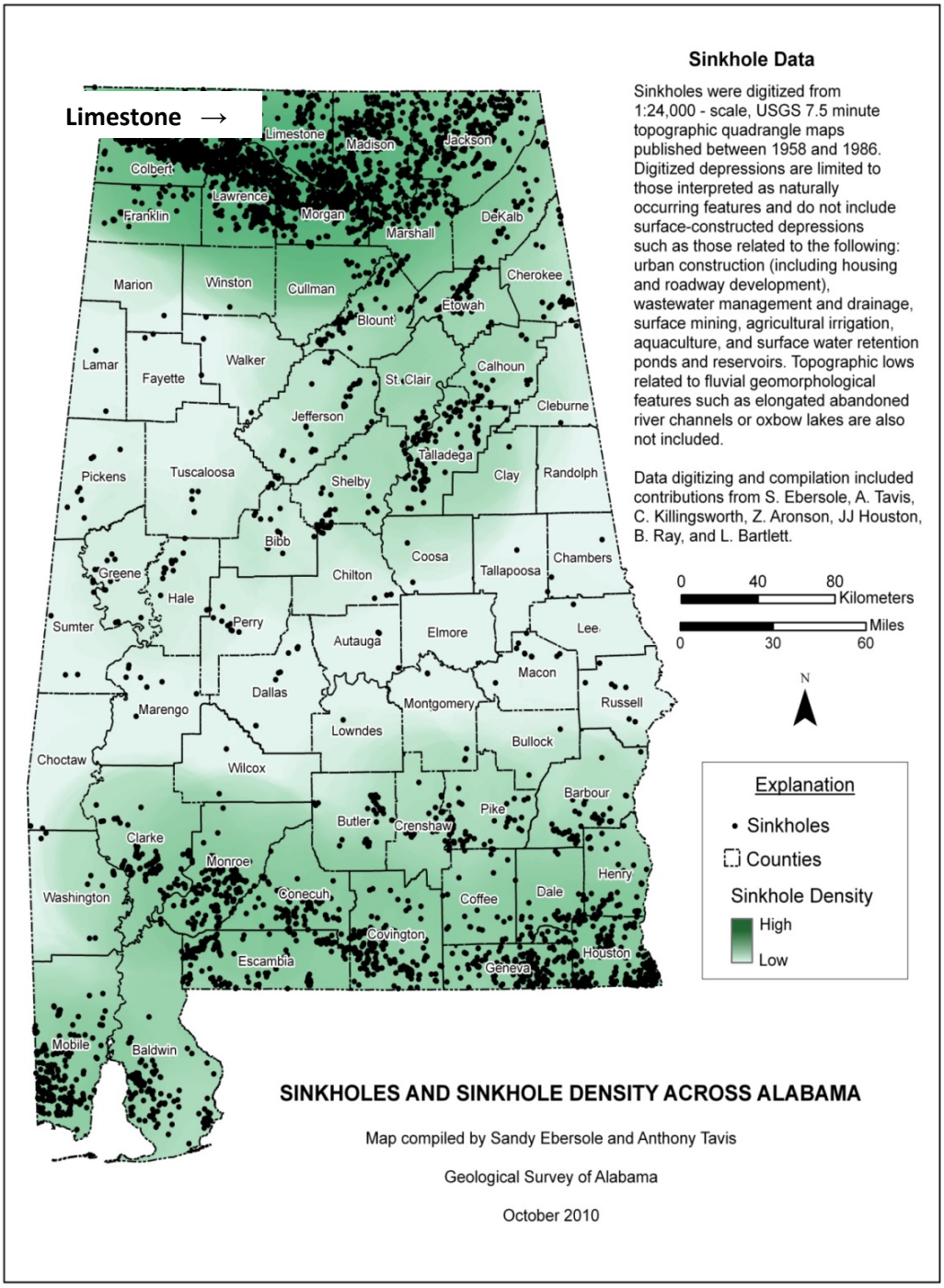
Limestone →
Limestone
Madison
Jackson
Colbert
Lawrence
Franklin
Morgan
Marshall
DeKalb
Marion
Winston
Cullman
Cherokee
Etowah
Blount
Lamar
Fayette
Walker
St. Clair
Calhoun
Jefferson
Cleburne
Talladega
Pickens
Tuscaloosa
Shelby
Clay
Randolph
Bibb
Coosa
Chambers
Greene
Chilton
Tallapoosa
Hale
Sumter
Perry
Autauga
Elmore
Lee
Macon
Dallas
Marengo
Montgomery
Russell
Lowndes
Bullock
Choctaw
Wilcox
Barbour
Pike
Butler
Crenshaw
Clarke
Monroe
Henry
Washington
Conecuh
Coffee
Dale
Covington
Houston
Escambia
Geneva
Mobile
Baldwin
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.
0 40 80
Kilometers
Miles
0 30 60
N
Explanation
• Sinkholes
Counties
Sinkhole Density
High
Low
SINKHOLES AND SINKHOLE DENSITY ACROSS ALABAMA
Map compiled by Sandy Ebersole and Anthony Tavis
Geological Survey of Alabama
October 2010

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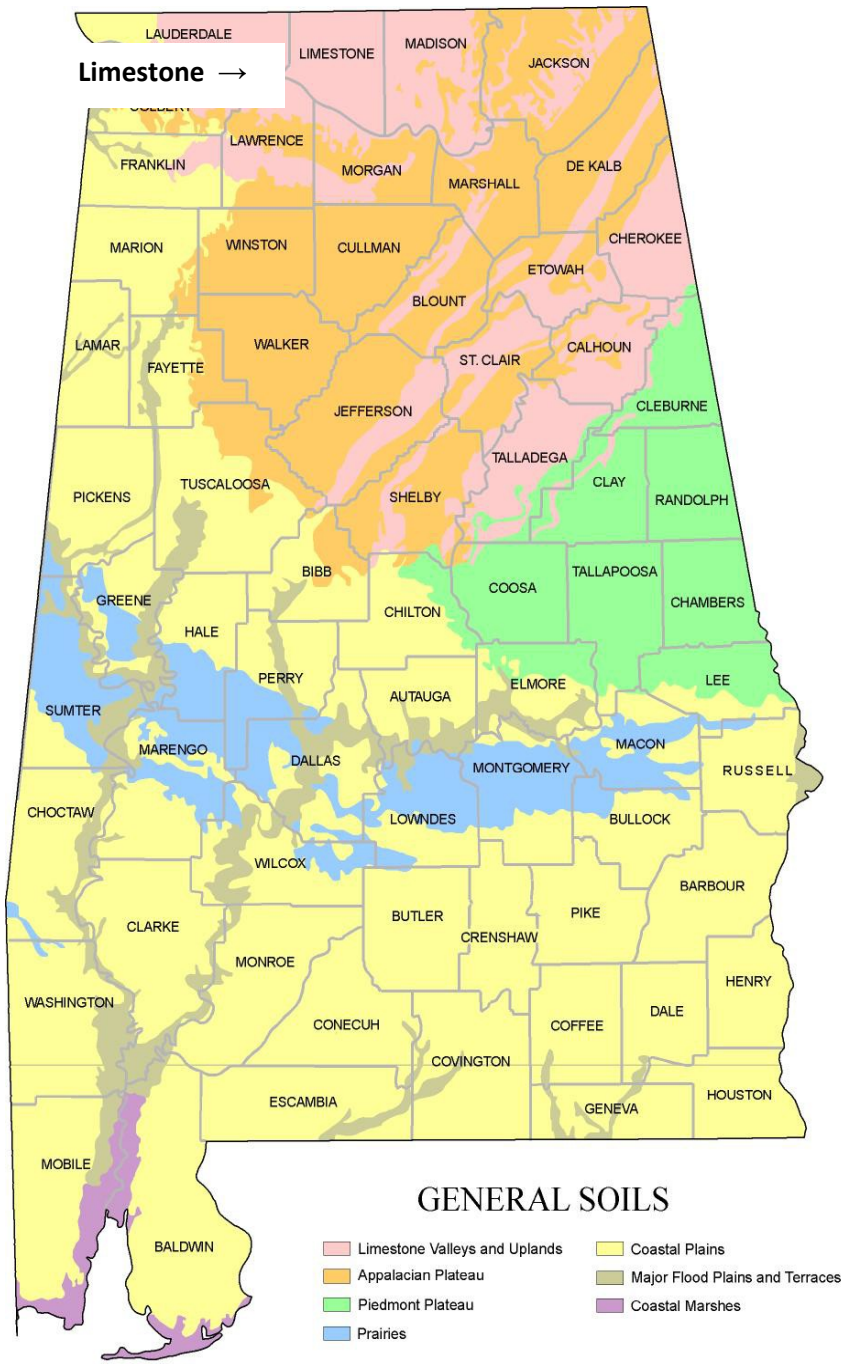
Figure 4-7: General Soils of Alabama



Source: Cartographic Research Lab, University of Alabama, 2014

Limestone County experienced 1 sinkhole/expansive soil events in a 10 year period resulting in a 10% probability that a sinkhole/expansive soil event will occur on an annual basis. The total amount of damages for the 1 sinkhole/expansive soil events was $0 or unknown with 0 sinkhole/expansive soil events causing damage resulting in an unknown estimation of expected annual damages from future events. The extent/range of magnitude or severity that could be experienced by Limestone County due to a sinkhole/expansive soil event is minimum to minor based on the lack of historical records and detailed geologic studies. The sinkhole extent for Limestone County during this plan's study period is a 7 feet deep hole.

Primary effects from sinkholes in Limestone County would include:

1. Property damage
2. Impassable roads
3. Sediment erosion
4. Infrastructure damage

Hazardous results from sinkholes in Limestone County would include:

1. When they are formed on land, they can change the general topography of the land area and divert streams of underground water.
2. If they form suddenly in areas with heavy population, they can cause a lot of damage to human life and property, as all in the area of the sinkhole may be lost.
3. They can be dangerous to the foundations of buildings. Total buildings could be lost.
4. Toxic chemicals beneath the earth can come up and may pollute the groundwater.

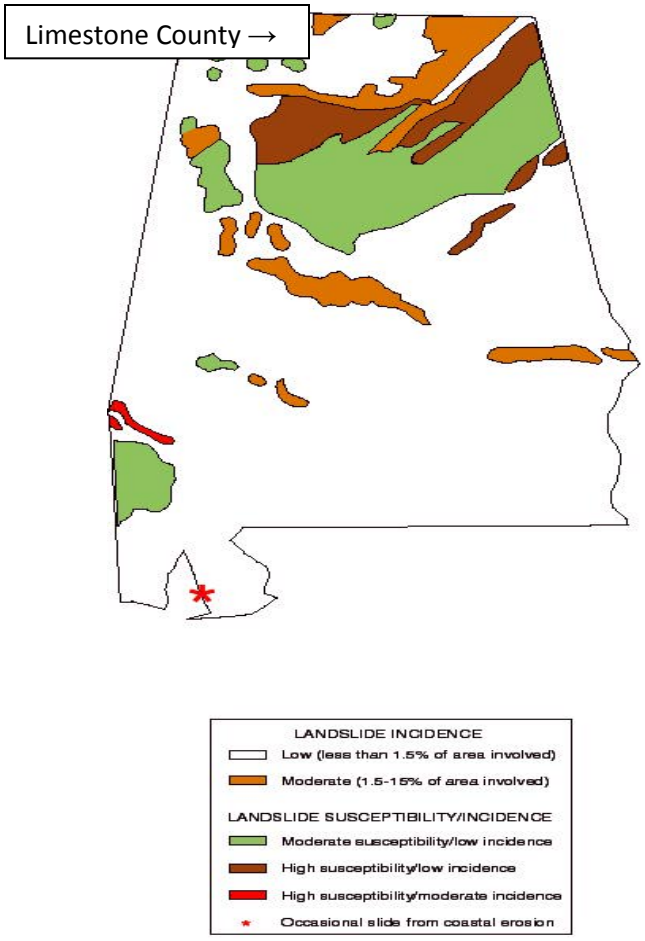
X. Landslide

A landslide is a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal and onshore environments. Although the gravity is the primary force for a landslide to occur, there are other contributing factors affecting the original slope stability. Typically, pre-conditional factors build up specific sub-surface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released.

Land subsidence, the loss of surface elevation due to the removal of subsurface support, ranges from broad, regional lowering of the land surface to localized collapse. The primary cause of land subsidence is a direct result of human activity often in areas of karsts geology. The human activities that may trigger subsidence include mining and the withdrawal of groundwater and/or petroleum. The most dramatic form of subsidence is the collapse of superficial material into underground voids.

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. **Figure 4-8** shows moderate landslide incidence susceptibility in Limestone County.

Figure 4-8: Landslide Incidences in Limestone County, AL



Source: U.S. Geological Survey

(Accessed 2014)

The map units are split into three incidence categories according to the percentage of the area affected by landslides. High incidence means greater than 15 percent of a given area has been involved in land sliding; medium incidence means that 1.5 to 15 percent of an area has been involved; and low incidence means that less than 1.5 percent of an area has been involved. High, medium, and low susceptibility are delimited by the same percentages used for classifying the incidence of land sliding. Susceptibility is not indicated where it is the same as or lower than incidence. Because the map above was prepared at a small scale using limited landslide and climate information, it is not intended for local planning or actual site selection.

The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over steepened slope is

the primary reason for a landslide, there are other contributing factors:

- Erosion by rivers, glaciers, or ocean waves creates over-steepened slopes
- Rock and soil slopes are weakened through saturation by snowmelt or heavy rains
- Earthquakes create stresses that cause or encourage the failure of weak slopes
- Earthquakes of magnitude 4.0 and greater have been known to trigger landslides
- Volcanic eruptions produce loose ash deposits, heavy rain, and debris flows
- Excess weight from accumulation of rain or snow, stockpiling of rock or ore from waste piles, or from man-made structures may stress weak slopes to fail

Slides are downward displacements along one or more failure surfaces of soil or rock. The material may be a single intact mass or a number of pieces. The sliding may be rotational (turning about a point) or translational (movement roughly parallel to the failure surface).

Flows are a form of rapid mass movement by loose soils, rocks, and organic matter, together with air and water that form slurry flowing rapidly downhill. Flows are distinguished from slides by high water content and velocities that resemble those of viscous liquids.

Lateral spreads are large movements of rock, fine-grained soils (i.e., quick clays), or granular soils, distributed laterally. Liquefaction may occur in loose, granular soils, and can occur spontaneously due to changes in pore-water pressure or due to earthquake vibrations.

Falls and topples are masses of rocks or material that detach from a steep slope or cliff that free-fall, roll, or bounce. Movements typically are rapid to extremely rapid. Earthquakes commonly trigger rock falls.

Almost any steep or rugged terrain is susceptible to landslides under the right conditions. The most hazardous areas are steep slopes on ridges, hill, and mountains; incised stream channels; and slopes excavated for buildings and roads. Slide potentials are enhanced where slopes are destabilized by construction or river erosion. Road cuts and other altered or excavated areas are particularly susceptible to landslides and debris flows. Rainfall and seismic shaking by earthquakes or blasting can trigger landslides.

Debris flows (also referred to as mudslides) generally occur during intense rainfall on water saturated soil. They usually start on steep hillsides as soil slumps or slides that liquefy and accelerate to speeds as great as 35 miles per hour. Multiple debris flows may merge, gain volume, and travel long distances from their source, making areas down slope particularly hazardous. Surface runoff channels along roadways and below culverts are common sites of debris flows and

other landslides (USGS, 2000).

Landslides often occur together with other major natural disasters, such as the following, thereby exacerbating relief and reconstruction efforts:

- ☐ Floods and landslides are closely related and both involve precipitation, runoff, and ground saturation that may be the result of severe thunderstorms or tropical storms.
- ☐ Earthquakes may cause landslides ranging from rock falls and topples, to massive slides and flows.
- ☐ Landslides into a reservoir may indirectly compromise dam safety or a landslide may even affect the dam itself.
- ☐ Wildfires may remove vegetation from hillsides, significantly increasing runoff and landslide potential.

The probability of future occurrences cannot be predicted due to a lack of historical records and detailed geologic studies. These are random events, which can be influenced by drought conditions.

Limestone County experienced 0 or unknown landslide events 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 the unknown landslide events was $0 with an unknown estimation of expected annual damages from future events. The extent/range of magnitude or severity that could be experienced by Limestone County due to a landslide event; the ranking is minimum to minor – according to the U. S. Geological Survey, Limestone County's extent for a landslide event occurring is moderate.

Primary effects from landslide in Limestone County would include:

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

Hazardous results from landslide in Limestone 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.

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XI. Earthquake

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 4-26**. 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 4-26: 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; Accessed 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.

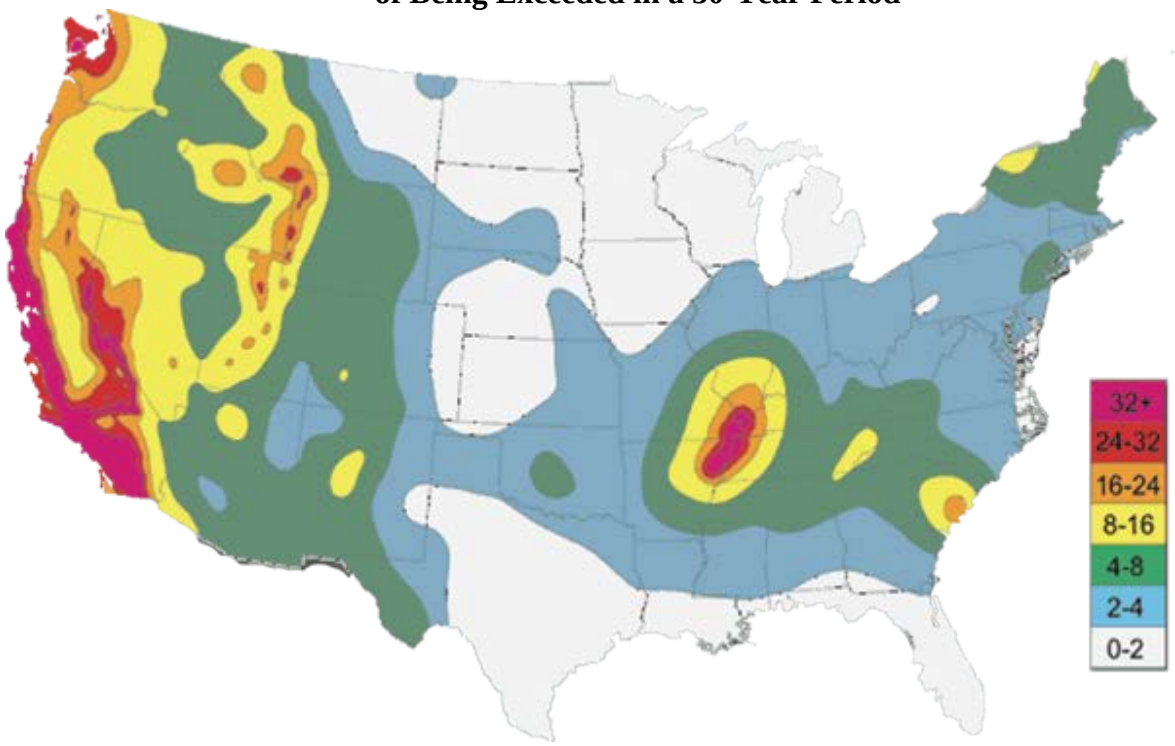
Interestingly, an earthquake's magnitude can be a poor indicator of hazard impact because the duration of ground shaking, and resulting increased damages, is not factored into the magnitude concept. The majority of losses are due to collapsing houses and other structures, the most vulnerable being those 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.

The zone of frequent earthquake activity affecting Limestone County is the Southern Appalachian Seismic Zone (SASZ) (also called the Eastern Tennessee Seismic Zone. 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. Limestone County is located within the SASZ zone and is at a moderate risk for earthquakes.

Earthquakes occurring in Limestone 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 4-10** is based on earthquake occurrences and their shaking extent relative to the epicenter. Colors show levels of horizontal shaking having a 1-in-10 chance of being exceeded in a 50-year period. Limestone County has a 4-8% chance of experiencing horizontal shaking; however, there are insufficient historical records and geologic studies to predict the future probability of an earthquake occurring in Limestone County. The risk of a significant, damage-causing earthquake in Limestone County is low to moderate.

Figure 4-9: Horizontal Shaking Having a 1-in-10 Chance of Being Exceeded in a 50-Year Period

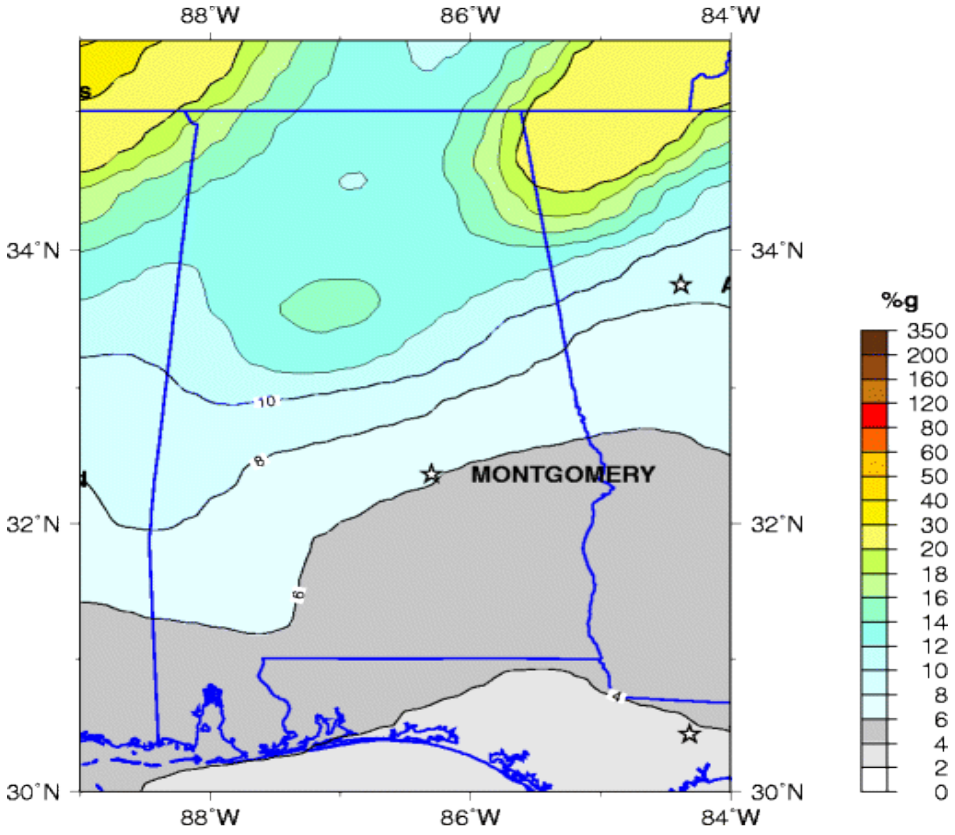


(Source: Geological Survey of Alabama, 2010)

Although many areas of the United States are better known for their susceptibility,

earthquakes do occur in Alabama. **Figure 4-12** 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. Limestone County experienced two earthquake events during the past ten years (January 1, 2003 – December 31, 2013) as noted in **Table 4-14**; however, has a low to moderate seismic risk. In accordance with FEMA guidelines, an area with 2% or greater probability of exceedance in 50 years should be further assessed for vulnerability. Limestone County's risk falls at approximately the 12-16% probability of exceedance in 50 years **(Figure 4-11)**. To date, there have been earthquake epicenters of 1.0-1.9 and 2.0-2.9 experienced in Limestone County.

Figure 4-10: Alabama's Seismic Hazard Map



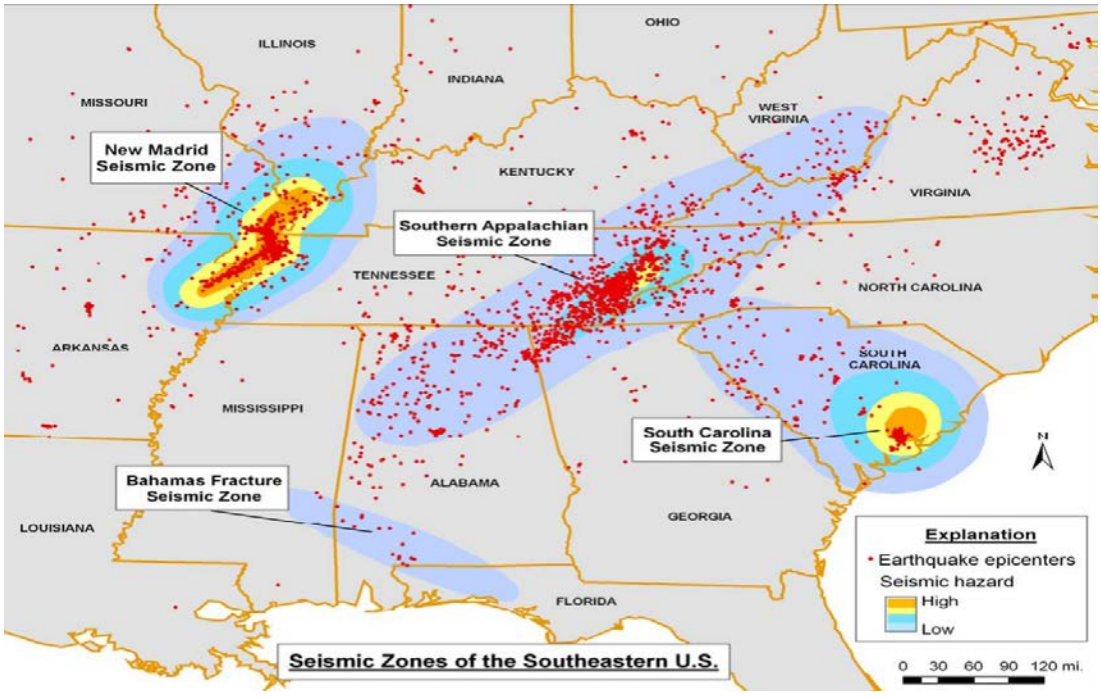
(Source: United States Geological Survey, 2008)

The Geological Survey of Alabama, in conjunction with the Alabama Emergency

Management Agency, developed basement fault and liquefaction susceptibility maps for Alabama. The basement fault mapping project was an effort to approximate locations of buried faults. Some buried faults are considered active based on earthquake epicenters in the vicinity of the faults **(Figure 4-13)**. The liquefaction mapping project was conducted to help identify areas that are most at risk to liquefaction during a moderate to strong magnitude earthquake. Liquefaction is a phenomenon that can occur during an earthquake when seismic waves pass through saturated unconsolidated material causing sediment particles to move in relation to each other. Liquefaction can be especially damaging to structures built on thick sediments, as in areas where the sediments are saturated with water such as in floodplains **(Figure 4-14)**. *(Source: Alabama Hazard Mitigation Plan)*

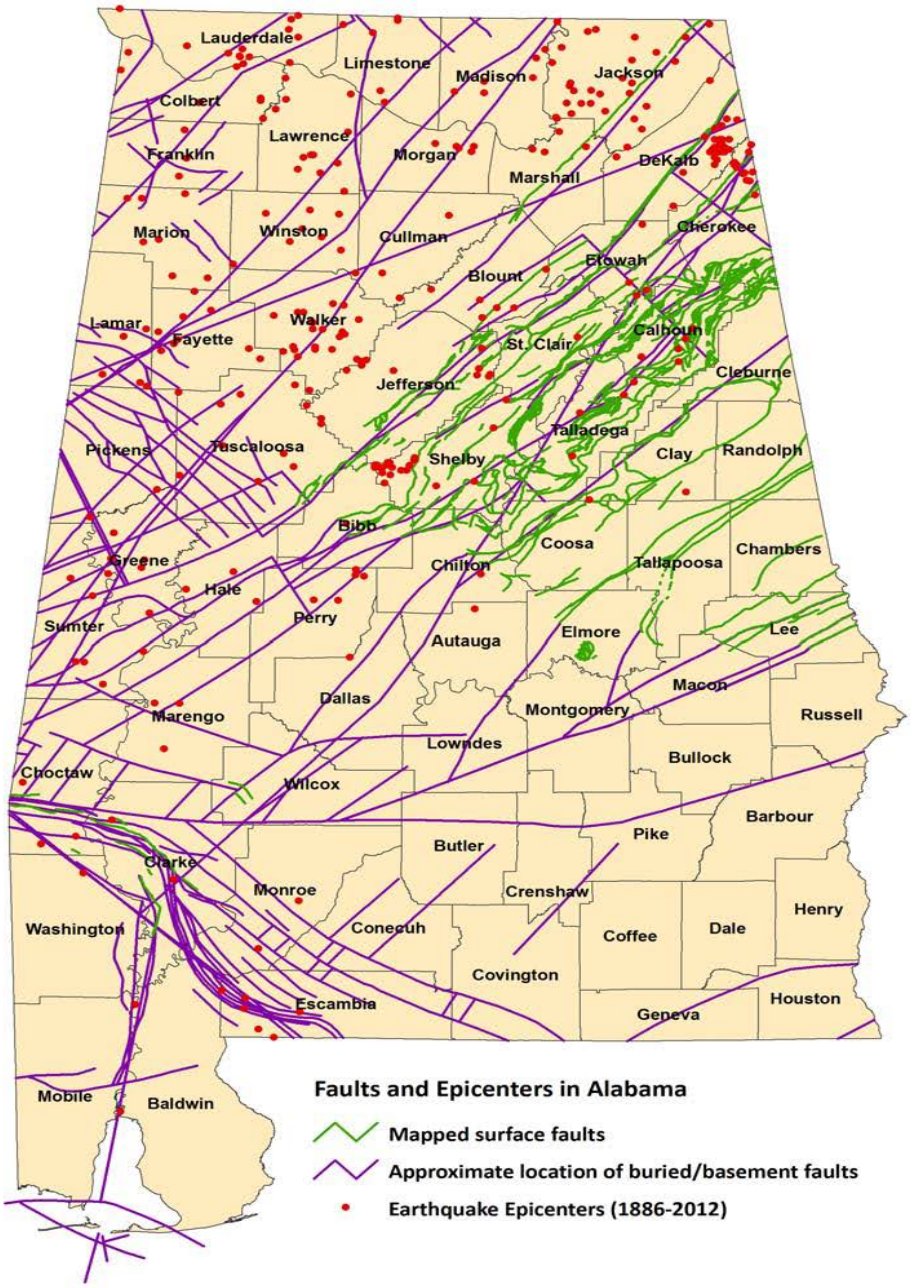
Figure 4-15 shows the location and magnitudes of all known earthquakes occurring in Alabama from 1886 through March 2012. Data for epicenters was collected by the GSA from GSA records and the USGS.

Figure 4-11: Seismic Zones of the Southeastern United States



(Source: Geological Survey of Alabama, 2010)

Figure 4-12: Faults and Epicenters in Alabama

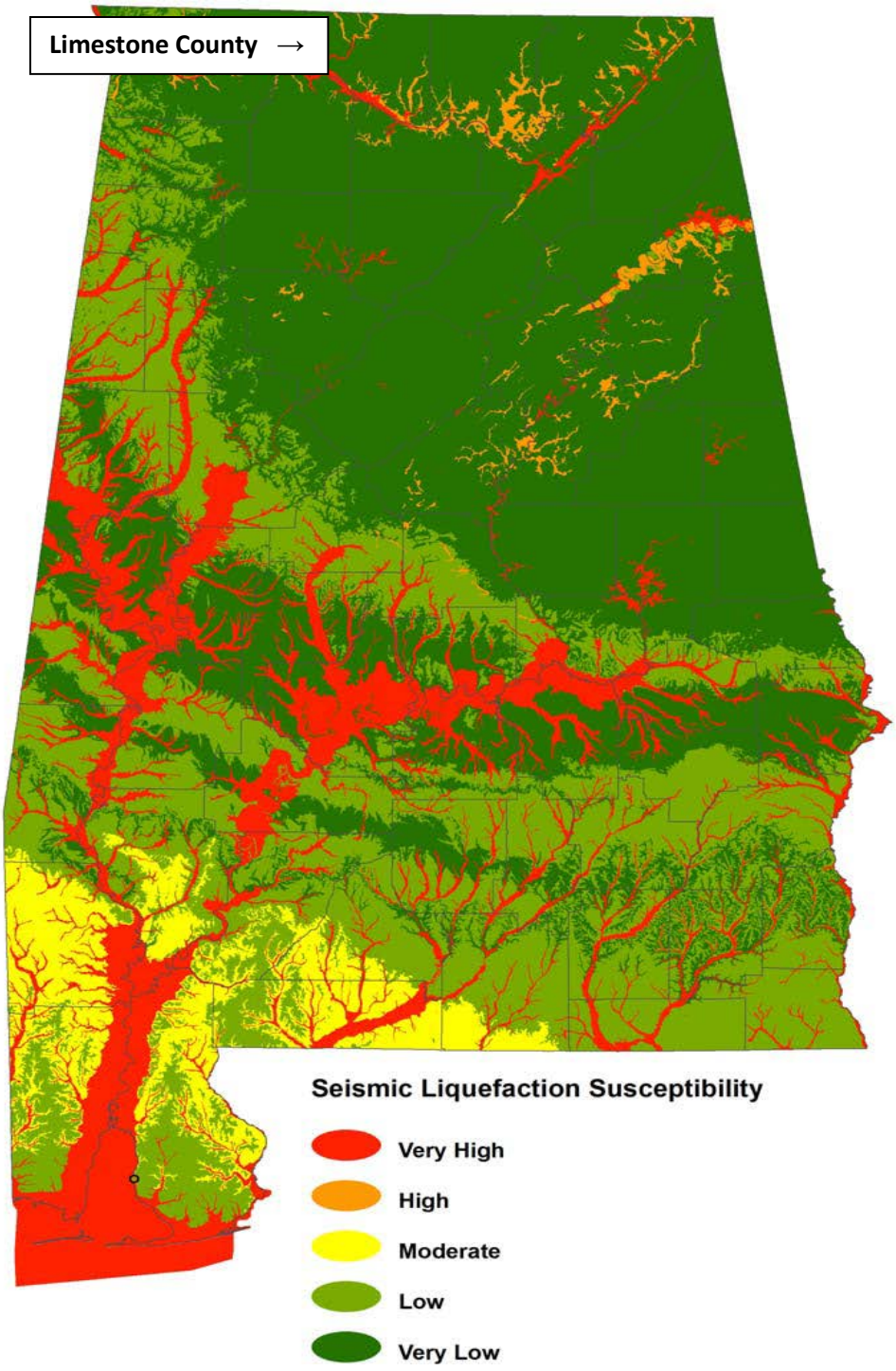


Historical Earthquake Epicenters, Mapped Surface Faults, and Approximate Locations of Buried Faults in the Alabama

Surface maps are based on the 1:250,000-scale digital geologic map of Alabama (GSA, 2006). Buried faults are based on the faults approximated in the basement fault mapping project (GSA, 2008). Epicenters are based on historical data from seismic records (2012).

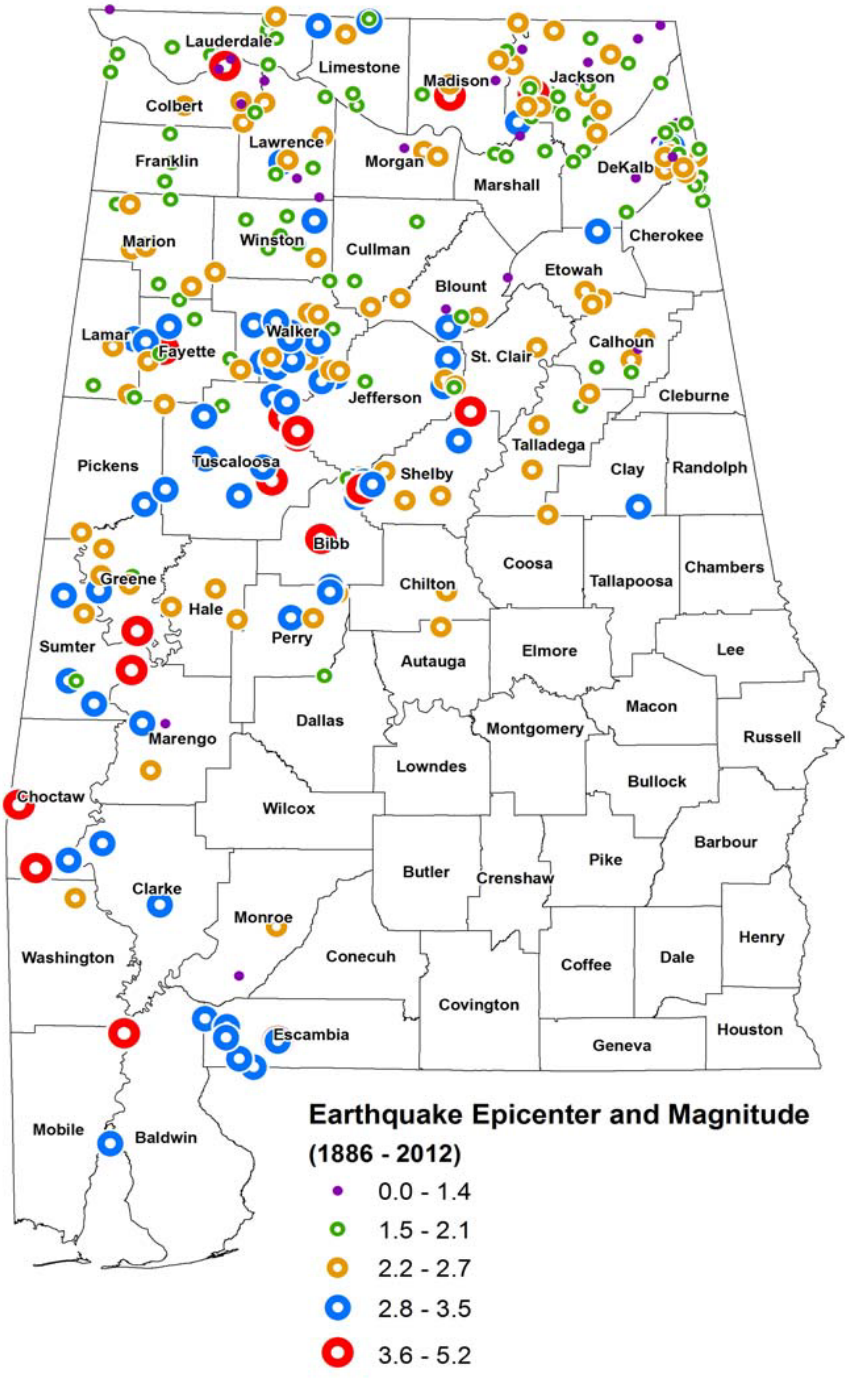
(Source: Geological Survey of Alabama, 2010; Alabama Hazard Mitigation Plan)

Figure 4-13: Seismic Liquefaction Susceptibility



Susceptibility to Liquefaction During a Moderate to Strong Magnitude Earthquake
(Source: Geological Survey of Alabama, 2006; Alabama Hazard Mitigation Plan)

Figure 4-14: Earthquake Epicenter and Magnitude



Historical Earthquakes of Alabama (1886-2012)
(Source: Geological Survey of Alabama, 2012; Alabama Hazard Mitigation Plan)

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.

Limestone County experienced 2 earthquake events in a 10 year period resulting in 20% probability that an earthquake event will occur on an annual basis. The total amount of damages for the 2 earthquake events was $0 or unknown with an unknown estimation of expected annual damages from future events. According to the U. S. Geological Survery, Limestone County's extent for a landslide event occurring is moderate and noaa.gov states the extent for the study period of this plan is a 5.4 magnitude earthquake.

Primary effects from earthquake in Limestone County would include:

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

Hazardous results from earthquake in Limestone 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 Limestone 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.

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XII. Wildfire

Limestone County is at a slight to moderate risk of a wildfire. A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may fill the area for miles around. Wildfires can be human-caused through acts such as arson or campfires, or can be caused by natural events such as lightning. Wildfires can be categorized into 3 types:

1. **Wildland fires** occur in very rural areas and are fueled primarily by natural vegetation. In Limestone County, the vast majority of these fires occur on privately owned land. Wildland fire suppression is the responsibility of the State of Alabama, through the Alabama Forestry Commission.
2. **Interface fires** occur in areas where homes or other structures are endangered by the wildfires. The fires are fueled by both natural vegetation and man-made structures. These are often referred to as Wildland Urban Interface fires and form the majority of wildfires in Limestone County. Interface fire suppression is the responsibility of the Alabama forestry Commission, working closely with local volunteer fire departments.
3. **Firestorms** occur during extreme weather (e.g., high temperatures, low humidity, and high winds) with such intensity that fire suppression is virtually impossible. These events typically burn until the conditions change or the fuel is exhausted.

The vast majority of wild land fires occur on privately owned lands. Additionally, the majority of the fires occur in areas where homes or structures are endangered. These areas are known as the wild land urban interface and are defined as areas where development meets wild land vegetation, both of which provide fuel for fires. The wild land urban interface areas have increased significantly throughout the county, and now face the risk of major losses from wildfires. In Limestone County, most wild land urban interface areas are considered “intermixed.”

Instead of having large forest areas surrounding an isolated town, Limestone County contains many scattered homes and farms spread across the forest areas. The following two factors contribute significantly to wildfire behavior in Alabama:

1. **Fuel:** The type of fuel and the fuel loading (measured in tons of vegetative matter per acre) have a direct impact on fire behavior. Fuel types vary from light fuels (grass) to moderate fuels (Southern Rough) to heavy fuels (slash). The type of fuel and the fuel load determines the potential intensity of the wildfire and how much effort must be expended to contain and control it.
2. **Weather:** The most variable factor affecting wildfire behavior is weather. Important weather variables are precipitation, humidity, and wind. Weather events ranging in scale from localized thunderstorms to large cold fronts can have major effects on wildfire occurrence and behavior. Extreme weather, such as extended drought and low humidity can lead to extreme wildfire activity.

In addition to affecting people, wildfires may severely impact livestock inflicting a severe economic impact on farmers. Timber loss to fire creates an economic loss to both the private landowner and the county's economy. Wildfires in Limestone County generally are moderate in intensity, resulting in destruction of undergrowth and some timber. The soil surface layer of the forest recovers quickly, minimizing erosion and water quality impacts. The entire Limestone County is vulnerable to wildfires.

The frequency and severity of wildfires is dependent on weather and on human activity. Nearly all wildfires in Limestone 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 4-15** shows the number of fires and acres burned during the period 2010-2013, as recorded by the Alabama Forestry Commission. Limestone County had a total of 24 fires during this 3 year period, affecting a total of 181.62 acres.

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. Limestone County is susceptible to wild/forest fires especially during times of drought. Limestone County has a total of 107,089 acres of forestland. The total acres are made up of 2,143 softwoods, 7,584 oak-pine, and 97,363 hardwoods. (*Source: Alabama Forestry Commission – Forest Resource Report 2012*)

Limestone County is located in an area where the current fire danger conditions are low to moderate, according to the U. S. Forestry Service.

Table 4-27: Wildfires in Limestone 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**
Limestone	24	8	181.62	60.54	8

Source: Alabama Forestry Commission; Accessed in 2014)

Wildfires are an ongoing threat to both rural Limestone County and wild land urban interface communities at risk. As with most natural hazards, wildfires are strongly influenced by weather phenomena, although their risk and impacts are also related to other factors such as the number of structures that are near forested areas, and so forth. Wildfire probability can be expected to remain relatively constant over the long run, assuming that weather patterns do not change significantly.

Limestone County experienced 24 wildfire events in a 3 year period resulting in a greater than 100% probability that a wildfire event will occur on an annual basis. The total amount of acres burned for the 24 wildfire events was 181.62 resulting in an estimated 8 acres burned per wildfire event. Based upon the average cost of an acre in Limestone County, the cost of the average fire size is 8 acres equaling $15,200 per fire. The extent/range of magnitude or severity that could be experienced by Limestone County due to a wildfire event is minimum to minor. Limestone County's extent for wildfires is an estimated 182 acres being burned.

Primary effects from wildfire in Limestone County would include:

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

Hazardous results from significant wildfire in Limestone 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 Limestone 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 Limestone County during 2003 - 2013.

Alabama, including Limestone County, has no dam safety program and legislation. Individuals from Natural Resources, the Catfish Farmers Federation, Alabama Power Company and several other agencies have formed a committee to promote state dam safety legislation. A draft legislative instrument was written, and the Dam Safety initiative has been transferred to the Alabama Department of Economic Affairs. The Alabama Office of Water Resources is supporting the establishment of an Alabama Dam Security and Safety Program. The legislation to establish this program has been under development for several years, but was reemphasized in 2002 when OWR assumed overall management of dam safety and National Flood Insurance Program initiatives from the AEMA down to the local NFIP Coordinator. 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 Limestone 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.

The probability of future occurrences cannot be characterized on a countywide basis because of the lack of information available. 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.

Dam and levee failures are flood risks. According to HAZUS-MH 2011, Limestone County has 12 High Density Polyethylene (HPDE - Earth) Dams. According HAZUS-MH 2011, two dams (Brookwood Forest Lake and Montgomery Lake) are considered high hazard dams (loss of one human life is likely if the dam fails). This classification is assigned to a dam depending upon the urban development directly downstream of the dam and whether or not failure would result in serious economic loss. Classifications are assigned to a dam depending upon the urban development directly downstream of the dam and whether or not failure would result in serious economic loss. The classification is not an indication of the quality of the dams' construction.

In the event of a flood or significant earthquake in Limestone County, the possibility for an emergency situation could exist at these dams. The ALCEMA is prepared to coordinate efforts if an event arises at these dams.

No historical records are available of dam/levee failures in Limestone 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 Limestone County EMA is prepared to coordinate efforts if an event arises at these dams. **Table 4-28** depicts dam locations in Limestone County. **Figure 4-16** depicts the locations of dams in Limestone County.

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Table 4-28: Limestone County Dams

Dam Name	NID ID	River	Dam Class	Nearest Jurisdiction	Year Completed	Hazard Classification	Latitude	Longitude
LITTRELL DAM	AL001140	TRIBUTARY DRY CREEK	HPDE	POPLAR CREEK	1960	S	34.80333	-87.10167
ANTIOCH DAM	AL001834	TRIBUTARY DAVIS BRANCH	HPDE	ST. MARKS CHURCH	1950	L	34.93	-87.001669
BROOKWOOD FOREST LAKE DAM	AL001835	TRIBUTARY SWAN CREEK	HPDE	ATHENS	1969	H	34.799999	-86.979999
ENON DAM	AL001836	TRIBUTARY BRIDGEFORTH BRANCH	HPDE	GRAY SPRING	1972	L	34.95	-87.17667
LAKE GARY DAM	AL001837	TRIBUTARY BEAVERDAM	HPDE	GREENBRIER	1962	L	34.64333	-86.81333
LAWSON LAKE NO. 1	AL001838	TRIBUTARY ROUND ISLAND CREEK	HPDE	PROCTOR	1961	S	34.716669	-87.091669
LAWSON LAKE NO. 2	AL001839	TRIBUTARY ROUND ISLAND CREEK	HPDE	PROCTOR 004	1963	L	34.71167	-87.06333
LAWSON LAKE NO. 3	AL001840	TRIBUTARY ROUND ISLAND CREEK	HPDE	PROCTOR	1961	L	34.718329	-87.1
MONTGOMERY LAKE DAM	AL001841	TRIBUTARY SWAN CREEK	HPDE	ATHENS SE SUBURB	1964	H	34.786669	-86.93833
STRAIN NURSERY DAM	AL001842	TRIBUTARY SWAN CREEK	HPDE	TANNER	1958	S	34.716669	-86.95
THOMAS VANN DAM	AL001843	TRIBUTARY LIMESTONE CREEK	HPDE	CAPSHAW	1958	L	34.853329	-86.799999
ENON DAM	AL001844	TRIBUTARY BRIDGEFORTH BRANCH	HPDE	ENON COMMUNITY	1979	L	34.95	-87.183329

(Source: HAZUS MH 2.1); Developed 2016

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. 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.

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. Historical records of dam/levee failures for Limestone County are not available.

FIGURE 4-15:
Developed in 2016

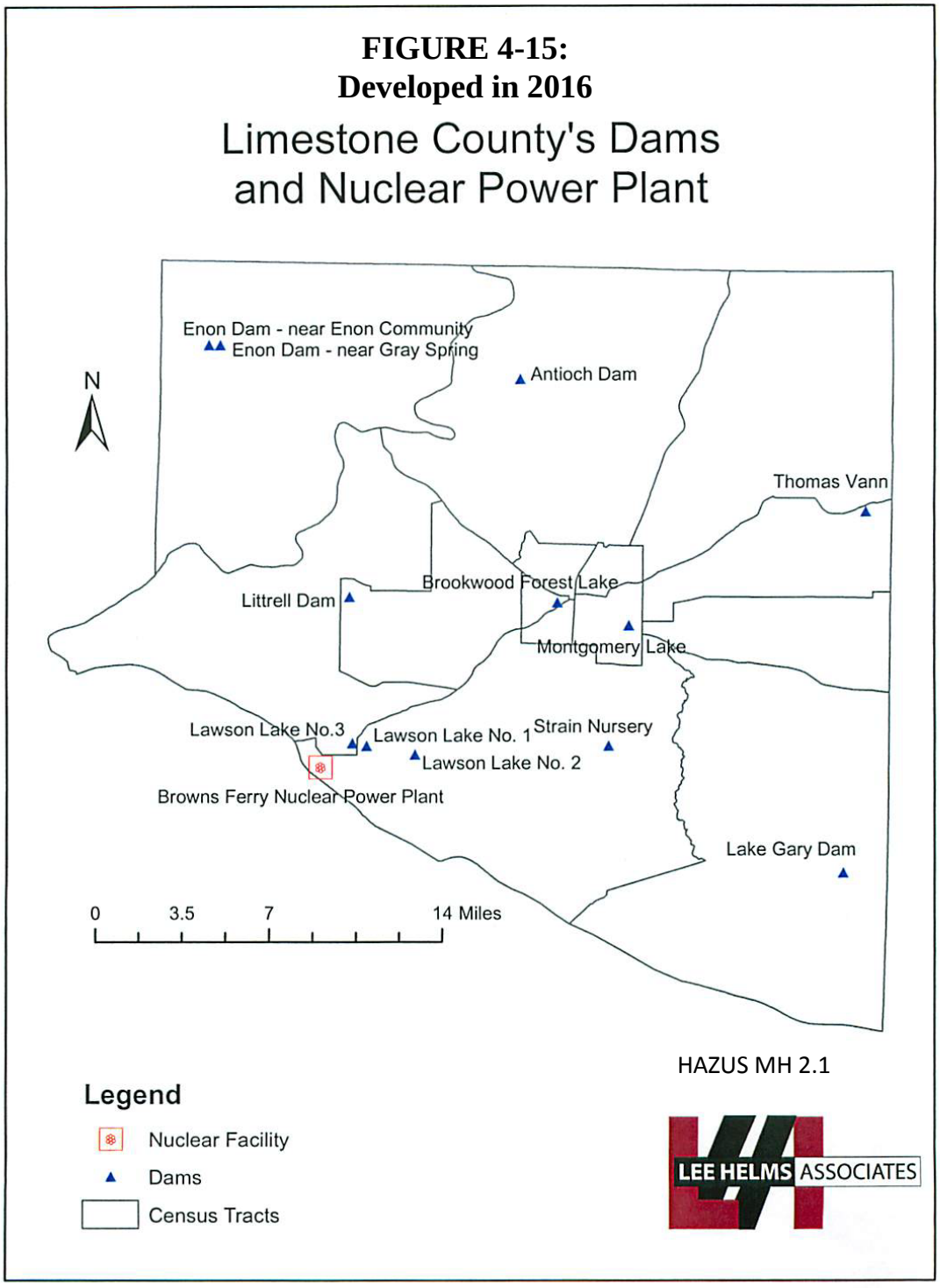

Table 4-29: Limestone County Dams Risk Categories	
Risk Categories	**Number of Dams**
High - loss of one human life is likely if the dam fails	2
Significant - possible loss of human life and likely significant property or environmental destruction if the dam fails if the dam fails	3
Low	7
Total	**12**
(Source: HAZUS MH 2.1) Developed in 2016	

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 Limestone County.

Limestone County experienced 48 flood/flash flood events in a 10 year period resulting in a greater than 100% probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 48 flood/flash flood events was $15,500 with 2 flood/flash flood events causing damage resulting in an estimated $7,750 of expected annual damages from future events. The referenced 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 Limestone County due to a flood event; the ranking is minor to major. During this plan's study period, flooding occurred to the extent of 18 inches of water on roadways.

Primary effects from Dam failure in Limestone 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 Limestone 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.

General Risk

Requirement §201.6(c)(2)(ii) of the FR states that "a description of an overall summary of each hazard and its impact on the community" shall be included in the plan. **Table 4-30** summarizes the risk determinations for Limestone County based upon the events that occurred 2003-2013.

Table 4-30: Summary of Limestone County's Annual Potential Loss Estimates for Specific Hazards	
Hazard	**Total Estimated Risk**
Thunderstorms	$37,149
Lightning	$55,790
Hail	$5,000
Tornados	$100,100,000
Floods/Flash Floods	$7,750
Droughts/Extreme Heat	Not available
Winter Storms/Frost Freezes/ Heavy Snows/Ice Storms/Winter Weather/Extreme Cold	Not available
Hurricanes/Tropical Storms/ Tropical Depressions/High Winds/Strong Winds	$3,500
Sinkholes/Expansive Soils	Not available
Landslides	Not available
Earthquakes	Not available
Wildfires	$15,200
Dam/Levee Failures	Not available

Source: NCDC/NOAA, 2016

Socially Vulnerable Populations

Population Density for Limestone County, Alabama

Certain populations are generally more affected by hazard events. These populations can be defined in terms of social, racial, and economic characteristics. **Table 4-31** shows the county's population characteristics by jurisdiction and by census tract. The City of Athens is the most populated jurisdiction, followed by the Towns of Ardmore, Elkmont, Colony, Lester and Mooresville. The county has 16 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 212 is the most populated tract and contains the Belle Mina and Mooresville. Tract 207 is the least populated tract and contains a portion of Athens, along with unincorporated areas.

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.

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Table 4-31: Limestone County Population Characteristics

Geographic Area	Population	Race-White	Race-Black	Race-Other	Under 19 years	Age 20–64 years	Age 65 and Over
Limestone County	87,167	70,843	11,133	5,191	22,495	53,382	11,290
Ardmore	1,511	1,477	18	16	390	895	226
Colony	265	23	229	13	60	172	33
Athens	23,335	17,922	3,878	1,535	6,177	13,351	3,807
Elkmont	459	366	80	13	92	268	99
Lester	115	115	0	0	22	72	21
Mooresville	62	45	14	3	11	27	24
Census Tracts 201-01	4,708	4,173	157	378	1,369	2,893	446
201-02	6,576	6,061	126	389	1,680	4,026	870
202-01	5,639	5,175	264	200	1,800	3,211	628
202-02	4,807	4,484	157	166	1,445	2,710	652
203	3,927	3,873	21	33	968	2,364	595
204-01	6,041	5,363	287	391	1,188	3,993	860
204-02	5,240	4,781	188	271	1,390	3,201	649
205	2,882	2,039	642	201	815	1,222	845
206	4,489	3,528	481	480	1,243	2,515	731
207	1,961	1,281	507	173	380	1,316	265
208-01	9,041	6,111	2,437	493	1,558	6,696	787
208-02	7,310	6,094	846	370	1,924	4,435	951
209	4,452	3,760	448	244	1,116	2,591	745
210	2,679	1,495	1,082	102	697	1,619	363
211	6,267	4,658	1,403	206	1,468	3,743	1,056
212	11,148	7,967	2,087	1,094	3,454	6,847	847
(Source: 2010 Census; Accessed in 2016)							

Given the importance of population shifts over time, successful mitigation planning requires a look at future trends to assess future vulnerability. Population projections show that Limestone County is expected to increase in size by approximately 54.7 percent by the year 2040. Census 2010 recorded a population of over 80 thousand residents in Limestone County. Overall,

the county has experienced moderate growth. The total population increased 80% for the 2000 - 2010 time periods and is projected to increase 54.7% for the 2010 – 2040 time period as presented in **Table 4-32**. Limestone County is ranked number 13 in population among the 67 Alabama Counties as shown in the **Table 4-33**.

Table 4-32: Limestone County's Population Growth

County	Census 2000	Census 2010	Projections						Change 2010-2040	
			2015	2020	2025	2030	2035	2040	Number	Percent
Limestone	65,676	82,782	91,317	99,663	107,593	114,967	121,790	128,071	45,289	54.7%

(Source: U. S. Census Bureau and Center for Business and Economic Research, The University of Alabama, Fall 2012/Alabama State Plan)

Table 4-33: Geographical Rank of Limestone County

Population Rank	Geographic Area	Population	Housing Units	Area in Square Miles			Density per Square Mile of Land Area	
				Total Area	Water Area	Land Area	Population	Housing Units
13	Limestone County	82,782	34,977	607	47	560	144	63

(Source: U. S. Census Bureau 2010)

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 4-34** shows the median household income, per capita income, and poverty level data for the jurisdictions and census tracts in Limestone County.

The median household income for the State of Alabama is $43,160. The median household income for the United States is $53,046. Tracts 208-01, 208-02 and 212 exceed the state and national averages. Tracts 201-01, 201-02, 202-02, 203, 204-01, 204-02, 208-01, 208-02, 209, 210, 211 and 212 have median household incomes that exceed the state's average; while, Tracts 208-01, 208-02 and 212 exceed the national average. Tracts 201-01, 201-02, 202-02, 203, 204-

01, 204-02, 209, 210 and 211 have median household incomes that exceed the state average, but are less than the national average. All other municipalities do not have a median household income that equals or exceeds either the state or national average. *(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. Tracts 203, 204-01 and 205 exceed the state average, but remains below the national average. Tracts 208-02, 209, 211 and 212 exceed both the state and national aversages. All other tracts do not have a per capita income that equals or exceeds either the state or national average. Limestone County is the only jurisdiction having a per capita income that exceeds the state average; however, is below the national average. Athens and Mooresville are the only municipalities having a per capita income that exceeds both the state and national averages. All other municipalities do not have a per capita income that equals or exceeds either the state or national average. *(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 201-01, 202-01, 204-01, 206 and 207 have rates that exceed both the state and national rates. Tracts 201-02, 202-02, 204-02 and 205 have rates that exceed the national rates but are less than the state rates. All other tracts have rates below the state and national rates. Tract 206 has the highest poverty rate in the county at 27.79%. Only the Towns of Ardmore and Lester have rates that exceed both the state and national rates. All other jurisdictions are below the state and national rates. The Town of Lester has the highest poverty rate in the county at 20.87%. *(Source: 2010 Census)*

Housing is an important consideration of mitigation planning. The concentration and the type of housing are two primary factors. In Limestone County there are a total of 35,241 housing units. **Table 4-35** shows the housing characteristics of the county by jurisdiction and census tracts.

The City of Athens has the highest number of mobile home units within a municipality; while, the Town of Lester 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.

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Table 4-34: Limestone County Income Data

Geographic Area	Median Household Income (2010-2014)	Per Capita Income (2010-2014)	Persons Below Poverty Level (2010-2014)	Percent Below Poverty Level
Limestone County	$60,322	$25,658	11,684	14.07%
Ardmore	$41,648	$19,355	296	19.63%
Athens	$47,354	$28,354	3,170	13.96%
Elkmont	$49,375	$23,231	50	10.89%
Lester	$31,607	$19,051	24	20.87%
Mooresville	$66,875	$53,145	8	12.90%
Census Tracts 201-01	$50,066	$21,448	1,120	23.79%
201-02	$46,397	$23,024	1,013	15.41%
202-01	$41,792	$18,383	1,490	26.59%
202-02	$47,254	$22,196	736	15.51%
203	$45,536	$27,836	321	8.18%
204-01	$45,077	$24,379	1,137	18.95%
204-02	$47,254	$22,196	736	15.51%
205	$34,083	$25,745	392	15.15%
206	$35,911	$16,670	1,184	27.79%
207	$22,095	$23,433	515	26.49%
208-01	$63,013	$19,672	503	8.78%
208-02	$60,865	$29,598	559	7.65%
209	$51,392	$31,668	420	9.44%
210	$41,667	$21,729	262	9.98%
211	$49,819	$34,029	666	10.73%
212	$80,724	$33,704	952	8.55%
(Sources: 2010 Census; www.usa.com)				

Table 4-35: Limestone County Housing Characteristics			
Geographic Area	**Total Housing Units**	**Mobile Home Units**	**Mobile Home %**
Limestone County	35,241	4,651	13.20%
Ardmore	624	13	2.08%
Athens	9,874	339	3.43%
Elkmont	221	21	9.5%
Lester	55	12	21.82%
Mooresville	23	2	8.70%
Census Tracts 201-01	1,669	320	19.17%
201-02	2,572	418	16.25%
202-01	2,048	775	37.84%
202-02	2,005	470	23.44%
203	1,736	316	18.20%
204-01	2,951	670	22.70%
204-02	2,220	433	19.50%
205	1.296	12	0.93%
206	1,784	84	4.71%
207	1,134	95	8.38%
208-01	2,296	264	11.50%
208-02	3,141	130	4.14%
209	1,903	34	1.79%
210	1,255	14	1.12%
211	2,885	417	14.45%
212	4,346	199	4.58%
(Sources: 2010 Census; www.usa.com)			

Table 4-36 shows the building stock in Limestone 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 9649 has the highest number of structures in the county. Complementing this information is **Table 4-37** that provides the value totals for these building types and **Table 4-38** that provides the content value for these building types. Each table is shown by Census Tract. Tract 9649 also has the highest

total value for structures in the county.

Table 4-36: Limestone County Building Stock by General Occupancy								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Building Count**
201 (includes 201-01 and 201-02)	3,757	142	59	29	17	2	2	**4,008**
202 (includes 202-01 and 202-02)	3,575	107	52	20	20	2	2	**3,778**
203	1,593	42	23	14	5	6	2	**1,685**
204 (includes 204-01 and 204-02)	4,269	180	61	32	26	2	5	**4,575**
205	1,190	53	5	2	9	0	3	**1,262**
206	1,829	116	26	4	10	8	3	**1,996**
207	643	36	14	1	5	1	1	**701**
208 (includes 208-01 and 208-02)	3,616	141	58	25	16	2	4	**3,862**
209	1,622	161	32	9	12	1	7	**1,846**
210	1,056	68	5	2	13	2	0	**1,144**
211	2,553	116	25	17	12	4	6	**2,733**
212	1,799	106	30	38	13	3	1	**1,990**
TOTAL	**27,502**	**1,268**	**390**	**193**	**158**	**33**	**36**	**29,580**
(Source: HAZUS-MH 2.1., Accessed 2016)								

Table 4-37: Limestone County Building Exposure *(Numbers shown in thousands of dollars)*								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Total Exposure**
201 (includes 201-01 and 201-02)	361,022	32,306	22,418	3,479	9,587	238	2,690	**431,740**
202 (includes 202-01 and 202-02)	343,443	24,140	8,528	4,579	9,158	448	1,841	**392,137**
203	160,030	5,824	3,417	1,362	2,503	5,404	1,619	**180,159**
204 (includes 204-01 and 204-02)	449,379	70,983	16,763	4,285	18,126	1,633	2,876	**565,256**
205	150,531	53,198	947	113	5,478	0	3,714	**212,770**
206	152,174	74,432	22,500	369	7,387	6,109	1,672	**264,643**
207	85,720	19,336	14,235	68	3,557	139	4,760	**127,815**
208 (includes 208-01 and 208-02)	511,168	64,190	10,424	2,005	13,510	623	3,577	**605,497**
209	222,099	106,667	15,005	1,115	9,489	208	7,669	**362,252**
210	79,288	31,156	1,023	192	6,630	883	0	**119,172**
211	248,390	52,316	16,129	1,939	11,207	1,042	3,921	**335,004**
212	207,058	44,917	15,588	15,729	7,251	1,076	574	**292,193**
Total	**2,970,302**	**579,465**	**146,977**	**35,235**	**103,883**	**17,803**	**34,973**	**3,888,638**
(Source: HAZUS-MH 2.1, Accessed 2016)								

Table 4-38: Limestone County Building Contents Exposure *(Numbers shown in thousands of dollars)*								
Tract	**Residential**	**Commercial**	**Industrial**	**Agriculture**	**Religious**	**Government**	**Education**	**Total Exposure**
201 (includes 201-01 and 201-02)	180,714	32,688	30,839	3,479	9,587	238	2,690	**260,235**
202 (includes 202-01 and 202-02)	171,871	24,386	10,601	4,579	9,158	448	1,841	**222,884**
203	801,117	5,824	4,288	1,362	2,503	6,991	1,619	**102,704**
204 (includes 204-01 and 204-02)	224,913	71,277	21,632	4,285	18,126	2,393	4,087	**346,713**
205	75,350	57,876	947	113	5,478	0	2,755	**142,519**
206	76,239	76,581	32,990	369	7,387	7,047	1,672	**202,285**
207	42,928	20,094	20,680	68	3,557	139	7,140	**94,606**
208 (includes 208-01 and 208-02)	255,707	64,377	12,305	2,005	13,510	674	3,577	**352,155**
209	111,177	108,727	21,338	1,115	9,489	208	7,669	**259,723**
210	39,732	31,741	1,122	192	6,630	1,295	0	**80,712**
211	124,331	52,408	22,913	1,939	11,207	1,295	4,321	**218,414**
212	103,589	46,181	22,209	15,729	7,251	1,076	861	**196,896**
Total	**1,486,668**	**595,160**	**201,864**	**35,235**	**103,883**	**21,804**	**38,232**	**2,479,846**

(Source: HAZUS-MH 2.1, Accessed 2016)

Mitigation goals and strategies of this plan update have been reviewed and reprioritized based on the rate and amount of development that has occurred in high risk and highly vulnerable areas. **Figure 4-17** below depicts the population density distributions of the urban and rural subsections across the county. Limestone County will continue to monitor development trends and adjust its mitigation responses accordingly. This plan update reflects the changes in population and growth patterns since the 2010 Plan and future updates will address continuing changes over time.

Figure 4-16: Limestone County Population Density

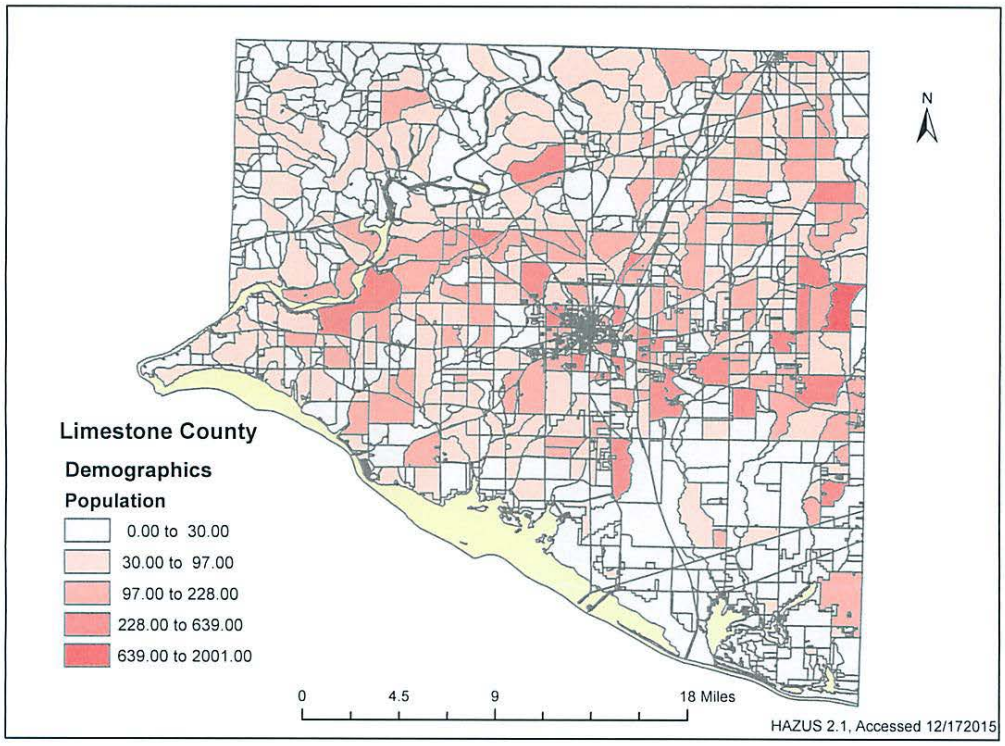

Table 4-39: Limestone County Vulnerability Summary						
Natural Hazards	**Ardmore**	**Athens**	**Elkmont**	**Lester**	**Mooresville**	**Limestone County**
Thunderstorm	M	H	H	M	M	H
Lightning	L	M	L	L	L	L
Hail	L	M	M	L	L	M
Tornado	H	M	M	M	M	M
Flood/Flash Flood	M	M	M	M	M	M
Drought/Extreme Heat	M	M	M	M	M	M
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	H	H	H	H	H	H
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	M	M	M	M	M	M
Sinkhole/Expansive Soil	L	L	L	L	L	L
Landslide	L	L	L	L	L	L
Earthquake	L	L	L	L	L	L
Wildfire	M	M	M	H	H	H
Dam/Levee Failure	L	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)						

Impacts of Development Trends on Vulnerability

The HMPC reviewed this section and made a few changes to its content. One of the fastest growing counties in Alabama, Limestone County is situated at the crossroads of technology and innovation. A highly-educated workforce and attractive business incentives fuel industry growth in multiple sectors, including aerospace, advanced manufacturing, automotive, biotechnology and robotics. A central location on Interstate-65 places the county less than 100 miles from Birmingham, Alabama and Nashville, Tennessee; a convenient location that connects products made in Limestone County to the region, country and world.

Limestone County is centrally located between many of the Southeast's major automotive manufacturers. The county features a certified mega site, as well as available land and buildings suitable for manufacturing use.

In addition to the mega site, the county has six fully-serviced industrial parks and other sites and buildings. The buildings range in size from 15,000 square feet to over 60,000 square feet. The six fully-served industrial parks (Southpoint Industrial Park; I-565 Business Park; Elm Industrial Park; Elkmont Industrial Park; Breeding Industrial Park; and Dekko Industrial Park) with available buildings and available sites to build. Demographic information and other GIS tools for available buildings and sites in Limestone County are available on the Tennessee Valley Authority Economic Development's Website. The I-65 Mega site in Athens, AL consists of 2,010 acres; quick access to I-65 and I-565; Port access on Tennessee River; and is located only fifteen minutes from Huntsville airport.

Limestone County has become a major player in the robotics industry on the state and national level. A state-of-the-art robotics training center, located at Calhoun Community College, offers prime workforce development resources. The 60,000 square foot facility provides no-cost training to Alabama industries and their affiliates. The county's close proximity to defense and research companies in North Alabama makes the county a natural choice for this emerging industry.

Limestone County has the advantage of a strong infrastructure that includes quick access to major shipping routes and an international intermodal center. The county is ideally situated in the central part of North Alabama, at the intersection of Interstate-65 and

the four-lane U.S. Highway 72. The county is within 10 hours of nearly all of the key markets in the Southeast, Midwest and East. The county also offers affordable utilities, with electricity supplied by the Tennessee Valley Authority (TVA).

Businesses in Athens and Limestone County have access to robust workforce development programs that enable them to respond quickly to the changing needs in their industry.

With a variety of retail sites available and a growing population, Athens and Limestone County, have many advantages to offer to retailers. The county has large tracts available, and retail sites along Interstate-65. The county's population has also steadily increased, and is expected to continue to increase in the upcoming years.

Area businesses located in Limestone County can take advantage of technical education programs and courses through Calhoun Community College and business courses through Athens State University. Other nearby colleges offers additional technical courses and degree programs. Located in southern Limestone County, Calhoun Community College offers both academic and technical degree and certification programs, as well as workforce training programs. Calhoun Community College works closely with area industries to respond to the changes in technology and needed job skills.

Athens State University, located in Athens, Alabama, is senior level college, providing academic programs of study. The university offers degree programs and courses in business, sciences, and computers, as well as education, health, and other arts and sciences studies.

The Limestone County Career Technical School provides technical education and job skills training to high school students in Athens and Limestone County.

Limestone County is also in close proximity to the University of Alabama in Huntsville (UAH), Alabama A&M University, J.F. Drake State Technical College, and Virginia College. These schools offer technical education through degree and certification programs, continuing education courses and industry-specific workforce training programs.

Limestone County is situated between the three most populous areas in North Alabama. It is positioned on three principal routes for its region. These routes, in order of volume of traffic carried, are Interstate 565/State Route 3 between Huntsville and Decatur,

Interstate 65 north to south through Athens, and Highway 72/State Route 2 running east to west from the Shoals area to Huntsville.

While the highest individual counts are found along the southern corridor and Limestone County, the greatest change in traffic patterns has occurred along Highway 72 moving east to Huntsville. Beginning immediately, west of Highway 31 in Athens and following Highway 72 east to the county line, traffic counts range between 18,430 per day to 37,400 per day. Limestone County also has one of the highest Percent Commercial Vehicles counts for the entire RPO region along the north-south I-65 corridor. *(Sources: TARCOG and Limestone County Industrial Development Board).*

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Table 4-40: Limestone County's Critical Facilities

CRITICAL FACILITIES – LIMESTONE COUNTY	
FACILITY TYPE	**REPLACEMENT VALUE**
East Limestone High School, 15641 East Limestone Rd., Athens	$5,000,000
Limestone County High School/Elkmont High School, 25630 Evans St., Elkmont	$2,000,000
Creekside Elementary School, 16049 Sanderson Rd., Harvest	$13,077,100
Limestone County Career Technical Center, 505 Sanderfer Rd., Athens	$3,500,000
Tanner High School, 12060 Sommers Rd., Tanner	$12,609,040
West Limestone County High School, 10945 School House Rd., Lester	$3,000,000
Limestone County Commission (Bldg. 1), 310 West Washington St., Athens	$607,300
Limestone County Commission, Clinton St. Annex, 100 S. Clinton St., Athens	$2,618,300
Limestone County Commission, Market St. Annex, 1109 W. Market St., Athens	$224,000
Limestone County Court House (Bldg. 3), 300 Washington St. W., Athens	$5,278,400
Limestone County Court House, 200 Washington St. W., Athens	$4,900
Limestone County EMA, 1011 W. Market St., Athens	$536,520
Limestone County Health Dept., 20371 Clyde Mabry Dr., Athens (owned by the AL Public Health Care Authority)	$1,249,500
Limestone County Mental Health Center, 1307 E. Elm St., Athens	$304,200
Limestone County New Mental Health Bldg., Athens	$131,000
Limestone County Sheriff's Office/Jail, 309 Green St., Athens	$1,260,000
Limestone County Water Authority (Bldg. 3), 2415 Hwy. 72 W., Athens	$318,700
Limestone County Water Authority (Bldg. 4), 2415 Hwy. 72 W., Athens	$69,100
Limestone County Water Authority, 2415 Hwy. 72 W., Athens	$2,370
Limestone County Water Authority, 2415 Hwy. 72 W., Athens	$12,270

Limestone County Water Authority/Treatment Plant, 17762 Lott Rd., Veto	$1,260,000
Capshaw Post Office (Bldg. 3), 1108 Old Railroad Bed Rd., Capshaw (owned by Gielle Properties, LLC)	$142,600
Capshaw Post Office, 1108 Old Railroad Bed Rd., Capshaw (owned by Gielle Properties, LLC)	$11,560
Tanner Post Office (Bldg. 3), 20236 Huntsville – Brownsferry Rd., Tanner	$90,300
Limestone Correctional Facility, 28779 Nick Davis Rd., Capshaw (owned by the St. of AL)	$10,000,000
Limestone Correctional Facility (Bldg. 3), 28779 Nick Davis Rd., Capshaw (owned by the St. of AL)	$23,800
Limestone Co. Dept. of Human Resources (Bldg. 1), 1007 W. Market St., Athens (owned by Prince Investments, LLC)	$1,473,600
Limestone Co. Dept. of Human Resources, 1007 W. Market St., Athens (owned by Prince Investments, LLC)	$16,500
Limestone Co. Dept. of Human Resources, 1007 W. Market St., Athens (owned by Prince Investments, LLC)	$32,100
Limestone Co. Dept. of Human Resources, 1007 W. Market St., Athens (owned by Prince Investments, LLC)	$1,650
Athens-Limestone Hospital, 700 W. Market St., Athens	$20,318,130
Browns Ferry Nuclear Power Plant, 10835 Shaw Rd., Athens (owned by TVA)	$1,260,000
Tanner VFD	$1,260,000
South Limestone VFD	$1,260,000
Total	**$88,952,940**

(Sources: Local; HAZUS MH 2.1, Accessed 2016)

Table 4-41: Critical Roadways Vulnerable to Flooding and Landslides

(Source: Limestone County Engineering Department, reviewed 2016)

CRITICAL ROADWAYS			
NAME	**TYPE**	**FLOOD TYPE**	**DESCRIPTION**
Nick Davis Road @ Limestone Creek	Major Collector Route	Zone A	This is the primary access to the Limestone Correctional Facility and has a history of flooding every 5-10 years. When Nick Davis, Capshaw Road, and Highway 72 are flooded, the detour is approximately 7 miles to bypass this section of roadway. The bridge at this location has been classified by ALDOT as Scour Critical and in need of scour countermeasures to protect the structure in a flood.
Capshaw Road @ Limestone Creek	Local Rural	Zone A	Due to growth in the area, and the location of a school nearby on Sanderson Road, this road has become very busy. This road has a history of flooding every 5-10 years. The bridge at this location has been classified by ALDOT as Scour Critical and in need of scour countermeasures to protect the structure in a flood.
U. S. Highway 72 @ Limestone Creek	Principal Arterial	Zone A	Highway 72 is the principal route between Athens and Huntsville. Water has crossed this road a couple of times in the last 25 years.
Liberty Way @ Little Limestone Creek	Local Rural	Zone A	When this area floods, access to the area is completely cut off by four residences and there are no alternate detour routes.
Mooresville Road near Old Highway 20	Major Collector	Zone A	Area floods generally 2-3 times per year. When the road floods, the detour is approximately 10 miles around this area.
Pryor Road near Swancott	Local Rural	Zone A	If this area were to flood, there are approximately 40 residences that would have no access to the area.
Bethel Road West of Oak Grove Road	Local Rural	Zone X	This area floods 1-2 times per year. The detour around this area is approximately 8 miles.
Huber Road East of Hays Mill Road	Local Rural	Zone A	This area floods 1-2 times per year. The detour around this area is approximately 4.5 miles.
Cowford Road South of Brownsferry Road	Local Rural	Zone A	This area floods 1-2 times per year. The detour around this area is approximately 5 miles.
Alabama Highway 99 between Dupree Hollow	Major Collector	Zone A	This area floods every 2-3 years closing Alabama Highway 99. The detour route around this area is about 7 miles.
Cottonbelt Road @ Sugar Creek	Major Collector	Zone A	This road has 2 bridges that are classified by ALDOT as Scour Critical and in need of scour countermeasures to protect the bridge structure in a flood. If one of these bridges were to fail, the detour route would be 15 miles. In this case, a detour could last for several months until the bridge could be restored.
Shoal Creek Road near Leggtown	Local Rural	Zone A	This area floods every 5-10 years. The detour route around this area is 8.5 miles.

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SECTION 5: MITIGATION STRATEGY

Mitigation Strategy

Hazard Mitigation Goals

This section was reviewed by the HMPC and remains the same as stated in the 2010 plan update. The following goals were reviewed for this plan update and the HMPC agreed they remain the same as was stated in the 2010 plan update:

1. Establish a comprehensive countywide hazard mitigation system
2. Reduce Limestone County's risk from natural hazards
3. Reduce vulnerability of new and future development
4. Reduce Limestone County's vulnerability to natural hazards
5. Foster public support and acceptance of hazard mitigation

These goals are accompanied by objectives and actions that are designed to support the implementation of the goals. A multi-stage process was used to identify, evaluate, and prioritize the goals, objectives, and actions. The selection and prioritization process differed somewhat from the process used for the 2010 plan update. 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.

Hazard Mitigation Actions

This section was reviewed and differs from the information stated in the 2010 plan update in that no questionnaire was submitted to the HMPC members. The HMPC members were provided lists of the actions and objectives identified in the 2010 plan for the jurisdictions' review and comment.

The HMPC members were provided lists of the actions and associated objectives identified in the 2010 plan for their review and comment. Agencies provided feedback on completed, in progress, deferred, and/or deleted actions. Further, the planning committee reviewed the local plan to verify that goals and objectives identified within the plan were compatible with the goals and objectives identified at the state level.

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.

The Limestone County HMPC reviewed all mitigation actions, adjusted the priority based upon actions that were previously identified, and reevaluated the grant funding programs. The committee assessed the availability of grant funds and the state/federal governments' prioritization of these potential grants in order to establish the priorities for Limestone County's planning strategy.

- A High ranking requires continuous action and participations from the entire community.
- A Medium ranking involves fewer people, effort, and area of the community.
- A Low ranking involves a small number of people and plans for a specific action.

Since the 2010 Plan was adopted, Limestone County was faced with a series of natural hazard threats. Limestone County pursues, and continues to pursue, a variety of natural hazard mitigation actions that reduce the potential impact of these threats and the impact of future threats. Since adoptions of the 2010 Plan, there have been 417 hazardous events in Limestone County as noted in **Table 4-4 through Table 4-16**. These events played a significant role in shaping the hazard mitigation priorities within Limestone County over the last five years. Each disaster revealed strengths and weaknesses within the hazard mitigation program, and the county adjusted its subsequent mitigation actions to address these weaknesses accordingly.

Mitigation Implementation

Mitigation Actions listed in the 2010 Plan will be benchmarked in this plan update. New and deleted mitigation actions will also be noted in this plan update.

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Table 5-1: Limestone County Mitigation Actions	
Mitigation Action	Perform a land use study that will include a more comprehensive inventory of commercial and industrial land types and uses.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	TARCOG
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, EDA
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. No resources have been allocated to perform this study. An inventory of existing land use could be fairly easily using existing GIS information if resources were made available to dedicate to the project. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action - DELETE	Develop and implement storm water management regulations to improve the efficiency of flood protection and drainage facilities.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	FMA, USACE
Priority	Medium
Benchmark	DELETE - No action has been taken on this item. The county engineer is not aware of any provisions under the law that gives the county any authority to "implement storm water management regulations". The action was reviewed and the HMPC wishes it to be deleted from this plan update.

Mitigation Action - COMPLETED	Assign a person at the ALCEMA with the responsibility of periodically reviewing the activities contained in this Plan and for performing the annual review.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	Local
Priority	High
Benchmark	DELETE - An EMA staff member, Daphne Ellison, LCEMA EM Officer, has been assigned this task. The action was reviewed and the HMPC wishes it to be deleted in this plan update.
Mitigation Action	Permanently establish an expanded Natural Hazard Mitigation Committee as an arm of the ALCEMA and develop guidelines for the conduct of business.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	Local
Priority	Medium
Benchmark	A Natural Hazard Mitigation Committee was established in 2005. The Natural Hazard Mitigation Committee is a standing committee that will continue to function as an arm of LCEMA.

Mitigation Action	Develop a resource catalog to be used for identifying funding sources and assistance providers.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Explore non-traditional sources of both governmental and non-governmental grants and loans for mitigation activities.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	Local
Priority	Low
Benchmark	The county continuously explores non-traditional sources of governmental and non-governmental grants and loans for mitigation activities. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Perform further study to ascertain the potential vulnerability of the area and particular water supply wells as they pertain to a drought event.
Type	Prevention
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Drought
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE, Local
Priority	Low
Benchmark	No resources have been committed to a study of this type; therefore, no action has been taken on this item. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action - DELETE	Contact the US Army Corp of Engineers for advice in the development of stream dumping regulations.
Type	Prevention
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	USACE
Priority	Medium
Benchmark	DELETE – The county engineer is not aware of any provision under the law that allows the county to develop or enforce stream dumping regulations; therefore, no action has been taken on this item. The action was reviewed and the HMPC wishes it to be deleted in this plan update.

Mitigation Action	Expand the list of stakeholders, particularly to include the business and academic sectors, to obtain their cooperation in the implementation of mitigation activities.
Type	Prevention
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	Local
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Review and consider the development and/or implementation of building regulations that aid in the protection of property from weather hazards.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	ADECA
Priority	High
Benchmark	There have been little to no support on the County Commission for the implementation of building regulations; therefore, no action has been taken on this item. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Use floodplain development regulations to protect property from flooding and to protect the efficiency of the floodplain in the dissipation of floodwaters.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	NFIP, ADECA, USACE, HMGP
Priority	Medium
Benchmark	Ordinance needs to be updated. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Review and revise subdivision regulations countywide with the intent of better mitigation against the risk from natural hazards.
Type	Property Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	HMGP, FMA, PDM
Priority	Medium
Benchmark	There have been little to no support on the County Commission for the implementation of building regulations; however, subdivision regulations need to be revised. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Develop guidelines for the use of easements to protect private property from site-specific natural hazards.
Type	Property Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Prepare hazard mitigation information to be distributed to hospitals, nursing homes, clinics, etc.
Type	Public Education and Awareness
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Limestone County EMA conducts yearly all-hazard awareness talks and provides awareness safety brochures. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Enhance web site access and information for general public use regarding hazard mitigation.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Limestone County EMA provides information on all hazards via website and social media. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action - DELETE	Develop a hazard mitigation information center that can be stationed at high traffic areas such as shopping centers, public parks, or special events where people tend to congregate.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Low
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update.

Mitigation Action - DELETE	Explore opportunities for open space reservation in conjunction with hazard mitigation objectives.
Type	Natural Resource Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, NRCS, HMGP
Priority	Medium
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update. The county has no regulatory authority.
Mitigation Action - DELETE	Prepare and distribute information of best management practices regarding hazard mitigation in forest and vegetation management.
Type	Natural Resource Protection
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	FEMA, USACE, NRCS
Priority	Medium
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update. The AL Forestry Services completes this task.

Mitigation Action	Work with local utility companies to perform a utility study that will include a more comprehensive inventory and vulnerability assessment that will be applicable to the needs and concerns of both the community and the service providers.
Type	Emergency Services Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Install approximately twelve additional weather sirens in the areas outside the Browns Ferry "10-mile" zone.
Type	Emergency Services Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	NEw
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	Limestone County EMA installed four (4) sirens in 2012: Empire Lane in Belle Mina; East Limestone Rd. and Copeland Rd. Intersection; Mooresville Rd. and Newby Rd. Intersection; and Stinnett Hollow Road. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action - COMPLETED	Develop a program to assure the provision of weather sirens or radios at all schools.
Type	Emergency Services Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	Browns Ferry, HMGP
Priority	High
Benchmark	DELETE – All schools, public and private, have one of the following means of receiving weather (or other hazard) information: Tone-Alert Radio, Two-Way Radio, or Weather Radio. The action was reviewed and the HMPC wishes it to be deleted from this plan update.
Mitigation Action	Identify and request funding for the acquisition and/or relocation of properties that are and have been the subject of frequent and continuing flooding.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	RFC, SRL, HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action - DELETE	Develop a program/project to protect Alabama Highway 99 in Northwest Limestone County from flooding.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/County Engineer
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Medium
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update. AL Highway 99 is a state highway; therefore, this action item will be completed by the AL DOT.
Mitigation Action - DELETE	Develop a program/project to protect US Highway 72 east of Athens from flooding.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/County Engineer
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Low
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update. This action item will be completed by the AL DOT.

Mitigation Action	Consider the development of a program for the provision of storm shelters at dense and vulnerable residential establishments such as apartments, dormitories and mobile home parks.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	T, SS, H
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA/ Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	The county would like to see legislation pass provision for new construction and construction of new additions to require safe rooms/storm shelters. Storm shelter planning/development are underway. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP, USACE
Priority	High
Benchmark	Limestone County is a participant in the NFIP. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Purchase, install and test emergency warning sirens, as needed. Upgrade existing equipment as needed.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	Limestone County EMA tests warning sirens on the 2nd Monday of each month, completes a yearly maintenance and upgrades equipment as needed to ensure all are operational. LCEMA will apply for funding, when available, to purchase new emergency warning sirens. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Purchase/update emergency generators for post-disaster mitigation and conduct routine tests on backup generators for all critical facilities.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	Limestone County EMA has installed generators at their two communications towers and at their reception center. They also house and maintain generators for additional use. Generators have been purchased and installed at the following locations that serve as mass care shelters and reception and relocation centers: Ardmore High School, Elkmont High School, West Limestone High School and Athens Recreation Center. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Provide adequate safe rooms and community shelters.

Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Thunderstorms, Hail, Tornado, Strong Wind, High Winds
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	Limestone County has installed seven (7) community safe rooms. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Construct Scour Countermeasures as recommended by ALDOT at the bridge on Nick Davis Road at Limestone Creek.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	$35,000
Funding Sources	HMGP, DOT
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Construct Scour Countermeasures as recommended by ALDOT at the bridge on Capshaw Road at Limestone

	Creek.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	$49,000
Funding Sources	HMGP, DOT
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Construct Scour Countermeasures as recommended by ALDOT at the bridges (2) on Cottonbelt Road at Sugar Creek.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	$35,000
Funding Sources	HMGP, DOT
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Construct Scour and Drift protection at the bridge on Elk River Mills Road over Elk River.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2010-2015
Estimated Cost	$410,000
Funding Sources	HMGP, DOT
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action - DELETE	Construct Scour and Drift protection at the bridge on Easter Ferry Road over Elk River.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	$205,000
Funding Sources	HMGP, DOT
Priority	High
Benchmark	DELETE - Work was completed 10 years ago that removed debris but not sure if a scour and drift protection was constructed like this. The action was reviewed and the HMPC wishes to be deleted from this plan update.

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SECTION 6: JURISDICTIONAL ASSESSMENTS

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Town of Ardmore

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

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

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 a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same.
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)

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Table 6-2: Ardmore's Thunderstorm Events

6 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
ARDMORE	LIMESTONE CO.	AL	05/17/2003	10:36	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	07/25/2004	12:47	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	11/28/2005	12:40	CST	Thunderstorm Wind	60 kts. ES	0	0	3.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	06/18/2011	12:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	16.00K	0.00K
Totals:								0	0	19.00K	0.00K

Table 6-3: Ardmore's Lightning Events

0 Lightning Event – 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.

Table 6-4: Ardmore's Hail Events

6 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
ARDMORE	LIMESTONE CO.	AL	04/22/2005	17:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	04/22/2005	17:05	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	07/22/2008	14:32	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/29/2011	22:39	CST-6	Hail	3.00 in.	0	0	5.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/02/2012	09:58	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
ARDMORE ARPT	LIMESTONE CO.	AL	03/31/2012	17:45	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	5.00K	0.00K

Table 6-5: Ardmore's Tornado Events

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.

Table 6-6: Ardmore's Flood/Flash Flood Events

9 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	03/05/2004	20:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
ARDMORE	LIMESTONE CO.	AL	12/08/2009	20:40	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-7: Ardmore's Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	06/01/2007	00:00	CST-	Drought		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6						
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-8: Ardmore's Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	12/25/2010	04:00	CST-	Heavy Snow		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6						
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	02/02/2013	07:10	CST-	Winter		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6	Weather					
Totals:								0	0	0.00K	0.00K

Table 6-9: Ardmore's Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 6-10: Ardmore's Sinkhole Events

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

Table 6-11: Ardmore's Landslide Events

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

Table 6-12: Ardmore's Earthquake Events

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

Table 6-13: Countywide Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 6-14: Armore's Dam/Levee Failure Events

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 6-15: Town of Ardmore
Hazard Probability Assessment

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	6	>6%	5-10%	Town wide
Lightning	Unknown	Unknown	<5%	Town wide
Hail	6	60%	<5%	Town wide
Tornado	Unknown	Unknown	>10%	Town wide
Flood/Flash Flood	9	90%	5-10%	Town wide
Drought/Extreme Heat	19	>100%	5-10%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	>10%	Town wide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Town wide
Sinkhole/Expansive Soil	Unknown	Unknown	<5%	Town wide
Landslide	Unknown	Unknown	<5%	Town wide
Earthquake	Unknown	Unkown	<5%	Town wide
Wildfire (3 year study period)	24	>100%	5-10%	Town wide
Dam/Levee Failure	Unknown	Unknown	<5%	Town wide

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

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 overview (Table 4-39). Zero denotes no data available to determine the probability, extent, or affected area.

Table 6-16: Ardmore's Critical Facilities

CRITICAL FACILITIES – TOWN OF ARDMORE	
FACILITY TYPE	**REPLACEMENT VALUE**
Ardmore High School, 20358 Ardmore Ave., Ardmore	$14,550,700
Ardmore Police Department (Bldg. 4), 26704 Main St., Ardmore	$190,100
Ardmore Police Department (Bldg. 5), 26704 Main St., Ardmore	$163,600
Ardmore Police Department , 26704 Main St., Ardmore	$1,260,000
Ardmore Town Hall (Bldg. 4), 26494 1st St., Ardmore	$41,800
Ardmore Town Hall, 26494 1st St., Ardmore	$3,850
Cedar Hill Elementary School, 27905 Cedar Hill Road, Ardmore	$13,858,260
Total	**$30,068,310**

(Source: Hazus 2.1, Accessed 2/29/2016)

Table 6-17: Town of Ardmore
Estimated Loss Projections from Specified Hazards

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	0.6	0	0	Unknown	$1,900	$2,071
Lightning	Unknown	0	0	Unknown	Unkown	Unknown
Hail	0.6	0	0	Unknown	$500	$545
Tornado	Unknown	0	0	Unknown	Unkown	Unknown
Flood/Flash Flood	0.9	0	0	Unknown	Unkown	Unknown
Drought/Extreme Heat	1.9	0	0	Unknown	Unkown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3.0	0	0	Unknown	Unkown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$1,400	$1,526
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unkown	Unknown
Landslide	Unkown	0	0	Unknown	Unkown	Unknown
Earthquake	Unkown	0	0	Unknown	Unkown	Unknown
Wildfire (3 year study period)	8.0	0	0	Unknown	$15,200	$16,568
Dam/Levee Failure	Unknown	0	0	Unkown	Unkown	Unknown

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

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire which takes the average fire size multiplied by average amount per acre ($1,900) multiplied by the average number of fires per year as noted in Table 4-15. 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.

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Town of Ardmore Mitigation Action Plan

The Town of Ardmore recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. Additional ways of incorporating mitigation planning is listed on page 29.

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 6-18** shows the Town of Ardmore's updated mitigation actions.

Table 6-18: Ardmore's Mitigation Actions	
Mitigation Action	Perform a land use study that will include a more comprehensive inventory of commercial and industrial land types and uses.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	TARCOG
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, EDA
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Develop and implement storm water management regulations to improve the efficiency flood protection and drainage facilities.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	New
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	FMA, USACE
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop guidelines that can be used for the purpose of development community growth and development plans that incorporate hazard mitigation considerations.
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	ALCEMA/Local Government
Priority	Medium
Benchmark:	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Use subdivision regulations for the regulation of the development of manufactured housing parks to make them more resistant to natural hazards.
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	Local
Priority	Medium
Benchmark	Subdivision regulations need to be revised. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Perform further study to ascertain the potential vulnerability of the area, particularly water supply wells, from drought.
Type	Prevention
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Drought
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Contact the US Army Corp of Engineers for advice in the development of stream dumping regulations.
Type	Prevention
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	USACE
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Review and consider the development and/or implementation of building regulations that aid in the protection of property from weather hazards.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	Local Government
Priority	High
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Use floodplain development regulations to protect property from flooding and to protect the efficiency of the floodplain in the dissipation of floodwaters.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	NFIP, ADECA, USACE, HMGP, RFC
Priority	Medium
Benchmark	Ordinance needs to be updated. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop guidelines that can be used in the review of building and development regulations, including subdivision regulations, to determine their effectiveness in mitigating against the risk from natural hazards.
Type	Property Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Review and revise subdivision regulations countywide with the intent of better mitigation against the risk from natural hazards.
Type	Property Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	HMGP, FMA, PDM
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop guidelines for the use of easements to protect private property from site-specific natural hazards.
Type	Property Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Prepare hazard mitigation information to be distributed to hospitals, nursing homes, clinics, etc.
Type	Public Education and Awareness
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Limestone County EMA provides information on all hazards via website and social media. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Enhance web site access and information for general public use regarding hazard mitigation.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Limestone County EMA provides information on all hazards via website and social media. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action - DELETE	Develop a hazard mitigation information center that can be stationed at high traffic areas such as shopping centers, public parks, or special events where people tend to congregate.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	DELETE - The action was reviewed and the HMPC wishes to delete it from this plan update.
Mitigation Action	Develop and implement sedimentation and erosion regulations to reduce the damaging effects of siltation on flood protection and drainage facilities.
Type	Natural Resource Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE, NRCS, HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Explore opportunities for open space reservation in conjunction with hazard mitigation objectives.
Type	Natural Resource Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE, NRCS, HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Work with local utility companies to perform a utility study that will include a more comprehensive inventory and vulnerability assessment that will be applicable to the needs and concerns of both the community and the service providers.
Type	Emergency Services Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Develop a program to assure the provision of weather sirens or radios at all schools.
Type	Emergency Services Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	Browns Ferry, HMGP
Priority	High
Benchmark	Limestone County EMA has provided area schools with weather radios and tone alert pagers. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Identify and request funding for the acquisition and/or relocation of properties that are and have been the subject of frequent and continuing flooding.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	RFC, SRL,HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Consider the development of a program for the provision of storm shelters at dense and vulnerable residential establishments such as apartments, dormitories and mobile home parks.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, Strong Winds, High Winds
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The town would like to see legislation pass provision for new construction and construction of new additions to require safe rooms/storm shelters.The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP, USACE
Priority	High
Benchmark	The Town of Ardmore is a participant in the NFIP. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Purchase, install and test emergency warning sirens, as needed. Upgrade existing equipment as needed.
Type	Emergency Services
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	Limestone County EMA tests warning sirens on the 2nd Monday of each month, completes a yearly maintenance and upgrades equipment as needed to ensure all are operational. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Purchase/update emergency generators for post-disaster mitigation and conduct routine tests on backup generators for all critical facilities.
Type	Emergency Services
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Provide adequate shelters and community safe rooms. This includes to the schools.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, Strong Winds, High Winds
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2020
Estimated Cost	$4,500 - $130,000
Funding Sources	HMGP
Priority	High
Benchmark	An attempt was made to build safe rooms at each school; however, the school system did not have the funds to meet the 25% match for a HMGP grant. No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

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City of Athens

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Table 6-19: City of Athens Risk and Vulnerability Overview			
Natural Hazards	**Hazard Identification**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	1	H
Lightning	X	6	M
Hail	X	5	M
Tornado	X	8	M
Flood/Flash Flood	X	4	M
Drought/Extreme Heat	X	4	M
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	2	H
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	7	M
Sinkhole/Expansive Soil	X	9	L
Landslide	X	9	L
Earthquake	X	9	L
Wildfire	X	3	M
Dam/Levee Failure	X	9	L

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

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 a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same.
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)

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Table 6-20: Athens' Thunderstorm Events

45 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
ATHENS	LIMESTONE CO.	AL	06/11/2003	13:50	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2003	14:30	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/22/2003	21:08	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:48	CST	Thunderstorm Wind	60 kts. ES	0	0	20.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:52	CST	Thunderstorm Wind	60 kts. ES	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:52	CST	Thunderstorm Wind	60 kts. ES	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2005	14:47	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/09/2006	17:00	CST	Thunderstorm Wind	70 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/30/2006	15:50	CST	Thunderstorm Wind	70 kts. EG	0	0	30.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/31/2006	16:33	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2006	13:30	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/04/2006	14:50	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2006	14:45	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/01/2007	12:23	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/17/2007	14:01	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.000M	0.00K
ATHENS	LIMESTONE CO.	AL	01/10/2008	15:05	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/11/2009	12:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2009	18:05	CST-6	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2010	15:43	CST-6	Thunderstorm Wind	43 kts. EG	0	0	3.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/26/2010	14:05	CST-6	Thunderstorm Wind	65 kts. EG	0	0	35.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/05/2010	14:00	CST-6	Thunderstorm Wind	52 kts. EG	0	0	12.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/21/2010	21:50	CST-6	Thunderstorm Wind	43 kts. EG	0	0	4.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/04/2011	13:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/04/2011	13:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/04/2011	14:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/11/2011	17:15	CST-6	Thunderstorm Wind	43 kts. EG	0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2011	19:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/15/2011	19:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K

ATHENS	LIMESTONE CO.	AL	06/15/2011	19:12	CST-6	Thunderstorm Wind	48 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/04/2011	15:40	CST-6	Thunderstorm Wind	43 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/09/2011	02:38	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:08	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:12	CST-6	Thunderstorm Wind	35 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/03/2012	21:40	CST-6	Thunderstorm Wind	43 kts. EG	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:57	CST-6	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	15:00	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	14:34	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	14:55	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	09/02/2012	15:05	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	1.199M	0.00K

Table 6-21: Athens' Lightning Events

9 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
ATHENS	LIMESTONE CO.	AL	03/09/2006	18:00	CST	Lightning		0	0	10.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/21/2006	05:00	CST	Lightning		0	0	50.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/30/2006	15:50	CST	Lightning		0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/01/2010	15:57	CST-6	Lightning		0	0	1.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/26/2010	14:15	CST-6	Lightning		0	1	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/15/2011	11:34	CST-6	Lightning		0	0	2.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/03/2011	23:30	CST-6	Lightning		0	0	500.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/15/2012	17:23	CST-6	Lightning		0	0	5.00K	0.00K
ATHENS	LIMESTONE CO.	AL	10/12/2012	10:45	CST-6	Lightning		0	0	5.00K	0.00K
Totals:								0	1	1.028M	0.00K

Table 6-22: Athens' Hail Events

14 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
ATHENS	LIMESTONE CO.	AL	05/06/2003	06:42	CST	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:27	CST	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	13:55	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/21/2005	14:33	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/13/2006	19:28	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/12/2010	04:11	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/12/2010	05:33	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/12/2010	05:33	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/27/2011	16:10	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/31/2012	15:48	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/31/2012	16:01	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/18/2012	17:43	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	05/29/2012	19:11	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	08/13/2012	12:06	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-23: Athens' Tornado Events

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
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:28	CST	Tornado	F0	0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	03/05/2004	21:33	CST	Tornado	F0	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-24: Athens' Flood/Flash Flood Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/15/2003	09:30	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/22/2003	02:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/22/2003	02:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	02/22/2003	09:46	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	06/25/2004	13:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	12/06/2004	14:00	CST	Flash Flood		0	0	0.00K	0.00K

COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/01/2005	19:45	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/21/2005	15:50	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/07/2006	21:00	CST	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	04/05/2012	18:28	CST-6	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/18/2012	14:55	CST-6	Flash Flood		0	0	0.00K	0.00K
ATHENS	LIMESTONE CO.	AL	07/04/2013	12:00	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-25: Colony's Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	10/01/2007	00:00	CST-	Drought		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6						
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-26: Athens' Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	12/25/2010	04:00	CST-	Heavy Snow		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6						
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	02/02/2013	07:10	CST-	Winter		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6	Weather					
Totals:								0	0	0.00K	0.00K

Table 6-27: Athens' Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 6-28: Athens' Sinkhole Events

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

Table 6-29: Athens' Landslide Events

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

Table 6-30: Athens' Earthquake Events

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

Table 6-31: Countywide Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 6-32: Athens' Dam/Levee Failure Events

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 6-33: City of Athens
Hazard Probability Assessment

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	45	>100%	>10%	Town wide
Lightning	9	90%	5-10%	Town wide
Hail	14	>100%	5-10%	Town wide
Tornado	2	20%	5-10%	Town wide
Flood/Flash Flood	19	>100%	5-10%	Town wide
Drought/Extreme Heat	19	>100%	5-10%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	>100%	Town wide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Town wide
Sinkhole/Expansive Soil	Unknown	Unknown	<5%	Town wide
Landslide	Unknown	Unknown	<5%	Town wide
Earthquake	Unknown	Unknown	<5%	Town wide
Wildfire (3 year study period)	24	>100%	5-10%	Town wide
Dam/Levee Failure	Unknown	Unknown	<5%	Town wide

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

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 overview (Table 4-40). Zero denotes no data available to determine the probability, extent, or affected area.

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Table 6-34: Athens' Critical Facilities

CRITICAL FACILITIES – CITY OF ATHENS	
FACILITY TYPE	**REPLACEMENT VALUE**
Athens Bible School, 507 Hoffman St., Athens	$4,061,090
Athens City Hall, 200 W. Hobbs St., Athens	$350,000
Athens Elementary School, 515 N. Madison Street, Athens	$350,602
Athens High School, 100 Hwy. 31 N., Athens	$12,796,190
Athens Intermediate School, 1916 U. S. Hwy. 72 W., Athens	$4,435,390
Athens Middle School, 605 S. Clinton St., Athens	$6,159,010
Athens Police Department Records, 206 W. Hobbs St., Athens	$1,260,000
Athens Post Office, 1110 W. Market St., Athens (owned by the US Postal Service)	$1,260,000
Athens Utilities (Barn Shed), 1806 Wilkerson St., Athens	$46,000
Athens Utilities (Bldg. 1), 503 S. Madison St., Athens	$30,900
Athens Utilities (Bldg. 1), 508 S. Jefferson St., Athens	$306,600
Athens Utilities (Bldg. 2), 503 S. Madison St., Athens	$12,700
Athens Utilities, 1806 Wilkerson St., Athens	$112,250
Athens Utilities, 508 S. Jefferson St., Athens	$28,140
Athens Water Treatment Plant, 15575 Section Line Rd., Cross Key	$1,260,000
Blue Springs Elementary School, 16787 Hardy Rd., Athens	$16,000,000
Brookhill Elementary School, 320 Brookhill Dr., Athens	$2,236,410
Clements High School, 7730 Hwy. 72 W., Athens	$21,030,670
Clements Volunteer Fire Department, 9158 US Hwy 72 W., Athens	$1,260,000
Cowart Elementary School, 1701 W. Hobbs St., Athens	$150,000
Lindsay Lane Christian Academy, 705 W. Sanderfer Road, Athens	$2,672,460
Johnson Elementary School, 21360 Highway 251, Athens (owned by the State of Alabama)	$2,433,100
Julian Newman Elementary School, 517 Julian Newman Dr., Athens	$3,659,290
Owens Elem. School/Jr. High School, 21465 Hwy. 99, Athens	$607,761
Owens Volunteer Fire Department, 20413 Tillman Mill Rd., Athens	$1,260,000
Piney Chapel Elementary School, 20835 Elkton Road, Athens	$2,170,910
Piney Chapel Fire Department, 22115 Piney Chapel Rd., Athens	$1,260,000
Piney Chapel School, 20835 Elkton Rd., Athens	$450,000
Pryor Field, Decatur/Athens Airport (Bldg. 1), 21190 Flight Line Rd., Athens - (South Limestone Co.)	$497,400
Pryor Field, Decatur/Athens Airport, 21190 Flight Line Rd., Athens	$33,000
Pryor Field, Decatur/Athens Airport, 21190 Flight Line Rd., Athens	$36,100
Pryor Field, Decatur/Athens Airport, 21190 Flight Line Rd., Athens	$42,650
Pryor Field, Decatur/Athens Airport, 21190 Flight Line Rd., Athens	$12,050
Total	**$88,280,673**

(Source: HAZUS 2.1, Accessed 2/29/2016)

Table 6-35: City of Athens
Estimated Loss Projections from Specified Hazards

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	4.5	0	0	Unknown	$102,800	$112,052
Lightning	0.9	0	1	$25,750	$114,222	$124,502
Hail	1.4	0	0	Unknown	Unknown	Unknown
Tornado	0.2	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	1.9	0	0	Unknown	Unknown	Unknown
Drought/Extreme Heat	1.9	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3.0	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$1,750	$1,908
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	Unknown	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	8.0	0	0	Unkown	$15,200	$16,568
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

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 takes the average fire size multiplied by average amount per acre ($1,900) multiplied by the average number of fires per year as noted in Table 4-15. 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.

City of Athens' Mitigation Action Plan

The City of Athens recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. Additional ways of incorporating mitigation planning is listed on page 29.

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 6-36** shows the City of Athens' updated mitigation actions. During the plan update process no new mitigations actions were identified and added to the plan.

Table 6-36: Athens' Mitigation Actions	
Mitigation Action - COMPLETED	Perform a land use study that will include a more comprehensive inventory of commercial and industrial land types and uses.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	TARCOG
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, EDA
Priority	Low
Benchmark	DELETE – Completed 12-17-13 with Athens Future Land Use Plan adopted figure A12 (page 94). Limeston County Revenue Commissioner's office also keeps land use information for assessment purposes.

Mitigation Action - COMPLETED	Develop and implement storm water management regulations to improve the efficiency flood protection and drainage facilities.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	FMA, USACE
Priority	Medium
Benchmark	DELETE – Completed. Athens Code of Ord. Sec. 74.63 (Ord. 99-1315) requires that new construction must not increase the degree of flooding.
Mitigation Action	Develop guidelines that can be used for the purpose of development community growth and development plans that incorporate hazard mitigation considerations.
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA/Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, EDA
Priority	Medium
Benchmark:	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Use subdivision regulations for the regulation of the development of manufactured housing parks to make them more resistant to natural hazards.
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	Local
Priority	Medium
Benchmark	In progress. Partially complete with Athens Zoning Ordinance (Ord. 2007-1669) in R-MH district regulations regarding adequate drainage and storm shelters required for 10 spaces or more. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Perform further study to ascertain the potential vulnerability of the area, particular water supply wells, from drought.
Type	Prevention
Goal	Reduce Limestone's County vulnerability to natural hazards
Hazard(s) Addressed	Drought
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE
Priority	Low
Benchmark	In progress. Athens Utilities Water Services Department has the mission to provide potable water to all residents within their service area. For new development, the department's by policy is to extend 8 inch waterlines to within 1,500 feet of all new development. The developer will be responsible for the extension and waterlines within the development. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Contact the US Army Corp of Engineers for advice in the development of stream dumping regulations.
Type	Prevention
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	USACE
Priority	Medium
Benchmark	The city continues seeking advice from the U. S. Army Corp. of Engineers. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Review and consider the development and/or implementation of building regulations that aid in the protection of property from weather hazards.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	ADECA
Priority	High
Benchmark	Partially completed. 2009 International Building Code and Int. Fire Code adopted. This requires building to 90 mph winds and snow load of 10 lb/ft. Anticipate adopting 2015 IBC and IFC when the state adopts, which will increase building requirements. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Use floodplain development regulations to protect property from flooding and to protect the efficiency of the floodplain in the dissipation of floodwaters.
Type	Property Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/ Local Government
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	ADECA, USACE, HMGP, RFC, NFIP
Priority	Medium
Benchmark	Partially completed. Code of Ordinance Chapter 14, Article 3, prohibits filling and building in the floodway and requires elevating (or flood proofing) buildings 1 foot above base blood evelvation. (Ord. 2009-1735 & 2015-1939). (This is ADECA OWR's model FEMA flood ordiance). Need updated flood hazards studies and maps that take drainage improvements and new development into account for maps. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop guidelines that can be used in the review of building and development regulations, including subdivision regulations, to determine their effectiveness in mitigating against the risk from natural hazards.
Type	Property Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	HMGP
Priority	Medium
Benchmark	Partially completed. 2009 International Building Code and Int. Fire Code adopted. This requires building to 90 mph winds and snow load of 10 lb/ft. Anticipate adopting 2015 IBC and IFC when state

	adopts, which will increase building requirement. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Review and revise subdivision regulations countywide with the intent of better mitigation against the risk from natural hazards.
Type	Property Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	HMGP, FMA, PDM
Priority	Medium
Benchmark	Partially completed. Code of Ordinance Chapter 14, Article 3, prohibits filling and building in the floodway and requires elevating (or flood proofing) buildings 1 foot above base blood evelvation. (Ord. 2009-1735 & 2015-1939). (This is ADECA OWR's model FEMA flood ordiance).The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop guidelines for the use of easements to protect private property from site-specific natural hazards.
Type	Property Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Low
Benchmark	Partially completed. All new telecommunications towers are required to have a minimum setback equal to their height – Athens Code of Ord. Sec. 78-43 (Ord. 99-1320). The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Prepare hazard mitigation information to be distributed to hospitals, nursing homes, clinics, etc.
Type	Public Education and Awareness
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Limestone County EMA provides information on all hazards via website and social media. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Enhance web site access and information for general public use regarding hazard mitigation.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	Partially completed. Participate in nixle and Weather Saf-T-Net to get tailor information to citizen and customers about service interruptions and safety information. Engage with citizens on social media. Limestone County EMA provides information on all hazards via website and social media. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Develop a hazard mitigation information center that can be stationed at high traffic areas such as shopping centers, public parks, or special events where people tend to congregate.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA/NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	EMA, NFIP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time.The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop and implement sedimentation and erosion regulations to reduce the damaging effects of siltation on flood protection and drainage facilities.
Type	Natural Resource Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	USACE, NRCS, HMGP
Priority	Medium
Benchmark	Partially complete. Street Dept. Permit required for fill and excavation over 200 cubic yards (some exceptions) that requires erosion and sedimentation control measures. (Code of Ordinances Sec. 74-67 (3) and Sec. 74-69(11) [Ord No. 99-1315]) For sites of 1 acre or more, ADEM requires permit. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Explore opportunities for open space reservation in conjunction with hazard mitigation objectives.
Type	Natural Resource Protection
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	USACE, NRCS, HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action - DELETE	Work with local utility companies to perform a utility study that will include a more comprehensive inventory and vulnerability assessment that will be applicable to the needs and concerns of both the community and the service providers.
Type	Emergency Services Protection
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	The city defers this action to Athens Utilities. The action was reviewed and the HMPC wishes it to to be deleted in this plan update.

Mitigation Action - DELETE	Obtain a detailed engineering study to determine the extent of vulnerability to flooding of the Athens-Limestone Hospital.
Type	Emergency Services Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	New
Local Point of Contact	NFIP, USACE
Estimated Time Frame for Completion	2019
Estimated Cost	TBD
Funding Sources	NFIP, USACE
Priority	Medium
Benchmark	The city defers this action to Athens-Limestone Hospital. The action was reviewed and the HMPC wishes it to to be deleted in this plan update.
Mitigation Action - DELETE	Develop a program to assure the provision of weather sirens or radios at all schools.
Type	Emergency Services Protection
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Point of Contact	ALCEMA
Estimated Time Frame for Completion	2017
Estimated Cost	TBD
Funding Sources	Browns Ferry, HMGP
Priority	High
Benchmark	The city defers this action to Athens City Schools. The action was reviewed and the HMPC wishes it to to be deleted in this plan update.

Mitigation Action	Identify and request funding for the acquisition and/or relocation of properties that are and have been the subject of frequent and continuing flooding.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	RFC, SRL, HMGP
Priority	Medium
Benchmark	No action has been taken on this item due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Develop a program/project to protect US Highway 72 east of Athens at Piney Creek from flooding.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	County Engineer
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	DOT, HMGP
Priority	Low
Benchmark	The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Consider the development of a program for the provision of storm shelters at dense and vulnerable residential establishments such as apartments, dormitories and mobile home parks.
Type	Structural Projects
Goal	Reduce Limestone County's vulnerability to natural hazards
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2018
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	Partially completed. New manufactured home parks with 10 spaces or more require storm shelters (Athens Zoning Ordinance 7.8.9 (K) "R-MH District," Ord 2007-1669. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP, USACE
Priority	High
Benchmark	The City of Athens is a participant in the NFIP. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Purchase, install and test emergency warning sirens, as needed. Upgrade existing equipment as needed.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	Limestone County EMA tests warning sirens on the 2nd Monday of each month, completes a yearly maintenance and upgrades equipment as needed to ensure all are operational. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Purchase/update emergency generators for post-disaster mitigation and conduct routine tests on backup generators for all critical facilities.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	ADECA, HMGP
Priority	High
Benchmark	Partially complete. Newer buildings are being built with emergency generators as a part of the construction such as the police department, fire stations and city hall. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Provide adequate shelters and community safe rooms.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset(s)	New
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	HMGP funds were used toward a community safe room at the Cowart Elementary School. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action – NEW ACTION	Regional stormwater reduction measures near Lindsay Lane and Pepper Road
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	High
Benchmark	New Action Item

Mitigation Action	Reduce flooding of Levert Avenue Bridge at Free Creek (just south of U. S. Highway 72)
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	Local Government/ALCEMA
Estimated Time Frame for Completion	2020
Estimated Cost	TBD
Funding Sources	HMGP
Priority	Medium
Benchmark	New action item.

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Town of Elkmont

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Table 6-37: Town of Elkmont Risk and Vulnerability Overview			
Natural Hazards	**Hazard Identification**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	4	H
Lightning	X	7	L
Hail	X	5	M
Tornado	X	7	M
Flood/Flash Flood	X	6	M
Drought/Extreme Heat	X	3	M
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	X	1	H
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	6	M
Sinkhole/Expansive Soil	X	8	L
Landslide	X	8	L
Earthquake	X	8	L
Wildfire	X	2	M
Dam/Levee Failure	X	8	L

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

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 a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same.
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)

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Table 6-38: Elkmont's Thunderstorm 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
ELKMONT	LIMESTONE CO.	AL	11/18/2003	13:00	CST	Thunderstorm Wind	60 kts. ES	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/30/2004	23:33	CST	Thunderstorm Wind	65 kts. ES	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/06/2004	17:25	CST	Thunderstorm Wind	50 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/14/2004	15:10	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	08/16/2005	16:15	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	06/01/2006	13:30	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	04/03/2007	21:25	CST-6	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	01/10/2008	15:10	CST-6	Thunderstorm Wind	56 kts. EG	0	0	5.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/05/2009	02:35	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	09/02/2012	14:43	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	09/02/2012	14:45	CST-6	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
Totals:								0	0	47.00K	0.00K

Table 6-39: Elkmont's Lightning Events

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
ELKMONT	LIMESTONE CO.	AL	01/13/2006	09:00	CST	Lightning		0	0	250.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	08/08/2013	14:00	CST-6	Lightning		0	0	10.00K	0.00K
Totals:								0	0	260.00K	0.00K

Table 6-40: Elkmont's Hail Events

9 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
ELKMONT	LIMESTONE CO.	AL	04/07/2006	18:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/13/2006	19:15	CST	Hail	0.75 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	05/13/2006	19:15	CST	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	04/10/2009	12:57	CST-6	Hail	1.25 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/12/2010	04:00	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/29/2011	22:29	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	03/31/2012	17:49	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-41: Elkmont's Tornado Events

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
ELKMONT	LIMESTONE CO.	AL	05/09/2006	16:05	CST	Tornado	F0	0	0	20.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	07/28/2009	18:55	CST-6	Tornado	EF0	0	0	0.00K	0.00K
Totals:								0	0	20.00K	0.00K

Table 6-42: Elkmont's Flood/Flash Flood Events

8 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
ELKMONT	LIMESTONE CO.	AL	01/13/2013	17:00	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-43: Elkmont's Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-44: Elkmont's Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/25/2010	04:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-45: Elkmont's Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 6-46: Elkmont's Sinkhole Events

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

Table 6-47: Elkmont's Landslide Events

0 Landslide Event – 01/01/2003 thru 12/31/2013 (4018 days)
(Sources: Local, NOAA NCDC Storm Events Database/U.S. and AL Geological Survey)
No landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

Table 6-48: Elkmont's Earthquake Events

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

Table 6-49: Countywide Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 6-50: Elkmont's Dam/Levee Failure Events

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.

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Table 6-51: Town of Elkmont Hazard Probability Assessment				
Natural Hazards	**Number of Historical Occurrences**	**Probability of Future Occurrence**	**Extent**	**Area Affected**
Thunderstorm	13	>100%	>10%	Townwide
Lightning	2	20%	<5%	Townwide
Hail	9	90%	5-10%	Townwide
Tornado	2	20%	5-10%	Townwide
Flood/Flash Flood	8	80%	5-10%	Townwide
Drought/Extreme Heat	19	>100%	5-10%	Townwide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	>10%	Townwide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Townwide
Sinkhole/Expansive Soil	Unknown	0%	<5%	Townwide
Landslide	Unknown	10%	<5%	Townwide
Earthquake	Unknown	0%	<5%	Townwide
Wildfire (3 year study period)	24	>100%	5-10%	Townwide
Dam/Levee Failure	Unknown	0	<5%	Townwide

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

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 overview (Table 4-40). Zero denotes no data available to determine the probability, extent, or affected area.

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Table 6-52: Town of Elkmont's Critical Facilities

CRITICAL FACILITIES – TOWN OF ELKMONT	
FACILITY TYPE	**REPLACEMENT VALUE**
Elkmont Town Hall, 18890 Upper Ft. Hampton Rd., Elkmont	$166,400
Elkmont High School, 25630 Evans Ave., Elkmont	$1,805,971,000
Total	**$1,806,137,400**

(Sources: Local)

Table 6-53: Town of Elkmont Estimated Loss Projections from Specified Hazards						
Natural Hazards	**Average Occurrences** (per year)	**Total Deaths**	**Total Injuries**	**Average Death and Injury Loss** (per event)	**Average Crop and Property Loss** (per event)	**Projected Loss** (per event)
Thunderstorm	1.3	0	0	Unknown	$3,615	$3,941
Lightning	0.2	0	0	Unknown	$130,000	$141,700
Hail	0.9	0	0	Unknown	$141,700	$154,453
Tornado	0.2	0	0	Unknown	$10,000	$10,900
Flood/Flash Flood	0.8	0	0	Unknown	Unknown	Unknown
Drought/Extreme Heat	1.9	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3.0	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$1,750	$1,908
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	Unknown	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	8.0	0	0	Unknown	$15,200	$16,568
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

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 takes the average fire size multiplied by average amount per acre ($1,900) multiplied by the average number of fires per year as noted in Table 4-15. 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 Elkmont Mitigation Action Plan

The Town of Elkmont recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. Additional ways of incorporating mitigation planning is listed on page 29.

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 6-54** shows the Town of Elkmont's updated mitigation actions. During the plan update process, no new mitigation actions were identified and added to the plan.

Table 6-54: Town of Elkmont's Mitigation Actions

Mitigation Action	Make application and/or commit/continue to participate in the NFIP, meeting all NFIP requirements
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	FL
Applies to new/existing asset(s)	Existing
Local Point of Contact	Limestone County's NFIP Coordinator
Estimated Time Frame for Completion	2016
Estimated Cost	N/A
Funding Sources	HMGP
Priority	High
Benchmark	The Town of Elkmont is not listed as participating or not participating on FEMA's Community Status Book Report. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Promote drainage improvements on local streets and develop drainage maintenance program.
Type	Property Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	Floods, Flash Floods
Applies to new/existing asset(s)	Existing
Local Point of Contact	City of Limestone
Estimated Time Frame for Completion	2018
Estimated Cost	N/A
Funding Sources	HMGP; Local
Priority	Medium
Benchmark	The town continues promoting drainage improvements on local streets. No drainage maintenance program has been developed due to lack of funding, personnel and time. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Purchase emergency generators for post disaster mitigation.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Limestone County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	$1,500 - $30,000 each
Funding Sources	HMGP; Local
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

Mitigation Action	Purchase, install, and test emergency warning sirens, as needed.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Limestone County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	$1,500 - $30,000 each
Funding Sources	HMGP; Local
Priority	High
Benchmark:	Limestone County EMA tests warning sirens on the 2nd Monday of each month, completes a yearly maintenance and upgrades equipment as needed to ensure all are operational. The action was reviewed and the HMPC wishes it to remain in this plan update.
Mitigation Action	Provide adequate individual storm shelters and community safe rooms.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	TH; T
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	City of Limestone and Limestone County EMA
Estimated Time Frame for Completion	2020
Estimated Cost	$4,000 - $130,000 each
Funding Sources	HMGP; ADECA; Local; GERF when available
Priority	High
Benchmark	No action has been taken on this item due to lack of funding. The action was reviewed and the HMPC wishes it to remain in this plan update.

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Town of Lester

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Table 6-55: Town of Lester Risk and Vulnerability Overview			
Natural Hazards	**Hazard Identification**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	6	M
Lightning	X	8	L
Hail	X	8	L
Tornado	X	7	M
Flood/Flash Flood	X	5	M
Drought/Extreme Heat	X	3	M
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	X	1	H
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	4	M
Sinkhole/Expansive Soil	X	8	L
Landslide	X	8	L
Earthquake	X	8	L
Wildfire	X	2	H
Dam/Levee Failure	X	8	L

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

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 a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same.
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)

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Table 6-56: Lester's Thunderstorm Events

5 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
LESTER	LIMESTONE CO.	AL	07/14/2004	14:40	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	05/14/2005	11:15	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LESTER	LIMESTONE CO.	AL	04/04/2011	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-57: Lester's Lightning Events

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.

Table 6-58: Lester's Hail Events

0 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)
No hail events occurred or were reported during 01/01/2003 thru 12/31/2013.

Table 6-59: Lester's Tornado Events

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
LESTER	LIMESTONE CO.	AL	10/18/2004	17:27	CST	Tornado	F0	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-60: Lester's Flood/Flash Flood Events

7 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-61: Lester's Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-62: Lester's Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/25/2010	04:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-63: Lester's Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 6-64: Lester's Sinkhole Events

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

Table 6-65: Lester's Landslide Events

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

Table 6-66: Lester's Earthquake Events

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

Table 6-67: Countywide Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 6-68: Lester's Dam/Levee Failure Events

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 6-69: Town of Lester Hazard Probability Assessment				
Natural Hazards	**Number of Historical Occurrences**	**Probability of Future Occurrence**	**Extent**	**Area Affected**
Thunderstorm	5	50%	5-10%	Townwide
Lightning	Unknown	Unknown	<5%	Townwide
Hail	Unknown	Unknown	<5%	Townwide
Tornado	1	10%	5-10%	Townwide
Flood/Flash Flood	7	70%	5-10%	Townwide
Drought/Extreme Heat	19	>100%	5-10%	Townwide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	>10%	Townwide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Townwide
Sinkhole/Expansive Soil	Unknown	Unknown	<5%	Townwide
Landslide	Unknown	Unknown	<5%	Townwide
Earthquake	Unknown	Unknown	<5%	Townwide
Wildfire (3 year study period)	24	>100%	>10%	Townwide
Dam/Levee Failure	Unknown	Unknown	<5%	Townwide

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

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 overview (Table 4-40). Zero denotes no data available to determine the probability, extent, or affected area.

Table 6-70: Lester's Critical Facilities

CRITICAL FACILITIES – LESTER	
FACILITY TYPE	**REPLACEMENT VALUE**
Lester Post Office (Bldg. 3), 30282 Lester Road, Lester (owned by Lovell Family Limited Partners)	$39,500
Lester Post Office, 30282 Lester Road, Lester (owned by Lovell Family Limited Partners)	$1,610
Lester Town Hall	$1,260,000
West Limestone High School, 10945 Schoolhouse Road, Lester (also listed in Limestone County's Critical Facilities)	$17,100,580
Total	**$18,401,690**

(Source: HAZUS 2.1 Accessed 3/2/2016)

Table 6-71: Town of Lester Estimated Loss Projections from Specified Hazards						
Natural Hazards	**Average Occurrences** (per year)	**Total Deaths**	**Total Injuries**	**Average Death and Injury Loss** (per event)	**Average Crop and Property Loss** (per event)	**Projected Loss** (per event)
Thunderstorm	0.5	0	0	Unknown	Unknown	Unknown
Lightning	Unknown	0	0	Unknown	Unknown	Unknown
Hail	Unknown	0	0	Unknown	Unknown	Unknown
Tornado	0.1	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	0.7	0	0	Unknown	Unknown	Unknown
Drought/Extreme Heat	1.9	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3.0	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$1,750	$1,908
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	Unknown	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	8.0	0	0	Unknown	$15,200	$16,568
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

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 takes the average fire size multiplied by average amount per acre ($1,900) multiplied by the average number of fires per year as noted in Table 4-15. 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.

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Lester Mitigation Action Plan

The Town of Lester recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. Additional ways of incorporating mitigation planning is listed on page 29. The infrastructure in the Town of Lester is almost nonexistent, as it has no large businesses or other opportunities for employment. The Town of Lester does not have local ordinances and planning mechanisms.

Mitigation Status

Table 6-72 shows the Town of Lester's mitigation actions. The Town of Lester did not participate in the previous plan update; therefore, all actions are new to the process.

Table 6-72: Town of Lester's Mitigation Actions	
Mitigation Action	Make application and/or commit/continue to participate in the NFIP, meeting all NFIP requirements
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	FL
Applies to new/existing asset(s)	Existing
Local Point of Contact	Limestone County's NFIP Coordinator
Estimated Time Frame for Completion	2016
Estimated Cost	N/A
Funding Sources	HMGP
Priority	High
Benchmark	NEW ACTION
Mitigation Action	Purchase emergency generators for post disaster mitigation.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Lester and Limestone County EMA
Estimated Time Frame for Completion	2017
Estimated Cost	$1,500 - $30,000 each

Funding Sources	HMGP; Local
Priority	High
Benchmark	NEW ACTION
Mitigation Action	Provide adequate individual storm shelters and community safe rooms.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Lester and Limestone County EMA
Estimated Time Frame for Completion	2020
Estimated Cost	$4,000 - $130,000 each
Funding Sources	HMGP; ADECA; Local; GERF when available
Priority	High
Benchmark	NEW ACTION

Town of Mooresville

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Table 6-73: Town of Mooresville Risk and Vulnerability Overview			
Natural Hazards	**Hazard Identification**	**Prioritized Occurrence Threat**	**Vulnerability**
Thunderstorm	X	5	M
Lightning	X	6	L
Hail	X	7	L
Tornado	X	7	M
Flood/Flash Flood	X	4	M
Drought/Extreme Heat	X	3	M
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	X	1	H
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	4	M
Sinkhole/Expansive Soil	X	7	L
Landslide	X	7	L
Earthquake	X	7	L
Wildfire	X	2	H
Dam/Levee Failure	X	7	L

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

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 the past three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same.
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)

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Table 6-74: Mooresville's Thunderstorm Events

3 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
MOORESVILLE	LIMESTONE CO.	AL	03/19/2003	08:30	CST	Thunderstorm Wind	60 kts. ES	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	05/09/2006	15:50	CST	Thunderstorm Wind	70 kts. ES	0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	08/10/2006	14:10	CST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-75: Mooresville's Lightning Events

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
MOORESVILLE	LIMESTONE CO.	AL	07/05/2012	19:49	CST-6	Lightning		0	0	5.00K	0.00K
Totals:								0	0	5.00K	0.00K

Table 6-76: Mooresville's Hail Events

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

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

Table 6-77: Fairview's Tornado Events

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

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

Table 6-78: Fairview's Flood/Flash Flood Events

8 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/05/2004	19:54	CST	Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	02/22/2003	06:45	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	06/25/2004	13:10	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	09/16/2004	16:00	CST	Flash Flood		0	0	0.00K	0.00K
COUNTYWIDE	LIMESTONE CO.	AL	12/09/2004	05:30	CST	Flash Flood		0	0	0.00K	0.00K
MOORESVILLE	LIMESTONE CO.	AL	02/21/2005	15:10	CST	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-79: Mooresville's Drought/Extreme Heat Events

19 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/13/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/03/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	06/28/2009	10:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Table 6-80: Mooresville's Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events

30 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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2010	08:30	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/08/2010	06:00	CST-6	Winter Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2007	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/08/2007	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/15/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/16/2008	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/28/2008	23:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	04/07/2009	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/19/2009	02:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/30/2011	03:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	11/01/2012	04:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	10/26/2013	00:00	CST-6	Frost/freeze		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/01/2009	02:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	12/25/2010	04:00	CST-	Heavy Snow		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6						
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/09/2011	18:30	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/09/2011	14:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/15/2005	05:00	CST	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/05/2009	02:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/07/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/15/2010	00:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/02/2010	04:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/15/2010	10:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/26/2010	01:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/20/2011	17:14	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/12/2012	15:00	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	14:30	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/14/2013	15:40	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/17/2013	12:15	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/02/2013	07:10	CST-6	Winter Weather		0	0	0.00K	0.00K
LIMESTONE	LIMESTONE	AL	02/02/2013	07:10	CST-	Winter		0	0	0.00K	0.00K

(ZONE)	(ZONE)				6	Weather					
Totals:								0	0	0.00K	0.00K

Table 6-81: Mooresville's Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events

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
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	07/10/2005	18:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	08/29/2005	20:00	CST	Tropical Storm		0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	09/16/2004	12:00	CST	High Wind	50 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	01/29/2008	19:45	CST-6	High Wind	39 kts. ES	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	02/11/2009	12:20	CST-6	High Wind	52 kts. EG	0	0	5.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/24/2009	13:00	CST-6	High Wind	35 kts. ES	0	0	0.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	12/11/2008	06:30	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
LIMESTONE (ZONE)	LIMESTONE (ZONE)	AL	03/18/2013	14:48	CST-6	Strong Wind	43 kts. EG	0	0	1.00K	0.00K
Totals:								0	0	14.00K	0.00K

Table 6-82: Mooresville's Sinkhole Events

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

Table 6-83: Mooresville's Landslide Events

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

Table 6-84: Mooresville's Earthquake Events

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

Table 6-85: Countywide Wildfire Events

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

County	Total # of Fires 2010-2013	Average # of Fires Per Year	Total Acres Burned 2010-2013	Average Acres Burned Per Year	Average Fire Size in Acres
Limestone	24	8	181.62	60.54	8

Table 6-86: Mooresville's Dam/Levee Failure Events

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 6-87: Town of Mooresville Hazard Probability Assessment

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	3	30%	5-10%	Townwide
Lightning	1	10%	<5%	Townwide
Hail	Unknown	Unknown	<5%	Townwide
Tornado	Unknown	Unknown	5-10%	Townwide
Flood/Flash Flood	8	80%	5-10%	Townwide
Drought/Extreme Heat	19	>100%	5-10%	Townwide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	30	>100%	>10%	Townwide
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	8	80%	5-10%	Townwide
Sinkhole/Expansive Soil	Unknown	Unknown	<5%	Townwide
Landslide	Unknown	Unknown	<5%	Townwide
Earthquake	Unknown	Unknown	<5%	Townwide
Wildfire (3 year study period)	24	>100%	>10%	Townwide
Dam/Levee Failure	Unknown	Unknown	<5%	Townwide

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

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 overview (Table 4-40). Zero denotes no data available to determine the probability, extent, or affected area.

Table 6-88: Mooresville's Critical Facilities'

(The town is in process of gathering data on critical facilities)

CRITICAL FACILITIES – MOORESVILLE	
FACILITY TYPE	**REPLACEMENT VALUE**
Mooresville Town Hall	$1,260,000
Total	**$1,260,000**

(Source: HAZUS 2.1, Accessed 2016 and Local)

Table 6-89: Town of Mooresville
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	3.0	0	0	Unknown	Unknown	Unknown
Lightning	0.1	0	0	Unknown	$5,000	$5,450
Hail	Unknown	0	0	Unknown	Unknown	Unknown
Tornado	Unknown	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	0.8	0	0	Unknown	Unknown	Unknown
Drought/Extreme Heat	1.9	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	3.0	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind	0.8	0	0	Unknown	$3,500	$3,815
Sinkhole/Expansive Soils	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	Unknown	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	8.0	0	0	Unknown	$15,200	$16,568
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

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 takes the average fire size multiplied by average amount per acre ($1,900) multiplied by the numer of fires per year as noted in Table 4-15. 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 Mooresville Mitigation Action Plan

The Town of Mooresville recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated. Additional ways of incorporating mitigation planning is listed on page 29. The infrastructure in the Town of Mooresville is almost nonexistent, as it has no large businesses. The citizens travel outside of the jurisdiction for employment. The Town of Mooresville does not have local ordinances and planning mechanisms.

Mitigation Status

Table 6-90 shows the Town of Mooresville's mitigation actions. The Town of Mooresville did not participate in the previous plan update; therefore, all mitigation actions are new to this plan update.

Table 6-90: Town of Mooresville's Mitigation Actions	
Mitigation Action	Make application and/or commit/continue to participate in the NFIP, meeting all NFIP requirements
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	FL
Applies to new/existing asset(s)	Existing
Local Point of Contact	NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	N/A
Funding Sources	HMGP
Priority	High
Benchmark	NEW ACTION
Mitigation Action	Purchase emergency generators for post disaster mitigation.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Town of Mooresville and the Limestone County EMA
Estimated Time Frame for	2018

Completion	
Estimated Cost	$1,000 - $5,000 each
Funding Sources	HMGP; ADECA; Local
Priority	High
Benchmark	NEW ACTION
Mitigation Action	Provide adequate individual storm shelters and community safe rooms.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, High Winds, Strong Winds
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	The Town of Mooresville and Limestone County EMA
Estimated Time Frame for Completion	2020
Estimated Cost	$4,000 - $130,000 each
Funding Sources	HMGP; ADECA; Local; GERF when available
Priority	High
Benchmark	NEW ACTION

Athens City Schools

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Table 6-91: Athens City Schools' Critical Facilities

CRITICAL FACILITIES – ATHENS CITY SCHOOLS	
FACILITY TYPE	**REPLACEMENT VALUE**
Athens Intermediate School	$4,435,390
Athens High School	$12,796,190
Athens Middle School	$6,159,010
Total	**$23,390,590**

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Athens City Schools' Mitigation Action Plan

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

Mitigation Status

Table 6-108 shows the Athens City Schools' mitigation actions. The Athens City Schools did not participate in the previous plan update; therefore, all mitigation actions are new to this plan update.

Table 6-92: Athens City Schools' Mitigation Actions	
Mitigation Action	Make application and/or commit/continue to participate in the NFIP, meeting all NFIP requirements
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	FL
Applies to new/existing asset(s)	Existing
Local Point of Contact	Limestone County's NFIP Coordinator
Estimated Time Frame for Completion	2020
Estimated Cost	N/A
Funding Sources	HMGP
Priority	High
Benchmark	NEW ACTION
Mitigation Action	Purchase emergency generators for post disaster mitigation.
Type	Emergency Services Protection
Goal	Reduce Limestone County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Point of Contact	Athens City Schools and Limestone County EMA
Estimated Time Frame for Completion	2018
Estimated Cost	$1,500 - $30,000 each
Funding Sources	HMGP; ADECA; Local
Priority	High
Benchmark	NEW ACTION

Mitigation Action	Provide adequate tornado shelters and community safe rooms.
Type	Structural Projects
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, Strong Winds, High Winds
Applies to new/existing asset(s)	New and Existing
Local Point of Contact	Athens City Schools and Limestone County EMA
Estimated Time Frame for Completion	2018
Estimated Cost	$4,000 - $130,000 each
Funding Sources	HMGP; ADECA; Local; GERF when available
Priority	High
Benchmark	NEW ACTION

SECTION 7: MITIGATION PLAN MAINTENANCE

The FR Subsection 201.6 (d) (3) (4) requires the County Hazard Mitigation Plan to be revised and updated every five years. "A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding…..Managing states will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office."

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. The plan may be reviewed at any time at the request of any local government at the discretion of the Athens - Limestone County EMA Director in coordination with the Hazard Mitigation Planning Committee. Local governments may submit a formal letter to the Limestone County EMA Director requesting a review of the plan. The public may also request review of the plan by submitting a formal letter to the Limestone County EMA Director. 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. The Hazard Mitigation Planning Committee may re-evaluate the plan after a disaster has occurred to make sure that mitigation of a particular hazard was addressed properly.

The method for monitoring the plan remains the same. Regular plan monitoring will be achieved through the Limestone County EMA's efforts to track mitigation activities. The Director of the Limestone County EMA is the responsible person for the review of the plan to include monitoring, evaluating, and updating of the plan, reconvening the committee only if additional information is available or the EMA Director requires assistance. The annual review of the plan occurs in June of each year following this plan update. Although the entire plan's progress was monitored, evaluated, and updated on a continuous basis throughout the five-year timeframe, the annual review is initiated by the Limestone County EMA Director/HMPC Chairperson or LHA representative emailing an Annual Review and Monitoring Survey Form, as shown in **Figure 7-1**, to the Hazard Mitigation Planning Committee members asking them for their input and giving them a two-week deadline on

returning the information. Following the two-week deadline, the Limestone County EMA Director consolidates the survey forms and acts upon the findings as needed.

Figure 7-1: Annual Review and Monitoring Survey Form

ANNUAL REVIEW AND MONITORING SURVEY FORM FOR THE _____ COUNTY HAZARD MITIGATION PLAN

County:	HMPC Member:	Date:
Have there been any changes in the level of risk to citizens? Yes □ No □ If yes, please explain.		
Have there been any changes in laws, policies, or regulations at your level? Yes □ No □ If yes, please list.		
Have there been any changes in your agency/jurisdiction or in procedures that will affect how mitigation programs or funds are administered? Yes □ No □ If yes, please explain.		
Have there been significant changes in funding sources or capabilities? Yes □ No □ If yes, please explain.		
Have there been any changes in your agency/jurisdiction in regards to representation on this committee? Yes □ No □ If yes, list new representative(s).		

Please review the mitigation projects for your agency/jurisdiction and complete the information beginning on the next page:
(This form can be completed on a computer or hand-written [print clearly] using additional paper if necessary.)

Instructions on accessing your plan online: Go to www.ema.alabama.gov. Click on the "County EMA" tab at the top left of screen. Scroll to your county and click on "View Hazard Mitigation Plan" at the far right of your screen.

Mitigation Measure #:	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #:	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

The following samples represent the messages that accompanied the annual survey forms:

TO: Limestone County HMPC Members:

It is time to conduct an annual review of the Limestone County Hazard Mitigation Plan. If you have information that needs to be updated in the current Hazard Mitigation Plan (plan is on file at the Limestone County EMA Office) or changed in any way, please send this information to the Limestone County EMA Office with a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Limestone County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on "Links" and under County Information click on "County EMAs." Once you reach the page for County EMAs, go to the county you want to view (Limestone, in this case!) and on the far right you can click on "View Mitigation Plan."

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

TO: LOCAL COUNTY EMAs

The Limestone County EMA is conducting an annual review of their Hazard Mitigation Plan and offering the surrounding counties a chance to participate in this process. If you have information that needs to be updated in their current Hazard Mitigation Plan or changed in any way, please send this information to the Limestone County EMA Office and a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Limestone County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on "Links" and under County Information click on "County EMAs." Once you reach the page for County EMAs, go to the county you want to view (Limestone, in this case!) and on the far right you can click on "View Mitigation Plan."

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

During the past five years, two responses were received as a result of the annual reviews and are posted below. The responses have been incorporated into this plan update.

FIGURE 7-1: ANNUAL REVIEW AND MONITORING SURVEY FORM

FOR THE LIMESTONE COUNTY HAZARD MITIGATION PLAN

County: Limestone	**HMPC Member: Rita White**	**Date: 7/2/13**
Have there been any changes in the level of risk to citizens? Yes □ No X **If yes, please explain.**		
Have there been any changes in laws, policies, or regulations at your level? Yes □ No X **If yes, please list.**		
Have there been any changes in your agency/jurisdiction or in procedures that will affect how mitigation programs or funds are administered? Yes □ No X **If yes, please explain.**		
Have there been significant changes in funding sources or capabilities? Yes □ No X **If yes, please explain.**		
Have there been any changes in your agency/jurisdiction in regards to representation on this committee? **Yes □ No X** **If yes, list new representative(s).**		

Please review the mitigation projects for your agency/jurisdiction and complete the information beginning on the next page:

(This form can be completed on a computer or hand-written [print clearly] using additional paper if necessary.)

Instructions on accessing your plan online: Go to www.ema.alabama.gov. Point to the "Links" tab at the top left of screen, then click on "County EMAs" under County Information. Scroll to your county and click on "View Hazard Mitigation Plan" at the far right of your screen. Go to Section 6, Sub-Section "6.8.2 Mitigation Actions" to view the Mitigation Measures for each jurisdiction and countywide.

Mitigation Measure #: **1.1.1**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.2**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
1.1.3	Yes [X] No [ ]	Continue [ ] Remove [X] If project is to be removed, please explain the reason(s) for removal. It is part of the LCEMA EM Officer's job description. It isn't necessary for this to be part of this plan.	Daphne Ellison, LCEMA EM Officer, has been assigned the responsibility of reviewing mitigation activities and plans.
Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
1.1.4	Yes [X] No [ ]	Continue [X] Remove [ ] If project is to be removed, please explain the reason(s) for removal.	This is ongoing and will continue to be ongoing.

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
1.1.5	**Yes** [X] **No** [ ]	**Continue** [X] **Remove** [ ] **If project is to be removed, please explain the reason(s) for removal.**	**A Natural Hazard Mitigation Committee was established in 2005. The Natural Hazard Mitigation Committee is a standing committee that will continue to function as an arm of LCEMA.**
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
1.1.6	**Yes** [ ] **No** [ ]	**Continue** [ ] **Remove** [ ] **If project is to be removed, please explain the reason(s) for removal.**	

Mitigation Measure #: **1.1.7**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.8**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
1.1.9	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
1.1.10	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	

Mitigation Measure #: **1.2.1**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.2.2**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #: **1.3.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.4.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #: **1.4.2**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.4.3**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
1.5.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
2.1.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	

Mitigation Measure #: **2.2.1**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **2.4.1**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
3.1.1	Yes ☐ No ☐	Continue ☐ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	
Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
3.5.1	Yes ☐ No ☐	Continue ☐ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
3.5.2	Yes ☐ No ☐	Continue ☐ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	
Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
3.5.3	Yes ☐ No ☐	Continue ☐ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	

Mitigation Measure #: **3.5.4**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.5**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #: **3.5.6**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.7**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #: **3.5.8**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.9**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #: **4.1.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **4.1.2**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
4.2.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
4.4.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
5.1.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
5.1.2	**Yes** ☐ **No** ☒	**Continue** ☒ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Four outdoor warning sirens have been purchased and installed at the following locations:** • **Empire Lane, Belle Mina, AL** • **East Limestone Rd. & Copeland Rd. Intersection** • **Mooresville Rd. & Newby Rd. Intersection** • **Stinnett Hollow Rd.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
5.2.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
5.2.2	**Yes** ☐ **No** ☒	**Continue** ☒ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**This is an ongoing project. LCEMA will apply for funding, when available, to purchase new emergency warning sirens.**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
5.2.3	**Yes** ☐ **No** ☒	**Continue** ☒ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Generators have been purchased and installed at the following locations:** • **Ardmore High School** • **Elkmont High School** • **West Limestone High School** • **Athens Recreation Center** **These facilities serve as mass care shelters and reception and relocation centers.**
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
5.4.1	**Yes** ☒ **No** ☐	**Continue** ☐ **Remove** ☒ **If project is to be removed, please explain the reason(s) for removal.**	**All schools, public and private, have one of the following means of receiving weather (or other hazard) information:** • **Tone-Alert Radio** • **Two-Way Radio** • **Weather Radio**

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
6.1.1	Yes ☐ No ☐	Continue ☐ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	
Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
6.1.2	Yes ☐ No ☒	Continue ☒ Remove ☐ If project is to be removed, please explain the reason(s) for removal.	An attempt was made to build storm shelters at each school; however, the school system does not have the funds to meet the 25% match.

Mitigation Measure #:	Has project been accomplished?	Should project continue or be removed from plan?	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
6.1.3	**Yes** ☐ **No** ☒ X	**Continue** ☐ **Remove** ☒ X **If project is to be removed, please explain the reason(s) for removal.** **Limestone County and its jurisdictions will never be able to provide shelter for all of its citizens.**	
Mitigation Measure #:	**Has project been accomplished?**	**Should project continue or be removed from plan?**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
6.4.1	**Yes** ☐ **No** ☐	**Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	

Mitigation Measure #: **6.4.2**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **6.4.3**	**Has project been accomplished?** ☐ **Yes** ☐ **No**	**Should project continue or be removed from plan?** ☐ **Continue** ☐ **Remove** **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why they were not completed and what can be done or needs to be done to complete the tasks in the future.**

Please provide the following information on projects you wish to add:

Please check if you wish to add this project asap □ or during the next 5-year plan revision □ :

***Do you feel it is necessary to reconvene the committee in regards to one or more of the projects below?**

Yes □ No □

***Note: The Local EMA is the responsible person for the review of the plan to include monitoring, evaluating, and updating the plan, reconvening the committee**

Mitigation Type:	**Mitigation Goal:**	**Mitigation Measure (explain the project):**	**Hazard(s) Addressed:**
Prevention □	Establish a comprehensive countywide hazard mitigation system □		Floods □
Property Protection □			Tornados □
Public Education & Awareness □	Reduce the county's risk from natural hazards □		Hurricanes □
Natural Resources Protection □	Reduce vulnerability of new and future development □		High Winds □
	Reduce the county's		Landslides □
			Earthquakes □
			Droughts □
			Hail □
			Wildfires □

Emergency Services □ Structural Projects □	vulnerability to natural hazards □ Foster public support and acceptance of hazard mitigation □		Extreme Temps □ Lightning □ Dam Failures □ Tsunamis □ Subsidences & Sinkholes □
Deadline for this form to be returned to --------- is Friday, July 5, 2013. All information received will be consolidated and the local EMA Director will act upon the findings as needed and in the methods described in Section 8 of the local Hazard Mitigation Plan. This process, along with all documentation will be included in the next plan revision in order to meet requirements for plan approval.			
Annual Review and Monitoring Survey Form 06/2013			

County: Limestone	HMPC Member: Richard Sanders, Limestone Co. Engineer	Date: 7/3/13
Have there been any changes in the level of risk to citizens? Yes □ No □ **If yes, please explain.**		
Have there been any changes in laws, policies, or regulations at your level? **Yes □ No X** **If yes, please list.**		
Have there been any changes in your agency/jurisdiction or in procedures that will affect how mitigation programs or funds are administered? **Yes □ No X** **If yes, please explain.**		
Have there been significant changes in funding sources or capabilities? **Yes □ No X** **If yes, please explain.**		
Have there been any changes in your agency/jurisdiction in regards to representation on this committee? **Yes □ No X** **If yes, list new representative(s).**		
Please review the mitigation projects for your agency/jurisdiction and complete the information beginning on the next page: **(This form can be completed on a computer or hand-written [print clearly] using additional paper if necessary.)** **Instructions on accessing your plan online: Go to www.ema.alabama.gov. Point to the "Links" tab at the top left of screen, then click on "County EMAs" under County Information. Scroll to your county and click on "View Hazard Mitigation Plan" at the far right of your screen. Go to Section 6, Sub-Section "6.8.2 Mitigation Actions" to view the Mitigation Measures for each**		

jurisdiction and countywide.			
Mitigation Measure #: **1.1.1**	**Has project been accomplished?** **Yes** ☐ **No** ☒ X	**Should project continue or be removed from plan?** **Continue** ☒ X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** No resources have been allocated to perform this study. An inventory of existing land use could be completed fairly easily using existing GIS information if resources were made available to dedicate to the project.
Mitigation Measure #: **1.1.2**	**Has project been accomplished?** **Yes** ☐ **No** ☒ X	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☒ X **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** I am not aware of any provisions under the law that gives the county any authority to "*implement storm water management regulations.*"
Mitigation Measure #: **1.1.3**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.4**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **1.1.5**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.6**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.7**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.8**	**Has project been accomplished?** **Yes** X **No** ☐	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** Limestone County participates in the NFIP.

		removal.	
Mitigation Measure #: **1.1.9**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.1.10**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.2.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **1.2.2**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **1.3.1**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** There is no method currently in place to accomplish this measure.
Mitigation Measure #: **1.4.1**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** No resources have been committed to a study of this type.
Mitigation Measure #: **1.4.2**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** X **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** I am not aware of any provision under the law that allows the County to develop or enforce stream dumping regulations.
Mitigation Measure #: **1.4.3**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **1.5.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **2.1.1**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** There has been little or no support on the County Commission for the implementation of building regulations.
Mitigation Measure #: **2.2.1**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** No study has been undertaken to review our Subdivision Regulations in regards to hazard mitigation.
Mitigation Measure #: **2.4.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **3.1.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.2**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.3**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **3.5.4**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.5**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.6**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.7**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **3.5.8**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **3.5.9**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **4.1.1**	**Has project been accomplished?** **Yes** ☐ **No** ☒	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☒ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** I am not aware of any provision under law that gives the county authority to develop and implement sedimentation and erosion regulations.
Mitigation Measure #: **4.1.2**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **4.2.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **4.4.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **5.1.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **5.2.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**

		removal.	
Mitigation Measure #: **5.4.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **5.4.2**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **6.2.1**	**Has project been accomplished?** **Yes** ☐ **No** ☐	**Should project continue or be removed from plan?** **Continue** ☐ **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.**
Mitigation Measure #: **6.4.1**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** No resources have been committed to this project.

		removal.	
Mitigation Measure #: **6.4.2**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.** No resources have been committed to this project.
Mitigation Measure #: **6.4.3**	**Has project been accomplished?** **Yes** ☐ **No** X	**Should project continue or be removed from plan?** **Continue** X **Remove** ☐ **If project is to be removed, please explain the reason(s) for removal.**	**Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why they were not completed and what can be done or needs to be done to complete the tasks in the future.** Storm shelter planning/development are underway.

Please provide the following information on projects you wish to add:

Please check if you wish to add this project asap ☐ or during the next 5-year plan revision ☐ :

***Do you feel it is necessary to reconvene the committee in regards to one or more of the projects below?**
Yes ☐ No ☐

***Note: The Local EMA Director is the responsible person for the review of the plan to include monitoring, evaluating, and updating the plan, reconvening the committee**

Mitigation Type:	**Mitigation Goal:**	**Mitigation Measure (explain the project):**	**Hazard(s) Addressed:**
Prevention ☐ Property Protection ☐ Public Education & Awareness ☐	Establish a comprehensive countywide hazard mitigation system ☐ Reduce the county's risk from natural hazards ☐		Floods ☐ Tornados ☐ Hurricanes ☐ High Winds ☐ Landslides ☐ Earthquakes ☐ Droughts ☐ Hail ☐

Natural Resources Protection □ Emergency Services □ Structural Projects □	Reduce vulnerability of new and future development □ Reduce the county's vulnerability to natural hazards □ Foster public support and acceptance of hazard mitigation □		Wildfires □ Extreme Temps □ Lightning □ Dam Failures □ Tsunamis □ Subsidences & Sinkholes □
Deadline for this form to be returned to --------- is Friday, July 5, 2013. All information received will be consolidated and the local EMA Director will act upon the findings as needed and in the methods described in Section 8 of the local Hazard Mitigation Plan. This process, along with all documentation will be included in the next plan revision in order to meet requirements for plan approval.			
Annual Review and Monitoring Survey Form 06/2013			

At the minimum, the Limestone County EMA Director/HMPC Chairperson will annually monitor and evaluate this plan, making amendments in coordination with the Hazard Mitigation Planning Committee if necessary. The Limestone County EMA Director will document the annual evaluation and note the findings, if any. In the event modifications to the plan are warranted as a result of the annual review or other conditions, the Limestone County EMA Director in coordination with the Hazard Mitigation Planning Committee 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 will be placed in the local newspaper or publicly posted, allowing an opportunity for the public to review the proposed amendments at the EMA offices, submit written comments, and present comments at a public meeting. The Hazard Mitigation Planning Committee 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.

The EMA Director 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 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.
The method and schedule of the five-year update of the plan will be determined by the Limestone County EMA Director. The EMA Director will elect to either contract the update of the plan or utilize Athens - Limestone County EMA staff to perform the update. The plan update will be scheduled well in advance of the plan expiration date in order to allow adequate time for the planning process to be completed.

Incorporation into Existing Planning Mechanisms

The Limestone County Hazard Mitigation Plan is administered by the Athens - Limestone County Emergency Management Agency. The Limestone County Hazard Mitigation Plan update has also been incorporated into the Top of Alabama Regional Council of Governments' (TARGOG) planning documents.

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. This plan update will be cross-referenced by the HMPC members with other existing plans during the annual review.

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

Continued Public Participation

The plan will be available for the public to view at the Athens - Limestone County

Emergency Operations Center. The Athens - Limestone County EMA will hold public meetings annually that coincide with the Local Emergency Planning Committee (LEPC) meetings to keep the public involved in the planning process. The notification of meetings will include, but not be limited to, advertisement in a paper of local circulation. Meeting advertisements will include contact information for those wishing to submit comments.

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SECTION 8: APPROVAL AND IMPLEMENTATION

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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 Limestone County Commission or Director of the Athens - Limestone County Emergency Management Agency.

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

Limestone 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. Limestone 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 Athens - Limestone 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 Athens - Limestone 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 Limestone County, Alabama.

_____ _____

Date Rita White, Director

Athens - Limestone County Emergency Management Agency

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County of Limestone

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the County of Limestone 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 Limestone 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 Limestone adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the County Commission.

_____

Chairman, Limestone County Commission

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Town of Ardmore

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the Town of Ardmore 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 Ardmore 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 Ardmore adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the Town Council.

_____

President, Ardmore Town Council

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City of Athens

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the City of Athens 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 Athens 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 Athens adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the City Council.

_____

President, Athens City Council

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Town of Elkmont

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the Town of Elkmont 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 Elkmont 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 Elkmont adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the Town Council.

_____

President, Elkmont Town Council

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Town of Lester

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the Town of Lester 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 Lester 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 Lester adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the Town Council.

_____

President, Lester Town Council

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Town of Mooresville

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

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

WHEREAS, the Town of Mooresville 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 Mooresville 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 Mooresville adopts the 2015 Limestone 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.

_____

President, Mooresville Town Council

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Athens City Schools

2015 Limestone County Hazard Mitigation Plan Update

Resolution of Adoption

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

WHEREAS, the Athens City Schools participated in the updating of a multi-jurisdictional plan, the Limestone County Hazard Mitigation Plan; and

WHEREAS, the Athens City School System is a school district that has afforded its members an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the Athens City Schools have reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Athens City School System that the Limestone City Schools adopts the 2015 Limestone County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2016 at the meeting of the Athens City Schools.

_____

Athens City Schools