

# **Macon County Hazard Mitigation Plan**



## **2015 Plan Update**



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



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# **Macon County Hazard Mitigation Plan**

## **Table of Contents**

Introduction		11
Section One	Planning Process	13
	Plan Update Process	13
	Continued Public Participation	14
	Hazard Mitigation Planning Committee	14
	Participation Guidelines	17
	Committee and Public Meeting Schedule and Participation	17
	Interagency and Intergovernmental Coordination	41
	Integration with Existing Plans	42
	Plan Adoption	43
Section Two	General Characteristics	47
	Growth Trends	47
	General Geology	51
Section Three	Macon County Risk Assessment	55
	Hazard Profiles	73
	I. Thunderstorms	73
	II. Lightning	75
	III. Hail	79
	IV. Tornados	83
	V. Floods/Flash Flooding	89
	VI. Droughts/Extreme Heat	95
	VII. Winter Storms/Frost Freezes/Heavy Snow/Ice Storms/ Winter Weather/Extreme Cold	101
	VIII. Hurricanes/Tropical Storms/Tropical Depressions/High Winds/ Strong Winds	103
	IX. Sinkholes/Expansive Soils	107

	X. Landslides	111
	XI. Earthquake	113
	XII. Wildfire	121
	XIII. Dam Failure	129
Section Four	Vulnerability Assessment	135
	Socially Vulnerable Populations	142
	Vulnerable Structures	150
	Critical Facility Inventory	152
	Development Trends	157
	Methods of Warning	159
	Vulnerability Summary	161
	Estimated Loss Projections	161
	Mitigating Potential Losses	165
Section Five	Jurisdiction Assessments	191
	Town of Franklin	193
	Town of Notasulga	224
	Town of Shorter	259
	City of Tuskegee	295
	Macon County Board of Education	328
	Tuskegee University	332
Section Six	Mitigation Plan Maintenance	336
	Incorporation into Existing Planning Mechanisms	339

## **Appendices**

Appendix I	Adopting Resolutions	340
	Macon County EMA	342
	Macon County	344
	Town of Franklin	346
	Town of Notasulga	348
	Town of Shorter	350
	City of Tuskegee	352
	Macon County BOE	354
	Tuskegee University	356

## **LIST OF MAPS, FIGURES & TABLES**

Maps		Page
2-1	Macon County General Location and Population Density	49
4-1	Macon County Census Tracts	145
Figures		
2-1	Geology of Alabama	53
3-1	Generalized Tornado Paths	85
3-2	Wind Zones in the United States	86
3-3	Sinkholes and Sinkhole Density Across Alabama	108
3-4	General Soils of Alabama	109
3-5	Landslide Incidence & Susceptibility in Macon County	112
3-6	National Seismic Hazard Mapping Project	118
3-7	Seismic Zones of the Southeastern United States	119
3-8	Total Acres Burned by Wildfire (1997-2012)	125
3-9	Number of Fires Per Year Per Square Mile (1997-2012)	127

## Tables

1-1	Macon County Existing Plans by Jurisdiction	45
2-1	Growth Trends in 1190-2013 Population	48
3-1	Macon County Hazard Probability of Future Occurrence	59
3-2	Macon County Hazard Identification by Jurisdiction	60
3-3	Macon County Prioritized Occurrence Threat by Jurisdiction Based on Past Events	61
3-4	Macon County Mitigation Actions Prioritization	62
3-5	Macon County Hazard Events	63
3-6	Estimating Hail Size	79
3-7	Fujita Tornado Scales	87
3-8	Flood Probability Terms	91
3-9	Macon County NFIP Status by Jurisdiction	94
3-10	Heat Index/Heat Disorders	99
3-11	Saffir-Simpson Hurricane Wind Scale	104
3-12	Earthquake PGA, Magnitude, and Intensity Comparison	115
3-13	Wildfires in Macon County 1997-2012	122
3-14	Macon County Dams Risk Categories	131
3-15	Macon County Dam Inventory	133
4-1	Macon County Population Characteristics	143
4-2	Macon County Income Data	149
4-3	Macon County Housing Characteristics	150
4-4	Macon County Building Stock by General Occupancy	151
4-5	Macon County Building Exposure	151
4-6	Macon County Building Contents Exposure	152
4-7	Macon County Critical Facilities	155
4-8	Macon County Population Projections	157



4-9	2014 Values Used for Monetary Conversion of Tornado Injuries and Deaths	162
4-10	Macon County Vulnerability Summary	163
4-11	Macon County Estimated Losses from Specified Hazards	164
4-12	Macon County Mitigation Actions	169
5-1	Town of Franklin Risk & Vulnerability Overview	195
5-2	Town of Franklin Hazard Events	197
5-3	Town of Franklin Hazard Probability Assessment	203
5-4	Town of Franklin Critical Facilities Inventory	204
5-5	Town of Franklin Estimated Loss Projections from Specified Hazards	205
5-6	Town of Franklin Mitigation Actions	207
5-7	Town of Notasulga Risk & Vulnerability Overview	226
5-8	Town of Notasulga Hazard Events	228
5-9	Town of Notasulga Hazard Probability Assessment	236
5-10	Town of Notasulga Critical Facilities	237
5-11	Town of Notasulga Estimated Loss Projections from Specified Hazards	238
5-12	Town of Notasulga Mitigation Actions	240
5-13	Town of Shorter Risk & Vulnerability Overview	261
5-14	Town of Shorter Hazard Events	263
5-15	Town of Shorter Hazard Probability Assessment	271
5-16	Town of Shorter Critical Facilities	273
5-17	Town of Shorter Estimated Loss Projections from Specified Hazards	274
5-18	Town of Shorter Mitigation Actions	276
5-19	City of Tuskegee Risk & Vulnerability Overview	297
5-20	City of Tuskegee Hazard Events	299
5-21	City of Tuskegee Hazard Probability Assessment	306
5-22	City of Tuskegee Critical Facilities	307
5-23	City of Tuskegee Estimated Loss Projections from Specified Hazards	308
5-24	City of Tuskegee Mitigation Actions	309
5-25	Macon County Board of Education Actions	330
5-26	Tuskegee University Mitigation Actions	334

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## **Introduction**

### ***Macon County Hazard Mitigation Plan***

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

This plan covers the entire county including all unincorporated areas, Franklin, Notasulga, Shorter and Tuskegee and the Macon County Board of Education.

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.

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

### ***Authority***

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

### ***Funding***

Funding for this plan update was made available through the Hazard Mitigation Grant Program (HMGP). The grant's Period of Performance is November 18, 2013 through November 18, 2015 and extended to May 18, 2015.. Macon County entered into an agreement with Lee Helms Associates L.L.C. (LHA) to update the 2009 plan that was also revised by Lee Helms Associates, L. L. C. (LHA) and expires on November 4, 2015.

### ***Scope***

The Macon County Hazard Mitigation Plan includes all incorporated and unincorporated areas in Macon County. The plan addresses all natural hazards identified by the Federal Emergency Management Agency. All hazards that may affect Macon County and its residents are identified. Hazard mitigation strategies are discussed in terms of goals, objectives and mitigation actions. Responsibility for implementation of strategies is discussed and possible funding sources are identified.

### ***Purpose***

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

## **Section One: Planning Process**

### ***Plan Update Process***

The hazard mitigation planning update process began in December of 2013 after the Macon County Emergency Management Agency (MCEMA) was awarded a planning grant from the Alabama Emergency Management Agency (AEMA) and they signed an agreement with Lee Helms Associates, L. L. C. to revise the plan. The MCEMA 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 a different structure as the 2010 plan.

The Macon County mitigation plan is the representation of the county's commitment to reduce risks from natural hazards. In doing this, the number, location, extent and probability of natural disasters occurring within the area were assessed. Previous 2010 plan information was provided to each jurisdiction/local government Hazard Mitigation Planning Committee members participating in the plan update. This information, which included updating of each jurisdiction's data tables, critical facilities and mitigation strategies, were the basis for the plan. Next, actions that would reduce the loss of life or property in the area were considered. In doing this, all jurisdictions, local governments, private-non-profits, first responders (police, fire and medical), neighboring counties, and the general public were invited and encouraged to participate. Jurisdictions, planning committee members, the public, and neighboring communities actively participated by attending meetings and/or providing input by phone, fax, email, postal mail and one-on-one contacts made by the EMA Director/Hazard Mitigation Planning Commission Chairman and/or representatives of LHA. Three meetings will be held prior to plan approval by FEMA, all of which provide the public an opportunity to participate in the planning process and provide public feedback to be incorporated into the plan's revision. Citizen input forms are also available at these meetings and at the EMA Office for those who cannot attend the meetings, but wish to participate and provide input into the plan.

### ***Continued Public Participation***

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

After the initial plan was completed in 2005 and revised in 2010, it was made available for ongoing public view and comment at the Macon County Emergency Operations Center, all City and Town Halls, and the Macon County Courthouse. Each local government was instructed that amendments or additions could be made to that plan at any time. Additional opportunities for comment were provided at annual meetings held by the Macon County EMA. No meeting notes or sign-in sheets were created and saved for these past meetings; however, they will be a future requirement and placed in the next plan revision.

In the future, the County EMA will strive to gain more public participation in the maintenance and updates of the county's hazard mitigation plan by encouraging Parent Teacher Organizations, Senior Citizens Clubs, Chamber of Commerce, Kiwanis Club, etc. by mail, telephone, and personal contacts. In addition, the County EMA will encourage the county and municipalities with websites and/or Facebook pages to place the 2015 plan on their site and offer the public a place to comment on the plan. Jurisdictions having Facebook pages are: Macon County, Alabama; Town of Shorter, AL; and the City of Tuskegee. Jurisdictions having websites are: Macon County's Office of Revenue Commissioner and Probate Judge: [www.maconcountyal.com](http://www.maconcountyal.com); Town of Shorter: [www.shorteralabama.com](http://www.shorteralabama.com); City of Tuskegee: [www.tuskegeealabama.gov](http://www.tuskegeealabama.gov); and the Macon County Board of Education: [www.maconk12.org](http://www.maconk12.org).

### ***Hazard Mitigation Planning Committee***

Before beginning the plan update process, LHA staff coordinated with Ms. Judy Kinebrew, Macon County EMA Director, to review the hazard mitigation planning committee. Existing members were reviewed and confirmations, replacements, and additions were made as necessary. Ms. Kinebrew, the Macon County EMA Director assumed the responsibility as Chairman of the Hazard Mitigation Planning Committee. The Hazard Mitigation Planning Committee (HMPC) consisted of the following members:

**Macon County**

Judy Kinebrew, Director, Emergency Management Agency

Faydra W. Hall, Macon County EMA, Administrative Assistant

Gertrude Benjamin, Treasurer, Macon County Communications

Curwin Lancaster, Food Assistance/Financial Support Supervisor, Macon County Dept. of  
Human Resources

Linda Bibb, Director, Department of Human Resources

J. D. Smith, County Engineer, Macon County Road and Bridge

David Hurley, Compliance Officer, Macon County

Andre Brunson, Sheriff, Macon County

Bridgett Gray, County Attorney, Macon County

Harold White, Executive Director, Macon-Russell C.A.A.

Tony Washington, Sheriff District Resource Officer, Deputy Sheriff

Tommy Miller, Chief Deputy, Macon County Sheriff Department/E911

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

**Town of Franklin**

Rufus Carson, Mayor, Town of Franklin

Micha Segrest, Town Clerk

Michael Clements, Chief, Franklin Police Department

Shirley Rogers, American Red Cross, Community of Franklin

**Town of Shorter**

Willie Mae Powell, Mayor, Town of Shorter

Valerie Smith, EOC Coordinator, Town of Shorter

Jimmy Ellis, Fire Chief, Town of Shorter

**City of Tuskegee**

Johnny Ford, Mayor, City of Tuskegee

John Crozier, Safety, CFP, QC Director, Tuskegee Housing Authority

Linda Simpson, Director, Tuskegee Housing Authority

Willie Smith, Fire Marshall, Tuskegee Fire

John Tate, Water Plant Manager, Utilities Board, Tuskegee

**Town of Notasulga**

Tommy Miller, Mayor, Town of Notasulga

Michael Knowles, Chief, Police Department

**Macon County Board of Education**

Melissa T. Williams, Macon County Board of Education, Human Resources Director/PD  
Coordinator

Andre Brunson, District Resources Officer, Macon County Board of Education

Sylvester Dowdell, Energy Specialist, Macon County Board of Education

Tony Washington, Macon County Board of Education

**Tuskegee University**

Jennifer Jordan, Assistant Chief of Police, Tuskegee University Police Department

Peter Spears, Dean of Students, Tuskegee University

Garry Quina, Director DBE Supportive Services, Tuskegee University

Anthony Daniels, Infra-Manager, Tuskegee University Aug.

**Additional Members**

Shelemara Johnson, Management Case Worker, American Red Cross

Benjamin Rackley, Director, Blackbelt Medical Reserve Corps

Curtis Rayborn, Volunteer, Macon County Red Cross

Luella Knight, Chairman, Star Mindingall Water

Tiana Brown, Education Specialist, TAHE C

Rodney Stone, 1890 Program Liaison, OSEC USDA

Henry Pace, Sr., Chief, Macedonia Volunteer Fire Department

**Surrounding Counties**

Katherine Carson, Lee County EMA, Director

Jason Moran, Tallapoosa County EMA, Director

Eric Jones, Elmore County EMA Director

Calvin Brown, Montgomery County EMA Director

Roderick Clark, Bullock County EMA Director

Bob Franklin, Russell County EMA Director



### ***Participation Guidelines***

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

1. At least one appointed representative from each participating local government should attend all committee meetings. In the event of extenuating circumstances, the local government may send a non-appointed representative. If a committee member cannot attend the meetings, he or she will be contacted in person, by phone, by email, or by mail in order to obtain the jurisdiction's participation in the plan revision. Committee members are also encouraged to attend neighboring communities' HMPC meetings and participate in their plan updates.
2. Each local government should submit requested information to Macon County EMA or LHA in a timely manner. Local governments should meet time frames and deadlines established by the committee. In the event of extenuating circumstances, the Hazard Mitigation Planning Committee Chairman may approve late submissions.
3. Committee members should fully cooperate with LHA and the Macon County EMA during the update and finalization of the Macon County Hazard Mitigation Plan by providing the best available information necessary to complete the plan.
4. Each participating jurisdiction must review mitigation strategies from the 2009 plan for which they were responsible and provide new actions they wish to pursue in the future. The local government must provide mitigation measures and the method used to prioritize the actions. The selected actions must identify the hazard(s) being mitigated.

### ***Committee and Public Meeting Schedule and Participation***

Each jurisdiction, public and private nonprofits, general public, and neighboring communities of Lee County EMA (Katherine Carson, Director, 334-749-8161), Tallapoosa County EMA (Jason Moran, Director, 256-825-1078), Elmore County EMA (Eric Jones, Director, 334-567-6451), Montgomery County EMA (Calvin Brown, Director, 334-241-2339), Bullock County EMA (Roderick Clark, Director, 334-738-3883), and Russell County EMA (Bob Franklin, Director, 334-291-5079) were invited and encouraged to participate in each of the

committee meetings. In the event they were unable to attend the meetings they were provided meeting materials from the Macon County EMA or LHA prior to or immediately following the missed meeting. Meeting materials were completed and returned via mail, fax, email, or by scheduling an individual meeting with the Macon County EMA and/or LHA to be counted as an active participant in the planning process. Neighboring communities were invited by phone or email and encouraged to attend all committee meetings and provide input. No surrounding county EMA Director attended a meeting; however during contacts made, all surrounding counties expressed their willingness to help in the event of a disaster. Public meeting notices were published in the *Tuskegee News* at least seven days prior to the meeting date and included contact information for assistance. Attendees at the meetings were asked to group themselves by jurisdiction in order to review and complete meeting materials that required collaboration and provide other needed data. Some individuals participated with and contributed to more than one jurisdiction as deemed appropriate. A “Citizen Input on Hazard Mitigation Plan” form (sample found in this section) was available at all meetings for general public citizens to complete. Committee representatives were asked to take these forms and have their concerned citizens to complete. No forms were completed during the planning process; therefore, none are included in this section.

**INITIAL MEETING AGENDA**  
**2015 MACON COUNTY HAZARD MITIGATION PLAN UPDATE**

Wednesday, April 23, 2014 @ 9:30 a.m.

Macon County Commission Chambers

1. Introductions
  - Sign-in sheets – please print and make sure your email is on the form
2. Project Background
  - 2010 plan update was prepared by the South Central Alabama Development Commission under the direction of the Hazard Mitigation Planning Committee, the Local Emergency Planning Committee, and the Macon County Emergency Management Agency and adopted by:
    - Macon County – Unincorporated
    - Franklin – Town
    - Notasulga – Town
    - Shorter – Town
    - Tuskegee – City
  - 2015 plan update will be prepared by Lee Helms Associates, L. L. C. under the direction of the Hazard Mitigation Planning Committee, the Local Emergency Planning Committee, and the Macon County Emergency Management Agency
3. Project Participation
  - Identify opportunities for public input into the 2015 plan update
  - Identify potential plan meeting participants that are not present today (municipalities, school boards, engineers, hospitals, surrounding county EMAs, fire departments, etc.)
    - PNP's are their own applicant
4. Project Schedule
  - 2010 plan update expires November 4, 2015
  - Period of Performance for the grant is November 18, 2013 – Nov. 18, 2015
  - Goal date for draft plan to be submitted in order to be approved before current plan expires: Tuesday, June 23, 2015
    - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval)
  - There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax [205-280-0543](tel:205-280-0543) or email to [renee@leehelmsllc.com](mailto:renee@leehelmsllc.com). If you have any questions or need assistance, call LHA at 205-280-3027.
5. Project Tasks for this Meeting
  - All general public attendees are to complete the form titled: "Citizen Input on Hazard Mitigation Planning" and leave completed form with LHA representative
  - Local EMA Director is to complete Questionnaire #1 and return to LHA
  - Local EMA Director is to provide LHA with a copy of the media release for this meeting
  - Update 2010 plan information – see handouts
  - Discuss in-kind contributions for local match to this planning grant
  - Set date and location for next meeting – (August or September 2014)



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**Wednesday, April 23, 2014 @ 9:30 a.m.**

**Macon County Commission Chambers**

**Macon County Hazard Mitigation Planning Meeting 1**

The Chairman of the Hazard Mitigation Planning Committee, Ms. Judy Kinebrew, opened the meeting. Lee Helms Associates, L. L. C. reviewed the original plan with committee members and attendees and explained the update process. Attendees were given worksheets and other materials related to the agenda topics in order to review and provide data for the update. A total of 27 committee members or designees attended the meeting, along with 1 LHA representative. No members of the general public were in attendance.

- Judy Kinebrew, EMA Director
- Lee Helms, Consultant, LHA
- Micha Segrest, Town Clerk, Town of Franklin
- Jimmy Ellis, Fire Chief, Town of Shorter
- Shirley Rogers, ARC, Town of Franklin
- Peter Spears, Dean of Students, Tuskegee University
- David Hurley, Compliance Officer, Macon County
- Curtis Rayborn, Volunteer, Macon County ARC
- Sylvester Dowdell, Energy Specialist, Macon County Board of Education
- Garry Quina, Director DBE Supportive Services, Tuskegee University
- Andre Brunson, Sheriff, Macon County/District & Rec. Offices, Macon County BOE
- J. D. Smith, County Engineer, Macon County Road and Bridge
- Bridgett Gray, County Attorney, Macon County
- Willie Smith, Fire Marshall, Tuskegee Fire
- Harold White, Executive Director, Macon-Russell CAA
- Michael Clements, Chief, Franklin Police Department
- Anthony Daniels, Infra Manager, Tuskegee University Aug.
- Luella Knight, Chairman, Star Mindingall Water
- Valerie Smith, EOC Coordinator, Town of Shorter

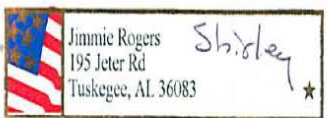
- Tiana Brown, Education Specialist, TAHE C
- John Tate, Water Plant Manager, Utilities Board Tuskegee
- Linda Simpson, Director, Tuskegee Housing Authority
- Rodney Stone, 1890 Program Liaison, OSEC USDA
- Linda Bibb, Director, Department of Human Resources
- Curwin Lancaster, Financial Support Supervisor, Department of Human Resources
- Tony Washington, District Resource Officer/Deputy Sheriff/Macon County Board of Education
- Henry Pace, Sr., Chief, Macedonia Volunteer Fire Department
- Tommy Miller, Chief Deputy, Macon County Sheriff Department/E911 Director/Mayor, Town of Notasulga

## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Micha Segrest	Agency: Town of Franklin Job Title: Town clerk	Phone: 334-727-2111 Fax:	msegrest@franklinalabama.com
Jimmy Ellis	Agency: Town of Shorter Job Title: Fire Chief	Phone: 334 727-9190 Fax:	jellis@shorteralebama.com
 Shirley	Red Cross Community Franklin	Phone: 334 552 Fax: 1522	plwoc.shirley@gmail.com
Peter J. Spears	Agency: Tuskegee University Job Title: Dean of Students	Phone: 334 727-8421 Fax: 334 724-4414	pspears@mtu.tuskegee.edu
Judy Kinebrew	Agency: Macon Co EMA Job Title: Director	Phone: 334-724-2626 Fax:	emamacon@bellsouth.net
Lee Helms	Agency: Lee Helms Assoc. Job Title: Owner / Consultant	Phone: 205-280-3027 Fax: 205-280-0543	lee@leehelmsllc.com





## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
David Hurley	Agency: Macon County Compliance Office Job Title: Compliance Officer	Phone: 334-421-1418 Fax:	mccompliance@charter.net
Curtis A. Rayborn	Agency: Macon County Red Cross Job Title: Volunteer	Phone: 334-339-2885 Fax:	rayboxa@hotmail.com
Sylvester Dowbell	Agency: Macon Co. Bd. of Education Job Title: Energy Specialist	Phone: 334-303-0335 334-727-1600 Fax:	sylvesterdowbell@gmail.com
Garry Quinn	Agency: Tuskegee University Job Title: Director DBE Supportive Services	Phone: 334-727-3527 Fax: 334-727-0116	GQuinn@Tuskegee.edu GDD55eAOL.com
Andre Brunson	Agency: Macon County Sheriff and District Rec. Macon County Bd. of Ed. Officer Job Title:	Phone: (334) 339-0522 Fax:	Andrebrunson51a@yahoo.com
	Agency: Job Title:	Phone: Fax:	



## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
JD SMITH	Agency: MC ROAD & BUDGE Job Title: COUNTY ENGINEER	Phone: 334-724-2619 Fax:	j.d.smith@mc.com
Bridgett GRAY	Agency: macon county Job Title: county attorney	Phone: 727-4830 Fax: 727-5877	bvgray@ghsmgvl.com
Willie Smith	Agency: Tuskegee Fire Job Title: Fire Marshal	Phone: 334-724-2185 Fax: 334-724-1269	WillieSmith@tuskfire.com
Harold C. White	Agency: Macon-Russell C.A.A. Job Title: EXECUTIVE DIRECTOR	Phone: 334-727-6100 x7000 Fax: 727-6105	mccaa@bellsouth.net
Michael T. Clements	Agency: Franklin Police Dept. Job Title: Chief	Phone: (334) 552-0261 Fax:	michaelclements401@yahoo.com
	Agency: Job Title:	Phone: Fax:	



## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Anthony Daniels	Agency: T.U. Aug. Job Title: Infra Manager	Phone: 334.552. 1606 Fax:	adaniels@my.tu.tn4Region.edu
Luella Knight	Agency: STAR Mindingall Water Job Title: Chairman	Phone: 727-5000 Fax:	H.King STAR Adl.com
Valerie Smith	Agency: Town of Shorter Job Title: EOC Coordinator	Phone: 534-727-9190 ext 105 Fax: (334) 720-1180	vsmitth@shorterabama.com
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	



## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Tiana Brown "Benjamin Rackley"	Agency: TAHE C Job Title: Education Specialist	Phone: 334 727-0550 ext 3590 Fax:	bprackley@bellsouth.net
JOHN TATE	Agency: UTILITIES BOARD TUSKEGEE Job Title: WATER PLANT MANAGER	Phone: 334-724-2125 Fax: 334-724-0213	j.tate.ubtwater@gmail.com
Linda Simpson	Agency: Tuskegee Housing Authority Job Title: Director	Phone: 334-727-0459 / 110 Fax:	lsimpson@tuskegee.pha.org
Rodney Stone	Agency: USDA - OAO Job Title: 1890 Program Liaison	Phone: 334 724-4493 Fax:	rodney.stone@ofoel.usda.gov rstone@myfw.tuskegee.edu
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	





## MACON COUNTY

Wednesday, April 23, 2014 at 9:30 a.m. – Macon County Commission Chambers

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

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Linda Bibb	Agency: Dept. of Human Resources Job Title: Director	Phone: 334-725-2105 Fax: 334-725-2201	linda.bibb@dc.humanresources.ga.gov
Curwin B. Lancaster	Agency: Dept. of Human Resources Job Title: Financial Support Supervisor	Phone: 334-725-2143 Fax: 334-725-2200	Curwin.Lancaster@dc.humanresources.ga.gov
Tony Washington	Agency: Macon County Board of Ed/Sheriff Job Title: District Resource Officer/Deputy Sheriff	Phone: 478-4369 Fax: 478-8998	washington@maccon.k12.ga.gov
Harry D. Lacey Jr.	Agency: Macon County Board of Ed Job Title: Chief	Phone: 334-725-4705 Fax:	harryd.lacey@maccon.k12.ga.gov
Tommy Miller	Agency: MCSO E911 Notulga Job Title: Chief Deputy Director Mayor	Phone: 334-727-2500 Fax: 334-257-4645	tmiller4610@aol.com
Tommy Miller	Agency: Town of Notulga Job Title: Mayor	Phone: 334-257-1454 Fax: 334-257-4645	tmiller4610@aol.com



## **MID-TERM MEETING AGENDA**

### **2015 MACON COUNTY HAZARD MITIGATION PLAN UPDATE**

Monday, September 29, 2014 @ 9:30 a.m.

E-911 Communications Center, 242 County Road 10

#### **1. Introductions**

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

#### **2. Project Schedule**

- 2010 plan update expires November 4, 2015
- Period of Performance for the grant is November 18, 2013 – Nov. 18, 2015
- Goal date for draft plan to be submitted in order to be approved before current plan expires: Tuesday, June 23, 2015
  - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval)
- There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax 205-280-0543 or email to renee@leehelmsllc.com. If you have any questions or need assistance, call LHA at 205-280-3027.

#### **3. Project Tasks for this Meeting**

- All general public attendees are to complete the form titled: “Citizen Input on Hazard Mitigation Planning” and leave completed form with LHA representative
- Local EMA Director is to provide LHA with a copy of the media release for this meeting if applicable
- Update 2009-2010 plan information – see handouts
- Discuss in-kind contributions for local match to this planning grant



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**Monday, September 29, 2014 at 9:30 a.m.**

**Macon County E-911 Communications Center, 242 County Road 10**

**Macon County Hazard Mitigation Planning Meeting 2**

Mr. Lee Helms opened the meeting. Lee Helms Associates, L. L. C. reminded the committee members and attendees of the project schedule. Attendees were referred to worksheets and other materials related to the agenda topics in order to review and provide data for the update. These worksheets were previously emailed to participants with instructions on what information needs updating. A total of 17 committee members or designees attended the meeting, along with 1 LHA representative. No members of the general public completed a “Citizen Input on Hazard Mitigation Planning” form (see below).

- Judy Kinebrew, EMA Director
- Lee Helms, Consultant, LHA
- Micha Segrest, Town Clerk, Town of Franklin
- Faydra Hall, Administrative Assistant, Macon County EMA
- Melissa T. Williams, Human Resources Coordinator, Macon County BOE/PD Coordinator
- Michael Knowles, Chief, Notasulga Police Department
- Gertrude Benjamin, Treasurer, Macon County Commission
- Benjamin Rackley, Director, Blackbelt Medical Reserve Corps
- John Crozier, Safety, CFP, QC Director, Tuskegee Housing Authority
- Jennifer Jordan, Assistant Chief of Police, Tuskegee University Police Department
- David Hurley, Compliance Officer, Macon County
- Andre Brunson, Sheriff, Macon County/District & Rec. Offices, Macon County BOE
- J. D. Smith, County Engineer, Macon County Road and Bridge
- Michael Clements, Chief, Franklin Police Department
- Valerie Smith, EOC Coordinator, Town of Shorter
- Curwin Lancaster, Financial Support/Food Assistance Supervisor, Department of Human



## Resources

- Tommy Miller, Chief Deputy, Macon County Sheriff Department/E911 Director/Mayor, Town of Notasulga
- Shelemara Johnson, Management Case Worker, American Red Cross

## MACON COUNTY

Monday, September 29, 2014 at 9:30 a.m. – E-911 Communications Center, 242 Co. Rd. 10

### MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Ms. Shellenne Johnson	Agency: American Red Cross Job Title: Mgmt. Case worker	Phone: 334-727-1300 Fax:	shayjohnson1000@yahoo.com
Micha Segrest	Agency: Town of Franklin Job Title: Town clerk	Phone: 334-727-2111 Fax:	msegrest@franklinalabama.com
Tommy Miller	Agency: Macon <sup>County</sup> Sheriff's Office Job Title: Director Chief Deputy Mayor	Phone: 334-727-1911 Fax: 334- <del>727</del> -4645	tmiller4610@gmail.com
Judy E. Kinebrew	Agency: MC EMA Job Title: Director	Phone: 334-724-2626 Fax: " 727-1911	emamac@bellsouth.net
Faydra W. Hall	Agency: Macon Co EMA Job Title: Admin Asst.	Phone: 334-724-2626 Fax: 334-727-1911	emamac@bellsouth.net
Lee Helms	Agency: Lee Helms Associates Job Title: Owner Contractor	Phone: 205-280-3027 Fax: 205-280-0543	lee@leehelmsllc.com



## MACON COUNTY

Monday, September 29, 2014 at 9:30 a.m. – E-911 Communications Center, 242 Co. Rd. 10

### MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Melissa T. Williams	Agency: Macon County BOC Job Title: Human Resources Director/Coordinator	Phone: 334 727-1600 xt. 11009 Fax: 334 724-9990	williamsmt@maconki2.org williamsmt08@gmail.com
Michael Knowler	Agency: Notashua Police Dept Job Title: Chief	Phone: 334-257-3444 Fax: 334-257-3333	notashua.police@gmail.com
Gertrude Benjamin	Agency: M.C. Commission Job Title: Treasurer	Phone: 334 727-5120 Fax: 334 724-2508	maecome@charter.net
Curvin B Lancaster	Agency: Macon County DHR Job Title: Food Assistance Supervisor	Phone: (334) 725-2143 Fax: (334) 725-2200	
Valerie Smith	Agency: Town of Shuler Job Title: EPC Coordinator	Phone: 334 727-9190 ext 105 Fax: 334 720-1180	vsmith@shuleralbama.com
Bensamin Rachtz	Agency: Blackbelt MRC Job Title: Director	Phone: 334 729-0550 x 3586 Fax: 334 725-7452	BPRack@bellsouth.net



## MACON COUNTY

Monday, September 29, 2014 at 9:30 a.m. – E-911 Communications Center, 242 Co. Rd. 10

### MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
John Crozier	Agency: Tuskegee Housing Authority Job Title: Safety, CFP QC Director	Phone: 334-481-2723 Fax: 334-727-7655	jcrozier@tuskegeehpa.org
JD SMITH	Agency: Macon County Remo & Buiss Job Title: ENGINEER	Phone: 334 724 2619 Fax: 334 727 2907	j.d.smith@mcme.com
Michael T. Clements	Agency: Franklin Job Title: Chief	Phone: (334) 727-1330 Fax: (334) 226-1103	michael.clements@fpa.org
Jennifer Jordan	Agency: TUPD Job Title: Asst Chief of Police	Phone: 334-339-1918 Fax:	jordan.j@mytu.tuskegee.edu
Andria Brunson	Agency: Board of Ed Job Title: District Resource Off.	Phone: (334) 339-0522 Fax:	Andria.brunson.SI@yeshiva.com
David Hurley	Agency: compliance office Job Title: compliance officer	Phone: (334) 421-1418 Fax:	DHurley518@gmail.com



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## CITIZEN INPUT ON HAZARD MITIGATION PLANNING

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

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

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

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

If so, which ones? List by letter designation: \_\_\_\_\_

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

If so, which ones? List by letter designation: \_\_\_\_\_

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

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

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

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

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

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

If yes, is it on right now? YES \_\_\_\_\_ NO \_\_\_\_\_

Are you familiar with the Emergency Alert System YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

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

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

Name	
Mailing Address	
Contact Number	
E-Mail	

Questions?



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### ***Interagency and Intergovernmental Coordination***

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

#### **Federal Agencies**

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

#### **State Agencies**

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

## **Regional Agencies**

- South Central Alabama Development Commission (SCADC) provided area planning and development and transportation planning information, as well as maps pertaining to plan information

## **Local Agencies**

- Macon County Emergency Management Agency provided assistance in gathering data

## **Academia**

- University of Alabama - Department of Geology

## ***Integration with Existing Plans***

Careful attention was taken when updating the plan so that it would not contradict or conflict with any existing local subdivision regulations, zoning ordinances, comprehensive plans, or standard building codes, if any. **Table 1-1** provides a list of the existing plans by jurisdiction. Wherever appropriate, the South Central Alabama Development Commission (SCADC) economic development planning efforts have been integrated into this plan revision. Of possible interest to those viewing this plan, the SCADC also provides Macon County with a Community Development, Economic Development and Rural Transportation Planning and GIS Mapping.

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

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

### ***Plan Adoption***

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

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

<b>PLAN/POLICY</b>	<b>Franklin</b>	<b>Notasulga</b>	<b>Shorter</b>	<b>Tuskegee</b>	<b>Macon County</b>
<b>Comprehensive Plan</b>		X	X	X	X
<b>Strategic Plan</b>					
<b>Growth Management Plan</b>					
<b>Capital Improvement Plan</b>					
<b>Zoning Ordinance</b>		X	X	X	X
<b>Building Code</b>					
<b>Floodplain Management Plan</b>		X	X	X	X
<b>Elevation Certificates</b>	X			X	X
<b>Drainage Ordinance</b>					
<b>Emergency Management Plan</b>	X	X	X	X	X
<b>Critical Facilities Map</b>					
<b>Existing Land Use Map</b>					
<b>State Plan</b>	X	X	X	X	X
<b>Hazard Mitigation</b>	X	X	X	X	X
<b>Strategic National Stockpile Plan</b>	X	X	X	X	X
<b><i>Other</i></b>					

*Source: Participating Jurisdictions, 2014*

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## **Section Two: General Characteristics**

Macon County located in East Central Alabama is primarily a rural county with four incorporated municipalities: Franklin, Notasulga, Tuskegee and Shorter. Macon County is located within 50 miles of Montgomery, Auburn, Opelika and Columbus, Georgia. The Counties of Lee to the northeast, Tallapoosa to the west central, Elmore to the northwest, Montgomery to the southwest, Bullock to the south and Russell to the central southeast. According to the 2010 Census, Macon County has 608.88 square miles of land area and approximately 4.32 square miles of water area. See **Map 2-1: Macon County General Location and Population Density Map**. Macon County is governed by County Commissioners who are elected by citizens in their commission districts. The chairmanship rotates on a regular basis so that each commissioner will serve a term as chairman. An elected mayor and council serve each municipality. The City of Tuskegee, located in the north central part of the county, serves as the Macon County seat and is the predominant center for local business and trade.

Macon County has one airport, Moton Field Municipal Airport, located three nautical miles (3.5 miles) north of the central business district of Tuskegee and owned by the City of Tuskegee. The airport is a general aviation facility and does not provide commercial service. Moton Field is home to the Tuskegee Airmen National Historic Site. The major highways in Macon County are Interstate 85 across the northern portion of the county and U. S. 29, U. S. Highway 80 and Alabama Highways 14, 51, 81 and 199. The county is served by a north-south railway used by CSX and Norfolk Southern. Utilities in Macon County include cable, electricity, gas, Internet, propane, telephone, water, sewer, and trash. Electrical service is provided by Alabama Power and Dixie Electric Cooperative and gas is supplied by Alabama Gas Corporation. AT&T provides telecommunication services. Water and sewer service is provided by municipal or rural systems.






### ***Growth Trends***

Macon County's population decreased 10% from 2010 to 2015. County projections show a 20% decrease in population from 2010 to 2035. **Map 2-1: Macon County General Location and Population Density Map** depict the newest 2010 Census Tracts and population concentrations



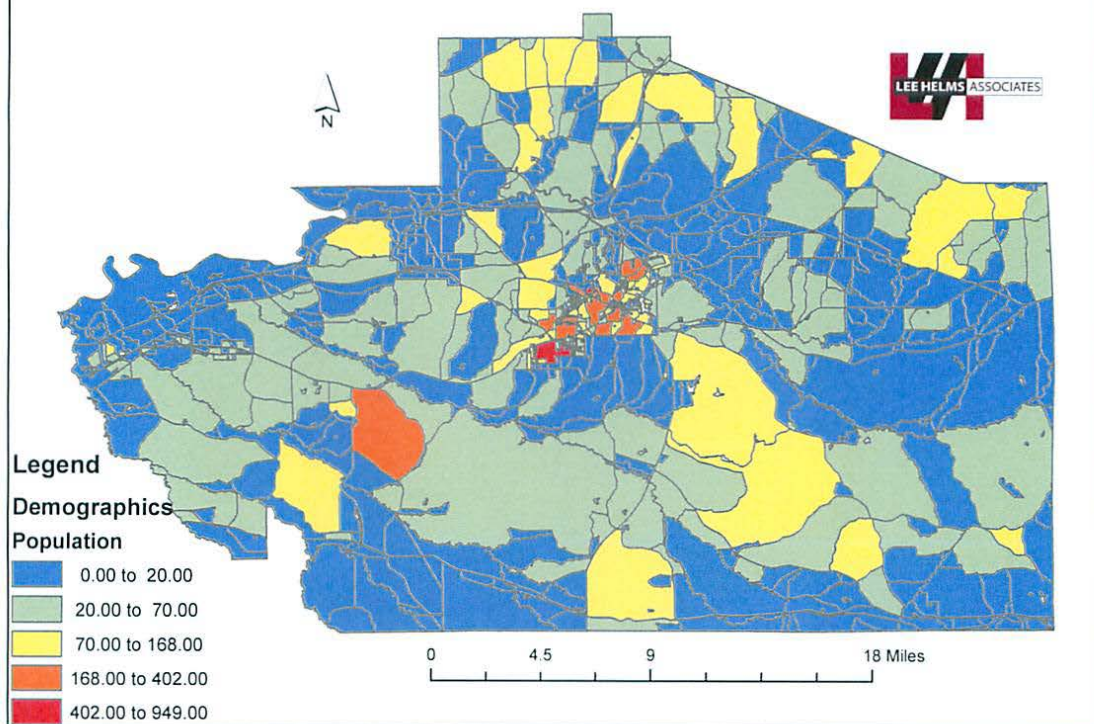
in Macon County. **Table 2-1** below shows the growth trends for the county and its municipalities compared to the State of Alabama.

**Table 2-1: Growth Trends 2010-2035**

	2010	2015	2020	2025	2030	2035	Change Number	Percent
<b>Franklin</b> 	149	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	U.S. Decennial Census estimates a decline of -10%
<b>Notasulga</b> (portion in Macon County) 	965	873	842	Unavailable	Unavailable	Not Available	-123	-13%
<b>Shorter</b> 	474	419	399	Unavailable	Unavailable	Not Available	-75	-16%
<b>Tuskegee</b> 	9,865	8,972	8,637	Unavailable	Unavailable	Not Available	-1,228	12%
<b>Macon County</b> 	21,452	19,246	18,633	18,070	17,557	17,060	-4,392	-20%
<b>Alabama</b>	4,779,736	4,931,768	5,096,521	5,244,137	5,373,294	5,486,147	706,411	15%

Source: 2010 U.S. Bureau of Census; Calculations by LHA, 2016

Map 2-1: Macon County General Location and Population Density





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## **General Geology**

*(Sources: 2009 Macon County's Hazard Mitigation Plan, U. S. Department of the Interior/U. S. Geological Survey)*

Geologic units in Macon County, Alabama include the following:

There are six major soil associations within the boundaries of Macon County: Izagora-Geiger-Una (AL112), Luvern-Marvyn-Cowarts (AL128), Congaree-McQueen-Mantachie (AL141), Oktibbeha-Luverne-Sumber (AL168), Troup-Dothan-Conecuh (AL169) and Luverne-Cowarts-Troup (AL172).

Soils in the Izagora-Geiger-Una association are deep, poorly drained to moderately well drained soils found in flood plains, stream banks and terraces in the Coastal Plain. Slopes range from 0 to 8 percent. These soils are subject to occasional or frequent flooding in the late winter and early spring due to poor to moderate permeability, slow to medium runoff and a high water table in the Geiger series.

The Luverne-Marvyn-Cowarts Association consists of deep to very deep, well-drained, moderately slowly to moderately permeable soils formed in the stratified marine or loamy marine sediments of the Southern Coastal Plain. These soils are on gently to steeply sloping on uplands, side slopes and ridgetops of uplands, with slopes ranging from 0 to 15 percent in the Luverne and Marvyn series and 1 to 25 percent in the Cowarts series.

Soils in the Congaree-McQueen-Mantachie Association are deep to very deep, somewhat poorly to moderately well drained, and formed in fluvial and alluvial sediments. Runoff of these soils is slow to moderate with moderate permeability. Slopes are minimal, usually between 0 to 5 percent, but having a range from 0 to 15 percent in the McQueen series. Soils in this association are found on stream terraces and in flood plains that flood late in winter and early spring.

The Oktibbeha-Luverne-Sumter Association consists of very deep to moderately deep soils that are moderately to well drained. They are found in the Southern Coastal Plain and Blackland Prairies on steep dissected uplands, convex ridgetops, and side slopes. Slopes are steep ranging from 1 to 45 percent. Permeability is very slow to moderately slow and runoff is medium to rapid.

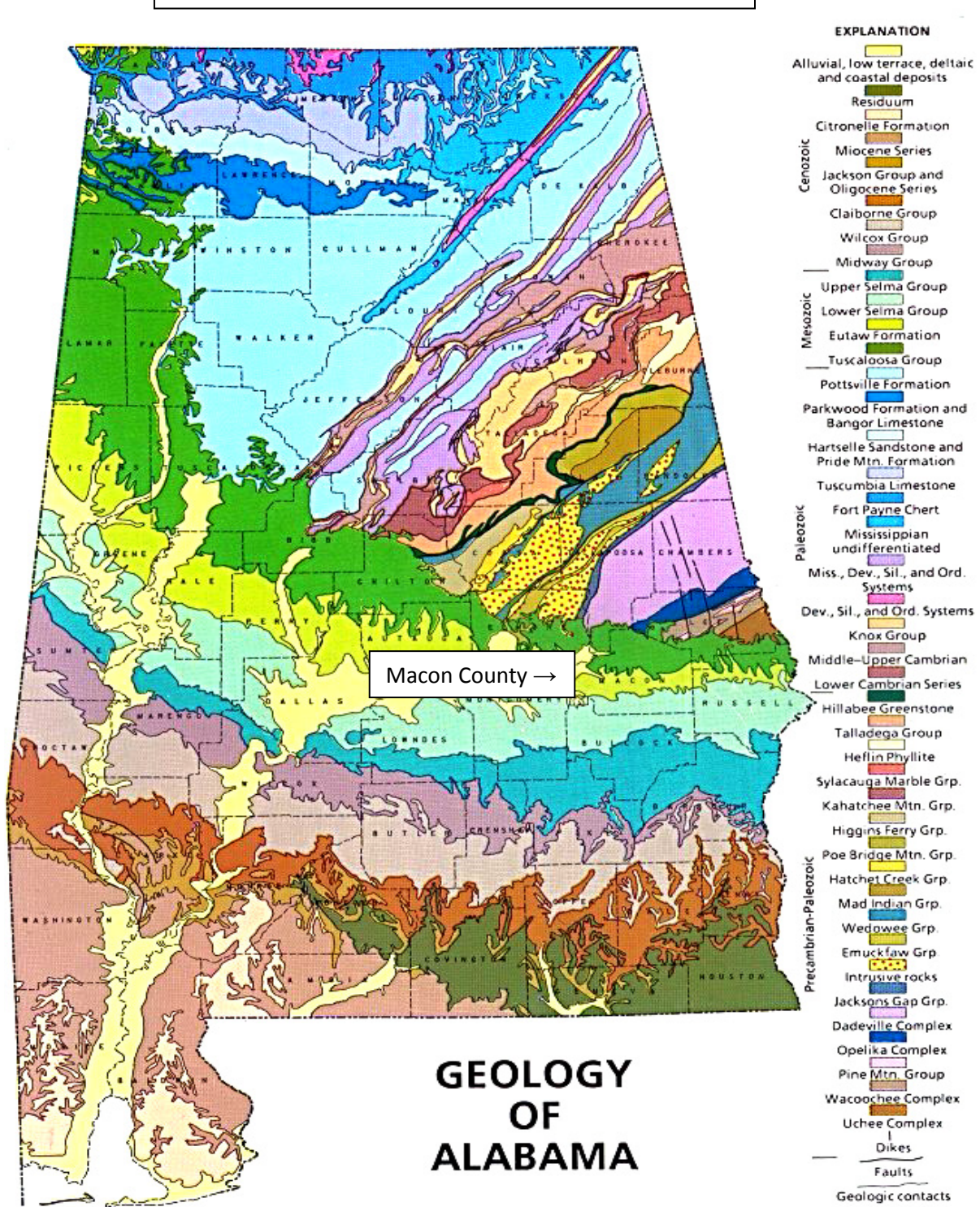
The Troup-Dothan-Conecuh Association consists of soils that are deep to very deep, moderately well drained to excessively well drained, and very slowly to moderately permeable. These soils are on broad, nearly level to strongly sloping uplands of the Coastal Plain with slopes ranging from 0 to 12 percent in the Dothan series and 0 to 40 percent in the Troup and Conecuh series.

Soils in the Luverne-Cowarts-Troup Association are deep to very deep, moderately well drained to excessively well drained, with moderately slow permeability in the Luverne and Cowarts series and moderate to rapid permeability in the Troup series. These soils are formed in the stratified and loamy marine sediments of the Coastal Plain. They are found on gently sloping to steep dissected uplands and ridgetops and side slopes of uplands. Slopes range from 1 to 25 percent in the Cowarts series and 0 to 45 percent in the Luverne and Troup series. Runoff in the Luverne and Cowarts series is medium to rapid and slow in the Troup series.

Generally, the soils of Macon County are poorly suited to urban uses due to steep slopes, low strength, restricted permeability and wetness and flooding conditions. These soils are, however, generally well-suited to woodlands with some restrictions for use of equipment due to erosion hazards and wetness and flooding conditions. A small portion of the soils are suited to cultivated crops, pasture and hay, but even so have flooding and wetness restrictions.



**Figure 2-1: Geology of Alabama**  
 (Source: University of AL – Geology Department)



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### Section Three: Risk Assessment

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

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

**Table 3-2** shows the hazards that pose a threat to each jurisdiction. Each jurisdiction was responsible for identifying the hazards that pose a threat to their community. During the 2009 plan update and for subsequent plan updates, avalanche, coastal erosion, tsunami and volcano hazards were removed from the plan based on committee consensus that the hazard(s) did not pose a threat to the county or its jurisdictions.

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

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

**Tables 3-5** is the cornerstone for the hazard profiles that follow in this section. This table contains data from the NOAA NCDC for a defined ten-year study period of January 1, 2005 – December 31, 2015. The table shows events for all hazard types and provides the location, date, type, magnitude, deaths and injuries, dollar amounts for property and crop damages, and total damages.

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

historical reference that utilized verifiable sources.

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

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

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

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

For the 2015 plan update, the probability (%) that an identified hazard will occur on an annual basis was determined using the following formula:

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

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

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

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

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

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<b>Table 3-1: Macon County Hazard Probability of Future Occurrence</b>			
<b>Natural Hazards</b>	<b>Number of Occurrences Between 2005-2015</b>	<b>Probability of Future Occurrence</b>	<b>Area Affected</b>
<b>Thunderstorm</b>	25	>100%	Countywide
<b>Lightning</b>	Unknown	Unknown	Countywide
<b>Hail</b>	16	>100%	Countywide
<b>Tornado</b>	10	100%	Countywide
<b>Floods/Flash Floods</b>	4	40%	Countywide
<b>Droughts/Extreme Heat</b>	56	>100%	Countywide
<b>Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold</b>	3	30%	Countywide
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	7	70%	Countywide
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	Countywide
<b>Landslide</b>	Unknown	Unknown	Countywide
<b>Earthquake</b>	Unknown	Unknown	Countywide
<b>Dam/Levee Failure</b>	Unknown	Unknown	Countywide
<b>Wildfire</b> (3-year study period)	245	>100%	Countywide
<i>Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; Alabama Geological Survey, 2016</i>			
Methodology: Probability of Future Occurrences was expressed by dividing the total number of occurrences by the ten-year study period, with the exception of wildfire being a 3-year study period. Zero or unknown denotes no data available to determine the probability of future occurrence or areas affected.			

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

<b>Natural Hazards</b>	<b>Franklin</b>	<b>Notasulga</b>	<b>Shorter</b>	<b>Tuskegee</b>	<b>Macon County</b>
<b>Thunderstorm</b>	X	X	X	X	X
<b>Lightning</b>	X	X	X	X	X
<b>Hail</b>	X	X	X	X	X
<b>Tornado</b>	X	X	X	X	X
<b>Floods/Flash Floods</b>	X	X	X	X	X
<b>Drought/Extreme Heat</b>	X	X	X	X	X
<b>Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold</b>	X	X	X	X	X
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	X	X	X	X	X
<b>Sinkhole/Expansive Soil</b>	X	X	X	X	X
<b>Landslide</b>	X	X	X	X	X
<b>Earthquake</b>	X	X	X	X	X
<b>Wildfire</b>	X	X	X	X	X
<b>Dam/Levee Failure</b>	N/A	X	N/A	X	X

*Source: Participating Jurisdictions 2016*

<b>Table 3-3: Macon County Prioritized Occurrence Threat by Jurisdiction Based on Past Events</b>					
<b>Natural Hazards</b>	<b>Franklin</b>	<b>Notasulga</b>	<b>Shorter</b>	<b>Tuskegee</b>	<b>Macon County</b>
<b>Thunderstorm</b>	4	5	5	4	3
<b>Lightning</b>	6	8	9	8	9
<b>Hail</b>	6	4	4	7	4
<b>Tornado</b>	6	7	8	6	5
<b>Floods/Flash Floods</b>	5	7	7	6	7
<b>Drought/Extreme Heat</b>	2	2	2	2	2
<b>Winter Weather/ Frost Freeze/Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold</b>	4	6	6	5	8
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind</b>	3	3	3	3	6
<b>Sinkhole/Expansive Soil</b>	6	8	9	8	9
<b>Landslide</b>	6	8	9	8	9
<b>Earthquake</b>	6	8	9	8	9
<b>Wildfire</b> (3-year study period)	1	1	1	1	1
<b>Dam/Levee Failure</b>	6	8	9	8	9
<i>Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey, 2016</i>					
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 3 years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.					

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

<b>Natural Hazards</b>	<b>Franklin</b>	<b>Notasulga</b>	<b>Shorter</b>	<b>Tuskegee</b>	<b>Macon County</b>
<b>Thunderstorm</b>	2	2	2	2	3
<b>Lightning</b>	6	5	5	5	7
<b>Hail</b>	2	2	2	2	3
<b>Tornado</b>	2	1	1	1	3
<b>Flood/Flash Flood</b>	1	1	1	1	1
<b>Drought/Extreme Heat</b>	3	3	3	3	4
<b>Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold</b>	6	5	5	5	6
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	2	2	2	2	3
<b>Sinkhole/Expansive Soil</b>	5	4	4	4	5
<b>Landslide</b>	5	4	4	4	5
<b>Earthquake</b>	6	4	4	4	6
<b>Wildfire</b>	4	4	4	4	2
<b>Dam/Levee Failure</b>	6	5	5	5	6
<i>Source: Participating Jurisdictions, 2016</i>					



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

**TABLE 3-5: MACON COUNTY HAZARD EVENTS**

**25 Thunderstorm Events** – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MILSTEAD</a>	MACON CO.	AL	03/31/2005	00:20	CST	Thunderstorm Wind	52 kts. EG	0	0	7.00K	0.00K
<a href="#">HARDAWAY</a>	MACON CO.	AL	03/31/2005	00:20	CST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	04/30/2005	06:44	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	03/20/2006	19:45	CST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
<a href="#">PLEASANT HILL</a>	MACON CO.	AL	01/05/2007	07:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	04/04/2008	17:46	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">FT DAVIS</a>	MACON CO.	AL	06/15/2008	13:48	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">HANNON</a>	MACON CO.	AL	07/21/2008	12:35	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">POLECAT SPGS</a>	MACON CO.	AL	04/10/2009	19:59	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">LITTLE TEXAS</a>	MACON CO.	AL	04/19/2009	20:35	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">CREEK STAND</a>	MACON CO.	AL	04/19/2009	20:40	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	05/03/2009	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
<a href="#">HARDAWAY</a>	MACON CO.	AL	07/05/2009	18:08	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

<a href="#">GREENWOOD</a>	MACON CO.	AL	06/05/2010	12:20	CST-6	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
<a href="#">FRANKLIN</a>	MACON CO.	AL	08/22/2010	14:25	CST-6	Thunderstorm Wind	65 kts. EG	0	0	5.00K	0.00K
<a href="#">COTTON VLY</a>	MACON CO.	AL	02/28/2011	18:21	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">TUSKEGEE INSTITUTE</a>	MACON CO.	AL	04/04/2011	21:20	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
<a href="#">GREENWOOD</a>	MACON CO.	AL	07/01/2011	16:06	CST-6	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	11/16/2011	11:32	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">TUSKEGEE MOTON ARPT</a>	MACON CO.	AL	07/05/2012	17:58	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	12/10/2012	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">FRANKLIN</a>	MACON CO.	AL	12/10/2012	13:56	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	12/25/2012	23:06	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">GREENWOOD</a>	MACON CO.	AL	07/23/2013	15:33	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/24/2015	18:49	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	128.50K	0.00K

**0 Lightning Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No lightning events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**16 Hail Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MILSTEAD</a>	MACON CO.	AL	03/27/2005	15:04	CST	Hail	0.88 in.	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	03/27/2005	15:52	CST	Hail	1.75 in.	0	0	11.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	03/30/2005	23:10	CST	Hail	1.75 in.	0	0	18.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	04/22/2005	15:14	CST	Hail	1.00 in.	0	0	1.00K	0.00K
<a href="#">FT DAVIS</a>	MACON CO.	AL	04/22/2005	19:32	CST	Hail	0.75 in.	0	0	1.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	08/16/2005	15:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	08/16/2005	15:28	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">MILSTEAD</a>	MACON CO.	AL	09/28/2006	16:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	11/15/2006	12:15	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/15/2010	16:05	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
<a href="#">LA PLACE</a>	MACON CO.	AL	03/26/2011	15:26	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	03/27/2011	21:35	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/16/2011	09:33	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/01/2011	16:06	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
<a href="#">HORNADY</a>	MACON CO.	AL	01/21/2012	12:47	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	03/18/2013	16:58	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	31.00K	0.00K

**10 Tornado Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">SHORTER</a>	MACON CO.	AL	07/06/2005	12:55	CST	Tornado	F0	0	0	18.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/06/2005	13:34	CST	Tornado	F1	0	1	48.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	08/29/2005	15:19	CST	Tornado	F0	0	0	30.00K	0.00K
<a href="#">LITTLE TEXAS</a>	MACON CO.	AL	04/11/2007	16:54	CST-6	Tornado	EF1	0	0	10.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	04/10/2009	19:29	CST-6	Tornado	EF1	0	0	200.00K	0.00K
<a href="#">CHESSON</a>	MACON CO.	AL	04/10/2009	20:16	CST-6	Tornado	EF0	0	0	3.00K	0.00K
<a href="#">HARDAWAY</a>	MACON CO.	AL	04/10/2009	20:20	CST-6	Tornado	EF1	0	0	10.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	11/16/2011	11:52	CST-6	Tornado	EF1	0	0	500.00K	0.00K
<a href="#">CHEHAW</a>	MACON CO.	AL	04/11/2013	19:34	CST-6	Tornado	EF2	0	1	0.00K	0.00K
<a href="#">SOCIETY HILL</a>	MACON CO.	AL	04/29/2014	02:25	CST-6	Tornado	EF0	0	0	0.00K	0.00K
<b>Totals:</b>								0	2	819.00K	0.00K

#### 4 Flood/Flash Flood Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	17.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/10/2005	16:47	CST	Flash Flood		0	0	6.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	05/07/2009	07:00	CST-6	Flash Flood		0	0	100.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	12/24/2015	11:00	CST-6	Flash Flood		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	123.00K	0.00K

#### 56 Drought/Extreme Heat Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/14/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/23/2010	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/04/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K



<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**3 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/09/2011	20:20	CST-6	Ice Storm		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/28/2014	08:20	CST-6	Winter Weather		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	0	25.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	65.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/12/2005	04:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/05/2011	21:30	CST-6	Strong Wind	39 kts. EG	0	0	8.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/18/2014	18:15	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
<b>Totals:</b>								0	0	104.00K	0.00K

**0 Sinkhole Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No sinkhole events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Landslide Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No landslide events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Earthquake Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**245 Wildfire Events** – 2010 thru 2013

*(Source: Alabama Forestry Commission)*

County	Total # of Fires	Annual Average # of Fires	Total Acres Burned	Annual Average Acres Burned	Average Fire Size
Macon	245	82	7,015.50		

**0 Dam/Levee Failure Events** – 01/01/2005 thru 12/31/2015 (4018 days)

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

No dam/levee failure events occurred or were reported during 01/01/2005 thru 12/31/2015.

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## Hazard Profiles

### I. Thunderstorms

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

Primary effects from thunderstorms in Macon County would include:

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

Hazardous results from significant thunderstorms in Macon County would include:

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

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

On June 5, 2010, afternoon thunderstorms driven by an unstable air mass resulted in isolated wind damage. Several trees were blow down in and around Tuskegee in the Greenwood Community, including along Elm Street and Main Street. One tree landed on a downtown

business resulting in severe damage. No injuries, deaths, or crop damages occurred. Property damages of \$50,000 resulted.

On August 22, 2010, surface dew points were in the 70s with dry air and weak flow aloft making conditions favorable for wet micro bursts. In addition, a weak frontal boundary moved through Central Alabama helping to focus lift. Ten or more trees were blown down southwest of Liberty Park City in the Franklin area. Winds of 65 knots or 75 miles per hour were measured by an emergency manager. No injuries, deaths, or crop damages occurred. Property damages of \$5,000 resulted from this event.

Macon County experienced 25 thunderstorm events in a 10 year period resulting in a greater than 100% (2.5) probability that a thunderstorm event will occur on an annual basis. The total amount of damages for the 25 thunderstorm events was \$128,500 with 18 thunderstorm events causing damage resulting in an estimated \$7,139 of expected annual damages from future events. The referenced thunderstorm events are the ones that resulted in the most damages, highest winds, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Macon County due to a thunderstorm event; the ranking is minor to major.

## II. Lightning

Lightning is a natural phenomenon associated with all thunderstorms but can occur in the absence of a storm. Lightning typically occurs as a by-product of a thunderstorm. Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences in charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning can occur between opposite charges within the thunderstorm cloud (Intra Cloud Lightning) or between opposite charges in the cloud and on the ground (Cloud-To-Ground Lightning). Cloud-to-ground lightning is divided two different types of flashes depending on the charge in the cloud where the lightning originates. Thunder is the sound made by a flash of lightning. As lightning passes through the air it heats the air quickly. This causes the air to expand rapidly and creates the sound wave we hear as thunder. Normally, you can hear thunder about 10 miles from a lightning strike. Since lightning can strike outward 10 miles from a thunderstorm, if you hear thunder, you are likely within striking distance from the storm. The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: National Weather Service/Lightning Safety Accessed 11/16/14*). Each jurisdiction is equally at risk for lightning events. Lightning strikes can cause power outages, fires, electrocution, and disruptions to communication systems. There were no lightning events reported to NOAA NCDC during the ten-year study period of 2005-2015. **Table 3-5** shows the nonexistence of historical occurrences of lightning during the study period. While the State of Alabama experienced 14 deaths and 59 injuries as a result of lightning strikes during 2005 – 2015, none occurred in Macon County.

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

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

air near the lightning that causes a shock wave.

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

According to the National Oceanic and Atmospheric Administration (NOAA), an average of 20 million cloud-to-ground flashes has been detected every year in the continental United States. About half of all flashes have more than one ground strike point, so at least 30 million points on the ground is struck on the average each year. In addition, there are roughly 5 to 10 times as many cloud-to-cloud flashes as there are to cloud-to-ground flashes (NOAA, July 7, 2003). During the years 2005-2015, Alabama experienced 14 deaths due to lightning (NOAA NCDC Storm Events). The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: NOAA, December 18, 2014*).

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

Macon County experienced 0 lightning events in a 10 year period resulting in an unknown probability that a lightning event will occur on an annual basis. The total amount of damages for the 0 lightning events is also unknown as is the expected annual damages from future events. The extent/range of magnitude or severity that could be experienced by Macon County due to a lightning event is minimum to minor. According to Vaisala Lightning Detection

Network, Macon County's extent of lightning is approximately 6-20 fl/sq km/yr.

Primary effects from lightning in Macon County would include:

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

Hazardous results from significant lightning in Macon 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.



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### III. Hail

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

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

**Table 3-6: Estimating Hail Size**

Size	Inches in Diameter
Pea	¼ inch
Marble/mothball	½ inch
Dime/Penny	¾ inch
Nickel	7/8 inch
Quarter	1 inch
Ping-Pong Ball	1 ½ inch
Golf Ball	1 ¾ inch
Tennis Ball	2 ½ inch
Baseball	2 ¾ inch
Tea Cup	3 inches
Grapefruit	4 inches
Softball	4 ½ inches

*Source: NWS, January 10, 2003*

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

The NOAA NCDC reported 16 hail events during the ten-year study period of 2005-2015. An estimated \$31,000 in property damage resulted from these events. No crop damage, injuries, or deaths were reported during these hail events. **Table 3-5** shows the historical occurrences of hail events during the study period. Each jurisdiction is at risk for hail. Of the events reported, zero affected the entire county, five occurred in an unincorporated county area, and the remaining eleven affected only specific municipalities.

On March 30, 2005, two severe thunderstorms followed in very close proximity to each other and produced a large swath of hail across parts of South Central Alabama. The largest hail reported was golf ball size and the hail covered the ground in many locations. The traffic on Interstate 85 was temporarily brought to a stop due to hail collecting on the roadway. Some of the locations that reported large hail included the Waugh community, Shorter, the Tyson community, Hope Hull, Montgomery, Loachapoka, Snowdoun, and Auburn. Numerous vehicles were damaged by the large hail. Macon County experienced hail magnitude of .75 inches (penny size) to 1.75 inches (golf ball size), resulting in \$31,000 property damage across the area. No injuries, deaths, or crop damages occurred.

Macon County experienced 16 hail events in a 10 year period resulting in a greater than 100% (1.60) probability that a hail event will occur on an annual basis. The total amount of damages for the 16 hail events was \$31,000 with 4 hail events causing damage resulting in an estimated \$7,750 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 Macon County due to a hail event; the ranking is minimum to minor. The extent of hail in Macon County is the largest recorded of 1.75 inches which occurred in four events during the study period.

Primary Effects from Hail in Macon County would include:

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

Hazardous results from significant Hail in Macon 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. Tornadoes**

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

**Figure 3-2** shows the FEMA designated wind zones in the United States. Macon County is located in Zone III which warrants profiling. Zone III has witnessed the second highest frequency of tornadoes of all zones. A total of ten tornadoes occurred in Macon County according to NOAA NCDC during 2005 - 2015. An estimated \$819,000 in property damages, no crop damage or deaths, and two injuries occurred as a result of the reported tornadoes.

An EF1 tornado event occurred on 11/16/2011 in the Notasulga Community, 2.01 miles in length and 700 yards wide. A tornado touched down in northeast Macon County south of Notasulga, east of County Road 81, along County Road 59. The tornado moved to the northeast, causing extensive tree damage. Approximately a dozen mobile homes sustained damage along County Road 54, before the tornado crossed into Lee County, south of Hunter Road. No injuries, deaths, or crop damages occurred. Property damages of \$500,000 resulted. (*Source: NCDC NOAA*)

A F1 tornado event occurred on July 6, 2005 in the Tuskegee Community. National Weather Service meteorologists surveyed the damage between near the Woodland Community and determined the damage was the result of a tornado. The tornado touched down at approximately 234 PM CDT near the intersection of County Road 56 and State Highway 199, about 8 miles northwest of Tuskegee. Several trees were snapped off or blown down along the short path. One auto body shop was totally destroyed. A man was injured when he was thrown several yards out of the auto body shop. A shed also sustained damage. At least three vehicles were heavily damaged by fallen trees. The tornado damage path was 1/10 of a mile long and 25 yards wide at its widest point. This tornado was spawned during Tropical Storm Cindy. No deaths or crop damages occurred. Property damages of \$48,000 and one injury resulted. (*Source: NCDC NOAA*)

An EF2 tornado event occurred in the Chehaw Community on April 11, 2013, 4.87 miles in length and 200 yards wide. National Weather Service meteorologists surveyed the damage in Macon and Lee Counties and have determined that the damage was due to an EF-2 tornado. Wind speeds in Macon County are estimated at 120 mph. The tornado initially touched down along St. John's Church Road at Saint John's Church. Several tree branches were damaged along with several overturned grave markers. The tornado continued north-northeast crossing Hardwich Street where several outbuildings sustained damage, and County Road 39 and State Road 14 where several additional homes and outbuildings were damaged or destroyed. On County Road 39, one brick home sustained major roofing loss and window glass breakage. One minor injury was caused from flying glass. Also in the same area, one mobile home had significant damage while another was completely destroyed. The tornado crossed State Road 14, strengthening to its maximum intensity. It significantly damaged a well-built two-story home, with considerable loss of roof material, one outer wall completely destroyed and another outer wall significantly damaged. Of note, the family of five took cover in an interior closet on the lowest level which kept them from injury. The tornado continued northeastward where it damaged an additional outbuilding pavilion, and crossed into Lee County, lifting along Roxana Road. No deaths, property or crop damages occurred. One injury resulted. (*Source: NCDC NOAA*)

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

Macon County experienced 10 tornado events in a 10 year period resulting in a 100% (1.00) probability that a tornado event will occur on an annual basis. The total amount of damages for the 10 tornado events was \$819,000 with 8 tornado events causing damage resulting in an estimated \$102,375 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 Macon County due to a tornado event; the ranking is major. The extent is a strong tornado (EF2) according to the Fujita-Pearson Scale of Tornado Intensity and 120 mph winds.

Primary effects from tornados in Macon 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 Macon County would include:

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

**Figure 3-1: Generalized Tornado Paths**

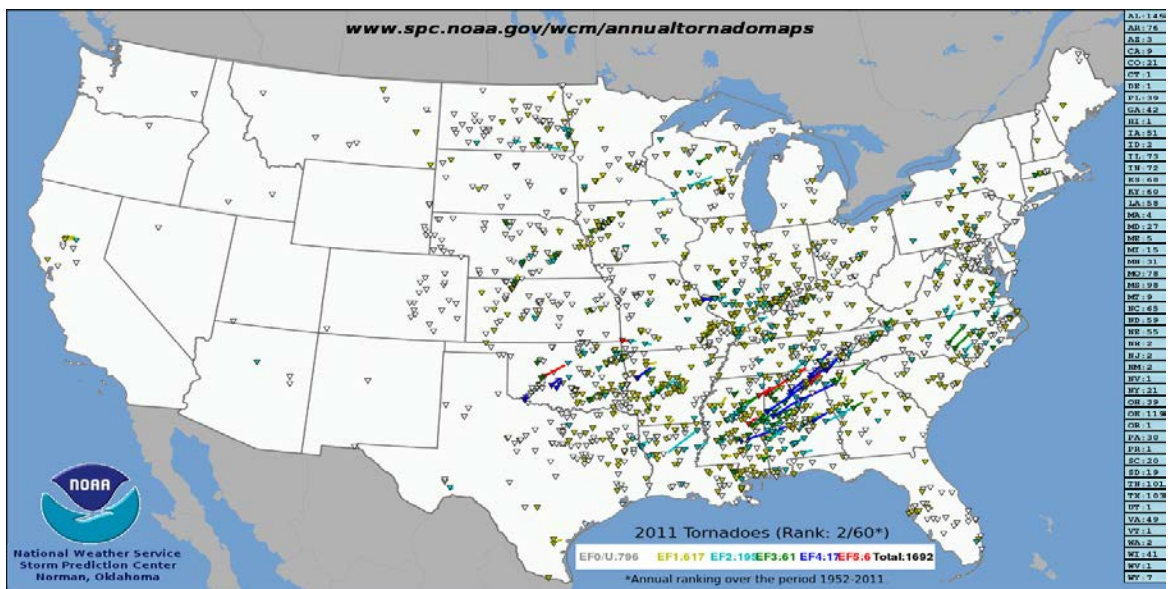


Figure 3-2: Wind Zones in the United States

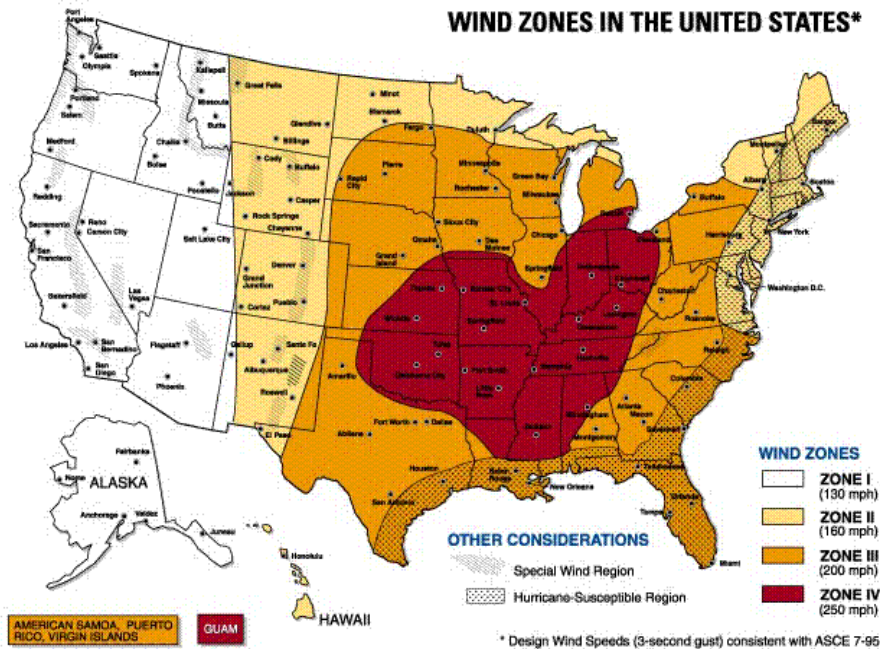


Figure I.2 Wind zones in the United States  
Source: [www.fema.gov](http://www.fema.gov), 2014

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

**Table 3-7: Fujita Tornado Scales**

**Fujita Tornado Scale**

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

**Enhanced Fujita Tornado Scale**

<b>Category</b>	<b>Wind Speed</b>	<b>Description of Damage</b>
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

There are three types of flooding that affect Macon County: (1) general flooding, (2) storm water runoff, and (3) flash flooding. General flooding occurs in areas where development has encroached into flood-prone areas. Storm water runoff causes flooding in areas that have inadequate drainage systems. Flash flooding is caused when a large amount of rain falls within a short period of time. **Table 3-5** shows severe flooding events in Macon County recorded by NOAA NCDC. Between 2005 and 2015 there were 4 occurrences; damages from these events were only as a result of flash flooding and totaled \$123,000 in property damage, no crop damage, no deaths, and no injuries.

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

Dam-break floods may occur due to structural failures (e.g., progressive erosion), overtopping or breach from flooding, or earthquakes. Dam failures are potentially the worst flood events. Dam safety has been an ongoing hazard mitigation issue in the State of Alabama for the past decade, especially for small dams that are privately owned and poorly maintained. No state law currently exists to regulate any private dams or the construction of new private dams, nor do private dams require federal licenses or inspections. There have been several attempts in the State of Alabama to pass legislation that would require inspection of dams on bodies of water over 50 acre-feet or dams higher than 25 feet. Enactment has been hampered by the opposition of agricultural interest groups and insurance companies. Approximately 1,700 privately owned dams would fit into the category proposed by the law.

According to *HAZUS MH 2.1*, Macon County has 23 High Density Polyethylene Earth (HPDE) Dams and one High Density Polyethylene Gravity Dam (HPDG), a high hazard dam (Tuskegee City Lake Dam) in the Tuskegee Community located along a tributary of Uphapee Creek; 23 low hazard dams, and one significant hazard dam in the unincorporated area of the county. In total there are 25 dams in Macon County – 24 HPDE and 1 HPDG dams – 1 High

Hazard, 01 Significant Hazard and 23 Low Hazard Dams. No historical records are available of dam/levee failures in Macon County. When a dam fails, a large quantity of water is suddenly released downstream, destroying anything in its path. The area impacted by the water emitted by dam failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide.

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

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

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

<b>Table 3-8: Flood Probability Terms</b>	
<b>Flood Recurrence Intervals</b>	<b>Percent Chance of Annual Occurrence</b>
10-Year	10.0%
50-Year	2.0%
100-Year	1.0%
500-Year	0.2%
<i>(Source: FEMA, 2014)</i>	

On May 7, 2009, a flash flood event occurred in the Shorter and Tuskegee Communities. No injuries, deaths, or crop damages occurred or were reported from this event. Flash flooding caused numerous roads to become impassable. High water was reported on several city and county roads, in and around the City of Tuskegee. Peak rainfall amounts approached 10 inches. No injuries, deaths or crop damages occurred. Property damages of \$100,000 resulted.

On March 27, 2005, Doppler radar estimated up to 3 inches of rain fell in a three hour period. This heavy rain fell on already saturated ground. Doppler radar estimated up to 8 inches of rain fell in a 24 hour period. Several roads were temporarily impassable due to high water. No injuries, deaths, or crop damages occurred or were reported from this event. Property damages of \$17,000 resulted.

On July 10, 2005, local effects from Hurricane Dennis were widespread across the county. U. S. Highway 80 in downtown Tuskegee was flooded and became temporarily impassable. Storm total rain amounts were 3-6 inches west of I-65 and 1-3 inches east of I-65. No injuries, deaths, or crop damages occurred or were reported from this event. Property damages of \$6,000 resulted.

On December 25, 2015, heavy rainfall led to flash flooding and washed out a section of County Road 59. Seven to eight bridges were washed out. No injuries, deaths, or crop damages occurred or were reported from this event. Property damage amounts are unknown.

Macon County experienced 4 flood/flash flood events in a 10 year period resulting in a

greater than 40% (0.40) probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 4 flood/flash flood events was \$123,000 with 4 flood/flash flood events causing damage resulting in an estimated \$41,000 of expected annual damages from future events. The referenced flood/flash flood event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Macon County due to a flood/flash flood event; the ranking is minor to major. The extent of flooding in Macon County is approximately 8-10 inches of water.

Primary Effects from Floods in Macon County would include:

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

Hazardous results from significant flood in Macon 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 inadaptible 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***

Macon 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. Currently Macon County and its jurisdictions, with the exception of Franklin, are participating in the NFIP. The Towns of Shorter and Notasulga have had no elevation determined. The National Flood Insurance Program (NFIP) requires local participation to receive grant assistance. **Table 3-9** shows the current NFIP status of each jurisdiction. Flood Mitigation Assistance Program (FMA) - This program now allows for additional cost share flexibility: up to 100% federal cost share for severe repetitive loss properties; up to 90% federal costs share for repetitive loss properties; and 75% federal cost share for NFIP insured properties.

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

### ***Regulations***

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

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

<b>Table 3-9: Macon County National Flood Insurance Program Status by Jurisdiction</b>						
<b>CID</b>	<b>Community Name</b>	<b>Initial FHBM Identified</b>	<b>Initial FIRM Identified</b>	<b>Current Eff. Map Date</b>	<b>Reg-Emer Date</b>	<b>Tribal</b>
010148#	Macon County	1/6/78	4/1/82	11/18/09	4/1/82	No
010385#	Town of Franklin	Not Participating	11/18/09	11/18/09	11/18/10	No
010512#	Town of Shorter	--	11/18/09	11/18/09 (M)	03/02/11	No
010150#	City of Tuskegee	8/16/74	1/6/82	11/18/09	1/6/82	No
010149#	Town of Notalsulga	10/25/74	11/24/78	11/18/09 (M)	11/24/78	No
<i>Key: M = No Elevation Determined – All Zone A, C and X</i>						
<i>Source: FEMA Community Status Book Report as of May 2, 2016</i>						

### ***Severe Repetitive Loss Properties and Repetitive Loss Properties***

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

There are no Severe Repetitive Loss or Repetitive Loss properties in Macon County at this time.

## **VI. Drought/Extreme Heat**

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

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

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

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

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

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

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These

characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

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

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

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

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

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

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

long-term drought is the Palmer Index (PI). It has become the semi-official index of drought.

During the past ten years, Macon County experienced D2 Severe to D3 Extreme Drought in 2006, D1 Moderate Drought to D4 Exceptional Drought in 2007, D1 Moderate Drought to D4 Exceptional Drought in 2008, D2 Severe to D3 Extreme Drought in 2010, D2 Severe to D3 Extreme Drought in 2011, D2 Severe to D3 Extreme Drought in 2012 and D3 Extreme Drought in 2013. No deaths, injuries, property or crop damages were reported. The categories of drought are defined as follows (*Source <http://droughtmonitor.unl.edu> Accessed 11/16/14*): **Abnormally Dry (D0)** - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** - Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Macon County experienced 56 drought/extreme heat events in a 10 year period resulting in a greater than 100% (5.60) probability that a drought/extreme heat event will occur on an annual basis. The total amount of damages for the 56 drought/extreme heat events was \$0 or unknown with no drought/extreme heat events causing damage resulting in an unknown estimate of expected annual damages from future events. The referenced drought event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Macon County due to a drought event; the ranking is minimum to minor. Macon County's extent for drought is exceptional (D4).

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

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

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

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

- Heatstroke is considered a medical emergency and is often fatal. It exists when rectal temperature rises above 105°F as a result of environmental temperatures. Patients may be delirious, stuporous, or comatose. The death to care ratio in reported cases averages about 15%.
- Heat Exhaustion is much less severe than heatstroke. The body temperature may be normal or slightly elevated. A person suffering from heat exhaustion may complain of dizziness, weakness or fatigue. The primary cause of heat exhaustion is fluid and electrolyte imbalance. The normalization of fluids will typically alleviate the situation.

- Heat Syncope is typically associated with exercise by people who are not acclimated to exercise. The symptom is a sudden loss of consciousness. Consciousness returns promptly when the person lies down. The cause is primarily associated with circulatory instability as a result of heat. The condition typically causes little or no harm to the individual.
- Heat Cramps are typically a problem for individuals who exercise outdoors but are unaccustomed to heat. Similar to heat exhaustion it is thought to be a result of a mild imbalance of fluids and electrolytes.

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

**Table 3-10: Heat Index/Heat Disorders**

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

*(Source: National Weather Service, 2014)*

Droughts and heat waves have a county-wide impact. The future incidence of drought is highly unpredictable, conditions may be localized or widespread, and not much historical data is available making it difficult to determine the future probability of drought conditions with any accuracy. The qualitative probability rating for drought is high.

**Table 3-5** reflects that the NOAA NCDC reported 33 instances of drought for Macon County from 2003-2013. No crop or property damages were reported. There were no reports of extreme heat events during this ten year period.



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

Macon County is vulnerable to extreme winter weather conditions such as extreme cold temperatures, snow, and ice. **Table 3-5** shows the winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events that have affected Macon County from 2005 - 2015.

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

Macon County experienced a heavy snow event on February 12, 2010. A period of moderate to heavy snow led to significant accumulations across Macon County. Snowfall totals averaged 3 to 4 inches. Many roads, especially bridges and other elevated surfaces, became icy and hazardous. No injuries, deaths, crop, or property damages occurred.

On January 9, 2011, freezing rain and sleet resulted in ice accumulations of one quarter inch. No injuries, deaths, crop, or property damages occurred.

On January 28, 2014, a winter weather event occurred. A mix of winter precipitation resulted in hazardous travel conditions across Macon County. Snow accumulations between one to two inches were reported across the county. No injuries, deaths, crop, or property damages were reported.

Macon County experienced 3 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events in a 10 year period resulting in a 30% (0.30) probability that a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event will occur on an annual basis. The total amount of damages for the 3 winter storm/extreme cold/frost

freeze/heavy snow/ice storm/winter weather events was unknown with no winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events causing damage resulting in an unknown estimated amount of expected annual damages from future events. The referenced winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Macon County due to a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event; the ranking is minimum to minor. Macon County's extent of snow during this plan's study period is approximately 4 inches and ice accumulation is ¼ inch.

Primary effects from winter storms in Macon 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 Macon 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.

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

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

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

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

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

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

### **Saffir-Simpson Hurricane Wind Scale**

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

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

**Table 3-11: Saffir-Simpson Hurricane Wind Scale**

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	<b>Very dangerous winds will produce some damage:</b> 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	<b>Extremely dangerous winds will cause extensive damage:</b> 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	<b>Devastating damage will occur:</b> 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	<b>Catastrophic damage will occur:</b> 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	<b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

(Source: National Hurricane Center – NOAA, 2014)

### Threats Related to Hurricanes

Hurricanes impact regions in a variety of ways. The intensity of the storm, the speed of the winds, whether the storm moves through a region quickly or whether it stalls over one area all are variables toward the physical damage the storm will cause. Storm surges, high winds, and heavy rains are the three primary elements of hurricanes, while tornados and inland flooding are potential secondary elements caused in the wake of the storm. Macon County is not directly

affected by storm surges; therefore, no additional analysis will be completed on the topic.

On July 10, 2005, a tropical storm event causing numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Macon County. No injuries, deaths, or crop damages occurred. Property damages of \$25,000 resulted from this event.

On August 29, 2005, a tropical storm event causing numerous trees and power lines were knocked down as Tropical Storm Katrina moved across Macon County. At least a few homes were damaged. No injuries, deaths, or crop damages occurred. Property damages of \$65,000 resulted from this event.

On August 23, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Macon County area. No injuries, deaths, property or crop damages were reported from this event.

On November 9, 2009, the remnants of what was at one time Hurricane Ida brought very heavy rain and gusty winds up to 40 mph blowing down a few trees, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of \$2,000 resulted from this event.

Three strong wind events occurred in the county: April 12, 2005 resulting in 46 mph winds and \$1,000 property damage; September 5, 2011 resulting in 45 mph winds and \$8,000 property damage; and April 18, 2014 resulting in 40 mph winds and \$3,000 property damage. No injuries, deaths, or crop damages occurred from these events.

Macon County experienced 0 hurricanes, 2 tropical storms, 2 tropical depressions and 3 strong wind events in a 10 year period resulting in a 70% (0.70) probability that a hurricane/tropical storm/tropical depression/high wind/strong wind event will occur on an annual basis. The total amount of damages for the 0 hurricane, 2 tropical storm, 2 tropical depressions and 3 strong wind events was \$104,000 with 6 hurricane/tropical storm/tropical depression/ high wind/strong wind events causing damage resulting in an estimated \$17,333 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 Macon County due to a hurricane/tropical storm/tropical depression/high wind/strong wind event; the ranking is minor to major. The extent of the 2 tropical storm, 2

tropical depressions and 3 strong wind events in Macon County would be the highest documented wind speed of 46 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

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

## **IX. Sinkhole/Expansive Soil**

### ***Sinkholes***

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

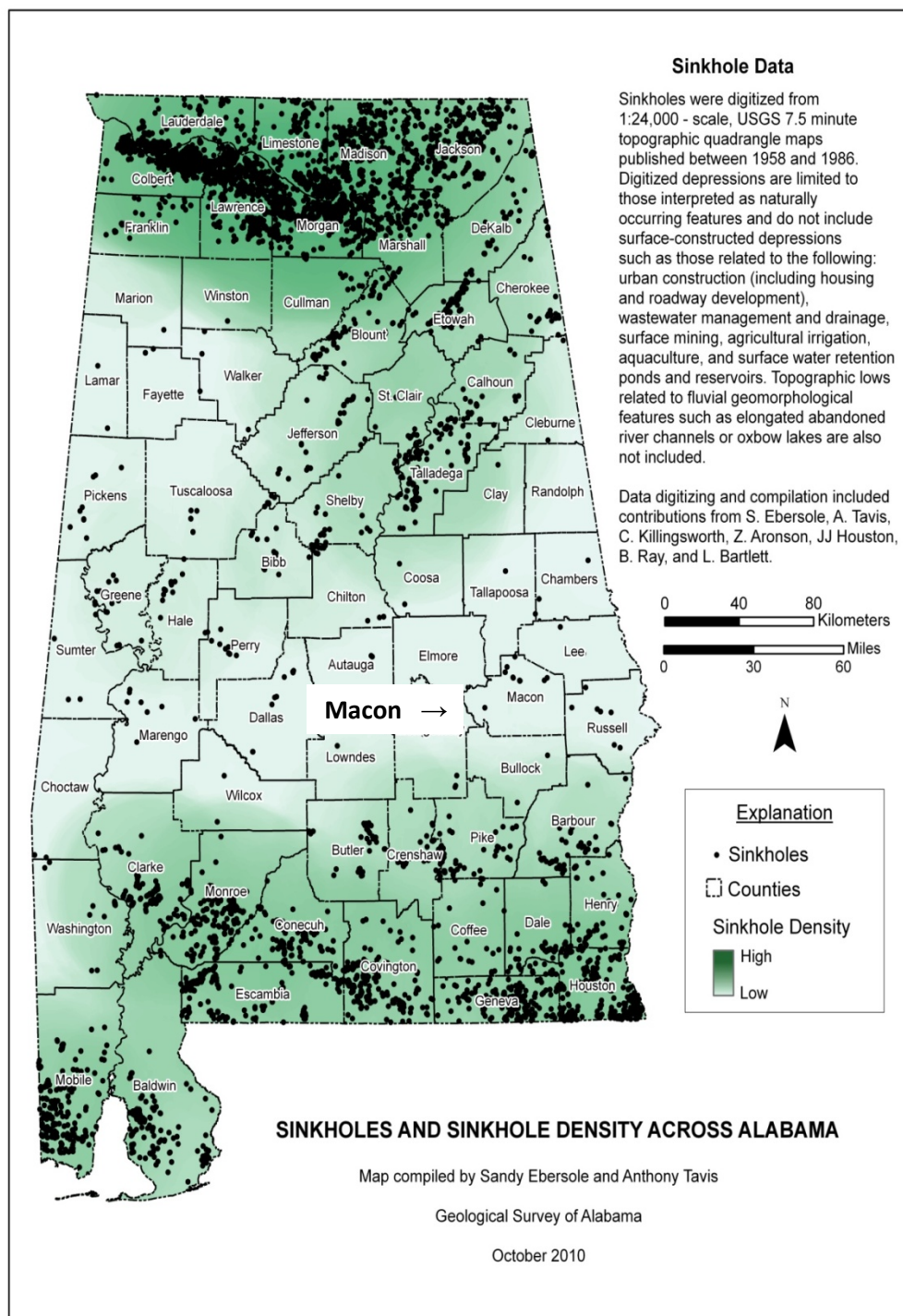
According to the Geological Survey of Alabama's sinkhole data as of 2010, Macon County has experienced sinkholes; however, the sinkhole density in Macon County is low. **Figure 3-3** shows sinkholes and sinkhole density in Macon County. There are outcrops of carbonite rocks in the southern portion of Macon County, making the area susceptible to sinkholes. No sinkholes have been reported in Macon County during the past five years.

Macon County experienced unknown sinkholes in a 10 year period resulting in an unknown percentage of probability that a sinkhole event will occur on an annual basis. The total amount of damages for a sinkhole event is also unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

### ***Expansive Soils***

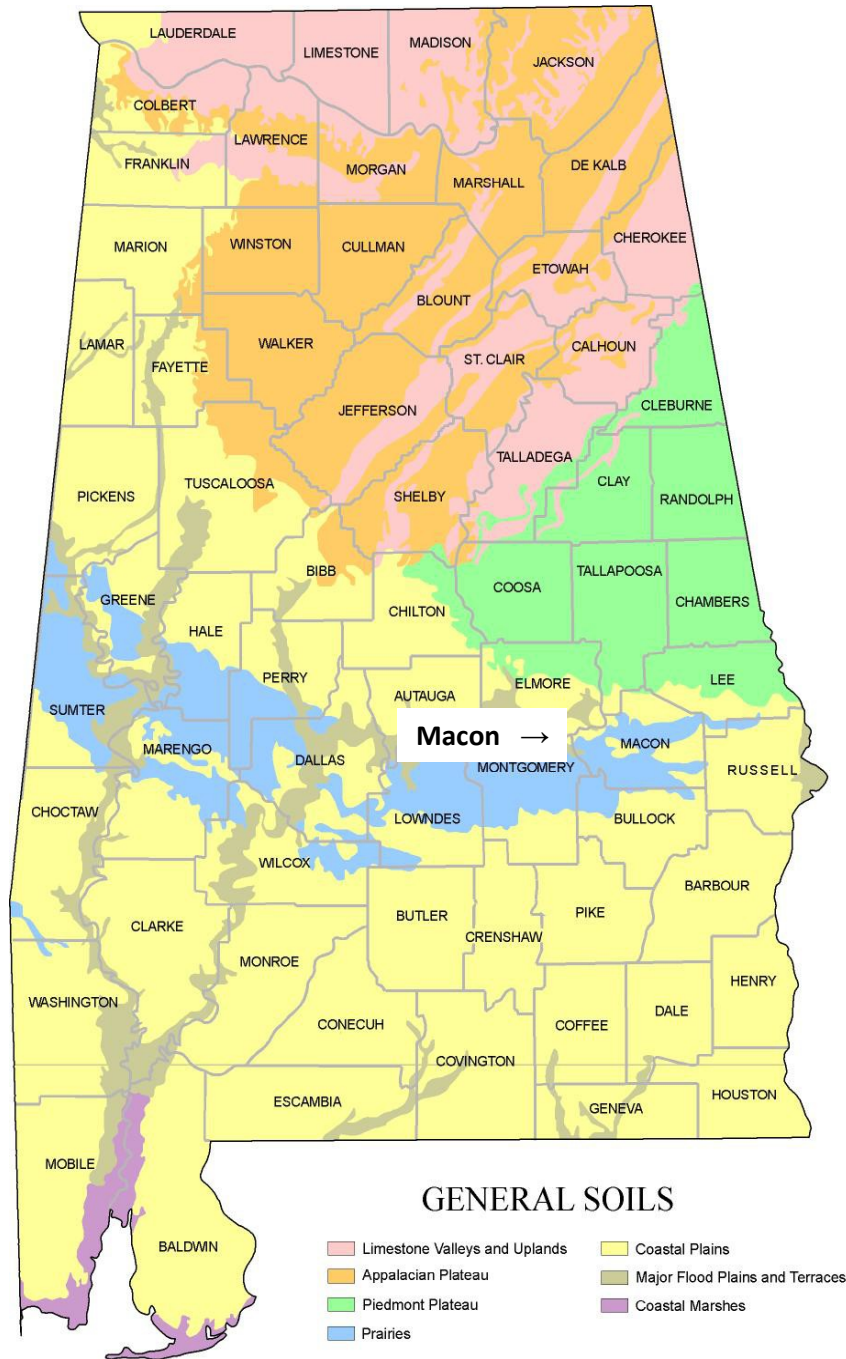
Expansive soils are soils that swell when they come in contact with water. The presence of clay is generally the cause of such behavior. **Figure 3-4** shows the general soil areas for the state. Macon County has Coastal Plains, Prairies and a small portion of Major Flood Plains and Terraces. There were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

**Figure 3-3**





**Figure 3-4: General Soils of Alabama**



*Source: Cartographic Research Lab, University of Alabama, 2014*

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## **X. Landslide**

A landslide is defined by the United States Geological Survey as the movement of rock, debris, or earth down a slope. Various natural and man-induced triggers can cause a landslide. Naturally induced landslides occur as a result of weakened rock composition, heavy rain, changes in groundwater levels, and seismic activity. Geologic formations in a given area are key factors when determining landslide susceptibility. The three underlying geologic formations present within the region are the Coker, Gordo, and Tuscaloosa groups. These groups are classified as having low to moderate susceptibility to slope failure. A 1982 study performed by Karen F. Rheams of the United States Geological Survey indicated 23 landslides had occurred in the county but all of these were man-induced events attributed to roadway construction. **Figure 3-5** shows the landslide incidence and susceptibility and indicates that Macon County is at a low to no risk of incidence. CSA information reveals that Macon County has a moderate incidence of landslides in the central portion of the county. According to the GSA data, there have been no reports of sinkholes or landslides by citizens or by the Macon County EMA. There is, however, some stream bank erosion that is expected to continue as a natural function of stream morphology.

There were no Macon County landslides reported from GSA or local sources during the time frame covered by this plan; therefore, plan information remains the same as in the 2009 update.

Primary effects from landslide in Macon County would include:

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

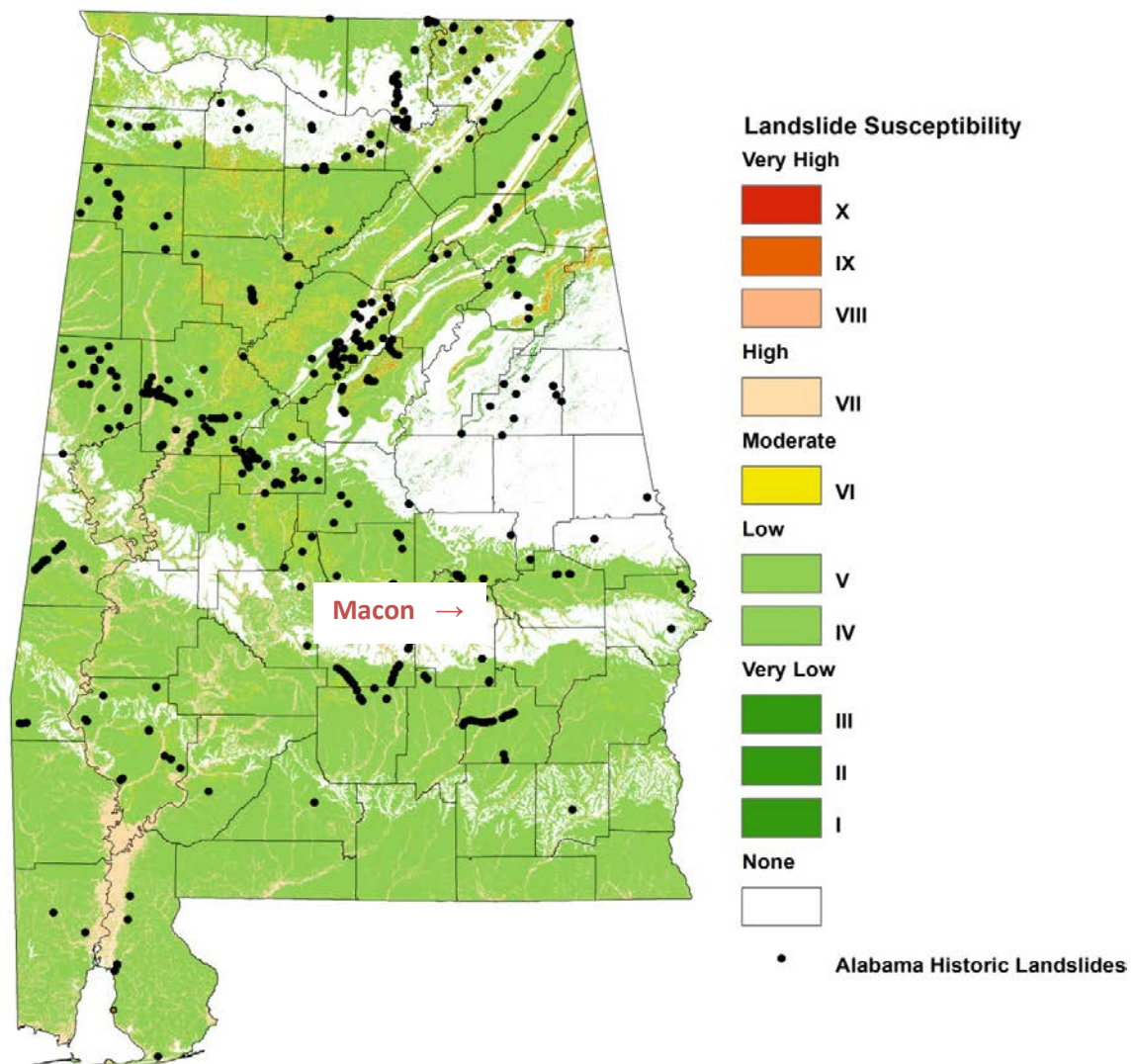
Hazardous results from landslide in Macon County would include:

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.

Macon County experienced unknown landslides in a 10 year period resulting in an unknown probability that a landslide event will occur on an annual basis. The total amount of damages for a landslide event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

**Figure 3-5: Landslide Incidence and Susceptibility in Macon County**



*Source: Alabama Emergency Management Agency's State Hazard Mitigation Plan, 2013*

## **XI. Earthquakes**

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

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

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

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

damaging than seismic waves.

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

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

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

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

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

(Source: <http://earthquake.usgs.gov>, 2014)

Earthquake-related ground failure, due to liquefaction, is a common potential hazard from strong earthquakes in the central and eastern United States. Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of

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

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

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

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

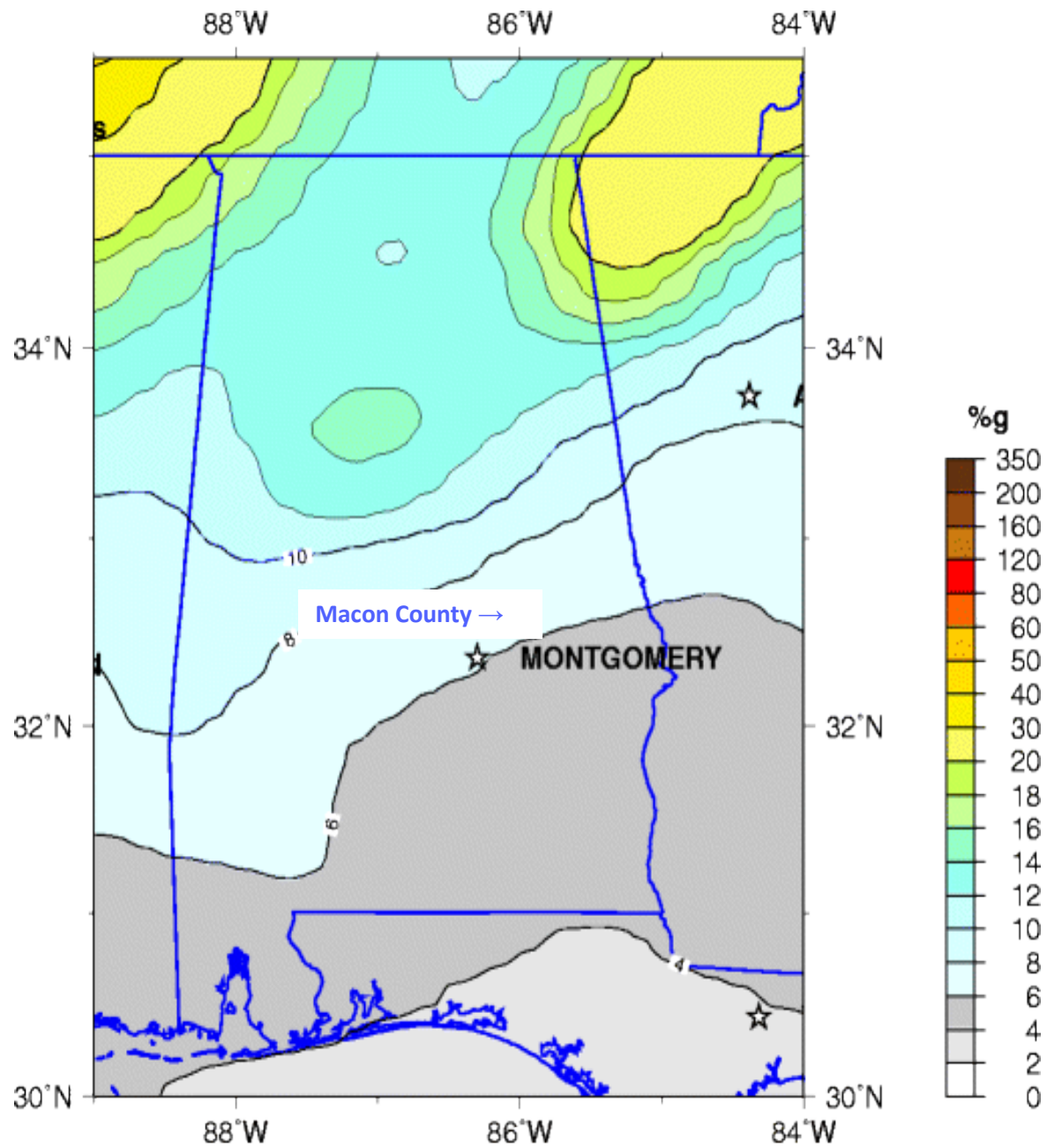


moderate risk, the SASZ includes the Appalachian Mountains. Most of the earthquakes felt in Alabama are centered in the SASZ. The hypocenters of earthquakes in this zone are on deeply buried faults. The SCSZ is centered near Charleston South Carolina and encompasses nearly the whole State. Macon County is at risk for earthquakes.

Earthquakes occurring in Macon County are predominantly low magnitude events. However, there is growing concern that a high magnitude event is inevitable and earthquakes are becoming a much larger concern to the county. GSA is currently working to better define seismic hazards and impacts throughout the county. **Figure 3-6** shows the Percent Ground Acceleration (PGA) with two percent 50 year exceedance probability. The risk of a significant, damage-causing earthquake in Macon County is low to moderate. No earthquakes have been reported in Macon County during the past five years.

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

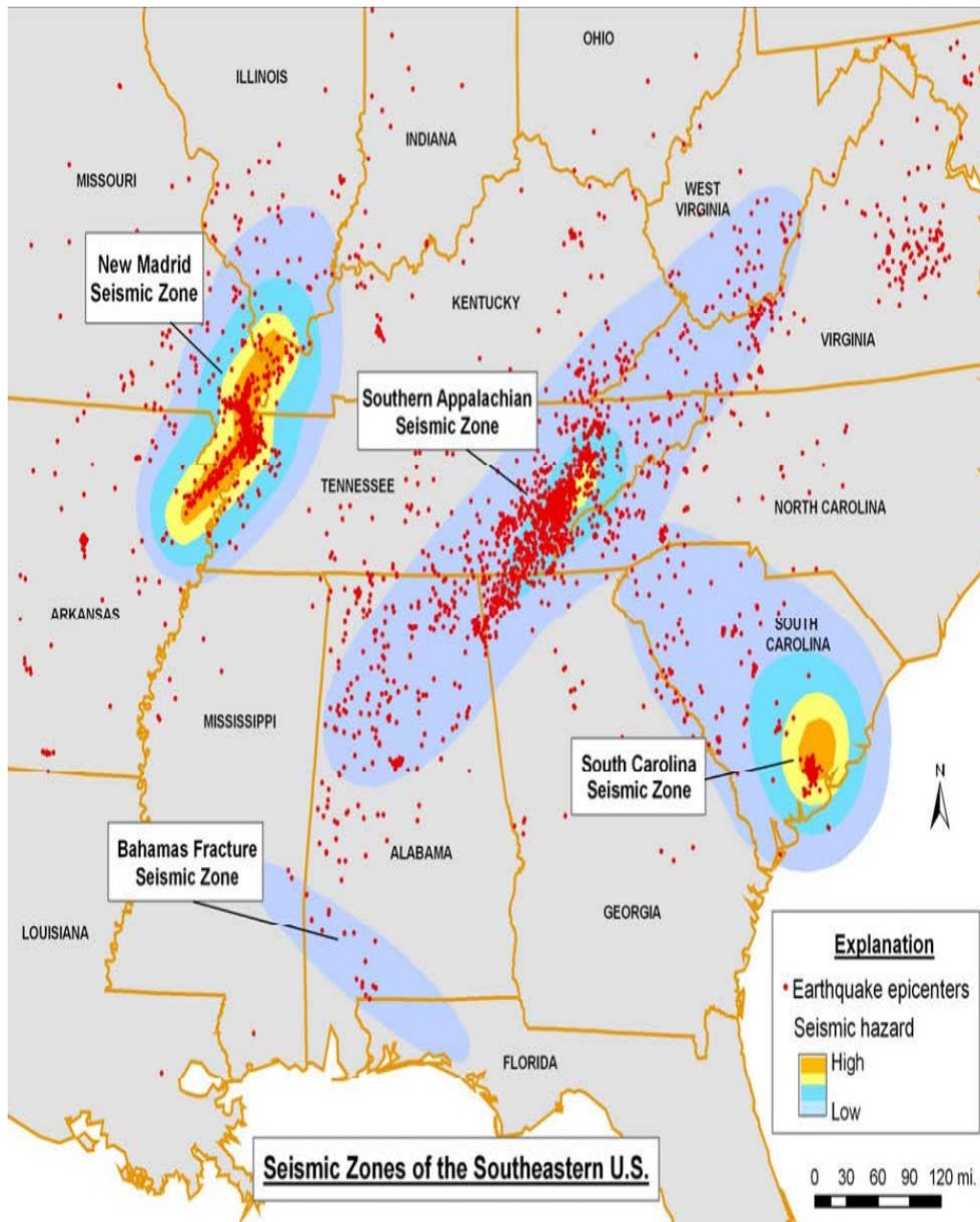
Two zones of frequent earthquake activity that could potentially impact Macon County are the New Madrid Seismic Zone and the Southern Appalachian Seismic Zone. Damage could be significant in Macon County if a powerful earthquake were to occur because buildings in this part of the country have not been constructed to withstand such a powerful force. In 1916 on October 18, a strong earthquake occurred on an unnamed fault east of Birmingham. It was apparently most strong at Easonville. Near the epicenter, chimneys were knocked down, windows broken, and frame buildings were greatly shaken. It was noted by residents in seven states and covered 100,000 square miles. The 1895 New Madrid earthquake registered a 6.8 on the Richter scale and was moderately felt throughout the southeastern United States. The New Madrid Fault line runs along the Mississippi River. Geologists agree that another major earthquake along the New Madrid Fault line could cause chimneys to fall, glass to break, and walls to crack in Macon County.



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

**Figure 3-6**

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



*Source: Geological Survey of Alabama, 2014*

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

Macon County experienced an unknown amount of earthquakes in a 10 year period resulting in an unknown probability that an earthquake event will occur on an annual basis. The total amount of damages for an earthquake event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

Primary effects from earthquake in Macon County would include:

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

Hazardous results from earthquake in Macon 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 Macon County are not built to meet the rigors of earthquakes; collapsing structures could kill or injure occupants.
4. Earthquakes can create other disasters such as landslides, flooding, and sinkholes.
5. Shifting of underlying soil and breaching of dams are examples of possible results from an earthquake.

## **XII. Wildfire**

Wildfires are responsible for burning thousands of acres of land across the United States each year. They are large, fast moving, disastrous fires that occur in the wilderness or rural areas. These fires are uncontrolled and in dry conditions can spread rapidly through the surrounding vegetation and structures. Macon County is susceptible to wild/forest fires especially during times of drought. Macon County has a total of 328,514 acres of forestland. The total acres are made up of 150,529 softwoods, 48,821 oak-pine, and 129,163 hardwoods. (*Source: Alabama Forestry Commission – Forest Resource Report 2012*)

The frequency and severity of wildfires is dependent on weather and on human activity. Nearly all wildfires in Macon County are human caused (only a small percent are caused by lightning), with arson and careless debris burning being the major causes of wildfires. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, damage forest resources and destroy structures. **Table 3-13** shows the number of fires and acres burned during the period 2010 - 2013, as recorded by the Alabama Forestry Commission. Macon County had a total of 245 fires during this 3 year period, affecting a total of 7,015.50 acres. Macon County is located in an area where the current fire danger conditions are low to moderate, according to the U. S. Forestry Service.

The National Forest Service (NFS) maintains data nationwide and produces various maps and forecasts daily under the Wildland Fire Assessment System (WFAS). A review of this data showed Macon County has an 11-15 percent probability of a fire occurring because of a lightning strike. The probability of ignition by lightning depends mainly on fuel moisture. Fuel Model Maps help to determine susceptibility of vegetative cover to wildfires. Macon County is covered by Fuel Models C, R and P. Areas covered by these models consist of Pine Grass Savannah, Hardwood Liter Summer and Southern Pine.

**Figure 3-8** and **Figure 3-9** from the Alabama Forestry Commission show Alabama Counties' total acres burned by wildfires from 1997-2012 and the average number of wildfires per year per square mile. The total acres burned by wildfires during this time in Macon County were 16,001-64,855 acres. The number of fires per year per square mile in Macon County were 0.111 – 0.2 wildfires.

<b>Table 3-13: Wildfires in Macon County 2010-2013</b>					
<b>County</b>	<b>Total # of Fires</b>	<b>Annual Average # of Fires</b>	<b>Total Acres Burned</b>	<b>Annual Average Acres Burned</b>	<b>Average Fire Size in Acres</b>
<b>Macon</b>	245	82	7,015.50	2,378	29

*Source: Alabama Forestry Commission, 2014*

Macon County experienced 245 wildfire events in a 3 year period resulting in a greater than 100% (24.5) probability that a wildfire event will occur on an annual basis. The total amount of acres burned for the 245 wildfire events was 7,015.50 resulting in an estimated 29 acres burned per wildfire event. The total amount of acres burned was 7,015.50 multiplied by \$1,900 (the average market value for an acre of land in Macon County) equals \$13,329,450 damages for the 245 wildfire events with 245 wildfire events causing damage resulting in an estimated \$54,406 per event multiplied by 1.09 (projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars - \$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%) equals a total of \$59,303 of expected annual damages from future events. No deaths or injuries were reported. The ranking, extent/range of magnitude or severity that could be experienced by Macon County due to a wildfire event is minimum to minor. The extent is 29 acres per fire and a total of \$59,303 per fire.

Primary effects from wildfire in Macon County would include:

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

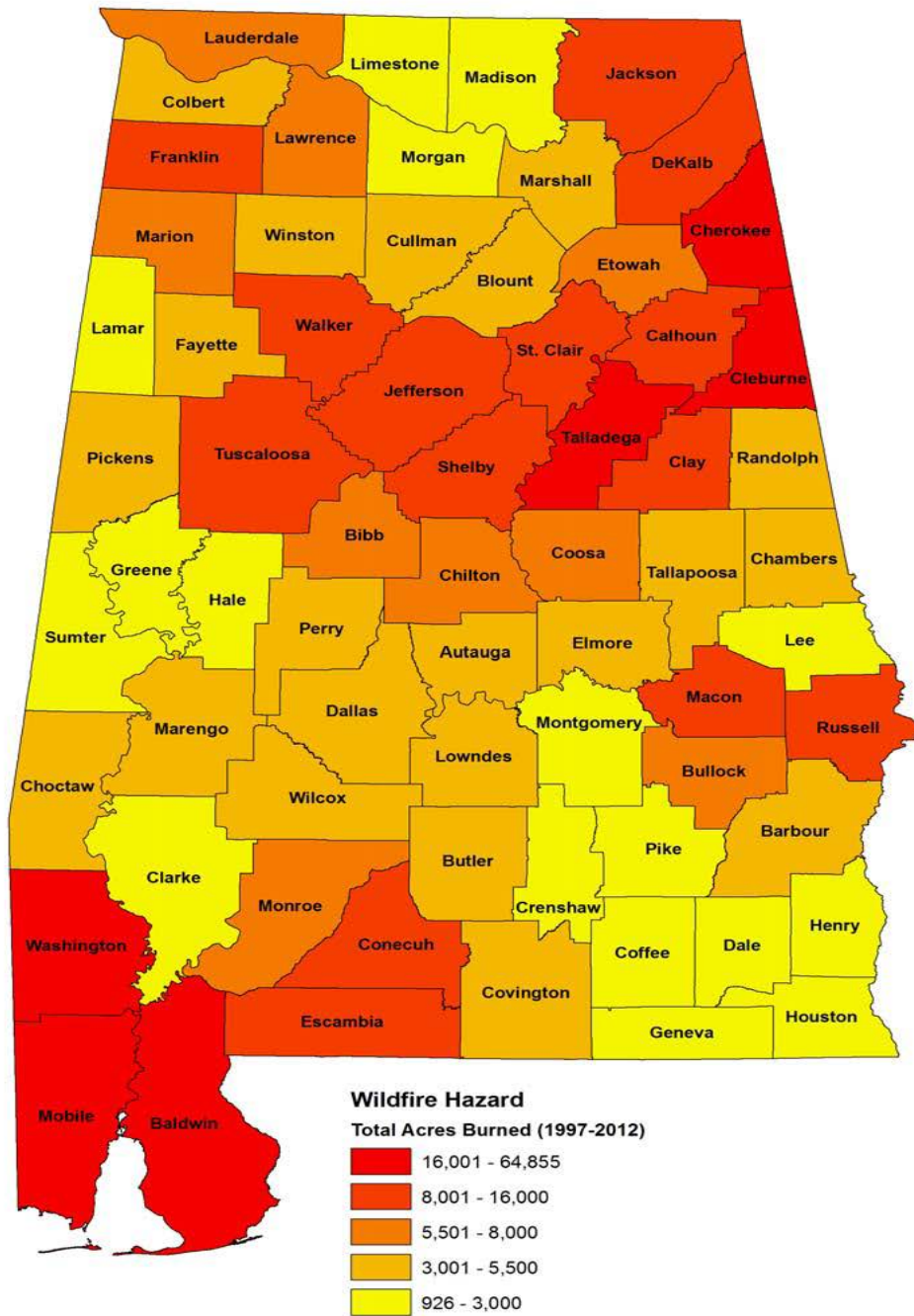
Hazardous results from significant wildfire in Macon County would include:

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.

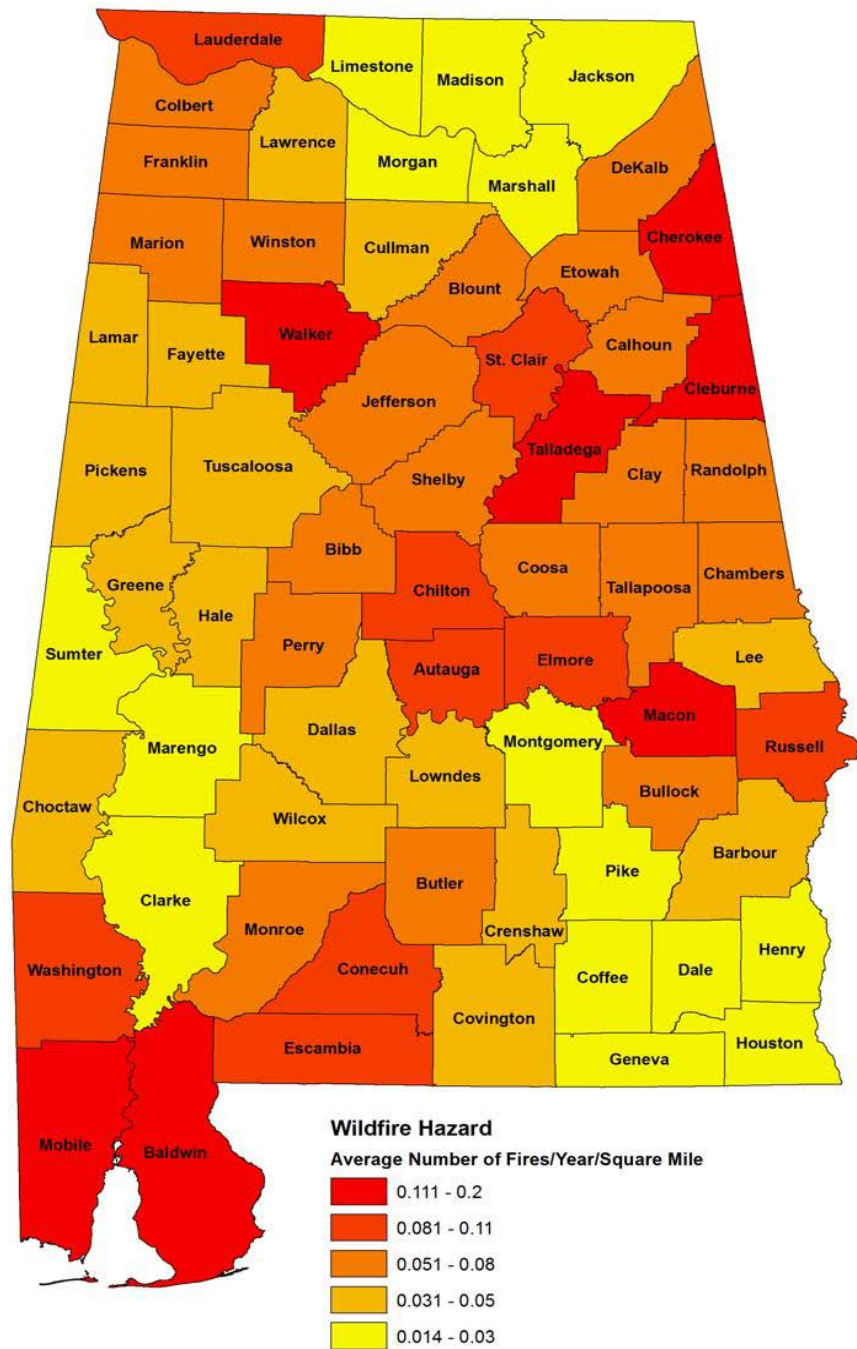
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**FIGURE 3-8**  
**Total Acres Burned by Wildfire 1997-2012**  
(Source: Alabama Forestry Commission and the Alabama Emergency Management Agency, 2014)

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**FIGURE 3-9**  
**Number of Fires per Year per Square Mile 1997-2012**  
(Source: Alabama Forestry Commission and the Alabama Emergency Management Agency, 2014)

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### **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 Macon 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 Macon County during 2005 - 2015.

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 Macon County. A full inventory of dams will help to benefit public safety and emergency response operations in the event of a natural or other disaster. It will also provide for the inspection and permitting certification of certain dams in order to protect the citizens of Alabama by reducing the risk of failure of such dams. According to *HAZUS MH 2.1*, Macon County has 24 High Density Polyethylene Earth (HPDE) Dams and 1 High Density Polyethylene Gravity Dam (HPDG) and 1 high hazard dam (Tuskegee City Lake Dam) in the City of Tuskegee located along a tributary of Uphapee Creek. In total there are 25 dams in Macon County – 24 HPDE and 1 HPDG dam – 1 High Hazard (failure or poor operation would likely result in the loss of human life), 1 Significant Hazard (failure or poor operation would not likely result in the loss of human life, but would result in economic loss, environmental damage, and disruption of lifeline facilities), and 23 Low Hazard Dams (failure or poor operations would not likely result in the loss of human life, but would result in low economic and environmental damage). All dams are located in sparsely populated areas. **Table 3-14** shows risk categories of dams. **Table 3-15** provides an inventory listing of all the dams in Macon County and includes additional data on each.

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

Primary effects from Dam failure in Macon 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 Macon County would include:

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

Table 3-14: Macon County Dams Risk Categories	
Risk Categories	Number of Dams
<b>High</b> - loss of one human life is likely if the dam fails	1
<b>Significant</b> - possible loss of human life and likely significant property or environmental destruction if the dam fails if the dam fails	1
<b>Low</b> - failure or poor operations would not likely result in the loss of human life, but would result in low economic and environmental damage	23
<b>Total</b>	<b>25</b>
(Source: HAZUS MH 2.1, Accessed 2016)	

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**Table 3-15: DAM INVENTORY LISTING FOR MACON COUNTY**

<b>Dam ID</b>	<b>Dam Name</b>	<b>River</b>	<b>Dam Type</b>	<b>Hazard</b>	<b>Latitude</b>	<b>Longitude</b>
AL00427	CARRONA NO 1	TR CALEBEE CREEK	HPDE	L	32.411669	-85.833329
AL00438	H A VAUGHAN JR	TR PERSIMMON CREEK	HPDE	L	32.353329	-85.608329
AL00436	HOWARD LAMAR	PERSIMMON CREEK	HPDE	L	32.333329	-85.626669
AL00435	T U KELLY NO 1	LONG BRANCH - OFF STREAM	HPDE	L	32.40833	-85.489999
AL00434	J T CONNER	TR PERSIMMON CREEK	HPDE	L	32.375	-85.64667
AL00433	W M RUSSELL JR	TR CALEBEE CREEK	HPDE	L	32.309999	-85.704999
AL00432	SANFORD JOHNSON	TP OPINTLOCCO CREEK	HPDE	L	32.311669	-85.56333
AL00431	W T WADSWORTH	TR CALEBEE CREEK	HPDE	L	32.343329	-85.74667
AL00428	VAUGHANS MILL POND	CHOCTAFAULA CREEK	HPDG	L	32.511669	-85.57833
AL00425	BRIDGES	TR PERSIMMON CREEK	HPDE	L	32.379999	-85.663329
AL00424	HA VAUGHN JR NO 1	LITTLE PERSIMMON CREEK	HPDE	L	32.37	-85.63333
AL00423	NOTASULGA CITY LAKE	TR-SOURGAHATCHEE CREEK	HPDE	L	32.57833	-85.68
AL00422	TUSKEGEE CITY LAKE	TR-UPHAPEE CREEK	HPDE	H	32.42667	-85.68
AL00429	HUSKEYS	TR OPINTLOCCO CREEK	HPDE	L	32.376669	-85.456669
AL00441	J P GROCE	TR KELLY CREEK	HPDE	L	32.39167	-85.493329
AL00439	LAKE CARRONA NO 2	TR CALEBEE CREEK	HPDE	L	32.411669	-85.834999
AL00442	JACK LACEY NO 2	TR CUBAHATCHEE CREEK	HPDE	L	32.37333	-85.878329

**Table 3-15: DAM INVENTORY LISTING FOR MACON COUNTY**

<b>Dam ID</b>	<b>Dam Name</b>	<b>River</b>	<b>Dam Type</b>	<b>Hazard</b>	<b>Latitude</b>	<b>Longitude</b>
AL00440	T U KELLY NO 2	TR KELLY CREEK	HPDE	L	32.388329	-85.489999
AL00437	JACK LACEY NO 1	TR CUBAHATCHEE CREEK	HPDE	L	32.37333	-85.87
AL01703	WILLIAMS	TR WOLF CREEK	HPDE	L	32.51	-85.739999
AL01704	HOWARD	TR CALEBEE CREEK	HPDE	L	32.334999	-85.67667
AL01705	OSTETTE	TR PRIRIE CREEK	HPDE	S	32.27167	-85.65833
AL00426	JOHN FRANK MOORER	TR-OLD TOWN CREEK	HPDE	L	32.28333	-85.833329
AL02215	HUSKEY DAM	OPINTLOCCO CREEK	HPDE	L	32.35	-85.45
AL02371	TROY BEATTY DAM	TR-CHEWACLA CK.	HPDE	L	32.466669	-85.542219

## **Section Four: Vulnerability Assessment**

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

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

### ***Thunderstorms (Source: NCDC NOAA)***

Damage from thunderstorms can have a wide range of severity. All jurisdictions are vulnerable to thunderstorm events. On August 22, 2010, a thunderstorm event occurred and Macon County experienced 75 miles per hour winds. No injuries, deaths, or crop damages occurred. Property damages of \$5,000 resulted from this event.

Another thunderstorm event occurred on June 5, 2010 resulting in isolated wind damage. One tree landed on a downtown business resulting in severe damage. No injuries, deaths, or crop damages occurred. Property damages of \$50,000 resulted.

A total of \$128,500 property damages occurred as a result of thunderstorm events in Macon County.

### ***Lightning (Source: NCDC NOAA)***

Lightning can cause substantial property damage and loss of human lives. All jurisdictions are vulnerable to lightning events. No lightning events were reported during this plan’s study period of 2005-2015. According to Vaisala’s National Lightning Detection Network (NLDN) the average flash density in Macon County is 8-10.

***Hail*** (Source: NCDC NOAA)

Severe thunderstorms have produced hailstones .75 inches (penny size) to 1.75 inches (golf ball size) in diameter in Macon County during 2005-2015, resulting in \$31,000 property damage across the area. No injuries, deaths, or crop damages occurred.

***Tornado*** (Source: NCDC NOAA)

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

Areas with higher population densities pose the greatest potential for property damage, injury, and death. The City of Tuskegee and Town of Notasulga 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. Macon County has a total of 2,203 mobile homes countywide, 21.52% of the total housing stock. The greatest concentration of mobile homes in a municipality is in the Town of Notasulga where 26.22% of the units are mobile homes. (Source: 2010 U.S. Census Bureau)

An EF1 tornado event occurred on 11/16/2011 in the Notasulga Community, 2.01 miles in length and 700 yards wide. No injuries, deaths, or crop damages occurred. Property damages of \$500,000 resulted. (Source: NCDC NOAA)

A F1 tornado event occurred on July 6, 2005 in the Tuskegee Community. One auto body shop was totally destroyed. A man was injured when he was thrown several yards out of the auto body shop. A shed also sustained damage. At least three vehicles were heavily damaged by fallen trees. The tornado damage path was 1/10 of a mile long and 25 yards wide at its widest point. This tornado was spawned during Tropical Storm Cindy. No deaths or crop damages occurred. Property damages of \$48,000 and one injury resulted. (Source: NCDC NOAA)

An EF2 tornado event occurred in the Chehaw Community on April 11, 2013, 4.87 miles in length and 200 yards wide. One minor injury was caused from flying glass. Also in the same area, one mobile home had significant damage while another was completely destroyed. The tornado crossed State Road 14, strengthening to its maximum intensity. It significantly damaged a well-built two-story home, with considerable loss of roof material, one outer wall completely destroyed and another outer wall significantly damaged. No deaths, property or crop damages occurred. One injury resulted. (*Source: NCDC NOAA*)

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

Flooding can occur along the banks of the creeks and streams that flow throughout the county and where development has encroached in the floodplain. Flash flooding can occur anywhere in the county due to inadequate or clogged drainage systems and excessive rainfall. Unpaved dirt roads, common in the rural areas, are particularly vulnerable. Impacts in developed areas such as the City of Tuskegee and the Town of Shorter 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.

During 2005-2015, flash flood damages included: Countywide - \$17,000 of property damages; Tuskegee - \$6,000 of property damages; and Shorter - \$100,000 of property damages. No injuries, deaths, or crop damages occurred or were reported.

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

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

During the past ten years, Macon County experienced D2 Severe to D3 Extreme Drought in 2006, D1 Moderate Drought to D4 Exceptional Drought in 2007, D1 Moderate Drought to D4 Exceptional Drought in 2008, D2 Severe to D3 Extreme Drought in 2010, D2 Severe to D3

Extreme Drought in 2011, D2 Severe to D3 Extreme Drought in 2012 and D3 Extreme Drought in 2013. No deaths, injuries, property or crop damages were reported. Crops became highly stressed due to the lack of rainfall, with losses ranging from 50 to nearly 100 percent in some Central Alabama counties. Around 80 percent of the corn and soybean crop, 70 percent of the cotton crop, and 40 percent of the peanut crop, was considered to be in poor or very poor condition by month's end 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. An initial five wells were selected to track water levels around the state, with plans to increase the number of monitoring wells to 25. Drought conditions continued to escalate into 2007 and by August all 67 Alabama counties were declared Natural Disaster areas by the Federal Government. West-Central Alabama reported a rainfall deficit that reached nearly 30 inches by 2007. Impacts were felt by farmers of all crops, including timber, livestock producers, and the forestry service. Additionally, electricity providers were affected as river and lake levels dropped and some municipalities were forced to place restrictions on water consumption as supplies became strained. The State Agriculture Commissioner (at the time) Ron Sparks referred to this event as the worst drought in 30-40 years. (*Source: NOAA NCDC*)

The categories of drought are defined as follows (*Source <http://droughtmonitor.unl.edu>*)  
*Accessed 11/16/14:* **Abnormally Dry (D0)** - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** -

Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA). Heat stress can be indexed by combining the effects of temperature and humidity. The index estimates the relationship between dry bulb temperatures (at different humidity) and the skin's resistance to heat and moisture transfer - the higher the temperature or humidity, the higher the apparent temperature. The human risks associated with extreme heat include heatstroke, heat exhaustion, heat syncope, heat cramps.

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

Macon County commonly has extreme cold and winter storm events in any given year. These events impact the county in a variety of ways. Ice and small amounts of snow can cripple the county. Drivers are not accustomed to driving in these conditions, therefore many accidents occur. Snow and ice can weigh down tree limbs and power lines causing them to break, resulting in power failure and property damage. Local businesses and residents are not equipped with generators to restore power during these severe winter weather events. Also many homes may not be properly insulated, leading to health concerns and deaths. Since these storms have no defined track, all residents of Macon County are vulnerable to severe winter storms.

During 2005-2015, Macon County experienced up to 4 inches of snow and one quarter inch of sleet and ice causing hazardous driving conditions, numerous vehicle accidents, and road closures. No injuries, deaths, crop, or property damages were reported.

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

Tropical Storms and Tropical Depressions such as Dennis, Ida, Fay and Katrina have affected Macon County. The most significant impacts have been related to excessive rainfall, damaging wind, and tornados. Residents suffer loss of power, damage to homes, blocked roadways from associated storm debris, and loss of other crucial utilities. Mobile homes are

particularly vulnerable and are impacted more than conventionally built structures. Mobile homes in the county represent 21.52% of the housing stock. Effects of these storms generally impact the entire county and are not limited to a specific location. The fact that other surrounding counties will have also been affected by the same event only adds to the burden, as utility crews are often overwhelmed by the needs of an entire region or state.

On July 10, 2005, a tropical storm event causing numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Macon County. No injuries, deaths, or crop damages occurred. Property damages of \$25,000 resulted from this event. On August 29, 2005, a tropical storm event causing numerous trees and power lines were knocked down as Tropical Storm Katrina moved across Macon County. At least a few homes were damaged. No injuries, deaths, or crop damages occurred. Property damages of \$65,000 resulted from this event. On August 23, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Macon County area. No injuries, deaths, property or crop damages were reported from this event. On November 9, 2009, the remnants of what was at one time Hurricane Ida brought very heavy rain and gusty winds up to 40 mph blowing down a few trees, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of \$2,000 resulted from this event.

Three strong wind events occurred in the county: April 12, 2005 resulting in 46 mph winds and \$1,000 property damage; September 5, 2011 resulting in 45 mph winds and \$8,000 property damage; and April 18, 2014 resulting in 40 mph winds and \$3,000 property damage. No injuries, deaths, or crop damages occurred from these events.

### ***Sinkholes/Expansive Soils***

During the risk assessment, it was determined that Macon County has a very limited area of outcrops of carbonate rocks, and no active areas of sinkholes in the county. Though the soils present in the county do have some shrink-swell potential, the risk assessment determined that a profile was not necessary. No expansive soil issues were reported from NOAA NCDC or other sources. No sinkholes occurred in Macon County during the past five years.



***Landslides*** (Source: *Local Input*)

Macon County identified this hazard; however, the absence of occurrences indicate a low vulnerability to landslides at this time.

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

A major earthquake in Macon County could result in great loss of life and property damage in the billions of dollars. Adding to the danger is the fact that structures in the area were not built to withstand earthquake shaking. Construction of many buildings on steep slopes susceptible to landslides and in karst terrains susceptible to sinkholes will be a major contributing factor to damage from future earthquakes in the county. Earthquakes can trigger other natural disasters such as landslides and sinkholes. No earthquakes occurred in Macon County during the past five years.

***Wildfires*** (Source: *Alabama Forestry Commission*)

Macon County has a significant amount of acreage that is comprised of forestland and is therefore vulnerable to wildfires, especially during times of drought. Both rural and urban areas in all jurisdictions are impacted by wildfires and result in loss of wilderness, crops, livestock and other property. Loss of human life, both residents and firefighters, is also possible. Macon County experienced 245 wildfires during the three year period from 2010-2013 resulting in 7,015.50 acres burned. The total expected annual damages from future events are \$59,303 and 29 acres per event.

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

According to *HAZUS MH 2.1*, Macon County has 24 High Density Polyethylene Earth (HPDE) Dams and 1 High Density Polyethylene Gravity Dam (HPDG) and 1 high hazard dam (Tuskegee City Lake Dam) in the City of Tuskegee located along a tributary of Uphapee Creek. In total there are 25 dams in Macon County – 24 HPDE and 1 HPDG dam – 1 High Hazard (failure or poor operation would likely result in the loss of human life), 1 Significant Hazard (failure or poor operation would not likely result in the loss of human life, but would result in

economic loss, environmental damage, and disruption of lifeline facilities), and 23 Low Hazard Dams (failure or poor operations would not likely result in the loss of human life, but would result in low economic and environmental damage). All dams are located in sparsely populated areas. 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 Macon County during 2005 - 2015.

### **Socially Vulnerable Populations**

Certain populations are generally more affected by hazard events. These populations can be defined in terms of social, racial, and economic characteristics. Data provided in the section was obtained from 2010 Census using breakouts for entire municipalities and census tracts. According to the 2010 Census, Macon County has 608.88 square miles of land, 4.32 square miles of water and 33.44 persons per square mile.

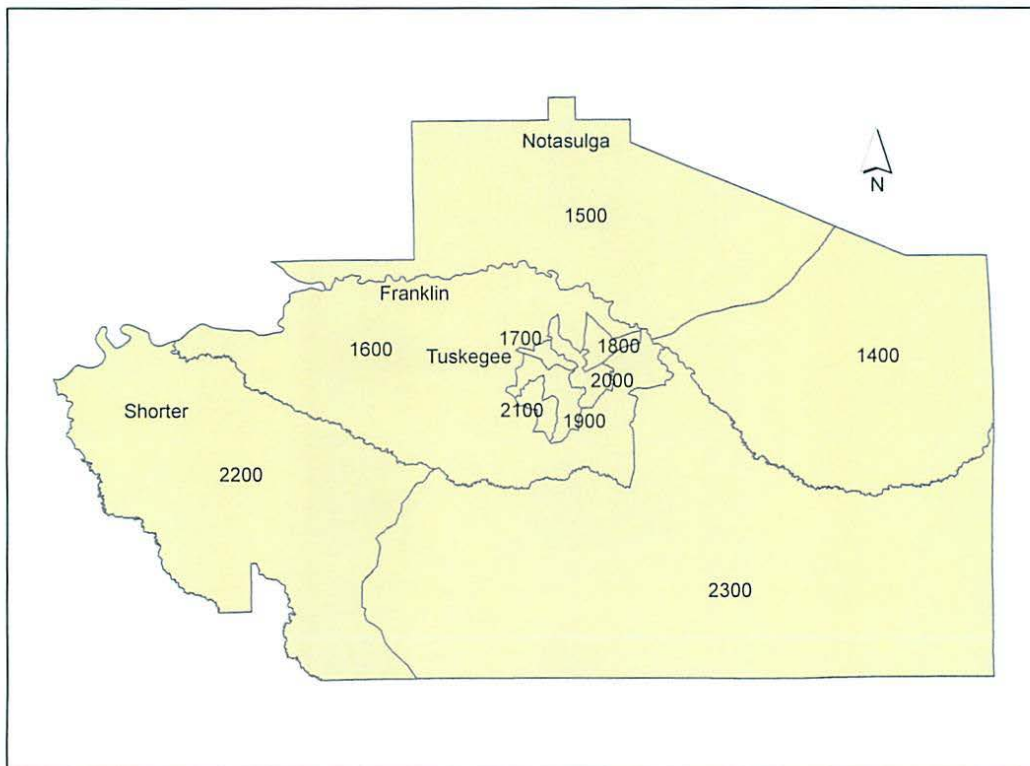
**Table 4-2** shows the county's population characteristics by jurisdiction and by census tract. The City of Tuskegee is the most populated jurisdiction, followed by the Town of Notasulga, the Town of Shorter and the Town of Franklin. The county has ten census tracts (See **Map 4-1**); however for charting purposes, Census Tract 1600 is split into 1601, 1602 and 1603. In terms of vulnerability, the larger the population of an area the more people and structures that could possibly be damaged or destroyed. Tract 1500 is the most populated tract; however, this tract contacts portions of Lee County to include parts of Notasulga and Auburn as well as Tuskegee in Macon County. Tract 2200 is the second most populated tract and contains the Town of Shorter and unincorporated areas of the county to include Hardaway and Fitzpatrick. Tract 1700 is the third most populated tract and includes portions of the City of Tuskegee and Tuskegee Institute. Tract 1400 is the least populated tract and contains portions of Tuskegee and Lee County to include portions of Auburn and Opelika.

**Table 4-2: Macon County Population Characteristics**

<b>Geographic Area</b>	<i>Population</i>	<i>Race-White</i>	<i>Race-Black</i>	<i>Race-Other*</i>	<i>Under 19 years</i>	<i>Age 20-64 years</i>	<i>Age 65 and Over</i>
<b>Macon County</b>	20,505	3,377	16,738	309	5,282	12,075	3,148
<b>Franklin</b>	184	121	62	1	53	117	14
<b>Notasulga</b>	988	598	381	9	262	588	138
<b>Shorter</b>	497	75	422	0	109	294	94
<b>Tuskegee</b>	9,435	363	8,949	123	2,675	5,547	1,213
<b>Census Tracts</b>							
<b>1400</b>	1,207	554	601	52	282	659	266
<b>1500</b>	2,946	1,504	1,396	46	722	1,830	394
<b>1601</b>	974	229	745	0	169	495	310
<b>1602</b>	1,336	119	1,100	117	269	814	253
<b>1603</b>	1,308	42	1,241	25	212	852	244
<b>1700</b>	2,367	134	2,154	79	933	1,359	75
<b>1800</b>	1,255	20	1,235	0	294	766	195
<b>1900</b>	1,342	22	1,313	7	285	868	189
<b>2000</b>	1,701	111	1,569	31	381	976	344
<b>2100</b>	1,815	0	1,815	0	560	1,020	235
<b>2200</b>	2,553	597	1,956	0	633	1,587	333
<b>2300</b>	1,701	45	1,613	43	542	849	310
<i>(Source: 2010 Census)</i>							

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Map 4-1: Macon County Census Tracts



HAZUS-MH 2.1, Accessed 2016



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

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

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

The median household income for the State of Alabama is \$43,160. The median household income for the United States is \$53,046. No tract exceeds the national average. Tract 2200 exceeds the state average, but is less than the national average. All other tracts are less than both the state and national averages. The Town of Franklin exceeds both the state and national averages. The Town of Shorter exceeds the state average, but is lower than the national average. All other municipalities are lower than the state and national averages. (*Source: 2010 Census*)

Per capita income is the average obtained by dividing aggregate income by the total population of an area. The per capita income for the State of Alabama is \$23,587. The per capita income for the United States is \$28,051. Tract 1601 is the only tract that exceeds the state average, but is less than the national average. All remaining tracts are less than the state and national averages. The Town of Franklin has a per capita income that exceeds the state average, but is less than the national average. All other municipalities do not have a per capita income that equals or exceeds either the state or national average. (*Source: 2010 Census*)

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%. Tract 1601 is the only tract that is less than both the state and national percentages. All remaining tracts have higher percentages than both the state and national rates. The Town of Franklin is the only municipality with a percentage less

than both the state and national percentages. The Town of Notasulga has the highest poverty rate in the county at 32.49%. (*Source: 2010 Census*)



**Table 4-2: Macon County Income Data**

<b>Geographic Area</b>	<b>Median Household Income</b>	<b>Per Capita Income</b>	<b>Persons Below Poverty Level</b>	<b>Percent Below Poverty Level</b>
<b>Macon County</b>	\$30,254	\$17,113	4,840	26.36%
<b>Franklin</b>	\$54,792	\$26,859	9	4.89%
<b>Notasulga</b>	\$35,694	\$21,443	321	32.49%
<b>Shorter</b>	\$45,074	\$16,027	155	31.19%
<b>Tuskegee</b>	\$27,313	\$14,758	2,112	28.67%
<b>Census Tracts</b>				
<b>1400</b>	\$28,125	\$15,861	239	20.00%
<b>1500</b>	\$34,125	\$18,329	836	28.38%
<b>1601</b>	\$28,750	\$23,718	128	13.14%
<b>1602</b>	\$21,250	\$19,571	460	35.28%
<b>1603</b>	\$33,438	\$22,519	357	27.29%
<b>1700</b>	\$28,616	\$7,675	189	46.78%
<b>1800</b>	\$25,000	\$18,594	322	25.66%
<b>1900</b>	\$22,353	\$17,144	492	36.66%
<b>2000</b>	\$33,417	\$15,594	374	23.20%
<b>2100</b>	\$31,514	\$16,623	361	19.89%
<b>2200</b>	\$45,491	\$20,169	462	18.10%
<b>2300</b>	\$28,125	\$15,495	620	37.48%
<i>(Sources: 2010 Census; <a href="http://www.usa.com">www.usa.com</a>, Accessed 2016)</i>				

### ***Vulnerable Structures***

Housing is an important consideration of mitigation planning. The concentration and the type of housing are two primary factors. In Macon County there are a total of 10,239 housing units. **Table 4-3** shows the housing characteristics of the county by jurisdiction.

The City of Tuskegee has the greatest concentration of housing units, followed by the Town of Notasulga, the Town of Shorter and the Town of Franklin. The City of Tuskegee has the highest number of mobile home units within a municipality; while, the Town of Notasulga 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.

<b>Table 4-3: Macon County Housing Characteristics</b>			
<b>Geographic Area</b>	<b>Total Housing Units</b>	<b>Mobile Home Units</b>	<b>Mobile Home %</b>
<b>Macon County</b>	10,239	2,203	21.52%
<b>Franklin</b>	101	24	23.76%
<b>Notasulga</b>	572	150	26.22%
<b>Shorter</b>	202	44	21.78%
<b>Tuskegee</b>	4,473	152	3.40%
<i>(Source: 2010 Census)</i>			

**Table 4-4** shows the building stock in Macon 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 1500 has the highest number of structures in the county. Complementing this information is **Table 4-5** that provides the value totals for these building types and **Table 4-6** that provides the content value for these building types, each table

is shown by Census Tract. Tract 2000 has the highest total value for structures in the county.

<b>Table 4-4: Macon County Building Stock by General Occupancy</b>								
<b>Census Tract</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religious</b>	<b>Government</b>	<b>Education</b>	<b>Building Count</b>
<b>1400</b>	715	20	3	2	3	1	0	<b>744</b>
<b>1500</b>	1474	44	12	10	9	5	1	<b>1555</b>
<b>1601</b>	512	16	4	0	12	0	1	<b>545</b>
<b>1602</b>	300	22	16	3	5	2	4	<b>352</b>
<b>1603</b>	1379	40	11	1	8	3	2	<b>1444</b>
<b>1700</b>	191	23	2	0	2	1	1	<b>220</b>
<b>1800</b>	686	20	3	0	3	0	1	<b>713</b>
<b>1900</b>	1125	30	4	1	10	2	2	<b>1174</b>
<b>2000</b>	1059	94	9	2	8	15	10	<b>1197</b>
<b>2100</b>	952	20	6	0	2	0	1	<b>981</b>
<b>2200</b>	1010	42	8	7	7	1	5	<b>1080</b>
<b>2300</b>	1015	10	0	2	4	2	2	<b>1035</b>
<b>TOTAL</b>	<b>10418</b>	<b>381</b>	<b>78</b>	<b>28</b>	<b>73</b>	<b>32</b>	<b>30</b>	<b>11040</b>
<i>(Source: HAZUS-MH 2.1, Accessed 2016)</i>								

<b>Table 4-5: Macon County Building Exposure</b> <i>(Numbers shown in thousands of dollars)</i>								
<b>Census Tract</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religious</b>	<b>Government</b>	<b>Education</b>	<b>Building Exposure</b>
<b>1400</b>	46672	4391	488	319	1132	1178	0	<b>54180</b>
<b>1500</b>	87102	10349	1998	1780	5438	1148	136	<b>107951</b>
<b>1601</b>	35726	4141	777	0	7788	0	2113	<b>50545</b>
<b>1602</b>	26051	6664	26407	600	2730	1264	3363	<b>67079</b>
<b>1603</b>	100579	25769	2192	31	3265	640	1752	<b>134228</b>
<b>1700</b>	125769	8294	228	0	1392	203	2273	<b>138159</b>
<b>1800</b>	52120	5563	318	0	2699	0	1177	<b>61877</b>
<b>1900</b>	79925	8407	1188	58	5546	173	1811	<b>97108</b>
<b>2000</b>	99086	52901	1737	159	3414	12758	10803	<b>180858</b>
<b>2100</b>	87717	5933	537	0	674	0	4067	<b>98928</b>
<b>2200</b>	57852	13691	2947	1657	3025	115	5483	<b>84770</b>
<b>2300</b>	60155	2029	0	161	2502	785	985	<b>66617</b>
<b>TOTAL</b>	<b>858754</b>	<b>148132</b>	<b>38817</b>	<b>4765</b>	<b>39605</b>	<b>18264</b>	<b>33963</b>	<b>1142300</b>
<i>(Source: HAZUS-MH 2.1, Accessed 2016)</i>								

<b>Table 4-6: Macon County Building Contents Exposure</b> <i>(Numbers shown in thousands of dollars)</i>								
<b>Census Tract</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religious</b>	<b>Government</b>	<b>Education</b>	<b>Contents Exposure</b>
<b>1400</b>	23375	4391	648	319	1132	1767	0	<b>31632</b>
<b>1500</b>	43639	10381	2414	1780	5438	1271	136	<b>65059</b>
<b>1601</b>	17888	4141	950	0	7788	0	3170	<b>33937</b>
<b>1602</b>	13044	6992	39555	600	2730	1829	5046	<b>69796</b>
<b>1603</b>	50429	26307	2853	31	3265	640	1900	<b>85425</b>
<b>1700</b>	62901	8681	228	0	1392	203	3410	<b>76815</b>
<b>1800</b>	26101	5789	418	0	2699	0	1177	<b>36184</b>
<b>1900</b>	40065	8938	1230	58	5546	173	1811	<b>57821</b>
<b>2000</b>	49636	55923	2350	159	3414	12758	12779	<b>137019</b>
<b>2100</b>	43916	6049	612	0	674	0	6101	<b>57352</b>
<b>2200</b>	28991	13691	4165	1657	3025	115	7505	<b>59149</b>
<b>2300</b>	30120	2029	0	161	2502	1178	1048	<b>37038</b>
<b>TOTAL</b>	<b>430105</b>	<b>153312</b>	<b>55423</b>	<b>4765</b>	<b>39605</b>	<b>19934</b>	<b>44083</b>	<b>747227</b>
<i>(Source: HAZUS-MH 2.1, Accessed 2016)</i>								

### ***Critical Facility Inventory***

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

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

Each jurisdiction listed facilities based on the location of the facility without regard to ownership or function. The county's list will show only what is located in the unincorporated areas. Each jurisdiction also provided addresses and approximate values for the facilities listed,

using replacement values from their insurance policies when available. *HAZUS-MH 2.1* was also utilized for building and content values.

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<b>TABLE 4-7: CRITICAL FACILITIES – MACON COUNTY</b> <b>(Including Municipalities)</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Macon County Courthouse	\$
Macon County Law Enforcement Center	\$
Macon County Emergency Management Agency	\$
Macon-Tuskegee County Chapter of American Red Cross	\$
Macon County Department of Human Resources	\$
Macon-Russell Community Action Agency	\$
Macon County Water Authority	\$
Macon County Health Department	\$
CAVHCSEC FD	\$
Alabama Forestry Commission – Macon County	\$
Brownville VFD	\$
Chehaw VFD	\$
District 3 VFD	\$
Fort Davis VFD	\$
Little Texas VFD	\$
Macedonia VFD	\$
Warrior Stand VFD	\$
CAVHCSEC Security	\$1,260,000
Deborah Cannon Wolfe School, Shorter (also serves as a Mass Care Shelter)	\$1,871,470
South Macon School (also serves as a Mass Care Shelter)	\$
Southern Community College	\$
Washington Public School (alternative education)	\$
Southern Natural Gas Company, Macon County	\$981,000
Alabama Power Company	\$
Dixie Electric Cooperative	\$

<b>TABLE 4-7: CRITICAL FACILITIES – MACON COUNTY</b> <b>(Including Municipalities)</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Alabama Electric Cooperative	\$
Star-Mindingall Water Authority	\$
Wall Street Water Authority	\$
Beauregard Water Authority	\$
CVHCESEC	\$
Southeast Pediatrics	\$
BMA Dialysis Center	\$
Central Alabama Comprehensive Health	\$
VA Medical Center/Thomas Reed Ambulatory Care	\$
Magnolia Haven Nursing Home	\$
RBC Bank	\$
Auburn Bank	\$
Kresgee Center	\$
Fort Davis Post Office	\$
Bellsouth/AT&T Central Office	\$
CenturyTel Central Office	\$
Union Springs Telephone Company	\$
Halla Plant	\$
<b>Total</b>	<b>\$4,112,470 (+)</b>
<i>(Source: Local and HAZUS-MH 2.1, Accessed 2016)</i>	



### ***Development Trends***

The 2010 Census for Macon County, Alabama shows a countywide population of 20,505. Current population projection numbers show that the population in Macon County will continue decreasing within the next 20 years. There is a population change of 2,418 from 2015 to 2035, which is a 12% population decrease. **Table 4-8** provides the population projections for Macon County.

<b>Table 4-8: Macon County Population Projections</b>	
<b>YEAR</b>	<b>POPULATION PROJECTION</b>
<b>2015</b>	20,641
<b>2020</b>	19,967
<b>2025</b>	19,347
<b>2030</b>	18,771
<b>2035</b>	18,223
<i>(Sources: Center for Business and Economic Research, University of Alabama; Alabama Hazard Mitigation Plan, Accessed 2016)</i>	

### **Impacts of Development Trends on Vulnerability**

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.

The county government relies on the South Central Alabama Development Commission for assistance in land use development. The following is acreage usage in order of most use to

least use in Macon County: Commercial, Transportation, Residential, Industrial, Public, Agriculture and Forestry.

There are impacts of development trends on vulnerability for Macon County. Most development in Macon County is concentrated around urban and town centers, including Tuskegee and Notasulga. There is some potential for future development in Shorter, with increased industrial development, dog track and sewer expansions. A pattern of subdivision development in previously rural countryside has emerged slightly. For the most part, these developments are small subdivisions or estate type/farm house type developments. There is a potential for greater commercial, industrial and residential along Interstate-85, prompting plans and zoning regulations at the county level. The dog racing facility has expanded in the Town of Shorter as well; however, its operations have been halted somewhat over the past five years. Growth from Auburn-Opelika is still increasing and puts some pressure on the Interstate-85 Corridor.

The summary of physical conditions explains past development and transportation trends with the great majority of development occurring in the northern portion of the county that is less expensive and more conducive to development. The land use/land cover data shows that Macon County is mostly wooded with some pasture and crop uses in the southeastern and northern parts of the county and urban uses concentrated around the county's main transportation artery, Interstate 85. Demographic characteristics show that housing density is also highest in the proximity of Interstate 85 and the City of Tuskegee. Those persons who may have mobility limitations due to age or income are located in the southeastern, southwestern and north central portions of the county.

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.

## **Methods of Warning**

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

### ***NOAA Weather Radio***

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

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

NOAA Weather Radio is useful any time for the latest weather information but becomes even more important during severe or hazardous weather. During episodes of severe weather, the normal broadcast cycle is interrupted and focus shifted to the local severe weather threat.

Watches, warnings, and statements are given the highest priority and are updated frequently as conditions change.

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

### ***Outdoor Warning Sirens***

Macon County EMA has outdoor warning sirens. Although these sirens cover most of the populated areas, there are many places without an outdoor siren. The existing sirens have an effective radiated coverage area of one mile around the siren. Weather Warnings sound like a long wail. The siren blasts run three to five minutes. The entire countywide Outdoor Siren Warning System is periodically tested. Notification of testing is usually posted in the newspapers and announced on the local radio station to avoid confusion. The general public is advised to not depend on hearing the sirens inside a building. The sirens are designed to be heard outdoors only and are installed near recreational areas and shopping malls where there are large outdoor populations. As a backup to the Outdoor Siren Warning System, police and fire units throughout the county can be instructed to sound their sirens.

### ***Broadcast Media***

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

severe weather coverage. Local newspapers, outdoor warning sirens, and NOAA radios also assist in informing the public of risks, threats, watches, warnings, evacuations, shelters, etc. The Macon County EMA has printed and distributed materials with information concerning safe rooms, natural and man-made hazards, and what to do during tornados.

## **Vulnerability Summary**

**Table 4-10** provides a summary of Macon County’s vulnerability to specified hazards by jurisdiction. Each jurisdiction was tasked with considering how vulnerable they are to each hazard by considering the percentage of potential damage and the frequency of occurrences. Using information from the Risk Assessment in Section Three as well as the data in the earlier parts of this section as a basis for evaluation, the committee members assigned either N/A: Not Applicable, L: Low Risk, M: Medium Risk, and H: High Risk as defined in the Table Key.

## ***Estimated Loss Projections***

**Table 4-11** shows the figures used for valuation of deaths and injuries are approximations based on FEMA guidance used in benefit-cost analysis of hazard mitigation measures. Major and minor injuries are combined in the NOAA data, so it was necessary to use a blended number in the valuation.

**Table 4-11** shows the estimated loss projections for each hazard. The average number of occurrences per year is shown along with total number of deaths and injuries. The average amount of loss per event was determined by combining crop and property loss damages for each event type and then dividing by the corresponding total number of events reported during the ten-year study period. This amount is shown under the column heading Average Crop and Property Loss. There are instances where the Average Crop and Property Loss (per event) and Projected Loss (per Event) for an identified hazard could not be determined due to the absence of historical event data. This is a data limitation beyond the control of an affected jurisdiction.

<b>Table 4-9: 2014 Values used for Monetary Conversion of Tornado Injuries and Deaths</b>	
<b>Damage Category</b>	<b>Value</b>
Injury (blended major and minor)	\$23,175
Death	\$3,660,003
<i>(Source: FEMA, 2014)</i>	

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

**Table 4-10: Macon County Vulnerability Summary**

<b>Natural Hazards</b>	<b>Franklin</b>	<b>Notasulga</b>	<b>Shorter</b>	<b>Tuskegee</b>	<b>Macon County</b>
<b>Thunderstorm</b>	H	H	H	M	H
<b>Lightning</b>	L	L	L	L	L
<b>Hail</b>	L	L	L	L	M
<b>Tornado</b>	H	M	M	M	H
<b>Flood/Flash Flood</b>	M	L	L	M	H
<b>Drought/ Extreme Heat</b>	H	H	H	H	M
<b>Winter Storm/ Frost Freeze/ Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold</b>	M	M	M	M	L
<b>Hurricane/Tropical Storm/Tropical Depression/ High Wind/Strong Wind</b>	M	M	M	M	M
<b>Sinkhole/Expansive Soil</b>	L	L	L	L	L
<b>Landslide</b>	L	L	L	L	L
<b>Earthquake</b>	L	L	L	L	L
<b>Wildfire</b>	L	L	L	L	H
<b>Dam/Levee Failure</b>	L	L	L	L	L
<p>KEY: Based on occurrences from 2005-2015 and potential risk            NA – Not Applicable; not a hazard to the jurisdiction            L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction)            M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence)            H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)</p>					
<i>(Source: Participating Jurisdictions, 2016)</i>					

**Table 4-11: Macon County  
Estimated Loss Projections from Specified Hazards**

<b>Natural Hazards</b>	<b>Average Occurrences (per year)</b>	<b>Total Deaths</b>	<b>Total Injuries</b>	<b>Average Death and Injury Loss (per event)</b>	<b>Average Crop and Property Loss (per event)</b>	<b>Projected Loss (per event)</b>
<b>Thunderstorm</b>	2.5	Unknown	Unknown	Unknown	\$7,139	\$7,781
<b>Lightning</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hail</b>	1.6	Unknown	Unknown	Unknown	\$7,750	\$8,448
<b>Tornado</b>	1.0	Unknown	2	\$4,635	\$102,375	\$116,641
<b>Flood/Flash Flood</b>	0.4	Unknown	Unknown	Unknown	\$41,000	\$44,690
<b>Drought/Extreme Heat</b>	5.6	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold</b>	0.3	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	0.7	Unknown	Unknown	Unknown	\$17,333	\$18,893
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Landslide</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Earthquake</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Wildfire (3 year study period)</b>	82	Unknown	Unknown	Unknown	\$59,303	\$64,640
<b>Dam/Levee Failure</b>	Unknown	Unknown	Unknown	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, 2016*

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire which is a 3-year period (# fires x # acres per fire x \$1,900/acre average). Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero or Unknown denotes no data available to determine the average occurrences, average loss or projected loss per event.



## **Mitigating Potential Losses**

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

### ***Mitigation Strategy***

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

**Goal: Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.**

**Objective:** Establish a full warning system for notification of impending disasters throughout Macon County.

**Objective:** Ensure that adequate protection shelters are available for use during disaster occurrences.

**Objective:** Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.

**Objective:** Implement fire protection measures to decrease potential for loss of life and property damage.

**Objective:** Limit impact of heat and drought on human health, property damage and agricultural losses.

**Objective:** Improve infrastructural facilities to limit the impact of natural hazard events.

**Objective:** Prepare and provide for emergency utility services before and during a disaster event.

**Goal:** Provide ongoing support of the Macon County Emergency Management efforts to make Macon County less vulnerable to natural disasters.

**Objective:** Ensure that the Macon County Hazard Mitigation Plan remains current and is implemented.

**Objective:** Improve coordination and communication between emergency response organizations and highly vulnerable entities.

**Goal: Educate general population about natural hazards and hazard mitigation options.**

**Objective:** Establish and implement hazard mitigation public awareness program.

**Objective:** Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites – government and related non- governmental) to help distribute information and materials.

### ***Mitigation Actions***

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

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

Actions identify the activity, what hazard(s) are addressed, whether the activity applies to

a new or existing asset, and an estimated cost. The action also identifies the planning mechanism, possible funding sources, and a time frame for completion of the activity.

### ***Action Priority and Cost Benefit Review***

In the selection and prioritization of mitigation actions, each member was asked to consider the following: funding options, political support, public support, legality, preservation of the environment, and staff capability. The committee then looked at each strategy in terms of costs and benefits. Not only were direct costs and benefits considered, but indirect costs and benefits were also acknowledged. Indirect costs and/or benefits are often intangible attributes such as social effects.

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

### ***Mitigation Status***

During the plan update mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates, if any. **Table 4-14** shows Macon County's updated mitigation actions for the 2015 plan revision. All actions will be addressed as soon as possible depending on available funding and resources; however, actions labeled high in priority will be addressed first, medium in priority will be addressed secondly, and low in priority will be addressed last. The most important

determination is funding, which greatly affects which projects can be completed. The 2015 status of previous mitigation action items can be found in the Benchmark row of **Table 4-14**.

**Table 4-12: Macon County Mitigation Actions**

<b>Mitigation Action</b>	Develop a warning plan to install approximately 10 additional sirens at targeted sites to adequately cover population pockets in rural Macon County.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$35,000 each siren
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Partially completed (additional systems have been installed since the last update, additional funding required)
<b>Mitigation Action - NEW</b>	Continue to participate in the NFIP
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods/Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. Coordinate with 10 Volunteer Fire Departments.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially completed with informal status; plans are to formalize
<b>Mitigation Action</b>	Construct warning signage for limited visibility due to forest fires on major roads in targeted areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County FD/VFDs
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; being coordinated with Forest Service

<b>Mitigation Action</b>	Investigate use of phone messaging system to provide warning of all impending hazardous conditions; consider “reverse” 911 systems.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County 911
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Purchase of radios has been interim progress. No additional actions have been taken due to lack of time and resources.
<b>Mitigation Action</b>	Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed; expand Red Cross facilities.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,500
<b>Funding Sources</b>	Local, Red Cross, MGMC MCCA
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; ongoing improvements have been made; need additional funding.

<b>Mitigation Action - NEW</b>	Purchase emergency generators for post-disaster mitigation, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$4,000 to \$25,000 each
<b>Funding Sources</b>	HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action</b>	Designate and upgrade/retrofit, as necessary, 11 existing public facilities to provide shelter in areas of Macon County where there currently are no shelters - primarily targeting schools and community centers, at a rate of one site every two years; Coordinate with critical facilities, include provisions for evacuation shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$38,000
<b>Funding Sources</b>	Local, HMGP, ARC
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; County EMA has constructed a new central communications headquarters and communications system, additional public facilities need to be prioritized for more progress.



<b>Mitigation Action</b>	Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task; Give priority to southeast part of the county; Possibly a School; Consider in conjunction with senior center with ADECA funding.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; need to decide on site and secure funding
<b>Mitigation Action</b>	Secure funds to continue efforts to assist citizens in constructing/installing private shelters on their land at a rate of seven shelters per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000 each construction/installation
<b>Funding Sources</b>	HMGP, Private
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; the county continues providing assistance in supporting grant funds (when available) for this action

<b>Mitigation Action</b>	Work with developer, home builders and contractors to promote construction of a safe room in all new residential development.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Low
<b>Benchmark</b>	No formal arrangement with the developers, builders or contractors has been made to date.
<b>Mitigation Action</b>	Publicize information on locations of existing public safe rooms and when to use them; Coordinate with first responders; Utilize radio stations; Announce safe room openings in advance of events; Permanent evacuation and relocation procedures, to include evacuations from safe rooms.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	Existing and New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP, Local ARC
<b>Priority</b>	Medium
<b>Benchmark</b>	Progress has been made with radio stations; however, formal arrangements need to be made.

<b>Mitigation Action</b>	Incorporate and enforce flood management ordinances in all county and municipal zoning ordinances.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete - the county has been working with all jurisdictions to adopt flood plain ordinances. All jurisdictions have ordinances in place, except for Franklin.
<b>Mitigation Action</b>	Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete with ongoing progress; an ongoing program for monitoring implementation.

<b>Mitigation Action</b>	Develop long-range growth and development plan for Macon County to address permitting and construction process in unincorporated areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$45,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete. Zoning in at least the flood plain areas is needed. Macon County Planning Commission has been formed and a comprehensive plan has been approved.
<b>Mitigation Action</b>	Promote updated comprehensive plans for Tuskegee, Notasulga and other municipalities with planning jurisdictions.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Macon County Planning Commission, Regional Planning Commission
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete. Notasulga and Shorter have adopted comprehensive plans. Tuskegee is in process of updating their comprehensive plan.

<b>Mitigation Action</b>	Ensure Macon County EMA is involved in the review of all local future growth and development plans.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$13,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	High
<b>Benchmark</b>	A formal process is needed.
<b>Mitigation Action</b>	Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, CDGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been necessary during the past five years.

<b>Mitigation Action</b>	Develop and utilize zoning ordinance to manage development in urban fringed areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County Commission, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been necessary during the past five years.
<b>Mitigation Action</b>	Establish educational programs to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been taken during the past five years due to lack of interest in the urban interface areas; however, the county supports the Alabama Forestry Commission on this effort.

<b>Mitigation Action</b>	Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues their support of the Alabama Forestry Commission on this effort.
<b>Mitigation Action</b>	Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues working with the Lower Tallapoosa River Watershed Management Committee on their efforts.

<b>Mitigation Action</b>	Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought, Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County GIS
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues promoting interconnected water resource mapping and planning.
<b>Mitigation Action</b>	Work with Macon County medical providers to develop emergency supplies.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMS and EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire, Medical
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues coordinating with medical providers and the Department of Public Health to ensure necessary emergency supplies are on hand.



<b>Mitigation Action</b>	Work with Macon County Farm Service Agency and County Extension Service to establish drought information.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues working with the Macon County Farm Service Agency and County Extension Service to ensure drought information is available to citizens.
<b>Mitigation Action - DELETE</b>	Develop a drought and heat indicator plan and a warning system that includes a response strategy.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	The county will be notified by state and federal officials of an impending drought threat. Local officials will coordinate with residents and businesses.

<b>Mitigation Action</b>	Develop print public service announcements
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit the impact of heat and drought on human health, property damage and agricultural losses.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Partially completed; county has coordinated with weather channels on this action item, but formal arrangements need to be made
<b>Mitigation Action</b>	Elevate and pave county roads that have high potential for flooding and/or washing during flood/flash flood events to provide access and limit erosion and sedimentation. This includes 2 miles of St. Marks Road (\$205,000); .75 miles of Pecola Road (\$80,000); 2-10 miles of a County Road from Highway 80 to Hardaway County Road 67 (\$2,004,999); 7 miles of County Road 73 (\$705,000) and 3.5 miles (\$355,000)
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,349,999
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken due to lack of funding.

<b>Mitigation Action</b>	Continue bridge inspection and improvement efforts to prevent washing and/or failure during floods/flash floods.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$7,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	The county continues local inspection of bridges and making minor improvements as funds become available.
<b>Mitigation Action</b>	Maintain all roads to allow constant access for emergency response, recovery and repair and continual delivery of services to residents. This will be completed at 8 roads per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	The county continues local inspection of bridges and making minor improvements as funds become available.

<b>Mitigation Action - DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster.
<b>Mitigation Action</b>	Update the Macon County Hazard Mitigation Plan every five years as required by regulations.
<b>Goal</b>	Provide ongoing support of the Macon County Emergency Management Agency's efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The county continues making annual reviews and revising their plan every 5 years. The county wishes to keep this action item in this plan update.

<b>Mitigation Action</b>	Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.
<b>Goal</b>	Provide ongoing support of the Macon County EMA efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$30,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Municipalities continue providing resources for and assisting with implementation of the local Hazard Mitigation Plan.
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County EMA.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues working with each municipality to improve communications.

<b>Mitigation Action</b>	Provide for incident command training for the local emergency coordinators and other responders. Give priorities to police and fire; meet all FEMA training requirements.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$2,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues offering training for local emergency coordinators and emergency responders, meeting FEMA requirements.
<b>Mitigation Action</b>	Develop an ongoing cycle to promote regular EMA updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$8,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues providing regular updates to the Commission, City and Town Councils, Fire Chiefs Association, Utility Boards, and others.

<b>Mitigation Action</b>	Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues cooperating and coordinating with agencies and entities to accomplish this task as needed.
<b>Mitigation Action</b>	Develop a portable information booth for display at local fairs and public events to distribute materials.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$6,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of funding. Macon County wishes the action item to remain in this plan update.

<b>Mitigation Action</b>	Work with Macon County Extension Service to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	Floods, Flash Floods, Sinkholes/Expansive Soils, Landslides, Wildfires
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Work to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events is ongoing.
<b>Mitigation Action</b>	Develop broadcast public service announcements for airing on local television and radio stations.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$15,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of funding. Macon County wishes the action item to remain in this plan update.



<b>Mitigation Action</b>	Develop print public service announcements for publication in local newspaper and agency newsletters.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of funding. Macon County wishes the action item to remain in this plan update.
<b>Mitigation Action</b>	Develop information website with links from Macon County Commission and municipal websites; Incorporate a comprehensive educational preparedness program; Coordinate with Health Department, including Pandemic.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Some information has been included on the websites; however, this action continues. Macon County wishes the action item to remain in this plan update.

<b>Mitigation Action</b>	Incorporate hazard awareness and mitigation into the curricula of local schools.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$7,500
<b>Funding Sources</b>	Local, HMGP, BOE
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of funding and resources. Macon County wishes the action item to remain in this plan update.
<b>Mitigation Action</b>	Develop coloring and activity books at four appropriate age levels for widespread annual distribution.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$7,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of funding and resources; however, FEMA resources have been utilized. Macon County wishes the action item to remain in this plan update.

# **Section Five:**

# **Jurisdiction**

# **Assessments**

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# **TOWN OF FRANKLIN**

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

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

*Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2016*

**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. These prioritized threats may or may not be the same as the mitigation actions prioritization.

Vulnerability: NA – Not Applicable; not a hazard to the jurisdiction

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

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

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

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**TABLE 5-2: TOWN OF FRANKLIN HAZARD EVENTS**

**3 Thunderstorms Events** – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	04/30/2005	06:44	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
<a href="#">FRANKLIN</a>	MACON CO.	AL	08/22/2010	14:25	CST-6	Thunderstorm Wind	65 kts. EG	0	0	5.00K	0.00K
<a href="#">FRANKLIN</a>	MACON CO.	AL	12/10/2012	13:56	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	8.00K	0.00K

**0 Lightning Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No lightning events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Hail Events** – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No hail events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Tornado Event** – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**1 Flood Event** – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	17.00K	0.00K
<b>Totals:</b>								0	0	17.00K	0.00K

**56 Drought/Extreme Heat Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

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

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/14/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/23/2010	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/04/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**3 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/09/2011	20:20	CST-6	Ice Storm		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/28/2014	08:20	CST-6	Winter Weather		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	0	25.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	65.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/12/2005	04:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/05/2011	21:30	CST-6	Strong Wind	39 kts. EG	0	0	8.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/18/2014	18:15	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
<b>Totals:</b>								0	0	104.00K	0.00K

**0 Sinkhole Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No sinkhole events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Landslide Events** - 01/01/2005 thru 12/31/2015 (4018 days)

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

No landslide events occurred or were reported during 01/01/2005 thru 12/31/2015.

**0 Earthquake Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey/city-data.com during 01/01/2005 thru 12/31/2015.

**245 Wildfire Events** – 2010 thru 2013

(Source: Alabama Forestry Commission)

County	Total # of Fires	Annual Average # of Fires	Total Acres Burned	Annual Average Acres Burned	Average Fire Size in Acres
Macon	245	82	7,015.50	2,378	29

**0 Dam/Levee Failure Events** - 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No dam/levee failure events occurred or were reported during 01/01/2005 thru 12/31/2015.

<b>Table 5-3: Town of Franklin Hazard Probability Assessment</b>				
<b>Natural Hazards</b>	<b>Number of Historical Occurrences</b>	<b>Probability of Future Occurrence</b>	<b>Extent</b>	<b>Area Affected</b>
<b>Thunderstorm</b>	3	30%	>10%	Town wide
<b>Lightning</b>	Unknown	Unknown	<5%	Town wide
<b>Hail</b>	Unknown	Unknown	<5%	Town wide
<b>Tornado</b>	Unknown	Unknown	>10%	Town wide
<b>Flood/Flash Flood</b>	1	10%	5-10%	Town wide
<b>Drought/Extreme Heat</b>	56	>100%	>10%	Town wide
<b>Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold</b>	3	30%	5-10%	Town wide
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	7	70%	5-10%	Town wide
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	<5%	Southern portion
<b>Landslide</b>	Unknown	Unknown	<5%	Southern portion
<b>Earthquake</b>	Unknown	Unknown	<5%	Town wide
<b>Wildfire</b> (2010-2013 – 3 year study period)	245	>100%	<5%	Southern portion
<b>Dam/Levee Failure</b>	Unknown	Unknown	<5%	Town wide
<i>Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS ; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions, 2016</i>				
<p>Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.</p>				

<b>TABLE 5-4: CRITICAL FACILITIES – FRANKLIN</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Franklin Police Department	\$1,260,000
Franklin Town Hall	\$
<b>Total</b>	<b>\$1,260,000 (+)</b>



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

<b>Natural Hazards</b>	<b>Average Occurrences (per year)</b>	<b>Total Deaths</b>	<b>Total Injuries</b>	<b>Average Death and Injury Loss (per event)</b>	<b>Average Crop and Property Loss (per event)</b>	<b>Projected Loss (per event)</b>
<b>Thunderstorm</b>	0.3	Unknown	Unknown	Unknown	\$4,000	\$4,360
<b>Lightning</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hail</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Tornado</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Flood/Flash Flood</b>	0.1	Unknown	Unknown	Unknown	\$17,000	\$18,530
<b>Drought/Extreme Heat</b>	5.6	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold</b>	0.3	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind</b>	0.7	Unknown	Unknown	Unknown	\$17,333	\$18,893
<b>Sinkhole/Expansive Soils</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Landslide</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Earthquake</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Wildfire</b> (3 year study period)	82	Unknown	Unknown	Unknown	\$59,303	\$64,640
<b>Dam/Levee Failure</b>	Unknown	Unknown	Unknown	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, 2016*

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

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## Town of Franklin Mitigation Action Plan

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

### Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-6** shows the Town of Franklin's updated mitigation actions. The status of mitigation actions can be found under Benchmark.

<b>Table 5-6: Franklin Mitigation Actions</b>	
<b>Mitigation Action</b>	Develop a warning plan to install approximately 10 additional sirens at targeted sites.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$35,000 each siren
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Partially completed (additional systems have been installed since the last update, additional funding required)

<b>Mitigation Action - NEW</b>	Participate in the NFIP
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods/Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	TBD
<b>Funding Sources</b>	HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. Coordinate with 10 Volunteer Fire Departments.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially completed with informal status; plans are to formalize

<b>Mitigation Action</b>	Investigate use of phone messaging system to provide warning of all impending hazardous conditions; consider “reverse” 911 systems.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County 911
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Purchase of radios has been interim progress. No additional actions have been taken due to lack of time and resources.
<b>Mitigation Action</b>	Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; ongoing improvements have been made; need additional funding.

<b>Mitigation Action - NEW</b>	Purchase emergency generators for post-disaster mitigation, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$4,000 to \$25,000 each
<b>Funding Sources</b>	HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action</b>	Designate and upgrade/retrofit existing public facilities to provide shelter in Franklin where there currently are no shelters; Coordinate with critical facilities, include provisions for evacuation shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$42,500
<b>Funding Sources</b>	Local, HMGP, ARC
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete

<b>Mitigation Action</b>	Investigate construction of new public shelter facilities; Consider in conjunction with senior center with ADECA funding.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; need to decide on site and secure funding
<b>Mitigation Action</b>	Secure funds to continue efforts to assist citizens in constructing/installing private shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000 each construction/installation
<b>Funding Sources</b>	HMGP, Private
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; the county continues providing assistance in supporting grant funds (when available) for this action

<b>Mitigation Action</b>	Incorporate and enforce flood management ordinances in all county and municipal zoning ordinances.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken on this item due to lack of participation interest in the NFIP. All jurisdictions have ordinances in place, except for Franklin.
<b>Mitigation Action</b>	Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete with continual progress for monitoring implementation.



<b>Mitigation Action</b>	Promote updated comprehensive plans with planning jurisdictions.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Macon County Planning Commission, Regional Planning Commission
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	A Comprehensive Plan is promoted.
<b>Mitigation Action</b>	Ensure Macon County EMA is involved in the review of all local future growth and development plans.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$13,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	High
<b>Benchmark</b>	A formal process is needed.

<b>Mitigation Action</b>	Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, CDGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been necessary during the past five years due to lack of participation in the NFIP.
<b>Mitigation Action</b>	Develop and utilize zoning ordinance to manage development in urban fringed areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County Commission, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been necessary during the past five years.

<b>Mitigation Action</b>	Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Franklin continues working with the Lower Tallapoosa River Watershed Management Committee on their efforts.
<b>Mitigation Action</b>	Work with Franklin medical providers to develop emergency supplies.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMS and EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire, Medical
<b>Priority</b>	Low
<b>Benchmark</b>	Franklin continues coordinating with medical providers and the Department of Public Health to ensure necessary emergency supplies are on hand.

<b>Mitigation Action - DELETE</b>	Develop a drought and heat indicator plan and a warning system that includes a response strategy.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	The county will be notified by state and federal officials of an impending drought threat. Local officials will coordinate with residents and businesses. This action item will be deleted in future plan revisions.
<b>Mitigation Action - DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster. This action item will be deleted in future plan revisions.

<b>Mitigation Action</b>	Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.
<b>Goal</b>	Provide ongoing support of the Macon County EMA efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$30,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Franklin continues providing resources for and assisting with implementation of the local Hazard Mitigation Plan.
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County EMA.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues working with each municipality to improve communications.

<b>Mitigation Action - DELETE</b>	Provide for incident command training for the local emergency coordinators and other responders. Give priorities to police and fire; meet all FEMA training requirements.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$2,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues offering training for local emergency coordinators and emergency responders, meeting FEMA requirements; therefore, this action will be deleted from Franklin's mitigation action items.
<b>Mitigation Action - DELETE</b>	Work with Macon County Extension Service to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	Floods, Flash Floods, Sinkholes/Expansive Soils, Landslides, Wildfires
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Macon County provides this service; therefore, this action will be deleted from Franklin's mitigation action items.

<b>Mitigation Action</b>	Establish educational programs to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been taken during the past five years due to lack of interest in the urban interface areas; however, the county supports the Alabama Forestry Commission on this effort.
<b>Mitigation Action</b>	Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Franklin continues their support of the Alabama Forestry Commission on this effort.

<b>Mitigation Action</b>	Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought, Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County GIS
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Franklin continues promoting interconnected water resource mapping and planning.
<b>Mitigation Action</b>	Work with Macon County Farm Service Agency and County Extension Service to establish drought information.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Franklin continues working with the Macon County Farm Service Agency and County Extension Service to ensure drought information is available to citizens.



<b>Mitigation Action</b>	Elevate and pave roads that have high potential for flooding and/or washing during flood/flash flood events to provide access and limit erosion and sedimentation. This includes 2 miles of St. Marks Road (\$205,000); .75 miles of Pecola Road (\$80,000); 2-10 miles of a County Road from Highway 80 to Hardaway County Road 67 (\$2,004,999); 7 miles of County Road 73 (\$705,000) and 3.5 miles (\$355,000)
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,349,999
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken due to lack of funding. <b>This action is a combined action from the last plan update.</b>
<b>Mitigation Action</b>	Continue bridge inspection and improvement efforts to prevent washing and/or failure during floods/flash floods.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$7,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	The county continues local inspection of bridges and making minor improvements as funds become available.

<b>Mitigation Action</b>	Maintain all roads to allow constant access for emergency response, recovery and repair and continual delivery of services to residents. This will be completed at 8 roads per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	The county continues inspecting roads and bridges and making minor improvements as funds become available.
<b>Mitigation Action- DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster.

<b>Mitigation Action</b>	Develop an ongoing cycle to promote regular EMA updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$8,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Franklin continue providing regular updates to the Commission, City and Town Councils, Fire Chiefs Association, Utility Boards, and others.
<b>Mitigation Action</b>	Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Franklin continue cooperating and coordinating with agencies and entities to accomplish this task as needed.

# Town of Notasulga

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**Table 5-7: Town of Notasulga  
Risk and Vulnerability Overview**

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

**KEY:**  
Hazard Identification – Identified by local jurisdictions  
Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.  
Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.  
Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

*(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2016)*

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## TABLE 5-8: TOWN OF NOTASULGA HAZARD EVENTS

### 3 Thunderstorm Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	04/30/2005	06:44	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	12/25/2012	23:06	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/24/2015	18:49	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	3.00K	0.00K

### 0 Lightning Events – 01/01/2005 thru 12/31/2015 (4018 days)

No lightning events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

### 5 Hail Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">NOTASULGA</a>	MACON CO.	AL	04/22/2005	15:14	CST	Hail	1.00 in.	0	0	1.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/15/2010	16:05	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	03/27/2011	21:35	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	06/16/2011	09:33	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	03/18/2013	16:58	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	1.00K	0.00K



**2 Tornado Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">NOTASULGA</a>	MACON CO.	AL	04/10/2009	19:29	CST-6	Tornado	EF1	0	0	200.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	11/16/2011	11:52	CST-6	Tornado	EF1	0	0	500.00K	0.00K
<b>Totals:</b>								0	0	700.00K	0.00K

**2 Flood/Flash Flood Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	17.00K	0.00K
<a href="#">NOTASULGA</a>	MACON CO.	AL	12/24/2015	11:00	CST-6	Flash Flood		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	17.00K	0.00K

**56 Drought/Extreme Heat Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/14/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/23/2010	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/04/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**3 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold  
Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/09/2011	20:20	CST-6	Ice Storm		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/28/2014	08:20	CST-6	Winter Weather		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –**  
01/01/2005 thru 12/31/2015 (4018 days)

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	0	25.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	65.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/12/2005	04:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/05/2011	21:30	CST-6	Strong Wind	39 kts. EG	0	0	8.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/18/2014	18:15	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
<b>Totals:</b>								0	0	104.00K	0.00K

**0 Sinkhole Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No sinkhole events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Landslide Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No landslide events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Earthquake Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

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

<b>County</b>	<b>Total # of Fires</b>	<b>Annual Average # of Fires</b>	<b>Total Acres Burned</b>	<b>Annual Average Acres Burned</b>	<b>Average Fire Size in Acres</b>
Macon	245	82	7,015.50	2,378	29

**0 Dam/Levee Failure Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No dam/levee failure events occurred or were reported during 01/01/2005 thru 12/31/2015.

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**Table 5-9: Town of Notasulga  
Hazard Probability Assessment**

<b>Natural Hazards</b>	<b>Number of Historical Occurrences</b>	<b>Probability of Future Occurrence</b>	<b>Extent</b>	<b>Area Affected</b>
<b>Thunderstorm</b>	3	30%	>10%	Town wide
<b>Lightning</b>	Unknown	Unknown	<5%	Town wide
<b>Hail</b>	5	50%	<5%	Town wide
<b>Tornado</b>	2	20%	5-10%	Town wide
<b>Flood/Flash Flood</b>	2	20%	<5%	Town wide
<b>Drought/Extreme Heat</b>	56	>100%	>10%	Town wide
<b>Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold</b>	3	30%	5-10%	Town wide
<b>Hurricane/High Wind/ Strong Wind/ Tropical Storm/ Tropical Depression</b>	7	70%	5-10%	Town wide
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	<5%	Town wide
<b>Landslide</b>	Unknown	Unknown	<5%	Town wide
<b>Earthquake</b>	Unknown	Unknown	<5%	Town wide
<b>Wildfire</b> (2010-2013 – 3 year study period)	245	>100%	<5%	Seldom Affected
<b>Dam/Levee Failure</b>	Unknown	Unknown	<5%	Northern portion
<i>Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS ; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions, 2016</i>				
<p>Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.</p>				



<b>TABLE 5-10: CRITICAL FACILITIES – NOTASULGA</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Notasulga Lagoon	\$59,940,000
Notasulga VFD	\$1,260,000
Notasulga Police Department	\$
Notasulga High School	\$5,803,430
Notasulga Town Hall	\$
Notasulga Public Warning System	\$40,000
Notasulga Post Office	\$
<b>Total</b>	<b>\$67,043,430 (+)</b>

**Table 5-11: Town of Notasulga  
Estimated Loss Projections from Specified Hazards**

<b>Natural Hazards</b>	<b>Average Occurrences (per year)</b>	<b>Total Deaths</b>	<b>Total Injuries</b>	<b>Average Death and Injury Loss (per event)</b>	<b>Average Crop and Property Loss (per event)</b>	<b>Projected Loss (per event)</b>
<b>Thunderstorm</b>	0.3	Unknown	Unknown	Unknown	\$3,000	\$3,270
<b>Lightning</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hail</b>	0.5	Unknown	Unknown	Unknown	\$350,000	\$381,500
<b>Tornado</b>	0.2	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Flood/Flash Flood</b>	0.2	Unknown	Unknown	Unknown	\$17,000	\$18,530
<b>Drought/Extreme Heat</b>	5.6	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold</b>	0.3	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind</b>	0.7	Unknown	Unknown	Unknown	\$17,333	\$18,893
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Landslide</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Earthquake</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Wildfire</b> (3 year study period)	82.0	Unknown	Unknown	Unknown	\$4,518,200	\$4,924,838
<b>Dam/Levee Failure</b>	Unknown	Unknown	Unknown	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, 2016*

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

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## Town of Notasulga Mitigation Action Plan

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

### Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 5-12** shows the Town of Notasulga's mitigation actions. The status of mitigation actions can be found under Benchmark.

Table 5-12: Notasulga Mitigation Actions	
<b>Mitigation Action - NEW</b>	Continue to participate in the NFIP
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods/Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. Coordinate with 10 Volunteer Fire Departments.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially completed with informal status; plans are to formalize.
<b>Mitigation Action</b>	Investigate use of phone messaging system to provide warning of all impending hazardous conditions; consider “reverse” 911 systems.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County 911
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Purchase of radios has been interim progress. No additional actions have been taken due to lack of time and resources.

<b>Mitigation Action - NEW</b>	Install/construct community safe rooms to include generators.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$125,000 each
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action - NEW</b>	Purchase emergency generators for post-disaster mitigation, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$4,000 to \$25,000 each
<b>Funding Sources</b>	HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate and upgrade/retrofit, as necessary, 11 existing public facilities to provide shelter in areas of Macon County where there currently are no shelters - primarily targeting schools and community centers, at a rate of one site every two years; Coordinate with critical facilities, include provisions for evacuation shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$38,000
<b>Funding Sources</b>	Local, HMGP, ARC
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; County EMA has constructed a new central communications headquarters and communications system, additional public facilities need to be prioritized for more progress.
<b>Mitigation Action</b>	Work with developers, home builders and contractors to promote construction of a safe room in all new residential development.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Low
<b>Benchmark</b>	No formal arrangement with the developers, builders or contractors has been made to date.

<b>Mitigation Action</b>	Publicize information on locations of existing public safe rooms and when to use them; Coordinate with first responders; Utilize radio stations; Announce safe room openings in advance of events; Permanent evacuation and relocation procedures, to include evacuations from safe rooms.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	Existing and New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP, Local ARC
<b>Priority</b>	Medium
<b>Benchmark</b>	Progress has been made with radio stations; however, formal arrangements need to be made.
<b>Mitigation Action</b>	Incorporate and enforce flood management ordinances in all county and municipal zoning ordinances.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete - the county has been working with all jurisdictions to adopt flood plain ordinances. All jurisdictions have ordinances in place, except for Franklin.



<b>Mitigation Action</b>	Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete with ongoing progress; an ongoing program for monitoring implementation.
<b>Mitigation Action</b>	Promote updated comprehensive plans for Tuskegee, Notasulga and other municipalities with planning jurisdictions.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Macon County Planning Commission, Regional Planning Commission
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete. Notasulga and Shorter have adopted comprehensive plans. Tuskegee is in process of updating their comprehensive plan.

<b>Mitigation Action</b>	Ensure Macon County EMA is involved in the review of all local future growth and development plans.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$13,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	High
<b>Benchmark</b>	A formal process is needed.
<b>Mitigation Action</b>	Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, CDGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been necessary during the past five years.

<b>Mitigation Action</b>	Develop and utilize zoning ordinance to manage development in urban fringed areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County Commission, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been necessary during the past five years.
<b>Mitigation Action</b>	Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues working with the Lower Tallapoosa River Watershed Management Committee on their efforts.

<b>Mitigation Action</b>	Work with Macon County medical providers to develop emergency supplies.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMS and EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire, Medical
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues coordinating with medical providers and the Department of Public Health to ensure necessary emergency supplies are on hand.
<b>Mitigation Action - DELETE</b>	Develop a drought and heat indicator plan and a warning system that includes a response strategy.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	The county will be notified by state and federal officials of an impending drought threat. Local officials will coordinate with residents and businesses.

<b>Mitigation Action - DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster.
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County EMA.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues working with each municipality to improve communications.

<b>Mitigation Action</b>	Provide for incident command training for the local emergency coordinators and other responders. Give priorities to police and fire; meet all FEMA training requirements.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$2,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues offering training for local emergency coordinators and emergency responders, meeting FEMA requirements.
<b>Mitigation Action</b>	Work with Macon County Extension Service to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	Floods, Flash Floods, Sinkholes/Expansive Soils, Landslides, Wildfires
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Work to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events is ongoing.

<b>Mitigation Action</b>	Develop a warning plan to install approximately 10 additional sirens at targeted sites to adequately cover population pockets in rural Macon County.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$35,000 each siren
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Partially completed (additional systems have been installed since the last update, additional funding required)
<b>Mitigation Action</b>	Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,500
<b>Funding Sources</b>	Local, Red Cross, MGMC MCCA
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; ongoing improvements have been made; need additional funding.

<b>Mitigation Action</b>	Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task; Give priority to southeast part of the county; Possibly a School; Consider in conjunction with senior center with ADECA funding.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; need to decide on site and secure funding
<b>Mitigation Action</b>	Secure funds to continue efforts to assist citizens in constructing/installing private shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000 each construction/installation
<b>Funding Sources</b>	HMGP, Private
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; the county continues providing assistance in supporting grant funds (when available) for this action



<b>Mitigation Action</b>	Establish educational programs to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been taken during the past five years due to lack of interest in the urban interface areas; however, the Notasulga supports the Alabama Forestry Commission on this effort.
<b>Mitigation Action</b>	Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Notasulga continues their support of the Alabama Forestry Commission on this effort.

<b>Mitigation Action</b>	Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought, Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County GIS
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues promoting interconnected water resource mapping and planning.
<b>Mitigation Action</b>	Work with Macon County Farm Service Agency and County Extension Service to establish drought information.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues working with the Macon County Farm Service Agency and County Extension Service to ensure drought information is available to citizens.

<b>Mitigation Action</b>	Elevate and pave county roads that have high potential for flooding and/or washing during flood/flash flood events to provide access and limit erosion and sedimentation. This includes 2 miles of St. Marks Road (\$205,000); .75 miles of Pecola Road (\$80,000); 2-10 miles of a County Road from Highway 80 to Hardaway County Road 67 (\$2,004,999); 7 miles of County Road 73 (\$705,000) and 3.5 miles (\$355,000)
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,349,999
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken due to lack of funding. <b>This is a combined action item from last plan update.</b>
<b>Mitigation Action</b>	Continue bridge inspection and improvement efforts to prevent washing and/or failure during floods/flash floods.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$7,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Notasulga continues local inspection of bridges and making minor improvements as funds become available.

<b>Mitigation Action</b>	Maintain all roads to allow constant access for emergency response, recovery and repair and continual delivery of services to residents. This will be completed at 8 roads per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Notasulga continues local inspection of bridges and making minor improvements as funds become available.
<b>Mitigation Action</b>	Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.
<b>Goal</b>	Provide ongoing support of the Macon County EMA efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$30,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Notasulga continues providing resources for and assisting with implementation of the local Hazard Mitigation Plan.

<b>Mitigation Action</b>	Develop an ongoing cycle to promote regular EMA updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$8,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Notasulga continue providing regular updates to the Commission, City and Town Councils, Fire Chiefs Association, Utility Boards, and others.
<b>Mitigation Action</b>	Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Notasulga continue cooperating and coordinating with agencies and entities to accomplish this task as needed.

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# Town of Shorter

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

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

**KEY:**  
Hazard Identification – Identified by local jurisdictions  
Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.  
Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over a three year period. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.  
Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

*(Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2016)*

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**TABLE 5-14: TOWN OF SHORTER HAZARD EVENTS**

**4 Thunderstorm Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	04/30/2005	06:44	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	04/04/2008	17:46	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	11/16/2011	11:32	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	12/10/2012	13:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	7.00K	0.00K

**0 Lightning Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No lightning events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**5 Hail Events – 01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">SHORTER</a>	MACON CO.	AL	03/27/2005	15:52	CST	Hail	1.75 in.	0	0	11.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	03/30/2005	23:10	CST	Hail	1.75 in.	0	0	18.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	08/16/2005	15:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	08/16/2005	15:28	CST	Hail	0.75 in.	0	0	0.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	11/15/2006	12:15	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	29.00K	0.00K

### 1 Tornado Event – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">SHORTER</a>	MACON CO.	AL	07/06/2005	12:55	CST	Tornado	F0	0	0	18.00K	0.00K
<b>Totals:</b>								0	0	18.00K	0.00K

### 2 Flood/Flash Flood Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	17.00K	0.00K
<a href="#">SHORTER</a>	MACON CO.	AL	05/07/2009	07:00	CST-6	Flash Flood		0	0	100.00K	0.00K
<b>Totals:</b>								0	0	117.00K	0.00K

### 56 Drought/Extreme Heat Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/14/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/23/2010	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/04/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**3 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/09/2011	20:20	CST-6	Ice Storm		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/28/2014	08:20	CST-6	Winter Weather		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**8 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	0	25.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	65.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/12/2005	04:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/05/2011	21:30	CST-6	Strong Wind	39 kts. EG	0	0	8.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/18/2014	18:15	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
<b>Totals:</b>								0	0	104.00K	0.00K

#### **0 Sinkhole Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No sinkhole events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

#### **0 Landslide Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No landslide events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

#### **0 Earthquake Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

#### **245 Wildfire Events – 2010 thru 2013** (Source: Alabama Forestry Commission)

County	Total # of Fires	Annual Average # of Fires	Total Acres Burned	Annual Average Acres Burned	Average Fire Size in Acres
Macon	245	82	7,015.50	2,378	29



**0 Dam/Levee Failure Events** – 01/01/2005 thru 12/31/2015 (4018 days)

No dam/levee failure events occurred or were reported during 01/01/2005 thru 12/31/2015.

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

<b>Natural Hazards</b>	<b>Number of Historical Occurrences</b>	<b>Probability of Future Occurrence</b>	<b>Extent</b>	<b>Area Affected</b>
<b>Thunderstorm</b>	4	40%	>10%	Town-wide
<b>Lightning</b>	Unknown	Unknown	<5%	Town-wide
<b>Hail</b>	5	50%	<5%	Town-wide
<b>Tornado</b>	1	10%	5-10%	Town-wide
<b>Flood/Flash Flood</b>	2	20%	<5%	Town-wide
<b>Drought/Extreme Heat</b>	56	>100%	>10%	Town-wide
<b>Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/ Winter Weather/Extreme Cold</b>	3	30%	5-10%	Town-wide
<b>Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind</b>	8	80%	5-10%	Town-wide
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	<5%	Northeastern portion
<b>Landslide</b>	Unknown	Unknown	<5%	Northeastern portion
<b>Earthquake</b>	Unknown	Unknown	<5%	Town-wide
<b>Wildfire</b> (2010-2013 – 3 year period)	245	>100%	<5%	Eastern portion
<b>Dam/Levee Failure</b>	Unknown	Unknown	<5%	Northeastern portion

*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, 2016*

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.



<b>TABLE 5-16: CRITICAL FACILITIES – SHORTER</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Shorter VFD	\$
Shorter Police Department	\$1,260,000
Victoryland Security	\$1,260,000
Deborah Cannon Wolfe School	\$1,871,470
Shorter Town Hall	\$
Shorter Post Office	\$
Victoryland	\$
<b>Total</b>	<b>\$4,391,470 (+)</b>

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

<b>Natural Hazards</b>	<b>Average Occurrences (per year)</b>	<b>Total Deaths</b>	<b>Total Injuries</b>	<b>Average Death and Injury Loss (per event)</b>	<b>Average Crop and Property Loss (per event)</b>	<b>Projected Loss (per event)</b>
<b>Thunderstorm</b>	0.4	Unknown	Unknown	Unknown	\$2,333	\$2,543
<b>Lightning</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hail</b>	0.5	Unknown	Unknown	Unknown	\$14,500	\$15,805
<b>Tornado</b>	0.1	Unknown	Unknown	Unknown	\$18,000	\$19,620
<b>Flood/Flash Flood</b>	0.2	Unknown	Unknown	Unknown	\$58,500	\$63,765
<b>Drought/Extreme Heat</b>	5.6	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Winter Weather/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold</b>	0.3	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind</b>	0.8	Unknown	Unknown	Unknown	\$17,333	\$18,893
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Landslide</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Earthquake</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Wildfire</b> (3 year study period)	82	Unknown	Unknown	Unknown	\$59,303	\$64,640
<b>Dam/Levee Failure</b>	Unknown	Unknown	Unknown	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, 2016*

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

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## Town of Shorter Mitigation Action Plan

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

### Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates, if any. **Table 5-18** shows the Town of Shorter's mitigation actions. The status of mitigation actions can be found under Benchmark.

Table 5-18: Shorter Mitigation Actions	
Mitigation Action - <b>NEW</b>	Participate in the NFIP when applicable
Goal	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
Objective	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
Hazard(s) Addressed	Floods/Flash Floods
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager
Estimated Time Frame for Completion	2020
Estimated Cost	No funding necessary
Funding Sources	HMGP
Priority	High
Benchmark	New Action



<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. Coordinate with Volunteer Fire Departments.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially completed with informal status; plans are to formalize.
<b>Mitigation Action</b>	Investigate use of phone messaging system to provide warning of all impending hazardous conditions; consider “reverse” 911 systems.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County 911
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Purchase of radios has been interim progress. No additional actions have been taken due to lack of time and resources.

<b>Mitigation Action - NEW</b>	Install/construct community safe rooms to include generators.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$125,000 each
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action - NEW</b>	Purchase emergency generators for post-disaster mitigation, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$4,000 to \$25,000 each
<b>Funding Sources</b>	HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate and upgrade/retrofit existing public facilities to provide shelter in Shorter where there currently are no shelters; Coordinate with critical facilities, include provisions for evacuation shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$40,000
<b>Funding Sources</b>	Local, HMGP, ARC
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete.
<b>Mitigation Action</b>	Work with developers, home builders and contractors to promote construction of a safe room in all new residential development.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Low
<b>Benchmark</b>	No formal arrangement with the developers, builders or contractors has been made to date due to lack of time and resources.

<b>Mitigation Action</b>	Publicize information on locations of existing public safe rooms and when to use them; Coordinate with first responders; Utilize radio stations; Announce safe room openings in advance of events; Permanent evacuation and relocation procedures, to include evacuations from safe rooms.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	Existing and New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP, Local ARC
<b>Priority</b>	Medium
<b>Benchmark</b>	Progress has been made with radio stations; however, formal arrangements need to be made.
<b>Mitigation Action</b>	Incorporate and enforce flood management ordinances in all municipal zoning ordinances.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Shorter has ordinances in place and continues enforcing flood management.

<b>Mitigation Action</b>	Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete with continual progress for monitoring implementation.
<b>Mitigation Action</b>	Promote updated comprehensive plans with planning jurisdictions.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Macon County Planning Commission, Regional Planning Commission
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	A Comprehensive Plan is promoted.

<b>Mitigation Action</b>	Ensure Macon County EMA is involved in the review of all local future growth and development plans.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$13,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	High
<b>Benchmark</b>	A formal process is needed.
<b>Mitigation Action</b>	Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, CDGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been necessary during the past five years.

<b>Mitigation Action</b>	Develop and utilize zoning ordinance to manage development in urban fringed areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County Commission, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been necessary during the past five years.
<b>Mitigation Action</b>	Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Shorter continues working with the Lower Tallapoosa River Watershed Management Committee on their efforts.

<b>Mitigation Action</b>	Work with Shorter medical providers to develop emergency supplies.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMS and EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire, Medical
<b>Priority</b>	Low
<b>Benchmark</b>	Shorter continues coordinating with medical providers and the Department of Public Health to ensure necessary emergency supplies are on hand.
<b>Mitigation Action - DELETE</b>	Develop a drought and heat indicator plan and a warning system that includes a response strategy.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	The county will be notified by state and federal officials of an impending drought threat. Local officials will coordinate with residents and businesses.



<b>Mitigation Action - DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster. This action will be deleted in future plan revisions.
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County EMA.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues working with each municipality to improve communications.

<b>Mitigation Action - DELETE</b>	Provide for incident command training for the local emergency coordinators and other responders. Give priorities to police and fire; meet all FEMA training requirements.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$2,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues offering training for local emergency coordinators and emergency responders, meeting FEMA requirements therefore, this action will be deleted from Shorter's mitigation action items.

<b>Mitigation Action - DELETE</b>	Work with Macon County Extension Service to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	Floods, Flash Floods, Sinkholes/Expansive Soils, Landslides, Wildfires
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Macon County provides this service; therefore, this action will be deleted from Shorter's mitigation action items.
<b>Mitigation Action</b>	Develop a warning plan to install approximately 10 additional sirens at targeted sites to adequately cover population pockets in rural Macon County.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$35,000 each siren
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Partially completed (additional systems have been installed since the last update, additional funding required)

<b>Mitigation Action</b>	Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; ongoing improvements have been made; need additional funding.
<b>Mitigation Action</b>	Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task; Give priority to southeast part of the county; Possibly a School; Consider in conjunction with senior center with ADECA funding.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; need to decide on site and secure funding

<b>Mitigation Action</b>	Secure funds to continue efforts to assist citizens in constructing/installing private shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000 each construction/installation
<b>Funding Sources</b>	HMGP, Private
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; the county continues providing assistance in supporting grant funds (when available) for this action
<b>Mitigation Action</b>	Establish educational programs to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been taken during the past five years due to lack of interest in the urban interface areas; however, the Shorter supports the Alabama Forestry Commission on this effort.

<b>Mitigation Action</b>	Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Shorter continues their support of the Alabama Forestry Commission on this effort.
<b>Mitigation Action</b>	Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought, Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County GIS
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues promoting interconnected water resource mapping and planning.

<b>Mitigation Action</b>	Work with Macon County Farm Service Agency and County Extension Service to establish drought information.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Shorter continues working with the Macon County Farm Service Agency and County Extension Service to ensure drought information is available to citizens.
<b>Mitigation Action</b>	Elevate and pave county roads that have high potential for flooding and/or washing during flood/flash flood events to provide access and limit erosion and sedimentation. This includes 2 miles of St. Marks Road (\$205,000); .75 miles of Pecola Road (\$80,000); 2-10 miles of a County Road from Highway 80 to Hardaway County Road 67 (\$2,004,999); 7 miles of County Road 73 (\$705,000) and 3.5 miles (\$355,000)
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,349,999
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken due to lack of funding. <b>This is a combined action item from last plan update.</b>

<b>Mitigation Action</b>	Continue bridge inspection and improvement efforts to prevent washing and/or failure during floods/flash floods.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$7,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Shorter continues local inspection of bridges and making minor improvements as funds become available.
<b>Mitigation Action</b>	Maintain all roads to allow constant access for emergency response, recovery and repair and continual delivery of services to residents. This will be completed at 8 roads per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Shorter continues local inspection of bridges and making minor improvements as funds become available.



<b>Mitigation Action</b>	Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.
<b>Goal</b>	Provide ongoing support of the Macon County EMA efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$30,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Shorter continues providing resources for and assisting with implementation of the local Hazard Mitigation Plan.
<b>Mitigation Action</b>	Develop an ongoing cycle to promote regular EMA updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$8,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Shorter continue providing regular updates to the Commission, City and Town Councils, Fire Chiefs Association, Utility Boards, and others.

<b>Mitigation Action</b>	Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Shorter continue cooperating and coordinating with agencies and entities to accomplish this task as needed.

# City of Tuskegee

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**Table 5-19: City of Tuskegee  
Risk and Vulnerability Overview**

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

**KEY:**

Hazard Identification – Identified by local jurisdictions

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

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

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

*(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2016)*

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## TABLE 5-20: CITY OF TUSKEGEE HAZARD EVENTS

### 5 Thunderstorms Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	04/30/2005	06:44	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	03/20/2006	19:45	CST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	05/03/2009	14:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
<a href="#">TUSKEGEE INSTITUTE</a>	MACON CO.	AL	04/04/2011	21:20	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
<a href="#">TUSKEGEE MOTON ARPT</a>	MACON CO.	AL	07/05/2012	17:58	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	28.00K	0.00K

### 0 Lightning Events – 01/01/2005 thru 12/31/2015 (4018 days)

No lightning events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

### 1 Hail Event – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/01/2011	16:06	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

## 2 Tornado Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/06/2005	13:34	CST	Tornado	F1	0	1	48.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	08/29/2005	15:19	CST	Tornado	F0	0	0	30.00K	0.00K
<b>Totals:</b>								0	1	78.00K	0.00K

## 2 Flood/Flash Flood Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">COUNTYWIDE</a>	MACON CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	17.00K	0.00K
<a href="#">TUSKEGEE</a>	MACON CO.	AL	07/10/2005	16:47	CST	Flash Flood		0	0	6.00K	0.00K
<b>Totals:</b>								0	0	23.00K	0.00K

## 56 Drought/Extreme Heat Events – 01/01/2005 thru 12/31/2015 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K



<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/14/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/23/2010	06:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/04/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**3 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2005 thru 12/31/2015 (4018 days)**  
*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Ini</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	02/12/2010	12:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/09/2011	20:20	CST-6	Ice Storm		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	01/28/2014	08:20	CST-6	Winter Weather		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

**7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –  
01/01/2005 thru 12/31/2015 (4018 days)**

*(Source: NOAA NCDC Storm Events Database)*

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	0	25.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/29/2005	23:30	CST	Tropical Storm		0	0	65.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	0.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	2.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/12/2005	04:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	09/05/2011	21:30	CST-6	Strong Wind	39 kts. EG	0	0	8.00K	0.00K
<a href="#">MACON (ZONE)</a>	MACON (ZONE)	AL	04/18/2014	18:15	CST-6	Strong Wind	35 kts. EG	0	0	3.00K	0.00K
<b>Totals:</b>								0	0	104.00K	0.00K

**0 Sinkhole Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No sinkhole events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Landslide Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No landslide events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

**0 Earthquake Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2005 thru 12/31/2015.

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

<b>County</b>	<b>Total # of Fires</b>	<b>Annual Average # of Fires</b>	<b>Total Acres Burned</b>	<b>Annual Average Acres Burned</b>	<b>Average Fire Size in Acres</b>
Macon	245	82	7,015.50	2,378	29

**0 Dam/Levee Failure Events – 01/01/2005 thru 12/31/2015 (4018 days)**

No dam/levee failure events occurred or were reported during 01/01/2005 thru 12/31/2015.

<b>Table 5-21: City of Tuskegee Hazard Probability Assessment</b>				
<b>Natural Hazards</b>	<b>Number of Historical Occurrences</b>	<b>Probability of Future Occurrence</b>	<b>Extent</b>	<b>Area Affected</b>
<b>Thunderstorm</b>	5	50%	5-10%	Town-wide
<b>Lightning</b>	Unknown	Unknown	<5%	Town-wide
<b>Hail</b>	1	10%	<5%	Town-wide
<b>Tornado</b>	2	20%	5-10%	Town-wide
<b>Flood/Flash Flood</b>	2	20%	5-10%	Town-wide
<b>Drought/Extreme Heat</b>	56	>100%	>10%	Town-wide
<b>Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold</b>	3	30%	5-10%	Town-wide
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind</b>	7	70%	5-10%	Town-wide
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	<5%	Eastern portion
<b>Landslide</b>	Unknown	Unknown	<5%	Eastern portion
<b>Earthquake</b>	Unknown	Unknown	<5%	Town-wide
<b>Wildfire</b> (2010-2013 – 3 year study period)	245	>100%	<5%	Southern portion
<b>Dam/Levee Failure</b>	Unknown	Unknown	<5%	Town-wide
<i>Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions, 2016</i>				
Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.				

<b>TABLE 5-22: CRITICAL FACILITIES – TUSKEGEE</b>	
<b>FACILITY TYPE</b>	<b>FACILITY VALUE</b>
Macon-Tuskegee County Chapter of American Red Cross (also listed in Macon County’s Critical Facilities)	\$
Macon County Mt. Nebo Waste Water Treatment Plant	\$59,940,000
Tuskegee FD	\$
Tuskegee Police Department	\$1,260,000
St. Joseph Catholic School	\$1,010,590
Tuskegee Public Elementary School	\$4,098,520
Three Springs School of Tuskegee	\$4,349,300
Booker T. Washington High School	\$16,492,350
George Washington Carver Elementary School	\$8,104,220
Lewis Adams Early Childhood Center	\$1,646,900
Tuskegee Institute Middle School	\$11,367,320
Tuskegee University	\$
Tuskegee Headstart Center (7)	\$
Greyhound Bus Station	\$981,000
Moton Field Municipal Airport	\$10,651,000
WBIL 580 TV	\$90,000
WTGZ, CH 240, Tuskegee	\$90,000
City of Tuskegee Municipal Complex	\$
City of Tuskegee Public Warning System	\$40,000
Tuskegee Utilities Board	\$
Tuskegee Medical and Surgical Center	\$
Salem Nursing and Rehab Center of Tuskegee	\$
First Tuskegee Bank	\$
Tuskegee Federal Credit Union	\$
Tuskegee Post Office	\$
Tuskegee Institute Post Office	\$
<b>Total</b>	<b>\$120,121,200 (+)</b>

**Table 5-23: City of Tuskegee  
Estimated Loss Projections from Specified Hazards**

<b>Natural Hazards</b>	<b>Average Occurrences (per year)</b>	<b>Total Deaths</b>	<b>Total Injuries</b>	<b>Average Death and Injury Loss (per event)</b>	<b>Average Crop and Property Loss (per event)</b>	<b>Projected Loss (per event)</b>
<b>Thunderstorm</b>	0.5	Unknown	Unknown	Unknown	\$9,333	\$10,173
<b>Lightning</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hail</b>	0.1	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Tornado</b>	0.2	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Flood/Flash Flood</b>	0.2	Unknown	1	\$23,175	\$11,500	\$37,796
<b>Drought/Extreme Heat</b>	5.6	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/ Extreme Cold</b>	0.3	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Hurricane/Tropical Storm/Tropical Depression/High Wind/ Strong Wind</b>	0.7	Unknown	Unknown	Unknown	\$17,333	\$18,893
<b>Sinkhole/Expansive Soil</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Landslide</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Earthquake</b>	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
<b>Wildfire (3 year study period)</b>	82	Unknown	Unknown	Unknown	\$59,303	\$64,640
<b>Dam/Levee Failure</b>	Unknown	Unknown	Unknown	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, 2016*

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



## Town of Tuskegee Mitigation Action Plan

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

### Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates, if any. **Table 5-18** shows the Town of Tuskegee's mitigation actions. The status of mitigation actions can be found under Benchmark.

Table 5-24: Tuskegee Mitigation Actions	
<b>Mitigation Action - NEW</b>	Continue to participate in the NFIP
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods/Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County Emergency Management Agency. Coordinate with Volunteer Fire Departments.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially completed with informal status; plans are to formalize.
<b>Mitigation Action</b>	Investigate use of phone messaging system to provide warning of all impending hazardous conditions; consider “reverse” 911 systems.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County 911
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Purchase of radios has been interim progress. No additional actions have been taken due to lack of time and resources.

<b>Mitigation Action - NEW</b>	Install/construct community safe rooms to include generators.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$125,000 each
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	New Action
<b>Mitigation Action - NEW</b>	Purchase emergency generators for post-disaster mitigation, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$4,000 to \$25,000 each
<b>Funding Sources</b>	HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	New Action

<b>Mitigation Action</b>	Designate and upgrade/retrofit, as necessary, 11 existing public facilities to provide shelter in areas of Macon County where there currently are no shelters - primarily targeting schools and community centers, at a rate of one site every two years; Coordinate with critical facilities, include provisions for evacuation shelters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$38,000
<b>Funding Sources</b>	Local, HMGP, ARC
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete.
<b>Mitigation Action</b>	Work with developers, home builders and contractors to promote construction of a safe room in all new residential development.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local
<b>Priority</b>	Low
<b>Benchmark</b>	No formal arrangement with the developers, builders or contractors has been made to date.

<b>Mitigation Action</b>	Publicize information on locations of existing public safe rooms and when to use them; Coordinate with first responders; Utilize radio stations; Announce safe room openings in advance of events; Permanent evacuation and relocation procedures, to include evacuations from safe rooms.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	Existing and New
<b>Local Planning Mechanism</b>	EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP, Local ARC
<b>Priority</b>	Medium
<b>Benchmark</b>	Progress has been made with radio stations; however, formal arrangements need to be made.
<b>Mitigation Action</b>	Incorporate and enforce flood management ordinances in all municipal zoning ordinances.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop and adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete - the county has been working with all jurisdictions to adopt flood plain ordinances. All jurisdictions have ordinances in place, except for Franklin.

<b>Mitigation Action</b>	Ensure that future land use and growth plans do not extend into flood plain area; Coordinate with updating of flood plain maps.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	County Engineer, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete with ongoing progress; an ongoing program for monitoring implementation.
<b>Mitigation Action</b>	Promote updated comprehensive plans with planning jurisdictions.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Macon County Planning Commission, Regional Planning Commission
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	Medium
<b>Benchmark</b>	A Comprehensive Plan is promoted.

<b>Mitigation Action</b>	Ensure Macon County EMA is involved in the review of all local future growth and development plans.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$13,000
<b>Funding Sources</b>	Local, HMGP, Regional Planning
<b>Priority</b>	High
<b>Benchmark</b>	A formal process is needed.
<b>Mitigation Action</b>	Utilize AEMA Flood Relocation Program to remove commercial and residential structures from flood prone areas, if necessary in the future.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Develop, adopt, or amend, and enforce land use regulations that support natural hazard mitigation efforts throughout Macon County.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, CDGP
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been necessary during the past five years.

<b>Mitigation Action</b>	Develop and utilize zoning ordinance to manage development in urban fringed areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County Commission, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been necessary during the past five years.
<b>Mitigation Action</b>	Work with Lower Tallapoosa River Watershed Management Committee to implement public awareness and education efforts about water conservation and water quality; Include in LEPC and coordinate notice of citizens of conservation, especially in drought conditions; Coordinate with watershed management planning.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Tuskegee continues working with the Lower Tallapoosa River Watershed Management Committee on their efforts.



<b>Mitigation Action</b>	Work with Macon County medical providers to develop emergency supplies.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMS and EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire, Medical
<b>Priority</b>	Low
<b>Benchmark</b>	Tuskegee continues coordinating with medical providers and the Department of Public Health to ensure necessary emergency supplies are on hand.
<b>Mitigation Action - DELETE</b>	Develop a drought and heat indicator plan and a warning system that includes a response strategy.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	The county will be notified by state and federal officials of an impending drought threat. Local officials will coordinate with residents and businesses.

<b>Mitigation Action - DELETE</b>	Investigate need for and coordination of emergency water supply during disasters.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Prepare and provide for emergency utility services before and during a disastrous event.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	Water is the first commodity to be made available to locals by state and federal officials and VOAD during times of disaster.
<b>Mitigation Action</b>	Designate a central emergency coordinator in each municipality and community to better facilitate communications with the Macon County EMA.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues working with each municipality to improve communications.

<b>Mitigation Action - DELETE</b>	Provide for incident command training for the local emergency coordinators and other responders. Give priorities to police and fire; meet all FEMA training requirements.
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$2,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA continues offering training for local emergency coordinators and emergency responders, meeting FEMA requirements; therefore, this action will be deleted from Tuskegee's mitigation action items.

<b>Mitigation Action - DELETE</b>	Work with Macon County Extension Service to develop adult training/certification courses on land management (best management practices) to decrease property damage during natural disaster events.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	Floods, Flash Floods, Sinkholes/Expansive Soils, Landslides, Wildfires
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA, Local Flood Plain Manager, County Engineer
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$25,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Macon County provides this service; therefore, this action will be deleted from Tuskegee's mitigation action items.
<b>Mitigation Action</b>	Develop a warning plan to install approximately 10 additional sirens at targeted sites to adequately cover population pockets in rural Macon County.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Establish a full warning system for notification of impending disasters throughout Macon County.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$35,000 each siren
<b>Funding Sources</b>	Local, HMGP, ADECA
<b>Priority</b>	High
<b>Benchmark</b>	Partially completed (additional systems have been installed since the last update, additional funding required)

<b>Mitigation Action</b>	Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,500
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Medium
<b>Benchmark</b>	Partially complete; ongoing improvements have been made; need additional funding.
<b>Mitigation Action</b>	Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task; Give priority to southeast part of the county; Possibly a School; Consider in conjunction with senior center with ADECA funding.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; need to decide on site and secure funding

<b>Mitigation Action</b>	Secure funds to continue efforts to assist citizens in constructing/installing private shelters on their land at a rate of seven shelters per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Ensure that adequate protection shelters are available for use during disaster occurrences.
<b>Hazard(s) Addressed</b>	Thunderstorms, Hail, Tornados, High Winds, Strong Winds
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2020
<b>Estimated Cost</b>	\$5,000 each construction/installation
<b>Funding Sources</b>	HMGP, Private
<b>Priority</b>	High
<b>Benchmark</b>	Partially complete; the county continues providing assistance in supporting grant funds (when available) for this action
<b>Mitigation Action</b>	Establish educational programs to provide information on methods to construct buffers and fire breaks on private property in urban interface areas.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	Low
<b>Benchmark</b>	No action has been taken during the past five years due to lack of interest in the urban interface areas; however, the Tuskegee supports the Alabama Forestry Commission on this effort.

<b>Mitigation Action</b>	Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and others property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Implement fire protection measures to decrease potential for loss of life and property damage.
<b>Hazard(s) Addressed</b>	Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County EMA, Local FDs and VFDs
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Tuskegee continues their support of the Alabama Forestry Commission on this effort.
<b>Mitigation Action</b>	Promote interconnected water resource mapping and planning process; Increase capacity of water systems for fire service and fire hydrants.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought, Wildfire
<b>Applies to new/existing asset(s)</b>	New
<b>Local Planning Mechanism</b>	Macon County GIS
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	The county continues promoting interconnected water resource mapping and planning.

<b>Mitigation Action</b>	Work with Macon County Farm Service Agency and County Extension Service to establish drought information.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Limit impact of heat and drought on human health, property damage and agricultural loss.
<b>Hazard(s) Addressed</b>	Extreme Heat/Drought
<b>Applies to new/existing asset(s)</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	No funding necessary
<b>Funding Sources</b>	Local, HMGP, Fire
<b>Priority</b>	Low
<b>Benchmark</b>	Tuskegee continues working with the County and Macon County Farm Service Agency and County Extension Service to ensure drought information is available to citizens.
<b>Mitigation Action</b>	Elevate and pave county roads that have high potential for flooding and/or washing during flood/flash flood events to provide access and limit erosion and sedimentation. This includes 2 miles of St. Marks Road (\$205,000); .75 miles of Pecola Road (\$80,000); 2-10 miles of a County Road from Highway 80 to Hardaway County Road 67 (\$2,004,999); 7 miles of County Road 73 (\$705,000) and 3.5 miles (\$355,000)
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$3,349,999
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	No action has been taken due to lack of funding. <b>This is a combined action item from last plan update.</b>



<b>Mitigation Action</b>	Continue bridge inspection and improvement efforts to prevent washing and/or failure during floods/flash floods.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$7,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Tuskegee continues local inspection of bridges and making minor improvements as funds become available.
<b>Mitigation Action</b>	Maintain all roads to allow constant access for emergency response, recovery and repair and continual delivery of services to residents. This will be completed at 8 roads per year.
<b>Goal</b>	Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.
<b>Objective</b>	Improve infrastructural facilities to limit the impact of a natural hazard event.
<b>Hazard(s) Addressed</b>	Floods, Flash Floods
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Road Department, County Engineer
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,005,000
<b>Funding Sources</b>	Local, HMGP, DOT
<b>Priority</b>	Medium
<b>Benchmark</b>	Tuskegee continues local inspection of bridges and making minor improvements as funds become available.

<b>Mitigation Action</b>	Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Macon County Hazard Mitigation Plan and its regular update.
<b>Goal</b>	Provide ongoing support of the Macon County EMA efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Ensure the Macon County Hazard Mitigation Plan remains current and is implemented.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2019
<b>Estimated Cost</b>	\$30,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	Tuskegee continues providing resources for and assisting with implementation of the local Hazard Mitigation Plan.
<b>Mitigation Action</b>	Develop an ongoing cycle to promote regular EMA updates to Macon County Commission, municipal councils, Fire Chiefs Association, utility boards, other emergency responders and elected officials
<b>Goal</b>	Provide on-going support of the Macon County emergency management efforts to make Macon County less vulnerable to natural disasters.
<b>Objective</b>	Improve coordination and communication between emergency response organizations and highly vulnerable entities.
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$8,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Tuskegee continues providing regular updates to the Commission, City and Town Councils, Fire Chiefs Association, Utility Boards, and others.

<b>Mitigation Action</b>	Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including the Tuskegee Area Chamber of Commerce, Tuskegee University, DHR, Macon County Community Action, churches, municipalities, schools, etc.
<b>Goal</b>	Educate general population about natural hazards and hazard mitigation options.
<b>Objective</b>	Establish and implement hazard mitigation public awareness program
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset(s)</b>	Existing
<b>Local Planning Mechanism</b>	Macon County EMA
<b>Estimated Time Frame for Completion</b>	2018
<b>Estimated Cost</b>	\$3,000
<b>Funding Sources</b>	Local, HMGP
<b>Priority</b>	High
<b>Benchmark</b>	The Macon County EMA and Tuskegee continue cooperating and coordinating with agencies and entities to accomplish this task as needed.

# **Macon County Board of Education**

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## Macon County Board of Education Action Plan

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

### Mitigation Status

The Macon County Board of Education's Mitigation Plan has been added to this plan update. **Table 5-50** shows the Macon County Board of Education's mitigation actions. Prior to this plan revision, no actions were listed for this organization; therefore, no benchmarking can be made.

<b>Table 5-25: Macon County BOE Mitigation Actions</b>	
<b>Mitigation Action</b> <b>NEW</b>	Construct storm retrofits to educational buildings
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornados, High/Strong Winds
<b>Applies to new/existing asset</b>	Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2020
<b>Estimated Cost</b>	\$400,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	Low
<b>Benchmark</b>	<b>New action item</b>
<b>Mitigation Action</b> <b>NEW</b>	Construct/install community safe rooms to educational buildings to include generators
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornadoes, High/Strong Winds
<b>Applies to new/existing asset</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2020
<b>Estimated Cost</b>	\$125,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	High
<b>Benchmark</b>	<b>New action item</b>

<b>Mitigation Action</b> <b>NEW</b>	Construct/install individual storm shelters to educational buildings
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornadoes, High/Strong Winds
<b>Applies to new/existing asset</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	Low
<b>Benchmark</b>	New action item
<b>Mitigation Action</b> <b>NEW</b>	Provide generators for educational buildings
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset</b>	Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2019
<b>Estimated Cost</b>	\$1,500 - \$25,000 ea
<b>Funding Sources</b>	HMGP, ADECA, Local
<b>Priority</b>	High
<b>Benchmark</b>	New action item

# Tuskegee University



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## Tuskegee University Action Plan

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

### Mitigation Status

**Table 5-50** shows the Tuskegee University's mitigation actions. Prior to this plan revision, no actions were listed for this organization; therefore, no benchmarking can be made.

<b>Table 5-26: Tuskegee University Mitigation Actions</b>	
<b>Mitigation Action</b> <b>NEW</b>	Construct storm retrofits to educational buildings
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornadoes, High/Strong Winds
<b>Applies to new/existing asset</b>	Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2020
<b>Estimated Cost</b>	\$400,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	Low
<b>Benchmark</b>	<b>New action</b>
<b>Mitigation Action</b> <b>NEW</b>	Construct/install community safe rooms to educational buildings to include generators
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornadoes, High/Strong Winds
<b>Applies to new/existing asset</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2020
<b>Estimated Cost</b>	\$125,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	High
<b>Benchmark</b>	<b>New action</b>

<b>Mitigation Action</b> <b>NEW</b>	Construct/install individual storm shelters to educational buildings
<b>Hazard(s) Addressed</b>	Thunderstorms, Tornadoes, High/Strong Winds
<b>Applies to new/existing asset</b>	New and Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2019
<b>Estimated Cost</b>	\$5,000 each
<b>Funding Sources</b>	HMGP, ADECA, Governor's Emergency Relief Fund, Local
<b>Priority</b>	Low
<b>Benchmark</b>	New action
<b>Mitigation Action</b> <b>NEW</b>	Provide generators for educational buildings
<b>Hazard(s) Addressed</b>	All
<b>Applies to new/existing asset</b>	Existing
<b>Local Planning Mechanism</b>	Macon County BOE
<b>Time frame for Completion</b>	2019
<b>Estimated Cost</b>	\$1,500 - \$25,000 ea
<b>Funding Sources</b>	HMGP, ADECA, Local
<b>Priority</b>	High
<b>Benchmark</b>	New action

## **Section Six: Mitigation Plan Maintenance**

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

The Hazard Mitigation Planning Committee may re-evaluate the plan after a disaster has occurred to make sure that mitigation of the hazard was addressed properly. At the minimum, the Hazard Mitigation Planning Committee will annually monitor, evaluate, and amend this plan. Public participation is encouraged to allow the public an opportunity to participate in the process. Efforts will be made to have the annual survey form placed on all jurisdictional websites for the public to complete and return. The Hazard Mitigation Planning Committee will review a variety of resources and examine conditions, which may affect mitigation activities for natural hazards. The committee will review existing plans, policies, maps, and other documentation such as, but not limited to:

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

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

In the previous plan update, the responsibility of monitoring, evaluating and updating the plan rested with the LEPC. The plan was discussed during regular LEPC meetings; however, no minutes of this process was recorded. Therefore, in the next five years the monitoring, evaluating and updating the plan will rest with the Macon County EMA.

For monitoring, evaluating and updating this plan, Director of the Macon County EMA 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.

During the next five years, the Macon County EMA will send out an annual review form to all HMPC members during the month of June. Regular plan monitoring will continue to be achieved through the County EMA's efforts to track mitigation activities. The Director of the Macon 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 will take place in June of each year. Although the entire plan's progress will be monitored, evaluated, and updated on a continuous basis throughout the five-year timeframe, the annual review will begin by the EMA Director emailing a survey form to the HMPC members asking them for their input and giving them a two-week deadline on returning the information to the EMA Director. Following the two-week deadline, the EMA Director will consolidate the survey forms and act upon the findings as needed and in the methods described below. Again, efforts will be made to have the annual survey form placed on all jurisdictional websites for the public to complete and

return.

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

1. Changes in the level of risk to the county and its citizens
2. Changes in laws, policies, or regulations at the local or state level
3. Changes in state or local agencies or their procedures that will affect how mitigation programs or funds are administered
4. Significant changes in funding sources or capabilities
5. Changes in the composition of the Hazard Mitigation Committee
6. Progress on mitigation actions (including project closeouts) and new mitigation actions that the county is considering
7. Major changes to the multi-jurisdictional hazard mitigation plan

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

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

### ***Incorporation into Existing Planning Mechanisms***

The Macon County Hazard Mitigation Plan is a stand-alone plan; however, will be placed alongside the current Macon County Emergency Operations Plan that is administered by the Macon County Emergency Management Agency. The Macon County Hazard Mitigation Plan update has also been incorporated into the South Central Alabama Development Commission's planning initiatives. The SCADC covers the Alabama counties of Macon, Bullock, Pike, Crenshaw, Butler and Lowndes.

Incorporation of the hazard mitigation plan will vary for each jurisdiction based on existing planning methods and processes. Jurisdictions with planning commissions and respective zoning ordinances and building codes will incorporate mitigation plan elements as appropriate into their review of new developments.

Franklin is the only participating jurisdiction that has no zoning or existing plans of any type other than this mitigation plan (see **Table 1-1**) and does 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.

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

# **APPENDIX I**

## **Adopting Resolutions**



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## APPROVAL & IMPLEMENTATION

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

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

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

Macon 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. Macon 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 Macon 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 Macon 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 Macon County, Alabama.

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Date

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Judy Kinebrew, Director

Macon County Emergency Management Agency

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**County of Macon**

**2015 Macon County Hazard Mitigation Plan Update**

**Resolution of Adoption**

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

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

**WHEREAS**, the County of Macon 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 Macon 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 Macon County Commission that the County of Macon adopts the 2015 Macon 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.

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Chairman, Macon County Commission

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**Town of Franklin**

**2015 Macon County Hazard Mitigation Plan Update**

**Resolution of Adoption**

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

**WHEREAS**, the Town of Franklin participated in the updating of a multi-jurisdictional plan, the Macon County Hazard Mitigation Plan; and

**WHEREAS**, the Town of Franklin 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 Franklin 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 Franklin adopts the 2015 Macon 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.

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Mayor, Town of Franklin

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**Town of Notasulga**

**2015 Macon County Hazard Mitigation Plan Update**

**Resolution of Adoption**

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

**WHEREAS**, the Town of Notasulga participated in the updating of a multi-jurisdictional plan, Macon County Hazard Mitigation Plan; and

**WHEREAS**, the Town of Notasulga 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 Notasulga 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 Notasulga adopts the 2015 Macon 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.

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Mayor, Town of Notasulga



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**Town of Shorter**  
**2015 Macon County Hazard Mitigation Plan Update**

**Resolution of Adoption**

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

**WHEREAS,** the Town of Shorter participated in the updating of a multi-jurisdictional plan, Macon County Hazard Mitigation Plan; and

**WHEREAS,** the Town of Shorter 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 Shorter 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 Shorter adopts the 2015 Macon 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.

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\_\_\_\_\_  
Mayor, Town of Shorter

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**City of Tuskegee**

**2015 Macon County Hazard Mitigation Plan Update**

**Resolution of Adoption**

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

**WHEREAS**, the City of Tuskegee participated in the updating of a multi-jurisdictional plan, Macon County Hazard Mitigation Plan; and

**WHEREAS**, the City of Tuskegee 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 Tuskegee 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 Tuskegee adopts the 2015 Macon 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.

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Mayor, City of Tuskegee

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**Macon County Board of Education**  
**2015 Macon County Hazard Mitigation Plan Update**  
**Resolution of Adoption**

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

**WHEREAS,** the Macon County Board of Education participated in the updating of a multi-jurisdictional plan, Macon County Hazard Mitigation Plan; and

**WHEREAS,** the Macon County Board of Education is a special district that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

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

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

ADOPTED, this \_\_\_\_\_ day of \_\_\_\_\_, 2016 at the meeting of the Macon County Board of Education.

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Superintendent, Macon County Board of Education

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**Tuskegee University**  
**2015 Macon County Hazard Mitigation Plan Update**  
**Resolution of Adoption**

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

**WHEREAS**, the Tuskegee University participated in the updating of a multi-jurisdictional plan, Macon County Hazard Mitigation Plan; and

**WHEREAS**, the Tuskegee University is a special district that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

**WHEREAS**, the Tuskegee University has reviewed the plan and affirms that the plan will be updated no less than every five years.

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

ADOPTED, this \_\_\_\_\_ day of \_\_\_\_\_, 2016 at the meeting of the Tuskegee University Board.

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President, Tuskegee University